U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
February 7, 1967 Volume 835 Number 1

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of December 1966

Examiner affirmed	158
Examiner affirmed in part	36
Examiner reversed	50
Total	244

Adjudicated Patents

(C.A. Ind.) Te Grotenhuis Patent No. 2,457,095 (338—92), for POLYMERIC COMPOSITION AND METHOD OF MAKING SAME, *Held* not infringed. *Heterchemical Corp.* v. *U.S. Rubber Co.*, 386 F. 2d 169; 151 USPQ 159.

(C.A. Ill.) Anton Patent No. 2,866,485 (143—68), for POWER TOOLS. Claims 4 to 7 *Held* valid and not infringed. *Wen Products Inc.* v. *Portable Elec. Tools Inc.*, 367 F.2d 764; 151 USPQ 366.

(C.A. Calif.) Green and Hagan Patent No. 2,975,263 (219—83), for METHOD OF PRODUCING HONEYCOMB STRUCTURES; *Held* invalid. *Tool Research & Engineering Corp.* v. *Honcor Corp.*, 367 F.2d 449; 151 USPQ 236.

(C.A. Calif.) Henderson Patent No. 3,088,447 (123—119), for CONTROL FOR AUTOMOTIVE EXHAUST AIR POLLUTION. Claim 6 *Held* invalid. *Henderson* v. *A.C. Spark Plug Division of General Motors Corp.*, 366 F.2d 389; 151 USPQ 162.

(D.C. Ill.) Hemmeter Patent No. 3,094,003 (73—458), for WHEEL BALANCER. Claims 1, 6, 7 and 12 *Held* invalid; claim 4 *Held* invalid and infringed. *Bishman Mfg. Co.* v. *Stewart-Warner Corp.*, 259 F. Supp. 300; 151 USPQ 17.

(D.C. Calif.) Zamboni Patent No. 2,642,679 (37—13), for ICE RINK RESURFACING MACHINE. Claims 2 to 4, 6, 8 and 13 *Held* valid and infringed. *Zamboni* v. *Vandenberg*, 257 F. Supp. 80; 150 USPQ 93.

(D.C. Ill.) Eisbein Patent No. 2,657,618 (95—89), for DEVELOPING APPARATUS. Claims 1, 5 and 11 *Held* valid and infringed. *American Photocopy Equipment Co.* v. *Rovico Inc.*, 257 F. Supp. 192; 150 USPQ 181.

(D.C.N.J.) Willert Patent No. 2,734,226 (18—30), for INJECTION MOLDING APPARATUS. Claims 1 and 4 *Held* invalid. *Frank W. Egan & Co.* v. *Modern Plastic Machinery Corp.*, 260 F. Supp. 22; 151 USPQ 272.

(D.C. Mich.) Suess, Frenkler, Hauttmann, and Rinesch Patent No. 2,800,631 (75—60), for METHOD OF CARRYING OUT MELTING PROCESSES, *Held* invalid. *Henry J. Kaiser* v. *McLouth Steel Corp.*, 257 F. Supp. 372; 150 USPQ 239.

(D.C. Ind.) Huelskamp Patent No. 2,821,750 (264—328), for NOZZLE LOCATING DEVICE. Claims 1 to 4 *Held* invalid; claim 5 *Held* valid and infringed. *Koehring Co.* v. *National Automatic Tool Co.*, 247 F. Supp. 282; 150 USPQ 777.

Examination

Pursuant to the provisions of Rule 341(c), an examination for persons seeking registration before the United States Patent Office as patent attorneys or agents will be held on Friday, April 28, 1967.

This examination will be given under the supervision of the Civil Service Commission, and may be taken in any of the cities in which the Civil Service Commission regularly conducts examinations. Applications to take the examination must be filed in the Patent Office together with a $15 fee not lated than March 28, 1967.

Application blanks may be obtained from the Clerk of the Patent Office Committee on Enrollment, Room 3718, Department of Commerce Building, Washington, D.C., 20231.

EDWIN L. REYNOLDS,
Jan. 18, 1967. *Chairman, Committee on Enrollment.*

Disclaimers

2,974,836.—*Gerald B. Gersten*, Brooklyn, N.Y. GASOLINE AND OIL CONTAINERS. Patent dated Mar. 14, 1961. Disclaimer filed Oct. 24, 1966, by the inventor.

Hereby enters this disclaimer to the terminal portion of the term of said patent subsequent to Sept. 15, 1976.

2,990,736.—*Loid Crandall*, Alhambra, Calif. TIRE REPAIR DEVICE. Patent dated July 4, 1961. Disclaimer filed Dec. 14, 1966, by the assignees, *Specmade Products, Inc.*, and *Mary W. Starr*.

Hereby enter this disclaimer to claim 1 of said patent.

3,058,830.—*George Christianson*, Waterloo, Iowa. METHOD OF SEPARATING LIQUID FAT FROM MEAT FIBERS. Patent dated Oct. 16, 1962. Disclaimer filed Oct. 19, 1966, by the assignee, *The Rath Packing Company*.

Hereby enters this disclaimer to claim 2 of said patent.

3,076,599.—*Kenneth L. Smith*, Southampton, England. STATISTICAL RECORD READING DEVICES. Patent dated Feb. 5, 1963. Disclaimer filed Dec. 30, 1966, by the inventor; the assignee, *International Computers and Tabulators Limited*, assenting.

Hereby enters this disclaimer to claim 2 of said patent.

New Applications Received During December 1966

Patents	8,347
Designs	384
Plant Patents	10
Reissues	17
Total	8,758

Issue—February 7, 1967

Patents	1,301	—No. 3,302,213 to No. 3,303,513, incl.
Designs	77	—No. 206,853 to No. 206,929, incl.
Plant Patents	5	—No. 2,707 to No. 2,711, incl.
Total	1,383	

3,291,667.—*Samuel Young, Jr.*, La Mirada, and *Dominic C. Mitchell, Jr.*, Arcadia, Calif. ETCHING PROCESS FOR SELECTIVELY FORMING WORKPIECE SURFACES. Patent dated Dec. 13, 1966. Disclaimer filed Sept. 7, 1966, by the assignee, *North American Aviation, Inc.*

Hereby enters this disclaimer to the terminal portion of said patent subsequent to Oct. 1, 1982.

Patents Available for Licensing or Sale

3,276,959. STABILIZED STERIOD COMPOSITIONS. Hefa G.m.b.H., Chem.-pharm. Fabrik, Lippe, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,280,672. DEVICE FOR MACHINING THE ENDS OF PIPES. Th. Kieserling & Albrecht, Solingen, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,283,429. VARIABLE DISPLAY BOARD. Contraves A.G., Zurich 52, Switzerland. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,291,251. DIVIDED PANEL BOARD FOR HI-FI SPEAKER SYSTEMS. Edmund A. Zemrowski, 825 E. 4th St., Michigan City, Ind., 46360.

3,295,914. HITCH GUIDE MIRROR FOR TRAILER MOUNTING. William Dietrich. Correspondence to: Christensen, Sanborn & Matthews, 711 Olympic National Life Bldg., 920 Second Ave., Seattle, Wash., 98104.

Waitemata Company, Ltd., is prepared to grant non-exclusive licenses under the following patent upon reasonable terms to domestic manufacturers.

Applications for license should be directed to: McCarthy & McCarthy, 330 University Ave., Toronto 1, Ontario, Canada.

3,234,026. PROCESS FOR THE MANUFACTURE OF BEER, ALE AND THE LIKE.

The following 2 patents are offered by: Delmar L. Hampl, 916 E. First, Russell, Kans., 67665.

3,034,360. GRAIN AND MATERIAL SAMPLER.

3,237,798. HYDRAULIC LOAD CARRIER.

The J. B. Knight Co., Inc., is prepared to grant non-exclusive licenses under the following 4 patents upon reasonable terms to domestic manufacturers.

Applications for license should be addressed to: Charles W. Coffee, 1507 13th St., Lubbock, Tex., 79401.

3,220,654. IRRIGATION PIPE MOVING SYSTEM.

3,237,867. IRRIGATION SYSTEM (STABILIZER).

3,281,080. IRRIGATION SYSTEM.

3,281,081. IRRIGATION SYSTEM.

General Electric Company is prepared to grant non-exclusive licenses under the following 13 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: Patent Counsel, Heavy Military Electronics Department, General Electric Company, Legal Section, Bldg. 1, Room 36, Court Street Plant, Syracuse, N.Y., 13201.

3,278,891. SONAR RECEIVER PROCESSING EQUIPMENT.

Applications for license under the following 12 patents may be addressed to: General Electric Company, Transportation Systems Division, 3001 E. Lake Road, Erie, Pa., 16501. Attention: Patent Counsel.

3,018,966. ELECTRIC FUNCTION NETWORK.

3,034,031. ELECTRIC RAILWAY CONTROL POSITIONING SYSTEM.

3,035,652. VENTILATION OF TRACTION MOTORS.

3,036,241. VOLTAGE DETECTION NETWORK.

3,036,375. METHOD OF MOUNTING MACHINES.

3,036,666. HAND BRAKE RIGGING.

3,048,725. ROTOR CONSTRUCTION.

3,065,367. DYNAMOELECTRIC MACHINE.

3,054,937. DUAL RANGE MOTOR SPEED CONTROL SYSTEM.

3,071,227. AUXILIARY UNIT DRIVE MECHANISM.

3,073,976. END STRUCTURE FOR DYNAMOELECTRIC MACHINE.

3,077,556. ELECTRIC DRIVE.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 19, 1966

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-24-63	10-18-61
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-13-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	8-29-63	10- 3-61
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	7-11-63	3-12-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Metallurgical Apparatus; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7- 2-63	10-23-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-15-63	8-30-62
SECURITY, GROUP 220—S. BOYD, Manager Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-16-64	4-25-62
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	5- 9-63	7- 3-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	5-15-63	12- 1-61
PHYSICS, GROUP 280—R. L. EVANS, Manager Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-13-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager Industrial Arts; Household, Personal and Fine Arts.	9-22-65	3-12-65

Total number of pending applications (excluding Designs)	197, 247
Total number of Design applications pending	4, 319
Total number of applications awaiting action (excluding Designs)	140, 694
Total number of Design applications awaiting action	2, 617
Date of oldest new application awaiting action	May 9, 1963
Date of oldest amended application awaiting action	July 3, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during February 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 690. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1953*.

Patents	Numbers 2,496,256 to 2,499,344, inclusive
Plant Patents	Numbers 919 to 925, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	11-23-64	5-31-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	9- 8-64	9-24-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	7- 7-64	6-18-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	3-12-65	1-13-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	12- 3-64	8-20-62
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	7- 8-64	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

HSING T. HUANG *v.* LEE C. CHENEY

No. 7426. Decided July 7, 1966

[53 CCPA —; 362 F.2d 816; 150 USPQ 295]

1. INTERFERENCE—EVIDENCE—CONCEPTION—CORROBORATION.

"Huang's testimony and the evidence introduced does not support counsel's statements that Huang disclosed the invention to Finlay. As Huang did not disclose or testify to a conception of the invention prior to Cheney's filing date, Finlay's testimony cannot serve as a corroboration."

2. SAME—EVIDENCE—THIRD PARTY INVENTORSHIP NOT MATERIAL IN INTERFERENCE.

"Appellant's second and third arguments are directed to proving that Cheney has not proven a conception and reduction to practice, either actual or constructive. The gist of these arguments is that Cheney did not participate sufficiently in the research program which resulted in the claimed subject matter. It is clear from appellant's brief that these arguments are directed to showing *someone else* and not Cheney is legally responsible for conception and reduction to practice. The question of third party inventorship may not be raised in an interference proceeding. See, e.g., *Mortsell* v. *Laurila*, 49 CCPA 1028, 301 F.2d 947, 133 USPQ 380."

APPEAL from the Patent Office. Interference No. 91,303.

AFFIRMED.

Brereton Sturtevant for appellant.

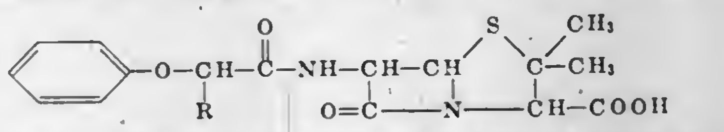
Robert H. Berdo, *Curtis W. Carlson* (*George R. Jones*, *Richard H. Brink*, of counsel) for appellee.

Before WORLEY, *Chief Judge*, and RICH, SMITH, and ALMOND, Jr., *Associate Judges*

SMITH, *J.*, delivered the opinion of the court.

This is an appeal by junior party Huang from the decision of the Board of Patent Interferences awarding priority to senior party Cheney.[1] The sole issue here for review is priority of inventorship.

The subject matter in issue relates to a chemical composition, a synthetic penicillin realized by an acylation technique wherein 6-aminopenicillanic acid, hereafter "6–APA," is coupled with alpha-phenoxypropionic acid. The single count involved reads as follows:

> A member selected from the group consisting of an acid of the formula
>
> 
>
> wherein R is (lower) alkyl and its sodium salt and its potassium salt.

The record shows that both parties began their research after reading an article by Batchelor et al.[2] The article disclosed a fermentation process for preparing 6–APA and disclosed that 6–APA was a most useful chemical intermediate for the preparation of new penicillins.

As the Board stated in its opinion:

> Both Cheney and Huang appeared to react promptly to this almost express invitation to prepare new penicillins. * * *

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[1] Huang's application, Ser. No. 842,573, was filed September 28, 1959, and is assigned to Chas. Pfizer & Co., Inc. Cheney's application, Ser. No. 815,287, was filed May 25, 1959, and is assigned to Beecham Research Laboratories, Ltd.

[2] Synthesis of Penicillin: 6-Aminopenicillanic Acid in Penicillin Fermentations, 183 Nature 257 (1959).

The record shows that each party eventually realized a product within the count by utilizing acids selected from a large list prepared for reaction with 6–APA.

The record shows that Cheney's list of acids was prepared by April 1, 1959. A product within the count was prepared April 21, 1959, and his patent application was filed May 25, 1959. The record shows that Huang's list of acids was prepared sometime in May 1959. A product within the count was prepared July 10, 1959, and his application was filed September 28, 1959.

Appellant Huang, in attempting to show error in the decision of the Board, presents three arguments:

> 1. Huang conceived the invention of the interference count prior to the filing date of the Cheney application and worked diligently from at least that date until his own reduction to practice of the invention.
>
> 2. Cheney proved no conception at any time of the invention of the interference count and no actual reduction to practice of the invention prior to the filing date of the application bearing his name.
>
> 3. The filing of the application Serial No. 815,287 cannot be relied on by Cheney as a constructive reduction to practice of the invention of the interference count.

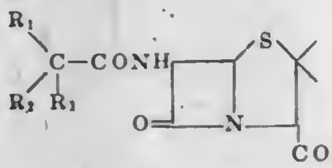
We will consider the above arguments in the order stated.

The earliest date advanced by Huang as to activity concerning the invention is February 25, 1959. Appellant's brief states, "Huang testified that he disclosed the invention of the interference count to Finlay [Huang's superior] on or about February 25, 1959." Huang testified as follows:

> And Mr. Finlay and I had a discussion on February the 25th on the general nature of the type of penicillins that could be synthesized from 6-aminopenicillanic acid, which might prove to be useful. I indicated to him that by the use of 6-aminopenicillanic acid, it would be possible to make new penicillins with a substituent in the alpha position.
>
> * * * * * *
>
> We were, of course, aware of the fact that penicillin V was a useful oral penicillin on the market, well established for many years, and we were also aware of the fact that what we call penicillin S—that would be the sulfur analog of penicillin V, phenylmercaptoethyl penicillin, was also a potentially useful oral penicillin. So the thought occurred to me that if we put an alkyl group in the alpha position we might produce some useful properties.
>
> However, without going into specific cases, since we thought that at that time our knowledge on the subject was by no means extensive, I wrote up a memo to Mr. Finlay in which I summarized the idea in a rather general form.

The memo referred to by Huang, dated February 27, 1959, was introduced as evidence and it states, in pertinent part, as follows:

> During our discussion on 2/25/59, I made the suggestion that the attachment of one or more additional substituents, particularly bulky groups, on the side chain methylene ($-CH_2-$) function, as in (III), might effectively hinder the approach of the enzymatic site



(III, R_3 = H or a group similar to R_1 and R_2)

> to the reactive portion of the molecule, and hence render the new penicillin much less susceptible to penicillinase inactivation. Such a penicillin will be of great interest clinically, if its antibiotic activity would remain unimpaired.

Huang testified, concerning the memo, as follows:

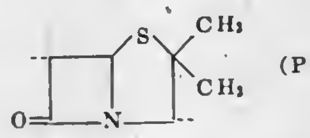
> Q31. Now, Dr. Huang, referring to this February 27 memo, will you tell us where on there you find the subject matter relating to the count of this interference? A. Well, it could be included in Formula III, putting in the right type of substituent of R_1, R_2, and R_3.
>
> Q32. What would those substituents be, for instance? A. For instance if R_1 is hydrogen, R_2 could be phenoxy, and R_3 could be an alkyl group.

Witness Finlay also testified as to the memo as follows:

> Q13. Can you tell me if you find on that memo the subject matter of this particular interference, either specifically or generally? A. You mean the structural formula here? The structural formula here, R_3 is hydrogen; R_1 would be phenoxyacetone; R_2 would be the methyl group or substituted various alkyl groups.
>
> Miss STURTEVANT: May the record show the witness is referring to the Formula III, a little below the middle of page 1 of the memo.
>
> Q14. Do you remember any more specific reference to the subject matter of this interference? A. The background of our work in this area? Is that what you refer to, why we were working in this area?
>
> Q15. Yes, during this period, February 1959 onward, do you remember any reference specifically to the subject matter of the interference as opposed to, for instance, the generic Formula III, to which you have referred? A. Dr. Huang and I had numerous discussions. He refers here, I believe, to one of the discussions—"During our discussion of 2/25/59"—and that was one of a great number of discussions of the same type, and because of our background work in this area, the phenoxyethyl and other alkyl penicillins of this type were of great interest to us, and it goes back to our work of attempting biosynthesis on compounds of this sort.
>
> * * * * * * *
>
> Q16. Do you remember when you received this specific reference to the compounds of this interference count, the phenoxyethyl and lower-alkyl penicillins from Dr. Huang? A. I can date it to some extent by the fact that I went to Japan in late April 1959, and it was certainly before then. I was in Japan for six weeks, during May and the first two weeks of June, in Japan and other countries in the Orient, so it was before I went, because certainly the work had been accomplished by the time I got back.
>
> Q17. When did you leave for Japan? A. I believe it worked out the date is April 29. So that would indicate that it was before that that Dr. Huang divulged to me his plans for making compounds of this type synthetically from 6–APA, before April 28, which was the last day that I was at work.

A second memo, dated May 12, 1959, was also introduced on behalf of Huang. The pertinent portions of the memo are as follows:

> This report outlines the current program carried out in Lab. 811 and Lab. 812 on the preparation and testing of new penicillins from penicin. The basic ideas involved have been discussed previously, at one time or another, with you and Dr. Weber or Mr. Finlay. For convenience, penicin will be referred to as NH_2-P-CO_2H, where P stands for the β-lactam-thiazolidine nucleus of penicillin, i.e.



(P)

> *I. General Screening*
>
> New penicillins formed in solution are tested without purification for (*a*) position on papergram, (*b*) acid stability and in selected cases, (*c*) susceptibility to penicillinase. They are then examined by Dr. English for activity against *S. aureus*, *E. coli*, *S. typhosa*, and a penicillinase-producing, penicillin resistant strain of *S. aureus* (No. 376). The aim is to screen rapidly as wide a variety of new penicillins as possible so that data on the type of side chain which would confer a specific, desired property can be quickly accumulated. Among the classes of side chains which we have coupled on to penicin or expect to work on are the following:
>
> 1. Di- and tri-substituted acetyl, R_1R_2CHCO- and $R_1R_2R_3C-CO$, where R_1, R_2 and R_3 can be alkyl, aryl halogen, alkyloxy, aryloxy, alkylthio, arylthio, etc. Examples: diphenylacetyl $(C_6H_5)_2CHCO-$, dichloroacetyl, Cl_2CHCO-, α-methylphenylthioacetyl, $C_6H_5SCHMeCO-$-

Huang testified, concerning the memo, as follows:

> You will note in that memo I describe briefly the aims of our experiments, and the different types of penicillins that we thought could be made from 6–APA. I direct your attention to item I on page 1.
>
> Q40. This is Roman numeral I and Arabic 1? A. Yes, Roman numeral I and Arabic 1, in which I gave examples of different types of substituents that could be placed on the methylene group on the alpha carbon of a penicillin. And I mention here aryl oxy and alkyl as possible substituents for R_1, R_2, or R_3, or for R_1 and R_2 in the first general formula for the side chain, that is R_1R_2CHCO.
>
> Miss STURTEVANT: May the record show that by the "first general formula," Dr. Huang means the formula in the first line of Arabic 1 of page 1 of this memo, the di-substituted acetyl.
>
> Q41. Do you find anything else in that section of the memo, Dr. Huang, which is closely related to the subject matter of this interference? A. Well, you will note in the examples under item Arabic 1, I gave alpha-ethylphenyl-thioacetyl, $C_6H_5SCHMeCO$, which is, of course, the sulfur analog of the subject penicillin then under discussion.
>
> * * * * * * *
>
> Q46. Dr. Huang, between the February 25, 1959 discussion with Mr. Finlay and the May 12, 1959 memo, did you do any other work on this project of making the so-called synthetic penicillins? A. Up to May 2, the work was carried out more or less on an exploratory basis. We did not have a special approval from management, since there was no assurance that we would be able to obtain sufficient amounts of 6–APA for these experiments, and also there was no assurance that we could be able to manufacture 6–APA at all. It was obvious that Beecham Laboratories had the knowhow of making 6–APA and at that time we certainly did not. So we spent our time, first, in trying to obtain some 6–APA, pure 6–APA for preliminary experiments.

It is clear at this time, notwithstanding Finlay's testimony, that Huang did not testify as to any personal conception of specific compounds within the count. Huang testified as to the possibilities concerning what his counsel termed "generic Formula III" in the memo of February 27, 1959. Also, the record shows that the initial work by Huang was directed to obtaining 6–APA. By the "middle of May" a process had been realized wherein large quantities of 6–APA could be obtained. According to Huang, "this, naturally, changed our whole outlook on the problem."

The next activity is described in the testimony as follows:

> Q148. When did you begin the mass, large scale reactions with the newly found 6–APA to prepare a variety of acylated derivatives? A. Well, our research directors actually initiated this idea of mass screening of a large number of organic acids. Inasmuch as very little was known about the effect of structural activity they thought the fastest way to get some information was to run through a very large number of organic acids, couple them with 6–APA, run through primary tests against selected numbers of bacteria, and see what kind of results we would get. And this program was initiated after we had assurance that there was going to be a steady supply of 6–APA.
>
> It was organized somewhere in the middle of May, or towards the latter part of May.

According to the testimony, Dr. Seto was instructed to prepare a list of organic acids and Huang, by a memo dated May 27, 1959, initiated a mass screening program. Twenty seven acid reactants available to Pfizer were initially used. Huang testified:

> Q164. Do you find anywhere in those 27 acids a reactant to prepare a compound or compounds closely related to the compounds of the interference count here? A. Well, for instance, on page 152, sample No. 19 involves the coupling of alpha-2, 4 dichlorophenoxy propionic acid with 6–APA. And this compound, of course, is just the 2,4 dichloro derivative of phenoxy propionic acid, which would be the precursor for the penicillin involved in the interference count.

Concerning the list prepared by Dr. Seto setting forth over 400 compounds, which was "finished by the end of May," Huang testified as follows:

> Q172. I direct your attention to page 12 of this list and ask you if you find on that page any acid reactant which would produce a compound related to one of the compounds of this interference. A. Yes, about two-thirds down on page 12 you will note item No. 5378–P, alpha-phenoxypropionic acid. That was ordered from Fisher. * * *
>
> * * * * * * *
>
> Q174. What compound would result from the acylation of 6–APA with that? A. This would give rise to alpha-phenoxyethyl penicillin.
>
> * * * * * * *
>
> Q176. This would be one of the compounds of the interference count, then, is that correct? A. Yes.

The record shows that the acid referred to above was not received. Huang testified he "was particularly interested in it" and he took steps, on July 8, 1959, to secure some from another source. On July 10, 1959, a compound was prepared within the count. By July 22, 1959, it had been concluded that the compound had good activity. Testing on humans was concluded on September 3, 1959, with favorable results.

We have set forth appellant's evidence as to conception and diligence in substantial detail. We find it, however, insufficient to establish conception prior to appellee's filing date. Its chief fault lies in its lack of specificity as to compounds within the count.

It is clear that Huang's testimony does not set forth a *disclosure* of the invention in the memo to Finlay, dated February 27, 1959. Huang chose to testify only that it "could be included in Formula III, putting in the right type of substituent for R_1, R_2, and R_3." We note that the suggested substitutions in the memo are different from the substitutions required in the count. Similarly, concerning the memo of May 12, 1959, Huang mentioned "aryl oxy and alkyl as possible substituents," and he testified as to the sulfur analog of the penicillin defined by the count. The memo of May 27, 1959, establishes only that a "precursor for the penicillin involved in the interference count" was tested and Huang testified only as to that fact. This is two days after Cheney's filing date.

The first testimony of Huang as to an interest in an acid from which a specific compound within the count could be prepared concerns No. 5378–P on page 12 of the list prepared by Dr. Seto at the end of May. There is no testimony establishing when this interest occurred.

The Board summarized the evidence on behalf of Huang as follows:

> The evidence adduced in behalf of Huang fails to establish conception of any species within the count, or any intention to make such species prior to the constructive reduction to practice of Cheney on May 25, 1959.

We agree with the Board's conclusions. [1] Huang's testimony and the evidence introduced does not support counsel's statements that Huang disclosed the invention to Finlay. As Huang did not disclose or testify to a conception of the invention prior to Cheney's filing date, Finlay's testimony cannot serve as a corroboration.

[2] Appellant's second and third arguments are directed to proving that Cheney has not proven a conception and reduction to practice, either actual or constructive. The gist of these arguments is that Cheney did not participate sufficiently in the research program which resulted in the claimed subject matter. It is clear from appellant's brief that these arguments are directed to showing *someone*

else and not Cheney is legally responsible for conception and reduction to practice. The question of third party inventorship may not be raised in an interference proceeding. See, e.g., *Mortsell* v. *Laurila*, 49 CCPA 1028, 301 F.2d 947, 133 USPQ 380.

For the above reasons the decision of the Board is affirmed.

AFFIRMED.

Martin, *J.*, did not participate in the consideration or decision of this case.

U.S. Court of Customs and Patent Appeals

Charles Harris, Jr. *v.* Frank O. Clifford and Chris W. Yoder

No. 7510. Decided August 4, 1966

[53 CCPA —; 363 F.2d 922; 150 USPQ 630]

1. Interference—Priority—Findings of Fact by Board of Patent Interferences Not Disturbed in Absence of Cogent Evidence of Mistake.

"At the outset, we should note that one of the principles adhered to by this court in reviewing priority decisions in interference proceedings is that the findings of fact made by the Board should not be disturbed unless 'there is the most cogent evidence of mistake.' See *Rodli* v. *Phillippi*, 33 CCPA 865, 154 F.2d 139, 69 USPQ 97."

Appeal from the Patent Office. Interference No. 92,476.

AFFIRMED:

Robert G. Irish (*James W. Dent* of counsel) for appellant.

William T. Estabrook for appellees.

Before Worley, *Chief Judge*, and Rich, Martin, Smith, and Almond, *Jr.*, *Associate Judges*

Martin, *J.*, delivered the opinion of the court.

This is an appeal by Charles Harris, Jr., the junior party, from a decision of the Board of Patent Interferences of the Patent Office awarding priority of invention to Frank O. Clifford and Chris W. Yoder, the senior party.[1] The Board in doing so ruled adversely on appellant's claim of derivation of the invention by appellees from appellant, Harris.

The invention relates to a steam apparatus used to warm hotdog and hamburger buns in drive-in establishments. The details of the structure are set out adequately for the purposes of this opinion in the single count in issue, which reads as follows:

> A steaming head assembly for warming food products comprising a vertically disposed tubular casing member having open upper and lower ends, an apertured plate member extending across said upper end of said casing member, a first plate member extending across said casing member spaced from said apertured plate member and defining a dry steam chamber therewith, another plate member extending across said casing member spaced from said first plate member and defining a steam storage chamber therewith, a raw steam inlet conduit extending through said other plate member for introducing steam to said storage chamber from a source of steam supply, a steam outlet conduit extending through and above said other plate member and spaced from said raw steam inlet passage; a dry steam inlet conduit communicating with said dry steam chamber and extending therefrom to the side of said other plate member remote from said steam storage chamber and having at least a portion of the wall thereof in contact with the steam in said steam storage chamber and spaced from said raw steam inlet conduit for introducing dry steam into said dry steam chamber, and a control valve disposed on the side of said other plate member remote from said steam storage chamber and connecting said steam outlet conduit to said dry steam inlet conduit for selectively admitting steam from said steam storage chamber to said dry steam chamber.

Harris' assignee is the Dewey-Shepard Boiler Co., and the Clifford and Yoder application is assigned to the Komo Corporation.

Both parties took testimony but submitted the case to this court on the record and their briefs without oral argument.

The evidence clearly shows that Yoder, operator of Dog 'n Suds hotdog stands or drive-ins, made a crude steamer device to warm buns for such stands in July 1959, having had Dewey-Shepard, for which Harris worked, supply a miniature boiler for providing steam to the steamer head. That steamer head along with the boiler was exhibited at a convention of owners of Dog 'n Suds stands, a franchised group, in February of 1960. It was seen there by one James Goff, who with Clifford, his father-in-law, an orthodontist, became interested in the prospects of marketing such a device. The steamer, with an aluminum head, had some faults which the three had difficulty overcoming and in July of 1960, Goff, Yoder and Clifford approached Harris, who indicated that Dewey-Shepard could make a steel steamer head for such devices and supply the boilers. Harris had a head made up for them by around July 15 to July 20 of 1960 but it was unsatisfactory. That head did not comply with the count because the solenoid valve was at one side of the head instead of below it and the piping led from the valve to the dry steam chamber directly rather than passing through the steam pressure chamber. Later that month, between the 20th and 28th, a head which did have those features was built at Dewey-Shepard. That head worked satisfactorily and resulted in the Komo Corporation formed by Clifford, Yoder and Goff, giving Dewey-Shepard an order for 100 steam heads and boilers on July 27 or July 28, 1960.

The evidence in behalf of the appellant Harris includes, in addition to his own testimony, the testimony of George D. Arnold, the president of Dewey-Shepard, Walter Schrader, a welder employed by Dewey-Shepard, and Frederic P. Carson, a private investigator hired by Dewey-Shepard through Arnold. This evidence was relied on by appellant as showing conception and actual reduction to practice prior to appellees' filing date and also as showing that appellees derived the invention from appellant.

The Board found "* * * that the evidence on behalf of Harris does *not* establish that he was first to conceive and first to reduce the invention to practice and that the evidence does *not* establish derivation of the invention in issue from him by the senior party Clifford et al." as alleged by Harris.

[1] At the outset, we should note that one of the principles adhered to by this court in reviewing priority decisions in interference proceedings is that the findings of fact made by the Board should not be disturbed unless "there is the most cogent evidence of mistake." See *Rodli* v. *Phillippi*, 33 CCPA 865, 154 F.2d 139, 69 USPQ 97.

Appellant relies heavily on two exhibits in support of his position. These exhibits were introduced in evidence at the outset and were identified as Harris Exhibits 1 and 2. The exhibits are drawings which Harris maintains he prepared and bear dates of December 28, 1959 and January 17, 1960, respectively. After noting that the structure shown in Exhibit 1 clearly fails to support the count, the Board stated:

> * * * The structure illustrated in Exh. 2 corresponds to a substantial extent with the structure of the device disclosed in *both* of the involved applications

---

[1] Harris is involved on application, Serial No. 118,575, filed June 21, 1961, and Clifford and Yoder on application, Serial No. 61,461, filed October 10, 1960. The latter application was originally filed as a sole application of Clifford but was converted to a joint application as a result of papers filed July 24, 1961. See 35 U.S.C. 116, and Patent Office Rules 45(c).

> but does [not] by itself support the count in issue because it does not show "an apertured plate member" and "a control valve," required by the language of the count, in the structural and functional cooperation with the other elements of the device set forth in that language.

With reference to Harris' testimony regarding these drawings, the Board stated:

> * * * It may be summed up as indicating that Harris didn't know or couldn't say when he made or dated those drawings. See for example the following testimony. Thus:
>
> XQ188. Your practice was not uniform, consistent in this regard; in other words, that each time you made a drawing you did not then—— A. No. I did not, for the reason that whether or not—we had not at that time determined whether or not it would be used or not; *consistently* I *think* it was the practice *to make an* item and if it was satisfactory, that is as long as it didn't involve any more detail than this, to make it and *if it works make your necessary drawings.*
>
> XQ189. I refer you again now to Harris Exhibit 2 and ask you whether you made that drawing? A. Yes, sir, I did.
>
> XQ190. Prior to conference or acquaintanceship or meeting or discussion jointly with Dr. Clifford, Mr. Yoder, Mr. Goff? A. Read that back.
>
> (XQ190 read by reporter.)
>
> A. I don't know, I just can't answer; the only thing that I can bank on that I have remembrance of is the fact that this *would not have been drawn* nor accepted for use *until* the item *had* already *been made*, because as I recall I had *submitted this* particular *drawing* to the American Society of Mechanical Engineers for—*might not have been this drawing*, 1959, is a little hard for me to remember, 1960—January, 1960; but I would say that *at the time of this drawing we* had certain things proven in the use of this head that certainly we had our heads together for sometime in the construction of this.
>
> In our view none of Harris' testimony tends to establish *any* clearly determinable date when drawings, Exhibits 1 and 2, were in existence or when *he* had possession of the complete conception of the invention to which they relate. Clearly, the dates on the drawings are unreliable for any purpose. Moreover, that testimony tends to establish that the drawings were in fact made some time after the structure depicted therein had been built and that was *after* Goff, Clifford, Yoder and Harris had done "considerable amount of . . . work" (Q31) in July of 1960, prior to a Komo Corporation order dated July 28, 1960 for 100 steam heads. * * *

Harris further stated that he was aware of the Komo order for 100 steam heads dated July 28, 1960 although he did not state clearly when he became aware of it. He testified that he believed the order was for the type of head shown in Exhibit 2. The Board in particular noted further testimony that he made a number of steaming heads prior to that order, in which he stated:

> A. *Primarily I worked with Dr. Clifford, Mr. Yoder, Mr. Goff*, and it is difficult for me to tell you to what extent that *we went* because *we* tried about everything that was conceivably possible in the way of design and structure in order to achieve—let's say the amount of satisfaction which was finally achieved by the head which is on this drawing, Exhibit 2–A.
>
> Q148. Would you state whether or not this work that you told us of was continuous? A. I would say that it was continuous, at no time did *we* ever anticipate dropping it; might say that it was rough at times, by which *we* wondered if *we* would ever be able to accomplish the aim with this particular type of head, but at no time was it ever given up, if that is what you mean. [Emphasis by Board.]

Questions to Harris as to his inventorship resulted in the following testimony:

> Q4. Were you the inventor of that application? A. I can't hardly answer that, I think this is a matter that we are trying to settle, is it not. This is the application which was submitted on the material of which I felt we were entitled to.

> Q5. Let me state it differently. You are the Charles Harris Jr. who executed this patent application? A. I am, that is true.
>
> * * * * * * *
>
> XQ193. You are acquainted with Harris Exhibit 2, now in view of that, your acquaintance with reservations regarding the issue of this interference, and your acquaintanceship with Harris Exhibit 2, *do you now claim to be the inventor* of the device or mechanism embracing the particular combination of parts or elements specified in the issue or count of this interference, as you now understand them? [Emphasis by Board.]

A page of testimony followed the last question with the answer finally amounting to a statement that he thought "that there was something patentable in this regard."

After considering the testimony of Harris, including that referred to above, the Board concluded that:

> * * * [the testimony] does not indicate conviction on the part of Harris that he was or is the sole inventor of the subject matter in issue. We note, further, that he did not execute his involved application until nearly a year after his joint efforts with Yoder, Goff and Clifford and after disagreement between Dewey and the Komo Corporation.[2]

Arnold, in his testimony, attempted to fix the date of Harris Exhibits 1 and 2 with reference to a certificate for approval by the American Society of Mechanical Engineers dated January 27, 1960 for miniature boilers manufactured by Dewey-Shepard. However, no clear relationship of that certificate to the head was shown, it being stipulated that the certificate related only to a boiler. Arnold also gave testimony with respect to the events connected with the work of Harris and Clifford, Yoder and Goff that resulted in the order from Komo and tests he assertedly made himself of a head structure as shown in Harris Exhibit 2. Concerning the first matter, the Board stated:

> It is clear that Arnold didn't know anything at all as to what went on between Harris and Clifford, Yoder and Goff.

As to the latter matter, it stated

> We observe that Arnold has furnished no details relating to the tests he asserts he made (or were made) as facts for us to consider in determining whether the results were satisfactory as he stated. Moreover, he has related the occurrence of those asserted tests to no other established dates and relies purely upon his recollection. No details even of the particular heads tested (of the asserted many that were tested) are related.

Schrader was the only other witness testifying with regard to events at Dewey-Shepard. A welder, he testified that he built heads according to Exhibit 2 and that he was aware of the purchase order for 100 such units. The Board found the testimony failed to establish when the heads he referred to were actually made or to negative the possibility of their being made after the July 28, 1960 date of the order.

In connection with the Harris record, the Board concluded (with references to record pages omitted):

> In our review of the record on behalf of Harris we have found no testimony by Harris specific as to details of structure of any identifiable steam head which he purportedly disclosed to Clifford et al. at any time or specific as to dates when such disclosure took place. Arnold's testimony is no more specific than Harris' and much of it is based on pure speculation, see for example Q78–84, XQ135 * * *, XQ136–XQ143, and Q1–Q3 in the record of Harris and see Q32–Q41 and Q113–Q117 in the record for Clifford et al. Schrader did not refer to Clifford or those associated with him.

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[2] The evidence shows that Komo Corporation advised Dewey-Shepard on March 15, 1961, that it would not purchase from them any more and thereafter obtained its apparatus from another source.

> We note as stated in the opinion in the case of *Hasselstrom et al.* v. *McKusick*, CCPA, 139 USPQ 511 [51 CCPA 1008, 324 F.2d 1013] "* * * the purpose of corroborative evidence is to confirm and strengthen the testimony of the inventor." Our review of the record for Harris has not persuaded us that the testimony of Arnold and Schrader has fulfilled that purpose in this case either as to conception and actual reduction to practice by Harris or as to derivation by Clifford et al. Consequently we must hold that Harris has not sustained the burden of proof resting upon him.

We find no error in that conclusion.

Moreover, we find, as did the Board, that the record on behalf of Clifford and Yoder throws light on circumstances not made clear by Harris' evidence. In fact, that record, which was additionally considered by the Board, greatly strengthens our conviction that the Board was correct. In particular, there is extensive evidence that Harris' work on the steam heads was done on instructions from Clifford and Yoder with Goff present at times. The evidence further indicates that Yoder contributed the idea of locating the dry steam inlet conduit extending through the steam storage chamber to help insure dry steam, and that Clifford insisted the control valve be located below the chamber. The testimony of Clifford and Yoder, corroborated by Goff, is that Harris resisted both of these features, and, first made heads without them that were unsatisfactory. Finally, he worked late one night with Goff in producing a head which incorporated those features and was promptly tested and found satisfactory by Goff. The latter activities took place just before the order dated July 28, 1960 was placed by Komo.

The Board considered that evidence and observed that it is inconceivable that Harris would have offered the objections he did to the construction urged by Clifford and Yoder if a head involving those features had already been developed by him and made by Schrader, particularly when Harris was dealing with a prospective customer for the steam heads. The Board observed:

> This matter renders the inconsistent, unclear rambling testimony and evidence of record for Harris even more unconvincing than it is when considered alone and we believe establishes that Harris in fact acted in the capacity of nothing more than a pair of skilled hands in response to the suggestions and urging of Yoder and Clifford in producing a steam head embodying their conception.

We think the evidence clearly supports the Board's final conclusion that Harris has not established that he is the inventor of the subject matter in issue. Accordingly, Harris cannot prevail here.

Harris does raise additional questions as to whether Clifford and Yoder are joint inventors and, if they are, whether the Clifford and Yoder application is entitled to no earlier filing date than July 24, 1961, when papers were filed to convert it from a sole to joint application. However, as the Board observed, the fact that Harris is not established as inventor of the subject matter in issue makes consideration of those contentions unnecessary.

The decision of the Board is affirmed.

AFFIRMED.

RICH, *J.*, and SMITH, *J.*, concur in the result.

PLANT PATENTS

GRANTED FEBRUARY 7, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,707
ROSE PLANT

David L. Armstrong, Ontario, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif., a corporation of California

Filed Nov. 17, 1965, Ser. No. 508,400

1 Claim. (Cl. Plt.—25)

A new and distinct variety of rose plant of a class falling intermediate the hybrid tea and floribunda classes, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright bushy and much-branched plant habit, a quite floriferous habit, with the flowers borne sometimes singly and sometimes from two to five to the stem, an excellent urn-shaped bud form, double flowers of medium size, and a distinctive and very attractive flower color ranging between Mandarin Red and Scarlet, but becoming lighter with age.

2,708
ROSE PLANT

Paul Schneeberg, Sayville, N.Y., assignor to Carlton Rose Nurseries, Inc., Carlton, Oreg., a corporation of Oregon

Filed Feb. 18, 1966, Ser. No. 528,658

1 Claim. (Cl. Plt.—16)

A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous upright habit of growth, many long, strong stems, medium large and very glossy foliage, larger flower petals and greater petalage than the flower of "Golden Wave," a distinctive, attractive and iridescent golden Sunburst flower color which is not found in any other rose variety, retention of the flower color almost until the petals dehydrate, and longer lasting flower qualities than the parent variety.

2,709
ROSE PLANT

Herbert C. Swim, Ontario, and O. L. Weeks, Chino, Calif., assignors to O. L. Weeks, doing business as Weeks Wholesale Rose Grower, Chino, Calif.

Filed Nov. 22, 1965, Ser. No. 509,228

1 Claim. (Cl. Plt.—25)

A new and distinct variety of rose plant of the polyantha class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a dwarf and compart habit of growth which makes the plant suitable for use in low hedges or borders, a short pointed form of the flower buds, a relatively small flower size, with accompanying more or less continuous flower production, heavy petalage of the individual flowers, an unusually long lasting quality of the flowers both on the plant and when cut, a habit of cleaning off the old flowers, as well as the peduncles, shortly after the flowers have changed color and as they begin to wither, and a distinctive, attractive, and bright Strong Reddish-Orange general color tonality of the flowers, with relative uniformity of the flower color throughout the life of each individual flower.

2,710
ROSE PLANT

Herbert C. Swim, Ontario, and O. L. Weeks, Chino, Calif., assignors to Swim and Weeks, Chino, Calif., a copartnership consisting of Herbert C. Swim and O. L. Weeks

Filed Nov. 22, 1965, Ser. No. 509,229

1 Claim. (Cl. Plt.—25)

A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a tall, upright and vigorous habit of growth, with cutting stems of good length when grown under greenhouse conditions, a pronounced reddish-purple color of the new growth and prickles, a more or less continuous production of flowers when grown under either greenhouse or garden conditions, a distinctive and attractive shape of the buds and flowers substantially as described and illustrated, a relatively small bud and flower size, with good flower petalage, long lasting qualities of the flowers both on the plant and when cut, and a distinctive and attractive general color tonality of the flowers ranging between Strong Yellowish-Pink and Strong Reddish-Orange in the newly open flowers and becoming near Strong Reddish-Orange as the flowers mature.

2,711
PIERIS

Andrew B. Lambert, 5120 SE. 28th Ave., Portland, Oreg. 97202

Filed Feb. 8, 1966, Ser. No. 526,002

1 Claim. (Cl. Plt.—54)

The new and distinct variety of *Pieris japonica* plant substantially as herein disclosed, characterized particularly by its flower wherein said flower maintains its pink coloration when in the budding stage and when fully open.

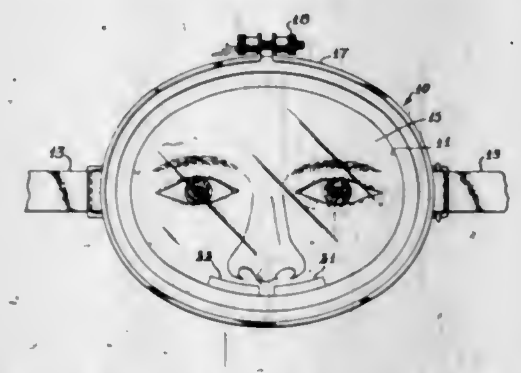
PATENTS

GRANTED FEBRUARY 7, 1967

GENERAL AND MECHANICAL

3,302,213
FACE MASK FOR SWIMMERS

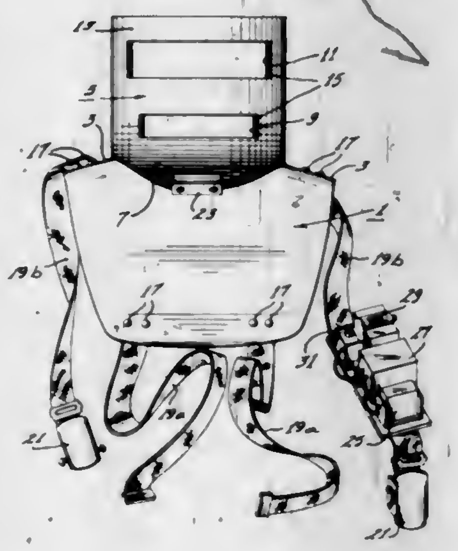
Samuel M. Davison, Evanston, Ill., assignor to Dacor Corporation, Skokie, Ill., a corporation of Illinois
Filed Apr. 16, 1964, Ser. No. 360,320
4 Claims. (Cl. 2—9)



1. A face mask to be worn by underwater swimmers comprising, in combination, a resilient member formed to surround the wearer's eyes and nose and having one continuous edge thereof conforming to the wearer's face, a viewing window positioned over an opposite continuous edge of said member, two individual, raised, resilient and imperforate pads positioned on said member so as to be free of connection with each other and spaced apart at least one-eighth of an inch between each other, said pads being formed in the shape of ellipses having a minor axis of at least three-quarters of an inch and having a major axis of at least one and one-eighth inches, said pads being at least one-eighth of an inch thick, whereby said pads conform to a wearer's nostrils to thereby permit closing of both nostrils concurrently.

3,302,214
PROTECTIVE ARMOR FOR THE HUMAN BODY

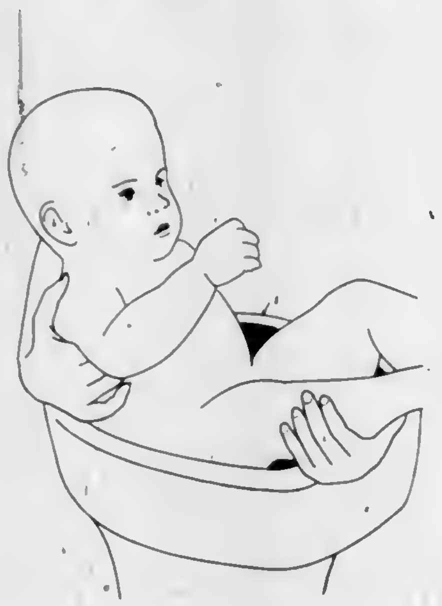
Victor Lester Yuritch, 11 Morris St., Merchantville, N.J. 08109
Filed June 1, 1964, Ser. No. 371,673
4 Claims. (Cl. 2—2.5)



1. A proctective armor for the human body comprising a chest plate having shoulder-engaging members adapted to rest on the shoulders of a wearer and thus support said chest plate against the wearer's chest, and a head mask extending from said chest plate between said shoulder-engaging members, said mask being contoured to embrace the front of the wearer's face and to extend around the sides of the head to points behind the ears, and said head mask including a chin receiving portion and also having a pair of transverse openings therein, one of said openings being located just above said chin receiving portion for substantial alignment with the wearer's mouth, and the other of said openings being located above said one opening for substantial alignment with the wearer's eyes when the wearer's chin is disposed in said chin receiving portion and substantially resting thereon, said head mas also including a forehead-engaging portion above said other opening, said head mask being open at the rear and at the top and being devoid of any means of connection thereof to the head of the wearer whereby the wearer is free to withdraw his chin from said chin receiving portion in either a rearward direction away from the front of said mask, or in an upward direction to raise the eyes above said forehead engaging portion for complete freedom of unobstructed view.

3,302,215
BABY WASHING AND SANITARY FIXTURE

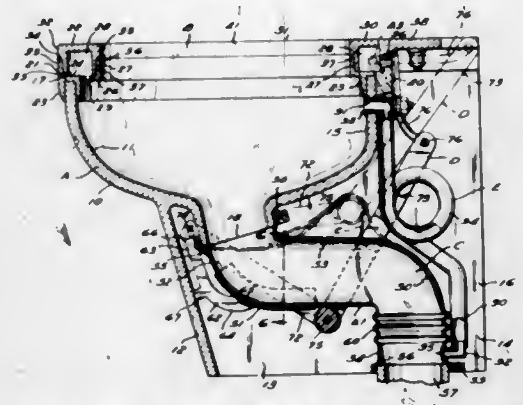
Louise Taylor Clothier, 733 Harrison Road, Ithan, Villanova, Pa. 19085
Filed Jan. 6, 1965, Ser. No. 423,806
4 Claims. (Cl. 4—7)



1. A sanitary fixture comprising a bowl, fixedly supported above the floor, said bowl being of a size sufficient to accommodate a baby's posterior for washing, a sewage outlet connected to the bottom of said bowl and at one end thereof, a water inlet near the rim at the other end of the bowl positioned to direct a stream of water downward toward said sewage outlet, a plurality of water inlets around the top periphery of said bowl to provide streams of water which flush waste matter to said sewage outlet, and means, connected between a water supply and said water inlets, with which to control the flow of water through said water inlets, and thermostatically-controlled valve connected between said water supply and said water inlets for controlling the temperature of the water ejected from said water inlets.

3,302,216
TOILET WITH DEFORMABLE WATER SEAL TRAP

Howard A. Fulton, Perrysville, Clayton Duane Obrecht, Loudonville, and Vaughn Dean Flinner, Shreve, Ohio, assignors to Mansfield Sanitary, Inc.
Filed Aug. 25, 1964, Ser. No. 391,964
12 Claims. (Cl. 4—69)



1. A toilet bowl device of the water flush type comprising:

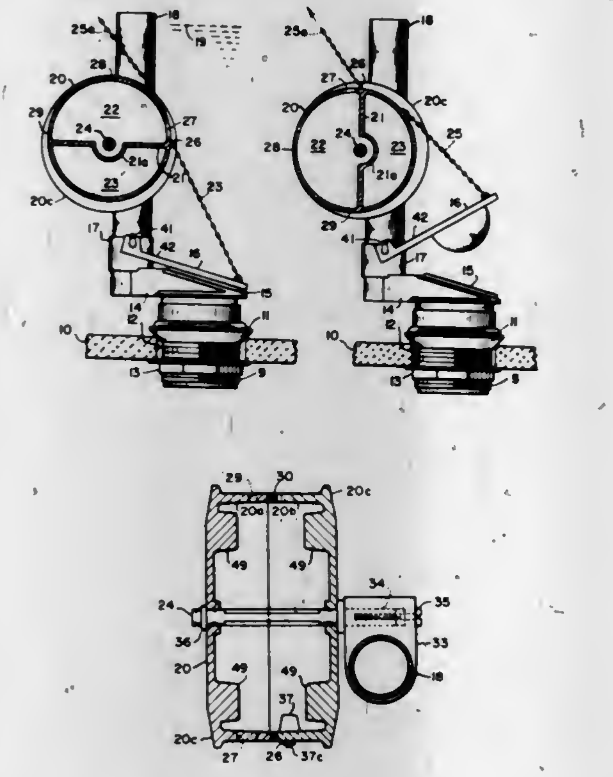
(a) a bowl having a wall of substantially uniform thickness,
  (1) a waste outlet in said bowl,
  (2) an overflow outlet in said bowl adjacent the rim thereof,
(b) a support base integral with said bowl substantially U-shaped in a horizontal plane cross section with the open end thereof at the rear of the bowl,
  (1) said support base having side walls of substantially uniform thickness extending below said waste outlet and beyond the rear of the bowl and forming a housing therefor.
(c) a flush water dispenser means mounted on the rim of said bowl,
  (1) connecting means in said dispenser means for a water supply,
(d) a solvent resistant deformable tubular trap in said housing and connecting said waste outlet and a waste disposal pipe,
  (1) clamp means for mounting said tubular trap on said waste outlet and said disposal pipe,
(e) a trap actuating lever means mounted in aligned apertures in the side walls of said housing adjacent the said water dispenser rim and adapted for connection with a regulating valve for said water supply to said water dispenser means,
(f) linkage means within said support base housing having an end pivotally mounted in the side walls thereof for hinge movement thereof and an end mounted on said trap actuating lever for actuating said deformable tubular trap,
(g) overflow prevention means in said support base housing connecting said bowl overflow outlet and said waste disposal pipe, and
(h) a trap in said overflow prevention means intermediate the terminals thereof.

3,302,217
APPARATUS FOR ACTUATING A FLUSH VALVE

Donald C. Schrock, Johnstown, Pa., assignor to Crane Company, Johnstown, Pa., a corporation of Pennsylvania
Filed Feb. 23, 1965, Ser. No. 434,584
10 Claims. (Cl. 4—57)

1. In apparatus for flushing the bowl of a water closet having a tank to contain liquid, an aperture in the tank for the flow of water from the tank to the bowl to flush the bowl and a valve for controlling the flow of water through the aperture, apparatus for actuating the valve comprising,

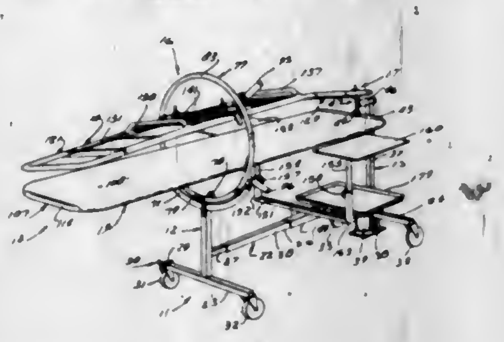
(A) first and second bodies connected to each other,
  (1) said first body having a density less than that of water,
  (2) said second body being hollow and having openings for the flow of water into and out of said body,
(B) means for rotatably mounting said bodies for rotation about a horizontal axis extending in a plane passing between the bodies, said means also positioning bodies within the tank below the top level of water in the tank prior to flushing and above said aperture,
(C) a manually operated flush lever mounted on the tank,
(D) means connecting said bodies and said flush lever to rotate said bodies about said horizontal axis upon movement of the flush lever,
(E) means connecting said bodies and said valve to control opening and closing of said valve by rotation of said bodies about said horizontal axis,



(F) the connecting means between said bodies and said valve positioning the bodies when the valve is closed and the water in the tank is at its top level so that said first body is predominantly positioned below said horizontal axis and said second body is predominantly above said axis,
(G) movement of said flush lever rotating said bodies about said horizontal axis to open said valve and to move said bodies to positions predominantly on opposite sides of said axis at which positions said first body tends to rise in water in the tank, thereby imposing on said bodies a tendency to rotate about the common axis and hold the valve in open position, and
(H) the openings in said second body admitting water to said body when the valve is closed and the water level rises in the tank towards a level above said second body and providing for draining of water from said second body when the valve is opened and the water level lowers in the tank towards a level below said second body, the draining of liquid out of said second body controlling rotation of said bodies about their horizontal axis to hold the valve open until the desired low liquid level in the tank is reached, and permitting closing of the valve when said low level is reached.

3,302,218
TURNING FRAME

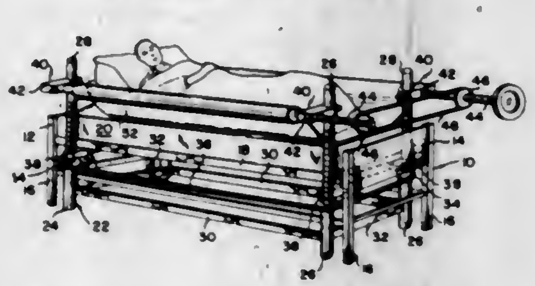
Homer H. Stryker, Kalamazoo, Mich., assignor to Stryker Corporation, Kalamazoo, Mich., a corporation of Michigan
Filed May 28, 1965, Ser. No. 459,608
12 Claims. (Cl. 5—61)



1. An apparatus for supporting and turning a patient, comprising:
- an undercarriage having a pair of spaced, upright post means;
- first support means mounted upon one of said post means for movement with respect thereto around a substantially horizontal axis extending toward the other post means;
- second support means mounted upon the other post means for rotation with respect thereto substantially around said axis;
- first patient engaging means connected near one end to said first support means and mounted between its ends upon said second support means; and
- second patient engaging means connected at one end thereof to said first support means and engageable between its ends by said second support means, said first and second engaging means being spaced from each other and disposed at an acute angle transversely thereof.

3,302,219
HOSPITAL BED AND LIFTING AND TURNING DEVICE

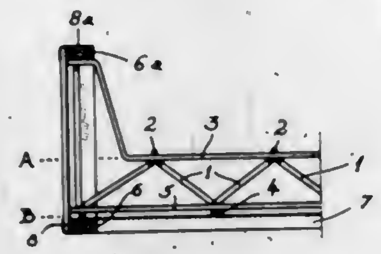
Joe F. Harris, 125 S. 3rd St., St. Albion, Ill. 62806
Filed Jan. 14, 1966, Ser. No. 520,704
6 Claims. (Cl. 5—85)



1. A portable lifting and turning device for use with a hospital bed and the like comprising spaced vertical members including a lower hollow member and a threaded upper member extending into said hollow member, spaced elongated rods extending between said vertical members and mounted on the upper ends thereof, a flexible cover member having its opposite edges connected to said spaced elongated rods, a sprocket wheel secured to each elongated rod and an endless sprocket chain carried by said wheels for turning said rods in the same direction to wind said cover member on one of said elongated rods while unwinding it from another of said rods, a bearing on each hollow member, a sprocket wheel with an internal thread on each hollow member supported by said bearing and each threaded upper member engaging its respective internally threaded sprocket wheel, whereby said flexible cover member may be raised and lowered.

3,302,220
BOX-MATTRESSES

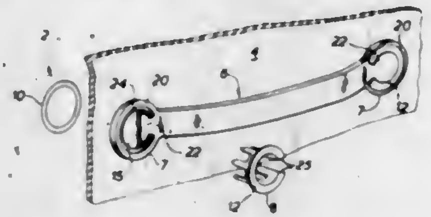
Pierre Gauthier, 22 Rue de Villeneuve, Garches, Seine-et-Oise, France
Filed Mar. 24, 1965, Ser. No. 442,382
Claims priority, application France, Mar. 25, 1964, 968,612, Patent 1,398,056; Mar. 4, 1965, 7,894
2 Claims. (Cl. 5—246)



1. A box-mattress comprising a substantialy even carrying base member and a layer of coil-springs mounted thereon, said base member being formed of a lightweight metallic self-supporting open-work comprising two substantially plane lattices, parallel to each other and distant from one another, and distance-pieces located between said lattice and fastened thereto, said coil-springs being mounted on one of said lattices, outside the metallic open-work, each of said lattices comprising a series of longitudinal filiform members parallel to each other and a series of transverse filiform members parallel to each other secured to said longitudinal members forming therewith a network having meshes, the members of one of said lattices being parallel to the members of the other of said lattices and the meshes of one of said lattices being shifted with respect to the meshes of the other of said lattices, each of said distance-pieces being an undulated wire located in a plane forming a flat cross-piece, each pair of parallel filiform members of one of said lattices being connected with the nearest parallel filiform members of the other of said lattices by means of two of said flat distance-pieces, the planes of which together form a dihedral.

3,302,221
MATTRESS HANDLE ASSEMBLIES

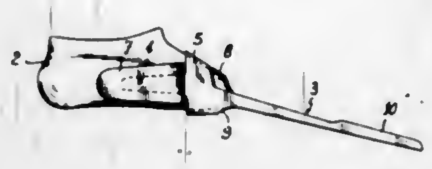
Arthur Zysman, 103 Old Forest Hill Road, Toronto, Ontario, Canada
Filed Mar. 5, 1965, Ser. No. 437,440
19 Claims. (Cl. 5—345)



1. A handle assembly for installation on a mattress border comprising:
- A handle having at least one terminal by which it is attachable to a mattress border;
- A fastening band comprising an elongated, double-ended, strip of band material having a continuous linear spine and skirting extending therefrom, and
- A clasp for said fastening band interengageable with said skirting;
- Said handle terminal being disposable on one side of a mattress border in registration with said clasp on the other side thereof and being also apertured to permit insertion of said skirting through said terminal and through said mattress border for clasping engagement with said clasp;
- Said spine being shaped to be retained by said terminal when said skirting is engaged with said clasp as aforesaid.

3,302,222
SWIMMING FLIPPER

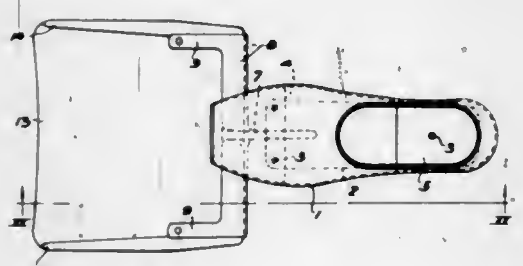
Luigi Ferraro, 4 Via Rimana, Genoa, Italy
Filed Nov. 30, 1964, Ser. No. 414,635
Claims priority, application Italy Dec. 5, 1963, 25,248/63; Feb. 28, 1964, 4,659/64; Apr. 15, 1964, 8,721/64
11 Claims. (Cl. 9—309)



1. A swimming flipper comprising a shoe portion and a propulsion portion, a socket on each side of the shoe portion, a finger on each side of the propulsion portion engaged in each of the sockets, means for retaining the fingers in the sockets, the means for retaining the fingers in the sockets comprising bulges on the upper and lower parts of the shoe portion forwardly of the sockets, and an annular band integral with the propulsion portion between the bulges and sockets and in engagement with the shoe.

3,302,223
SWIM-FIN

Stephen Samuel Ciccotelli, 745 10th St., Pitcairn, Pa. 15140
Filed Mar. 26, 1965, Ser. No. 442,989
11 Claims. (Cl. 9—309)

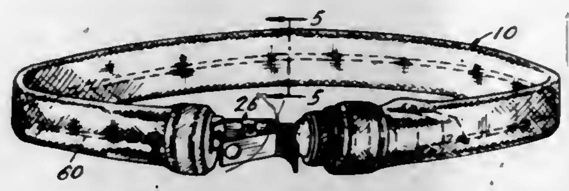


1. A swim-fin comprising a boot, a generally rectangular propelling blade in the form of a flexible web, and means to support the blade from the boot, said supporting means including a torsion bar extending transversely of the boot and joined to the rear end of the blade, means firmly connecting to the boot the central portion only of the bar, and a pair of stiff side members joined to the opposite ends of the bar and extending forward along the blade, the blade being joined to said members, said stiff side members being adapted to be swung up and down by the blade during swimming to thereby twist said bar on a longitudinal axis back and forth relative to said central part of the bar.

3,302,224
INFLATABLE LIFE SAVING BELT

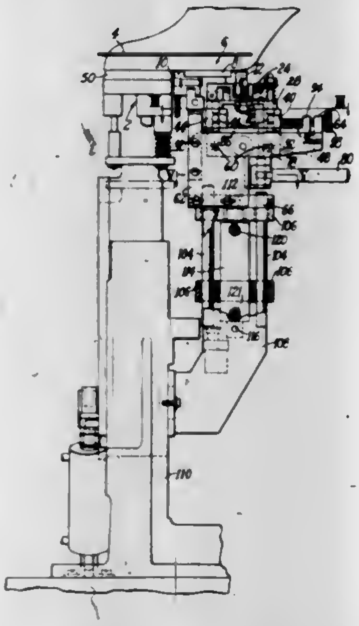
Raymond Boucher, Chateauguay, Quebec, Canada, assignor to Aqua-Flote Swimwear Ltd., Montreal, Quebec, Canada
Filed Jan. 19, 1965, Ser. No. 426,617
13 Claims. (Cl. 9—316)

1. An inflatable life saving belt adapted to fit about the waist or upper body comprising in combination an elongated multiple walled tube having an inner wall of airtight resilient material and at least one outer wall of a stretchable fabric material, an airtight sealing means at each end of said tube and coupling means for interconnecting said tube ends to form a body-encircling belt disposed adjacent said tube end sealing means, means less extensible than said resilient wall for restricting the circumferential expansion of said wall when inflated, and an inflating mechanism mounted within said tube adjacent one end including a cylinder of compressed gas and means for controllably releasing said gas to the interior of said tube.



3,302,225
ADHESIVE ACTIVATING APPARATUS

John R. Malfeld, Jr., Lynn, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed June 7, 1966, Ser. No. 555,721
11 Claims. (Cl. 12—10.5)



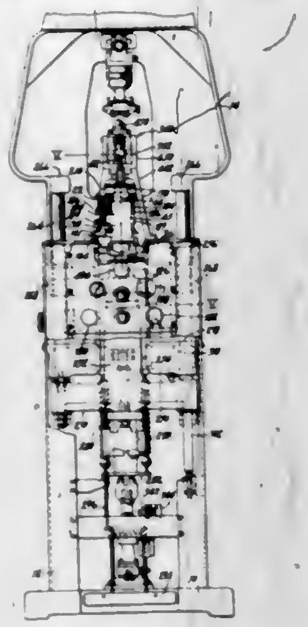
1. In a machine for lasting shoes in which the margin of a lasted shoe upper is secured to the bottom of an insole precoated with solidified heat activatable adhesive, means for heat activating the adhesive along the margin of the generally flat forepart of the insole bottom including, a plurality of spaced flexible bands arranged so the band edges are engageable with the precoated insole bottom, means for bending the bands causing said edges to form spaced extended lands extending lengthwise of the insole bottom and generally following the marginal contour of the insole, and means for heating the bands for activating said precoated adhesive.

3,302,226
HEEL ATTACHING AND HEEL SEAT POUNDING MACHINES

Chester E. Rogers, Jr., Beverly, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed Jan. 4, 1965, Ser. No. 422,923
37 Claims. (Cl. 12—42.5)

1. In a heel attaching and heel seat pounding machine comprising a jack movable between a work receiving position and a heel attaching position, holddown means movable into and out of engagement with the heel of a shoe mounted on the jack when the jack is located in the heel attaching position to clamp the heel on the shoe, and

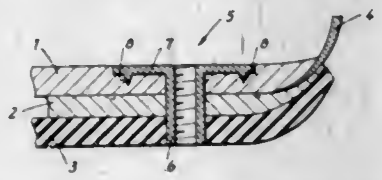
means for inserting attaching means into said heel and shoe, means for pounding the heel seat of the shoe mounted on said jack and means mounting said jack for



pivotal movement relative to said pounding means whereby the total heel seat area of the shoe mounted on said jack is exposed to said pounding means.

3,302,227
METHOD OF PRODUCING A SPORT SHOE BOTTOM WITH FITTINGS THEREIN

Alfred Bente, Gutenbergstrasse 11,
Herzogenaurach, Germany
Filed Mar. 14, 1963, Ser. No. 265,142
2 Claims. (Cl. 12—142)

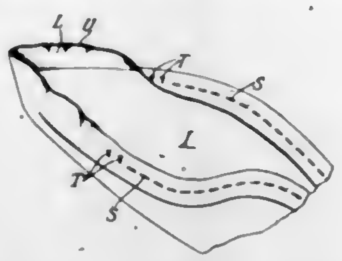


1. A method of producing the shoe bottom of a sport shoe comprising the steps of initially driving into the shoe bottom from the foot side thereof a plurality of inserts having large retaining flanges on the upper ends thereof and adapted for removably securing fittings to the lower side of the outer sole, so that, after said inserts are driven in, said flanges at least partly project above the foot side of the insole, then applying the shoe upon a last, heating the last so as to heat the insole, and exerting upon the last and thus upon the foot side of the insole such a molding pressure that the flanges will be completely embedded in the insole and the surface of the foot side of the insole will be substantially in alignment with the upper surfaces of the inserts.

3,302,228
METHODS OF LASTING SHOES

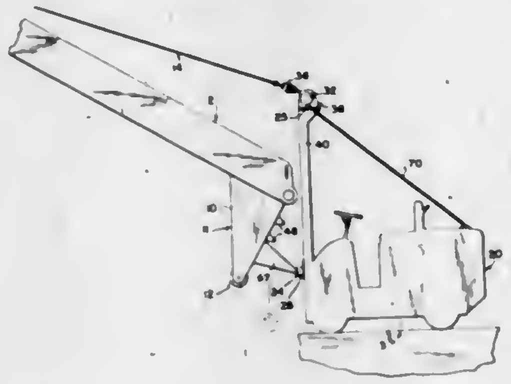
Elroy J. Bryant, Cincinnati, Ohio, and Charles A. Fling, Manchester, N.H., assignors to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed Feb. 2, 1965, Ser. No. 429,864
5 Claims. (Cl. 12—145)

1. A method of lasting the end portion of a shoe which comprises the steps of applying to the inside surface of the lasting margin of an end portion of the upper of a shoe an adherent layer of thermoplastic adhesive which at ambient temperature is non-tacky, assembling the upper with an insole on a last, subjecting the upper and layer of adhesive to the softening action of moisture laden heated air at a temperature below that at which the adhesive becomes tacky, shaping the said end portion of the upper to the end portion of the last, heating the exposed surface of the end portion of the insole, and simultaneously wiping the lasting margin of the upper inwardly over and pressing it against the heated surface of the insole thereby applying sufficient additional heat directly to the surface of the said layer of adhesive to render the adhesive tacky and capable of forming an adhesive bond under pressure for securing the lasting margin to the insole in lasted position as they are pressed together by the wipers.



3,302,229
SYSTEM FOR LOADING AND UNLOADING SHIPS

Walter Dorwin Teague, Jr., Glen Goin Road,
Alpine, N.J. 07620
Filed Aug. 5, 1964, Ser. No. 387,673
4 Claims. (Cl. 14—72)

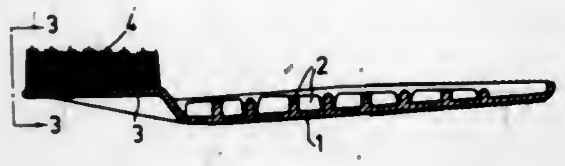


1. In apparatus for loading and unloading ships at the side of a wharf, the combination of, a gangway structure which extends from the wharf to the edge of the ship and rests thereon, bracket means rigidly attached to the wharf end of said gangway structure including roller means which provides movable support upon the wharf for the wharf end of the gangway structure, gangway means on said gangway structure between the ship end thereof and the wharf end thereof, a lift truck having a lifting bracket, means pivotally connecting said lifting bracket to said bracket means on said gangway structure, said lift truck including means operative to raise and lower said lifting bracket thereby to raise and lower the wharf end of said gangway structure with respect to the wharf, bridle means connected to the opposite sides of said gangway structure remote from the wharf end, and means on said lift truck coupled to said bridle means to raise and lower said ship end of said gangway structure relative to said lift truck.

3,302,230
TOOTHBRUSH

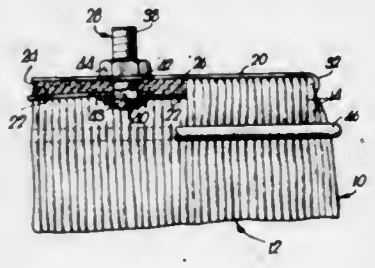
Åke Poppelman, Brahegatan 4, Stockholm, Sweden
Filed Oct. 20, 1965, Ser. No. 498,504
Claims priority, application Sweden, Oct. 30, 1964, 13,124/64
2 Claims. (Cl. 15—167)

1. A toothbrush of thermoplastic material comprising a back having bristles in which the bristles taper toward the apices and have a cross section in the shape of a polygon with at least two acute angles and in which the bristles are provided with a coating of a dentifrice, each of said bristles tapering from the base to the apex, and the cross section at the base is approximately 0.2 mm.^{2}, each said bristle having a Shore C hardness of 85 to 87 and a density of 0.930–0.935 where density is expressed in g./cm.^{3}, and having a dentifrice containing a slowly dissolving gelatinous substance which dissolves upon contact with water, said dentifrice further containing a saliva secreting agent.



3,302,231
MOPHEAD

William P. Pettett, Miami, Okla., assignor to Pettett Manufacturing Company, Inc., Miami, Okla., a corporation of Oklahoma
Filed Apr. 19, 1965, Ser. No. 449,107
2 Claims. (Cl. 15—229)



2. A device for securing a mophead to a handle comprising:

an elongated clamping member having a pair of opposed faces and an opening therethrough intermediate the ends thereof;

a pair of fingers jointed to respective ends of the member and each extending longitudinally of said member toward the other finger, whereby to define a space between the member and the fingers for receiving a portion of the mophead, the extremities of said fingers spaced from said member being overlapped with each other and provided with respective aligned apertures in alignment with said opening, one of said apertures being of polygonal configuration;

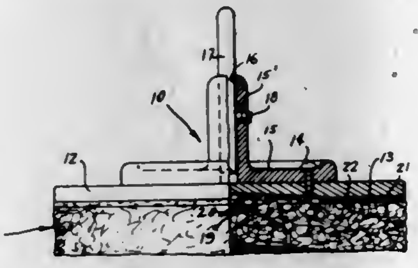
a threaded fastener having shoulder-presenting structure complemental to said one aperture, said fastener extending through said opening and said structure being disposed in said one aperture with the fastener projecting outwardly from the face of said member opposite to the face adjacent said fingers and having a head engaging one of said extremities for limiting the movement of the fastener outwardly of said opposite face of the member;

means threaded on said fastener and normally in engagement with said opposite face, whereby said extremities are interconnected with said member to clamp said portion of the mophead therebetween; and

an endless bail adjacent to and spaced from said fingers and having an opening therethrough for receiving the mophead, said opening of the bail having a maximum transverse width substantially equal to the maximum transverse width of said fingers, whereby the part of the mophead between the bail and said space will project outwardly from the sides of the fingers and then inwardly through said opening of the bail.

3,302,232
DRIVING ARBOR FOR FLOOR PADS OR THE LIKE

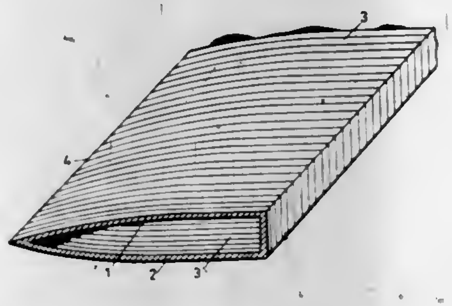
Thomas J. Wasiloff and Gladys A. Wasiloff, both of 2050 N. Ridge Road, Amherst, Ohio 44001
Filed July 6, 1964, Ser. No. 380,501
2 Claims. (Cl. 15—230.17)



1. A driving arbor for abrasive polishing pads of nonwoven randomly positioned fibrous material comprising a body having a face surface and a sheet of velvet type fabric including auxiliary warp threads formed in raised loops secured to said face surface, the loops being adapted to be engaged by the ends of the randomly positioned fibrous material to secure the pad to the arbor, said body comprising a disc with said fabric forming a peripheral band about the face of the disc, the center of said disc being concaved and auxiliary securing means for the pad comprising pointed prongs in the concavity having points wholly contained within said concavity to prevent damage to a surface over which the pad is passed.

3,302,233
MORTAR DRESSING DEVICE

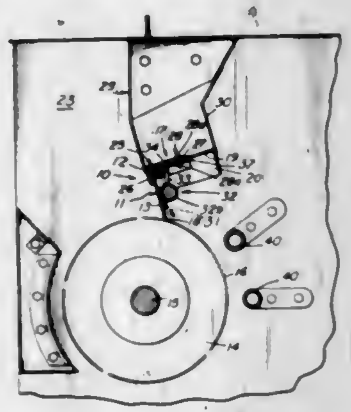
Martin Sebastiani, Owingerstrasse 1, Uberlingen (Bodensee), Baden, Germany
Filed Jan. 18, 1965, Ser. No. 426,020
Claims priority, application Germany, Jan. 18, 1964, S 89,120; Jan. 13, 1965, S 94,991
1 Claim. (Cl. 15—235.4)



A dressing device of the character described comprising, an elongated hollow open-ended member having a pair of longitudinally extending walls and a connecting longitudinally extending back member supporting in spaced relation each of said walls along one longitudinal edge thereof, said walls meeting in an acute angle in a common longitudinally extending intersection portion to provide a longitudinally extending dressing edge, one of said walls being formed to provide a convex smoothing surface between said edge and back member, said walls being of substantially uniform cross-section over their length and being unsupported between said back member and intersecting portion to provide substantially uniform lateral flexibility of said walls between said back member and dressing edge, and said walls and back member terminating on planes substantially perpendicular to the longitudinal axis of said elongated member to define opposed open ends in said hollow member.

3,302,234
BRISTLE BIASING APPARATUS FOR SAW TOOTHED CYLINDER BRUSHES

Hoyle G. Moss and Edgar W. Walters, Lubbock, Tex., assignors to Botany Industries, Inc., Passaic, N.J., a corporation of New Jersey
Filed Jan. 6, 1964, Ser. No. 335,755
5 Claims. (Cl. 15—256.51)

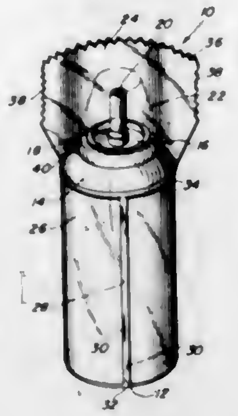


1. In combination with a rotary saw cylinder having teeth onto which fibers are to be seated for conveyance in an arcuate path in fiber processing apparatus and a brush adjacent a peripheral portion of said saw cylinder for maintaining the fibers seated on said teeth, said brush having a row of elongated flexible bristles of normally substantially rectilinear configuration projecting from a support and terminating in free working ends aligned generally along a reference axis and disposed closely adjacent the periphery of the saw cylinder, said row of bristles having an anterior side and a posterior side facing respectively toward and away from said saw cylinder, apparatus for resisting formation of a deformed set in said bristles departing from their normal configuration when the bristles are subject to prolonged deforming forces by wads of the fibers and harder foreign matter passing between the bristles and the periphery of the saw cylinder comprising rectilinear elongated rod means substantially spanning the row of bristles and disposed adjacent said posterior side of said row, hanger means pivotally supporting said rod means in parallelism with said reference axis for movement through an arcuate path about a pivot axis above said rod means and adjacent said brush support between a normal position lightly engaging said bristles and a displaced position spaced along said arcuate path from said normal position in a direction away from said saw cylinder, said rod means being freely movable about said pivot axis and gravitationally urged to said normal position and having sufficient mass to force said bristles to their normally substantially rectilinear configuration when free of distorting forces produced by said wads and foreign matter.

3,302,235
APPLICATOR ATTACHMENT FOR AEROSOL SHAVING CREAM CONTAINER

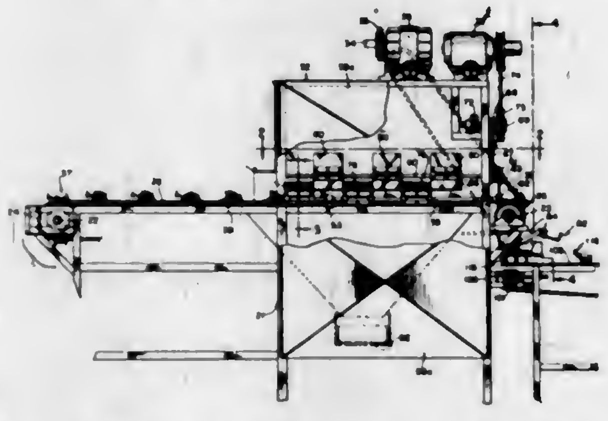
Boris Gerber, 3807 W. Kenney Ave., Skokie, Ill. 60076
Filed Jan. 11, 1965, Ser. No. 424,588
7 Claims. (Cl. 15—552)

1. In combination with a pressurized shaving cream dispenser container having a cylindrical body capped at one end thereof and through which protrudes a dispensing sprayhead member parallel with the axis of the container, said sprayhead and said valve being in fluid communication, a spreader attachment installed on said body comprising an integral flexible plastic member having a formation at one end thereof engaged on the body and a blade-like formation laterally spaced from and adjacent said dispensing member for discharge of shaving cream from said dispensing member onto said blade and thereafter released to return to its normal position, said can body providing a handle for spreading said cream from the blade-like formation onto the face of a user.



3,302,236
APPARATUS FOR PREPARING CRAB BODIES FOR THE RECOVERY OF MEAT THEREFROM

Sterling G. Harris, Beaufort, S.C., assignor to The Blue Channel Corporation, Port Royal, S.C., a corporation of Maryland
Filed Mar. 15, 1966, Ser. No. 534,490
15 Claims. (Cl. 17—2)

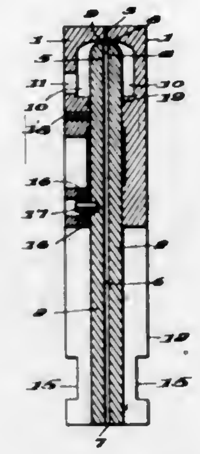


10. In apparatus for preparing crabs for recovery of the meat therefrom, the combination of a conveyor, clamps on the conveyor for gripping crabs and holding them with their legs and claws and the points of their carapace free and extending laterally, and means on opposite sides of the conveyor for striking the legs and claws on each side of each crab repeated blows to flex the legs and claws relative to the carapace.

3,302,237
FORWARDING JET

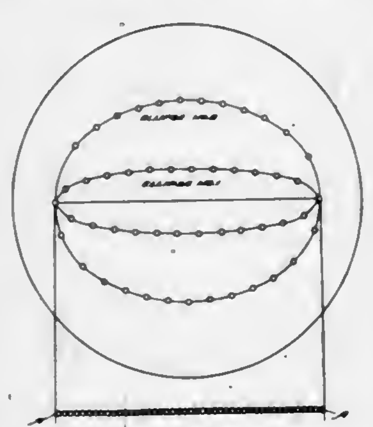
Andrew P. Cope, Wilmington, Del., Robert Meagher, Wallingford, Pa., and Dimitri Zafiroglu, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 15, 1965, Ser. No. 425,839
5 Claims. (Cl. 18—1)

1. An improved filament-forwarding jet device which comprises a jet housing having mounted therein a filament-entrance member and an effuser member, each member defining an inlet, a passageway of generally rectangular cross section, and an exit all in axial alignment, said filament-entrance member projecting into the inlet of said effuser member for feeding a bundle of filaments to the effuser inlet, means for supplying fluid under pressure including two nozzle openings of generally rectangular cross section between the filament-entrance member and the inlet of the effuser member, each having a width of between about 0.006 and 0.020 inch and presenting a fluid-entrance angle of less than 16° with the axis of the effuser-member passageway, the effuser-member passageway having a throat portion whose width is at least 3.5 times that of each nozzle opening, but less than about 0.08 inch, said filament-entrance-member passageway having an axial length of between about 0.5 and 1.0 inch, and said effuser member passageway having an axial length between the nozzle openings and the filament exit of from about 4 to 36 inches.



3,302,238
SPINNERETTE

Francis Joseph Medeiros, Hendersonville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 10, 1965, Ser. No. 431,688
3 Claims. (Cl. 18—8)



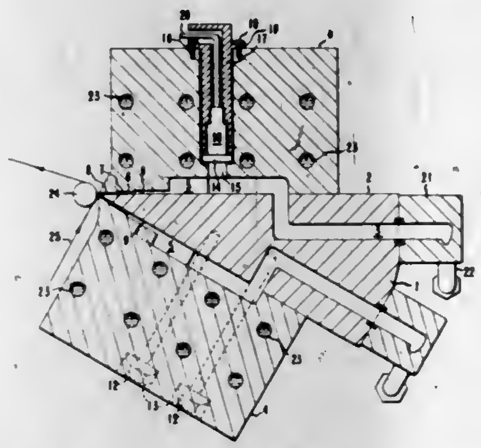
1. A spinneret plate having spinning apertures arranged in a plurality of substantially elliptical patterns with a common major axis, the distance between adjacent apertures on each elliptical pattern as measured by the distance between projections of the apertures onto the major axis being substantially equal and the distance between adjacent projections of the apertures of all the elliptical patterns onto the major axis being substantially equal.

3,302,239
DIE

Vance Evan Senecal, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed May 24, 1963, Ser. No. 283,018
4 Claims. (Cl. 18—12)

1. An extrusion die for controlling the flow of fluid along diverging paths from an inlet to and through a narrow slot outlet comprising:

- (a) a body member having at least one inlet and an outlet terminating in a side surface of the body member, a portion of said surface defining one surface of the slot outlet,
- (b) a fluid control plate on a side surface, the inner surface of which plate has a series of interconnected depressed chamber areas forming with said side surface
  - (1) a centrally disposed inlet area,
  - (2) an unobstructed transverse supply chamber,
  - (3) a transverse unobstructed rear restricted passage, and
  - (4) an unobstructed second transverse cross-flow chamber that provides another flow control passage adjacent the slot outlet and communicates with said slot outlet, the length of the transverse rear restricted passage in the direction of fluid flow from said centrally disposed inlet area to the slot outlet being varied along diverging paths of fluid flow from said inlet area to said slot outlet to equate total pressure drops along each of said paths, the shape of the curved leading edge of said restricted passage being determined by maintaining the pressure at the trailing edge of the rear restricted passage at all points so that at a particular point in the leading edge of the passage the said length Y equals

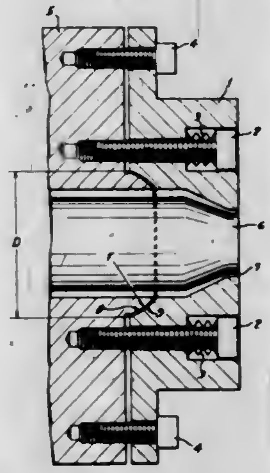


$$\frac{b^3L^2C_1}{3}\left[1-2\frac{X}{L}+\left(\frac{X}{L}\right)^2\right]$$

where b equals the depth of the rear restrictive passage, L is one-half the total transverse width of the passage and C_1 is a constant function of the geometry of the supply chamber.

3,302,240
ANNULAR NOZZLES FOR THE EXTRUSION OF THERMOPLASTIC MATERIALS

Diether Loos, Wiesbaden-Biebrich, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Aug. 25, 1964, Ser. No. 391,861
Claims priority, application Germany, Aug. 27, 1963, K 50,657
3 Claims. (Cl. 18—12)

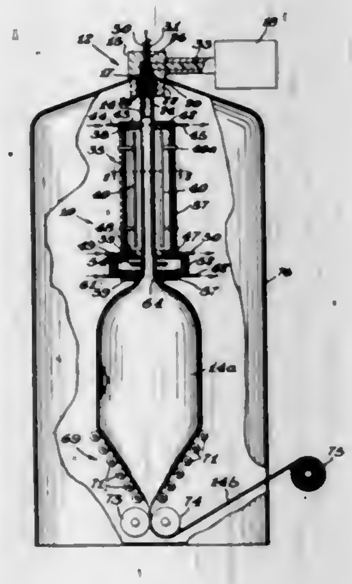


1. An adjustable annular nozzle for use in the extrusion of annular articles of thermoplastic material

comprising a fixed core, a first annular body member forming a channel around the core, a second annular body member having a mating channel therein and being connected to the first body member through resilient connecting means, the two body members having mating contact surfaces in the shape of a portion of a sphere the radius of which is greater than half the maximum diameter of the contact surfaces, and means for locking the two body members in an adjusted position.

3,302,241
APPARATUS FOR PREPARATION OF PLASTIC TUBES

Robert E. Lemmer, Saginaw, and Gordon E. Gould, Breckenridge, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Original application Apr. 18, 1962, Ser. No. 188,363. Divided and this application Nov. 5, 1964, Ser. No. 417,259
7 Claims. (Cl. 18—14)



1. An apparatus for the biaxial stretching of an orientable extruded thermoplastic resinous tube, said apparatus comprising in cooperative combination,

means to supply a thermoplastic resinous tube,

a heating oven adapted to receive the thermoplastic resinous tube in substantially cylindrical form, said oven having a first end and a second end, said first end having means to engage said tube in substantially sealing engagement therewith, said second end being adapted to engage said tube in substantially sealing engagement, the oven defining a space between the ends sufficiently large to permit passage of the tube without contact between the tube and the oven, the oven being so constructed and arranged so as to prevent significant movement of gas into or out of the oven when a tube is in engagement with the first and second ends and passing through the oven,

radiant heating means disposed within said heating oven adapted to selectively heat said thermoplastic resinous tube,

a second oven disposed generally adjacent from said first oven and immediately adjacent said film engagement means at said second end of said oven, said second heating oven having a first end and a second end, said first end being generally adjacent said first oven, said second end of said second oven carrying means to engage said thermoplastic resinous tubular film in sealing engagement therewith and said means being smoothly outwardly flaring remote from the second oven, the oven defining a space between the ends sufficiently large to permit passage of the tube without contact between the tube and the oven, the oven being so constructed and arranged so as to prevent significant movement of gas into or out of the oven when a tube is in engagement with the first and second ends and passing through the oven,

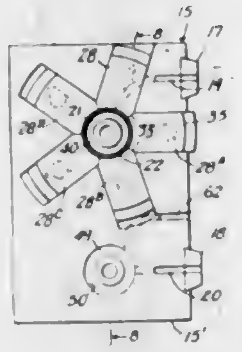
said tubing engagement means adjacent said first and second ends of said second oven being provided with means to control the temperature thereof,

a tube collapsing means disposed generally adjacent to and generally axially disposed with respect to the second end of said second oven,

pinch rolls adjacent to said tube collapsing means remote from said second oven, said pinch rolls generally centered on and having a nip lying on the common axis of said first and second ovens, said rolls adapted to draw and forward said collapsed tube at a rate to orient said tube to a desired degree and to maintain the inner surfaces of the collapsed tube in sealing engagement.

3,302,242
DIE FOR INTERMOLDED NUMBER WHEELS

Louis H. Morin, Bronx, N.Y., assignor to Coats & Clark Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 12, 1964, Ser. No. 344,421
2 Claims. (Cl. 18—30)

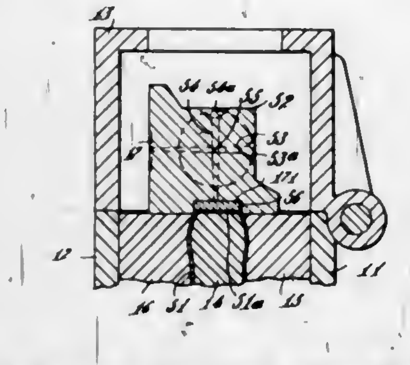


1. A die structure for producing number wheels including intermolded parts of contrasting colors, said structure comprising a pair of relatively movable dies, with a transfer core rod disposed between said dies, said dies having spaced first and second molding stations, one die including at the first station a plurality of radially movable die slides having means collectively forming numerals on one part of a wheel, means on both dies forming an undercut rim on the periphery of said one part, the other die part having means operatively engaging said slide in movement and support thereof in molding position, tensional means for moving the slides into open position, the first named die including at the second station a cavity forming the second part of the wheel, said core being utilized to move the first part into registering position with the cavity at the second station in separation of the dies, preparatory to forming the second part on the first part then positioned at the second station, adjacent surfaces of the dies having gates forming runners extending to both stations, and said dies having recesses receiving the runner of the first part when positioned at the second station.

3,302,243
APPARATUS FOR THE INJECTION MOLDING OF PLASTIC ARTICLES ESPECIALLY SHOES

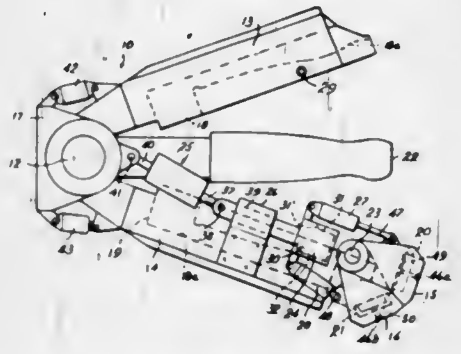
Herbert P. Ludwig, Desmastr. 112, Uesen, near Bremen, Germany
Filed Apr. 16, 1964, Ser. No. 360,364
5 Claims. (Cl. 18—30)

1. Injection molding apparatus for molding hollow plastic articles comprising, in combination, support means, a pair of side mold parts, means pivotally mounting one end of each side mold part on the support means, a form mounted on the support in a fixed position between said side mold parts, said side mold parts containing recesses which collectively form a cavity surrounding the sides of the form, an end mold part containing cavities of different depth, an end mold part support, one end of which is mounted on the distal end of one of the side mold parts for movement therewith toward the other side mold part and for pivotal movement following engagement of the side mold parts about the form, across the distal ends of the side mold parts, and means supporting the end mold part on the end mold part support for movement to a position thereon such that, when the end mold part support is disposed across the ends of the side mold parts, one of the cavities therein is opposite the distal end of the form, and is in communication with the cavity surrounding the form, said end mold part containing an injection passage through each of said cavities therein.



3,302,244
APPARATUS FOR THE INJECTION MOLDING OF ARTICLES MADE OF PLASTIC, ESPECIALLY FOOTWEAR

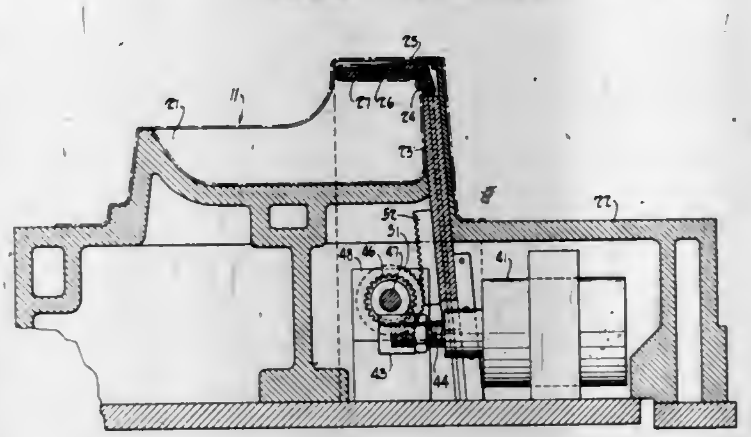
Herbert P. Ludwig, Desmastr. 112, Uesen, near Bremen, Germany
Filed Apr. 16, 1964, Ser. No. 360,365
12 Claims. (Cl. 18—30)



1. Apparatus for injection molding comprising a form having sides and a bottom corresponding in shape to the shoe to be made, side mold parts movable about the sides of the form to form, in conjunction with the sides, a cavity, the thickness of which corresponds to the thickness of the upper of the shoe to be made, bottom mold parts alternately movable into a position opposite the bottom of the form to form, in conjunction with the bottom, a cavity at the bottom which is in communication with the cavity at the sides, one of said bottom mold parts forming a cavity between it and the bottom of the form of predetermined depth and the other a greater depth, means supporting the bottom mold parts for linear and pivotal movement relative to the side mold parts, power-operable means connected to the last-named means operative to effect linear movement, on the one hand to hold a bottom part engaged with the side parts opposite the bottom of the form and on the other hand to hold it disengaged therefrom, and other power-operable means connected to the bottom parts operable to effect pivotal movement of the bottom parts, when they are disengaged from the side parts, to move one or the other into operative position opposite the bottom of the form.

3,302,245
APPARATUS FOR FORMING PLASTIC ARTICLES

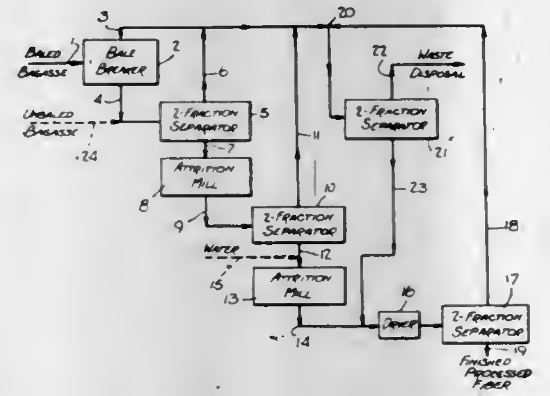
Lester Scott, Newburgh, Ind., assignor to Kent Plastics Corporation, Evansville Ind., a corporation of Indiana
Filed July 22, 1963, Ser. No. 296,568
7 Claims. (Cl. 18—35)



1. Apparatus for thermoforming plastic articles including a mold having a core portion movable between an extended position whereat said core portion extends inwardly into the mold cavity so as to produce an overhang for shaping articles and a retracted position whereat said core portion is withdrawn to facilitate removal of shaped articles, said core portion comprising a plurality of cooperable segments pivoted to one another, guide means for causing said segments to be pivoted to change the direction of said core portion during movement of said core portion from one position to the other, and actuating means for causing movement of said core portion between said extended and retracted positions.

3,302,246
PREPARATION OF BAGASSE AND LIKE FIBERS

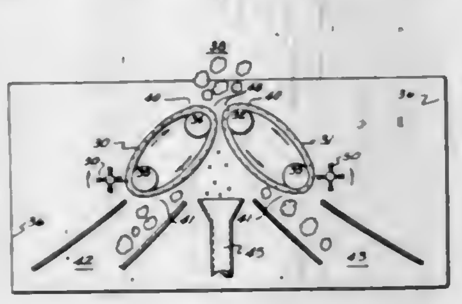
Jose A. Rionda, Thibodeaux, La., assignor to National Bagasse Products Corporation, Vacherie, La., a corporation of Delaware
Filed Jan. 16, 1964, Ser. No. 338,232
14 Claims. (Cl. 19—5)



1. The method of processing bagasse and like vegetable fibrous materials, comprising the steps of subjecting raw dry bagasse to a first classifying operation wherein loose pith, dirt and other impurities as well as other small particles and fibers are removed as a light fraction, subjecting the remaining heavy fraction composed principally of shives to a first milling operation to break up at least a major portion of the shives into loose fibers while separating pith therefrom, subjecting the so-formed mass to a second classifying operation wherein loose pith, dirt and other impurities as well as other small particles and fibers are removed as a light fraction, subjecting the remaining

heavy fraction composed principally of separated fibers and a minor proportion of shives to a second milling operation to effect further breaking up of shives into loose fibers and separation of pith from fibers, and subjecting the so-formed mass to a third classifying operation wherein loose pith, dirt and other impurities as well as other small particles and fibers are removed as a light fraction, blending all of said light fractions with one another, subjecting the so-formed blend to a fourth classifying operation wherein loose pith, dirt and other impurities as well as other small particles and excessively degraded fibers are removed as a light fraction for disposal, and recycling the remaining heavy fraction composed principally of reclaimed usable fibers into admixture with the mass formed by said second milling operation.

3,302,247
COTTON GINNING APPARATUS
William E. Rood, Jr., 1500 S. 7th St., Phoenix, Ariz. 85034
Filed July 23, 1962, Ser. No. 211,724
3 Claims. (Cl. 19—48)

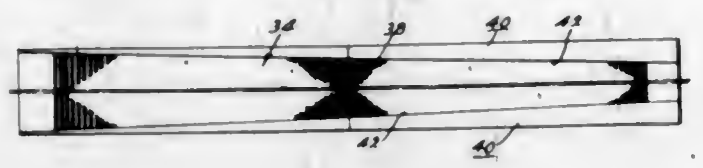


1. A cotton ginning apparatus comprising, a first and a second gripping means each comprising a flexible belt having transverse slots therein for opening when the corresponding portion of said belt flexes and for remaining closed at all other times, a first pair of flexing means each mounting one of said belts for flexing the corresponding belt to enable the belt to grasp seed cotton tufts, a second pair of flexing means each mounting one of said belts for flexing the corresponding belt to enable the belt to release cotton tufts pulled from the seed, a frame for maintaining said flexing means in spaced apart relation and said first pair of flexing means nearer each other than said second pair of flexing means, said first pair of flexing means positioned on said frame to enable said first and second belts to simultaneously flex and simultaneously grasp the same seed cotton tufts.

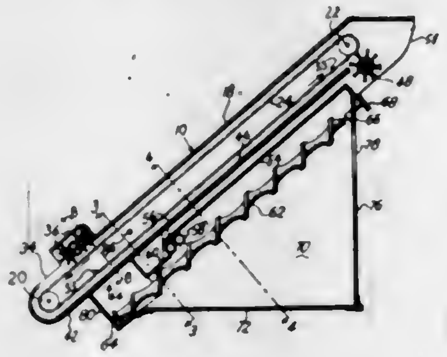
3,302,248
DEFLECTOR FOR CARDING SCREENS
Lloyd Edwin Johnson, Simpsonville, S.C., assignor to John D. Hollingsworth, Greenville, S.C.
Filed June 18, 1964, Ser. No. 376,085
6 Claims. (Cl. 19—95)

1. In a carding machine having at least one rotary card roll with card clothing thereon, and a screen circumscribing said roll about a portion of its circumference, said screen having a curvature corresponding to the curvature of the clothed surface of said roll and mounted thereabout with limited clearance between the clothing and said screen to provide a clearance space, said screen being provided with means for enabling limited air flow therethrough so that only trash, short waste fibers and air fly radially outward from said roll, said screen extending substantially the full axial length of the clothing on said roll;

a deflector mounted intermediate said screen and said clothing adjacent each marginal edge of said screen, each said deflector providing a deflecting surface extending circumferentially of said roll within said clearance space and inclined axially inwardly of said screen and card roll in the direction of travel of the clothing relative to said screen to thereby counteract the flow of air axially outward from said clearance space between said screen and said carding roll.

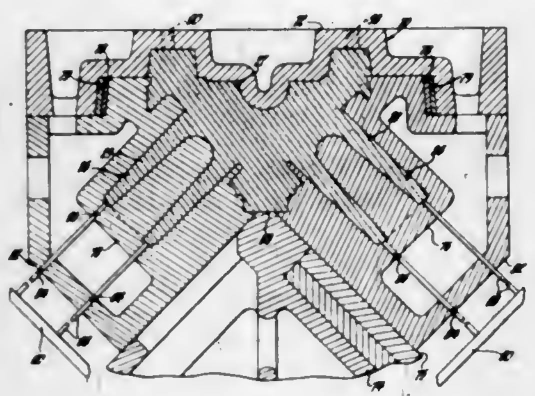


3,302,249
CONVEYOR-CLEANER
Donald J. Cox, Enochs, Tex., assignor to Cotton Enterprises, Inc., Paris, Tex., a corporation of Texas
Filed May 15, 1962, Ser. No. 194,882
5 Claims. (Cl. 19—200)



1. A conveyor-cleaner adapted to be attached to the rear of a tractor which carries mechanism for stripping cotton from the stalk comprising:
(a) a frame,
(b) said frame having a longitudinal axis which extends upward and rearward,
(c) a lower pulley mounted on the lower end of said frame,
(d) an upper pulley mounted on the upper end of the frame,
(e) the pulleys mounted on parallel shafts,
(f) a belt trained over the pulleys,
(g) picks on one surface of the belt,
(h) all the picks aligned in the same direction,
(i) means for rotating the belt in the direction in which the picks are pointed,
(j) a plurality of spaced bars,
(k) each bar parallel to the shafts upon which the pulleys are mounted,
(l) each bar in close proximity to the surface of the belt carrying the picks,
(m) means on the upper end of the frame for doffing the cotton from the picks on the belt,
(n) an area of the bars having wider spacing therebetween than other areas of the bars,
(o) a container for collecting any materials which fall through the bars of the area, having wider spacing therebetween,
(p) said container attached to the frame, and
(q) a conveyor extending along the top of the container,
(r) said conveyor being means for distributing material within said container.

3,302,250
CORE BOX AND MOLDING ASSEMBLY FOR INTERNAL COMBUSTION ENGINE BLOCKS
John L. Flitz, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Dec. 18, 1963, Ser. No. 331,442, now Patent No. 3,264,693, dated Aug. 9, 1966. Divided and this application Apr. 27, 1966, Ser. No. 545,747
5 Claims. (Cl. 22—13)



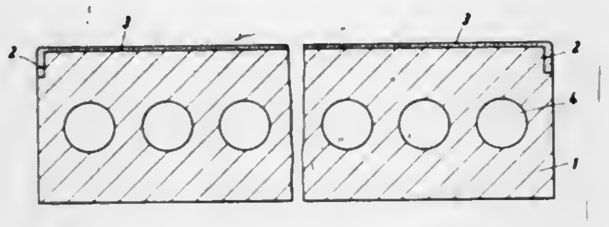
1. A multi-part core box adapted for use in making a sand core of the type suitable for use in casting the interior crankcase and cylinder barrel surfaces of a V-type internal combustion engine frame,

said core having a crankcase forming body portion which supports integrally formed barrel core portions projecting therefrom in inclined V-fashion, said core box including fixed and relatively movable core box sections cooperating in a closed position to define said core mold cavity, means associated with one of said sections for admitting a core sand mixture under fluid pressure into the cavity, said movable sections comprising:

a movable cover section having molding projections thereon for forming the core surfaces of the body portion used for defining the bulkhead surfaces of the engine frame; and

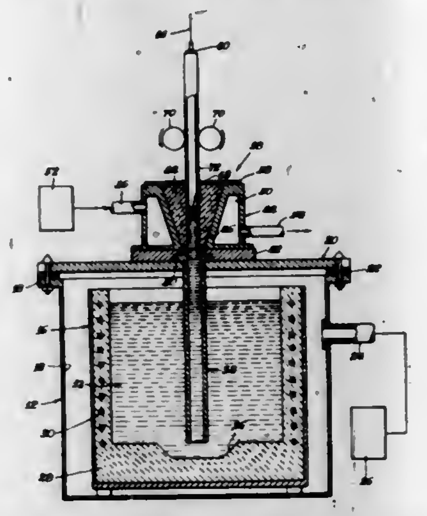
obliquely movable side sections mutually closable with said cover section having mold cavities therein for forming said barrel core portions.

3,302,251
MOLYBDENUM LINED MOLD FOR CONTINUOUS CASTING
Karl Georg Speith and Adolf Bungeroth, Duisburg, Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany, a corporation of Germany
Filed Oct. 15, 1963, Ser. No. 316,284
Claims priority, application Germany, Oct. 18, 1962, M 54,547
2 Claims. (Cl. 22—57.2)



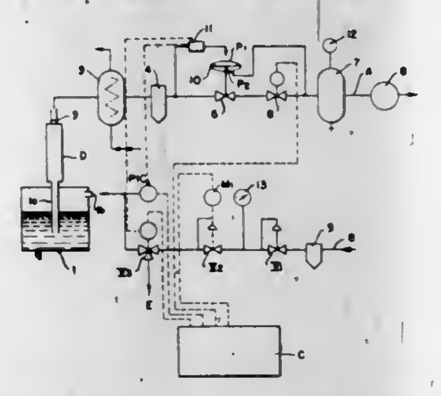
2. A copper plate, forming a part of a continuous casting mold, said copper plate defining cooling channels and having a surface lined with a sprayed molybdenum covering and defining grooves adjacent and angularly offset from said surface, said covering extending into said grooves.

3,302,252
APPARATUS FOR CONTINUOUS CASTING
James Woodburn, Jr., Wheaton, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill., a corporation of New Jersey
Filed Dec. 3, 1963, Ser. No. 327,641
2 Claims. (Cl. 22—57.2)



1. Apparatus for continuous casting comprising a ladle, a mold above the ladle and having a vertical passage therethrough forming a cavity, means forming a passage from said ladle to and communicating with said mold cavity at the lower end thereof, said mold being of high heat conductivity relative to the ladle and passage forming means, means for applying pressure on the molten metal in the ladle for forcing the molten metal through said passage and into said mold, means for continuously withdrawing the cast product at a constant rate from the upper end of the mold, and means for oscillating the molten metal and thereby raising and lowering the level thereof in and relative to said mold, said last mentioned means being operative for raising that level at a rate substantially equal to the rate of withdrawal of the cast products and abruptly lowering the level independently of and during the constant withdrawal of the cast product.

3,302,253
APPARATUS FOR CASTING THAT AUTOMATICALLY CONTROLS THE CORRELATION BETWEEN TIME AND AIR-PRESSURE
Kazuhiro Moriyama, Setagaya-ku, Tokyo-to, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan, a company of Japan
Filed Oct. 1, 1963, Ser. No. 312,980
Claims priority, application Japan, Oct. 4, 1962, 37/42,900
4 Claims. (Cl. 22—69)

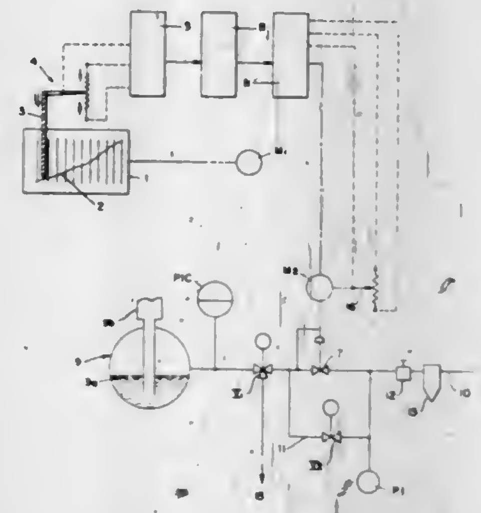


1. In an apparatus for controlling a casting process in which a molten metal body is raised from a container into a mold by application of pressurized medium to the surface of the molten metal in the container and by the application of suction to the mold, a first pneumatic circuit including vacuum pump means for applying suction to said mold, a second pneumatic circuit for applying pressure to said container over said molten metal, program-

ming means including a time-pressure curve following means adapted to trace a predetermined time-pressure curve, potentiometer means connected to respond to said time-pressure curve following means for developing an output signal in proportion to said curve, first valve means disposed in said first pneumatic circuit between said vacuum pump means and said mold and responsive to said output signal for opening said first pneumatic circuit in response thereto and permitting said pressurized medium to enter said container, second valve means disposed in said second pneumatic circuit and responsive to said output signal for opening said second pneumatic circuit in response thereto and permitting said pressurized medium to enter said container, third pressure responsive valve means disposed in said first pneumatic circuit between said first valve means and said mold, said third valve means having a diaphragm chamber including a control diaphragm connected to respond to a difference in the pressures existing at said vacuum pump means and at said mold, timing means disposed in a branch circuit connecting said diaphragm chamber at one side of said diaphragm to said pneumatic circuit at the pressure branch thereof nearer to said mold, said timing means controlling the period during which said third valve means is open, pressure responsive means for sensing a predetermined pressure in said container and actuating said timer means, and further valve means disposed in said second pneumatic circuit for releasing pressure from said container in response to lapse of a predetermined period measured by said timing means.

3,302,254
APPARATUS THAT AUTOMATICALLY CONTROLS THE CORRELATION BETWEEN TIME AND AIR-PRESSURE

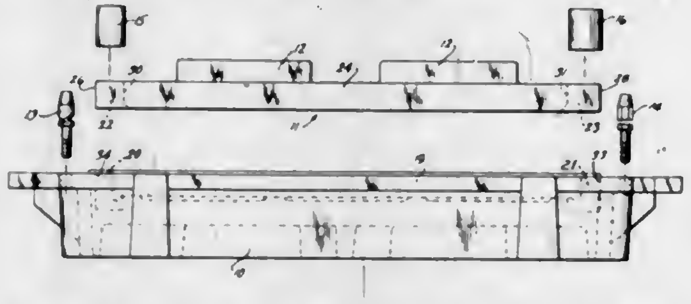
Kazuhiro Moriyama, Setagaya-ku, Tokyo-to, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan, a company of Japan
Filed Oct. 1, 1963, Ser. No. 313,104
Claims priority, application Japan, Oct. 4, 1962, 37/42,899
3 Claims. (Cl. 22—69)



1. In an apparatus for controlling a casting process in which a molten metal body is raised from a vessel into a mold by application of a pressurized medium to the surface of the molten metal in the vessel, a pneumatic circuit for applying pressure to said vessel and for raising said molten metal into said mold, programming means including a time-pressure curve following means adapted to trace a predetermined time-pressure curve, potentiometer means connected to respond to said time-pressure curve following means for developing an output signal in proportion to said curve, first valve means disposed in said pneumatic circuit and being responsive to said output signal for opening said pneumatic circuit in response thereto and permitting said pressurized medium to enter said vessel in accordance with said time-pressure curve, pressure responsive means for sensing the pressure in said vessel upon said molten metal body and actuating a timing means upon said pressure reaching a predetermined magnitude, means supplying a constant pressure to said vessel during a period said timing means is in operation, and relief valve means disposed in said pneumatic circuit for releasing pressure from said vessel after lapse of said period.

3,302,255
FOUNDRY MOLD PATTERN ARRANGEMENT

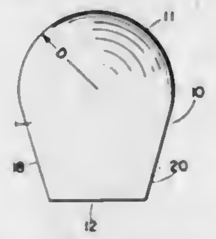
John A. Wagner, Jr., Decatur, Ill., assignor to Wagner Castings Company, Decatur, Ill., a corporation of Delaware
Filed Dec. 18, 1963, Ser. No. 331,605
6 Claims. (Cl. 22—157)



2. In a pattern stool of the character described for use in retaining a pattern during the formation of cope and drag portions of a foundry sand mold in a mold flask positioned on said stool and surrounding said pattern and for maintaining precise registration and positioning of a pattern insert with said pattern thereon with respect to said flask for precise matching of said cope and drag mold portions to form a complete foundry mold, the combination which comprises a substantially flat surface on said stool for receiving and supporting a flask for one of said mold portions, means for precisely and repeatedly positioning said flask on said stool in a predetermined orientation thereon matching and registering with the orientation of a flask placed thereon for the other said mold portion, a recess in said stool for receiving a pattern insert therein and disposed on said stool within the area of said flat surface thereof enclosed by said flask, and locating means including locating dowels and cooperating locating surfaces in said recess, and on said pattern insert disposed therein for precise registration and positioning of said insert with respect to said stool and said means thereon for positioning said flask.

3,302,256
GASIFIABLE FEEDER HEAD PATTERN

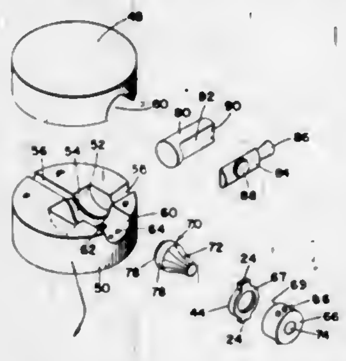
Adalbert Wittmoser, Lampertheim, Hesse, Germany, assignor to Full Mold Process, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Sept. 15, 1964, Ser. No. 396,530
1 Claim. (Cl. 22—158)



In a casting arrangement in combination
a casting pattern having substantially the configuration of the article to be cast, and
one or more feeder head patterns each having a spherical top, two parallel sides and two converging sides, the distance between the two parallel sides being equal to the diameter of the sphere,
said sides forming a rectangular base for engagement with the surface of the casting pattern,
said feeder head patterns consisting essentially of a material which is gasifiable substantially without residue at the temperature of the molten casting charge,
whereby one or more such feeder head patterns can be placed side by side on the casting pattern at areas where the greatest shrinkage is anticipated.

3,302,257
METHOD FOR CASTING RINGS BY THE LOST WAX PROCESS

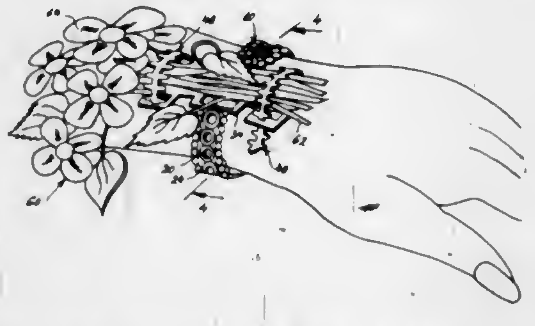
Morton S. Kaplan, 407 Jamaica Drive, Cherry Hill, N.J. 08034
Filed Aug. 4, 1964, Ser. No. 387,403
4 Claims. (Cl. 22—196)



1. A method of making a ring having a body portion and decorated annular bezel at one end thereof in a plane substantially perpendicular to that of said body portion comprising the steps of forming a blank of soft metal having a bezel surface, routing a legend in said surface, providing a mold cavity corresponding to the size and contour of said body portion, holding said blank adjacent said mold cavity so that said bezel surface extends substantially at right angles to the plane of said mold cavity to form an additional mold cavity corresponding to said bezel, molding the entire ring in said cavities in wax and casting said ring in metal via the lost wax process.

3,302,258
CORSAGE HOLDER FOR WRIST

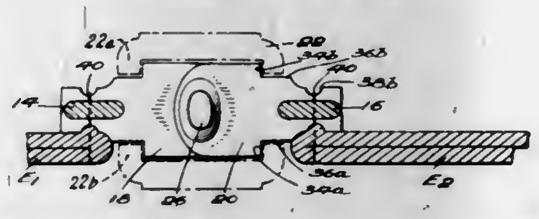
Gene R. Meyer, 301 Suburban Ave., Deer Park, N.Y. 11729
Filed Feb. 24, 1965, Ser. No. 434,781
2 Claims. (Cl. 24—5)



1. A one-piece all-plastic corsage holder comprising an elongated flexible straplike sectional plastic body, an elongated flat plate extending laterally of the body, flexible plastic straplike sections extending from opposite side edges of the plate, each section composed of a series of annular perforated members in side-by-side relation, a series of side-by-side semispherical members on each long side of the annular members, a buckle formation on the free end of one section, a pin carried by said buckle formation projecting outwardly thereof in one direction, a pin carried by the free end of the other section outwardly thereof in the opposite direction, flexible straplike members projecting from one long edge of the lateral extensions of the plate disposed parallel to the sides of one section, said straplike members composed of an elongated strap having opposed laterally extending stem engageable arms longitudinally spaced along substantially the entire length thereof, and slotted keeper members projecting from the other long edge of the plate extensions at the extreme ends thereof parallel to the side of the other section, adapted to receive the straplike members with the cross arms in interlocking engagement with the edges of the slots of said keeper members for holding the corsage on the plate.

3,302,259
SLIDE FASTENERS

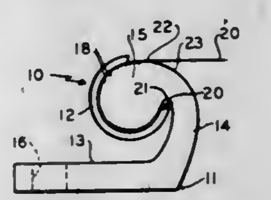
George Waldes, Long Island City, N.Y., assignor to Waldes Kohinoor, Inc., Long Island City, N.Y., a corporation of New York
Filed June 25, 1965, Ser. No. 467,001
5 Claims. (Cl. 24—205.13)



1. A slide fastener comprising a pair of tapeless stringers each consisting of a longitudinal cord and a plurality of individual fastener elements disposed in row formation affixed thereto, the fastener elements of the two rows thereof being oppositely disposed and having coupling head portions adapted to be engaged and disengaged with one another and shank portions terminating in cord attaching portions, a slider for engaging and disengaging said coupling head portions of the oppositely disposed fastener elements in accordance with its movement therealong, the shank portions of the fastener elements each having at least one of the upper and under surfaces thereof formed with a set-back area providing for the reception and accommodation of the edge of the garment or other article defining the opening therein served by the fastener and to which the cord carrying said elements and all elements of the same row thereof are sewn in use of said fastener.

3,302,260
BEADED FASTENER DEVICE

Howard L. Cuddeback, Geneva Turnpike, R.D. 1, Canandaigua, N.Y. 14424
Filed Apr. 9, 1965, Ser. No. 446,878
10 Claims. (Cl. 24—243)



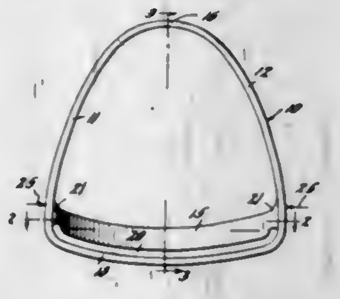
3. A beaded fastening device for securing the edge portions of a sheet of thin flexible material about a surface area, comprising: an elongated beaded strip of substantially rigid material having a foot portion therealong adapted to be secured along the outside edge of the area, the strip having a bead portion of generally spiral external configuration overlying the inner side of the foot portion, the bead portion being adapted to have the edge portion of the sheet material wrapped therearound so as to extend substantially tangentially therefrom, and the strip having a neck portion connecting the bead and foot portions, and an elongated semi-tubular retainer of resilient material normally conforming interiorly to the exterior cross-sectional shape of the bead portion, the retainer being adapted to be snapped over the bead portion

and thereby clamping the edge portion of the sheet material against the bead portion, the retainer extending more than 180° around the bead portion.

3,302,261

SUSPENSION CLIP

Rolf Bordewich Jensen, 21 Nobels Gate, Oslo, Norway
Filed Feb. 12, 1965, Ser. No. 432,352
Claims priority, application Norway, Sept. 14, 1964, 154,751
9 Claims. (Cl. 24—246)

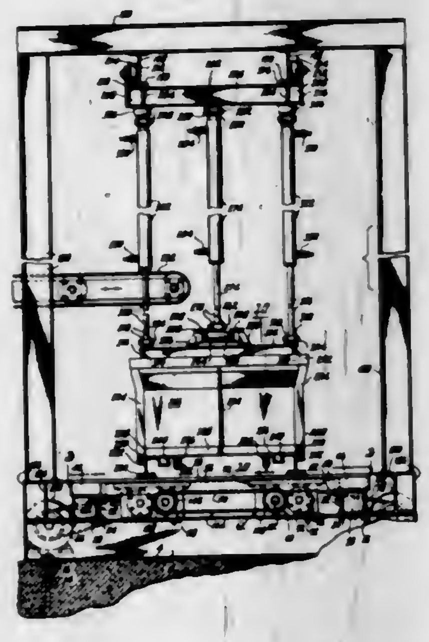


1. A clip for the suspension or attachment of a fabric article or the like comprising, in combination, an integral permanently continuous annular frame forming the basic peripheral structure of the clip and a chord-forming member having its ends rigidly fixed to spaced portions of said frame, said member extending across said frame near an edge thereof and defining, together with the adjacent subtended arcuate segmental portion of the annular frame, a permanently open slit within which a portion of a fabric article can be gripped; said clip being of only slightly flexible material, whereby said chord-forming member and said subtended segmental portion of the annular frame may be sprung apart to a slight degree only sufficient for the retention of the inserted fabric by inwardly directed pressure applied to opposite sides of the frame.

3,302,262

CONCRETE MOLD VIBRATION TABLE WITH CUSHION MEANS AND PRESSURE FORM

Carl W. Chanlund, Nampa, Idaho, assignor to Idaho Concrete Pipe Co., Nampa, Idaho
Filed Jan. 22, 1964, Ser. No. 339,456
19 Claims. (Cl. 25—41)

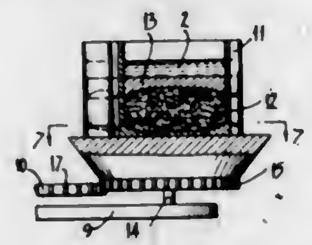


11. A vibration table, comprising: a base; a table platform; a plurality of legs supporting said platform above said base, and constructed to cushion shock forces applied to said table to lessen their effect on said base; a plurality of vibrator units secured to the underside of said platform; a separate motor means connected to each vibrator unit to drive the same; and means interconnecting the driven vibrator units to effect synchronous operation thereof.

3,302,263

FORMATION AND MOULDING OF FELT

Robert George Tugen, Hawthorn, Victoria, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, Australia
Filed Jan. 15, 1965, Ser. No. 425,757
Claims priority, application Australia, Jan. 28, 1964, 40,199/64
16 Claims. (Cl. 28—5)

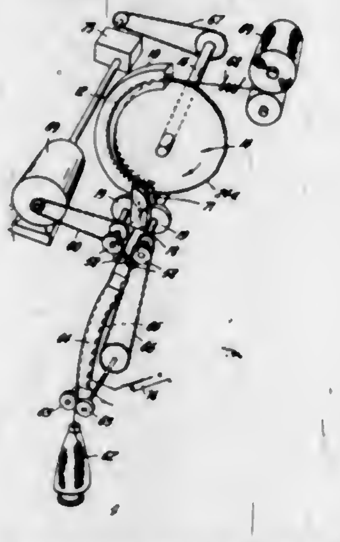


6. An apparatus for forming felt comprising a plurality of moulds mounted for rotation about a substantially vertical axis on a first plate, each mould having peripheral gear teeth formed thereon, a second plate coaxial with said first plate which carries gear teeth in mesh with the teeth on the moulds and means whereby the two plates may be relatively rotated.

3,302,264

METHOD OF CRIMPING YARN

Denis Albert Edward Mattingly, London, England, assignor to The Klinger Manufacturing Company Limited, London, England, a British company
Original application Nov. 28, 1962, Ser. No. 240,551, now Patent No. 3,212,157, dated Oct. 19, 1965. Divided and this application May 28, 1965, Ser. No. 470,954
7 Claims. (Cl. 28—72)

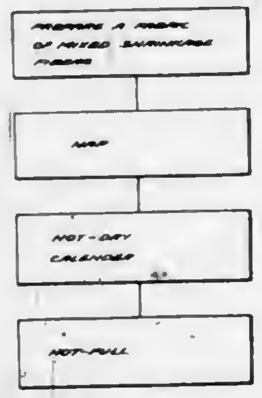


1. A method of crimping yarn having at least a thermoplastic component, said method comprising the steps of preheating the yarn to soften the thermoplastic component, introducing the softened yarn into a crimping zone, surrounding the yarn in the crimping zone with stationary means from the entry end to the discharge end thereof for a relatively short distance in the lengthwise direction of the yarn and restricting passage of the yarn at the discharge end of the crimping zone to thereby form a mass of crimped yarn, forcing the mass of crimped yarn to the discharge end of the zone, positively engaging the mass of yarn internally of the outer periphery thereof and along its entire length as it emerges from the discharge end of the zone and conveying the thus engaged yarn substantially without slippage from the crimping zone through a setting zone for a sufficient time to set the crimp in the yarn while substantially preserving the yarn in the configuration in which it was delivered from the crimping zone.

3,302,265

PROCESS FOR PREPARATION OF FLANNEL FABRICS FROM SYNTHETIC FIBERS

Warren E. Davis, Arden, and Edward A. McAbee, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Apr. 21, 1964, Ser. No. 361,546
2 Claims. (Cl. 28—76)

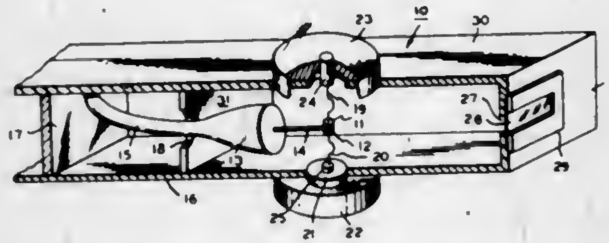


1. A method for making flannel fabric having a weave entirely obscured by good surface and bottom cover which comprises preparing a fabric from synthetic organic fibers containing fibers having at least two different residual shrinkage levels, about 50 to 70 percent of the fibers present having a residual shrinkage below about 5 percent and the remainder of the fibers having a residual shrinkage of about 10 to 50 percent, napping the fabric, calendering the resulting napped fabric to compress and minutely crimp the fibers by passing the dry fabric, at a speed of at least about 20 yards per minute, through confining rolls at a temperature of 100° to 450° F. and at a pressure applied by the rolls of about 833 to 1666 pounds per inch of roll width, and subjecting the calendered fabric to compressional working in the presence of moisture and a lubricant at a temperature of at least 200° F. but below 212° F. to shrink the fibers, compact the fabric structure and obscure the weave pattern; the compaction assisted and preserved by the minute crimp produced in the said calendering step.

3,302,266

ELECTRICAL DEVICE

Martin I. Grace, Wayne, N.J., assignor, by mesne assignments, to Airtron, Inc., Division of Litton Industries, Inc., Morris Plains, N.J.
Original application Sept. 26, 1962, Ser. No. 226,257, now Patent No. 3,230,464, dated Jan. 18, 1966. Divided and this application Aug. 13, 1965, Ser. No. 508,876
2 Claims. (Cl. 29—25.3)

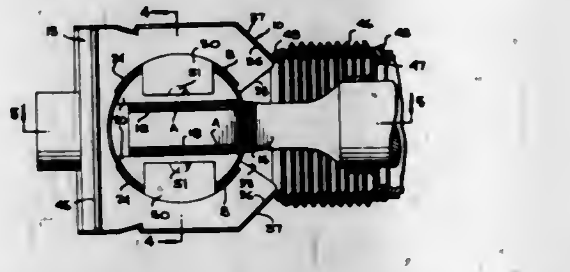


1. A process for constructing a balanced parametric amplifier having an opposed pair of voltage variable capacitor semiconductor diodes inclosed within a hermetically sealed container and so arranged that the pump power is applied to the diodes in series and a signal is applied thereto in parallel comprising the steps of: providing a container having a conductor supported therein insulated from the walls of the container, said conductor having an end portion, attaching a pair of semiconductor dice to said conductor in back to back relationship with the conductor end portion in contact with the common engaging sides of the dice, providing a pair of aligned openings in the container each confronting the opposite side of a different one of the dice, providing a pair of point contact conductors each supported by a plug having dimensions corresponding to a different one of the openings, inserting each of the point contact conductors through its associated openings and into contact with a different one of the dice, adjusting the pressure on each of the plugs until its contactor engages the dice with a desired pressure, forming the point contact semiconducting junction, and hermetically sealing the plug within the opening in the container.

3,302,267

METHOD OF PRELOADING A UNIVERSAL JOINT

Carl F. Benson, Torrington, Conn., assignor to The Torrington Company, Torrington, Conn., a corporation of Maine
Original application July 26, 1963, Ser. No. 297,769, now Patent No. 3,217,515, dated Nov. 16, 1965. Divided and this application Sept. 20, 1965, Ser. No. 488,584
8 Claims. (Cl. 29—148.4)



1. A method of preloading a universal joint of the type comprising a yoke member and a paddle member and including first bearing means for providing pivotal movement between said yoke member and said paddle member about a transverse axis of the paddle member, and second bearing means for providing pivotal movement between said yoke member and said paddle member about an axis normal to said transverse axis; said method comprising the steps of assembling said paddle member and said first and second bearing means into a sub-assembly, spreading the yoke member to stress it within its elastic limit by the application of external forces, placing the sub-assembly of said paddle member and said first and second bearing means within said yoke member, removing the external forces from said yoke member for subjecting said sub-assembly to compressive forces exerted by said stressed yoke member and maintaining said compressive forces for holding said universal joint in a preloaded condition.

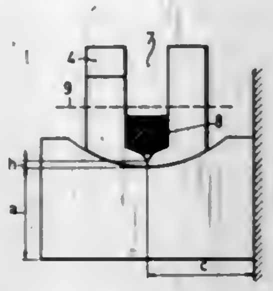
3,302,268

METHOD OF MANUFACTURING MAGNETIC HEADS USING A JIG FOR ACCURATELY DETERMINING GAP HEIGHT

Simon Duinker, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 5, 1962, Ser. No. 177,453
Claims priority, application Netherlands, Mar. 22, 1961, 262,703
9 Claims. (Cl. 29—155.5)

1. A method of manufacturing magnetic recording and/or reproducing heads having a frontal portion including pole pieces and an adjoining rear position, comprising: securing together two flat ferrite plates with a non-magnetic bonding agent, thereby forming a pole piece assembly with the bonding agent forming the future gap of the head, grinding one end of said assembly substantially to the required shape of the pole face, placing said assem-

bly in a jig having a mating surface which conforms in shape to said pole face and a base surface located a distance *a* from the lowermost portion of said mating surface, said one end being placed against said mating surface, and removing sufficient material including a portion



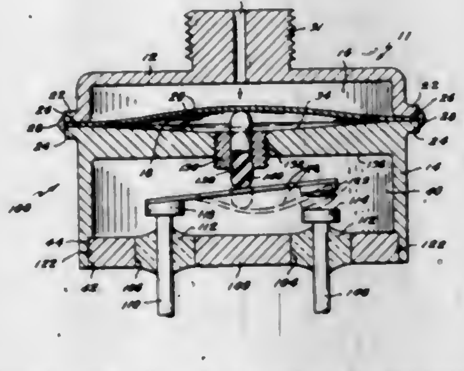
of said plates and said bonding agent from said assembly to allow the height of gap remaining to be the desired amount, the removal operation being performed in the portion of said assembly including the bonding agent such that there remains a pair of protruding legs of magnetic material.

3,302,269
METHODS OF MAKING CONDITION RESPONSIVE DEVICES

Lawrence E. Cooper, Attleboro, Mass., and Edmunds Kadisevskis, Pawtucket, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Continuation of abandoned application Ser. No. 261,921, Dec. 31, 1962, which is a division of application Ser. No. 133,385, Aug. 23, 1961. This application Feb. 2, 1965, Ser. No. 431,767

6 Claims. (Cl. 29—155.5)



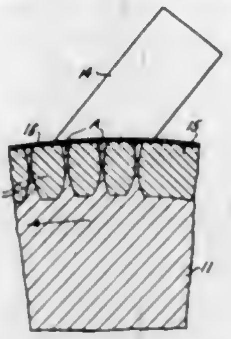
1. The method of making a condition-responsive device comprising the steps of providing first and second casing members, each having a cavity, and an aperture connected with its respective cavity; positioning a deformable condition-responsive member intermediate said first and second casing members and securing each of said casing members to said deformable condition-responsive member adjacent the marginal periphery thereof so that said deformable condition-responsive member separates and seals said cavities from each other; applying fluid pressure into one of said cavities through its aperture to one side of said deformable condition-responsive member within its periphery to stress it and bulge it in the direction of its opposite side whereby the deformable condition-responsive member is stressed beyond its elastic limit to bulge it sufficiently for it to assume a desired predetermined deformed configuration; inserting a motion-transfer means into one of said apertures and positioning said means for engagement with one side of said deformed condition-responsive member; mounting a mechanism on the casing member which provides the aperture in which the motion transfer means is inserted for actuation of said mechanism in response to movement of said deformed condition-responsive member at predetermined conditions.

3,302,270
METHOD OF WEAR-RESISTANT COATING A COMMUTATOR CONTACT SURFACE

Dimitry G. Grabbe, Sea Cliff, N.Y., assignor to Photocircuits Corporation, Glen Cove, N.Y., a corporation of New York

Filed Nov. 9, 1962, Ser. No. 236,610

3 Claims. (Cl. 29—155.55)



1. A method of making a commutator of long mechanical life and high conduction at a low noise level particularly at low potentials as of the order of 0.005 volt comprising: forming a commutator having clean segments; forming an oxide coating of predetermined thickness on said segments by flame heating; disposing in intimate contact with said coating so at to have relative movement a conductive brush comprising carbon and containing indium; and forming a thinner outer coating conductively connected to said segments for high conduction at a low noise level, by moving said segments and brush relative to one another to apply said indium contained in said brush to said oxide coating, ~~and~~ applying a voltage across said brush and said segment sufficient to fracture said oxide coating and cause segment material to be drawn through said fractures to the surface of said oxide coating to be in direct contact with said indium and form therewith said thinner outer conductor coating.

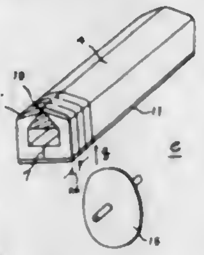
3,302,271
METHOD OF MANUFACTURING A MAGNETIC HEAD ASSEMBLY

Kengo Matsumoto, Ohta-ku, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan, a corporation of Japan

Filed Nov. 20, 1962, Ser. No. 238,848

Claims priority, application Japan, Nov. 22, 1961, 36/42,562

10 Claims. (Cl. 29—155.57)



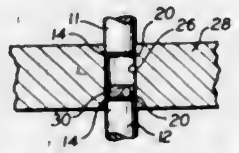
1. A method of manufacturing a magnetic head assembly with wear resistant working faces comprising grinding a rectangular bar of magnetic material which is elongated in a longitudinal direction to form a planar face along one side thereof, attaching a sheet of magnetic working face material having subtsantially greater abrasion resistance than the magnetic material of said bar to said planar face at said one side of said bar, forming a longitudinal concave portion in an adjacent planar side of said bar to form a generally C-shaped first magnetic core member leaving a front gap surface defined by said adjacent side and said sheet and leaving a back gap surface, combining said first magnetic core member with a second magnetic core member made in the fashion of said C-shaped first magnetic member to form a tubular magnetic core assembly with the respective gap surfaces in confronting relation, cutting said magnetic core assembly at right angles to said longitudinal direction to obtain a plurality of ring-shaped magnetic cores, and providing an electric winding on each of said ring-shaped magnetic cores which extends about the portion of said first magnetic core member associated with said ring-shaped magnetic core.

3,302,272
FORMING A RESISTOR WITH THIN, COMPRESSED, CONTACT PORTIONS

Marinus J. Braun, Bradford, Pa., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 26, 1963, Ser. No. 333,532

1 Claim. (Cl. 29—155.71)



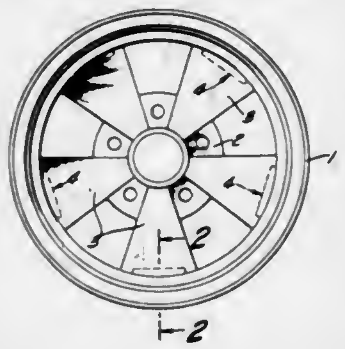
In the manufacture of electrical resistors by compressing a resistor body composition in a cylindrical die cavity between circular end faces of plungers, said resistor body composition comprising a mixture of conductive material of high specific resistance, a filler, and a binder, the improvement which comprises: coating the end faces of the plungers with a liquid release agent coating; applying electrically conductive terminal powder to the liquid coating on said plungers wherein said terminal powder is retained on the plungers by said liquid coating; placing in said die cavity a quantity of said resistor body composition; compressing said resistor body composition in said die cavity with the coated end faces of the plungers whereby an electrical resistor is molded in situ with said resistor body composition being bonded at both ends to said conductive terminal powder and with the sides of said resistor body composition being free of any coating of said terminal material; and removing said plungers and ejecting said electrical resistor from said die.

3,302,273
METHOD OF MAKING COMPOSITE VEHICLE WHEEL

Virgil K. Benton, Ontario, and James C. Bennett, West Covina, Calif., assignors to Electro Chemical Industries, Inc., Pomona, Calif., a corporation of California

Original application July 31, 1964, Ser. No. 386,674. Divided and this application Aug. 17, 1966, Ser. No. 573,098

5 Claims. (Cl. 29—159)



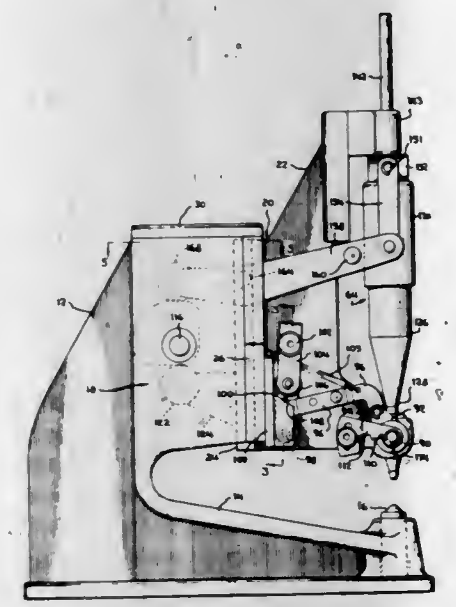
1. The method of making a wheel assembly including a non-ferrous hub and a steel rim, comprising: locating in a hub mold at a plurality of circumferentially spaced locations at a marginal wall of said mold a plurality of steel elements with portions of said steel elements projecting radially relative to said marginal wall; supporting said steel elements by said portions; filling said mold with molten non-ferrous metal; allowing said molten non-ferrous metal to harden to form a hub and unite said steel elements therewith; removing said hub from said mold; removing said portions from said steel elements; placing said hub within the inner periphery of a steel rim; and welding said steel elements to said rim.

3,302,274
APPARATUS FOR MAKING ELECTRICAL CONNECTIONS

Herbert Collier Stoltz, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 4, 1965, Ser. No. 430,275

3 Claims. (Cl. 29—203)



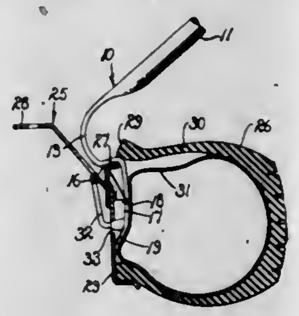
1. Apparatus for inserting a pin-like member into a panel comprising, a support for said panel, a slide member reciprocable towards and away from said support, means for feeding a succession of said pinlike members along a pin feed path in said slide, pin-inserting means on said slide including a plunger, means for moving said plunger toward said slide along a path intersecting said pin feed path, and means for orienting the leading pin of said succession in axial alignment with, and in front of, said plunger whereby, upon reorientation of said leading pin-like member and upon movement of said plunger towards said panel, said leading pin-like member is inserted into said panel.

3,302,275
TIRE TOOL

Eugene W. Turpin, 66 N. Academy, Sanger, Calif. 93657

Filed Oct. 12, 1964, Ser. No. 403,137

6 Claims. (Cl. 29—221.5)

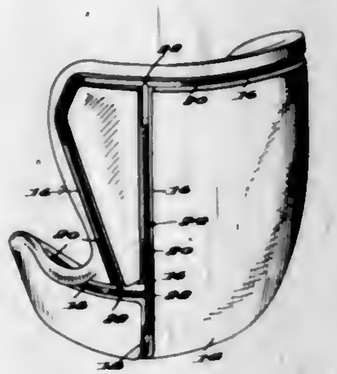


5. A tire tool for withdrawing a valve stem of a pneumatic tire tube from an aperture in its mounting rim comprising an elongated handle; a shank portion integrally longitudinally extended from the handle and providing an outwardly curved surface defining a fulcrum area engageable with the rim; and a bifurcated entry portion extended

from the shank to receive the valve stem and providing an engaging surface reversely curved relative to the fulcrum area.

3,302,276
FURNITURE FABRICATING METHOD

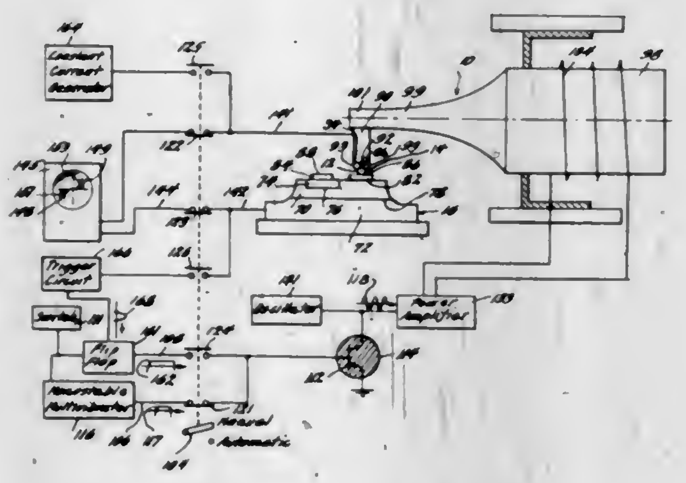
Oscar Stanley Williams, Arlington, Ind. (R.D. 5, Rushville, Ind. 46173), and Robert Stanley Williams, Box 124, Arlington, Ind. 46104
Filed June 6, 1963, Ser. No. 285,935
6 Claims. (Cl. 29—407)



1. A process for forming frames for chairs of the type having a chair body of a molded material comprising casting a chair body in a mold, removing the body from the mold, cutting out portions of the chair body to receive frame members, forming frame members within the cut out portions of the chair body and securing said frame members together on the chair body to form a prototype frame, removing the frame from the chair body, and fabricating additional frames patterned after the prototype frame which additional frames will accurately fit the mold.

3,302,277
METHODS OF BONDING ELECTRICAL CONDUCTORS TO ELECTRICAL COMPONENTS

David H. Pruden and David Schoenthaler, Trenton, N.J., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 20, 1964, Ser. No. 353,550
8 Claims. (Cl. 29—407)

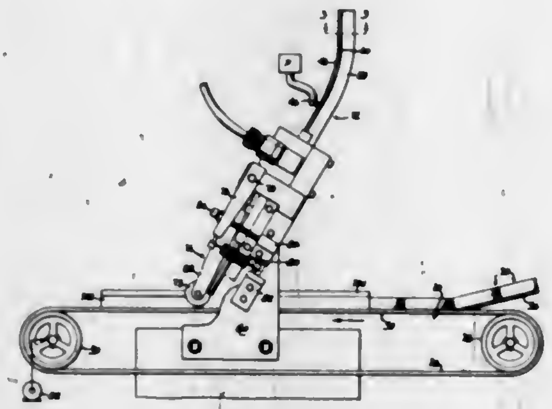


1. In a method of forming a bond between an electrical conductor and an electrode of an electrical component, said component having an electrical characteristic which varies from an initial value according to the amount of energy utilized to effect said bond, the steps of:

urging the conductor and the electrode into mutual contact,
applying ultrasonic bonding energy to the contacting conductor and electrode to effect the bond and vary the electrical characteristic of the component, and
measuring the variation of the electrical characteristic from said initial value to obtain an indication of the mechanical characteristics of the bond.

3,302,278
METHOD OF INSERTING GASKETS IN BOTTLE CAPS

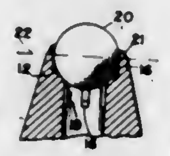
Ralph H. Whitney, Glassboro, N.J., assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Feb. 10, 1965, Ser. No. 431,546
6 Claims. (Cl. 29—429)



1. A method of inserting annular gaskets into bottle caps having a top panel and a depending annular skirt comprising the steps of moving a continuous line of bottle caps in inverted position along a first path, releasably supporting a gasket in a vertically inclined ready position projecting downwardly into the path of travel of caps moving along said first path, trapping the gasket in said ready position against a first cap in said continuous line to pull the gasket free from its releasable support by movement of said first cap beyond said ready position, and depositing the released gasket into the next successive cap in said continuous line.

3,302,279
METHOD OF MAKING BALLPOINT-PEN TIPS

Anthony G. Rosa, 155 Park Ave., Lyndhurst, N.J. 07071
Filed Sept. 21, 1965, Ser. No. 488,860
3 Claims. (Cl. 29—441)



1. A method of making a ballpoint-pen tip from a body having an axis, comprising the steps of:

(a) forming at a forward axial end of said body a recess open outwardly at said end;
(b) then forming in said body an axially extending ink-supply bore coaxially aligned with said recess and terminating thereat so as to define an annular lower wall at the junction between said recess and said bore;
(c) thereafter cutting said lower wall of said recess to form an annular seat surounding said axis and said bore while conforming to a spherical sector of a ball;
(d) then forming in said body at least one axially extending channel communicating with said bore and terminating at said seat body forcing a fluting tool into said body through said end and said recess;
(e) burnishing said seat without substantial removal therefrom; and
(f) inserting into said recess a ball having a periphery conforming to said seat and rotatably fixing said ball in said recess.

3,302,280
METHODS OF BONDING SECONDARY MATERIALS TO BERYLLIUM-COPPER

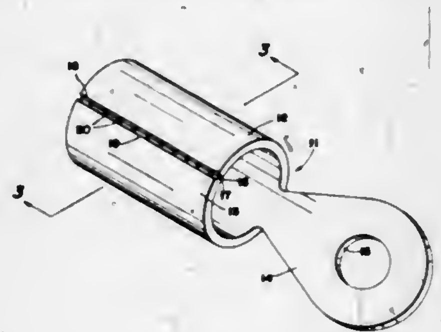
Jerry C. La Plante, Bayside, N.Y., assignor to Alloys Unlimited Inc., Long Island City, N.Y., a corporation of New York
No Drawing. Filed May 15, 1964, Ser. No. 367,878
5 Claims. (Cl. 29—475)

1. The process of cladding beryllium-copper comprising the steps of:

taking a bar of beryllium-copper,
milling a slot in said bar,
cleaning said bar by chemical or mechanical means,
placing a piece of low resistance metal into said slot,
heating said inlaid piece to a temperature of 1200 to 1500 degrees F., in a reducing or neutral atmosphere.
hot rolling said inlaid piece to reduce the thickness to a predetermined thickness.

3,302,281
METHOD OF FORMING A BRAZED SEAM

Richard B. Freeman, Cleveland, and Paul J. Spangler, University Heights, Ohio, assignors to ETC Incorporated, Cleveland, Ohio, a corporation of Ohio
Filed July 29, 1964, Ser. No. 386,022
5 Claims. (Cl. 29—482)



1. A method of forming a brazed seam between two sheet metal edges, comprising the steps of providing serrations along one edge of at least one of the sheets, said serrations extending inwardly into said edge for a distance that is not substantially less than one-tenth of the thickness of the sheet and is not substantially greater than the thickness of the sheet, butting the serrated edge of one of the sheets with an edge of the other sheet so that a V-shaped groove is formed therebetween with the serrations opening into the groove, wetting substantially all of the surface of said groove and said serrations and filling the same with a liquid brazing alloy, and cooling said liquid alloy to form a brazed seam.

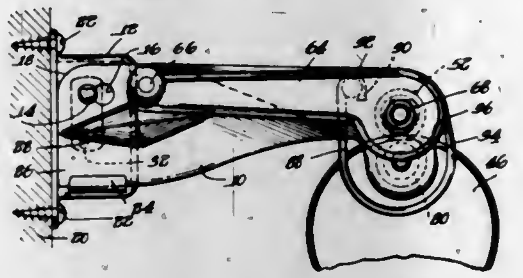
3,302,282
METHOD OF WELDING TITANIUM MEMBER

Milton Bernard Vordahl, Beaver, Pa., assignor to Crucible Steel Company of America, Pittsburgh, Pa., a corporation of New Jersey
No Drawing. Filed July 17, 1964, Ser. No. 383,487
4 Claims. (Cl. 29—497.5)

1. A method of welding comprising placing in juxtaposition at least two pieces of a base metal selected from the group consisting of titanium and titanium base alloys, introducing between said pieces of base metal a weld metal consisting essentially of a tin-containing titanium base alloy, the amount of tin ranging from about 13% to about 20% by weight, and applying to the resultant assembly at least one weld-effecting physical influence to a degree effective to produce a localized union across the interface between said pieces of base metal and said weld metal.

3,302,283
CAN OPENER

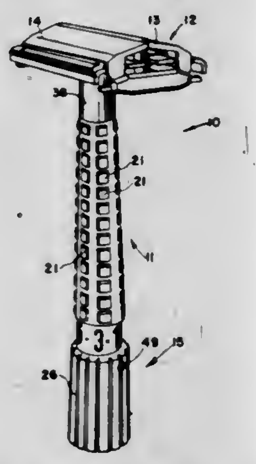
Joseph H. Carter, 1960 11th St., Rockford, Ill. 61108
Filed Feb. 15, 1965, Ser. No. 432,649
8 Claims. (Cl. 30—15.5)



1. An opener mechanism for cutting the end seam of a container, said mechanism comprising a first pintle having bearing means thereon, a cutter roll journalled on said bearing means, a second pintle having bearing means thereon, a backup roll journalled on said bearing means, and actuating means for moving said pintles relatively toward and away from each other to move said rolls relatively toward and away from each other to effect a seam cutting operation, said actuating means including a friction device disposed between the backup roll and its cooperative bearing means for imparting predetermined friction to rotation of a least one of said rolls.

3,302,284
SPRING SEAT FOR SECTIONAL CAP RAZORS

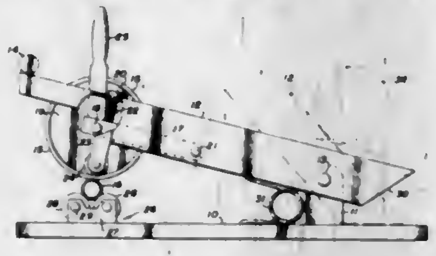
Clarence O. Schrader, Sherman Oaks, Calif., assignor to Eversharp, Inc., Milford, Conn., a corporation of Delaware
Filed Apr. 14, 1965, Ser. No. 448,018
1 Claim. (Cl. 30—60.5)



A safety razor of the adjustable type comprising a handle member, a guard mounted on said handle member, a spider assembly movable relative to said guard and having a spider stem extending into said handle member, said spider assembly including cap sections adapted to open and close in response to full spider stem movement, said cap sections in the closed position being spaced from said guard, spring seat means mounted intermediate said guard and said cap sections, said spring seat adapted to engage opposite edge portions of a razor blade and urge the same against said cap sections thereby resiliently to hold said razor blade, means to vary the spacing between said cap sections and said guard when said razor is in the closed condition, said spring seat being operative to maintain said razor blade in engagement with said cap sections through variance of the spacing between said cap and guard sections, and spring means on said stem to urge it axially of said handle member, said spring means having sufficient operative movement to urge said cap sections to the open condition and means formed on said spring seat to co-operate with said guard to limit the upward movement of said spring seat in order that the tension on said spring seat may be provided throughout variance in said spacing between said cap sections and said guard.

3,302,285
TUBING CUTTER HAVING PIVOTALLY MOUNTED DRIVE ROLLER

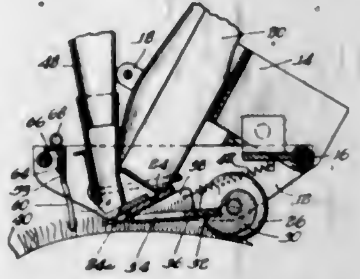
Harold J. Mann, Jr., 4424 E. Lancaster,
Fort Worth, Tex. 76103
Filed June 27, 1966, Ser. No. 560,644
3 Claims. (Cl. 30—102)



1. A tubing cutter comprised of a base plate having front and rear ends, a pair of parallel primary arms pivotally mounted at corresponding ends to said base plate at the rear end thereof for movement about a common axis, a presser bar connecting the remaining ends of said primary arms, auxiliary arms pivotally mounted at corresponding ends on said primary arms intermediate the ends thereof and extending toward the ends of said primary arms including said presser bar, a drive roller rotatably mounted between the extending ends of said auxiliary arms, spring means connecting said auxiliary arms with said primary arms, a depending roller cutter rigidly mounted on one of said primary arms, a roller cradle on said base plate beneath said drive roller and said cutter and parallel with the axes thereof, and means rotatably moving said drive roller.

3,302,286
HAIRCUTTING MECHANISM

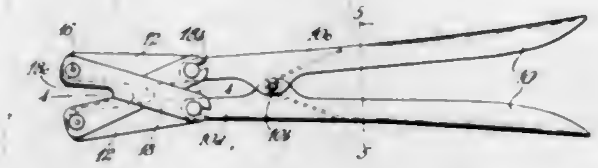
Gottlieb F. Zucker, 5153 S. St. Louis Ave.,
Chicago, Ill. 60632
Filed Sept. 8, 1964, Ser. No. 394,782
7 Claims. (Cl. 30—133)



1. A haircutting machine comprising: a main frame adapted for engagement with a scalp of a person whose hair is being cut; a cutter frame carrying haircutting means thereon, said cutter frame being pivotally mounted on said main frame for movement relative to said main frame; a slidable member carried by said main frame with a cam surface of said slidable member positioned for sliding engagement with a surface of said haircutting means, said slidable member being movable from a first position to a second position for pivoting said cutter frame and haircutting means relative to said main frame to move said haircutting means from a location adjacent to an outer edge of said main frame when said slidable member is in said first position to a position spaced apart from the outer edge of said main frame when said slidable member is in said second position; and actuator means mounted on said main frame for engaging said slidable member to cause said slidable member to move from said first position to said second position as the haircutting means is moved relative to the scalp of a person whose hair is being cut.

3,302,287
GRAPE-VINE CUTTER

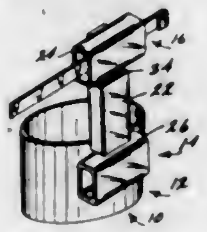
Thomas J. Kelly, P.O. Box 26, International
Falls, Minn. 56649
Filed Mar. 15, 1965, Ser. No. 439,629
8 Claims. (Cl. 30—134)



1. A vine cutting implement comprising a pair of hand-grips connected in companion relation by a pivot between them, the hand-grips having extensions forwardly from the pivot, a pair of non-crossed pivoted gripping jaws, pivot pins connecting said extensions and rear ends of said jaws whereby to cause the front ends of the jaws to close when the hand-grips are pressed together, and cutting edge-providing cutter blades closed by the jaws with shearing action in such event, said cutter blades being crossed and having front and rear end portions, pivot means connecting the front cutter blade portions to said front jaw ends, and the rear cutter blade portions pivotally connected to said jaw and hand-grip connecting pivot pins.

3,302,288
ORTHODONTIC APPLIANCES

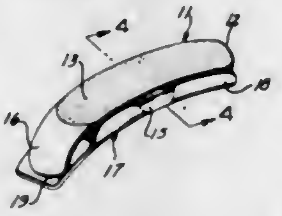
Harry W. Tepper, 11633 San Vicente Blvd.,
Los Angeles, Calif. 90049
Filed June 4, 1964, Ser. No. 372,639
3 Claims. (Cl. 32—14)



1. An orthodontic appliance comprising:
an orthodontic band made of a heat shrinkable material; and
an orthodontic bracket rigidly affixed to said band.

3,302,289
IMPRESSION AND BITE TRAY FOR DENTISTRY

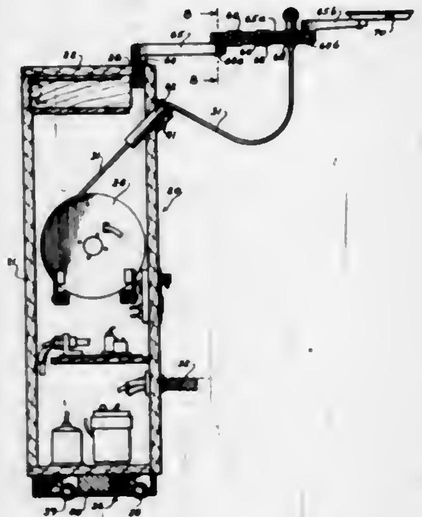
Lawrence A. Spaulding, 301 Ocean Center Bldg.,
Long Beach, Calif. 90802
Filed Oct. 21, 1963, Ser. No. 317,532
2 Claims. (Cl. 32—19)



1. An impression and bite tray for use in dentistry, comprising,
an elongated tray formed of thin metallic foil, said tray having a substantial depth,
an impression compound filling said tray,
a handle formed on one end of said tray,
and a holder formed of a rigid material and shaped to receive and retain said tray, said holder supporting the tray for positioning the tray in a patient's mouth.

3,302,290
DENTAL UNIT

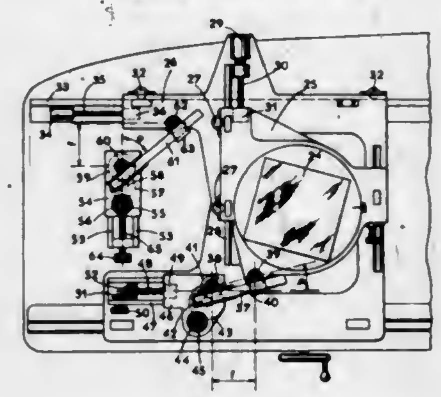
Charles Weiss and David Harold Linn, New York, N.Y., assignors to S. S. White Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Sept. 16, 1963, Ser. No. 309,232
11 Claims. (Cl. 32—22)



1. A dental operating unit, comprising:
(a) a hollow pillar-like stand,
(b) flexible tubing interconnecting the interior of said stand with external controls and sources of power, water, waste, air and vacuum,
(c) said stand resting on a plurality of wheels whereby said stand is mobile,
(d) and weights on said stand in juxtaposition to said wheels whereby said stand will be stable.

3,302,291
PHOTOGRAMMETRIC PLOTTER

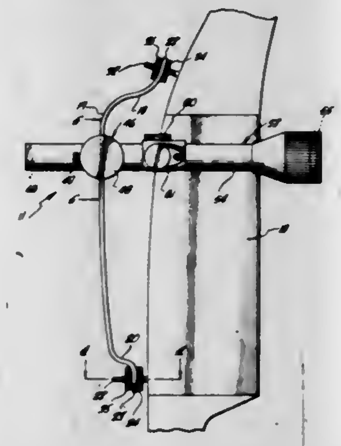
André Czapek, Le Perreux, France, assignor to Societe d'Optique et de Mecanique de Haute Precision, Paris, France, a company of France
Filed Mar. 23, 1964, Ser. No. 353,715
Claims priority, application France, Mar. 26, 1963, 929,216
3 Claims. (Cl. 33—20)



1. An electromechanical photogrammetric plotting machine for two photographs comprising a first system including two intersecting rods representing the homologous rays of said two photographs, a terrain plotting point adjacent the intersection of said rods, carriages connected to said rods adjacent said terrain plotting point for moving said terrain plotting point, said rods and said carriages being universally connected at the intersection of said rods and said plotting point being connected to one of said carriages, a main Cardan joint having two axes at right angles for each of said rods and through the center of which the respective one of said rods slidably passes and a stereocomparator second system independent of said first system including a binocular eyepiece for observation of said two photographs, a photograph carriage for and mounting each of said two photographs, means for moving each of said carriages in two mutually perpendicular directions beneath said binocular eyepiece and teletransmission means connected between said Cardan joints and said photograph carriages, each of said main Cardan joints being mounted in a second Cardan joint having the same center.

3,302,292
ARCHERY AIMING DEVICE

Alfred A. Akin, Jr., West Covina, Calif., assignor to David P. Bushnell, Altadena, Calif.
Filed Apr. 30, 1965, Ser. No. 452,120
3 Claims. (Cl. 33—46)



1. Mounting apparatus for an archery aiming sight, comprising an elongated bracket secured to the midsection of an archery bow, the bracket having a curve along its length which is concave relative to an archer holding the bow, a leg extending toward the bow from each end of the bracket, each leg terminating in a foot, each foot having a mounting hole, two spaced-apart elongated studs, each stud secured to and extending from the bow through a foot mounting hole, and means adjustably securing each foot along the length of a stud, the variable positioning of the two feet permitting adjustment of the radius of curvature of the bracket and positioning of the sight relative to the archer, and means slidably securing the aiming sight to the bracket, the elevation setting of the sight being adjustable by sliding said means along the curved bracket.

3. In an optical aiming sight comprising a reticle, an optical system placing the reticle and an image of a target in the same focal plane, and a mount for the reticle and optical system, a deviating prism hingedly mounted in front of the sight between the sight and the target, the prism altering the sight field of view such that the target image can be centered in the sight even though the sight is not aimed directly at the target, and latching means for securing the deviating prism against the mount out of the sight field of view when use of the deviating prism is not desired.

3,302,293
PLANE TABLE PLOTTER

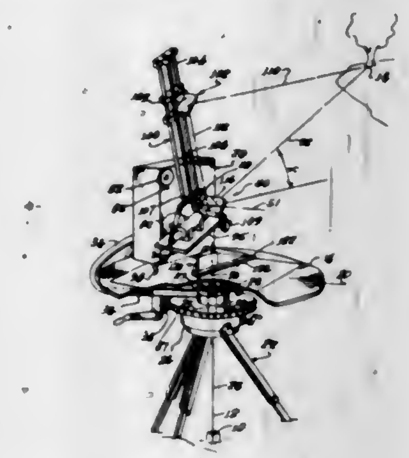
Charles Stacy French, Los Altos Hills, Calif., assignor, by mesne assignments, to Research Corporation, New York, N.Y., a nonprofit corporation of New York
Filed Jan. 20, 1964, Ser. No. 338,841
9 Claims. (Cl. 33—67)

1. A system for correlating points of terrain or the like and corresponding points of a map, comprising in combination

optical means manually adjustable to establish a line of sight between two of said terrain points,

range-finder means directionally coupled to said optical means and responsive to the line of sight distance between said two points,

computing mechanism comprising means for receiving a first input signal representing one acute angle of right triangle, means for receiving a second input signal representing the length of the hypothenuse of the right triangle, and means for deriving from said input signals an output signal representing the length of the side of the right triangle adjacent said acute angle,



means coupled to said optical means for developing a representation of the elevation angle of the line of sight and for supplying that representation as first input signal to the computing mechanism,

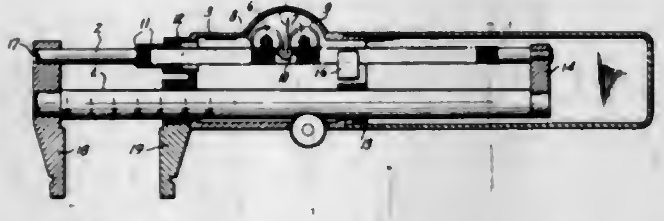
means coupled to said range-finder means for developing a representation of the line of sight distance between said two points and for supplying that representation as second input signal to the computer mechanism,

structure forming a map surface,

and means responsive to said output signal of the computing mechanism for directly indicating on the map surface a distance proportional to the map distance between said two points.

3,302,294
SLIDING CALIPERS PROVIDED WITH DIAL GAUGE

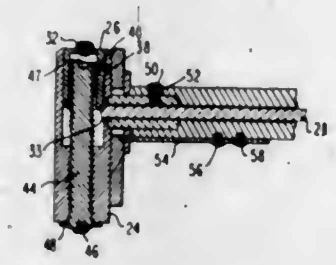
Takeshi Eguchi, Utsunomiya, Japan, assignor to Yehan Numata, Tsurumi-ku, Yokohama, Japan
Filed Sept. 18, 1964, Ser. No. 397,554
Claims priority, application Japan, Oct. 15, 1963, 38/77,297
3 Claims. (Cl. 33—147)



1. In sliding calipers of the type comprising a hollow body, a dial gauge carried on said body, gear means within said body for controlling said gauge, a stationary first jaw carried by said body, a second jaw outside said body movable with respect to said first jaw, rod means connected to said movable jaw which extends into said body, means on said rod to turn said gears, a stop on said rod outwardly of said turning means, said body being provided with an aperture through which said rod extends, the improvement which comprises a tubular cover encircling said rod and extending through said aperture, said cover having one end formed to catch on said stop on said rod while its other end is formed to catch on the inner edge of said aperture, said cover comprising at least two relatively telescopic tubular portions, the innermost of which catches on said stop, while the outermost catches on said aperture, said portions being of sufficient length to retain a telescopic relationship when the jaws are in a fully open position.

3,302,295
ADJUSTABLE BORE GAUGE

Albert J. White, Kingston, N.Y., assignor, by mesne assignments, to B. C. Ames Co., Waltham, Mass., a corporation of Massachusetts
Filed Feb. 11, 1964, Ser. No. 344,057
2 Claims. (Cl. 33—147)



1. A bore gauge comprising in combination a tubular stem and an associated plunger mounted therein, and adapted to move along a longitudinal axis thereof, an equalizing head assembly operatively connected to one end of said tubular stem and adapted for insertion into a bore opening to be measured, a dial indicator operatively connected to the opposite end of said tubular stem for actuation by said plunger, a gauging head mounted within said equalizing head assembly, said gauging head including a hollow gauging pin comprising a first measuring contact and being movable therein, a range extension having a length substantially equal to the dimension of said equalizing head transverse to said longitudinal axis, said gauging head having an opening transverse to said longitudinal axis and adapted to accommodate said hollow gauging pin and said range extension when adjustably positioned therein, said gauging pin and said range extension being adapted to telescope during certain bore measurements, and means for translating the motion of said hollow gauging pin to said plunger.

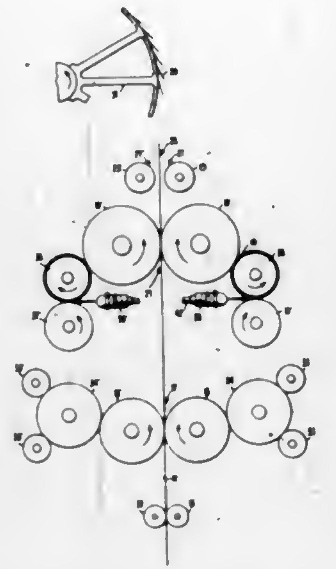
3,302,296
METHOD AND APPARATUS FOR DRYING OF MOISTURE-SETTING INKS

Richard H. Holmwood, Binghamton, and Hans J. Huth, Vestal, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Aug. 14, 1964, Ser. No. 389,565
4 Claims. (Cl. 34—9)

1. The method of drying moisture-setting ink printed on fibrous web material having a surface including alternating peaks and inter-fiber voids, freshly printed ink in wet condition being deposited largely on the peaks of the fibrous web, comprising the steps of

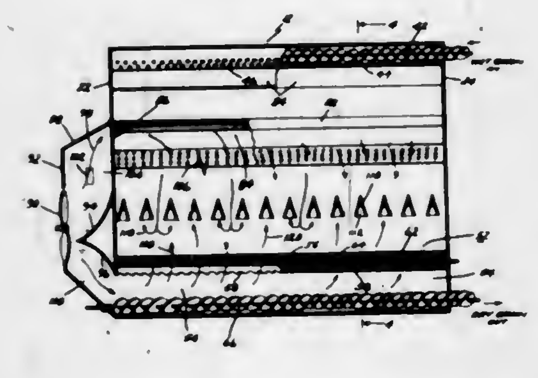
continuously coating at least one roll of a pair of substantially smooth metallic pressure rolls revolving substantially in contact with one another with a thin uniform film of acidic dampening solution in liquid form to continuously re-etch the surface of said one roll to maintain said surface hydrophilic, and

passing the freshly printed web between the pair of dampened pressure rolls to press substantially all the ink deposited on the peaks of the fibrous web into the inter-fiber voids to reduce the tendency to smear and set-off while simultaneously transferring a portion of the dampening solution onto the ink under pressure to initiate drying of the moisture-setting ink, complete drying occurring shortly after leaving the rolls and being solely by means of the dampening solution.



3,302,297
DRYING APPARATUS AND METHOD

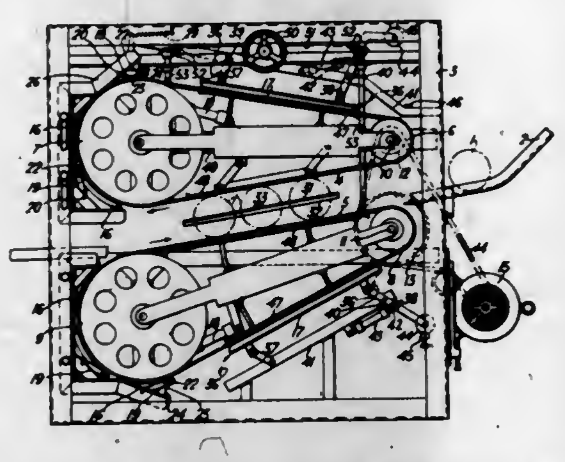
Douglas L. Graham, Wingate, Ind. (R.R.1, Gibson City, Ill. 60936)
Filed Sept. 9, 1964, Ser. No. 395,249
10 Claims. (Cl. 34—13)



3. The method of drying grain comprising the steps of forming a bed of grain to be dried, said bed having opposite end portions, passing in one direction grain to be dried through said bed from one end portion to the other, the grain at said one end portion being undried, unheated and wet, said bed being divided into only two sequentially arranged air-flow zones, one zone extending from one end portion of said bed toward the other end portion, the other zone extending from the other end portion of said bed toward said one end portion, providing a flow of heated air through said one zone only in said one direction, providing a flow of cooler air in said other zone only in the opposite direction, said other zone being the next succeeding air-flow zone following said one zone when progressing in said one direction, exhausting said air from a location between said zones, whereby an air temperature gradient in said bed is produced which decreases from said one end portion toward said exhausting location and furthermore increases from said other end portion toward said exhausting location.

3,302,298
CAN-DRYING

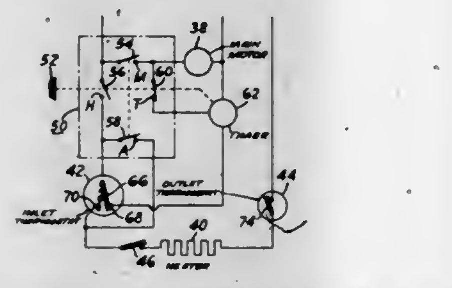
Arthur Leslie Stuchbery, Enfield, England, assignor to The Metal Box Company Limited, London, England, a British company
Filed Apr. 8, 1963, Ser. No. 271,350
Claims priority, application Great Britain, Apr. 26, 1962, 16,054/62
17 Claims. (Cl. 34—17)



1. Apparatus for drying cans of the type including generally cylindrical can bodies and opposite ends comprising heated means for engaging diametrically opposite exterior surface portions of can bodies, and means for moving said heated means in opposite directions at different relative speeds for both rotating said cans about their axes and advancing said cans along a predetermined path of travel.

3,302,299
DRYER CONTROL APPARATUS

Mark N. Scherzinger, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 14, 1964, Ser. No. 396,074
4 Claims. (Cl. 34—45)



1. A control system for a clothes dryer having means forming a drying chamber, means for circulating air through said chamber and heating means for heating said air and comprising, means for selectively energizing said circulating means and said heating means, motor driven timing means operable for actuating said selectively energizing means throughout a drying cycle of predetermined time, first temperature sensitive switch means operably responsive to the temperature of air entering said drying chamber and having a first position in series electrical flow relationship with the motor for said timing means when the temperature of the entering air is below 140° F. and a second position in series with said heating means when the temperature of said entering air is above 140° F., second temperature sensitive switch means operably responsive to the temperature of air leaving said drying chamber and in series electrical flow relationship with said heating means and having a closed position when the temperature of said leaving air is below 140° F. to energize said heating means and an open position when the temperature of said leaving air is above 140° F. to deenergize said heating means, and by-pass means actuated by said timing means and in series electrical flow relationship with said heating means

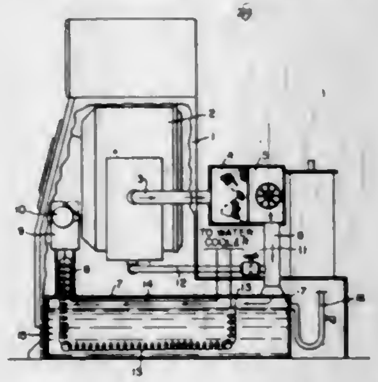
and said second temperature sensitive switch means and in shunt relation to said first temperature sensitive switch means for by-passing said first temperature sensitive switch means for a predetermined timed period sufficient to permit said first temperature sensitive switch means to move from its first position to its second position, thereafter said second temperature sensitive switch means operating to maintain the temperature of said leaving air at 140° F. only until said first temperature sensitive switch means in response to a sensed inlet temperature below 140° F. returns to said first position sequentially first to de-energize said heating means and then to operate said timing means to deenergize said circulating means and the motor of said timing means to terminate the drying cycle.

3,302,300
RECOVERY AND COOLING SYSTEM FOR DRYCLEANERS

Alpheus E. McClead, R.D. 1, Franklin Township, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 15, 1964, Ser. No. 367,703

3 Claims. (Cl. 34—75)



1. A solvent recovery system for drycleaners consisting of a combination of elements including a tub, a lint trap, a blower, a solvent storage tank, a condenser, a heater and ducts interconnecting said elements to provide a passageway for air and for air laden with solvent vapor through said elements in the order set forth, a helix of coils carrying a coolant within said solvent storage tank and projecting into a duct leading from said tank to said heater to constitute a condenser, said storage tank being placed under said tub, lint trap and blower whereby said duct leading from said blower to said storage tank is oriented vertically to move the air vapor stream downwardly as it changes in temperature from hot to cold, said heater being placed above said storage tank and said condenser to move hot air into said tub whereby said duct leading from said condenser to said heater is oriented vertically to move the air stream upwardly as it changes in temperature from cold to hot, characterized by the construction of said storage tank and the location of said duct from said blower and the location of said condenser whereby the air vapor stream moving over the surface of said stored solvent moves comparatively slowly over a maximum area thereof.

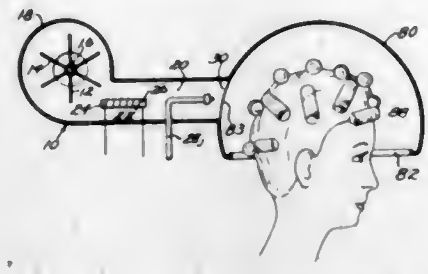
3,302,301
APPARATUS FOR DRYING AND TREATING OF HAIR VIA ULTRASONICS

Ralph W. Goble, Boulder, Colo., assignor to The Engineering & Development Company of Colorado, Boulder, Colo., a corporation of Colorado

Filed June 6, 1966, Ser. No. 555,629

13 Claims. (Cl. 34—99)

1. In a hair dryer, a housing having an inlet and an outlet, a blower mounted in said housing for forcing air through said housing, a head encircling hood means having a cavity to receive the head connected to said housing outlet for receiving air therefrom and ultrasonic generator means mounted downstream of said blower



adapted to impart ultrasonic modulation to the air stream received by said hood means, said modulated air being employed in the treating of natural and synthetic fibers.

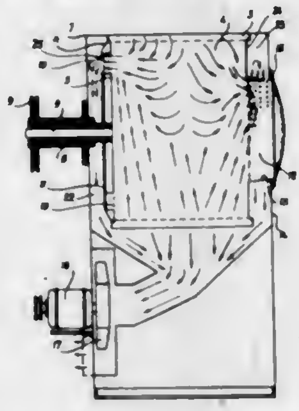
3,302,302
APPARATUS FOR DRYING CLOTHING AND SIMILAR ARTICLES IN A DRUM

Antonio Ferrer Font, 79–81 Pablo Alcover St., Barcelona, Spain

Filed Jan. 24, 1964, Ser. No. 340,016

Claims priority, application Spain, Jan. 25, 1963, 284,538

2 Claims. (Cl. 34—133)



1. An apparatus for drying clothing and similar articles, comprising a casing, a horizontal drum mounted for gyratory movement within the casing, said drum having opposite end walls and a peripheral wall, one of said end walls having apertures therein, the other of said end walls having apertures in the upper portion thereof only, intermediate wall means located between said casing and one end wall provided with a segmental opening in the upper portion thereof, a source of suction within the casing, heating means within the casing communicating tangentially with the drum so that upon activation of the source of suction, hot air is drawn into the drum to flow in a spiral path therein for passing through the clothing in the drum and be directed horizontally in two streams against said opposite end walls of the drum and pass from the drum through the apertures in said one end wall and the segmental opening in the intermediate wall means and the apertures in the upper portion of the other wall means, and conduit means within the casing with which said two air streams communicate leading to said source of suction.

3,302,303
DRYING SYSTEM

Marcel Aupoix, Paris, France, assignor to Societe Generale du Vide, Choisy-le-Roi, Seine, France, a French corporation

Filed Feb. 17, 1964, Ser. No. 345,272

Claims priority, application France, Feb. 26, 1963, 925,992, Patent 1,364,603; May 17, 1963, 935,221

36 Claims. (Cl. 34—145)

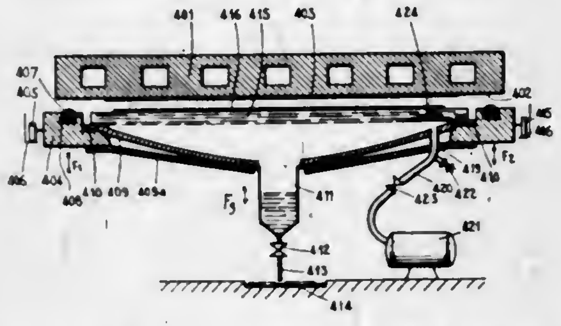
1. Apparatus for drying the sheet-like article including hides and skins comprising:

frame structure including heating means having a generally flat downwardly directed heating surface;

perforate supporting means having an upwardly directed surface upon which the article is adapted to rest;

a deformable hood-like member supported from the frame structure below said heating surface and enclosing the article supporting means, said member including an upwardly-directed surface portion in pressure-transmitting relationship with an under surface of the supporting means;

means for sealingly securing the periphery of said deformable member to said frame structure around said heating surface and supporting means whereby to



define a variable-volume sealed enclosure around and below an article supported thereon;

means connected with said enclosure and connectable to a suction source to apply suction to the interior of the enclosure whereby to cause upward deformation of said deformable member, and whereby to transmit upwardly directed pressure through said supporting means to apply the article upwards against said heating surface; and

effluent discharge means connected with said enclosure for discharging effluent fluids issuing from said article.

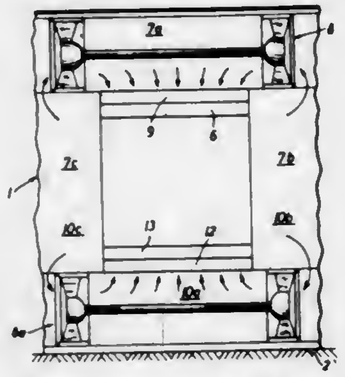
3,302,304
APPARATUS FOR VENTILATING WEBS OF TEXTILE MATERIAL

Rolf Goldenberg and Friedrich Ulrichs, Remscheid-Lennep, Germany, assignors to Maschinenfabrik Friedrich Haas G.m.b.H. & Co., Remscheid-Lennep, Germany

Filed Mar. 17, 1964, Ser. No. 352,616

Claims priority, application Germany, Mar. 19, 1963, M 56,162

10 Claims. (Cl. 34—159)



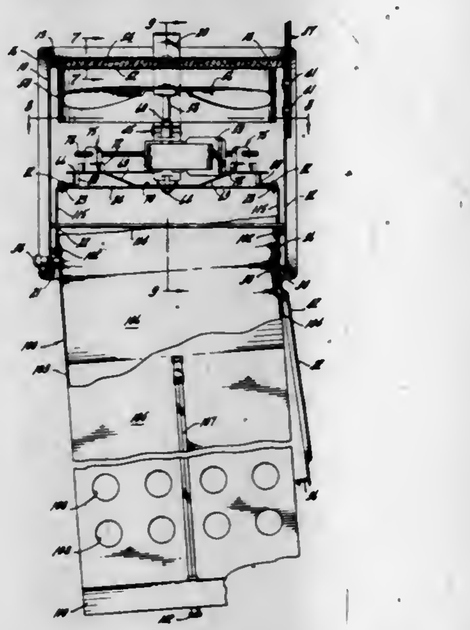
1. An apparatus for ventilating webs of textile material, comprising a conveyor arranged to advance a web of textile material in a meandering path having a first side and a second side located opposite said first side, said conveyor including a first and a second row of substantially parallel rollers extending transversely of said path and respectively adjacent to the first and second sides thereof, the web being trained alternatively around the rollers of said first and second rows so as to form a plurality of panels extending substantially transversely between said first and second sides and defining between themselves a first and a second group of pockets whereby the pockets of the first group alternate with the pockets of the second group and said first and second groups of pockets respectively extend from the first side toward the second side and from the second side toward the first side of said path, each of said pockets having an inlet extending between two rollers of the respective row and at least one outlet extending substantially at right angles to said inlet; a plurality of first plenum chambers each including a first portion adjacent to the first side of said path and comprising a plurality of nozzles each arranged to discharge at least one stream of compressed gas into one pocket of said first group; and a plurality of second plenum chambers each including a first portion adjacent to the second side of said path and comprising a plurality of nozzles each arranged to discharge at least one stream of compressed gas into one pocket of said second group so that each side of each panel is contacted by such gas, each of said plenum chambers further including a second portion in communication with the outlets of one of said groups of panels and compressor means arranged to circulate the gas from the second into the first portion of the respective plenum chamber, the second portions of said first plenum chambers communicating only with the outlets of said second group of pockets and the second portions of said second plenum chambers being in communication only with the outlets of said first group of pockets.

3,302,305
CLOTHES DRIER

Robert E. Little, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind., a corporation of Indiana

Filed Sept. 29, 1964, Ser. No. 400,042

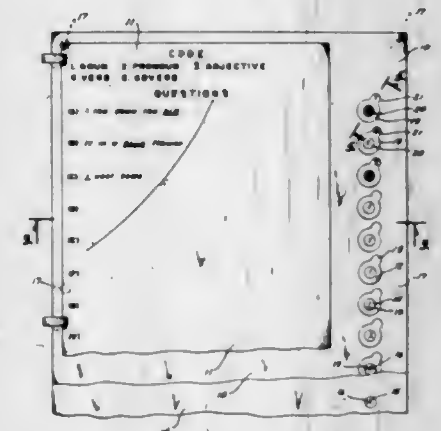
3 Claims. (Cl. 34—163)



1. A clothes drier, comprising a housing having interconnected front, rear, end, and top walls, a door swingably mounted on said housing for closing the bottom thereof, a hook-shaped hanger having first and second portions removably received on pins on said rear walls and in a slot in said door, respectively, for mounting said hanger on the housing in a retracted position and movable into an operative position in which said first portion is received on said pins and said second portion projects above the housing for mounting the housing in a supporting structure, a peripheral molding extending around each end wall and projecting outwardly beyond the extent of said door in its closed position and hanger in its retracted position, a flexible bag having an open upper end mounted in said housing and movable between a folded retracted position in said housing and an extended operative position projecting downwardly from said housing, said bag being provided with a closable access opening, means in said housing for supporting the clothes to be dried in said bag, a fan mounted in said housing, means for rotating said fan whereby said fan will move air into said

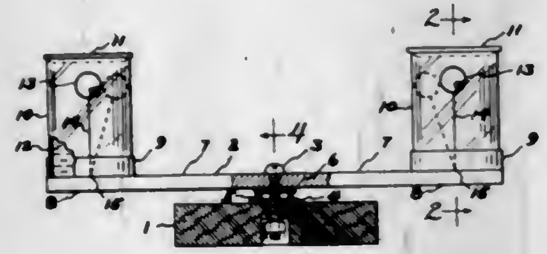
housing through an opening therein and blow it into said bag for discharge therefrom through vent openings formed therein, and a heating element mounted in said housing in the path of air movement from said fan to said bag.

3,302,306
METHOD OF AND MEANS FOR INFORMATION DETECTION
Walter O. Peterson, Enid, Okla., assignor to Polarknown, Inc., Eugene, Oreg., a corporation of Oregon
Filed May 28, 1965, Ser. No. 459,573
4 Claims. (Cl. 35—9)



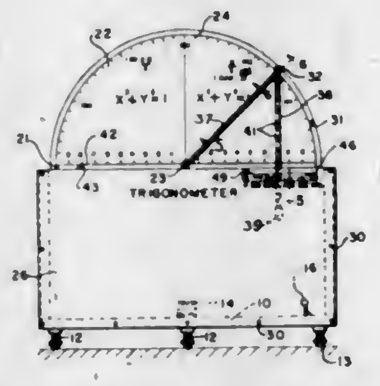
4. The method of quickly obtaining information, comprising
- taking a sheet containing question indicia calling for one of a plurality of selections to be made by a user,
- taking a plurality of fixed polarized filter members and arranging said filter members in a predetermined relative orientation to form a corresponding relationship between one each of said fixed filter members and one of said question indicia,
- taking a set of keyed polarized filter members with identifying indicia thereon corresponding to particular selections called for by said question indicia,
- moving one of said keyed filter members into a predetermined overlapping position on one of said fixed filter members whereupon the position of said one fixed filter member in relation to said one keyed filter member will be such that light will be blocked from passing through said overlapping filter members only if the question indicia corresponding with said one fixed filter corresponds to the identifying indicia on said one keyed filter member.

3,302,307
ACCELERATION DEMONSTRATING MEANS
Harley J. Haden, 1866 Alpha Road, Glendale, Calif. 91208
Filed Dec. 2, 1963, Ser. No. 327,364
3 Claims. (Cl. 35—19)



2. Means for demonstrating an effect of acceleration comprising a container having at least a portion of a wall thereof transparent for visual observation of the interior of the container, a quantity of fluid in said container, a body of less density than said fluid and of less diameter than the diameter of the interior of the container, means maintaining said body at least partially immersed in said fluid comprising an elongated anchoring member having one end attached to said body and the other end thereof attached to the interior surface of said container at a point thereon below said body and which is disposed substantially coincident wtih the vertical center line of said container; said anchoring member and the attachment thereof to said interior surface of the container serving additionally to permit said body to move generally normal to the length of said anchoring member in any direction within the limits established by the wall of the container, and a supporting means on which said container, fluid and anchored body may be moved as a unit about a vertical axial line laterally offset from the vertical center line of said container.

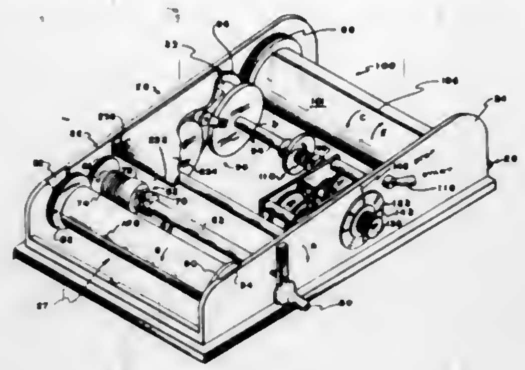
3,302,308
DEVICE FOR TEACHING TRIGONOMETRIC FUNCTIONS
Thomas C. Colacurcio, 6609 Beechmont Ave., Cincinnati, Ohio 45230
Filed Jan. 25, 1965, Ser. No. 427,734
7 Claims. (Cl. 35—34)



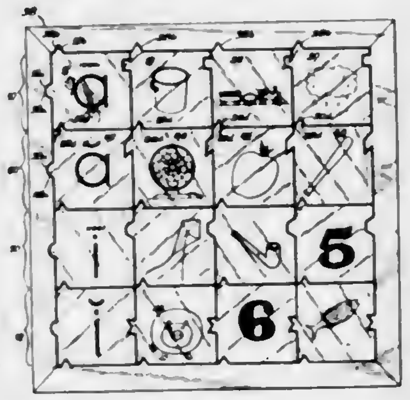
1. A teaching aid which comprises an open topped box, an upstanding wall extending upwardly from a rear wall of said box, there being angle indicating indicia on said upstanding portion, a front wall of said box terminating adjacent a horizontal diameter through the center of said angle-indicating indicia, a wheel mounted on the upstanding portion and swingable around said center, a pivot pin mounted on the wheel adjacent the angle indicating indicia, and a pendulum member mounted on said pivot pin and extending downwardly therefrom into the space between front and rear walls of the box, there being function indicating indicia on the horizontal diameter and the pendulum member for indicating the values of trigonometric functions.

3,302,309
READING PACER
James Keith Macomber, Rockville Centre, N.Y., assignor to Consolidated Lithograping Corporation, Long Island, N.Y., a domestic corporation
Filed Dec. 18, 1963, Ser. No. 331,573
12 Claims. (Cl. 35—35)

1. An apparatus for reeling a web comprising a main frame having an observation station, a potential energy motor, a supply roll including a web comprising program material, and an advance roll for rolling and advancing the said web past said observation station in which
- (a) the said advance roll is connected to the said potential energy motor by conducting means,
- (b) the said supply roll is connected to a
- (c) manually operable rewinding means with
- (d) the said web forming a drive transmission between the said advance roll and the said supply roll, and there is
- (e) means, mounted in the frame, for steering the said web with relation to the said supply roll, during rewinding, comprising platen means comprising a surface upon which the said web is transported, and at least one end portion substantially at right angles to the direction of transportation of said web, rounded away from the said web with relation to said surface,
- (f) said end portion having outward flares at its ends.



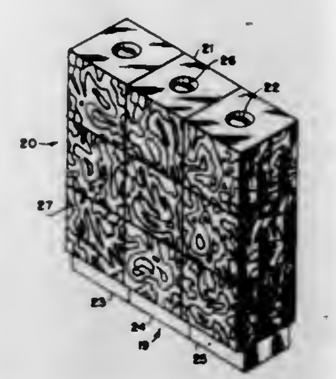
3,302,310
TEACHING DEVICE
Gloria R. Leven, 718 Forest Ave., Evanston, Ill. 60202
Filed May 18, 1964, Ser. No. 368,121
9 Claims. (Cl. 35—35)



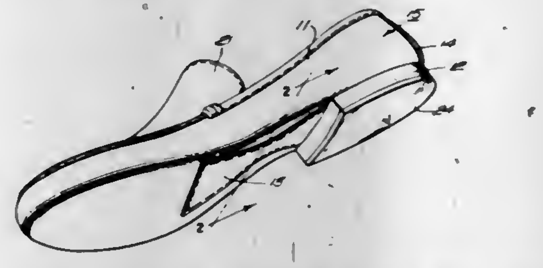
1. A kinesthetic teaching device for learning to read comprising a series of indicia-bearing members comprising a set of first elements having alphabetic representations thereon, a set of coordinate elements having pictorial indicia thereon representing word equivalents, the alphabetic representation on each of said first elements being contained in a preselected member of the word equivalent of said pictorial representations, interlocking means on each of said first elements and coordinate elements to interlock at least one of said coordinate elements with a predetermined first element to form an array, said array being characterized in that the alphabetic representations on said first element phonetically corresponds to the pictorial representation on said coordinate element whereby a kinesthetic match of the elements may be interlocked.

3,302,311
EDUCATIONAL GAME
Dorothy M. Israel, 365 West End Ave., New York, N.Y. 10024
Filed May 20, 1964, Ser. No. 368,905
6 Claims. (Cl. 35—69)

1. An educational and therapeutic game comprising a plurality of blocks carrying artistic indicia on each face thereof, said faces being substantially square, said blocks having holes, a plurality of vertically arranged pins having substantially the same diameter as said holes in said blocks whereby said blocks may be individually rotated about said pins, and a base plate for holding said pins in spaced relationship whereby said blocks may be arranged in contiguous horizontal alignment, said base plate consisting of a plurality of parts, each one of said parts carrying one of said pins, and means for movably connecting said parts whereby said parts may be laterally spaced apart during said rotation of said blocks.



3,302,312
MOCCASIN-TYPE SHOE
Charles E. Hartley, Avon, Mass., assignor to The Stetson Shoe Company, Incorporated, South Weymouth, Mass., a corporation of Massachusetts
Filed July 19, 1962, Ser. No. 211,003
4 Claims. (Cl. 36—11)

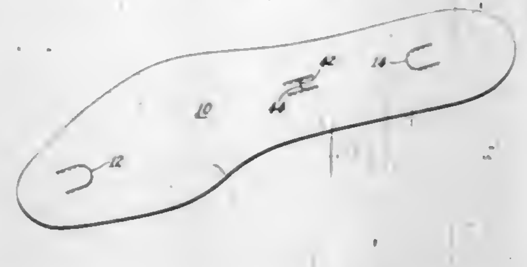


1. A moccasin-type shoe comprising an upper formed of pliable sheet-like material adapted to extend about the foot of a user having a forward portion, an intermediate portion and a heel portion, said upper including at least two side sections and an integral bottom section extending between the side sections to form an outsole for the shoe, an inside sole extending throughout the inner sole area of the shoe, the upper being provided with a V-shaped slit within the sole area adjacent the forward portion of the shoe and positioned substantially within the sole area of the intermediate portion and merging with a heel opening dividing said heel portion, the edges of the slit being stiched together in the sole area of the intermediate portion to conform the upper to the instep of the user, means securing said divided heel portion, a patch on the bottom of the sole area of the intermediate portion over the stitched edges of the slit having at least its side edges secured to the said upper to form a rearwardly opening pocket between the outer surface of the upper and the patch, a resilient shank stiffening element positioned within said pocket and extending rearwardly thereof overlying said heel portion, and heel means overlying the rearwardly extending portion of said shank stiffening element, thereby normally holding the sole of the shoe in a resilient extended position.

3,302,313
MANUFACTURE OF SHOES
Calvin Isaacson, Wellesley, Mass., assignor to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed May 19, 1964, Ser. No. 368,660
9 Claims. (Cl. 36—43)

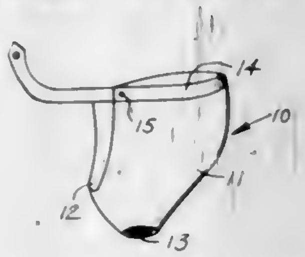
1. An insole provided with a plurality of locating and fastening tab portions, U-shaped slits defining each of

said tab portions so that each tab portion is within the body of the insole, integral with, and hinged to, the insole for movement out of the plane of the insole, one of said



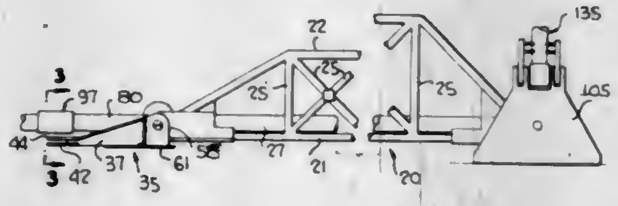
tab portions being located adjacent to the toe end of the insole and another of said tab portions being located adjacent to the heel end of the insole.

3,302,314
FOOT WEAR PROTECTORS
Serena Tack, 1300 E. Kane Place, Apt. 505,
Milwaukee, Wis. 53202
Filed July 12, 1965, Ser. No. 471,301
1 Claim. (Cl. 36—73)



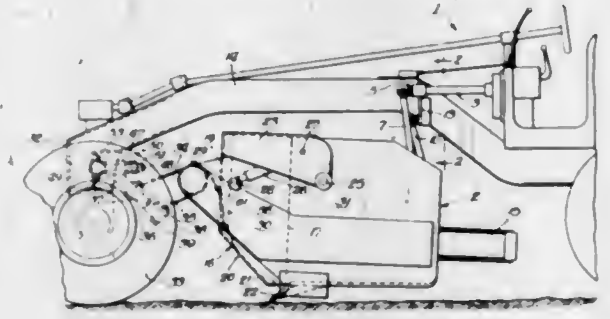
Footwear protecting means comprising a heel panel having an elongated strap, a toe panel and a sole panel providing protective covering means for a shoe, said heel panel extending around the heel of the shoe and having a closed area and an open area and a circular opening through the bottom thereof for the insertion of the heel of the shoe, said strap being secured along the upper extremity of said heel panel and one end of said strap extending from said heel panel and being provided with a snap fastener which is adapted to engage a mating snap fastener on the other side of said strap, means securing said sole panel to said toe panel, and an extension of said toe panel being provided with straps securing said protector to a shoe.

3,302,315
UNDERWATER MINING
William A. Himes, Newport News, Va., assignor to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia
Filed Apr. 10, 1964, Ser. No. 358,877
11 Claims. (Cl. 37—72)



10. A hinge connection and conduit means for use between a plurality of large and heavy components comprising a first relatively rigid component, a first rigid conduit portion of arcuate configuration supported by and fixedly secured to said first component, a second relatively rigid component, a second rigid conduit portion of arcuate configuration supported by and fixedly secured to said second component, body means comprising a rigid open framework, first hinge connection means providing a pivotal interconnection between said first component and one end portion of said body means for pivotal movement about a first pivotal axis, second hinge connection means providing a pivotal interconnection between said second component and the opposite end portion of said body means for relative pivotal movement about a second pivotal axis, said pivotal axes being spaced a substantial distance from one another, conduit means supported by said body means, a pair of further rigid conduit portions of arcuate configuration, each of said last-mentioned pair of conduit portions being swivelly interconnected with one end of one of said first-mentioned conduit portions to permit relative swivel movement therebetween through a substantial angle and yet providing a continuous fluid-tight seal therebetween, and a pair of flexible conduit sections each of which is connected between one end portion of the conduit means supported by said body means and one of said pair of rigid conduit portions to provide a flexible interconnection between the associated members.

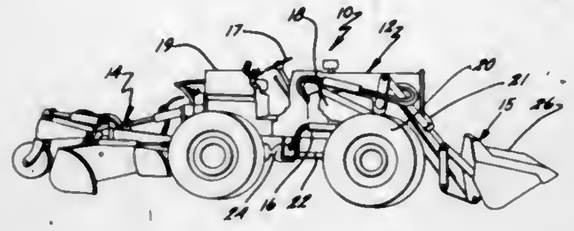
3,302,316
SCRAPER BOWL FOR EARTH MOVING EQUIPMENT
William E. Martin, P.O. Box 187, Kewanee, Ill. 61443
Filed Jan. 30, 1964, Ser. No. 341,332
12 Claims. (Cl. 37—124)



11. In an earth moving scraper for a motorgrader comprising, in combination, a scraper bowl, a structural member on said motorgrader, support means mounted on said structural member and connected with said bowl, a hitch on said bowl and further bowl support means having coacting universal coupling members mounted in a given fixed operative relation upon said structural member including adjustable positioning mechanism interposed between said coupling members and the hitch of said bowl, said adjustable positioning mechanism comprising cooperative bowl supporting bracket elements, one of said bracket elements being connected with one of said coupling members and the other of said bracket elements being connected with said bowl hitch and releasable attachment means are provided to fixedly secure the aforesaid bracket elements together in a given selected relation with respect to each other to suspend the connected bowl in a predetermined adjusted but freely swingable relation to said structural member from said coupling members.

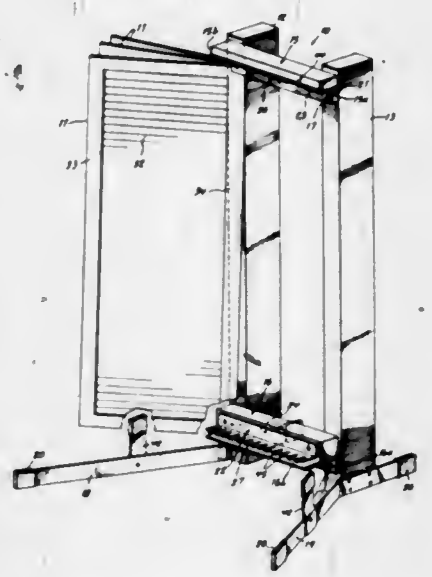
3,302,317
GRADER
Franklin Domres, Rte. 1, Onekama Township, Manistee County, Mich. 49675
Filed Sept. 26, 1963, Ser. No. 311,760
8 Claims. (Cl. 37—179)

1. A versatile grader unit for a tractor comprising: a mounting support for fixed attachment to a tractor; a horizontally extending, vertically shiftable slide element retained on said support; an extension-retraction means vertically positioned between one end of said element and said support for controllably tilting said element; a horizontally extending cantilever beam pivotally mounted to said element on a horizontal pivot axis; extension-retraction means between said support and said beam to shift said beam vertically on said horizontal pivot axis; a scraper blade pivotally secured to the end of said beam opposite said support on a vertical pivot axis; a pair of extension-retraction means on opposite sides of said beam and extending between said beam and the opposite ends



of said blade to turn said blade in a generally horizontal plane; a wheel mount having one end pivotally attached to said blade on a horizontal pivot axis, the other end extending away from said blade and supporting a wheel; and extension-retraction means between said wheel mount and said blade to hoist and lower said wheel mount on its horizontal pivot axis with respect to said blade to lower and raise said blade for depth control.

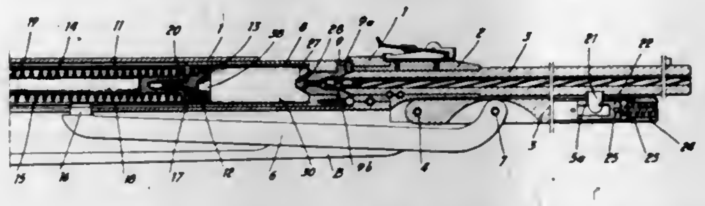
3,302,318
VISIBLE REFERENCE EQUIPMENT
Paul G. Lewis, Tonawanda, N.Y., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 3, 1965, Ser. No. 430,152
9 Claims. (Cl. 40—102)



1. A visible reference device of the class described, comprising

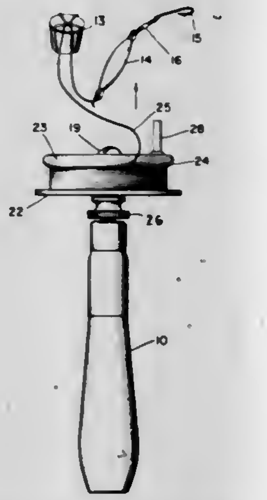
- (a) a pair of spaced support members,
- (b) a row of mounting apertures provided in each support member with each aperture of one row having a corresponding aligned aperture in the row of the other support member,
- (c) a panel member arranged between said spaced support members,
- (d) a pair of spaced pins projecting from opposite corner portions of said panel and adapted for insertion in a pair of said corresponding apertures to pivotally mount said panel member on said support members, and
- (f) means provided on at least one of said support members adjacent an aperture of said pair of apertures adapted to receive and guide said pin into said aperture during mounting of said panel member on said support members.

3,302,319
DEVICES FOR FIRING OBJECTS OF THE CLASS OF PROJECTILES, PLUGS, PINS AND NAILS
Claude Rosselet, Founex, near Nyon, Switzerland, assignor to Corat S.A., Compagnie de Recherches et d'Applications Techniques, Lenzerheide, Grisons, Switzerland, a Swiss company
Filed Apr. 16, 1965, Ser. No. 448,624
Claims priority, application France, Apr. 22, 1964, 971,871, Patent 1,422,054
2 Claims. (Cl. 42—1)



1. In a device for firing objects of the class of projectiles, plugs, pins and nails which are intended to be propelled under the action of an explosive charge of the type in which the ignition of said charge takes place under the action of a pressure rise, said device comprising a supporting stock, a gun barrel mounted in said stock, a compressed-air pump which is disposed to the rear of said barrel so as to provide therewith a space forming a loading chamber and which has a cylinder and a piston movable within said cylinder, there being formed in that end of said pump cylinder which is directed towards said barrel at least one duct providing a communication between the loading chamber and the interior of said cylinder, elastic control means for said piston which are placed against the rear face of the piston and tend to drive said piston into the cylinder so as to compress the air contained therein and to deliver the air under pressure into the loading chamber, and cocking means for withdrawing the piston relatively to the cylinder-end and at the same time for compressing the elastic control means, the fact that the working face of the piston is provided with a substantially frustoconical axial recess, whilst the cylinder-end is provided with a frusto-conical boss having a shape which is complementary to that of said recess and with means for admitting air through said boss so as to enable the pump cylinder to communicate with the loading chamber.

3,302,320
FISHING APPARATUS
David E. Breeden, 1951 S. Newell Road,
Malibu, Calif. 90265
Filed Nov. 3, 1964, Ser. No. 408,494
3 Claims. (Cl. 43—18)

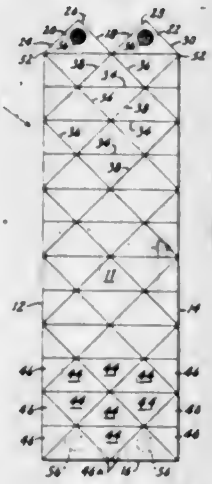


1. A fishing apparatus comprising, in combination: an elongated hollow handle terminating at one end in a threaded opening; a journalling shaft in axial alignment with said handle and having a threaded end portion at one

end threadedly received in said opening, the other end of said handle including an opening communicating with said threaded opening so that the end of said threaded end portion of said shaft extends into the interior of said handle; means secured to said one end of said handle to secure said shaft in axial alignment with said handle, the other end of said shaft terminating in an enlarged head; a friction providing nut threaded on said threaded end portion of said shaft adjacent to said threaded opening; and a reel rotatably mounted on said shaft and axially positioned between said friction providing nut and said enlarged head whereby said friction providing nut may be rotated on said threaded portion by a user's thumb while holding said handle into frictional engagement with said reel to hold said reel against said enlarged head in a given rotative position.

3,302,321
FOLDABLE STRUCTURE

Wallace G. Walker, 41 W. 49th St., New York, N.Y. 10046
Filed Aug. 16, 1963, Ser. No. 302,525
2 Claims. (Cl. 46—1)

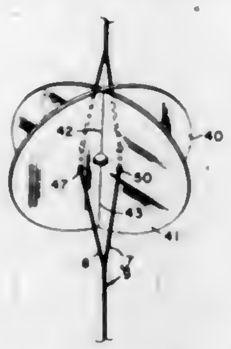


1. A generally rectangular, elongated blank for forming a generally hexagonal, changeable structure from foldable, scoreable material, having a pair of elongated side edges, a bottom edge and a top edge having a securing tab thereon, a plurality of equally spaced first score lines on one face of said blank to form first integral hinge means therein generally parallel to said bottom edge, a second set of equally spaced score lines angularly related to said first set for forming first diagonal integral hinge means in said blank, and a third set of equally spaced score lines substantially transverse to said second set for forming second diagonal integral hinge means, a pair of successive ones of said first integral hinge means defining therebetween three inner isosceles triangles and a pair of outer triangles, each of said inner isosceles triangles being formed by a pair of transversely related diagonal integral hinge means and said successive first integral hinge means, said outer triangles being formed by said diagonal integral hinge means, one of said first integral hinge means and one of said elongated side edges, and means for joining the bottom edge of said blank to the top securing tabs of said blank, thereby forming an endless chain of integrally hinged triangles.

3,302,322
WHIRLING TOY

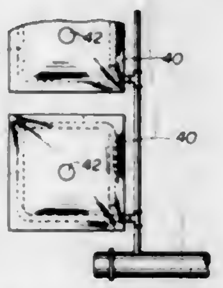
Fernando D. Rubio, 62 1st St., San Francisco, Calif. 94105
Filed June 2, 1964, Ser. No. 372,034
1 Claim. (Cl. 46—62)

A whirling toy comprising:
a pair of circular disks each provided with a radially extending slot permitting said disks to be interfitted along a common diameter and with the planes of said disks perpendicular to each other,
said disks each being provided with a pair of holes respectively spaced from the center of each disk and with one length of a loop of cord passed through a pair of holes respectively on a pair of adjacent semicircular portions of said disks and with the other length of said loop of cord passed through the holes in the other pair of adjacent semicircular portions of said disks.



3,302,323
PLANT TREATMENT SYSTEM

Joseph Popa, Box 16, R.D. 1, Valley City, Ohio 44280
Filed Jan. 31, 1964, Ser. No. 341,538
1 Claim. (Cl. 47—9)

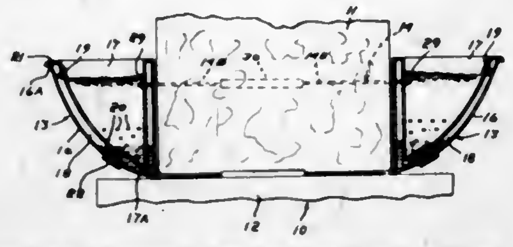


A system for delivering fluid to plants arranged in rows and wherein each row of plants have their roots embedded in a strip of soil comprising strips of plastic mulch covering the strips of soil in each row and being substantially impervious to moisture, each of said strips of plastic mulch having a plurality of spaced openings through which the stems of the plants extend, said openings being defined by a portion of the respective strip closely surrounding the stems of the plants, balanced pressure fluid conduit means having a substantially uniform fluid pressure throughout comprising a main fluid conduit and a plurality of connected branch conduits extending along the rows of plants and beneath said plastic mulch, said fluid conduits being made of a plastic material, each of said fluid conduits having a plurality of fluid directing orifices at spaced intervals therealong and arranged to direct uniform quantities of fluid from said conduits into said soil strips beneath said plastic mulch whereby uniform quantities of fluid are directed to each plant, said fluid directing orifices being slanted in the direction of fluid flow and disposed at 45 degrees relative to the direction of flow of fluid in the conduits.

3,302,324
FLORAL DISPLAY DEVICE FOR ATTACHMENT TO A CEMETERY MONUMENT

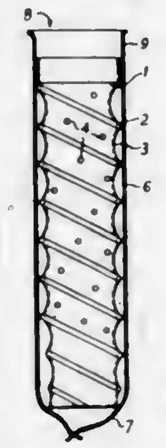
Joseph R. MacDonald, 63 Franklin St., Winchester, Mass. 01890, and Winfred A. MacDonald, 3 Loraine Road, Medford, Mass. 02155
Filed Sept. 4, 1964, Ser. No. 394,449
11 Claims. (Cl. 47—34)

1. A device for attachment to a cemetery monument of the type having a headstone portion of rectangular cross section, said device comprising a plurality of members, one for each face of said headstone portion, said members being interconnected about said headstone to establish a frame, at least one member being a container, the members connected thereto being adjustable lengthwise of the faces proximate thereto, and a resilient anchor disposed between the container member and the face to the headstone proximate thereto and at least partially compressed by adjustments of the frame.



3,302,325
PLANT PROPAGATION DEVICE

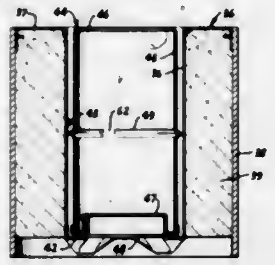
Marcel Ferrand, 13 Rue Oswald Larroque, Toulon, Var, France
Filed June 29, 1964, Ser. No. 378,926
Claims priority, application France, July 2, 1963, 20,212
3 Claims. (Cl. 47—37)



1. A plant propagation device comprising a flexible expandible tubular body open at both ends, said body having its longitudinal side wall formed with partially collapsed and recessed areas, said wall being perforated, and a tubular sheath of plastic film open at one end and closed at the other end and enclosing the tubular body with a clearance about said body.

3,302,326
REVERSIBLE FLOWER CONTAINER

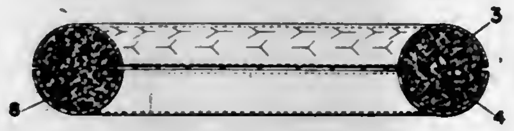
Thomas J. Maino, 1430–32 Valencia St., San Francisco, Calif. 94110
Filed May 21, 1964, Ser. No. 369,178
1 Claim. (Cl. 47—41.1)



A flower container, comprising:
- (a) a weighted base member having a cylindrical opening therethrough between the top and bottom thereof;
- (b) a tubular receptacle adapted to be slidably received in said opening, said receptacle having the opposed ends thereof open and closed, respectively, and having a length substantially equal to that of said opening; and,
- (c) means to selectively retain said receptacle in said opening with either of the opposed ends thereof in substantially flush relationship to the top of said base member, said means comprising:
  - (1) a stop shoulder fixed relative to and extending from the lower portion of said base member for abutting engagement with the lower edge of said receptacle upon receipt thereof in said opening;
  - (2) an interrupted ring fixed to and extending outwardly around said receptacle in equi-spaced relationship to the ends thereof, said ring being adapted to slide within said opening and having end portions defining therebetween a groove; and,
  - (3) a protrusion fixed to said base member and extending into the opening thereof at a location spaced from said stop shoulder by a distance slightly greater than that between said ring and the ends of said receptacle, said protrusion being adapted to pass through said groove and over said ring upon rectilinear and rotational movement, respectively of said receptacle relative to said base member.

3,302,327
FLOWER FROG FRAME

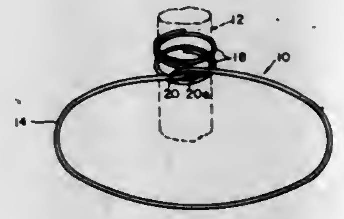
Mae Belle Esco Fant, 214 McSwain Drive, Greenville, S.C. 29607
Filed Apr. 6, 1964, Ser. No. 357,589
2 Claims. (Cl. 47—41.12)



1. A flower frog frame comprising an encasement, said encasement comprising:
- (a) top and bottom portions,
- (b) said portions being connected together to form a void therewithin,
- (c) said void being filled with vermiculite for receiving water and holding the same by capillary action,
- (d) said top portion being made of a pliable resilient material provided with substantially Y-shaped flower stem receiving slits having normally closely abutting edges,
- (e) said bottom being made of a substantially rigid material and provided with preformed openings for drainage of excess water, and
- (f) hook means attached to said bottom portion for hanging the encasement.

3,302,328
PLANT SUPPORT

William E. King, 3016 60th Ave. SW., Seattle, Wash. 98116
Filed Nov. 8, 1965, Ser. No. 506,816
2 Claims. (Cl. 47—47)

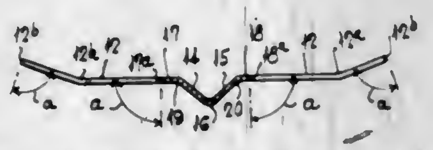


1. A plant support adapted to support a plant in conjunction with an upright stake, comprising:
a resilient wire loop adapted to encircle the plant,
and a helix formed at each end of said loop,

each of said helices being adapted to slip over
said stake and maintain said loop in a plane
substantially at right angles to said stake,
each end of said loop being formed with a reverse curve
defining a U-shaped portion at the point of juncture
of said helix, said U-shaped portions having open
ends directed oppositely,
said ends of said loop crossing over and engaging each
other at said reverse curves.

3,302,329
FLOWER PICK

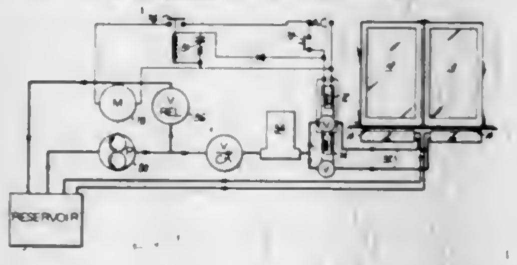
Charlie Sarvice, Jr., Rte. 1, Gastonia, N.C. 28053, and Henry G. Rhyne, Rte. 2, Dallas, N.C. 28034
Filed Feb. 21, 1966, Ser. No. 529,061
7 Claims. (Cl. 47—55)



1. A flower pick comprising a pair of elongated flat marginal portions, an elongated rib portion disposed between and having its opposite edges joined to the proximate edges of said flat portions, and means extending outwardly from said flat marginal portions for securing flower stems and the like thereto.

3,302,330
AUTOMATIC DOOR OPERATOR

Robert M. Loftus, Farmington, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed May 20, 1964, Ser. No. 368,817
10 Claims. (Cl. 49—30)

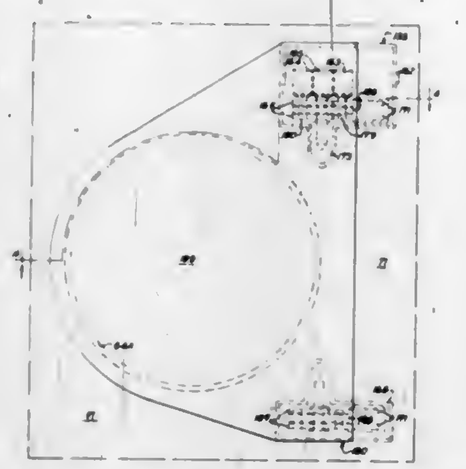


1. An automatic door operator system comprising a pedestrian responsive switch for opening and closing a fluid valve, a positive displacement fluid supply pump and a power cylinder connected to the output thereof with the valve connected therebetween, with the power cylinder having a power piston therein, an auxiliary source of pressurized fluid connected to the output of said pump and operable only during an intermediate portion of the power stroke of the power cylinder to assist the pump in delivering pressurized fluid to the power cylinder, and electric circuit means operable at the end of each power stroke of the power piston to replenish the fluid pressure of the auxiliary fluid source to its original level prior to the deenergization of the fluid pump.

3,302,331
DOOR MECHANISM

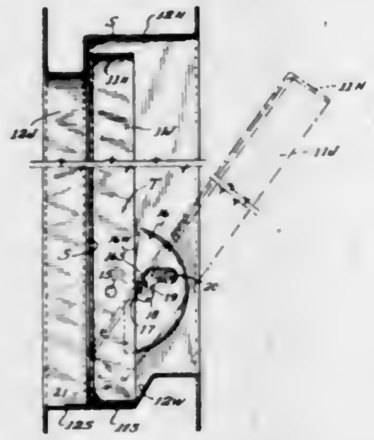
George W. Sturm, 514 Ethan Allen Ave., Takoma Park, Md. 20012, and Alan Osbourne, Cabin John, Md.; said Osbourne assignor to said Sturm
Original application July 15, 1960, Ser. No. 43,077, now Patent No. 3,145,854, dated Aug. 25, 1964. Divided and this application Aug. 21, 1964, Ser. No. 391,179
13 Claims. (Cl. 49—248)

1. A watertight door for an opening to a space for precluding the entrance of water therein comprising a plate continuously overlapping the outside of said opening, a gasket interposed therebetween when said plate is in the overlapped portion of said opening, a pair of means to open and secure said plate over said openings, the first of said means comprising torque actuator means interconnected to said plate for moving said plate perpendicularly away from said opening in its first opening movement, the second of said means comprising further torque actuator means for swinging said plate through an arc of more than 90° relative to said opening in its second opening movement, and a fluid control system for controlling said actuators.



3,302,332
SASH HINGE STOP ARRANGEMENT FOR WINDOW STRUCTURE

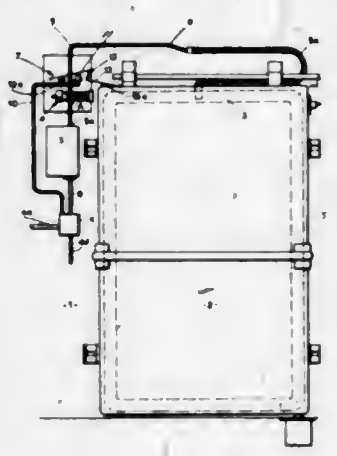
John P. Malmrose and Bulow A. Peterson, both of Kewanee, Ill., assignors to Kewanee Manufacturing Company, a corporation of Illinois
Filed Aug. 1, 1966, Ser. No. 573,745
7 Claims. (Cl. 49—261)



1. A window structure combination that includes a rigid window frame structure having spaced vertical and spaced horizontal members cooperatively defining a window opening, means defining a sash stop located intermediate of fore and aft extremities of said frame and facing inwardly with respect to said frame, a rigid sash structure having side rails and upper and lower rails extending generally perpendicular to said side rails, the dimensions of said sash structure being substantially less than the fore and aft dimensions of said window frame structure and being dimensioned to seat in closed position within said window frame structure to span said window opening and abut said means, hinge stop means carried by said vertical members and said side rails, said hinge stop means including bracket-like elements and cooperating abutments, said bracket-like elements having two contoured surfaces facing said abutments, said surfaces being vertically and horizontally spaced from each other and being spaced sufficiently from said abutments in order to allow removal and insertion of said sash structure from and into said frame structure upon inward tilting of said sash structure while said bracket-like elements and abutments pass one another during such removal and insertion, said first contoured surfaces adapted for engagement with said abutments upon inward tilting of said sash structure to a first position inclined with respect to the closed position, said second contoured surfaces in said bracket-like elements adapted for engagement with said abutments upon tilting movement of said sash structure to a further degree than said first named tilting movement and to a second position inclined with respect to said closed position, the lower rail of said sash structure being engaged with said stop means in both said positions, said bracket-like element contoured surfaces and said abutments being spaced from one another as aforesaid whereby said sash structure may be opened to and held in either position and may be removed from said window frame structure through simple tilting, raising, and rotating movement of said sash structure without obstruction from said contoured surfaces and abutments.

3,302,333
AIR-TIGHT DOORS EQUIPPED WITH INFLATABLE SEALS

Jean Victor Ganzinotti, Brive, and Maurice Decubber, Beaumont-sur-Oise, France, assignors to Etablissements Maille et Vagneux, Paris, France, a company of France
Filed Aug. 4, 1964, Ser. No. 387,296
Claims priority, application France, Aug. 5, 1963, 943,743; Feb. 10, 1964, 963,209
5 Claims. (Cl. 49—281)

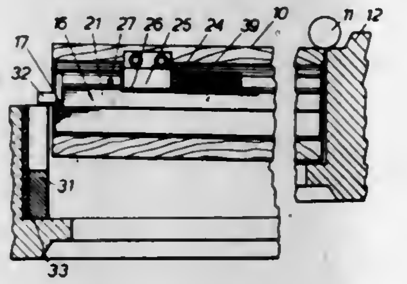


1. For an air-tight door system, comprising a source of fluid under pressure, a movable panel, a fixed frame, a seal interposed therebetween and inflatable by said fluid, locking means biased in the lock position, and driving means actuated by said fluid for moving said panel between a closed position and an open position, an operating assembly comprising, in combination, unlocking means actuated by said fluid for unlocking said locking means, means for distributing said fluid alternatively to said seal and said fluid actuated unlocking means; means for interrupting said fluid distribution to said seal; and, extending from said distributing means, an inflating circuit leading to said inflatable seal through said interrupting means; a driving circuit leading to said driving means and an unlockng circuit leading to said fluid actuated means, whereby said interrupting means control said inflating circuit to prevent inflation of said seal except when said panel is locked into said closed position and to prevent opening of the said panel before deflation of the seal.

3,302,334
SEALING STRIP DEVICES

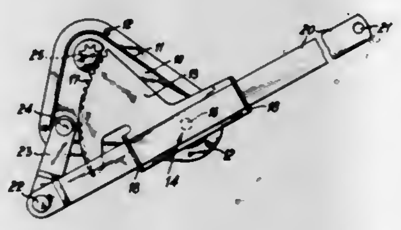
Ingvald Totland, Kalvag, Norway
Filed Apr. 21, 1964, Ser. No. 361,463
Claims priority, application Norway, Apr. 25, 1963, 148,437
4 Claims. (Cl. 49—312)

1. In a sealing strip device for doors, the combination which comprises a sealing strip of resilient material, rigid supporting means adapted to be pivotably mounted on a door, said strip being secured at one of its two longitudinal edges to said supporting means and being pivotable about an axis at the under-side of the door such that the strip can be swung from an approximately horizontal position in which the strip lies inoperatively along the under-side of the door when the latter is open to an operative position in which the strip spans a gap defined by the under-side of the door and the floor when the former is closed, and a cam-control mechanism including a cam member secured to a door frame and a cam follower secured to said supporting means and located at one end of said strip outwardly of the side edge of said door, said cam being adjacent to the outer longitudinal edge of and substantially in alignment with said strip, said follower being operatively connected to said strip by the pivot of said strip through said supporting means to produce pivotal movement of said strip, and a pair of resilient bearing members mounted on the rigid supporting means with a gap between the free ends of said member and including an axle of polygonal cross-section held between said bearing members, the latter being biased so as to clamp said axle at a number of pivotal positions corresponding to the number of sides of said axle, an extension on said axle, said strip depending from said extension.



3,302,335
WINDOW CONTROL DEVICE

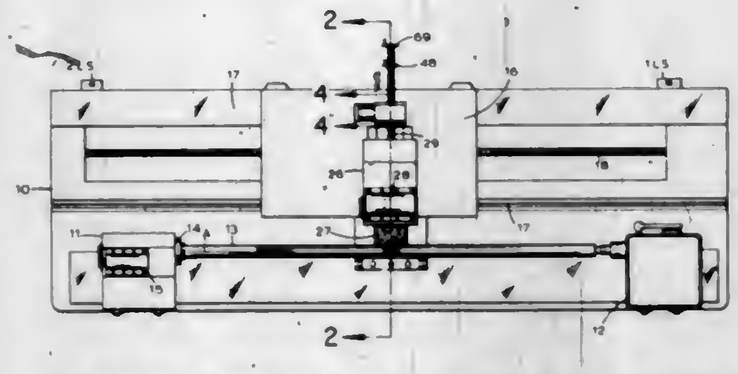
Paul Werner, Remscheid-Hasten, Germany, assignor to The Firm Fritz Keiper KG., Remscheid-Hasten, Germany
Filed Aug. 18, 1964, Ser. No. 390,420
Claims priority, application Germany, Dec. 23, 1963, K 51,714
5 Claims. (Cl. 49—350)



1. A window control device comprising, in combination, a support; an elongated member adapted to be connected at one end thereof to a fixed point of a window to be controlled by the device; guide means mounted on said support for pivotal movement about a fixed pivot axis and supporting said member for rectinlinear reciprocating movement in direction of the elongation of said member and for pivotal movement with said guide means; a guide link pivotally connected at one end thereof to said support spaced from said pivot axis and at the other end thereof pivotally connected to the other end of said member; and means connected to said guide means for turning the latter about said pivot axis, said guide link and said guide means being constructed and connected to said support and said member so that said one end of said lever will, during turning of said guide means, move along a straight line.

3,302,336
WORKPIECE SUPPORT FOR GRINDING MACHINE

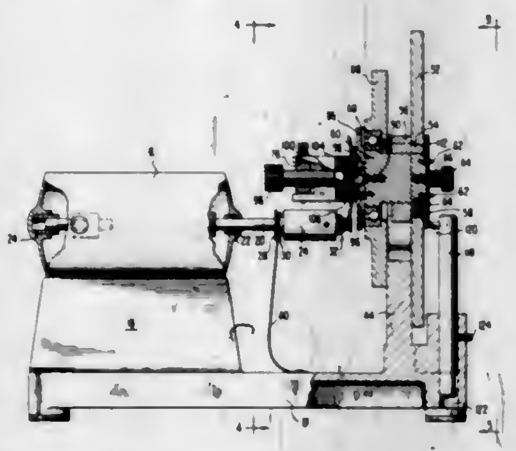
Charles J. Bowman, Cincinnati, Ohio, assignor to the Cincinnati Milling Machine Co., Cincinnati, Ohio, a corporation of Ohio
Filed Apr. 29, 1964, Ser. No. 363,444
5 Claims. (Cl. 51—50)



3. In a grinding machine, the combination comprising:
(a) means to rotate an elongated workpiece for grinding,
(b) a carriage movable along the workpiece and having a rotatable grinding wheel for abrading contact therewith,
(c) a support on the opposite side of the workpiece from the grinding wheel and movable along the workpiece with the carriage, said support having a support surface facing the workpiece,
(d) means continuously to supply fluid under pressure between said support surface and the workpiece to establish a fluid pressure force therebetween during grinding,
(e) and means to vary the rate at which fluid is supplied between said support surface and said workpiece to vary the fluid pressure force therebetween.

3,302,337
LENS BLANK PERIPHERY GRINDER

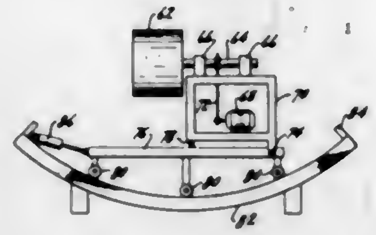
Edwin Earl Milner, Jr., Kingston, N.Y., assignor to Kirk Optical Lens Co., Inc., New York, N.Y., a corporation of New York
Filed June 29, 1964, Ser. No. 378,779
9 Claims. (Cl. 51—101)



1. A lens blank periphery grinding machine including a base, a template following mechanism mounted on said base, said template mechanism including means for holding a lens blank, a rotary grinding member having a grinding surface and carrying a continuous abutment at an axial end thereof, said abutment being of larger diameter than the grinding member surface contiguous thereto to thereby define a lens blank face abutment shoulder adopted to bear against one face of a lens blank, said grinding member being axially biased in that direction defined by going from the said abutment towards said grinding surface, said grinding member being axially movable in response to said bias.

3,302,338
MOLD POLISHING METHOD

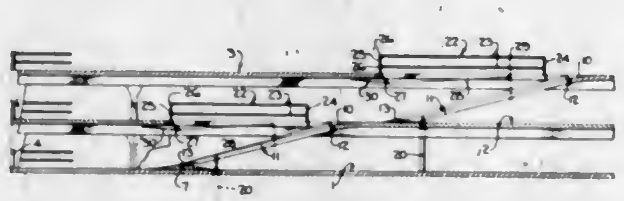
Louis H. Barnett and Robert U. Lane, Fort Worth, Tex., assignors, by mesne assignments, to Loma Industries, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Aug. 31, 1964, Ser. No. 393,437
5 Claims. (Cl. 51—281)



1. A method of providing a microfinish on the surface of mold parts which will be used in forming molded pieces, including the steps of placing a finishing medium within a confined area with a portion of the area being formed by the surface to be finished, moving the confined area with the finishing medium inside in two different planes and at a speed dependent upon the shape of the surface to be finished such that the finishing medium moves against the surface to be finished, movement in one plane being rotary and movement in the other plane being cyclical, providing agitation to the finishing medium from within the confined area and maintaining said movement until the desired degree of microfinish has been given to the surface to be finished.

3,302,339
MULTIPLE DECK GARAGE CONSTRUCTION

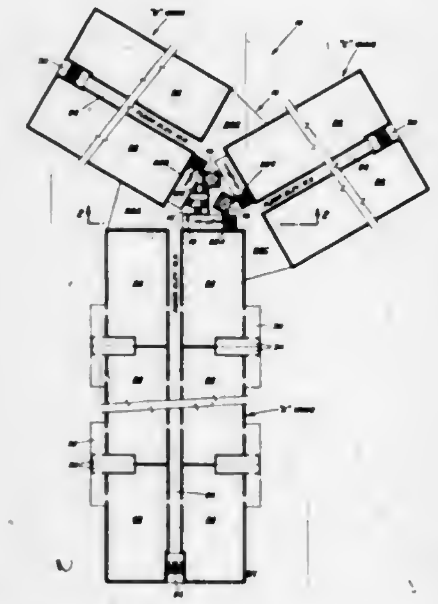
Ellis E. White, Beverly Hills, Calif., assignor to Port-A-Park Corporation, Los Angeles, Calif., a corporation of California
Filed July 10, 1963, Ser. No. 293,965
7 Claims. (Cl. 52—1)



7. A multiple deck garage construction comprising:
(a) at least a pair of decks one above the other;
(b) each deck having an aisleway and automobile parking stalls laterally thereof;
(c) one of said decks having an entrance communicating with an end of its aisle;
(d) the other of said decks having a ramp opening in its deck;
(e) a ramp structure dimensioned to close said ramp opening;
(f) means for pivoting said ramp structure at one end within said ramp opening for movement of said ramp structure between an essentially horizontal position closing said opening and an inclined position interconnecting said decks;
(g) means for securing said ramp structure in said horizontal and raised closing position whereby said ramp structure forms a part of the aisle occupied by said opening to support vehicle traffic thereover;
(h) a foldable guard structure bordering said ramp opening;
(i) means operable by said ramp structure for moving said guard structure between a raised position protecting said ramp openings, when said ramp structure is inclined for vehicle traffic between said decks, and a folded position flush with said deck, when said ramp structure is raised for traffic on said deck;
(j) and, a touch sensitive means disposed under said ramp structure and operable to effect arrest of downward movement thereof to its inclined position on engagement with an object thereunder.

3,302,340
STAGGERED MULTILEVEL APARTMENT SYSTEM WITH ELEVATORS

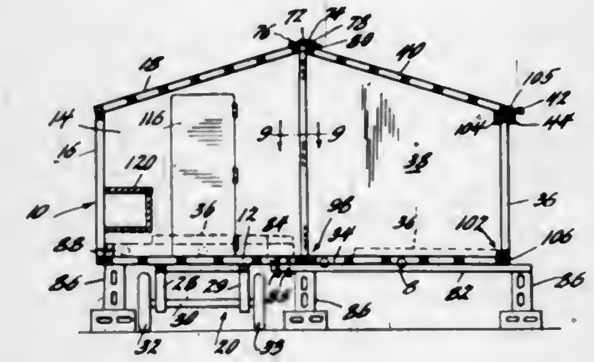
Jack O. Chertkof, 19 W. Franklin St.,
Baltimore, Md. 21201
Filed Nov. 4, 1964, Ser. No. 408,936
2 Claims. (Cl. 52—30)



1. A high-rise apartment arrangement, comprising, structure forming at least three wings all having a plurality of floor levels at a different height, with the floor levels of adjacent wings being in staggered relationship with one another, a common abutment core for said wings, ramps of fractional level height rise connecting the level of one wing to a level on the next wing in consecutive height sequence so as to form the periphery of said abutment core, and vertically arranged elevator means positioned in said core and having vertical stations at fewer levels than the number of levels in said consecutive height sequence.

3,302,341
PORTABLE BUILDING STRUCTURE

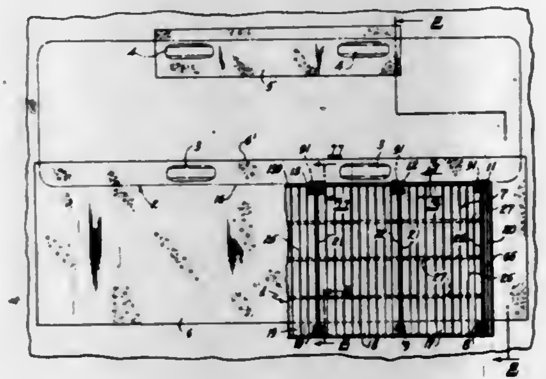
James Konopasek, 810 E. 2nd, Chadron, Nebr. 69337
Filed Aug. 1, 1963, Ser. No. 299,269
11 Claims. (Cl. 52—64)



1. A portable expandable cabin structure or the like comprising a central body portion with a fixed floor, fixed walls and a fixed roof providing an open vertical side thereof, said open vertical side having generally the same dimensions as said fixed roof, a portable floor slidable from a stored position substantially parallel with and above said fixed floor to an expanded position substantially coplanar with said fixed floor, said portable slidable floor having a wall section hingedly mounted along one side of said portable floor, a foldable roof section hingedly mounted along the open side of said fixed roof, and a pair of wall sections vertically mounted swingably on said fixed walls at opposite open ends of said central body portion and engageable with said portable floor, said first hinged wall section and said foldable roof section, said cabin being in an expanded position.

3,302,342
AWNING SYSTEM FOR MOBILE HOMES

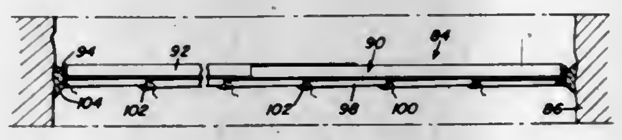
Robert W. Castleberry, 101 Moblhomsted Drive,
Amarillo, Tex. 79107
Feb. 1, 1965, Ser. No. 429,476
19 Claims. (Cl. 52—90)



1. An awning system for a mobile home comprising in combination;
a roof structure;
first support means connected to and supporting said roof structure adjacent one side thereof,
said first means being rigidly secured to a support;
second support means connected to and supporting said roof structure adjacent the side opposite said one side;
said roof structure being adjustably secured relative to said first support means;
said opposite side of said roof structure presenting a face engageable with a surface of a mobile home adapted to be positioned at a predetermined approximate position relative to said first support means; and
mounting bracket means connected to said second support means for securing said second support means to the chassis of the mobile home.

3,302,343
FIRE RESISTANT CLOSURE FOR PASSAGEWAYS

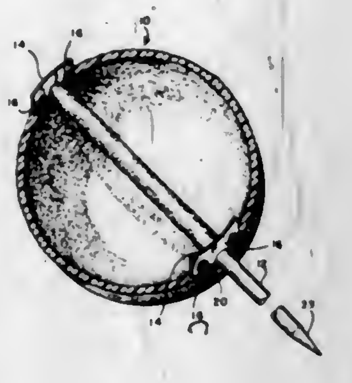
William A. Bear, % Bear Coal Co.,
Somerset, Colo. 81434
Filed Feb. 28, 1964, Ser. No. 348,177
8 Claims. (Cl. 52—98)



1. In a mine passageway a fire resistant closure comprising a frame, a plurality of prefabricated panels, each of said panels including a screen panel, a layer of foam resinous material thereon, said screen panel including a portion of one edge thereof free of plastic whereby the prefabricated panels are overlapped in relation to each other, and sealing foam plastic material sealing the juncture between the prefabricated panels.

3,302,344
TEE BALL MARKER

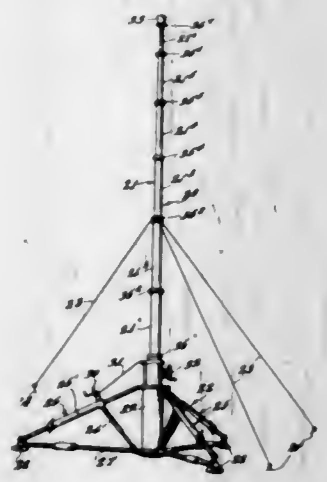
Glenn D. Wolfe, Milwaukee, and Lester W. Hansen, Port Washington, Wis., assignors to Heller Industries, Inc.
Filed Oct. 21, 1963, Ser. No. 317,624
6 Claims. (Cl. 52—103)



1. A tee ball marker comprising a pointed shaft,
a pair of contoured, rectangular plates staked to said shaft, one of said plates being located close to the end of the shaft, the other plate being located a predetermined distance from said one plate, each of said plates having a hole located on opposite sides of said stake,
and a thin hollow plastic ball molded on said stake, the inside diameter of said ball being slightly smaller than the distance between said plates and the outside diameter being slightly larger than the predetermined distance between said plates, whereby said plates are imbedded within the walls of said ball.

3,302,345
TOWER

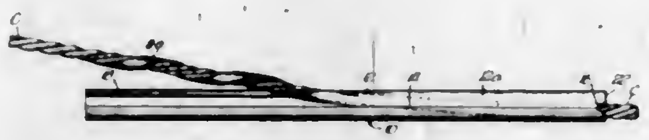
James S. Ballantine, 121 North Shore Road, Absecon, N.J. 08201
Filed May 14, 1964, Ser. No. 367,349
19 Claims. (Cl. 52—121)



1. In a collapsible tower for supporting a load at the top, a plurality of telescoping portions of consecutive progressively reduced diameters in an upward direction and including a lowermost portion, a base connected to and supporting the lowermost portion, individual locking means on each of the portions for selectively locking the adjoining telescoping portions to one another, including means for aligning the tubular sections concentrically and longitudinally, and elevating means for raising and lowering the telescoping portions comprising a lift ring, means for successively engaging the lift ring with the top of each of the telescoping portions other than the lowermost portion, and means for raising and lowering the lift ring.

3,302,346
APPLIANCE FOR LINEAR BODIES

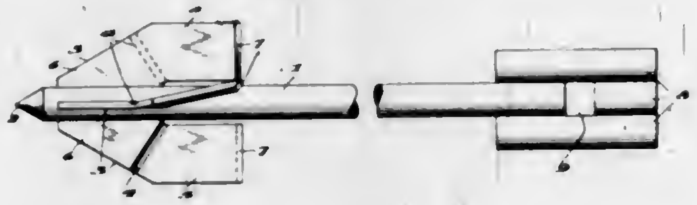
Harrison L. Williams, Euclid, and Detre M. G. Banhidy, Cleveland, Ohio, assignors to Preformed Line Products Company, Cleveland, Ohio, a corporation of Ohio
Filed May 21, 1963, Ser. No. 281,887
8 Claims. (Cl. 52—147)



1. An appliance for linear bodies comprising a tubular body adapted to be mounted in a co-axial relationship of a linear body for at least a portion of their respective lengths, said tubular body including two spaced slits extending for a portion of its length, at least one of said slits terminating at a point intermediate the ends of said tubular body, an integral portion of said tubular body intermediate said slits being helically formed to an internal diameter and pitch length to permit wrapping around a linear body, said intermediate portion being adapted to be wrapped around a linear body into gripping relationship therewith.

3,302,347
DRIVE ANCHORS WITH RETAINING FLUKES

Martin A. Jackson, Bradshaw, Md., assignor to Van Zelm Associates Inc., Baltimore, Md., a corporation of Maryland
Filed Nov. 27, 1964, Ser. No. 414,085
4 Claims. (Cl. 52—154)

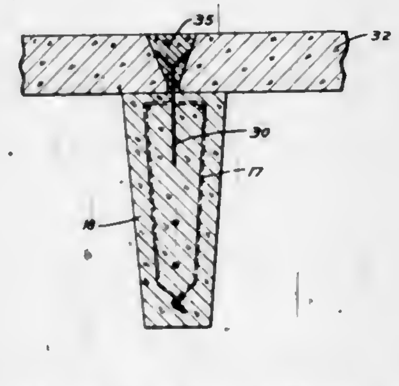


1. An anchoring device comprising a central shaft having affixed thereto a plurality of flukes, each said fluke consisting of a single piece of material having a lower portion whose inner edge is affixed to said shaft and whose outer edge is tapered in a direction divergent from the sharpened point of said shaft, said fluke having an upper portion spaced from said shaft, the edges of which are generally parallel thereto, said upper and lower portions of said fluke having therebetween a cross-section substantially less than the general thickness of said fluke, along which said cross-section, said fluke will bend when a force is applied to said anchoring device.

3,302,348
PRESTRESSED CONCRETE JOIST AND SLAB CONSTRUCTION

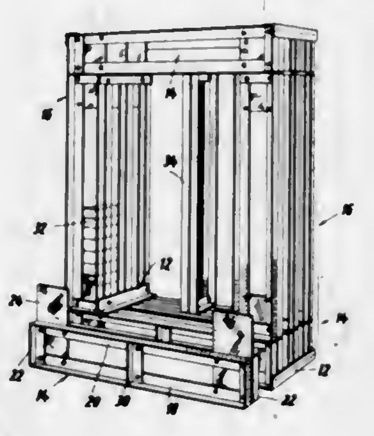
Clarence A. Pratt, St. Paul, Minn., assignor to Peri-Tile Company, Minneapolis, Minn., a corporation of Minnesota
Filed Jan. 7, 1964, Ser. No. 336,250
3 Claims. (Cl. 52—223)

3. A composite structure comprising:
a concrete joist,
a plurality of prestressed strands running longitudinally through said joist,
a plurality of members elongated loop-like in form of rod-like material disposed transversely within said joist in longitudinally spaced relation enclosing said strands,
each of said members having free lower end portions arranged and constructed for locking engagement with said strands, said lower free end portions being adapted to position said members in planes normal to the axis of said strand,
a plurality of anchor members integral with said joist spaced longitudinally thereof and projecting upwardly thereof,
slabs supported on said joist at either side of said anchor member,
means engaging and tying said anchor members and said slabs into a unitary structure with said joist to withstand transverse load for lateral stability,
said lower end portions being inclined to intersect one another in the plane of said member, one of said end portions forming a hook-like portion, said other end portion forming a depending U-shaped portion in a plane normal to the plane of said member and of said hook-like portion whereas said hook-like portion passes freely through said U-shaped portion engaging said strand therebetween, and
said U-shaped portion being of sufficient width in engagement with said strand to cause said member to be disposed in a plane normal to the axis of said strand.



3,302,349
SHELTER REINFORCEMENT

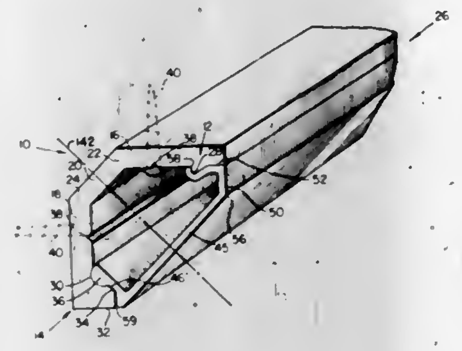
Alexander Zugehor, Am Fort Elisabeth 7, Mainz, Germany
Filed Mar. 19, 1964, Ser. No. 353,170
Claims priority, application Germany, Mar. 25, 1963, Z 10,004
6 Claims. (Cl. 52—270)



6. A shelter reinforcement particularly for air-raid protection purposes comprising a row of rectangular frames arranged in parallel vertical planes and connected together to form a box-like structure, each frame comprising four beams, each beam being made of angle sections having a row of openings therein enabling assembly by means of bolts, each beam being in the form of a subframe built up from two or more lengths of angle section, bolts extending through some of said openings and connecting said angle sections and said beams, and a reinforcement in the form of blocks inserted between the frames of the shelter within the spaces defined by the angle sections of adjacent sub-frames.

3,302,350
MOLDING CONSTRUCTION

Donald Lee Brown and Layle B. Barker, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Virginia
Filed Mar. 10, 1964, Ser. No. 350,742
5 Claims. (Cl. 52—287)



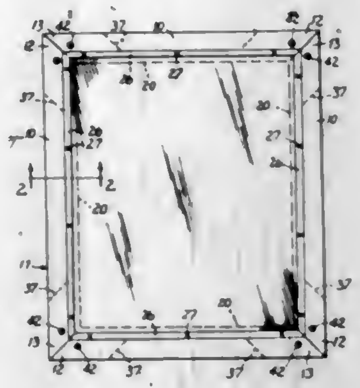
1. In combination: a pair of right angled building partitions defining a longitudinal corner; a relatively long corner attaching member attached at said corner of said adjoining building partitions throughout substantially the entire length of said corner, said attaching member having an outwardly diverging wall structure to form said attaching member with two wall edges, each wall edge being flat and being disposed flush against its respective partition, each wall edge having a flat free end disposed at right angles to its respective partition; a relatively long flat cover member having two cover edges each with resilient flanges extending inwardly therefrom; and attaching means at said wall edges and said resilient cover flanges to attach one each of said wall edges to one each of said cover flanges throughout substantially the entire length of said corner, said flanges of said cover member being received between said wall edges of said attaching member so that said cover member fills all external voids between said end edges of said attaching member, one of said flanges of said cover member being in the form of two right angled joined walls with one wall joined to one edge of said flat wall at an obtuse angle relative thereto and the other right angled wall having a hook structure at its edge for attaching to one of said wall edges of said attaching member, the other of said flanges of said cover member being substantially perpendicular to said flat wall in inwardly offset relation to the respective edge of said flat wall and having an arc shaped snap joint forming protrusion for attaching to the other wall edge of said attaching member.

3,302,351
FRAME CONSTRUCTION FOR A DOOR OR WINDOW

Frank R. Trulaske, Grafton, Ill., assignor to True Manufacturing Company, Inc., St. Louis, Mo., a corporation of Missouri
Filed Apr. 8, 1965, Ser. No. 446,612
9 Claims. (Cl. 52—309)

2. In a frame construction for a door or window:
(a) a plurality of extruded plastic members positioned end to end to provide an endless external frame, the plastic members having their ends mitered to provide corners between adjacent plastic members,
(b) each plastic member being provided with an elongate slot therein extending lengthwise, the slots of adjacent plastic members being in register at their corners,
(c) a metal angle plate at each corner, the angle plate having arms located in the registered slots of adjacent plastic members, and

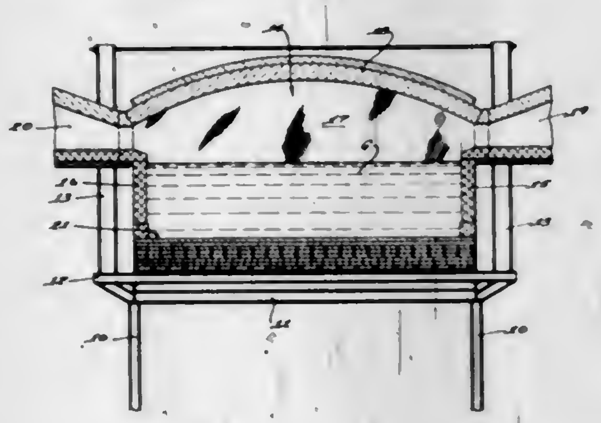
(d) a metal strip disposed in the slot of each plastic member and connected securely to the arms of the



angle plates at the ends of the plastic member to form a rigid, continuous internal metal frame.

3,302,352
GLASS FURNACE BOTTOM WALL CONSTRUCTION

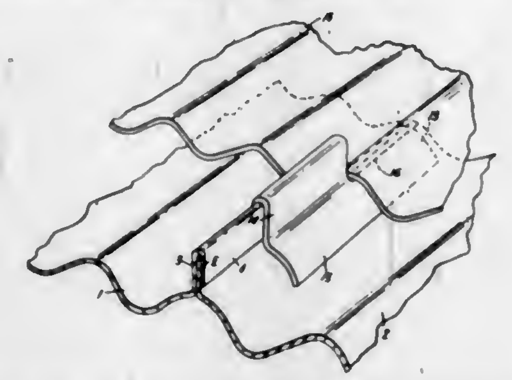
John D. Flexon, Leblo, Rio de Janeiro, Brazil, and Norman E. Frisk, Toledo, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio
Continuation of application Ser. No. 203,662, June 19, 1962. This application Mar. 18, 1966, Ser. No. 535,575
5 Claims. (Cl. 52—408)



1. A bottom wall construction for a glass melting furnace comprising, in combination: an uninterrupted molten-glass contacting layer of abrasion resistant zircon bricks; a plurality of superimposed uninterrupted layers of firebricks of first quality underlying and supporting said layer of zircon bricks, said firebricks of first quality having a pyrometric cone equivalent of at least 33 and having the ability to withstand contact with molten glass for prolonged periods without loss of useful properties; a plurality of superimposed layers of firebricks of a second quality underlying and supporting said firebricks of a first quality, said firebricks of a second quality having a pyrometric cone equivalent of at least 31.5 and less than that of said firebricks of first quality, having no substantial ability to withstand contact with molten glass for prolonged periods, and having a coefficient of thermal conductivity which is less than the coefficient of thermal conductivity of the firebricks of first quality; a layer of insulating firebricks underlying and supporting said layers of firebricks of second quality, said insulating firebricks having a reheat change of not more than 2% at 2250° F., a bulk density of not more than 48 pounds per cubic foot, and a coefficient of thermal conductivity at 2000° F. of the order of 2 B.t.u. per square foot per inch of thickness per hour; and metallic supporting structure underlying and supporting said layer of insulating firebricks, a layer of an asbestos-bearing sheet material underlying said layer of insulating firebricks and supported directly on said metallic supporting structure.

3,302,353
CORRUGATED TRANSLUCENT SHEETS AND MEANS SECURING THE SAME

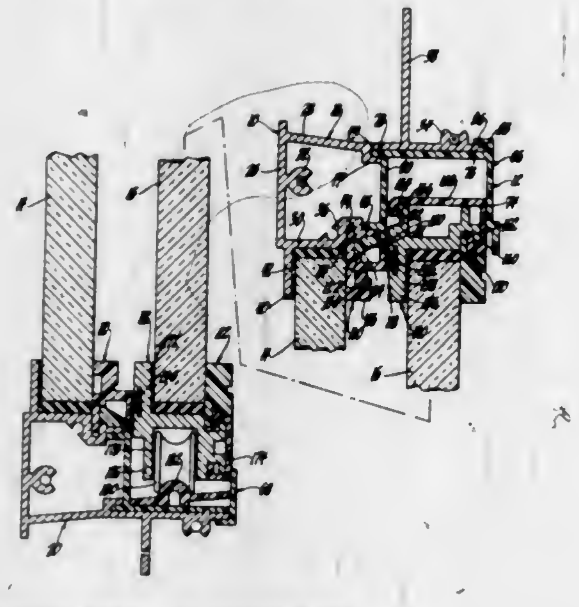
Roger Viguier du Pradal, Hillbrook, Castleknock, Dublin County, Ireland
Filed Oct. 8, 1963, Ser. No. 314,685
Claims priority, application Ireland, Oct. 8, 1962, 841/62
4 Claims. (Cl. 52—469)



2. In a roof, an assembly of roofing elements comprising in combination two rectangular corrugated sheets disposed side-by-side in a common plane with their adjacent longitudinal marginal portions bent perpendicularly to the general plane of the sheets and placed together in surface contact, at least one of said marginal portions being of U-shaped cross-section and having hooked engagement with the adjacent marginal portion of the other sheet, the remainder of the two sheets presenting together a uniformly corrugated surface, a third corrugated sheet partially overlapping one transverse marginal portion of each of the other two sheets, the aforesaid longitudinal marginal portions of which are cut away where said third sheet overlaps said other two sheets, and a joint-covering element having a base portion shaped to conform to the corrugated form of the sheets and overlying said cutaway portions and underlying said third sheet where said third sheet overlaps the junction of the other two sheets, and also having a hood-shaped portion extending over the adjacent parts of the contiguous longitudinal marginal portions which are in hooked engagement as aforesaid, said hood-shaped portion being closed at its end adjacent said base portion.

3,302,354
WINDOW ASSEMBLY

Melvin W. Mermell, Birmingham, Mich., assignor to Zenith Glass Company, Detroit, Mich., a corporation of Michigan
Filed Jan. 8, 1965, Ser. No. 424,228
11 Claims. (Cl. 52—476)

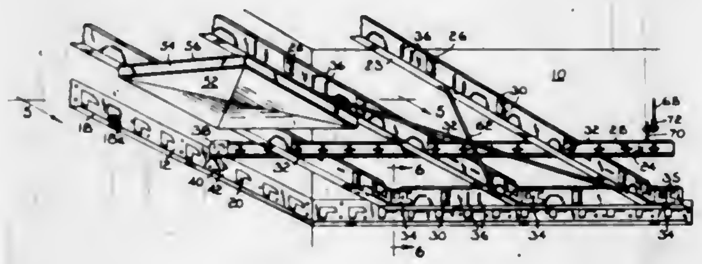


1. A window assembly comprising:
an exterior frame;

a panel received in said exterior frame;
an interior frame received in said exterior frame;
and continuous means removably received in said exterior frame and engaging said panel and said interior frame and extending around the periphery of said panel and said interior frame, said means securing said panel and said interior frame in said exterior frame and preventing disengagement thereof, said means being removable in the plane of said panel to permit removal of said panel and said interior frame from said exterior frame from the interior side of said window assembly.

3,302,355
CEILING STRUCTURES

Edgar H. Chinneck, Johannesburg, Transvaal, Republic of South Africa, assignor to Dowson & Dobson Limited, Selby, Johannesburg, Transvaal, Republic of South Africa
Filed June 8, 1964, Ser. No. 373,296
Claims priority, application Republic of South Africa, Oct. 31, 1963, 63/4,938
4 Claims. (Cl. 52—484)

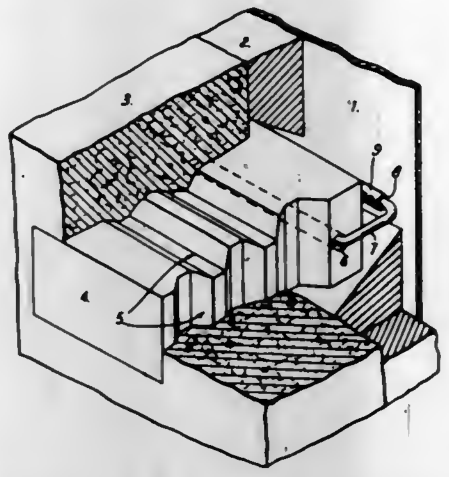


1. A ceiling structure of the kind in which a series of panels is hung from a framework of sheet metal elements, in which the framework consists in a rectangular wall beam of L-section that extends around the wall with one limb of the L extending inwardly to provide ledges for the outer edges of the outside panels; a rectangular outer frame inside the wallbeam and spaced from it, made up of Z-beams, a series of parallel longitudinal beams inside the outer frame and connected to it at the ends of the longitudinal beams, a series of crossbeams passing through preformed holes in the longitudinals and the outer frame and supported at their ends by the wall beam above the level of the ledges, straps to support the framework; a series of rectangular panels juxtaposed to form a continuous rectilinear surface, the outer edges of the outer panels resting on the ledges, and spring clips connecting the panels to the beams of the framework.

3,302,356
FURNACE WITH METAL LINK AND REFRACTORY ANCHOR MEMBER

Nevile William Hinchliffe, Chester, England, assignor to Morganite Incorporated, Long Island City, N.Y., a corporation of New York
Filed Mar. 12, 1964, Ser. No. 351,429
Claims priority, application Great Britain, Mar. 22, 1963, 11,418/63
4 Claims. (Cl. 52—509)

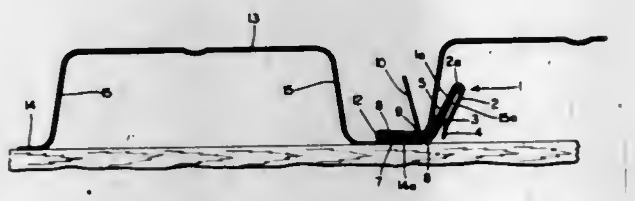
1. In a furnace having a casing structure, an anchorage assembly for a refractory lining of said structure, said assembly comprising a refractory anchor body having sides shaped to key with the refractory lining and having a transverse hole near one end of said anchor body, a bracket on the inside of said structure and having a hole substantially parallel to said hole in said anchor body and metal link means connecting said anchor body to said bracket, said link means being composed of at least two parts providing a pair of substantially parallel limbs extending respectively through said hole in said anchor



body and said hole in said bracket with freedom of relative movement therein.

3,302,357
CLIP FOR ROOF DECK SHEETS

Victor P. Scott, Canton, Ohio, assignor to Macomber Incorporated, Canton, Ohio, a corporation of Ohio
Filed July 29, 1964, Ser. No. 385,854
6 Claims. (Cl. 52—520)



1. A clip for roof deck sheets each having an upwardly and outwardly inclined terminal flange at one edge and a horizontal terminal flange at its opposite edge, said clip comprising a strip of sheet metal having one end bent down and back upon itself to form a narrow U-shape portion, the other end portion of said strip being bent up and back upon itself to form a second narrow U-shape portion, said clip being bent transversely so that said first named U-shape portion defines an upwardly and outwardly inclined groove to receive the upwardly and outwardly inclined terminal flange of one roof deck sheet, and said second U-shape portion defining a horizontally disposed groove to receive the horizontal terminal flange of an adjacent roof deck sheet, and sharp prongs formed on one side of said first named U-shape portion for engaging the surface of the upwardly and outwardly inclined terminal flange of the one roof deck sheet, there being cut-outs in the other side of said first named U-shape portion opposite to said prongs.

3,302,358
THERMAL INSULATION STRUCTURES

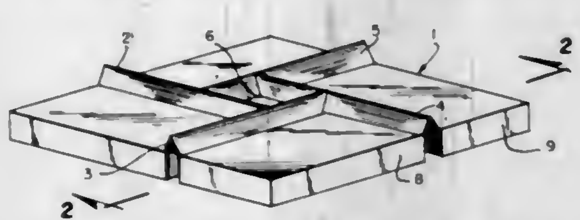
Robert Glover Jackson, Hornchurch, Essex, England, assignor to Conch International Methane Limited, Nassau, Bahamas, a Bahamian company
Filed Nov. 26, 1963, Ser. No. 325,931
Claims priority, application Great Britain, May 6, 1963, 17,834/63
5 Claims. (Cl. 52—573)

1. A thermal insulation structure for use under conditions of great temperature change, comprising
(a) a composite extensible sheet in which there are a plurality of individual extensible sheets,
(b) each individual extensible sheet comprising a number of substantially plane areas including an enclosed area of the same geometric shape as said individual sheet,

(c) the enclosed area being bounded entirely by non-crossing but angularly meeting corrugations, which corrugations extend linearly beyond the enclosed area and extend to the sides of the individual sheet,

(d) the individual extensible sheets being joined to one another and disposed in side-by-side and end-to-end relationship so that each of the corrugations of each individual sheet is in line with and meets a corrugation in a contiguous individual extensible sheet,

(e) a composite second sheet disposed with its face in spaced opposed parallel relation to the face of the composite extensible sheet; said composite second sheet including a plurality of individual second sheet elements each coextensive with an individual one of said plane areas,



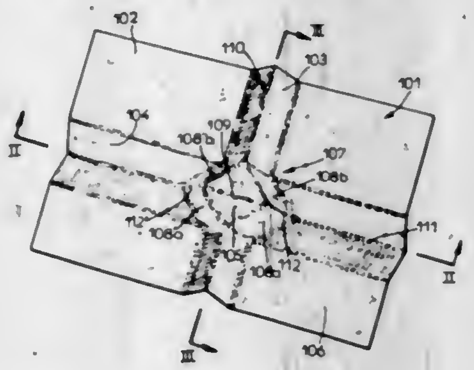
(f) transversely spaced walls between the individual plane areas of said composite extensible sheet and said second sheet elements for defining vacuum tight enclosures between said areas and said elements;

(g) the second sheet elements and transversely spaced walls being in the form of trays of substantially the same base area as the substantially plane areas of the individual extensible sheets, the walls of each tray constituting the transversely spaced walls between the sheet defining vacuum tight enclosures; and

(h) load bearing insulation contained in said enclosures.

3,302,359
CORRUGATED SHEET-LIKE YIELDABLE WALL ELEMENT AND VESSELS OR TANKS MADE THEREOF

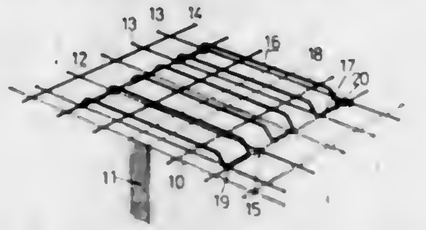
Jean Alleaume, Saint-Cloud, France, assignor to Technigaz, Paris, France, a corporation of France
Filed Aug. 3, 1965, Ser. No. 476,988
Claims priority, application France, Aug. 6, 1964, 984,429; Jan. 5, 1965, 919; Apr. 30, 1965, 15,442
16 Claims. (Cl. 52—573)



1. A sheet-like metal plate element having a front side and a back side and at least a portion of which is formed with a plurality of sets of at least one integral channel-like corrugation, the corrugations of each set extending in substantially parallel spaced relationship and intersecting the corrugations of any other set, each intersection of corrugations comprising one corrugation of each set extending therethrough, the corrugations of any one set being substantially congruent and of uniform cross-section throughout their lengths except in the intersecting regions and having their raised convex wave-like portions projecting all from a same side of said plate element, each corrugation being substantially symmetrical about a plane extending lengthwise of said corrugation and substantially normal to the initial sheet surface of said plate element, whereby said corrugations define therebetween substantially smooth uncorrugated polygonal areas located in said initial sheet surface; said corrugated plate element forming a substantially wholly developable geometrical surface the features of which are made by folding, each intersecting region projecting from said front side and each one of at least some of said intersecting regions being formed with at least one hollow-like depression in the shape of a substantially cylindrical recess impressed into and extending transversely of at least the crest portion of at least one corrugation also protruding from said front side, so as to provide a concave transversely widened top surface of convex contour in the crest of said last-named corrugation, in symmetrical relation to the plane of symmetry of the latter whereby the theoretical ridge line of said crest terminates adjacent to said top surface on both sides of said depression by dividing into two diverging convex boundary fold lines falling down upon spreading apart to reach the bottom of said top surface thereby gradually broadening the latter, the convex folds which correspond to said convex fold lines connecting said top surface to two lateral convex surface portions formed in and protruding sidewise in opposite directions, respectively, from either lateral face of said corrugation, thereby forming each one a lateral bulge therein, two successive depressions adjacent to two successive intersections, respectively, on a same corrugation, being connected by a continuous section of corrugation so that the length of any adjacent smooth uncorrugated area in a direction parallel to said corrugation is longer than that of any one of said depressions in said direction, said depressions at any one intersecting region defining a common intersection body interconnecting the intersecting corrugations and projecting from said front side while being hollow on said back side and formed with folds allowing deformation of said body in directions substantially parallel to any one corrugation without straining nor stressing the surface portions thereof lying between said folds.

3,302,360
METHOD OF REINFORCING CONCRETE FLOORS AND THE LIKE, AND A REINFORCING ELEMENT THEREFOR

Sven-Erik Bjerking, Gotgatan 3, Uppsala, Sweden
Filed Dec. 23, 1963, Ser. No. 332,447
Claims priority, application Sweden, Jan. 9, 1963, 214/63
12 Claims. (Cl. 52—600)



4. In reinforced concrete floors and other substantially horizontally-extending, self-supporting concrete structures, having an upper surface and a lower surface, the improvement comprising:

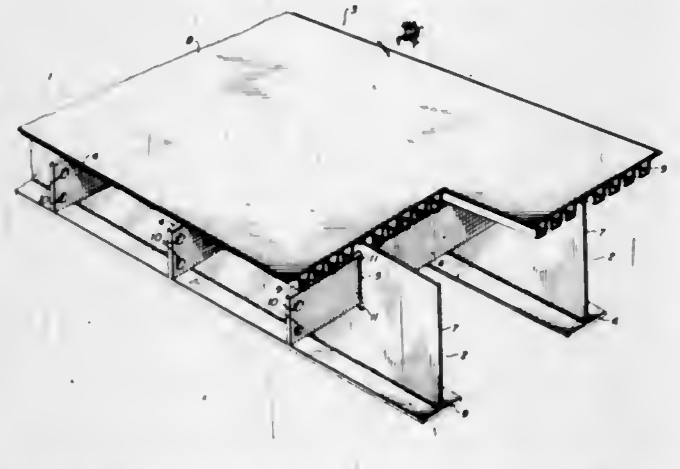
(a) a plurality of elongated, straight steel rods disposed in a first horizontal plane above said lower surface of said floor to form bottom reinforcing means;

(b) at least one rectangular, continuous steel loop, having at least one end thereof bent downwardly to provide vertical legs and a horizontal support foot of substantial length formed by the end of the rectangle, disposed with said foot in a horizontal plane above said lower surface of said floor with said support foot essentially the same distance above said lower surface as said first horizontal plane and the sides of said rectangle in a second horizontal plane above said first horizontal plane and in the upper portion of said floor to form top reinforcing means; and

(c) spacer means in the bottom of said floor to temporarily support and space said bars and said foot above said lower surface of said floor.

3,302,361
PREFABRICATED BRIDGE DECK UNIT

Albert J. Oudheusden, Jr., and Lawrence G. Adams, Bethlehem, Pa., assignors, by mesne assignments, to Bethlehem Steel Corporation, a corporation of Delaware
Filed Oct. 16, 1964, Ser. No. 404,473
4 Claims. (Cl. 52—618)



1. A prefabricated structural unit comprising:

(a) a pair of parallel longitudinal stringers each consisting of a bottom tension flange member and a plate web member having a plurality of vertical slots having enlarged ends formed therein at spaced intervals along the length thereof,

(b) a continuous deck compression member welded to the top edges of the plate web members, the continuous deck compression member comprising a corrugated metal sheet having a plurality of crests and valleys formed therein, the valleys being wider than the crests and extending in a direction parallel to the longitudinal stringers, and a metal plate welded to the crests of the corrugated metal sheet, and

(c) a plurality of transverse members extending continuously through and cantilevered from the slots formed in the plate web members, and welded solely to the plate web member and to the valleys of the corrugated metal sheet.

3,302,362
METHOD FOR FORMING ROOF STRUCTURE

Keith M. Lang, Minneapolis, Minn.
(5038 Dominick Spur, Hopkins, Minn. 55343)
Filed Dec. 10, 1963, Ser. No. 329,482
2 Claims. (Cl. 52—743)

2. The method of forming a roof structure consisting of

spacing supporting beams,

overlying one side of said beams with a rigid skin forming open face cavities with said beams,

filling said cavities with a self bonding, self curing blown foam material,

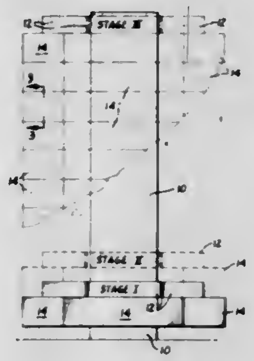
overlying said foam material and beams with fiber reinforcement material,

applying a self bonding polyester resin to coat said reinforcement material to impregnate and bond the same to said underlying foam material and beams, and

applying a seal coat to said last mentioned coat.

3,302,363
METHOD FOR ERECTING SUSPENDED BUILDING COMPONENTS

Christian Frey, San Francisco, Calif., assignor to Suspended Structures Incorporated, San Francisco, Calif., a corporation of California
Filed Nov. 23, 1964, Ser. No. 413,211
8 Claims. (Cl. 52—745)



1. The method of erecting a building which comprises:

A. erecting at least one substantially vertical column on the ground,

B. supporting at least one cantilever support portion adjacent to the column at a first position substantially below the top of the column with the support portion extending laterally from the column,

C. prefabricating a plurality of housing elements at locations remote from the column with said elements including a plurality of floors and a plurality of walls for laterally enclosing occupiable areas adjacent to said floors,

D. moving a first group of said prefabricated elements from a remote location to a location underneath said support portion,

E. suspending said first group of elements from said support portion with a plurality of walls attached to at least one of said floors laterally enclosing an occupiable area adjacent to said floor,

F. lifting said support portion to an elevated position above said first position and below the top of said column,

G. moving a second group of said prefabricated elements from a remote location to a location underneath said support portion,

H. suspending said second group of elements from said support portion below said first group,

I. continuing to lift said support portion and to move and suspend said groups of prefabricated elements until said column and said support portions and prefabricated elements form a substantially complete building, and

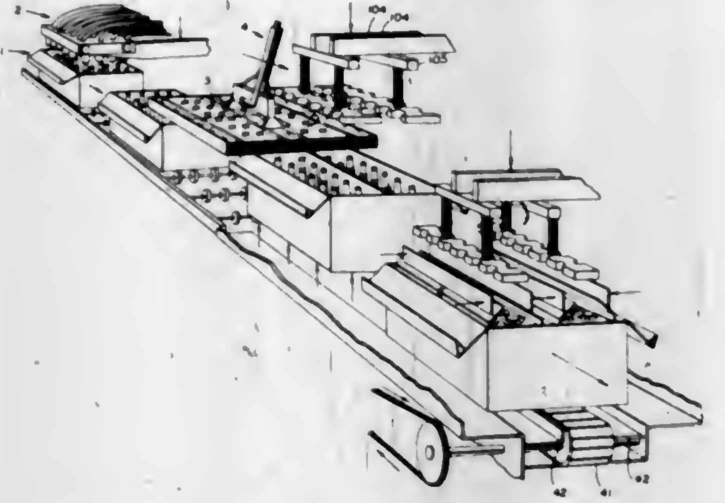
J. attaching said support portions to said column.

3,302,364
APPARATUS FOR APPLYING CARRIERS TO BOTTLES AND THE LIKE

Harold B. Rice, Walnut Creek, Calif., assignor to John Burton Machine Corporation, Concord, Calif.
Filed Nov. 20, 1963, Ser. No. 325,085
11 Claims. (Cl. 53—3)

7. Apparatus for applying carriers to a plurality of filled and capped bottles arranged in parallel rows within a case, comprising:

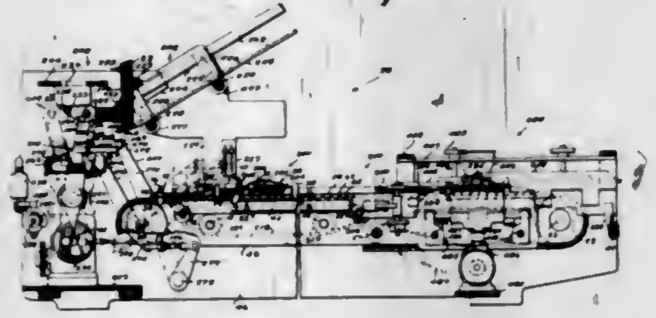
a magazine for containing a stack of generally rectangular sheets of semirigid sheet material each formed to provide a plurality of integrally connected blanks adapted to be secured respectively to a plurality of groups of bottles in said case,



means for positioning a sheet from said stack over said case,
means for moving said sheet downwardly toward said bottles,
means for separating said sheet into a plurality of blanks during said movement, and
means for securing said blanks to the caps of said groups of bottles.

3,302,365
PACKAGING MACHINE AND METHOD

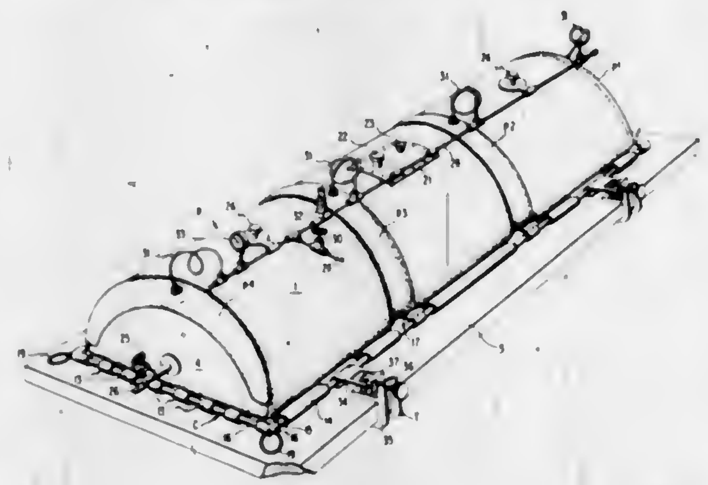
Grover C. Currie, Charlotte, N.C., assignor to Viking Corporation, a corporation of North Carolina
Filed Sept. 23, 1963, Ser. No. 310,759
42 Claims. (Cl. 53—29)



7. A method of forming a package from a collapsed, sleeve-type carton blank that has serially connected top, bottom and opposed side wall panels disposed in an initially collapsed condition in which the side wall panels lie flat with one side wall panel underlying the top wall panel and the other side wall panel overlying the bottom wall panel and with end flaps extending outwardly from each end of the top and bottom wall panels, said method comprising folding both said underlying side wall panel and the portion of the top wall panel thereabove to a generally upright disposition with respect to both the bottom wall panel and the remainder of the top wall panel, retaining said underlying side wall panel in said generally upright disposition while unfolding said top wall panel portion about the juncture with said underlying side wall panel to a generally horizontal disposition and thereby raising said top wall panel above the bottom wall panel and erecting said overlying side wall panel, loading contents endwise into the carton blank between the separated top and bottom wall panels, folding one end flap at each end into an end closing disposition, measuring amounts of glue in bead form for application to said folded end flaps, applying said measured amounts of glue by contact to said folded end flaps to secure the flaps together and thereby seal the ends of the package.

3,302,366
METHOD OF STABILIZING CONTAINERS FOR BULK MATERIAL

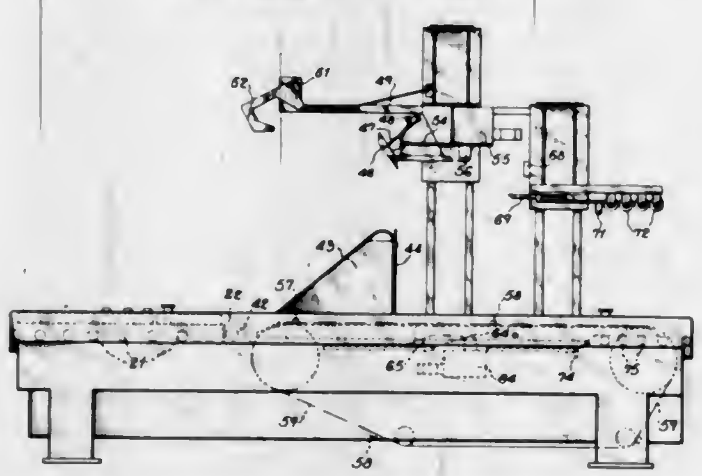
Raoul Louis Albert, also known as Michel Nalpas of Marcq-en-Baroeul, Nord, France, assignor to Societe Anonyme "pronal," Roubaix, Nord, France, a corporation of France
Original application Aug. 3, 1962, Ser. No. 214,661, now Patent No. 3,250,742, dated May 10, 1966. Divided and this application May 7, 1965, Ser. No. 454,772
Claims priority, application France, Aug. 16, 1961, 870,828; Jan. 29, 1962, 886,283
4 Claims. (Cl. 53—37)



1. The method of stabilizing an expandable, flexible, container having inflatable compartment means connected to and projectable internally of said container, said method comprising substantially completely filling said container with material, closing said container to trap said material therein, and subsequently, while preventing an outflow of said material from said container, supplying fluid under pressure to said compartment means to inflate said compartment means and thereby expand said compartment means into compressing engagement with said material and, stretch and tension said container, and stiffen the same against lateral sway.

3,302,367
CASE SEALER

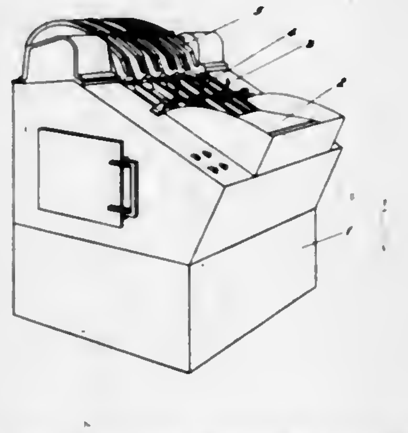
Lawrence J. Talarico, South Plainfield, N.J., assignor to Union Camp Corporation, a corporation of Virginia
Filed Dec. 3, 1963, Ser. No. 327,596
13 Claims. (Cl. 53—47)



11. The method of closing and sealing random size filled containers with their closure flaps unsealed, comprising the steps of conveying the first container to a first stop position, centering such container while in the stop position, providing a path for the container substantially the width of the container, releasing the container from the first stop position and moving it along the provided path, stopping the next container at the first stop position, raising the top outer side flaps and the top forward inner flap of the first container to a substantially vertical position, bringing the moving first container to a second stop position, moving the top forward inner flap to a substantially horizontal position at the level of the top of the first container, releasing the container from the second stop position, tucking and bending the top rear inner flap to a forward position and the top outer side flaps to a tented position, opening the bottom outer side flaps to a tented position with respect to the bottom inner flaps, applying adhesive to the inner flaps with the outer flaps in tented position and folding the outer flaps in contact with the adhesive of the inner flaps.

3,302,368
AUTOMATIC PACKING MACHINE

Arrigo Ziche, Via C. Cattaneo 1, Vicenza, Italy
Filed Dec. 31, 1963, Ser. No. 334,786
Claims priority, application Italy, Jan. 5, 1963, 53/63
13 Claims. (Cl. 53—78)

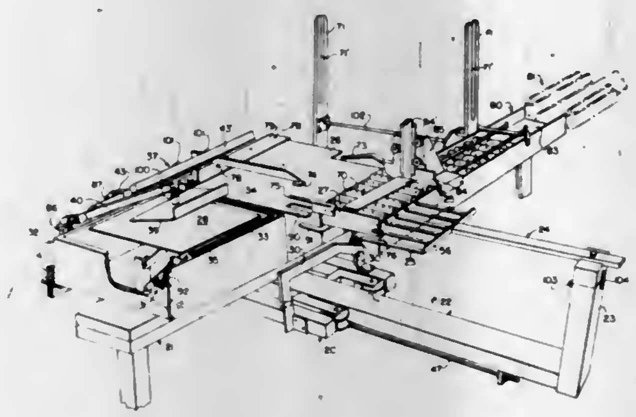


1. An automatic packing machine for tubular articles, such as phials, comprising, in combination, means having a loading surface for the articles, a belt conveyor adjacent said loading surface, a rotary shaft, flexible radial arms carried by said shaft and located substantially between said loading surface and said belt conveyor for moving said articles from said loading surface and upon said belt conveyor, means for aligning the articles upon said belt conveyor, movable suction pipes, means forming downwardly inclined passages, said suction pipes being located substantially between said belt conveyor and the last-mentioned means for removing the articles by suction from said conveyor belt and dropping them into said passages, means located in said passages and engaging the dropped articles for aligning the dropped articles in the same direction, and movable container-carrying means for loading the aligned articles.

3,302,369
AUTOMATIC PACKAGING MACHINES

Amelio Vinciguerra, 2218 McDonald Ave., Brooklyn, N.Y. 11223
Filed Feb. 11, 1964, Ser. No. 344,098
12 Claims. (Cl. 53—182)

1. The combination in an automatic machine to make packages consisting of a predetermined quantity of articles within a sealed envelope of sheet material of the kind used for wrapping purposes, an elevator platform having a surface area to admit only said quantity of articles thereon, mounted on a frame for movement between a lowered position and a raised position thereon, a first means to receive a constant supply of articles to be packaged in a predetermined formation, adapted to guide and discharge said articles onto said elevator platform when the latter is in its lowered position, a second means moving with said elevator platform to halt the articles remaining on said first means when said elevator platform is away from its lowered position, a pusher member, a cantilever shelf mounted on the frame, adapted to be straddled by wrapping sheet material which is a web folded longitudinally substantially in half; the fixed end of the shelf being along said elevator platform so that when the folded sheet wrapping material is set to straddle said shelf, the longitudinal edges of the folded web are along and at said fixed end of said shelf, a sealing platform, a supply to present a folded web of wrapping sheet material about said shelf; the web extending in such direction that upon movement thereof longitudinally to deplete said supply, said folded web will move onto said sealing platform, a third means to move said pusher member along a horizontal rectangular path without turning; said pusher member, shelf and elevator platform being so positioned on the frame that when the pusher member is at the first vertex location in its path, said elevator platform is intermediate said pusher and said shelf; said pusher member when moved from the first to the second vertex location in its path, will have passed over the said elevator platform and come over said shelf; said pusher member when moved from the second to the third vertex location of its path, will have moved from over said shelf and come over said sealing platform; said pusher member when moved from the third to the fourth vertex location in its path, will have left its position over said sealing platform and pass aside and beyond said elevator platform so that the next movement of said pusher member will be to the first vertex location in its path; said elevator platform when in its raised position, allowing the pusher member while traveling from the first to the second vertex location, to shift any articles on said elevator platform onto said shelf below the upper ply of said folded sheet material, a fifth means holding the longitudinal edge of said upper ply raised to permit the articles pushed off the elevator platform to come onto said shelf and below said upper ply; said elevator platform when in its raised position being at least up to and near the upper surface of said shelf, a sealing means adapted when moved and actuated, to seam the plies along their free longitudinal edges and across from said edges to the fold in the web, a sixth means to move said elevator platform between its lowered and raised positions, a seventh means for operating said sealing means, a fourth means for operating said third, sixth and seventh means in a predetermined timed relation and at least one tine extending from the pusher member adapted to enter between the plies of the folded web on said shelf so that when the pusher member travels towards the sealing platform, the meeting lead ends of the folded web being seamed, said tine will move the folded web together with the articles between said plies onto the sealing platform so that the cross seam thereafter made by the sealing means in said plies is beyond the articles on the sealing platform at the tail end of the package being formed by said sealing means.



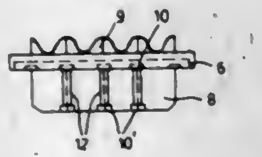
3,302,370
MACHINE FOR PACKING BOTTLES WITH A CORRECTION FRAME

Paulus J. M. van Luxemborg, Dongen, Netherlands, assignor to Machinefabriek van Luxemborg N.V., Dongen, Netherlands, a limited-liability company of the Netherlands

Filed Nov. 6, 1963, Ser. No. 321,785

Claims priority, application Germany, Nov. 9, 1962, E 17,426

1 Claim. (Cl. 53—248)



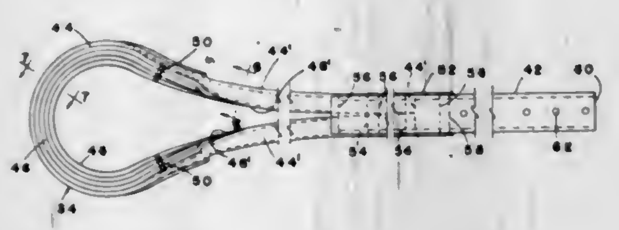
Apparatus for loading and unloading a plurality of bottles within a bottle case having individual bottle-receiving compartments, comprising: a bottle holding frame having a plurality of bottle gripping means mounted thereon, said frame and gripping means being adapted to move substantially vertically towards a case to be filled, and a correction frame for being positioned between said holding frame and said bottle case for facilitating insertion of the bottles and having guiding compartments corresponding with said bottle receiving compartments, leading means extending downwardly from said guiding compartments and adapted to enter within said bottle receiving compartments, and guide rolls mounted on said correction frame at the upper and lower ends of said leading means in diagonal relation with said guiding compartments to guide said bottles within said receiving compartments.

3,302,371
CRUPPER FOR HARNESS

Willard C. Beach, R.D. 1, Glen Rock, Pa. 17327

Filed Mar. 10, 1966, Ser. No. 533,293

6 Claims. (Cl. 54—22)



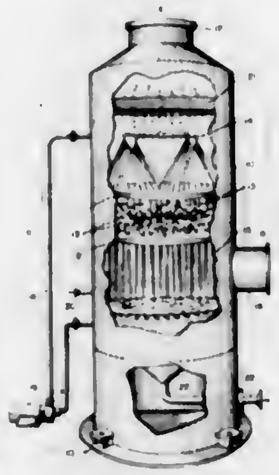
1. A crupper for a set of harness comprising in combination, a plurality of elongated composite strips arranged in nested laminated relationship and in a substantially U-shaped configuration in plan view for disposition around the upper end of a horse's tail, and means connecting together the end portions of said strips into a crupper assembly; said strips each being formed from a band of predetermined width of textile fabric woven from synthetic resin filaments and folded a plurality of times upon itself to form a composite strip of at least four plies of substantially even width, said plies being secured permanently together by rows of stitches adjacent the opposite edges of said composite strips, the outermost composite strips of said assembly thereof being narrower than any other strip therebetween, whereby the cross-sectional shape of said assembly is at least partially substantially circular to provide comfort to a horse.

3,302,372
GAS SCRUBBING PROCESS AND APPARATUS

Phillip E. Hynson, Winter Haven, and William R. Mustian, Jr., Lakeland, Fla., assignors, by mesne assignments, to Armour Agricultural Chemical Company, a corporation of Delaware

Filed Apr. 17, 1964, Ser. No. 360,525

2 Claims. (Cl. 55—71)



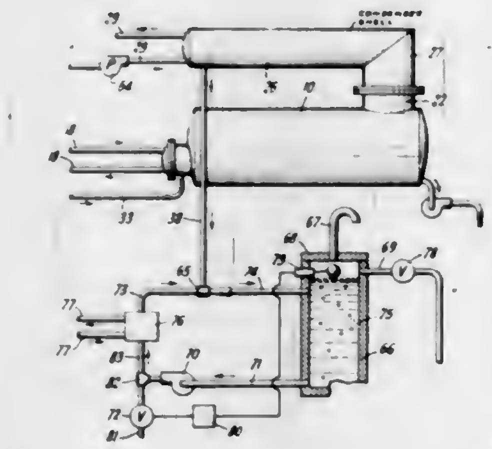
1. A process for the concentration of wet process phosphoric acid in which the acid is concentrated by contact with hot combustion gases and the combustion gases containing fluorine removed and in which spinning spheres are confined in a zone space between the upper and lower perforated plates and water is discharged downwardly onto the upper, comprising the steps of maintaining the volume of said spheres at substantially less than one-half the volume of said zone space, passing said gases upwardly through said zone space at a velocity of about 1000–1250 feet per minute, contacting said spheres with said gases and urging said spheres toward said upper plate, simultaneously discharging said water downwardly against said spheres with sufficient force to hold said spheres below and out of contact with said plate in an unstable non-bed formation whereby the spheres move in random paths.

3,302,373
DISTILLATION APPARATUS

William Rodger Williamson, Waterford, Conn., assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed July 3, 1963, Ser. No. 292,667

1 Claim. (Cl. 55—169)



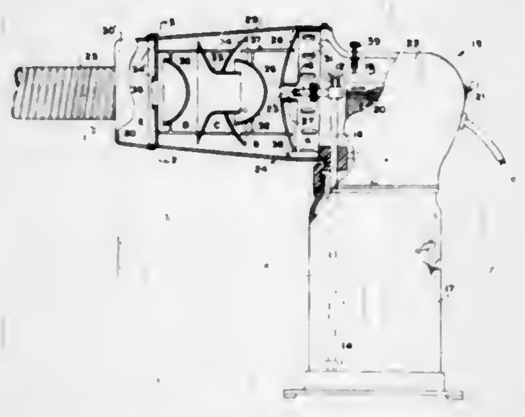
In a distillation plant, apparatus for removing distillate and non-condensibles from a condenser comprising, in combination, an eductor, a tube leading to said eductor from the condenser through which distillate and non-condensibles may be drawn by said eductor, a pump, an air water separator vented to the atmosphere, a tube leading from near the bottom of said air water separator to the inlet of said pump, a discharge tube leading from said pump to said eductor, a tube leading from said eductor to said air water separator below the level of water therein, said pump drawing water from said air water separator and passing it through said eductor to return to said air water separator, and means bypassing said pump inlet when water within said air water separator rises above a given level, comprising a water level switch in said air water separator, a control unit connected to said water level switch, and a bypass line including a valve activated by said control unit, said bypass line being connected to the line leading from the pump to the eductor.

3,302,374
AEROSOL APPARATUS FOR INHALATION THERAPY

George Szekely, Bronx, N.Y., assignor to G. S. International Laboratory Corp., Bronx, N.Y., a corporation of New York

Filed Feb. 14, 1966, Ser. No. 527,022

12 Claims. (Cl. 55—226)



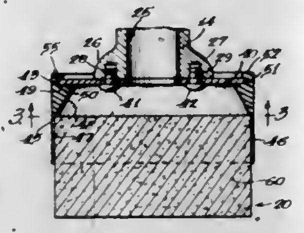
1. In an apparatus for producing an aerosol for inhalation therapy, a comparatively large casing provided with an outlet and a relatively small tubular inlet having an intake end which is communicative with the atmosphere; said casing enclosing the tubular inlet and having at least one opening adjacent said inlet for establishing the connection to atmosphere, a nozzle extending into said tubular inlet and positioned to discharge toward said casing; there being a space between the discharge end longitudinal portion of said nozzle and the tubular inlet, for the flow of air therethrough and into the casing; the position of the nozzle being such that particles of liquid issuing therefrom will impinge all around the inner surface of said tubular inlet before entering said casing, means for supplying only a liquid into the nozzle so only liquid passes through the nozzle for discharge into the tubular inlet; said liquid supplying means including a power-driven pump connected with a liquid supply container, forcibly delivering liquid from said container through said nozzle and into said tubular inlet thereby drawing a supply of atmospheric air into the intake end of the tubular inlet and through said tubular inlet and into said casing; said draw of air producing an air flow which drives and carries the spray through the casing, baffle means in the space inside said casing between said tubular inlet and the outlet and in a position to nebulize the particles of liquid spray entering said casing through said tubular inlet from said spraying nozzle and carried through said casing by said air flow; the space between the discharge end longitudinal portion of the nozzle and the tubular inlet, being of such size that the air flow is of such force that it will drive and carry the sprayed liquid particles through the baffle-occupied casing and out of the outlet, and a drain pipe leading substantially from the lowest part of the casing and communicatively connecting the casing with the liquid supply container.

3,302,375
REMOVABLE AIR CLEANER FOR INTERNAL COMBUSTION ENGINES

Harold G. Miller, Racine, Wis., assignor to Racine Hydraulics & Machinery, Inc., a corporation of Wisconsin

Filed June 15, 1964, Ser. No. 375,223

7 Claims. (Cl. 55—504)



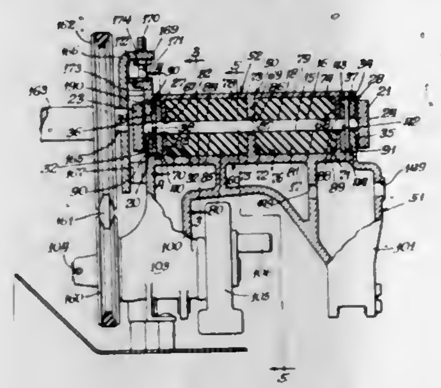
1. An air cleaner assembly for an internal combustion engine carburetor comprising, a rigid plate member adapted to be mounted on the open end of a carburetor throat, said plate having an opening therein adapted to complement the carburetor throat and also having a peripheral surface, a cylindrical one piece resilient housing member extending from said plate substantially normal thereto, said housing member having a hollow interior and also having a peripheral surface adjacent said plate peripheral surface, an annular tongue on one of said surfaces and an annular groove on the other of said surfaces forming a snap connection between said housing member and said plate member, said groove being defined by two generally radially extending surfaces, one of said radial surfaces extending radially a lesser distance than the other of said radial surfaces to facilitate insertion of the tongue in the groove, and a filter mounted within and fixedly secured to said housing member and having a diameter substantially equal to said hollow interior whereby said housing may be removed from the carburetor without the use of any tools.

3,302,376
VIBRATION CONTROLLED MOWER MOUNTING

Thomas J. Scarnato, Park Ridge, and Paul C. Gordon, Hinsdale, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware

Filed Oct. 14, 1963, Ser. No. 315,784

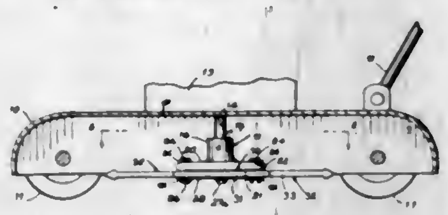
7 Claims. (Cl. 56—25)



1. The combination of a frame structure, a laterally extending reciprocating mower assembly having a sickle, coupling structure coupled at one end to the mower assembly, a pendulum member coupled to the other end of said coupling structure, driving means supported from said pendulum member and coupled to said sickle, and means mounting said pendulum member from said frame structure, said means comprising soft elastomeric material of a character sufficient to dampen the principal operating vibrations of the mower assembly and serving as the normal means for floatingly supporting said mower assembly and pendulum member from said frame structure, said means further comprising overload bearing means supporting said pendulum member from said frame structure when said elastomeric material is overloaded.

3,302,377
BLADE ASSEMBLY FOR A MOWING MACHINE

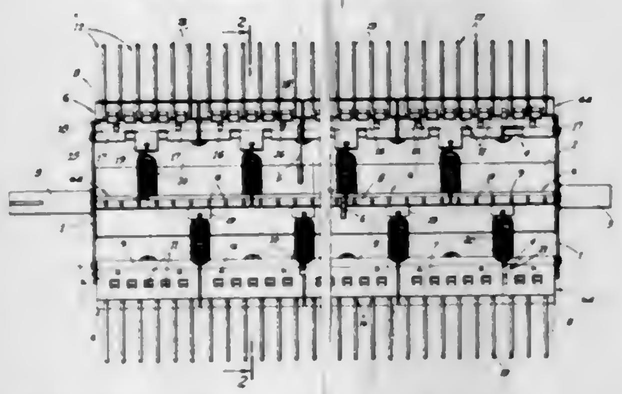
Lewis C. Ely, Atlanta, Ga., assignor, by mesne assignments, to Dayco Corporation, Dayton, Ohio, a corporation of Delaware
Filed Dec. 16, 1963, Ser. No. 330,665
13 Claims. (Cl. 56—295)



1. A cutting blade for a mowing machine composed of an elastomer and relatively non-elastic members embedded therein, said elastomer defining an elongated cutting edge of said blade and shielding said non-elastic member from engagement with objects to be cut by said blade.

3,302,378
SPRING FINGER ROTARY SWEEP

Carl E. Rasmussen, Atwater, Calif., assignor to Goodwin Manufacturing Company, Manteca, Calif., a corporation of California
Filed July 20, 1964, Ser. No. 383,900
6 Claims. (Cl. 56—328)

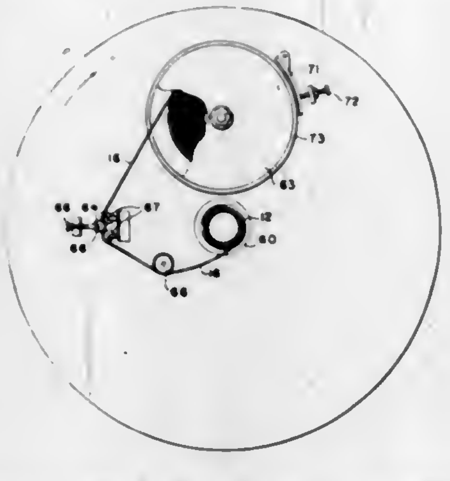


1. In a rotary sweep which includes end plates rigidly connected together for rotation in one direction about a central axis, a plurality of circumferentially spaced mounting shafts extending between and connected to the end plates concentrically of said axis, and a plurality of finger units turnably supported from each shaft in side-by-side relation; each finger unit comprising a plate having a cradle at one end for disengageable turning engagement with the related shaft, a plurality of fingers removably supported by and projecting from the other end of the plate, and a member detachably mounted on the plate and provided with means normally preventing removal of the fingers from the plate and disengagement of the cradle from the shaft.

3,302,379
APPARATUS AND METHOD FOR APPLYING HELICAL WIRE WRAPPING

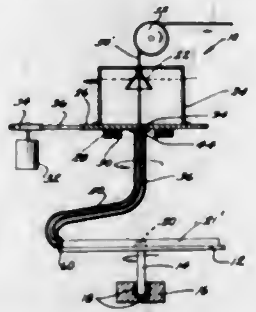
Kenard D. Brown, 1227 S. Willow St.,
Casper, Wyo. 82601
Original application Aug. 3, 1959, Ser. No. 831,260, now Patent No. 3,174,512, dated Mar. 23, 1965. Divided and this application Mar. 18, 1965, Ser. No. 440,836
6 Claims. (Cl. 57—9)

1. The method of forming a helical coil of spring wire or the like about a cylindrical form in intimate engagement therewith which comprises providing a cylindrical form of the desired length, moving the wire along a path substantially tangential to the form and transversely thereof in a plane substantially normal to the axis of the form while producing relative rotation of the path and the form continuously at a uniform rate about said axis, guiding the moving wire and bending it in said plane at a position spaced from the point of contact of the wire and the surface of the form to deform the wire in a curve having a radius of curvature less than that of the form and having its center of curvature on the side of the wire toward the form, maintaining the stress in the wire substantially uniform, and concurrently moving the form and the tangential path of the wire axially relatively to one another whereby a helical coil is produced continuously about the form in intimate engagement therewith.



3,302,380
CORD TWISTER

David J. Ver Meulen, Grand Rapids, Mich., assignor to Sackner Products, Inc., Grand Rapids, Mich., a corporation of Michigan
Filed Sept. 11, 1964, Ser. No. 395,808
7 Claims. (Cl. 57—31)



1. Apparatus for continuously twisting a reel of ribbon into a strand comprising: rotatable support means for a ribbon reel; a twisting eye mounted adjacent said support means and adapted to be spun to twist said ribbon into a strand; a ribbon guide having an outlet aligned with said twisting eye, and an inlet oriented radially toward the periphery of a reel mounted on said support means; said guide being rotatably mounted; and drive means to cause revolving of said guide around said reel to pull off ribbon for twisting by said twisting eye.

3,302,381
APPARATUS FOR CONTROLLING THE COP FORMATION ON ROVING FRAMES

Willi Pfeifer, Eislingen (Fils), Germany, assignor to Zinser Textilmaschinen G.m.b.H., Ebersbach (Fils), Germany
Filed July 13, 1964, Ser. No. 382,051
Claims priority, application Germany, July 19, 1963, Z 10,239
13 Claims. (Cl. 57—98)

1. An apparatus for winding a cop on a bobbin comprising: a constant speed source of power, a flyer connected to said source of power, a bobbin, an infinitely variable transmission connecting said source of power to said bobbin, a lifting mechanism to reciprocate said bobbin and flyer relatively in the direction of the length of the bobbin, a reversing transmission connecting said variable transmission to the lifting mechanism, a template

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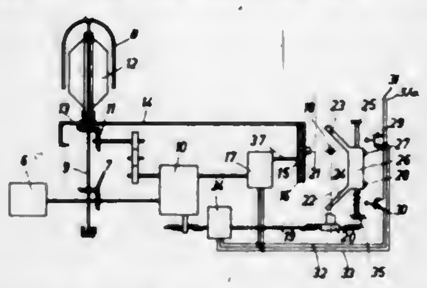
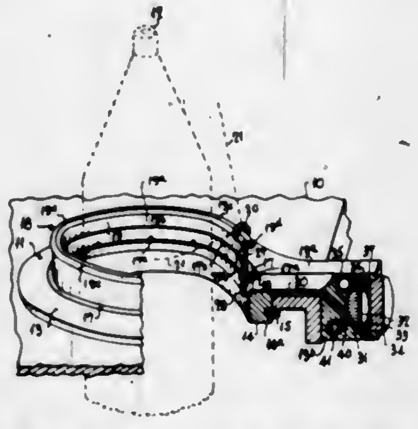
comprising spaced end members inclined to the same angle as the ends of the cop, a feeler for engagement with said end members, drive means connecting one of said template and feeler to the lifting mechanism for effecting reversible relative movement between the feeler and template in one direction corresponding to the length of the cop, carriage means supporting the other of said template and feeler for reversible movement thereof in said one direction in response to interengagement of said feeler and one of said end members as brought about by relative movement therebetween caused by said drive means, resilient means biasing said carriage in said one direction toward an intermediate position, adjusting means for adjusting said feeler and template relatively in a second direction at right angles to said one direction, and control means operated in response to movement of the carriage means caused by inter-engagement of said feeler and end members for reversing said reversible transmission and actuating said adjusting device and adjusting said infinitely variable transmission.



3,302,382
LUBRICATION APPARATUS FOR SPINNING OR TWISTING RING ASSEMBLIES

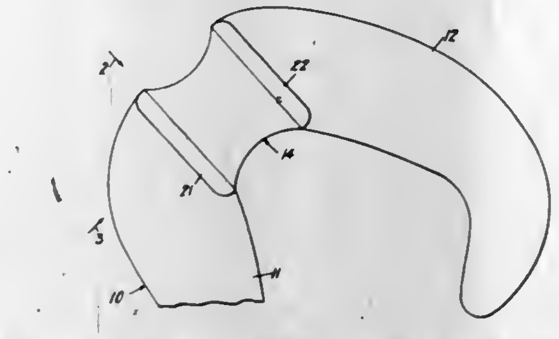
Walter A. Kluttz, Gastonia, N.C., assignor to Kluttz Machine & Foundry Co., Gastonia, N.C., a partnership composed of JoAnn, Jean, Jennie W., and Walter A. Kluttz
Filed Sept. 16, 1964, Ser. No. 396,963
9 Claims. (Cl. 57—120)



1. In combination, a horizontally disposed textile ring rail having a vertically disposed opening therein, a vertically insertable ring holder disposed in said opening, means integral with said holder and slidably engageable with said rail during the vertical insertion of the holder for preventing relative rotation between the rail and holder, a ring detachably mounted on said holder, a closed lubricant reservoir on said slidably engageable means, one wall of said reservoir including a flexible diaphragm, a conduit extending from said reservoir, a second conduit extending from said ring, means for detachably connecting said extending conduit ends, means operable upon disconnection of said ends for closing the extending end of said first conduit, pneumatic means for flexing said diaphragm to thereby expel lubricant from said reservoir, through said conduits and onto said ring, and means operable alternately with the operation of said pneumatic means for replenishing the reservoir with lubricant.

3,302,383
TRAVELER WITH MAXIMUM DIAMETER WEAR RESISTANT INSERT

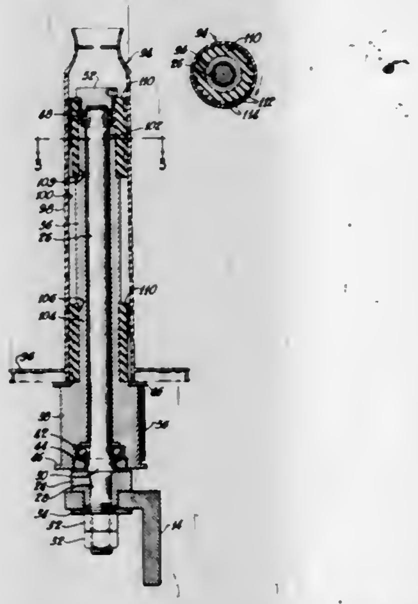
Louis H. Morin, Bronx, N.Y., assignor to Coats & Clark Inc., New York, N.Y., a corporation of Delaware
Filed June 30, 1964, Ser. No. 379,272
1 Claim. (Cl. 57—125)



A molded plastic traveler having a hook part, a shank part, an integral hour glass shaped bridging part uniting said hook and shank parts, a thin walled tubular wear resistant member immovably encircling the bridging part, flared sides on the bridging part, flared ends on said member arranged upon said flared sides, the maximum diameters of said member and said flared sides being substantially the same, the shank and hook parts, where they integrally join the bridging part, including disc-like ends, and said disc-like ends enveloping the terminal ends of said wear resistant member.

3,302,384
APPARATUS FOR DRIVING FILAMENTARY MATERIAL COLLECTORS OR BOBBINS

Roy E. Smith and William O. Pearman, Anderson, S.C., assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Nov. 26, 1963, Ser. No. 325,911
8 Claims. (Cl. 57—130)



1. Apparatus for packaging filamentary material on a twister machine including a support, means mounted by said support journally supporting a rotatable member, said rotatable member being adapted to accommodate a removable collector upon which filamentary material is to be wound, sleeve means of yieldable nonmetallic material mounted on the rotatable member, said sleeve means arranged to slidably receive the collector in frictional contact therewith, said sleeve means having lengthwise arranged linear projections adapted to be stressed under the influence of centrifugal forces of rotation to intimately engage the collector for driving the collector, said sleeve means being relaxable upon cessation of rotation whereby the collector may be slidably removed from the sleeve means.

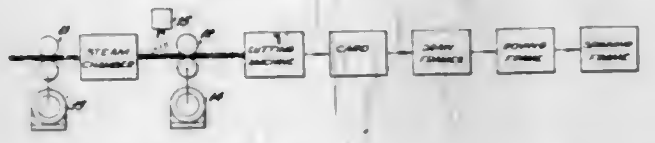
3,302,385
MODIFICATION OF FILAMENTS

James Nelson Ruddell, 19 Glenroy Ave., Portadown, County Armagh, Northern Ireland, and Herbert Alexander Conway Todd, 28 Cranmore Gardens, Belfast, Northern Ireland

Filed Aug. 23, 1962, Ser. No. 219,048

Claims priority, application Great Britain, Aug. 26, 1961, 1,796/61

13 Claims. (Cl. 57—157)



1. A process of producing textile material which comprises the steps of continuously processing a tow of man-made continuous textile filaments to impart thereto a varying latent shrinkage characteristic, subdividing said continuous filaments with said latent characteristic therein into staple fibres, substantially homogeneously blending the resultant staple fibres, spinning the blended staple fibres into yarn, and thereafter developing the latent shrinkage characteristics of the spun yarn to cause the fibres thereof to shrink in varying fashion according to the latent shrinkage characteristics thereof.

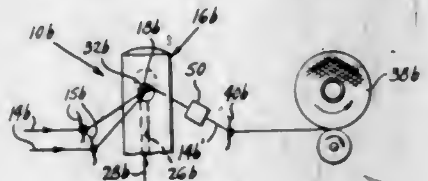
3,302,386
PROCESS FOR MAKING TANGLED YARN

Conrad J. Gonsalves and Willem C. van Anholt, Arnhem, Netherlands, assignors to American Enka Corporation, Enka, N.C., a corporation of Delaware

Filed Oct. 16, 1964, Ser. No. 404,340

Claims priority, application Netherlands, Oct. 31, 1963, 300,001

16 Claims. (Cl. 57—157)



1. A process for the production of a tangled yarn comprising providing a supply of at least one substantially untwisted filamentary yarn, defining a yarn channel having a longitudinal axis, an inlet end and an outlet end, feeding a quantity of yarn from said supply into said yarn channel in sliding engagement with a portion of said inlet end, withdrawing said quantity of yarn from said yarn channel in sliding engagement with a portion of said outlet end, the feed rate being in excess of the withdrawal rate and the fed yarn defining an angular relationship with respect to the withdrawn yarn, and substantially transversely contacting said quantity of yarn intermediate said inlet and outlet ends of said yarn channel with a stream of gaseous material by blowing said gaseous material into said yarn channel eccentrically offset with respect to said longitudinal axis of said yarn channel, said portion of said inlet end of said yarn channel being on the same side of said longitudinal axis as said offset and a portion of said outlet end of said yarn channel being on the opposite side of said longitudinal axis from said offset.

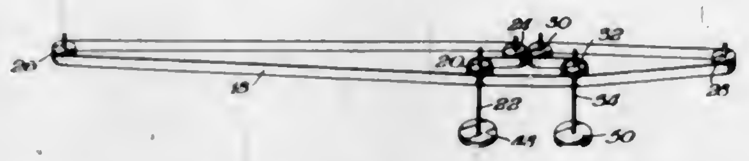
3,302,387
TIME CONVERSION MAP

Robert R. Wedde, 631 Lakewood Place, Dover, Del. 19901

Filed Aug. 26, 1965, Ser. No. 482,754

9 Claims. (Cl. 58—42.5)

1. A time conversion device comprising a substantially flat map having the international dateline indicated thereon, time conversion band means, time indicia on said band means, each of said time indicia being spaced from its adjacent indicia a distance equal to a time zone of said map, means for mounting said band means with a portion of said band means having prior time indicia entering the front of said map at said international dateline and extending across said map in an eastern direction, said band means extending around the front of said map from said international dateline to the eastern end of said map, then across the back of said map, said band means re-entering the front of said map at its western end and extending there across until the international dateline where said band means leaves the front of said map whereby said band means completely covers the front of said map with said international dateline being both a point of entry and a point of exit.

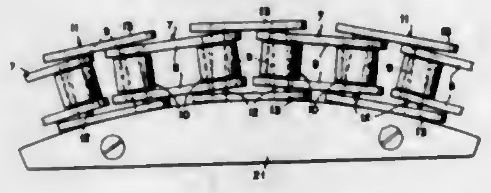


3,302,388
FLUSH RIVETED CHAIN

Charles Stewart Gentsch, Longmeadow, Mass., assignor to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin

Filed June 25, 1964, Ser. No. 377,938

5 Claims. (Cl. 59—8)



1. The method of flush riveting one side of the pin link of a chain including pin links and bushing links in an alternate series, the said pin link comprising pins extending through the adjacent bushings and pin plates having spaced holes into which the ends of said pins extend with a tight fit, which method comprises first shifting the pin plate on said pins so that the ends of said pins project therefrom on said one side of the chain, heading said ends of the pins to enlarge the same by displacing portions thereof in directions normal to the pitch line of the chain, and thereafter simultaneously forcing said ends of the pins into said pin plate.

3,302,389
REGULATING DEVICES OF BARREL-TYPE HYDRAULIC TRANSMISSION SYSTEMS

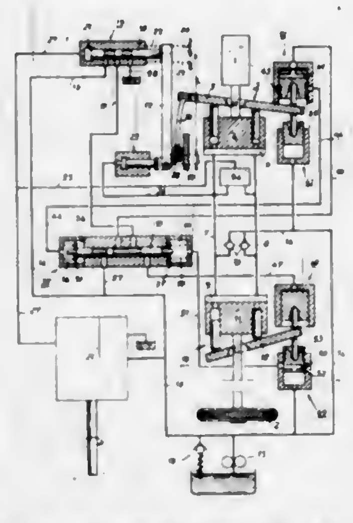
Jean Cadiou, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France, a French corporation

Filed July 19, 1965, Ser. No. 472,991

Claims priority, appplication France, July 28, 1964, 983,306, Patent 1,416,391

7 Claims. (Cl. 60—19)

1. A device for automatically ensuring, for a given power output, the constancy of the input torque of a hydraulic transmission comprising a generator and a receiver both of the rotary-barrel type, applicable notably to automotive vehicles, which incorporates a compensator beam, a first cylinder exerting on said beam a thrust of a value subordinate to the engine speed, a second cylinder exerting on said beam a thrust proportional to the high pressure of said transmission, a movable abutment connected to an impeller plate and exerting on said beam a reaction balancing the aforesaid two thrusts, a third cylinder for increasing the cubic capacity of said generator in opposition to a fourth return cylinder having a smaller cross-sectional area, a fifth cylinder for decreasing the cubic capacity of said receiver in opposition to a sixth return cylinder of smaller cross-sectional area, said fourth and sixth cylinders being permanently fed from the low-pressure side of the transmission, a first distributor controlled by said first cylinder and fed from said low-pressure side, the outlet of said distributor being either connected to said low-pressure side, or cut off, or connected to the exhaust according as to whether the moment due to said first cylinder is higher, equal or inferior to that of said second cylinder, a second slide-valve distributor controlled by purely hydraulic means as a function of the positions of the four last-named cylinders and adapted to connect the outlet of said first distributor either to said third cylinder alone, or to said third and fifth cylinders, or to said fifth cylinder alone, according to three separate phases of the transmission operation determined respectively in that the variations in cubic capacity apply to the generator alone with the receiver locked in its maximum cubic capacity position, and to the generator and receiver when both are very close to their maximum cubic capacity, whereby the whole of said phases will cover continuously and reversibly the complete range of the desired reduction ratios.

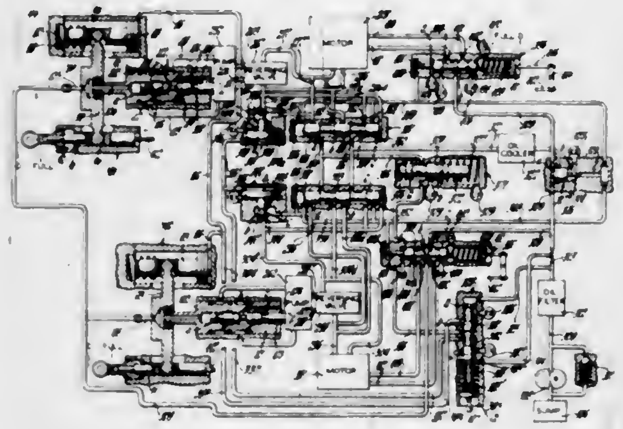


3,302,390
TRANSMISSION

Howard W. Christenson and James J. Mooney, Jr., Indianapolis, and Robert H. Schaefer, Westfield, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Original application May 10, 1963, Ser. No. 279,372. Divided and this application May 31, 1966, Ser. No. 553,986

12 Claims. (Cl. 60—19)



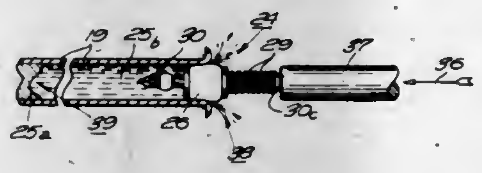
1. In a transmission driven by an engine having a constant speed governor having a speed selecting device to control the fuel supplied to the engine to maintain a selected constant engine speed, the combination of a fluid pump and motor unit having drive means adapted to be driven by an engine, driven means adapted to drive a load, pump means driven by said drive means, motor means driving said driven means, power circuit means connecting said pump and motor means to supply fluid from said pump means to said motor means and return fluid from said motor means to said pump means, and pump displacement varying means to vary the displacement of said pump means; governor means operatively connected to said drive means providing a governor signal in response to pump speed; speed control means for adjustably controlling the predetermined speed setting of an engine speed control governor connected to said governor means to vary said governor means in accordance with variations in the engine speed setting of the engine governor; and displacement control means having a controlling means and operatively connected to said pump displacement varying means and said governor means and operative to control the displacement of said pump means in response to said controlling means and said governor signal.

3,302,391
THERMAL ACTUATORS

Ferd P. Mihm, Needham, Mass., assignor to Tempstat Corporation, Hinsdale, N.H., a corporation of Delaware

Filed Jan. 25, 1965, Ser. No. 427,664

10 Claims. (Cl. 60—23)



1. A thermal actuator comprising a closed container having inner surfaces defining a rigid open-ended cylinder accommodating reciprocations of a piston unit therein, thermally-responsive fill material within said container exhibiting significant temperature-induced dimensional variations within a predetermined temperature range, and an elongated piston-seal unit disposed within said cylinder and movable along the longitudinal axis thereof, said piston-seal unit including a piston member of resilient material having a cross-section normally not in excess of the cross-section of said cylinder, elongated fastening means extending through said member in the direction of said axis, and resilient loading means mounted on and movable as a whole with said fastening means in a force-transmitting relation to said piston member, said fastening means including axially-spaced holding means movable therewith axially compressing said piston member and resilient loading means together between said holding means, whereby the cross-section of said axially-compressed piston member tends to be greater than that of said cylinder and fluid leakage from and into said container is suppressed by said piston-seal unit.

3,302,392
DEVICE COMPRISING AT LEAST ONE SEALING ELEMENT BETWEEN TWO COAXIALLY ARRANGED ELEMENTS WHICH ARE MOVABLE WITH RESPECT TO EACH OTHER

Herman Fokker, Roelf Jan Meyer, Gijsbert Prast, and Klaas Roozendaal, all of Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

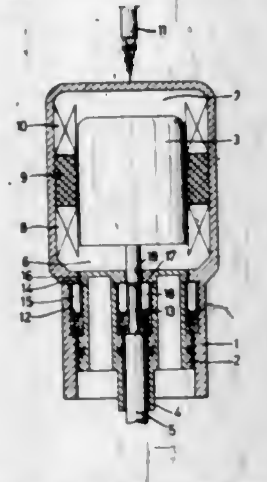
Filed May 27, 1965, Ser. No. 459,375

Claims priority, application Netherlands, May 29, 1964, 64/06027

10 Claims. (Cl. 60—24)

1. A thermodynamic reciprocating apparatus comprising cylinder means, a piston means reciprocating in said cylinder means whereby pressure fluctuations occur in

the working space bounded by said piston and cylinder means, at least one additional space, a regenerating element, said additional space communicating with said working space through said regenerating element, said additional space having volume variations with a phase difference with respect to the pressure fluctuations in said additional space, a seal being in heat conducting contact with the medium present in the additional space, and a temperature difference prevailing during operation between the medium in the additional space and the seal.



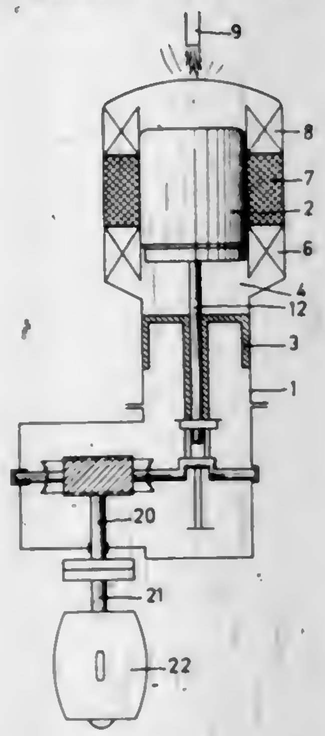
3,302,393
HOT-GAS RECIPROCATING ENGINES OF THE DISPLACER PISTON TYPE

Roelf Jan Meyer, Albert August Dros, and August Albert Liebe, all of Emassingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed June 24, 1965, Ser. No. 466,860

Claims priority, application Netherlands, June 23, 1964, 64/06751; July 22, 1964, 64/08345

11 Claims. (Cl. 60—24)



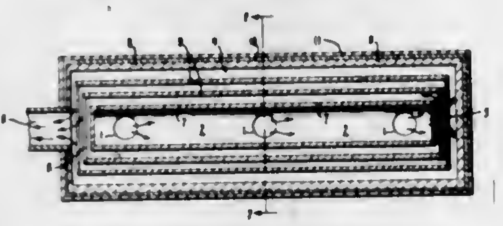
1. A hot-gas reciprocating engine adapted for driving a driven element comprising; at least one cylinder, at least one piston and at least one displacer adapted for reciprocation in said cylinder with a relative phase difference, at least one pair of identical cranks, at least two crankshafts, said cranks being located each on one side of a plane extending through the center line of said engine and forming part of said two crankshafts, said crankshafts being rotated in the same phase, in synchronism and in relatively opposite directions, the center lines of said shafts being parallel to each other and being located symmetrically, each on one side of the plane going through said engine in a plane at right angles to the center line of said engine, each pair of associated cranks being connected with at least one piston and at least one displacer, at least one piston connecting rod connecting said piston and the respective crank, at least one displacer connecting rod connecting said displacer and the respective crank, the rectilinearly moving parts of said piston connecting rods being located on one side and the rectilinearly moving parts of the displacer piston being located on the other side of the plane extending through the center lines of said crank shafts, a worm mounted on each of said crankshafts, and another shaft provided with a worm gear which couples said hot-gas reciprocating engine with said driven element.

3,302,394
EXHAUST MANIFOLD REACTOR

Alden John Pahnke, Wilmington, and Donald Maurice Sowards, Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Nov. 24, 1965, Ser. No. 514,752

8 Claims. (Cl. 60—30)



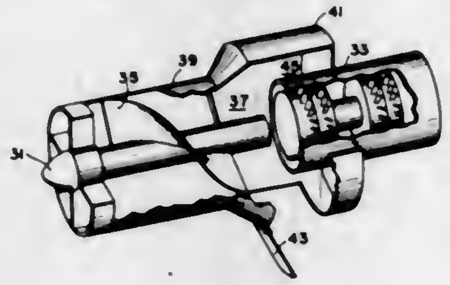
1. An exhaust manifold reactor for reducing the concentrations of hydrocarbon and carbon monoxide impurities normally present in exhaust gases from an internal combustion engine, said reactor having means for mounting same on said engine immediately adjacent to and connecting means to at least two exhaust ports of said engine into which auxiliary air is introduced, said reactor having conduit means for passing the resulting gas mixture into passage means between (1) the reaction chamber of said reactor (2) heat reflecting means positioned concentrically around said reaction chamber and (3) housing means positioned concentrically around said heat reflecting means, and outlet means for passing the resulting gas mixture into an exhaust pipe.

3,302,395
DEBRIS SEPARATOR FOR AIRCRAFT GAS TURBINE ENGINES

Louis Robbins, 116 David Road, Cynwyd, Pa. 19004

Filed July 8, 1965, Ser. No. 470,641

6 Claims. (Cl. 60—39.09)



1. In a gas turbine engine including a compressor, a combustion unit, a turbine, and means for transmitting rotary power of the turbine of the compressor, apparatus for preventing entry of foreign objects into the engine, said apparatus comprising:

(a) a fairing dome which is secured to the compressor and extends upstream from the compressor along an extended longitudinal axis thereof;

(b) a casing which is concentrically mounted about the compressor and the dome, an annular air inlet passage for the compressor being formed between the casing and the dome and an annular engine bypass ejector duct being formed between the casing and the outer peripheral surface of the stator structure of the compressor;

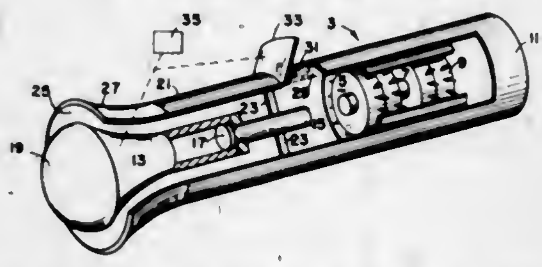
(c) and a helical-shaped vane rotatably mounted on the dome so as to impart a centrifugal field of flow to air as it passes through the annular inlet passage into the compressor.

3,302,396
DEBRIS SEPARATOR FOR AIRCRAFT GAS TURBINE ENGINE

Louis Robbins, 116 David Road, Cynwyd, Pa. 19004

Filed July 8, 1965, Ser. No. 470,648

5 Claims. (Cl. 60—39.09)



1. In a gas turbine engine including a compressor, a combustion chamber, a turbine and means for transmitting rotary power of the turbine to the compressor, apparatus for preventing entry of foreign objects into the engine, said apparatus comprising:

(a) a fairing dome mounted on the stator structure of the compressor so as to extend upstream from the compressor along an extended longitudinal axis thereof;

(b) a casing which is secured to the outer peripheral surface of the stator structure of the compressor and extends substantially concentrically about the dome so as to form an annular air inlet passage for the compressor;

(c) means for closing the annular air inlet passage;

(d) a debris filter positioned in an opening in the casing downstream from the annular passage closing means;

(e) a door for closing the opening in the casing;

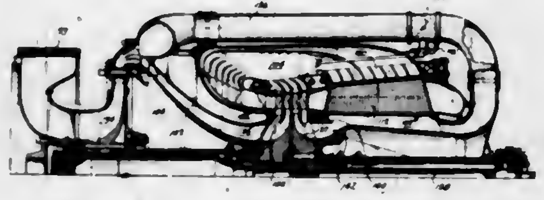
(f) and means coupled between the annular passage closing means and the door for opening the door when the annular passage closure means is closed and closing the door when the annular passage closure means is open.

3,302,397
REGENERATIVELY COOLED GAS TURBINES

Vlastimir Davidovic, 1921 12th Ave. S., Seattle, Wash. 98144

Filed Aug. 25, 1964, Ser. No. 391,897

6 Claims. (Cl. 60—39.16)



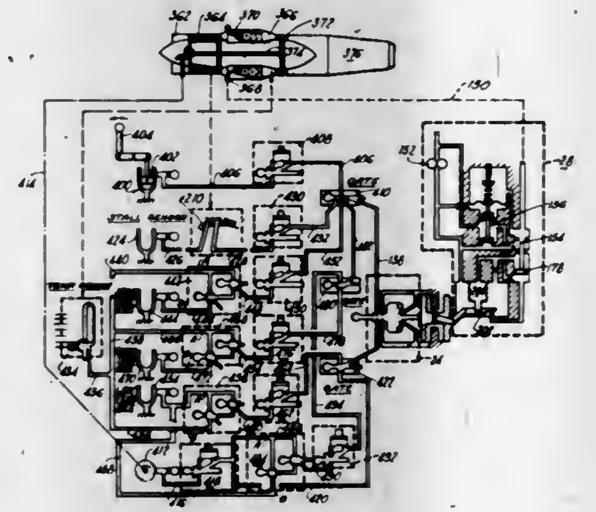
3. A gas turbine engine comprising compressor means, a combustion chamber, and turbine means receiving combustion gas from said combustion chamber and including a rotor having a hollow hub portion containing a first set and a second set of axially-separate radially-extending openings therein receiving air under pressure, stationary blades overlapping a portion of said rotor's hollow hub portion, extending radially outward therefrom and having passages extending generally radially therethrough with their inner ends in communication with said first set of rotor hub openings and their outer ends in communication with said combustion chamber, and said rotor having rotary blades projecting outward therefrom alongside said stationary blades with passages extending generally radially therethrough having their inner ends in communication with said second set of rotor hub openings and their outer ends in communication with said combustion chamber.

3,302,398
FLUID PULSE CONTROL

Lael B. Taplin, Walter F. Datwyler, Jr., Joseph P. Madurski, and Thomas E. Thompson, Southfield, Mich., assignors to The Bendix Corporation, Southfield, Mich., a corporation of Delaware

Filed June 25, 1963, Ser. No. 290,894

7 Claims. (Cl. 60—39.28)



1. An engine fuel control comprising: a first pneumatic pulse generator producing a pulse train signal of controlled frequency, fuel control means responsive to frequency of a pneumatic pulse train signal for controlling fuel delivery, passage means interconnecting said pulse generator and said fuel control means for transmitting said selected frequency pulse train signal to said fuel control means, a gate valve disposed in said passage means operative to block selected pulses transmitted to said fuel control means in response to a gate pulse signal, a pneumatic pulse temperature sensor producing a pulse train having a pulse frequency that varies with actual engine temperature, a second pneumatic pulse generator producing an output pulse train signal having a frequency representative of a permissible reference temperature, comparison means connected to said temperature sensor and said second pulse generator operative to produce a pulse signal having a frequency representative of the difference between actual and reference temperatures, said comparison means being further connected to said gate valve to provide said signal representative of temperature difference as a gate pulse signal.

3,302,399
HOLLOW CONICAL FUEL SPRAY NOZZLE FOR PRESSURIZED COMBUSTION APPARATUS

Anthony Tinl, Morton, and Charles E. Hussey, Jr., Glenolden, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

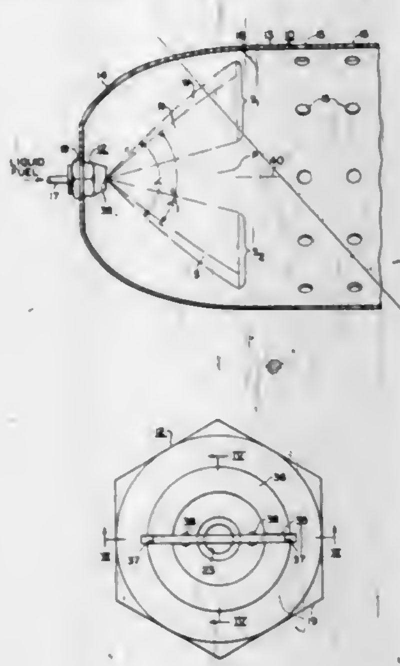
Filed Nov. 13, 1964, Ser. No. 410,911

12 Claims. (Cl. 60—39.74)

1. A fuel spray nozzle for spraying pressurized liquid fuel into a pressurized combustion chamber, said nozzle

having a body defining a circular orifice, means for supplying liquid fuel to said body,

means including a swirl member disposed within said body for directing the liquid through said orifice in a hollow conical spray pattern having a predetermined spray angle at atmospheric pressure, and



means extending across said orifice and rigidly attached to said body for dividing the hollow spray into at least two portions, whereby during operation in a pressurized chamber the reduction in said spray angle is minimized.

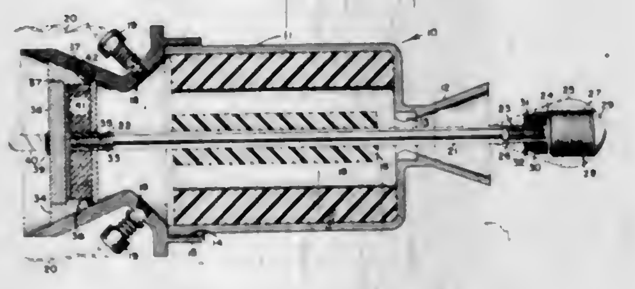
3,302,400

RESTARTABLE IGNITION SYSTEM FOR SOLID PROPELLANT ROCKET MOTORS

Grafton F. Mangum, Huntsville, Ala., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

Filed Apr. 20, 1964, Ser. No. 361,068

2 Claims. (Cl. 60—39.82)



1. An ignition system for a solid propellant rocket motor comprising in combination, a tubular casing having a discharge nozzle at one end thereof and a venting port area at the opposite end thereof, a tubular body of pyrotechnic material located in said casing, igniting means for said body of pyrotechnic material mounted in said casing, a shaft mounted for reciprocation longitudinally of said casing, a first plug on one end of said shaft for closing said nozzle, a second plug on the opposite end of said shaft for closing said port area, each of said plugs having a cavity therein, sealing means positioned in each of said cavities and each of said cavities having escape vents to permit the escape of said sealing means for the sealing of said plugs within said port area and said nozzle.

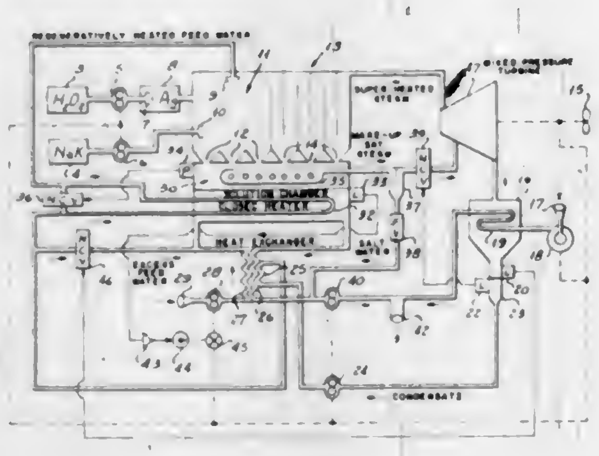
3,302,401

UNDERWATER PROPULSION SYSTEM

John D. Rockenfeller, Rockville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Jan. 26, 1965, Ser. No. 428,131

20 Claims. (Cl. 60—50)



1. An underwater propulsion system including in combination an oxidizer comprising hydrogen peroxide, means for decomposing the oxidizer, means for reacting the decomposed oxidizer and one of the three lightest alkali metals in the presence of water to produce steam, and means for expanding the steam to produce work.

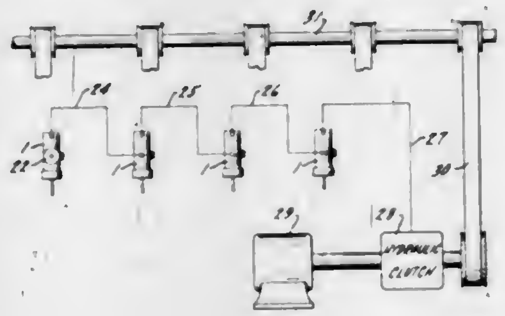
3,302,402

HYDRAULIC FORCE TRANSMISSION SYSTEM

Henry E. Branson, Chicago, Ill., assignor to Stromberg Hydraulic Brake & Coupling Company, Chicago, Ill., a corporation of Illinois

Filed Jan. 12, 1965, Ser. No. 424,920

3 Claims. (Cl. 60—54.5)



1. An hydraulic system including a master power cylinder, having intake and discharge ports, an hydraulic duct system connected to the master cylinder discharge port, an hydraulic pressure responsive element connected to the duct system, a plurality of intermediate cylinders, having intake and discharge ports, between, in series with, and defining a normally unobstructed hydraulic pressure flow path between the power cylinder and the pressure responsive element, an hydraulic fluid supply source connected to the master cylinder intake port, independent means separately associated with the master and with each intermediate cylinder for applying hydraulic pressure to that part of the duct system on the downstream side of each exhaust port and for simultaneously obstructing the pressure flow path on the upstream side of the intake port, characterized by the fact that each cylinder both master and intermediate are in every respect interchangeable in the system.

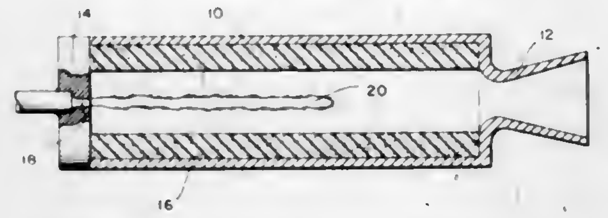
3,302,403

METHOD AND APPARATUS FOR INJECTING A LIQUID PROPELLANT IN HYBRID ROCKET MOTORS

Leroy J. Krzycki and Hugh P. Jenkins, Jr., China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed June 25, 1964, Ser. No. 379,069

1 Claim. (Cl. 60—220)



A method of stoichiometrically combusting bi-propellants in a hybrid rocket motor, one of said propellants being an elongated centrally perforate solid propellant grain adapted to be consumed radially outwardly from its internal surface, and the other being a liquid adapted to be delivered to the space within the solid propellant, comprising,

(a) injecting said liquid from the forward end of said motor in a direction axially within the grain and parallel to the direction of flow of combustion gases, in a single coherent stream and at a velocity such that portions of the stream are progressively removed therefrom for substantially uniform reaction with the rocket grain along the length of its inside surface.

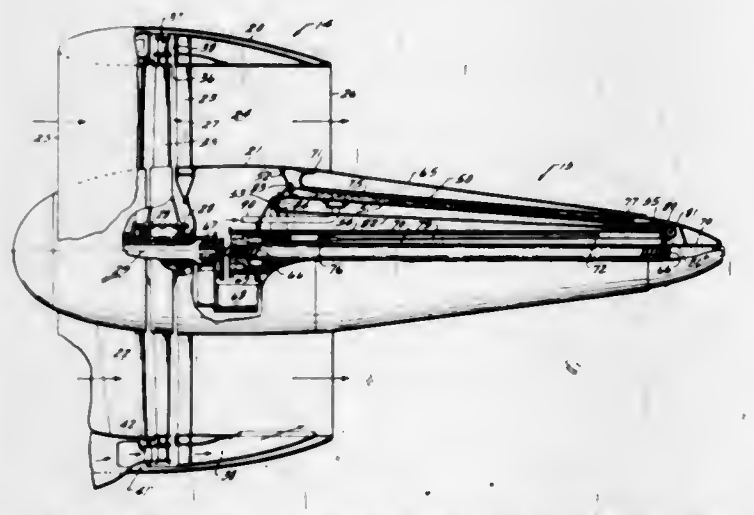
3,302,404

LIGHTWEIGHT THRUST REVERSER

William Bruce Gist, Jr., Lynnfield, Mass., assignor to General Electric Company, a corporation of New York

Filed June 30, 1965, Ser. No. 468,341

5 Claims. (Cl. 60—230)



1. In a jet propelled aircraft, a fan type powerplant and thrust reversing assembly for producing and directing a low temperature stream of motive fluid, said assembly comprising:

a fan type powerplant unit comprising an outer cylindrical casing and inner structure coaxially mounted within said casing to define therebetween an annular motive fluid passageway extending axially between an inlet opening and an exhaust opening at the upstream and downstream ends, respectively, of said casing and said inner structure,

support means carried by said inner structure and extending axially downstream therefrom,

a hollow fairing coaxially mounted with respect to said casing and said inner structure and having an aerodynamic shape converging in the downstream direction,

said hollow fairing being axially movable between first and second operative positions, said fairing in said first position surrounding said support means in spaced relationship thereto and forming an aerodynamically smooth downstream continuation of said inner structure and said fairing in said second position being spaced axially downstream of said inner structure and the exhaust opening,

actuating means for moving said fairing between said first and second positions,

a flexible panel secured at a central portion thereof to the downstream end of said support means,

and interconnecting means between peripheral portions of said flexible panel and said actuating means for retracting said flexible panel into the space between said fairing and said support means as said fairing is moved to said first position and for permitting said flexible panel to be withdrawn from within said fairing as said fairing is moved to said second position,

said flexible panel forming a smoothly curved surface extending across the normal path of an unobstructed motive fluid stream when said fairing is in said second position and a stream of motive fluid is being discharged so as to impinge on and inflate said panel, the smoothly curved surface deflecting the stream of motive fluid from the normal rearward direction to a deflected direction to thereby produce reverse thrust.

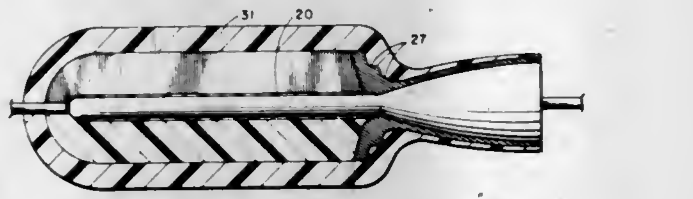
3,302,405

ROCKET MOTOR

Earl L. Alexander, Northridge, and Basil H. Minnich, Simi, Calif., assignors to North American Aviation, Inc.

Filed Oct. 2, 1963, Ser. No. 313,209

2 Claims. (Cl. 60—254)



1. A solid propellant rocket motor comprising:

a wire reinforced solid propellant core grain,

a nozzle adjacent the aft end of said core grain, said nozzle comprising:

  a filament wound structure of refractory metal wire,

  and a matrix of a non-charring plastic disposed within said filament structure, wherein the filaments are discontinuous throughout said matrix,

  and an outer filament wound casing enclosing said core grain and nozzle.

3,302,406

ROCKET ENGINE THROTTLING MEANS

John W. Braue, Jr., Emerson, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware

Filed Oct. 14, 1963, Ser. No. 315,855

2 Claims. (Cl. 60—257)

1. A propulsion system comprising in combination:

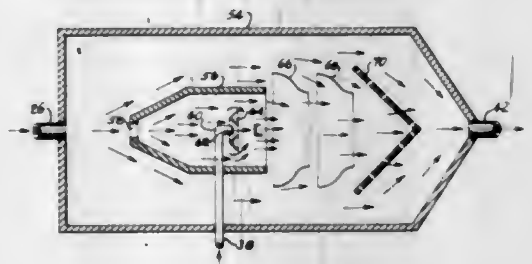
(a) a rocket motor having a combustion chamber and an exhaust nozzle;

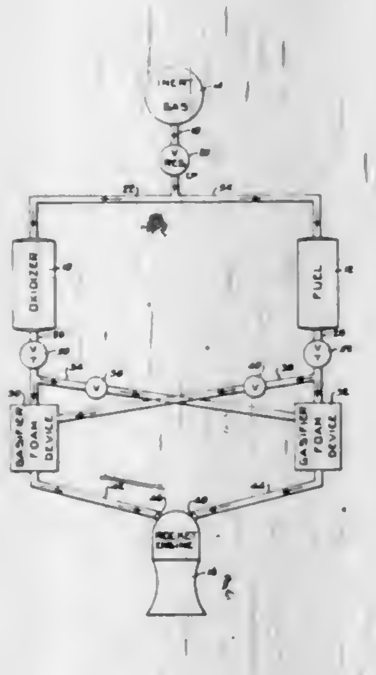
(b) means for separately storing two propellant liquids which react hypergolically with each other upon combination;

(c) a pair of passages each for supplying one of said propellant liquids under pressure into said combustion chamber wherein said propellant reacts hypergolically with the propellant liquid supplied by the other passage such that said rocket motor produces thrust which increases with increases in the weight flow of said propellants injected into said rocket motor combustion chamber;

(d) foaming means positioned in each of said passage means upstream of said rocket motor for producing a homogeneous liquid-gas mixture of lesser density than said propellants, said foaming means comprising:

- (i) a casing member having upstream and downstream communication with said passage,
- (ii) an annular vortex generator coaxially disposed in said casing with a portion of said propellant flowing through said vortex generator and the remainder flowing therearound,
- (iii) nozzle means supplied from said other propellant passage means and positioned to discharge a hypergolic agent through said vortex generator into said propellant liquid to create gas bubbles therein downstream from said generator, and



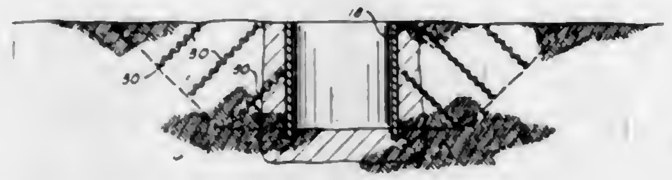


- (iv) mixing means positioned in said casing downstream from said generator and including perforated means to break up said gas bubbles and mix them with said propellant liquid to produce a homogeneous foamed liquid-gas mixture of lesser density than said propellant liquid; and

(e) adjustable valve means for supplying controlled amounts of said hypergolic agent to said nozzle in each of said passage means for reaction with said propellants for varying the density of said propellants in accordance with the relative amount of said hypergolic agent supplied to said foaming means so that the weight flow of said propellants injected into said rocket motor combustion chamber will be varied for controlling the thrust output of said rocket motor.

3,302,407
SUBTERRANEAN STORAGE FACILITIES AND METHOD OF CONSTRUCTING SUCH FACILITIES

Richard L. Every, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Apr. 20, 1964, Ser. No. 360,886
12 Claims. (Cl. 61—.5)



12. An underground storage facility for liquids to be stored at cryogenic temperatures comprising:

a consolidated rock formation defining a cavity having frozen wall portions around said cavity containing interstitially located ice;

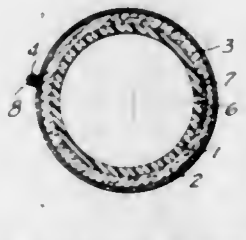
a generally tubular metallic liner supported on said consolidated rock formation and extending to the surface of the ground with the bore of said tubular liner communicating with the cavity in said consolidated rock formation;

earth containing frozen interstitial moisture around said tubular metallic liner and extending from said consolidated rock formation to the surface; and

at least one rigid, perforated reinforcing member of generally frusto-conical configuration positioned coaxially around said generally tubular metallic liner and extending downwardly and radially outwardly from said generally tubular member to arrest creeping of the earth surrounding said liner.

3,302,408
SUB-SURFACE SOIL IRRIGATORS

Howard C. Schmid, 638 W. Kent Ave., Missoula, Mont. 59801
Filed Feb. 13, 1964, Ser. No. 344,652
2 Claims. (Cl. 61—13)

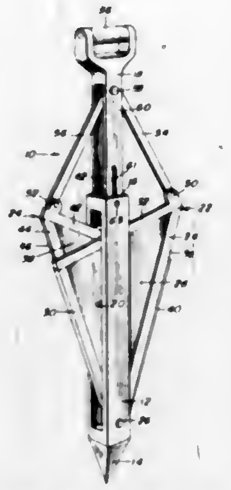


1. A sub-surface soil irrigator comprising a plastic pipe having tiny holes drilled radially through its walls for its entire length, said holes covered with loose, plastic patches, the entire pipe being covered with a blanket of fine glass fibers firmly held by fiber glass window screen bound with spirally wound plastic coated galvanized steel wire.

3,302,409
WATER GATE

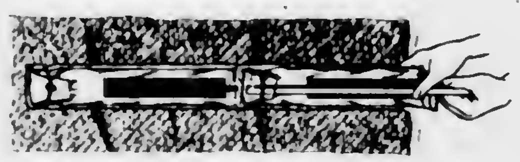
Leon Ray Wilson, Sawtooth Ranch, Augusta, Mont. 59410
Filed Mar. 24, 1964, Ser. No. 354,305
9 Claims. (Cl. 61—29)

1. A device for sealing an irrigation ditch comprising, a tubular frame having a lower pointed end and an upper open end, said frame having a pair of opposing elongated slots running substantially the entire length thereof, first and second substantially triangular plates, a point of each plate pivotally secured to the lower end of said frame, said plates having slidably sealed overlapping inner portions slidably received in said slots, a handle having a lower portion telescopically received through said upper open end and an upper gripping portion, a pair of elongated bars having first ends respectively pivotally secured to outer portions of said plates and second ends pivotally secured to said upper gripping portion.



3,302,410
ROCK BOLTING PACKAGE USAGE

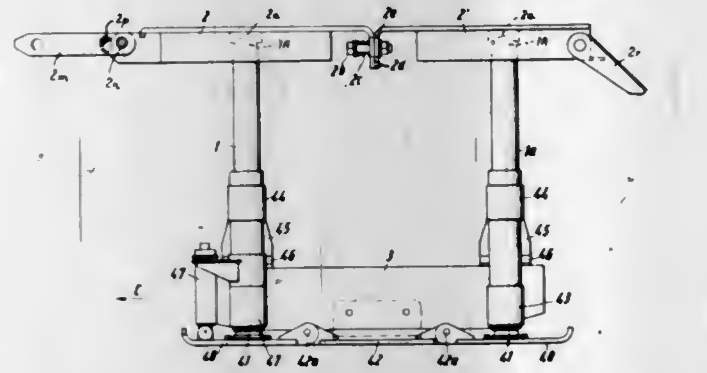
Daniel Chalmers McLean, Lemont, Pa., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed Oct. 20, 1965, Ser. No. 498,584
3 Claims. (Cl. 61—36)



1. A method of reinforcing an exposed face of a rock which comprises: forming a comparatively long small hole therein, folding over to form a pocket the end of the other sealed flexible envelope of a dual-compartment resin package comprising: an outer sealed flexible envelope having a plurality of sealed edges and containing also an inner sealed flexible envelope, thus forming two separate compartments for storage, one of said compartments having therein for storage a first component (A) comprising an intimate mixture of (1) an essentially linear polymerizable unsaturated polyester prepared by reacting an alpha-beta ethylenically unsaturated polycarboxylic acid and an aliphatic polyol; (2) a monomeric cross-linking agent for said (1) containing a $CH_2{=}CH{<}$ group; (3) an inhibiting amount of a phenolic polymerization inhibitor; and (4) a promoter for a peroxide catalyst; and in the other compartment for storage, a second component (B) comprising (5) a cross-linking peroxide catalyst system; and mixed with the components in one of A and B; (6) a water-reactive filler, and with the components in the other of A and B; (7) water in at least a quantity sufficient to react with at least a substantial portion of the water-reactive filler and also minimize shrinkage; and in at least one of said compartments A and B (8) a thickener to make the mixed unset resin thixotropic; whereby when the catalyst and resin systems in compartments A and B are mixed, a quick-setting thixotropic mixture is obtained which at ambient temperatures of 40° F. to 90° F. has such thickness that it does not flow out of a 1½" hole from its own weight and whose viscosity drops on stirring with sufficient rapidity that the mixture (a) may be pumped, (b) may be transferred into and pumped out of a plastic tube, (c) will flow into rock strata, and (d) will receive a concrete reinforcing bar under hand pressure in a drilled hole; and on standing in a bore hole at ambient mine temperatures of 40° F. to 90° F. hardens to a high strength mass in one-half to forty-eight hours while retaining substantially its original volume; placing a slender insertion rod into said pocket, and using said rod as an insertion element, pulling said package into said hole, inserting a reinforcing member and agitating said reinforcing member as it is inserted, thus rupturing the outer and inner envelopes and intermixing the contents as the reinforcing member is inserted into said long narrow hole, thus filling at least a substantial portion of the peripheral space between the inserted member and the walls of said hole, discontinuing said agitation, then causing the admixed resin components to react, thereby firmly embedding said reinforcing member in said hole, thus reinforcing the rock formation.

3,302,411
WALKING MINE ROOF SUPPORT

Wilhelm Wilkenloh and Karl Brauer, Duisburg-Wanheim and Manfred Koppers, Duisburg-Hamborn, Germany, assignors to Rheinstahl Wanheim G.m.b.H., Duisburg-Wanheim, Germany
Filed June 30, 1964, Ser. No. 379,135
Claims priority, application Germany, July 2, 1963, R 35,566
9 Claims. (Cl. 61—45)



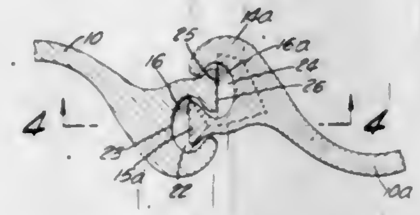
1. In the walking mine roof support, in combination, an elongated substantially horizontal rigid supporting member; a pair of leading pit props; a pair of trailing pit props, the props of each pair being disposed at the opposite sides of said supporting member and each having an upper and a lower end portion; roof-engaging members connected with the upper end portions of said props; floor-engaging sole plates articulately connected with the lower end portions of said props; two-armed carriers secured to said supporting member, one for each pair of props, said carriers being disposed at a fixed distance from each other; a guide provided for each of said props; connecting means securing each of said guides to one arm of the respective carrier, each prop being reciprocable up and down in the respective guide; and advancing means for moving said supporting member lengthwise.

3,302,412
INTERLOCKING SHEET PILES AND METHOD OF INSTALLATION

William A. Hunsucker, 3741 Prestwick Drive, Los Angeles, Calif. 90027
Filed June 29, 1964, Ser. No. 378,844
6 Claims. (Cl. 61—60)

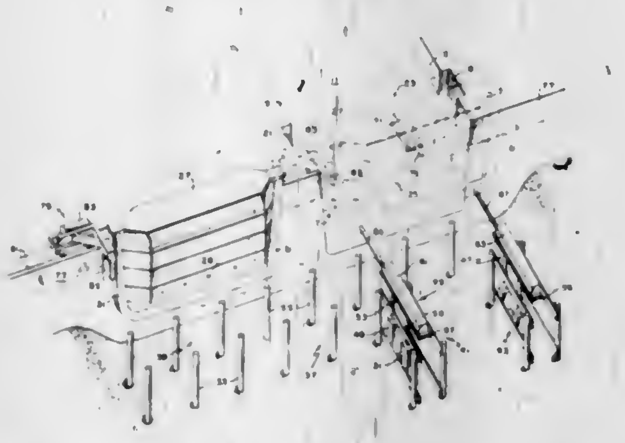
1. In a sheet pile member having parallel side edges each provided with longitudinal interlock elements, the interlock elements on each side edge including a longitudinal thumb element and a longitudinal finger element defining a continuous cavity with a narrow lateral entrance slot of lesser width than the width of the cavity, the thumb element having a relatively thin portion of lesser width

than that of the entrance slot and terminating in a thick portion which is smaller in cross-section than the cross-section of said cavity, the improvement comprising: a shoe fixed on one end of the thumb element and projecting therefrom and having an outer surface shaped like the inner surface of said cavity, whereby upon placing the lower end of said sheet pile member adjacent edge-to-edge with the upper end of another duplicate sheet pile member previously driven longitudinally into the earth, with the thumb elements each entering the cavity on the other member, respectively, the said member may be driven longitudinally into the earth in interlocking relation with the duplicate member, said shoe sliding within the cavity of the duplicate member to remove earth from that cavity, and thereby provide a sealant receiving chamber within that cavity and around the thumb element therein and longitudinally spaced spreader lugs within the cavity and attached to the cavity wall or thumb element for sliding contact with the companion element of the duplicate sheet pile member for spreading the sheet pile members within the limit allowed by the interlocking parts.



3,302,413
CAISSON HANDLING APPARATUS

Arden L. Burnett, 619 Nicholson Ave., Falls Church, Va. 22044
Filed Feb. 26, 1964, Ser. No. 347,619
13 Claims. (Cl. 61—64)



1. Caisson handling apparatus for a dry dock, said dry dock having an entrance opening bounded by a front sea wall, and a caisson seat within the confines of the dry dock, said apparatus comprising:

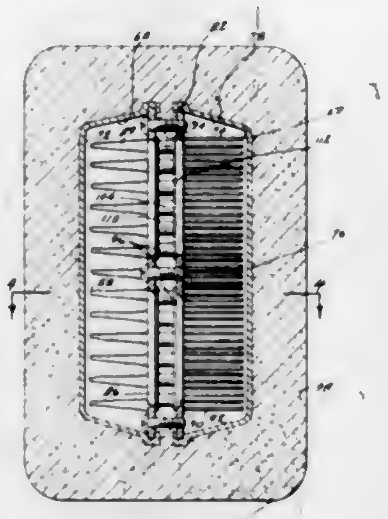
caisson guide means located outside of the front sea wall and defining a caisson guiding channel extending laterally across the entrance opening of the dry dock and for a distance along the front sea wall;

means for moving the caisson endwise in said guiding channel to positions into and out of registration with the dry dock entrance opening; and

further means including horizontally reciprocating means located outwardly in front of and movable toward and away from the dry dock entrance opening and adapted for engaging a face portion of the caisson and for moving the caisson through the opening to a position selectively into and out of registration with the caisson seat.

3,302,414
THERMO-ELECTRIC AIR CONDITIONER FOR AUTOMOBILES

Gustav H. Sudmeier, 2708 Torrance Blvd., Torrance, Calif. 90503
Filed July 14, 1965, Ser. No. 471,924
5 Claims. (Cl. 62—3)



1. A thermo-electric temperature-control structure, comprising:

a plurality of thermo-electric cells for receiving electrical energy to produce a temperature differential between a first exterior surface and an opposed second exterior surface;

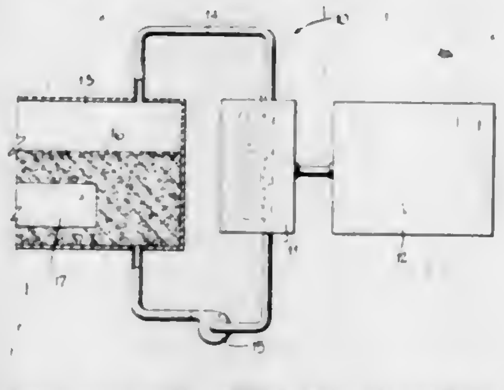
clamping means including a pair of parallel clamp plates to hold said cells in clamped alignment with said exterior surfaces thereof contiguous said interior surfaces of said parallel clamp plates;

a pair of elongate open channel means in faced relationship whereby to define a space therebetween, said channel means each engageably receiving one of said clamp plates whereby to contain said cells and said clamping means within said space; and

an insulating body of resilient foam material laid with metal foil encircling said channel means to close said structure.

3,302,415
CRYOGENIC REFRIGERATING APPARATUS

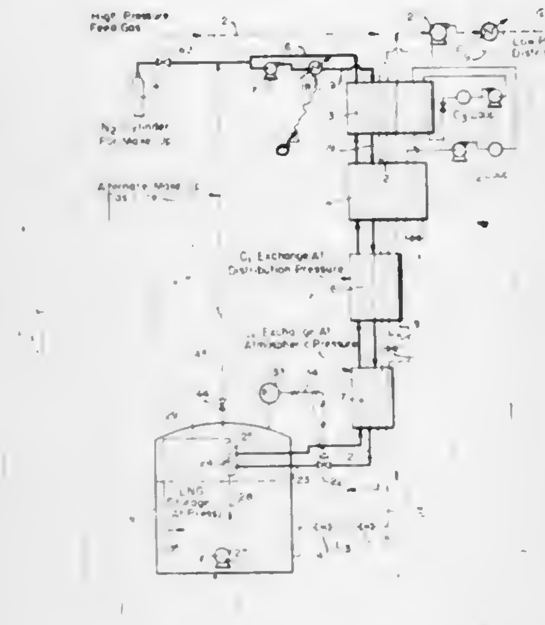
Jean Royet, Saint-Maur, France, assignor to Compagnie Generale d'Electricite, Paris, France, a corporation of France
Filed Dec. 14, 1964, Ser. No. 422,482
Claims priority, application France, Dec. 12, 1963, 956,991
8 Claims. (Cl. 62—45)



1. In a closed cryogenic refrigeration apparatus of the type including a liquid refrigerant and adapted to cool an equipment, the improvement comprising a thermally insulated enclosure, a porous adsorbent material at least partially filling said enclosure and adapted to hold a refrigerant by adsorption, an equipment to be cooled at least partially embedded in said adsorbent material so as to be in direct contact therewith.

3,302,416
MEANS FOR MAINTAINING THE SUBSTITUTABILITY OF LNG

Russell C. Proctor, Leawood, Kans., and Roger W. Parrish, Independence, Mo., assignors to Conch International Methane Limited, Nassau, Bahamas, a Bahamian company
Filed Apr. 16, 1965, Ser. No. 448,639
8 Claims. (Cl. 62—45)



1. System for maintaining the substitutability of LNG comprising

(a) a large-scale storage reservoir for LNG having a vapor space near the top thereof,

(b) means for supplying LNG to said reservoir for storage at substantially atmospheric pressure,

(c) a heat-exchange unit in said vapor space, said unit having a supply of refrigerant external to the reservoir at a lower temperature than the stored LNG,

(d) means for withdrawing LNG from a point near the bottom of the reservoir and passing it through said heat-exchange unit to subcool the withdrawn LNG,

(e) means for returning the subcooled withdrawn LNG to the body of LNG in the reservoir at a rate sufficient to offset heat leakage into the reservoir and to maintain equilibrium conditions in the reservoir so as to prevent boil-off.

3,302,417
COUPLING ARRANGEMENT BETWEEN CRYOGENIC REFRIGERATOR AND HEAT LOAD

Kenneth W. Cowans, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed June 29, 1965, Ser. No. 467,845
3 Claims. (Cl. 62—49)

1. In a refrigerant transporting arrangement for moving a cryogenic refrigerant from a refrigerating device to a remotely located heat load, the combination of,

a casing of the Dewar type internally defining a chamber insulated to resist thermal transfer between the chamber and ambient atmosphere,

said heat load being disposed within said chamber,

a closed circuit refrigerant transport line having a cold segment terminating in an egress port communicating with the chamber,

said transport line including a return segment communicating with the chamber,

housing means encasing said device and said cold segment,

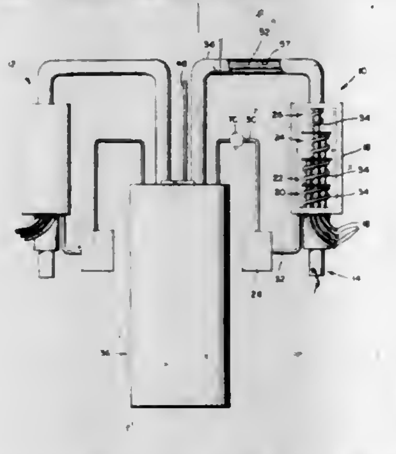
said housing means being sealed from ambient atmosphere and evacuated to vacuum insulate said device and said cold segment from said ambient atmosphere,

said transport line including a refrigerating segment disposed within said housing means and in heat conductive engagement with said refrigerating device,

said refrigerating device being operative to reduce the temperature of said refrigerant in said last mentioned segment and to liquefy same,

said housing means thermally insulating said cold segment from heat conductive relation with said casing,

pump means to continually convey said refrigerant through said closed circuit line,



said egress port being arranged to deposit liquid refrigerant within the chamber to bathe the heat load therein,

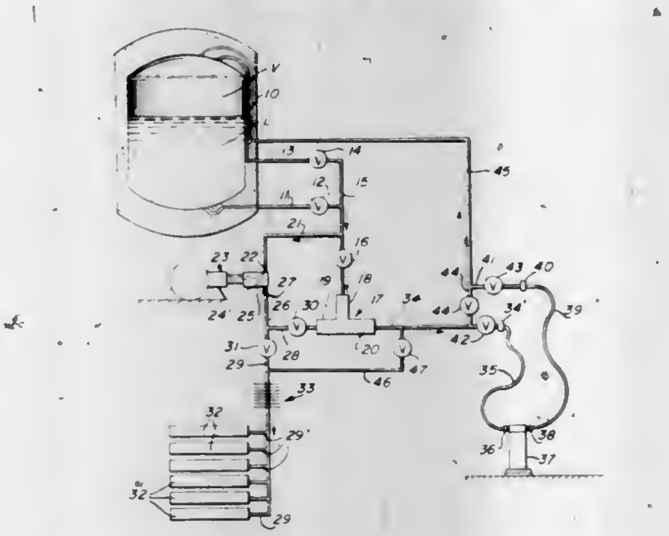
and liquid level control means within the chamber operative to variably dissipate heat therein in response to the variation in surface contact between the control means and said liquid refrigerant to variably induce the boiling and vaporization of said liquid refrigerant and thereby control the level of the liquid refrigerant within the chamber,

the vaporization and warming of said refrigerant being operative to absorb heat impinging on said chamber from said load and from ambient atmosphere,

said return segment conveying vaporized refrigerant from the chamber to the refrigerating device at approximately ambient temperature.

3,302,418
METHOD AND APPARATUS FOR HANDLING LIQUIDS

Frederick L. Walter, Rolling Meadows, Ill., assignor to Chemetron Corporation, Chicago, Ill., a corporation of Delaware
Filed July 6, 1965, Ser. No. 469,457
7 Claims. (Cl. 62—52)

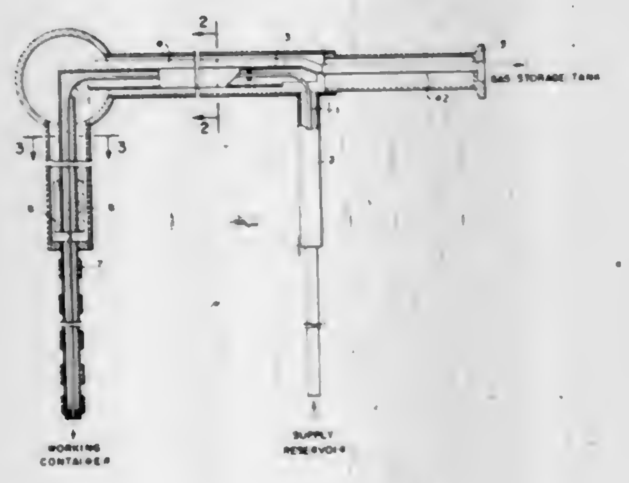


1. Apparatus for handling cryogenic liquids, comprising: an ejector having first and second inlets and an out-

let, a pump for pumping liquid at high pressure into said first inlet, and conduit means for conducting liquid from a low pressure common liquid source directly to said second inlet and directly to said pump.

3,302,419
VACUUM JACKET SIPHON FOR CRYOGENIC FLUIDS

Harry Walter, Berlin, Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Bunsenstrasse, Germany
Filed May 14, 1965, Ser. No. 455,688
Claims priority, application Germany, May 14, 1964, M 60,999
7 Claims. (Cl. 62—55)

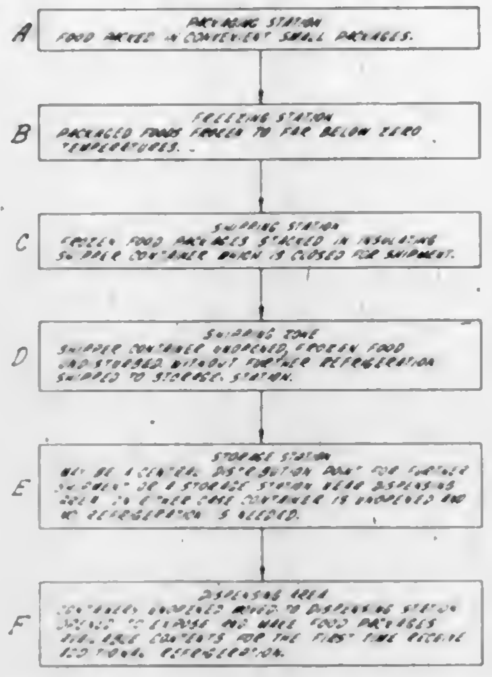


1. A vacuum jacket siphon for liquids having low boiling points for use in conjunction with a working container from which an exhaust gas may be drawn, said siphon comprising, in combination:
- means forming a channel for such liquids;
- means forming a vacuum jacket about said channel means so as to provide an evacuated chamber therebetween;
- radiation shield means disposed in the evacuated chamber between said channel means and said vacuum jacket means and surrounding said channel means for shielding the latter from radiation; and
- heat exchange means in thermal contact with the radiation shield means for conducting a flow of such exhaust gas therethrough to absorb heat from the radiation shield means.

3,302,420
METHOD AND APPARATUS FOR HANDLING AND DISPOSING OF FROZEN FOOD

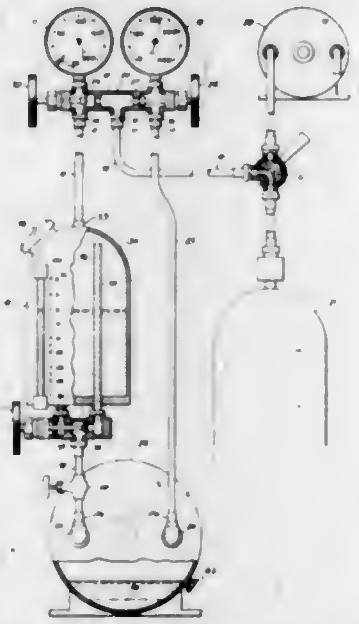
Willard L. Morrison, 470 King Muir Road, Lake Forest, Ill. 60045; Lois Mae Morrison, legatee of said Willard L. Morrison, deceased
Filed Jan. 24, 1964, Ser. No. 339,983
5 Claims. (Cl. 62—62)

5. In a method of preparing food for retail disposal the steps of freezing food in packages of a size suitable for retail dispensing to a temperature below zero degree F., assembling a quantity of said frozen packages in an insulating zone,
- terminating contact of the frozen foodstuffs with the ambient atmosphere by closing the insulating zone thereby cutting off contact of the foodstuffs with the ambient atmosphere and preventing ingress of ambient atmosphere during the time the insulating zone is maintained in a closed condition,
- conveying the closed insulating zone in unopened condition to a retail disposal area, and opening the closed insulating zone from which the ambient atmosphere has been excluded at the retail disposal area to thereby expose the contents of the insulated zone and make said contents available for retail disposal.


A
PACKAGING STATION
FOOD PACKED IN CONVENIENT SMALL PACKAGES.
B
FREEZING STATION
PACKAGED FOODS FROZEN TO FAR BELOW ZERO TEMPERATURES.
C
SHIPPING STATION
FROZEN FOOD PACKAGES STACKED IN INSULATING SHIPPER CONTAINER WHICH IS CLOSED FOR SHIPMENT.
D
SHIPPING ZONE
SHIPPER CONTAINER UNOPENED, FROZEN FOOD UNDISTURBED WITHOUT FURTHER REFRIGERATION SHIPPED TO STORAGE STATION.
E
STORAGE STATION
F
DISPENSING AREA

3,302,421
ADDING OIL TO SEALED AUTOMOBILE AIR CONDITONING SYSTEM

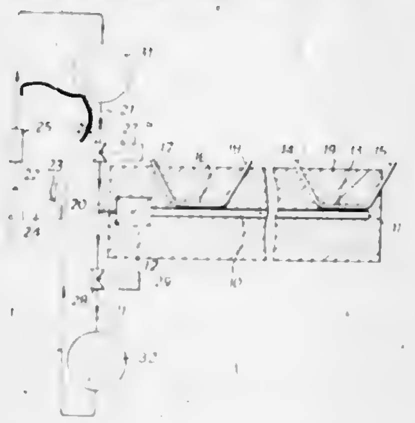
Wilba C. Karnes, San Antonio, Tex., assignor of one-half to Henry H. Snelling, Chevy Chase, Md.
Filed Mar. 2, 1965, Ser. No. 436,607
2 Claims. (Cl. 62—77)



1. Apparatus for adding refrigerant and moisture-free oil to the compressor of an automobile air conditioning system, comprising an auxiliary receptacle for holding oil and refrigerant gas, a vacuum pump, a refrigerant supply tank, a manifold connected separately to the high or discharge side of the automobile compressor, the refrigerant supply tank, and the auxiliary tank; means for selectively connecting either the refrigerant supply tank or the vacuum pump with the mid-portion of the manifold, valve means closing the mid-portion of the manifold from each end thereof, an open topped vertical refrigerant charging tube within the auxiliary receptacle extending above the liquid level of the oil therein, piping connecting the bottom of the auxiliary receptacle with the suction side of the compressor, said piping including valve means for connecting the automobile compressor with either the charging tube to discharge refrigerant gas to the automobile compressor or to the bottom of the auxiliary receptacle to discharge oil to the compressor whereby oil may be discharged to the compressor without opening the system to the atmosphere.

3,302,422
REFRIGERATION APPARATUS

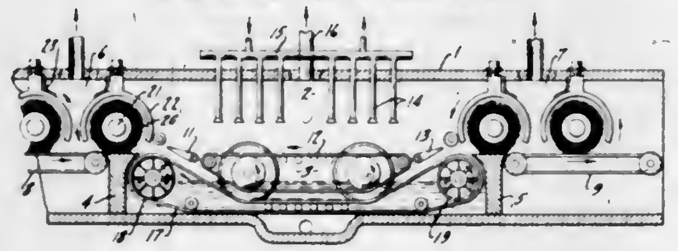
Howard John Treweek Smith, Bognor Regis, Sussex, England, assignor to Petrocarbon Developments Limited, London, England, a British company
Filed Apr. 7, 1964, Ser. No. 357,902
Claims priority, application Great Britain, Apr. 10, 1963, 14,351/63
18 Claims. (Cl. 62—86)



8. A method of producing refrigeration which comprises repeatedly performing the cycle of admitting compressed gas to a relatively long and narrow chamber through an inlet situated at one end thereof, with abstraction of heat from the gas before it enters the chamber, cooling gas in the chamber by indirect heat exchange near the end thereof remote from the inlet, and exhausting compressed gas from the chamber through the inlet with expansion thereof within the chamber and with return of abstracted heat to the gas after it leaves the chamber, whereby refrigeration is made available at the end of the chamber adjacent the inlet.

3,302,423
METHOD AND APPARATUS FOR FREEZING PERISHABLE MATERIAL

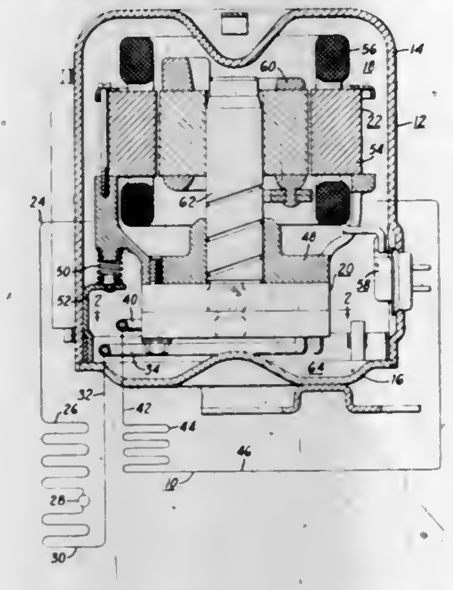
Willard L. Morrison, Lake Forest, Ill., assignor to Elmwood Products, Inc., New York, N.Y., a corporation of New York
Filed Jan. 12, 1965, Ser. No. 424,919
3 Claims. (Cl. 62—266)



1. A freeze down apparatus which includes an insulated cold treatment chamber having a refrigerant therein, means for passing material to be frozen to and through the chamber along two paths in the chamber means for selecting one path or the other while maintaining refrigerating conditions in the chamber to thereby enable matérial to be passed along either one of the desired paths without termination and reestablishment of refrigerating conditions during change over from one path to the other, and means for subjecting the material as it passes along one path to a rain of liquid nitrogen and for immersing the material as it passes along the other path in a bath of liquid nitrogen.

3,302,424
REFRIGERATING APPARATUS

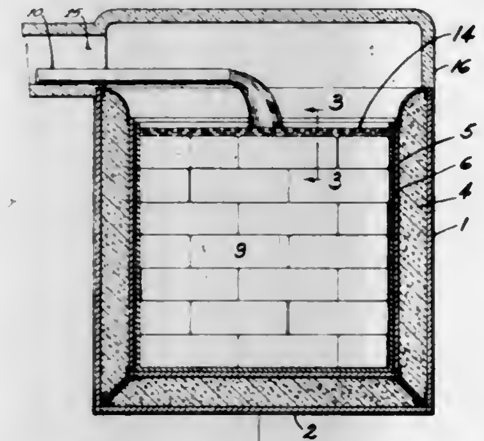
Mark N. Scherzinger, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 10, 1966, Ser. No. 519,684
6 Claims. (Cl. 62—296)



1. In a refrigerant system, a compressor including an inlet and an outlet and means for pumping fluid from said inlet through said outlet, means for driving said compressor, a shell enclosing said compressor and said drive means and forming a hermetically sealed space around said compressor and drive means, a first fluid conduit directed through said shell and fluidly connected to said compressor inlet, a second fluid conduit directed through said shell and connected to said compressor outlet, a superheat coil located exteriorly of said shell, means for fluidly connecting one end of said coil to said discharge fluid conduit, means for directing the opposite end of said coil interiorly of said shell, and means including a plurality of openings in said discharge fluid conduit for bleeding a predetermined portion of the refrigerant discharged from said compressor into said hermetically sealed space for muffling pulsating gas flow from said compressor into said superheat coil.

3,302,425
FROZEN FOOD CONTAINER

Willard L. Morrison, deceased, late of Lake Forest, Ill., by Lois M. Morrison, personal representative, 995 Northcliff, Lake Forest, Ill. 60045
Filed Nov. 24, 1965, Ser. No. 509,652
2 Claims. (Cl. 62—373)

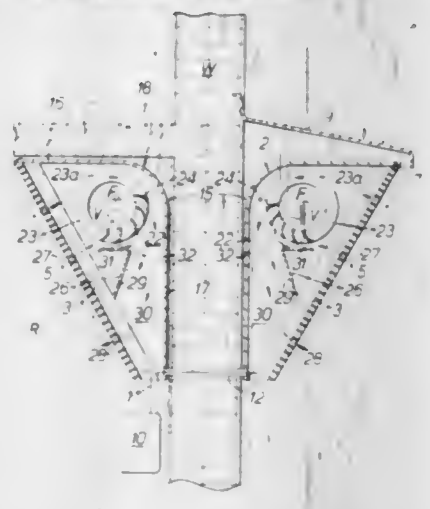


1. In combination,
- a shipping container,
- said shipping container having top, side and bottom walls which include an insulating material to thereby minimize the rate of heat flow therethrough,

liner means disposed within the zone formed by the walls of the shipping container,
said liner means having bottom and side walls connected one to another to form a liquid tight receptacle,
a plurality of cartons disposed within the liner means, each of said cartons containing at least one package of frozen foodstuffs,
said cartons being arranged in packed, abutting engagement with one another,
the walls of each of said cartons being composed of a porous, wick-like material which is capable of transmitting a cold, liquid refrigerant in contact with the carton at one location to another location,
said walls thereby providing a combined reservoir and first refrigerant flow path for liquid refrigerant in contact with said cartons,
said cartons forming passages capable of transmitting a cold liquid refrigerant located therein from a first location to a second location by capillary action in areas where said cartons abut one another,
said capillary passages thereby providing a combined reservoir and second refrigerant flow path for liquid refrigerant in contact with said cartons,
the package or packages within each carton including wrapper means which enable the contents of the package to be exposed to the effect of the refrigerant which reaches the wrapper, and
a quantity of refrigerant within the liner means, at least a portion of which refrigerant is initially in a liquid condition and contained in the first and second reservoir means formed, respectively, by the carton walls and the capillary passages formed between adjacent, abutting cartons.

3,302,426
AIR CONDITIONING APPARATUS

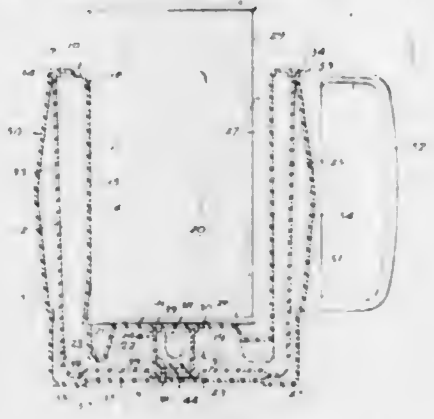
Nikolaus Laing, 35 Hofener Weg, Aldingen, near Stuttgart, Germany
Filed Dec. 8, 1965, Ser. No. 512,472
10 Claims. (Cl. 62—426)



1. Room air conditioning apparatus comprising refrigeration apparatus having a condenser, an evaporator and a compressor connected in a closed refrigerant circuit; two heat exchanger blower units and the heat exchanger of one unit forming said condenser and the heat exchanger of the other unit forming said evaporator, the blower of each unit causing an air flow through the respective heat exchanger to effect exchange of heat between the refrigerant therein and said air flow, one of said units being inside the room and the other outside the room, and wherein at least one heat exchanger blower unit comprises a casing in the general form as seen in section of a right angled triangle with the right angle rounded off and the heat exchanger across the hypotenuse, and the blower is a cross flow blower with its rotor in the casing adjacent the rounded off right angle and extending the length of the heat exchanger and setting up an air flow in through one part of the heat exchanger, through the rotor and out through the other part of the heat exchanger.

3,302,427
BEVERAGE CAN COOLER

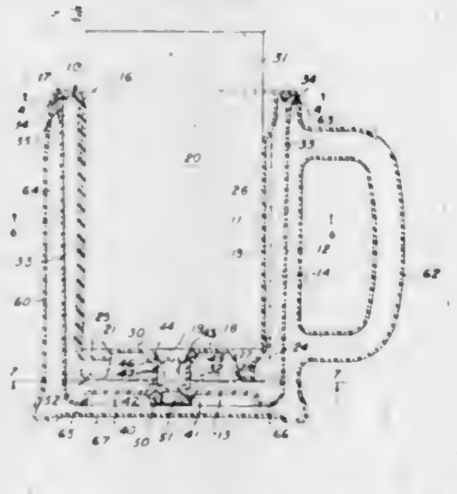
Arthur M. Stoner and Roger L. Paquin, Madison, Conn., and Richard C. Schneider, Pittsburgh, Pa., assignors to Aldco, Incorporated, Clinton, Conn., a corporation of Connecticut
Filed Dec. 28, 1964, Ser. No. 421,501
10 Claims. (Cl. 62—457)



1. A cooling device for use with cylindrical cans of beverage, including in combination:
a double walled container having an inner wall, an outer wall, and a bottom plate,
said inner wall being generally cylindrical and having integrally connected therewith a longitudinally extending and radially outset recess and said wall being of flexible plastic and having a can-supporting seat at its lower end,
a refrigerant liquid in the space defined by said walls, plate, and seat, and
spring means in and extending along the recess for forcing the cylindrical wall of a can into contact with said inner wall.

3,302,428
DEVICE FOR COOLING OR KEEPING COOL A BEVERAGE CONTAINER

Arthur M. Stoner and Roger L. Paquin, both of Madison, Conn., assignors to Aldco, Incorporated, Clinton, Conn., a corporation of Connecticut
Filed Aug. 9, 1965, Ser. No. 478,219
8 Claims. (Cl. 62—457)

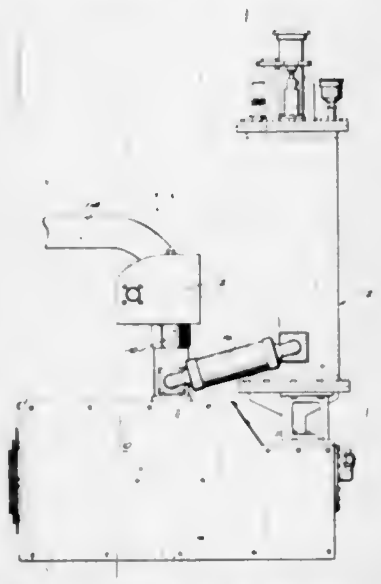


1. A cooling device for use with cans, tumblers and bottles of beverage, including in combination:
a double walled container having an inner wall, an outer wall, and a bottom plate,

said inner wall having a generally cylindrical shape able to conform to the shape of the can, tumbler or bottle with which it is intended to be used, said inner wall being of flexible plastic and having a can-supporting seat, said inner wall being integrally formed with a corrugated segment comprising a pair of radially outset recesses and with a springy wall portion between said recesses extending in further than the recesses extend out, for forcing the wall of a said can or bottle into contact with said bore, and
a refrigerant liquid in the space defined by said walls, plate, and seat.

3,302,429
THERMAL TRANSFER ARRANGEMENT FOR CRYOGENIC DEVICE COOLING AND METHOD OF OPERATION

Patrick N. Byrd, Culver City, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Sept. 20, 1965, Ser. No. 488,339
10 Claims. (Cl. 62—514)

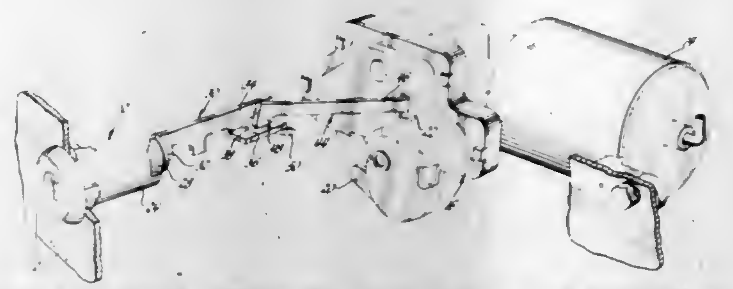


1. In a thermal coupling arrangements for disposition within a vacuum container to thermally interconnect the cold finger of a cryogenic refrigerator and a device containing housing disposed within the container,
the combustion of a waveguide establishing communication between the ambient atmosphere and the device housing,
a second container disposed within said first container and in heat transfer connection with the waveguide,
said cold finger comprising two stages of refrigeration creating different temperature levels,
said second container being connected to said first stage to shunt heat energy transmitted to the container by said waveguide to said first stage,
and coupling means interconnecting said second stage and said device housing.

3,302,430
COUPLING

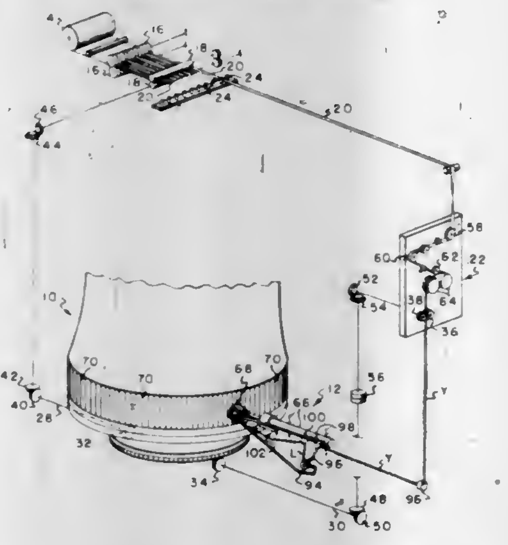
Ethan K. Maursey, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 13, 1965, Ser. No. 471,562
4 Claims. (Cl. 64—6)

1. In a coupling for transmitting torque about an axis, a first member including a pair of generally planar abutment face means formed radially of said axis, said face means extending at a predetermined included angle from a line of intersection therebetween located generally along said axis, said member having an aperture through both said face means extending a substantial distance to either side of the line of intersection therebetween, and a second member lying generally along said axis and including leg means directed radially therefrom for reception within said aperture, said face means being engageable with said leg means to transmit torque between said members, said leg means being sufficiently smaller than said aperture as to be capable of freewheeling therein generally to the extent of the angularity between said face means to permit a like degree of rotation of one of said members independently of the other.



3,302,431
KNITTING METHOD

William P. Warthen, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of Delaware
Original application Jan. 14, 1964, Ser. No. 337,576. Divided and this application Nov. 8, 1965, Ser. No. 506,704
4 Claims. (Cl. 66—125)



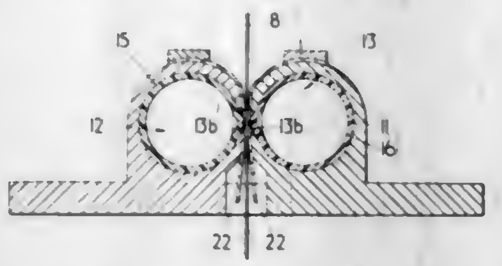
1. A process for continuously forming knit material from a roll of unslit fabric on a knitting machine having a circular row of united needles comprising the steps of continuously slitting a roll of unslit fabric into strips, separating the strips of fabric while maintaining the strips in integral connection with the roll of fabric, supplying said strips to a loop forming member of a knitting machine and forming a loop thereby in one needle of said row of needles and changing the position of said loop forming member relative to said knitting machine in response to a change of yarn take-up by the knitting machine to vary the size of loops subsequently being formed in said needles by said loop forming member.

3,302,432
SEALS FOR PRESSURE VESSELS OR THE LIKE

John S. Woollatt, Cheshire, and Bernard Davey, Alkington, Middleton, Manchester, England, assignors to Mather & Platt Limited, Lancashire, England, a British company
Filed May 21, 1964, Ser. No. 369,207
Claims priority, application Great Britain, May 31, 1963, 21,840/63
8 Claims. (Cl. 68—5)

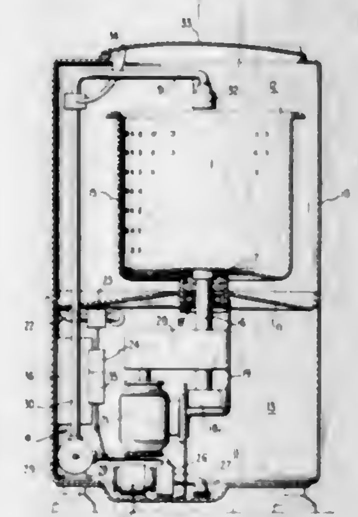
1. A seal for an opening in a pressure vessel through which material to be treated can be continuously passed

for treatment comprising a housing enclosing a major part of an inflatable open-ended element, a backing member, a plug closing each end of the element, and air inlet means in at least one of said plugs whereby the element can be inflated to cause the unenclosed portion thereof to project through the housing to make, in conjunction with the backing member, a seal on the material being passed therethrough.



3,302,433
AUTOMATIC WASHING MACHINE

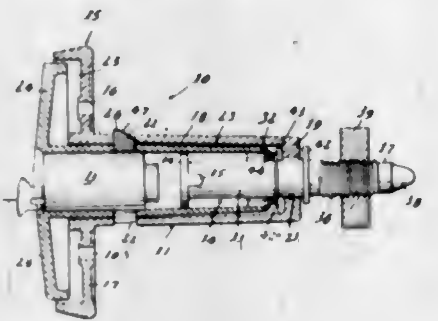
Friedrich K. H. Nallinger, 5 Albrecht-Durer-Weg, Stuttgart, Germany
Filed Jan. 11, 1965, Ser. No. 424,768
14 Claims. (Cl. 68—12)



1. A wash machine, comprising:
wash tank means,
rotating drum means within said wash tank means,
receiving tank means,
and line means operable to be selectively closed and disposed between said wash and receiving tank means including pump means in said line means, said receiving tank means being disposed below said wash tank means, and said line means including a connecting line having closure valve means and a return line between said two tank means,
drive means for said drum means,
and separate drive means for driving said pump means, said pump means being connected in said separate return line from said receiving tank means to said wash tank means,
and program means for controlling said closure valve means, said pump means and the drive means for said drum means including in predetermined sequence including control means for producing the shifting pulses for the control of the closure valve means, of said pump means and of the drum drive means in dependence on the water level in said receiving tank means, and timer means operatively connected with said closure valve means, said closure valve means being normally in the closing position thereof, means for turning on said timer means with said receiving tank means substantially empty, and means operatively connecting said timer means with said closure valve means in such a manner that only after lapse of the adjusted time thereof, said closure valve means is freed for movement to its opening position.

3,302,434
POP-OUT HANDLE AND LOCK ASSEMBLY

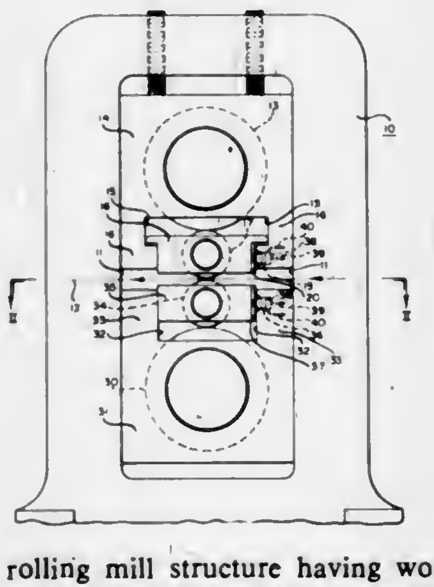
Robert L. Dauenbaugh, Rockford, and Robert K. Unter, Roscoe, Ill., assignors to National Lock Co., Rockford, Ill., a corporation of Delaware
Filed June 19, 1964, Ser. No. 376,324
1 Claim. (Cl. 70—208)



A pop-out handle and lock assembly comprising a handle pocket with an escutcheon at one end having a recess therein, a rear bearing wall having a central opening at the opposite end and a generally cylindrical housing bridging said escutcheon and rear wall, a handle having a gripping portion and a rearwardly extending generally cylindrical hub mounted in the handle pocket for longitudinal reciprocation therein between a retracted position with the handle received in the recess in the escutcheon and a projected position where the handle is free of the recess and adapted to be grasped by an operator, a cylinder lock mounted in and movable with said handle, a lock bolt actuated by said cylinder lock and adapted to be received in aligned openings in said hub and said cylindrical housing to retain said handle in its retracted position, said hub having a central chamber and a radially inwardly extending flange defining the rear end of said hub with a central opening therein, said flange having four equispaced longitudinal slots in the periphery of the opening, to drive spindle extending through the central opening in the rear wall of the handle pocket and the opening defined by the slotted flange into the chamber of the hub, an enlarged head on the inner end of the drive spindle of a diameter greater than the inner peripheral diameter of said flange, a pair of diametrically opposed longitudinally and rearwardly extending lugs on said spindle projecting rearwardly of said head and adapted to be conformably received in one of the opposed pairs of slots in the radial flange of the hub when the handle is moved to its outwardly projected position so that the handle and drive spindle rotate as a unit and provide a positive drive connection, said lugs being of such a length that they will be disengaged from the radial flange when the handle is partially retracted to permit rotation of the handle independently of the drive spindle, interengaging means on said drive spindle cooperating with the rear wall of the handle pocket to prevent longitudinal movement of said spindle, a helical spring mounted about the spindle in said cylindrical housing to yieldably urge the hub and handle to a projected position, and latch means on the opposite end of the spindle adapted to cooperate with a suitable strike, a pair of opposed elongated and longitudinally extending ribs on the exterior of the cylindrical hub adjacent to the gripping portion of the handle, said cylindrical housing having a pair of opposed and longitudinally extending grooves on the interior surface of the cylindrical housing to conformably receive the aligned ribs when the handle is properly aligned with the escutcheon recess to allow retraction of the handle into said recess, said ribs being of a length permitting disengagement of the rearwardly extending lugs on the drive spindle from the slots in the flanged end of the hub of the handle so that the handle may be rotated relative to the drive spindle prior to full retraction of the handle into the recess of the escutcheon.

3,302,435
ROLLING MILL CHOCK CLEARANCE TAKE-UP DEVICES

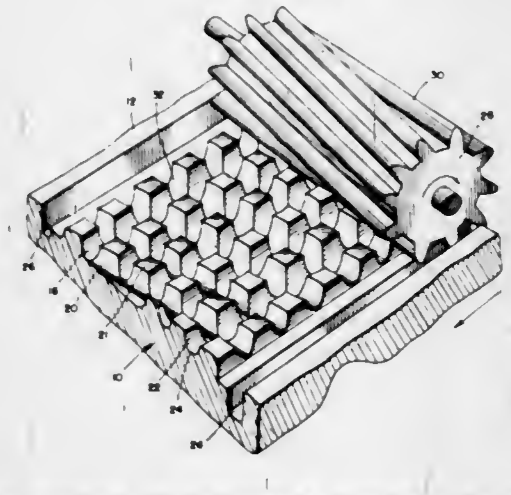
David Lyle, Mount Lebanon Township, Allegheny County, and William J. Korey, Greentree, Pa., assignors to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed Nov. 20, 1963, Ser. No. 325,108
8 Claims. (Cl. 72—245)



1. In a rolling mill structure having work rolls journalled in work roll chocks carried in supporting windows, the improvement comprising an expansible means between each separate work roll chock and the supporting window for such chock, and means for selectively operating each said expansible means to engage and fix the chock immovably in its supporting window.

3,302,436
METHOD OF FORMING TREADWAY

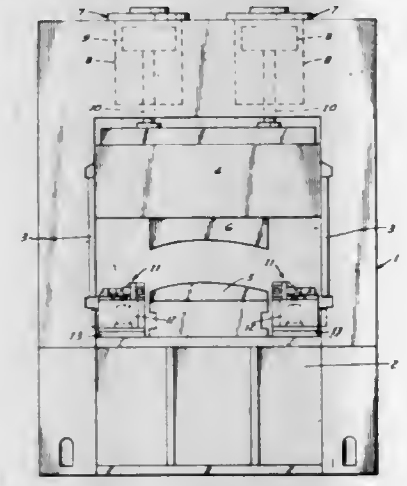
Robert C. L. Jacobs, East Peoria, Ill., assignor to Wahlfeld Mfg. Company, Peoria, Ill., a corporation of Illinois
Original application Mar. 12, 1962, Ser. No. 179,150, now Patent No. 3,172,343, dated Mar. 9, 1965. Divided and this application Nov. 18, 1964, Ser. No. 412,098
5 Claims. (Cl. 72—256)



1. The method of forming a treadway in a member comprising the steps of:
(1) extruding said member to form a plurality of spaced elongated channels in a surface thereof with lands between said channels having flat top surfaces, and
(2) progressively forming a plurality of spaced grooves at an elevated temperature and transversely across said lands angularly intersecting said channels and working up the side walls of adjacent grooves to form a plurality of upstanding spaced treads between said intersections having concave top surfaces.

3,302,437
TENSION CONTROL

Stanley M. Dolney, Parma, Ohio, assignor to The Cyril Bath Company, Solon, Ohio, a corporation of Ohio
Filed June 22, 1964, Ser. No. 376,751
4 Claims. (Cl. 72—296)



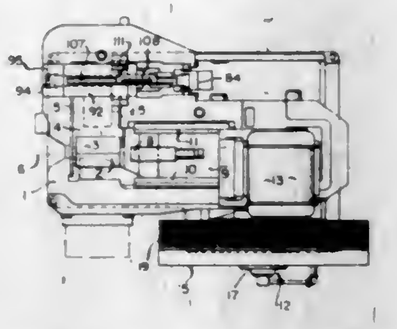
1. A prestretch fixture comprising a frame, a stretch head including a jaw for gripping the margin of a length of metal to be stretched, a carriage for the head, means supporting the carriage for movement in opposite directions in generally upright paths and for movement, concurrently with the movement in said generally upright paths, in opposite directions in generally horizontal paths in all positions of the carriage along said upright path, power means operable to cause said concurrent movements of the carriage, means connecting the head to the carriage for substantially free movement of the head relative to the carriage in said opposite directions in said generally horizontal paths, said power means including stretch forming power means yieldably urging the carriage in one of said directions in said generally horizontal path, and stress measuring tension bar means interconnecting the carriage and head and extending in said one direction from the head to the carriage and operative for restraining said movement of the head relative to the carriage and for concurrently transmitting between the head and carriage the tensioning forces imposed by the stretch forming power means.

3,302,438
FORGING MACHINE FOR EXTRUDING AND WORKING METAL ARTICLES

Ben F. Ware, Euclid, and Paul W. Oligny, Wickliffe, Ohio, assignors to The Ajax Manufacturing Company, Euclid, Ohio, a corporation of Ohio
Filed Oct. 18, 1963, Ser. No. 317,185
17 Claims. (Cl. 72—315)

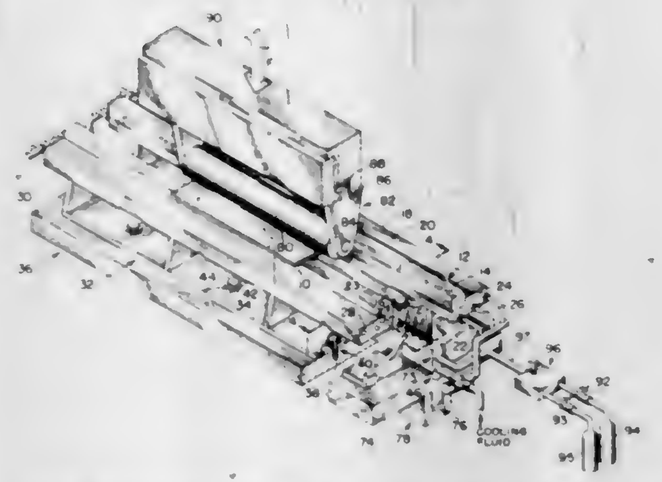
1. In a forging machine having a frame, a stationary gripping die, a movable gripping die mounted on a die slide, means mounting said die slide for horizontal reciprocation in said frame to move said movable gripping die into and out of cooperative work gripping relationship to said stationary die, a third die reciprocable in said frame in a direction normal to the movement of said movable gripping die to engage and upset a workpiece thus gripped by said gripping dies, a first toggle linkage interconnecting said die slide and said frame, a second toggle linkage connected to said first toggle linkage and including a bell

crank knuckle, a vertically extending arm on said bell crank knuckle, a die slide cover plate, a piston-cylinder assembly mounted on said die slide cover plate and connected to said arm, and means operative to extend and retract said piston-cylinder assembly to move said movable gripping die.



3,302,439
REFRACTORY METAL FORMING DIE

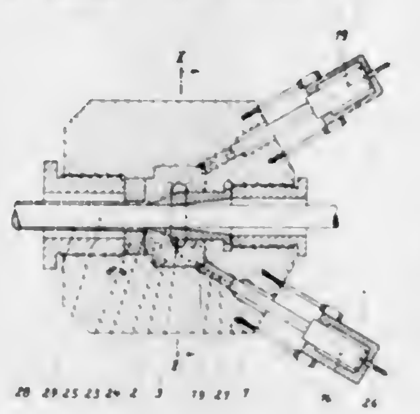
John H. Chattin, 9318 Broadview Road, Brecksville, Ohio 44141; John C. Laughlin, 424 Anne Drive, Berea, Ohio 44017; Johnny E. Haystrick, 5763 W. 46th St., Parma, Ohio 44129; and Ray A. Leidy, 6965 Parma Park Blvd., Parma Heights, Ohio 44129
Filed Nov. 1, 1963, Ser. No. 320,973
4 Claims. (Cl. 72—342)



1. Apparatus for forming a refractory or super alloy workpiece at an elevated temperature above 1600° F. with a minimum of hand working comprising
- a pair of spaced dies having rounds on the corners thereof for engaging the workpiece,
- supports for holding the spaced dies,
- a plurality of ribs in contact with said supports for providing convection cooling thereof,
- a pair of bases attached to said ribs, each of said bases having a plurality of elongated slots therein,
- a plate for engaging said pair of bases, said plate having a plurality of threaded holes therein aligned with said elongated slots in said bases,
- a threaded member extending through each of said slots in said bases into said holes in said plate for holding said dies in a predetermined position,
- a manifold centrally disposed in said plate between said bases,
- a plurality of burner plugs in said manifold, each having a burner tip attached thereto,
- means for supplying a hydrogen-oxidant mixture to said manifold,
- control means for regulating the hydrogen-oxidant ratio and the flow rate of the mixture so that a plurality of flames are directed from said burner tips against the lower surface of the workpiece to heat the same to elevated temperatures without forming a carbon residue thereon,
- means for circulating a liquid coolant through said manifold and spaced dies,
- a forming die centrally located relative to the said plate above the workpiece, and
- means for producing a force on said forming die to form the workpiece when the same has been heated to the elevated temperature.

3,302,440
EXTRUSION PRESSES, PARTICULARLY CABLE-SHEATHING PRESSES

Karl Seidel, Moers, and Walter Haendeler, Dusseldorf, Germany, assignors to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed Feb. 24, 1964, Ser. No. 346,830
Claims priority, application Germany, Mar. 20, 1963, Sch 32,973
6 Claims. (Cl. 72—259)



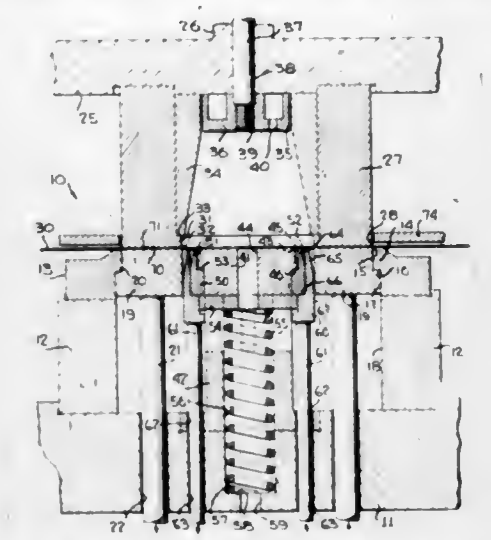
1. A continuous extrusion press, comprising: a main extrusion chamber, at least one container in permanently open communication with the main extrusion chamber, a supply passage, perpendicular to the axis of extrusion, from the container to the main extrusion chamber, a main press ram for supplying extrusion material from the container through the supply passage to the main extrusion chamber, a die through which material can be extruded from the main extrusion chamber, at least one tubular storage space in open communication with the main storage chamber, and an auxiliary press ram reciprocable in the said tubular storage space, so that the main press ram, during its working stroke, impels extrusion material from the main extrusion chamber partly through the die and partly into the tubular storage space, thus repelling the auxiliary press ram, whereas during the withdrawal of the main press ram, the auxiliary press ram returns extrusion material from the tubular storage space to the main extrusion chamber and thereby impels material from the main extrusion chamber into the die, the path of the extrusion material from the point where it leaves the tubular extrusion space to the point where it enters the die being substantially straight.

3,302,441
DIE FOR DEEP DRAWN TAPERED CONTAINER

John S. Bozek, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed July 9, 1963, Ser. No. 293,770
3 Claims. (Cl. 72—348)

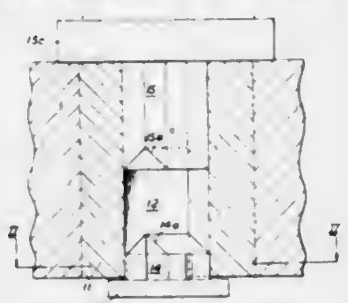
1. In a die structure for forming a deep drawn tapered container, a punch including a tapered female die, a male die, said male die including a plurality of telescoping elements and a stationary anvil, said telescoping elements having work engaging faces thereon tapered to correspond to said female die, and an outer draw ring underlying said punch and circumscribing said male die, said outer draw ring and said punch having cooperating faces thereon for gripping a blank therebetween, said punch and said outer draw ring being mounted for movement relative to said telescoping elements for successively drawing a blank thereover, said telescoping elements including an inner draw ring circumscribing said stationary anvil

and movable relative thereto, a center draw ring circumscribing said inner draw ring and being disposed for initial cooperation with said female die, a base member integral with said anvil, said base member having an aperture formed therein, plate means disposed beneath said anvil and operatively connected to said inner draw ring, and spring means disposed within said aperture beneath said plate means and said anvil for resiliently biasing said inner draw ring.



3,302,442
PRODUCTION OF LEAD SHIELDING BRICKS

Sidney E. van den Broek, Wickham, England, assignor to Graviner Manufacturing Company Limited, Staines, Middlesex, England, a British company
Filed Jan. 6, 1964, Ser. No. 335,911
Claims priority, application Great Britain, Jan. 23, 1960, 2,537/60
6 Claims. (Cl. 72—359)



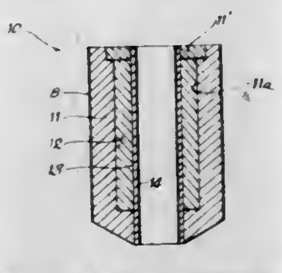
3. The method of forming a lead brick for use in building shields against nuclear radiation which comprises pressing a lead blank in the cold state in a closed die between a male punch and a female punch, the cavity of said die being defined by wall surfaces shaped to the required configuration of the finished brick, said pressing being carried out at a pressure in excess of twenty tons per square inch, causing the lead to assume the fluid state and to flow to the shape of said die cavity, said pressure being carried out until the porosity of the brick being formed is substantially eliminated and until the density of the lead is increased substantially to the maximum value and thereafter removing the brick from the die.

3,302,443
METHOD FOR PRODUCING HOLLOW BERYLLIUM PRODUCTS BY EXTRUSION OR DRAWING

Robert Syre, Rue Arago, Cognin, France, and Rene Molinier, 29 Blvd. Gambetta, Chambery, France
Filed July 3, 1964, Ser. No. 400,294
Claims priority, application France, July 3, 1963, 940,272
19 Claims. (Cl. 72—367)

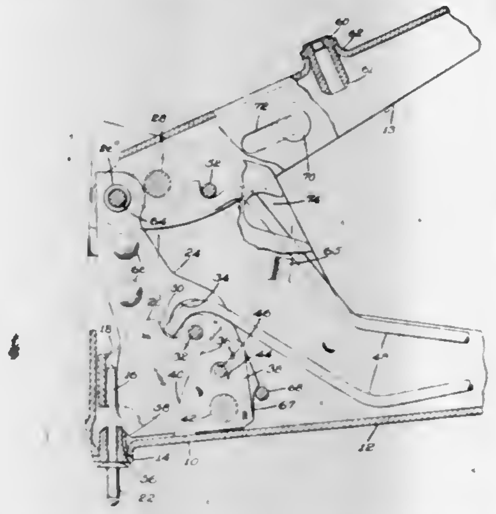
1. For use in the method of processing beryllium to produce hollow articles by drawing or extrusion, a billet comprising in cross-section, from the outside in, a thin layer of copper, a relatively thick external sheath of soft steel, a hollow cylinder of beryllium, an internal sheath of soft steel, and a thin layer of copper.

11. In the method of processing beryllium to produce hollow articles by drawing or extrusion comprising providing a billet formed in cross-section, from the outside in, of a thin layer of copper, a relatively thick external sheath of soft steel, a hollow cylinder of beryllium, an internal sheath of soft steel and a thin layer of copper, advancing the billet through a die to effect a reduction in cross-sectional area with corresponding reduction of the enclosed beryllium cylinder, attacking the copper coatings and steel sheaths to release the drawn beryllium part.



3,302,444
ADJUSTABLE RIVET SETTING TOOLS

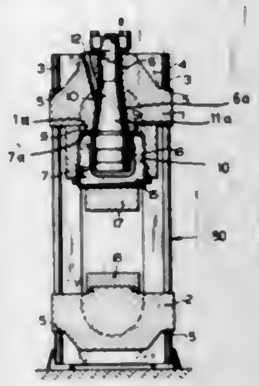
Richard M. Elliott, Beverly, Mass., assignor to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Sept. 28, 1964, Ser. No. 399,690
8 Claims. (Cl. 72—391)



1. A manually operable tool for setting separable mandrel rivets, said tool comprising:
- a housing having
  - an integral first operating handle, and
  - an anvil formed with an aperture to guide the mandrel of a rivet to be set,
- a drawbar providing a gripping portion at its lower end,
- a jaw carried by the drawbar for gripping the mandrel against the drawbar, and
- a second handle comprising
  - a lever fulcrumed in the housing and having a pivotal connection with the upper end of the drawbar, first to bring the jaws into gripping engagement with a rivet mandrel extending through the anvil and then to set the rivet by reason of tension in the mandrel as the handles are squeezed together,
- in combination with
- a flipper pivoted to the drawbar and provided with a wedge surface against which the jaw rests to enable the jaw to be shifted along the wedge surface to accommodate gripping different sizes of rivet mandrels while releasing them with facility by pivotal movement of the jaw and flipper as a unit after they have been separated from their rivets.

3,302,445
HYDRAULIC DROP FORGING DEVICE

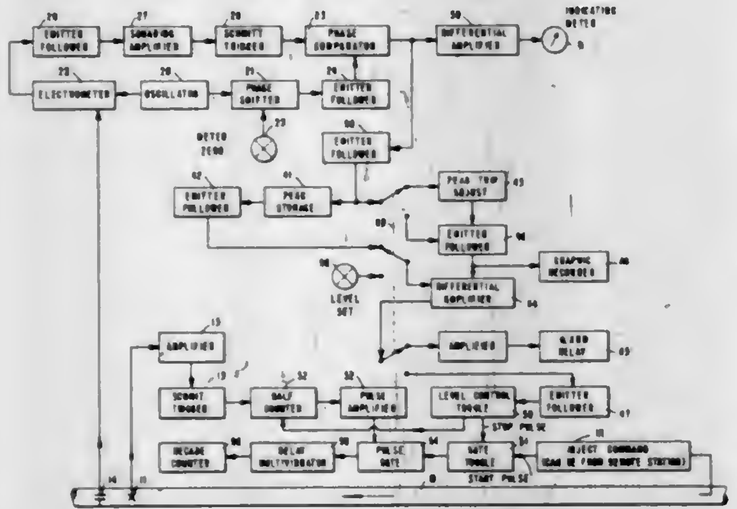
Ernst Müller and Albert Hertl, both of Duisburg, Germany, assignors to Hydraulik G.m.b.H., Duisburg, Germany
Filed Dec. 2, 1964, Ser. No. 415,334
11 Claims. (Cl. 72—453)



1. In a hydraulic forging press for high pressure forces having a driving piston, a working beam attached to said piston, an upper and lower cross beam connected with each other by tension elements, the improvement comprising: a forged ring connected to said upper cross beam and arranged as a jacket of the working cylinder, said ring having an inwardly projecting collar at the interior thereof and being connected to said upper cross beam to distribute pressures from said working piston directly to the cross beam, said working piston being slidable in said ring and having a portion extending into said upper cross beam and being guided thereby.

3,302,446
DETECTING AN EXPENDABLE OIL PIPE LINE PLUG

David L. Schmitt, Indianapolis, Ind., and Paul L. Datt, Walnut Creek, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Feb. 17, 1964, Ser. No. 345,441
6 Claims. (Cl. 73—3)

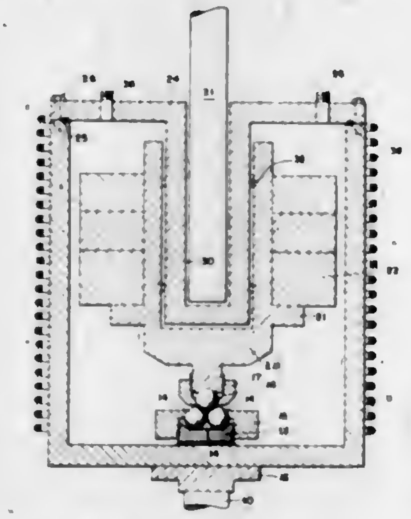


1. An apparatus for determining at a point in a pipe line the midpoint of a marker material that is injected into a fluid flowing in a pipe line and subsequently disperses in said fluid, said apparatus comprising:

- a detector positioned on said pipe line at said point to detect the passage of said marker material, said detector supplying an electrical signal related to the quantity of said marker material present in said fluid;
- an amplifying means, said amplifying means being coupled to said detector to amplify said electrical signal;
- a peak storage circuit, said peak storage circuit being coupled to said amplifier; and
- a difference amplifier, said difference amplifier being coupled to both said amplifying means and said peak storage device to compare the instantaneous value of said electrical signal with the peak value and supply an output signal when said instantaneous value is less than said peak value.

3,302,447
PRESSURIZED 4-BALL WEAR TESTER

Abraham Mertwoy, Roslyn, and Henry Gisser, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Aug. 10, 1964, Ser. No. 388,732
3 Claims. (Cl. 73—10)



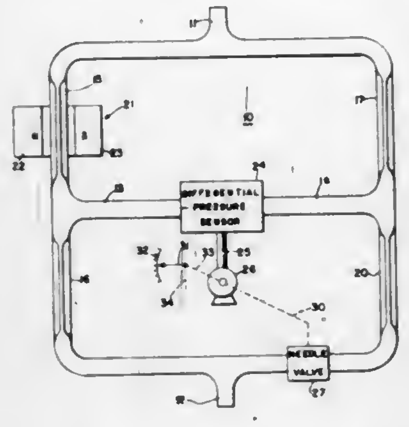
1. A hydraulic fluid testing device wherein said fluid is subjected to controlled elevated temperatures and pressures, said device comprising

- a pressure vessel for containing said fluid,
- a pressure-tight lid removably mounted on said vessel,
- a fluid inlet and a fluid and air outlet sealably mounted on said lid for controlling pressures up to about 12,000 p.s.i. on said fluid within said vessel,
- a plurality of test balls disposed centrally immobile at a base portion within said vessel,
- an upper ball contacting each of said test balls,
- means for maintaining said upper ball stationary and for supporting said upper ball centrally of said test balls and in contacting relation therewith, said means comprising a hollow cylindrical weight carrier,
- said carrier including an annular lip at a lower portion thereof for carrying weights thereon and a chuck at the lowermost portion of said carrier for adjustably gripping said upper ball, and
- other means for rotating said test balls while said upper ball remains substantially stationary.

3,302,448
APPARATUS FOR SUPERVISING THE PROPORTION OF A MAGNETICALLY ACTIVE COMPONENT IN A FLUID

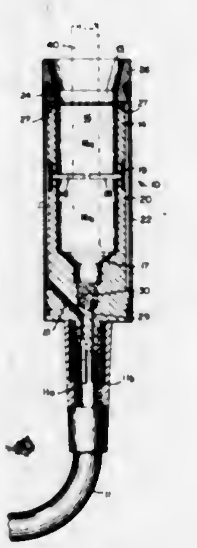
Hans W. Mocker, Columbia Heights, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Sept. 26, 1963, Ser. No. 311,763
6 Claims. (Cl. 73—23)

4. In combination: a fluid bridge including two pairs of opposite capillary arms connected to provide an input diagonal and an output diagonal, at least one of said arms being of magnetically transparent material; means supplying to said input diagonal a mixture of fluids having a variable magnetically active component; means maintaining a strong, substantially constant magnetic field ambient to at least said one of said arms, whereby to change the resistance of said one arm to the flow of magnetically active fluid therethrough, compared to the resistance of said one arm to the flow of magnetically inert fluid therethrough; control means connected to said bridge for giving an output determined by the pressure differential across said output diagonal and hence by the magnetically active component of said mixture; means adjustable to differentially vary the flow resistance of an adjacent pair of said arms; means connecting the adjustable means for adjustment by said control means so as to maintain said pressure differential at a constant value regardless of variation in said magnetically active component of said mixture; and supervisory means activated by said control means.



3,302,449
LEAK DETECTOR

John A. Roberts, Lynnfield Center, Mass., assignor to General Electric Company, a corporation of New York
Filed Oct. 2, 1964, Ser. No. 401,031
12 Claims. (Cl. 73—40.7)

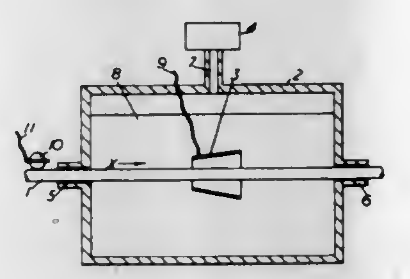


1. A system for detecting in a contaminated environment leaks of a tracer gas emanating from a portion of a unit containing said tracer gas comprising a portable probe element forming an open-ended chamber for receiving said portion of the unit,

- means intermediate the open end and the bottom of said chamber for providing a radially inward flow of pure air to create a transverse curtain of pure air across said chamber to thereby divide said chamber into first and second parts, said second part being between said curtain and said bottom, and
- means for drawing samples of air from said second part of said chamber and detecting the tracer gas content thereof, said detecting means drawing air from said second part of the chamber at a rate which is less than the rate at which pure air is being added to the chamber whereby the excess is exhausted through said first part to the atmosphere thereby preventing contaminated air of said atmosphere from reaching said second part of the chamber.

3,302,450
DEVICE FOR TESTING TUBES FOR LEAKS

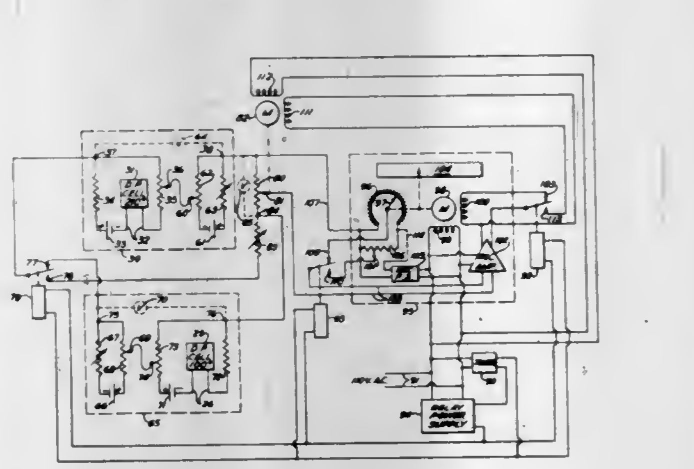
Romuald Wakar, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 31, 1964, Ser. No. 341,582
Claims priority, application Great Britain, Feb. 27, 1963, 7,900/63
4 Claims. (Cl. 73—45.5)



1. Apparatus for testing tubular members comprising, a closed vessel adapted to be partially filled with liquid, an inlet gland and an outlet gland through the walls of said vessel positioned to be below the level of said liquid, a first tubular member extending through said vessel supported between said glands and being submerged in said liquid, the inner portion of said tubular member containing a gas therein, a vacuum source connected to the vessel above the liquid level, a second member submerged in said liquid positioned to surround a portion of said first member and enclose a portion of said liquid, and means for sensing impedance changes in the liquid within said second member resulting from gas escaping through said portion of said first member.

3,302,451
VISCOSITY INDEX MEASURING APPARATUS

Robert J. Martin, Springdale, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed Oct. 27, 1964, Ser. No. 406,827
7 Claims. (Cl. 73—55)



1. Apparatus adapted to indicate the A.S.T.M. viscosity index of a fluid which comprises

- a first viscometer producing a first electrical signal proportional to the viscosity of the fluid at 100° F. and simulating the quantity U in the A.S.T.M. definition of viscosity index,
- a second viscometer producing a second electrical signal proportional to the viscosity of the fluid at 210° F.,
- an electric analog computer connected to both said viscometers simulating the approximate linear relationship between the respective quantities D and L in the A.S.T.M. definition of viscosity index and said second electrical signal over a viscosity range of in-

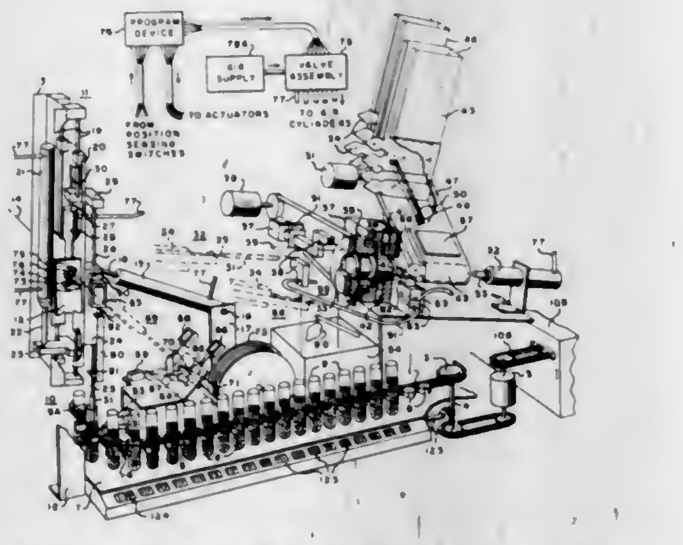
terest, said electric analog computer producing electrical signals respectively proportional to said quantities D and *L—U* and

electrical measuring means connected to said electric analog computer and adapted to measure the ratio of said electrical signals respectively simulating *L—U* and D.

3,302,452
COAGULATION DETECTOR AND COAGULABILITY DETERMINATION

Myron W. Leslie, Westbury, N.Y., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware

Filed Apr. 27, 1964, Ser. No. 362,890
13 Claims. (Cl. 73—64.1)



1. Apparatus for detecting the formation of a reaction product of a test fluid and a liquid reagent having a greater resistance to shear than the mixture of test fluid and reagent, comprising in combination, means for supporting a tubular reaction vessel containing the test fluid and reagent with the longitudinal axis of the vessel at an angle of about five to twenty degrees to the horizontal, means for rotating said vessel as thus supported about said axis continuously at a substantially constant speed to form a vortex in the fluid mixture contained in the reaction vessel, and means responsive to change in transmissibility of radiation along a path intercepted by the vortex to indicate the formation of such reaction product.

3,302,453
METHOD OF INSPECTION UTILIZING ULTRASONIC ENERGY

Fenton M. Wood, Sugarland, and Noel B. Proctor, Houston, Tex., assignors, by mesne assignments, to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey

Filed Apr. 15, 1963, Ser. No. 273,101
8 Claims. (Cl. 73—67.7)

1. The method of inspecting a predetermined region of a solid part for flaws, such as the longitudinal weld in a pipe, comprising the steps of:

generating a continuous wave of ultrasonic energy;

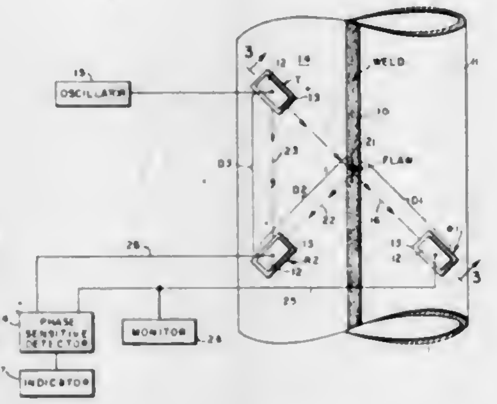
transmitting said wave of energy into the solid part via a coupling wedge at a first point on a surface of the part with an incident angle other than normal to the surface and less than the critical angle for refracted longitudinal waves,

so that refracted longitudinal waves will be transmitted in a direct path through the weld, said waves also being directed at an angle other than normal with respect to the longitudinal axis of the weld so that a portion of the longitudinal refracted waves will be reflected by a flaw in the weld to a second point on said surface,

said angle also being such that refracted shear waves are dampened by repeated reflections and not received at said second point,

detecting said reflected waves emerging from the object at an angle corresponding to the incident angle at said second point,

detecting at a third point said waves passed through the weld,



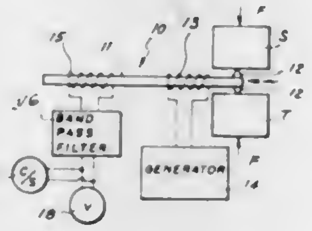
the paths of the waves being of selected distances such that the phases of the waves reflected from a flaw and received at said second point and the stray waves transmitted directly to the second point from said first point differ by some constant value other than 180 degrees and the phases of the waves received at the second and third points are in phase or 180 degrees out of phase, and

measuring the phases at the second and third points to thereby note the presence of flaws while discriminating against the said stray waves.

3,302,454
RESONANT SENSING DEVICES

Claus Kleesattel, 9841 64th Road, Forest Hills, N.Y. 11375

Filed Oct. 8, 1964, Ser. No. 402,600
16 Claims. (Cl. 73—67.1)

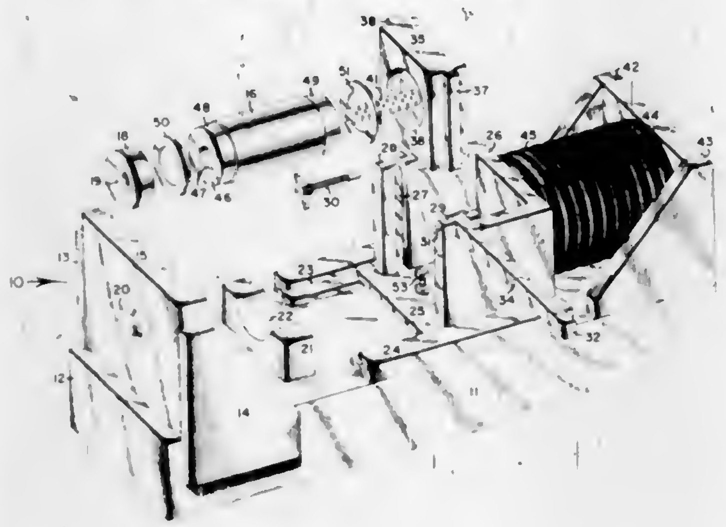


1. A resonant sensing device for indicating physical properties of a test piece, comprising mechanical resonating means including at least one contact tip extending therefrom and being held in steady contact with a test piece at a contact surface which progressively increases in cross-sectional area with penetration of said tip into said test piece, electrically energized means tunable to effect vibration of said mechanical resonating means at resonance frequencies thereof and in a mode causing vibrations at said contact tip which are substantially parallel to the contacted surface of the test piece, and indicating means for showing the effect on the vibrations of said mechanical resonating means of said steady contact of the tip with the test piece, which effect is a function of the shear compliance of the contacted surface of the test piece.

3,302,455
TEST STAND FOR TESTING A SOLID PROPELLANT THAT HAS BEEN CAST INTO A MOTOR CASE

Oscar M. Hawkins, Huntsville, Ala., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

Filed June 24, 1964, Ser. No. 377,766
4 Claims. (Cl. 73—116)

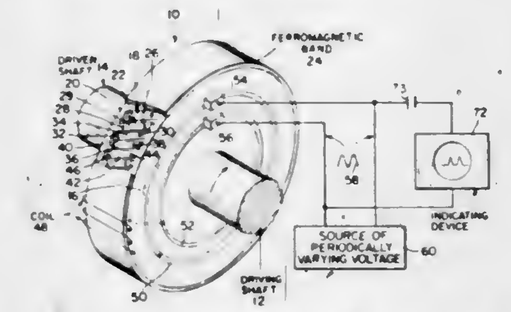


1. The combination of a motor test stand for testing a motor case having a solid propellant therein comprising a base, an aft end for said motor case rigidly secured to said base, a head end for said motor case slidably mounted on said base, said aft end having an exhaust port therein, said head end having an opening therein to receive an igniter for the solid propellant in said motor case, a pair of diametrically-opposed slide rails mounted on said base, a table mounted for sliding movement in said rails, a U-shaped frame having vertically-disposed slots therein mounted on said table for supporting said head end on said table, said head end having slide projections on opposite edges thereof receivable in said slots, a latch bar rigidly connected to said U-shaped frame and engaging said head end to retain said head end in said U-shaped frame, and means for moving said head end and said motor case into pressure sealing contact with said aft end.

3,302,456
FORCE MEASURING APPARATUS

Fritz A. Guerth, 1707 W. 27th St., South Shore, San Pedro, Calif. 90732

Filed Oct. 26, 1964, Ser. No. 406,632
10 Claims. (Cl. 73—136)



1. In a device for measuring the torsional force between a driving shaft and a driven shaft mounted in coaxial relationship thereto, the combination of:

a first disc-shaped clutch-like member mounted on said driving shaft and having a plurality of circumferentially-spaced teeth extending parallel to one another and at an angle to the axis of rotation of said shaft;

a second disc-shaped clutch-like member mounted on said driven shaft in face-to-face relation with said first clutch member, said second clutch member also having a plurality of parallel circumferentiall-spaced teeth and being designed to engage said first clutch member so that the respective sets of teeth on the two members mesh but lie in spaced-apart relationship to one another in the absence of a rotational force applied to said driving shaft; and

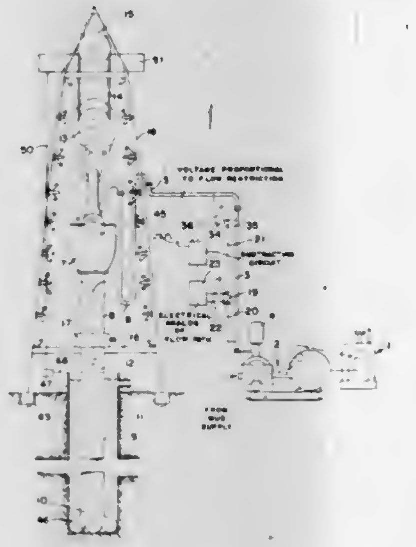
a band of ferromagnetic material overlying the periphery of the two meshed clutch members, said band being secured to each of the teeth of each clutch member so as to be free of stress in the absence of a rotational force applied to said driving shaft;

whereby, upon the application to said driving shaft of a force tending to rotate the latter, the teeth on said first clutch member will be urged toward contact with the teeth on said second clutch member, thus placing individual portions of the material of which said band is composed under tension and other individual portions of said band material in a state of compression, the band portions so compressed alternating in any selected circumferential direction with the band portions placed under tension.

3,302,457
METHOD AND APPARATUS FOR TELEMETERING IN A BORE HOLE BY CHANGING DRILLING MUD PRESSURE

Fred M. Mayes, Richardson, Tex., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed June 2, 1964, Ser. No. 372,004
13 Claims. (Cl. 73—152)



1. Method of telemetering from downhole, in a borehole being drilled by rotary drilling equipment, to the surface, which comprises developing a first signal proportional to the pressure which would exist in the drilling fluid flow path, at a certain surface location, under constant flow path conditions, producing at a downhole location a change in the drilling fluid flow path in response to a measurement to be telemetered to the surface, developing a second signal representative of the actual pressure at said surface location, and combining subtractively said first signal and said second signal.

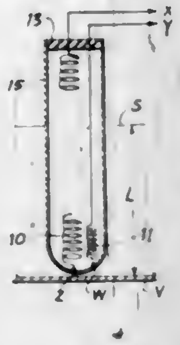
3,302,458
LIQUID LEVEL SENSING DEVICE

Marvin D. Scadron, Skokie, Ill., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 9, 1963, Ser. No. 314,956
9 Claims. (Cl. 73—295)

1. Apparatus for translating the instantaneous depth of a body of liquid of varying level into an electrical potential to provide a measure of such depth comprising: an elongated, main, electrically-conductive element having a comparatively high temperature coefficient of resistance,

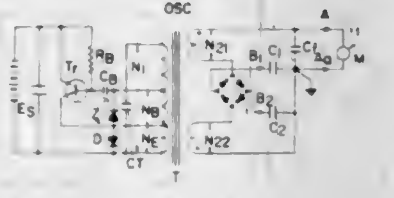
said element being positioned with the axis of the element perpendicular to the surface of the liquid to be immersed in varying degree as the liquid level rises and falls, the element having an overall length substantially equal to the expected maximum depth of the body of liquid, a source of current connected to said element to heat the same, a compensating element characterized by substantially the same temperature coefficient of resistance as said main element positioned adjacent the bottom of the body of liquid, said compensating element having a size and location insuring immersion thereof at the lowest expected level of the liquid, means to support said elements, electrical means to compare the variations in resistance of the main and compensating elements as effected by variations in the level of the body of liquid and to provide a varying electrical potential proportion at each instant to said level.



3,302,459
DEVICE FOR ADMITTANCE MEASUREMENTS BY CONVERTING ADMITTANCE INTO DIRECT CURRENT

Kenichi Isoda, Kokubunji-machi, and Naoya Ono, Kodaira-shi, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan

Filed Oct. 15, 1964, Ser. No. 404,066
Claims priority, application Japan, Oct. 18, 1963, 38/54,959
2 Claims. (Cl. 73—304)

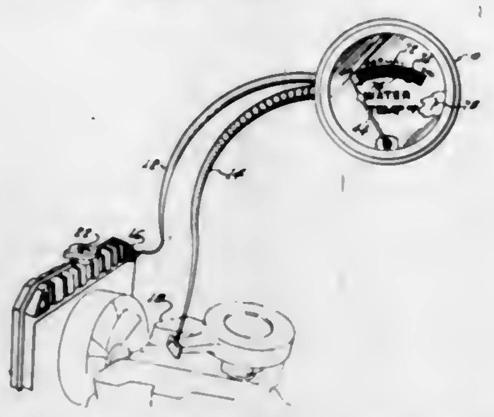


1. A device for admittance measurements comprising a bridge having arms; a diode inserted in each of said arms for conduction in the same direction; a transformer having a primary winding and a pair of secondary windings; a pair of admittance elements series-connected between a first pair of opposite junction points of said bridge; a reference potential point connected to a point between said elements; a smoothing capacitor; and a direct current meter indicating a value proportional to the difference of admittance of said elements; said secondary windings being connected respectively between one point of a second pair of opposite junction points of said bridge and the reference potential point of said admittance elements and between the other point of said second pair and said reference potential point of said admittance elements, with the ends of said windings connected to said second pair of points being of the same relative polarity at a given instant; and said smoothing capacitor and said direct current meter being connected between said reference potential point and one terminal of one end of said secondary windings connected to said second pair of points.

3,302,460
TEMPERATURE GAUGE

Charles F. Hennecke, Oak Park, Ill., and Irwin E. Mather, Berryville, Ark., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia

Filed Nov. 17, 1964, Ser. No. 411,757
4 Claims. (Cl. 73—345)

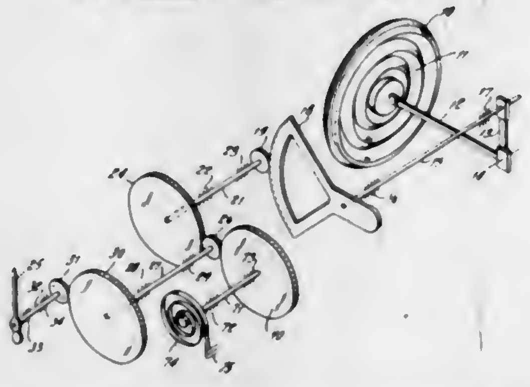


1. A device for indicating safe operating conditions in a pressurized, liquid-containing, radiator system, or the like, comprising a pointer mounted for rotation about a first axis, a dial face in cooperative association with said pointer and calibrated in degrees of temperature, means for causing said pointer to rotate about said first axis responsive to changes in liquid temperature, said dial face defining an arcuate aperture substantially concentric about said first axis along the path of rotation of said pointer, a flag mounted for rotation with respect to said dial face about a second axis parallel to said first axis, said flag having indicia thereon comprising two contrasting colors viewable through said aperture, and means responsive to pressure changes for rotating said flag in said system to move said contrasting colors past said aperture in a direction corresponding to the direction of movement of said pointer for respective increases or decreases of temperature and pressure.

3,302,461
SCALE ERROR CORRECTED ALTIMETER

James W. Angus, Chappaqua, N.Y., assignor to Kollsman Instrument Corporation, Elmhurst, N.Y., a corporation of New York

Filed July 19, 1965, Ser. No. 472,983
10 Claims. (Cl. 73—386)

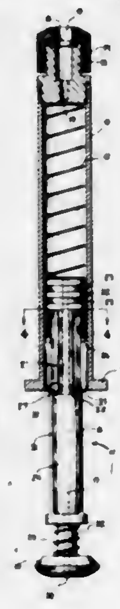


5. A pressure sensitive device comprising a pressure transducer having an output member which moves nonlinearly and in an undulating manner with respect to pressure applied to said pressure sensitive device, a first and second meshing gear means, and a movable indicia movable over a predetermined range with closer linearity of said applied pressure than said pressure transducer; said first gear connected to said output member, said second gear connected to said movable indicia; one of said first or second gear having symmetrically spaced teeth; the other of said first or second gear having diversely spaced teeth; the spacing of said diversely spaced teeth compensating the undulating characteristic of said pressure capsule and having a wider spacing at angular positions corresponding to increased movement of said output member for a given pressure change and a smaller spacing at angular positions corresponding to decreased movement of said member for said given pressure change.

3,302,462
PIPETTING DEVICE WITH STOP MECHANISM

Alfred R. Pursell, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed May 25, 1964, Ser. No. 369,864
5 Claims. (Cl. 73—425.4)



1. In combination with a syringe comprising a plunger and an associated barrel, spring means urging the plunger out of the barrel and a connector attached to the dispensing end of the barrel and adapted to receive the end portion of a pipette in sealing relation, said plunger having a piston end portion receivable in sliding, sealing engagement by said barrel, and said plunger having a channel formed therethrough from the finger-engaging top to the opposite end thereby to permit finger tip control of delivery of liquid from a pipette attached to said connector: a controllable stop mechanism which stops telescoping movement of the plunger into the barrel at a predetermined position of the plunger relative to the barrel during predetermined strokes of the plunger into the barrel, said stop mechanism comprising:

a splined terminal shank portion formed on said plunger;

a smaller diameter smooth cylindrical shank portion formed on the plunger, said smaller diameter shank portion connecting the finger-engaging end of the plunger with the splined terminal shank portion;

a splined rotatable sleeve member slidably mounted on said smaller diameter shank portion, the splines on the terminal shank portion having substantially the same width as the splines on the sleeve member, the number of splines on the terminal shank portion being twice the number of splines on the sleeve member, and the splines on the sleeve member extending radially from the axis of the plunger at least about $\frac{1}{64}$ inch more than the splines of the terminal shank portion;

a compressible spring surrounding the smaller diameter shank portion between the finger-engaging end and the sleeve member and adapted to urge the sleeve member away from the finger-engaging end;

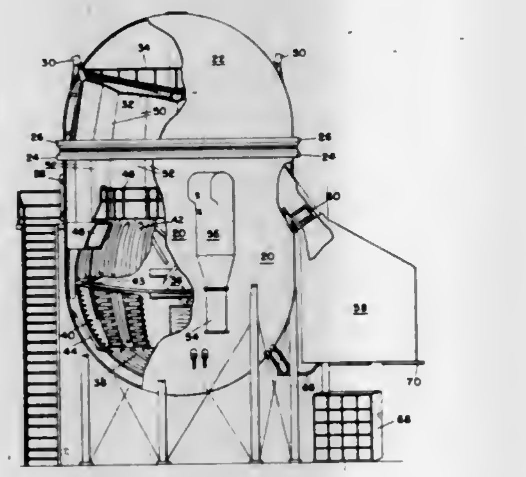
and a cylindrical ratchet-guide portion formed on the inside of the barrel adjacent the flanged end thereof and on a common axis therewith and having a smaller inner diameter than the remainder of the barrel, said ratchet-guide portion having longitudinal lands and grooves, the grooves equalling the splines of the said terminal shank portion in number, alternate grooves being deep enough to permit passage of the splines of the terminal shank portion through the ratchet-guide portion but not passage of the splines of the said rotatable sleeve member, the rest of the grooves being deep enough to permit passage of the splines of the rotatable sleeve member; the end of the ratchet-guide portion nearest the flanged end of the barrel being toothed and comprising a circular pawl, the number of teeth of the pawl equalling the number of splines on the terminal shank portion, and the longitudinal internal grooves of the ratchet-guide portion being aligned with the deepest part of each notche between the teeth of the pawl edge; the splines on the rotatable sleeve member having ends projecting beyond the intervening grooves of the rotatable sleeve member and towards the terminal shank portion, said ends being cut obliquely with respect to a circumferential line drawn around the rotatable sleeve member, the pitch of the cut being slightly greater and substantially complementary to the pitch of the teeth of the pawl end of the circular ratchet-guide portion of the barrel; and the end of each spline of the terminal shank portion facing the rotatable sleeve member having an inverted V-shaped pointed end with respect to a circumferential line drawn around the terminal shank portion;

said splined terminal shank portion, said splined rotatable, slidable sleeve member, said compressible spring and said cylindrical ratchet-guide portion together comprising the controllable stop mechanism.

3,302,463
SPACE ENVIRONMENT SIMULATOR

Patrick Anthony Marfone, King of Prussia, and Alexander Lengyel, Paoli, Pa., assignors to General Electric Company, a corporation of New York

Filed June 26, 1961, Ser. No. 119,387
7 Claims. (Cl. 73—432)



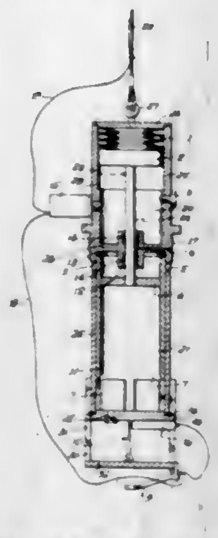
1. A space environment simulator comprising: a hermetically sealable chamber; a test piece station in said chamber; refrigerated panels mounted in the said chamber in poor thermal contact therewith and partially surrounding the said test station and presenting to the said test station radiation absorbing faces and having refrigerable surfaces; mechanical exhaust means connected to the said chamber; a radiation source grossly simulating the spectral distribution of solar radiation; optical means located at least in part in the said chamber substantially collimating the said radiation to fall upon the said test piece station and directing non-collimated radiation from the said refrigerated panels toward the said test piece station.

3,302,464
STERILE HIGH PRESSURE OCEAN SAMPLER

Arthur F. Langguth, 2125 Thrush Ave., Oxnard, Calif. 93030

Filed June 30, 1964, Ser. No. 379,418

10 Claims. (Cl. 73—425.4)



1. A sterile high pressure ocean sampler comprising:

an outer hollow cylindrical casing having a closed upper end and an open lower end;

a diametrical transverse bulkhead disposed in said outer casing, said bulkhead dividing the interior of said outer hollow casing into an upper closing chamber and a lower chamber;

an inner hollow cylindrical casing having an open upper end and a closed flanged lower end, said inner casing being adapted to fit telescopically within said lower chamber of said outer casing;

an inner sampling chamber formed between the interior walls and the closed flanged lower end of said inner casing;

means for reciprocating said inner casing with respect to said outer casing;

port means formed in the lower end of said inner casing for the reception of ocean samples into said sampling chamber; and

sealing means between said outer and inner casings for sealing said inner sampling chamber when said inner casing is fully telescopically inserted within said lower chamber of said outer casing.

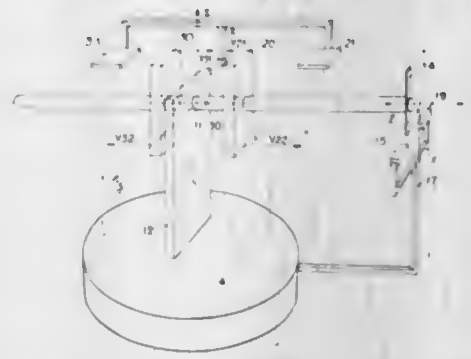
3,302,465
INERTIAL TACHOMETERS

Raymond Mathey, Paris, France, assignor to CSF—Compagnie Generale de Telegraphie Sans Fil, a corporation of France

Filed Apr. 13, 1964, Ser. No. 359,315

Claims priority, application France, Apr. 19, 1963, 932,050

6 Claims. (Cl. 73—505)



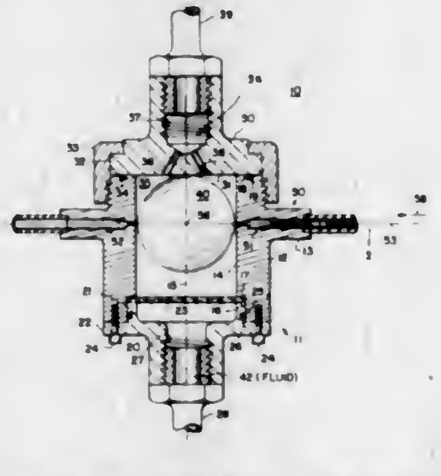
1. An inertial tachometer for measuring the rotation of a platform about a predetermined axis comprising: a support solid with said platform and whose axis coincides with said axis; an elongated member rigidly and symmetrically supported by said support and extending normally to said axis; two prongs, having respective centers of symmetry, rigidly carried by said member at said centers and symmetrical with respect to said support; said prongs having two respective halves extending symmetrically with respect to the axis of said member; means for exciting in said prongs flexional vibrations parallel to said member and bending in opposite directions said opposite halves of said prongs; and means for measuring the torsional vibrations of said member.

3,302,466
ACCELEROMETER

Harvey D. Ogren, Roseville, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed Apr. 25, 1963, Ser. No. 276,104

6 Claims. (Cl. 73—516)



1. A two axis linear accelerometer comprising: housing means, said housing means having a cavity therein symmetrical about an axis; a plane surface on said housing means perpendicular to said axis forming one end of said cavity; a fluid exhaust passage within said housing means in communication with said cavity; a fluid supply passage within said housing means in communication with said cavity; spherical seismic mass means loosely received within said cavity; means including said supply passage and said exhaust passage for providing a continuous flow of a fluid through said cavity substantially along said axis, said continuous flow of fluid being effective to axially position said seismic mass means in engagement with said plane surface, said continuous flow of fluid further being effective to radially center said seismic mass means within said cavity in a normal position relative to said housing means, said seismic mass means being displaced from said normal position upon acceleration of said housing means perpendicular to said axis; and readout means including a plurality of pressure sensing ports within said housing means perpendicular to said axis and angularly spaced thereabout, said pressure sensing ports being contiguous said seismic mass means, the pressure within each pressure sensing port being indicative of the distance between said housing means and said seismic mass means, said readout means including means for comparing the pressure within each pressure port so as to provide a signal indicative of the magnitude and direction of an applied acceleration.

3,302,467
TIMING CONTROL

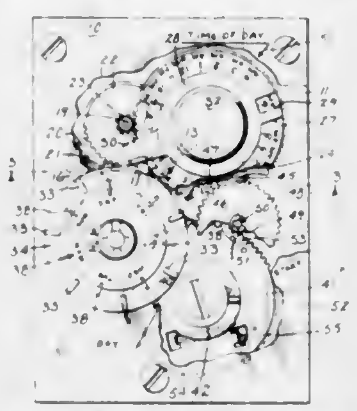
David G. Prosser, Milwaukee, Wis., assignor to Autotrol Corporation, Milwaukee, Wis., a corporation of Wisconsin

Filed Mar. 31, 1965, Ser. No. 444,290

4 Claims. (Cl. 74—3.5)

3. In a timing control for a control shaft, the combination comprising: a support; a motor mounted on said support and including an output shaft; a day gear mounted for sotation on a shaft carried by said support; timing

speed reduction gearing connecting said day gear to said motor output shaft for rotation of said day gear once for each twenty-four hours; a dial mounted for rotation on said shaft and having indicia representing twenty-four hourly increments equally spaced about the perimeter of a face of said dial; an actuator mounted for rotation on said shaft; a week wheel rotatably mounted on said support and including means engageable by said actuator to rotate said wheel and projecting initiation means; a driven shaft connectable to said control shaft and rotatable in said support; a driven gear mounted on said driven shaft and rotatable therewith, said driven gear including a lug engageable by said initiation means for shiftable rotation of said driven gear; a pinion; driving reduction gearing connecting said pinion to said motor output shaft, said driven gear being engageable with said pinion when said driven gear is shifted by said wheel to have said motor drive said driven shaft; and means releasably joining said day gear, dial, and actuator for concurrent movement, said dial and actuator being adjustable relative to said day gear for setting of the time of day at which said actuator rotates said wheel and therefore the time of day at which said wheel shifts said driven gear.

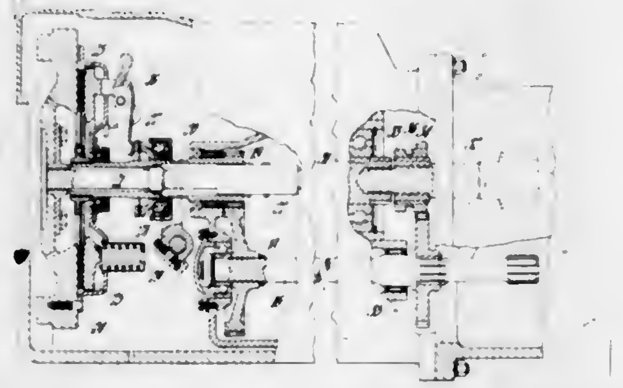


3,302,468
VEHICLE TRANSMISSION MECHANISMS

John Thomas Matthew Wright, Southport, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Nov. 13, 1964, Ser. No. 410,849

1 Claim. (Cl. 74—15.8)



A vehicle transmission apparatus comprising an engine having a driven member and a driven shaft, a hydraulically operable transmission mechanism having an output shaft, and an input shaft connected to and continuously driven by the engine driven shaft, a power take-off shaft, a sleeve arranged concentrically about the engine driven shaft, gearing between the sleeve and power take-off shaft, a first clutch means arranged between said engine driven member and said sleeve, a driven axle, an input member for said driven axle, a second clutch means splined on said input member engageable with said transmission output shaft and gear means on said power take-off shaft and said second clutch means operable when said second clutch means is out of engagement with said transmission output shaft to provide a drive connection between said sleeve and the power take-off shaft to the input member when the first clutch means connects the sleeve to the engine driven member.

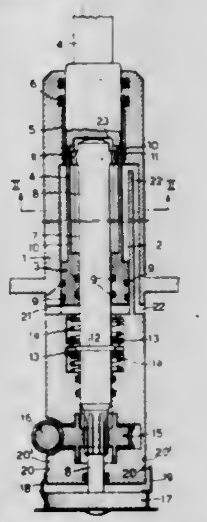
3,302,469
APPARATUS FOR CONTROLLING THE TRANSLATIONAL AND ROTATIONAL MOVEMENTS OF A ROD

Aurelio Ortelli, Bologna, Italy, assignor to S.p.A. Alessandro Calzoni, Via Emilia Ponente, Italy, a company of Italy

Filed Oct. 18, 1965, Ser. No. 497,418

Claims priority, application Italy, Oct. 30, 1964, 23,361/64

6 Claims. (Cl. 74—22)



1. A device for controlling the translational and rotational movements of a rod; comprising a body having a cylindrical straightlinear bore, a rod, a piston, solidly affixed to said rod and positioned within said bore so as to be freely and rectilinearly displaceable therethrough and rotatable about its own axis with respect to said body, said rod projecting out of said body, sealtight means between said body and said rod, at the point at which the rod projects from said body, a shaft housed along a certain portion of its length within a cavity axially formed through said piston and said rod, sealtight means between said shaft and said rod, means for locking said rod and shaft against mutual rotation yet permitting mutual axial displacements therebetween, means for feeding a pressurized fluid above and below said piston, respectively, means for imparting a rotational drive to said shaft, said shaft projecting from said body at the end remote from that through which said rod projects, means mounting said shaft within said body so as freely to move in an axial direction by small incremental movements from an intermediate position, and abutments cooperable with said certain portion of said shank housed within said cavity when thrust by said pressurized fluid towards the maximum elongation position or, respectively, towards the minimum elongation position with respect to said body.

3,302,470
VIBROHAMMER

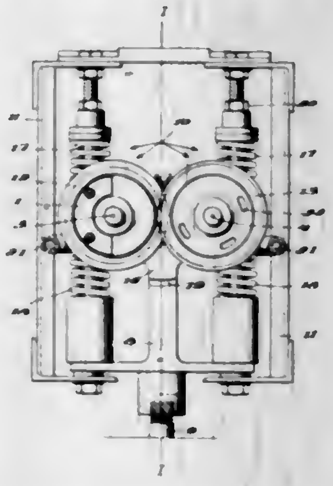
Jozef Raniszewski, Warsaw-Bemowo, Poland, assignor to Zaklady Sprzetu Budowlanego Nr 2, Solec Kujawski, Poland

Filed Mar. 25, 1964, Ser. No. 355,150

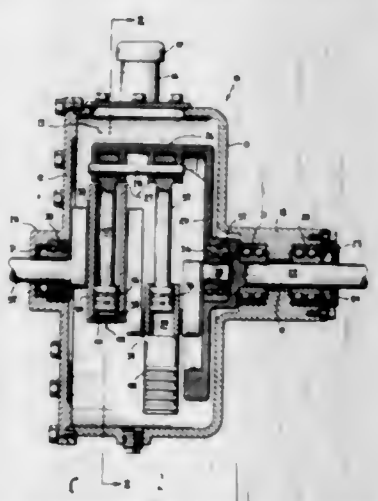
3 Claims. (Cl. 74—61)

1. A vibrohammer of vertical and rotary action for driving piles, tubing and the like, comprising: a frame constructed and arranged to be mounted on the upper end of an element to be driven, and including a transmitting member bearing against the element for transmitting vertical percussions thereto, and upright frame members connected to and extending upwardly from said transmitting member; and vibratory means operatively

mounted in said frame for percussively striking said transmitting member vertically and for transmitting rotary vibrations to said frame, said vibratory means comprising a striking mass, a plurality of springs resiliently supporting said striking mass in said frame relatively above said transmitting member, means for adjusting said springs so as selectively to vary the at-rest clearance between said striking mass and said transmitting member, a plurality of bearing members extending from said striking mass and guidedly engaging said upright frame members for guiding the movement of said striking mass and transmitting rotary vibrations therefrom to said upright frame members, two parallel and horizontal shafts rotatably mounted on said striking mass horizontally adjacent each other corresponding gear wheels mounted on corresponding first ends of said shafts for ensuring equal but opposite rotation of said shafts, corresponding disc members mounted at the other corresponding ends of said shafts, masses eccentrically mounted on the gear of one shaft and on the disc of the other shaft for effecting vertical vibrations of the striking mass when both masses are at their lowermost or uppermost points of rotation and rotary vibrations about the element to be driven when both masses are at their horizontally innermost or outermost points of rotation, and means for rotating said shafts to effect vertical and rotary vibrations of said striking mass, and hence of the element to be driven.

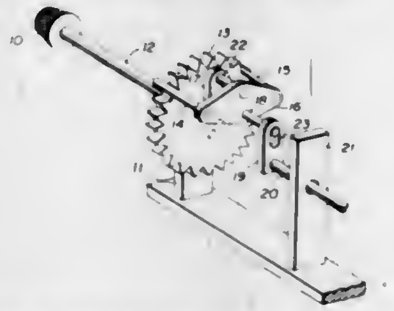


3,302,471
POWER TRANSMISSION UNIT
Fred A. Lane, 1113 Little Creek Drive, Harlingen, Tex. 76554
Filed Oct. 19, 1964, Ser. No. 404,568
7 Claims. (Cl. 74—63)



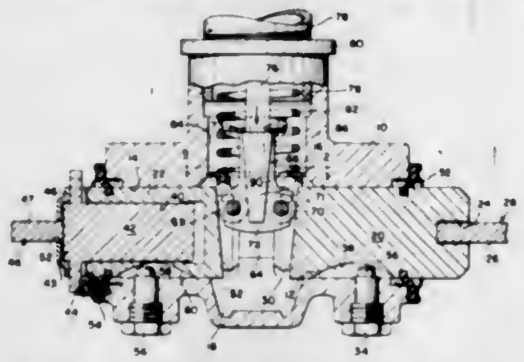
1. A power transmission unit comprising a first shaft journaled for rotation on an axis, a crank shaft coaxial with said first shaft and journalled for rotation at velocities independent of the velocity of said first shaft, said crank shaft having a plurality of crank sections axially and peripherally spaced from each other, guide means journalled from each crank section for rotation about the axis of such crank section, each guide means having a longitudinal axis which is transverse relative to the axis of its associated crank section, journal means carried by said first shaft upon a single axis parallel with, but radially offset relative to, the common axis of said shafts, and overlapping all of said crank sections, and slide means received in each guide means for axial reciprocation therein against predetermined resistance, each slide means being connected to said journal means for oscillation about the axis of said journal means.

3,302,472
INTERMITTENT ROTARY MECHANISM
Winston F. Williams, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed July 29, 1965, Ser. No. 475,822
6 Claims. (Cl. 74—84)



1. A rotary mechanism comprising; an input shaft and an output shaft, a fixedly mounted star wheel, connecting means receiving an input from said input shaft, toggler means for receiving motion from said connecting means, follower means for causing said toggler means to follow the periphery of said star wheel when said input shaft is in motion, and crank means for imparting the motion of said toggler means to said output shaft so that a constant input on said input shaft causes an intermittent rotary output of said output shaft each time said follower means slide up and down the teeth of said star wheel.

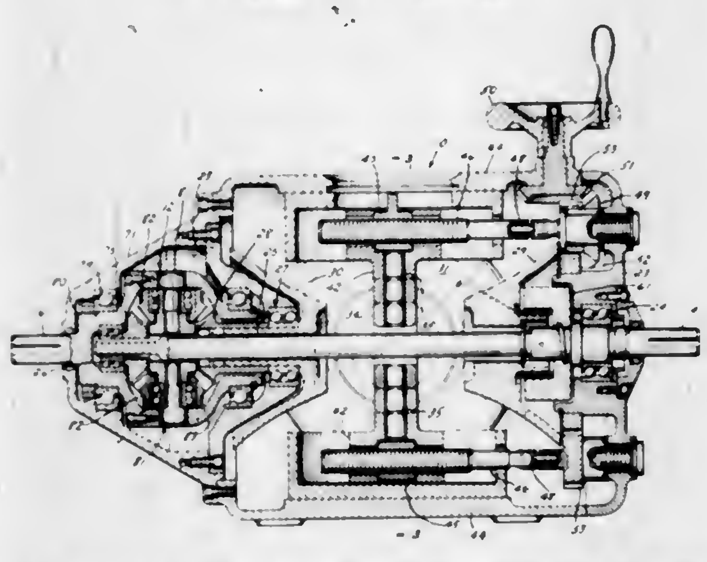
3,302,473
BRAKE MECHANISM
Robert K. Lowry, North Madison, and George P. Mathews, Ashtabula, Ohio, assignors, by mesne assignments, to Rockwell-Standard Corporation, a corporation of Delaware
Filed May 20, 1964, Ser. No. 368,903
15 Claims. (Cl. 74—110)



1. In a wedge type brake actuator, a housing having a bore and having grooved inner ends facing each other within said housing, opposed coaxial brake shoe connected plungers slidable in said housing, a push rod in said housing extending through said bore reciprocable normal to said plunger axes and having a fixed wedge on one end, a roller carrier mounted on said push rod, rollers mounted on said carrier in rolling contact with opposite sides of said wedge and with the grooved adjacent ends of said plungers, positioning means in said

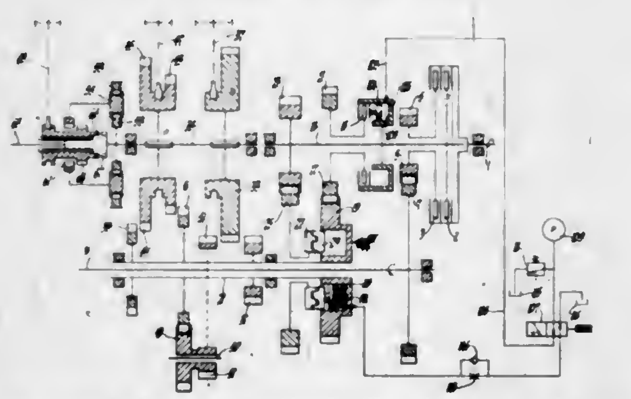
housing having means adjacent opposite sides of said carrier for orienting said roller carrier and guiding said rollers into predetermined operative relation within said grooved plunger ends during assembly and maintaining said relation during normal brake operation, and cooperating means on said positioning means and in said bore for positively fixing said positioning means against rotation about the axis of said bore.

3,302,474
VARIABLE SPEED POWER TRANSMISSION
William N. Edlich, Union Hill, R.F.D. 1, Dover, N.J. 07801
Filed Dec. 21, 1964, Ser. No. 419,716
7 Claims. (Cl. 74—200)



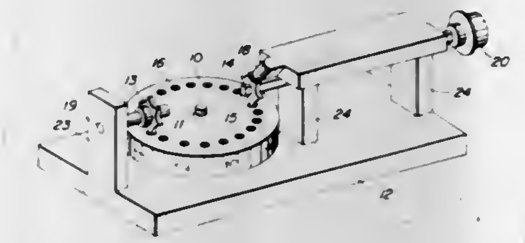
1. A variable speed transmission comprising a driving shaft, a secondary shaft rotatable coaxially with and relatively to said driving shaft, a friction wheel on and rotatable with each said shaft and having a peripheral friction surface that varies in diameter axially of said shaft, and a rotatable transmission disc frictionally contacting said friction surfaces of said friction wheels so that said wheel on said secondary shaft is driven from the other wheel, the wheel-contacting surface of said disc being a laminate in which the edges of the lamellae are disposed substantially perpendicularly to the friction surfaces of said friction wheels on which said laminate bears.

3,302,475
TRANSMISSION WITH LOCK OUT OF OVERRUN
Lee E. Elfes, Birmingham, and Charles Francuch, Royal Oak, Mich., assignors to Massey-Ferguson Inc., Detroit, Mich.
Filed Apr. 9, 1964, Ser. No. 358,477
14 Claims. (Cl. 74—368)



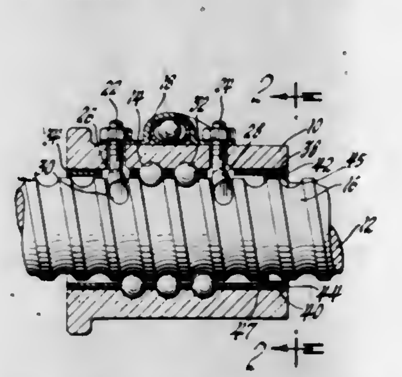
1. A change speed transmission including a driving shaft and a driven shaft, first gear means for transmitting drive between said shafts at one gear ratio, first drive establishing means for establishing and disestablishing two-way drive between said shafts through said first gear means, second gear means for transmitting drive between said shafts at a second gear ratio, second drive establishing means for selectively establishing and disestablishing one-way or positive two-way drive between said shafts through said second gear means, said second drive means being automatically responsive to transmit one-way drive between said shafts through said second gear means when said first drive establishing means is conditioned to disestablish drive between said shafts through said first gear means and to automatically overrun when said first drive establishing means is conditioned to establish drive between said shafts, and means for preventing said second drive establishing means from overrunning by conditioning said second drive establishing means in said positive two-way drive condition after said second drive has established said automatic one-way drive in response to said first drive establishing means being conditioned to disestablish drive.

3,302,476
DETENTED DRIVE MECHANISM
Winston F. Williams, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Dec. 3, 1964, Ser. No. 415,610
7 Claims. (Cl. 74—416)



1. A drive mechanism comprising: a base, a plurality of supports mounted on said base, a first shaft mounted in one of said supports, a second shaft mounted in another of said supports, a first wheel slidably mounted on said first shaft and a second wheel slidably and rotatably mounted on said second shaft, a drum mounted at angle with respect to said wheels, said drum having a plurality of spaced holes which engage with said wheels, a spring to bias said drum against said wheels to insure contact between said drum and said wheels so that rotation of said first shaft will cause rotation of said drum.

3,302,477
NUT AND SCREW ASSEMBLY
Leonard R. Grabowski, Bay City, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 413,058
18 Claims. (Cl. 74—424.8)



1. In a ball nut and screw assembly the combination of nut and screw members having complementary helical grooves providing a race, a train of antifriction elements loaded in said race providing a driving connection between said nut and screw members, said nut and screw

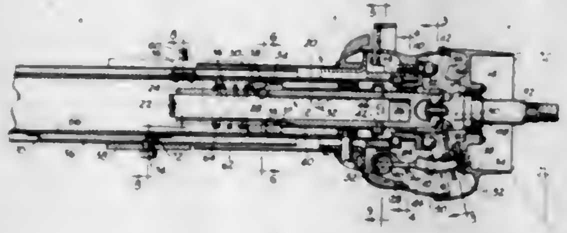
members having an annular clearance therebetween and antifriction element retaining means mounted in said annular clearance operatively connected to one member and having a helical slot through which said antifriction elements extend, said slot having a width sufficient to retain said antifriction elements in the groove of said one member upon the removal of the other member from said one member.

3,302,478
ADJUSTABLE STEERING COLUMN

Edward M. Pauwels, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware

Filed Mar. 26, 1965, Ser. No. 442,912

9 Claims. (Cl. 74—493)



8. An angularly adjustable steering column comprising a housing, first and second shafts located in said housing and capable of being rotated with their axes angularly disposed with respect to one another, universal joint means operatively connecting the first of said shafts with the second of said shafts so that said first shaft can be angularly positioned with respect to said second shaft, ratchet means operatively connected to and movable with said first shaft, said ratchet means including a plate having two oppositely disposed quadrants each of which has a ratchet formed on the end thereof, locking means operatively connected to said housing for engaging said ratchet means and preventing a change in the angular position of said first shaft with respect to said second shaft, said locking means including two pawls, one of which engages the ratchet of one of said quadrants and the other of which engages the ratchet of the other of said quadrants, manually operable actuating means operatively connected to said housing and said locking means for disengaging said locking means from said ratchet means and permitting angular movement of said first shaft with respect to said second shaft, and resilient means operatively connected to said locking means for causing engagement thereof with said ratchet means after release of said manually operable actuating means.

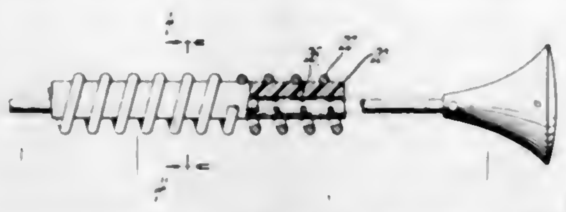
3,302,479
LOW LOAD FLEXIBLE CONDUIT

Winthrop B. Conrad, Franklin, Mich., assignor to Teleflex Incorporated, North Wales, Pa., a corporation of Delaware

Filed Sept. 11, 1963, Ser. No. 308,239

2 Claims. (Cl. 74—501)

2. A conduit comprising a polygonal plastic tube surrounded by a wire wrapping extending generally axially of said tube, said wire wrapping deforming the exterior surface of said tube to create a mating depression therein and deforming the interior surface of said tube to create individual projections which are arranged in circumferentially spaced generally axially extending rows.

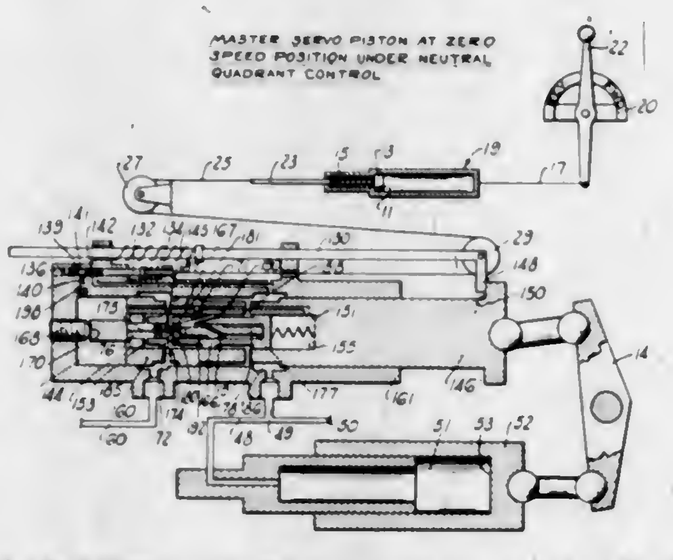


3,302,480
FOLLOW-UP CONTROL MECHANISM

David B. Puryear, Stevensville, Richard E. Clark, Ann Arbor, and Richard L. Carmon, Birmingham, Mich., assignors to The Bendix Corporation, a corporation of Delaware

Original application July 9, 1962, Ser. No. 208,437. Divided and this application Oct. 22, 1965, Ser. No. 502,247

5 Claims. (Cl. 74—501.5)


MASTER SERVO PISTON AT ZERO SPEED POSITION UNDER NEUTRAL QUADRANT CONTROL
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1. A follow-up mechanism comprising: a first flexible member, actuating means operatively connected to one end of said first flexible member, a second flexible member, a take-up tensor comprising two members, first biasing means for urging said members in opposite directions, one member of said take-up tensor being connected to the other end of said first flexible member and the other member of said take-up tensor being connected to one end of said second flexible member, an operating element connected to the other end of said second flexible member, a pulley intermediate the ends of said second flexible member, said pulley having a movable axis of rotation, second biasing means for urging said pulley for movement of its axis in one direction, third biasing means for urging said element in the opposite direction, said second biasing means being stronger than said first and third biasing means, and said third biasing means being stronger than said first biasing means.

3,302,481
BRAKE CONTROL MEANS

Charles R. Kenrick and Harold B. Schultz, South Bend, Ind., assignors to The Bendix Corporation, South Bend, Ind., a corporation of Delaware

Filed Sept. 24, 1964, Ser. No. 398,957

3 Claims. (Cl. 74—512)

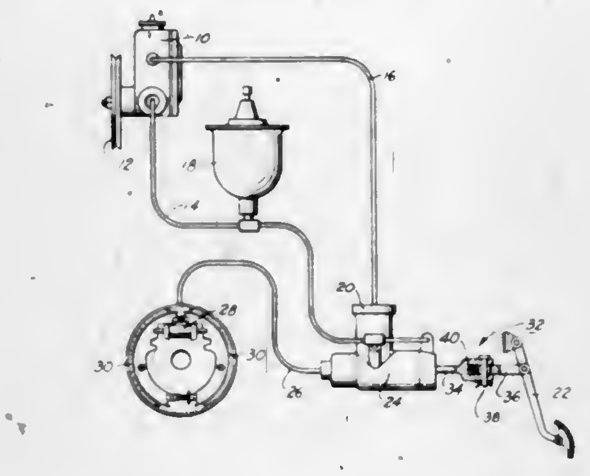
1. For a control means adapted to operate a fluid pressure motor, a means to actuate said control means comprising:

a brake pedal pivotally arranged with respect to surrounding structure;

a control rod assembly linking said control means to said brake pedal which control rod assembly includes,

a portion operatively connected to said control means, said portion having a bifurcated end with an aligned hole through portions of said end,

a link telescopically arranged with respect to said portion, said link having an axial slot,



a resilient member arranged between said portion and said link to position said portion with respect to said link and cushion any telescopic motion therebetween, and

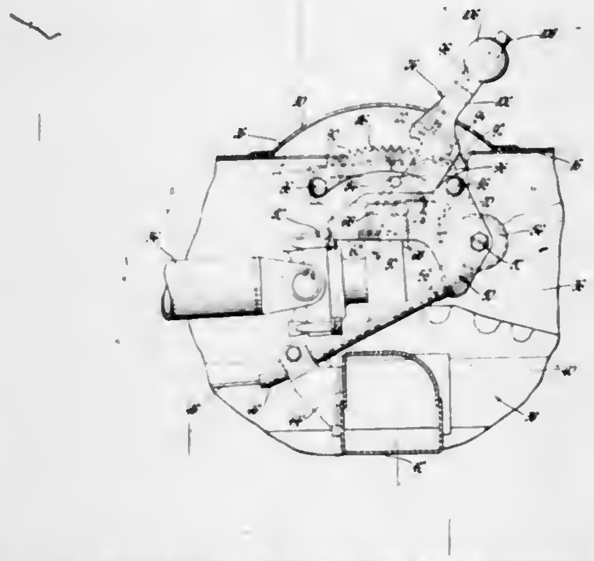
a pin sized to snuggly fit said hole and loosely fit said slot to join said portion and said link with said resilient member interposed in a lost motion connection.

3,302,482
VEHICLE BRAKE CABLE TENSIONING AND RELEASING MECHANISM

Tadeusz T. Szajner, Royal Oak, and John B. Swetka, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Apr. 1, 1964, Ser. No. 356,567

3 Claims. (Cl. 74—517)



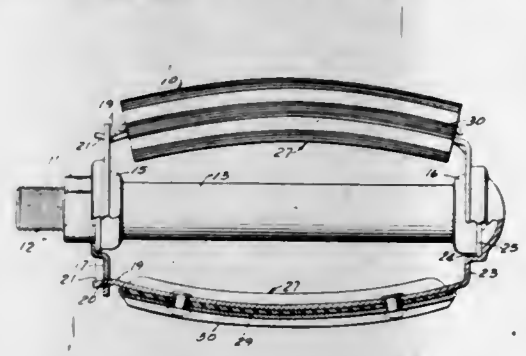
1. An emergency and parking brake control assembly for a vehicle having a frame and a tunnel cover within which said assembly is to be mounted, said assembly comprising, a bracket, a handle mounted for movement on said bracket, force multiplier means having said handle as a force input member and an input force reaction member connected to a portion of said bracket and a tensionable take-up cable as an output member, an idler pulley rotatably mounted on an axle secured to said bracket and receiving said take-up cable to change the direction of said cable, cable guide means secured to said bracket and adapted to be secured to the vehicle frame for mounting said bracket to the frame in force transmitting relation therebetween, means for guidably securing said bracket to said tunnel cover adjacent said handle, said bracket reaction member portion and said idler pulley axle and said force transmitting cable guide means being positioned to transmit substantially all of the brake reaction forces generated when tensioning said cable to said guide means for transmission to said frame member.

3,302,483
BICYCLE PEDAL CONSTRUCTION

Gerald Golden, Highland Park, and Charles V. Wrobel, Jr., Arlington Heights, Ill., assignors to Excel Incorporated, Franklin Park, Ill., a corporation of Illinois

Filed Nov. 24, 1964, Ser. No. 413,427

3 Claims. (Cl. 74—594.4)



1. In a bicycle pedal construction,

a pair of pedal treads generally I-shaped in cross section, each having spaced flanges having outer tread surfaces and a web connecting said flanges together,

a pedal shaft,

a hub rotatably mounted on said pedal shaft, a first cross bar extending from opposite sides of said pedal shaft and abutting one end of said hub,

a second cross bar abutting the opposite end of said hub and extending to opposite sides thereof, tread supports extending from said second cross bar for securement to said first cross bar, clamping plates of the height of the webs of said pedal treads and slightly longer than said pedal treads for clamping said pedal treads to said pedal supports,

each clamping plate having an emblem carrying opening therein having outwardly raised inwardly extending flanges forming an outwardly dished receptacle,

and an emblem recessed within said receptacle and extending through said opening,

and means securing said clamping plate to said tread support plates.

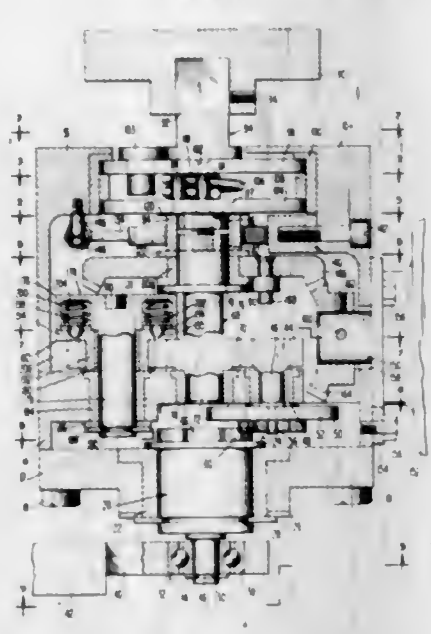
3,302,484
ACTUATING MECHANISM FOR MULTIPLE POSITION DEVICES

Lawrence J. Guido, Paoli, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Nov. 18, 1964, Ser. No. 412,189

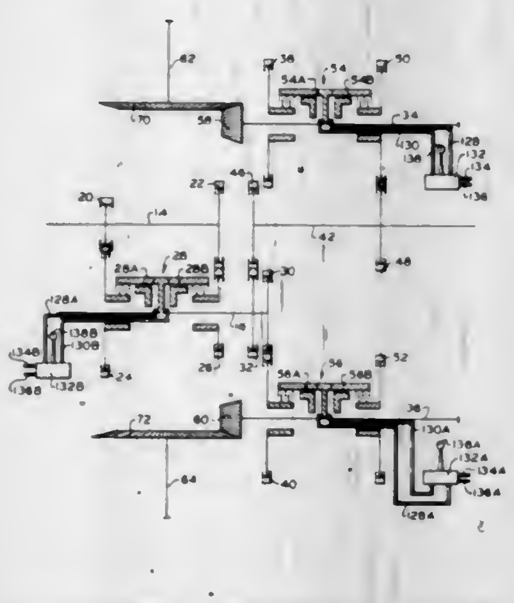
15 Claims. (Cl. 74—625)

3. A bidirectional actuating mechanism comprising, a rotatable member, means for rotating said member from one position to another in either direction, a first operating shaft, means including a resilient element resiliently coupling the first operating shaft to the rotating means, said resilient element being adapted to be stressed by movement of the first operating shaft to such an extent that when released it will actuate the rotating means independently of the first operating shaft, mechanism for detenting the rotating means in each said position, said mechanism cooperating with initial movement of the first operating shaft for stressing the resilient element to the extent mentioned and being responsive to further move-



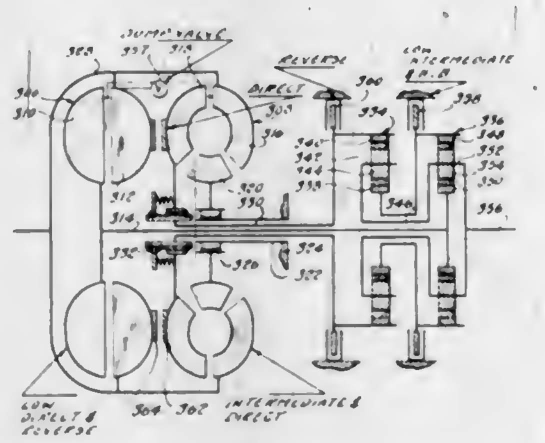
ment of the first operating shaft for releasing the resilient element, means for releasably locking said rotatable member in each said position, a second operating shaft, an intermittent motion mechanism operably coupled to the second operating shaft, means independent of the first operating shaft yieldably coupling the intermittent motion mechanism to the rotating means, and means providing a lost-motion coupling between the rotating means and the first operating shaft effective only in the event of failure of the resilient element.

3,302,485
MULTIPLE SPEED FORWARD AND REVERSE TRANSMISSION
Chris Gerst, Detroit, Mich., assignor to Dana Corporation, Toledo, Ohio, a corporation of Virginia
Filed Mar. 23, 1964, Ser. No. 353,703
13 Claims. (Cl. 74—665)



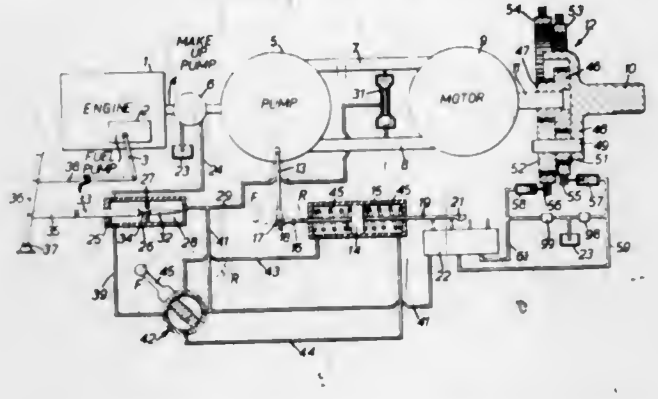
1. A counterrotating transmission comprising a first shaft, a first and a second clutch shaft, an intermediate shaft, first gear means including a first gear mounted on said intermediate shaft constantly drivingly connecting said first shaft and said intermediate shaft for simultaneous rotation in opposite directions, second gear means carried by said first shaft and said first and second clutch shafts and including a first and a second clutch means, said second gear means being operative to drive said clutch shafts in the same direction with respect to each other and with respect to said intermediate shaft, said first and second clutch means being independently operable and adapted to selectively couple said first and said second clutch shafts to said first shaft respectively, and third gear means carried by said intermediate shaft and said first and said second clutch shaft and including a third and fourth clutch means, said third gear means including a second gear mounted on said intermediate shaft and axially displaced along said intermediate shaft from said first gear, said third gear means being operative to drive said first and second clutch shafts in the same direction with respect to each other and in the opposite direction with respect to said intermediate shaft, said third and fourth clutch means being independently operable and adapted to selectively couple said first and second clutch shafts to said intermediate shaft respectively.

3,302,486
DUAL TURBINE HYDROKINETIC POWER TRANSMISSION MECHANISM
Martin G. Gabriel, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Oct. 31, 1963, Ser. No. 320,258
2 Claims. (Cl. 74—677)



1. A hydrokinetic power transmission mechanism adapted to deliver driving torque from a driving member to a driven member, a pair of simple planetary gear units, each gear unit comprising a ring gear element, a sun gear element, a carrier element and planet pinions rotatably journaled upon said carrier element in meshing engagement with said sun and ring gear elements, brake means for selectively anchoring one element of each gear unit, another element of one gear unit being connected to said driven member, a hydrokinetic torque converter unit comprising an impeller and a turbine disposed in a common torus circuit in fluid flow relationship, a hydrokinetic fluid coupling comprising a turbine and an impeller disposed in a common torus circuit fluid flow relationship, said impellers being connected to said driving member, a first connection between said coupling turbine and a first power input element of said gear units, a second connection between a second power input element of said gear units and the turbine of said converter, said converter being adapted to be filled and emptied to establish and interrupt a hydrokinetic torque delivery path between its associated power input element and said driving member whereby a speed ratio shift can be accomplished hydrokinetically, said coupling being adapted to be filled with fluid to establish low speed ratio operation when said converter is emptied and said converter being adapted to be filled to establish intermediate speed ratio operation when said fluid coupling is emptied, both the fluid coupling and the converter being filled to establish direct drive operation, and friction clutch means for connecting directly together the turbine of said converter and the impeller of said fluid coupling for rotation in unison thereby reducing the hydrokinetic slip under torque delivery conditions.

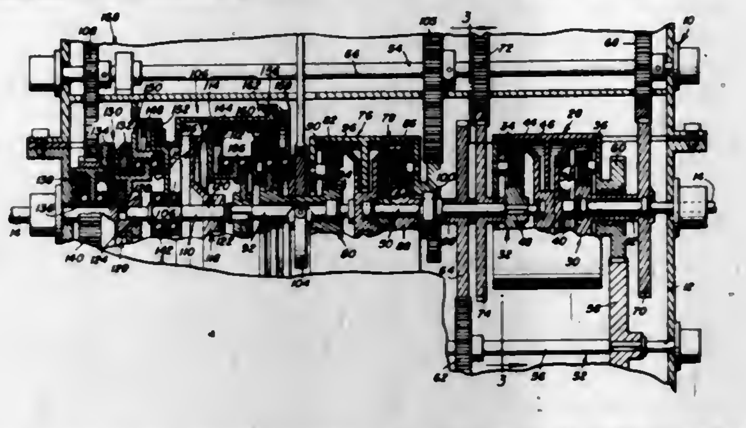
3,302,487
POWER TRANSMISSION
Bertram Carl Kempson, Cheltenham, England, assignor to Dowty Hydraulic Units Limited, Gloucester, England, a British company
Filed Sept. 20, 1963, Ser. No. 310,410
Claims priority, application Great Britain, Sept. 26, 1962, 36,593/62
5 Claims. (Cl. 74—733)



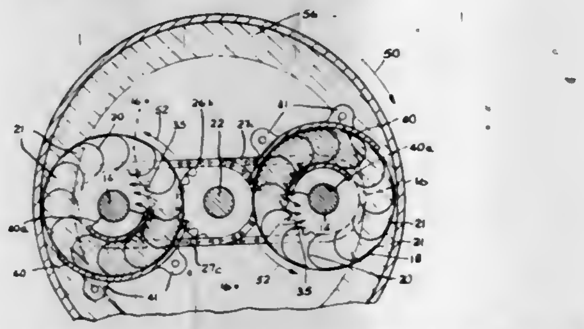
1. In combination with a power source, a positive displacement hydraulic pump driven by the power source, and a positive displacement hydraulic motor hydraulically connected to the pump to form a hydraulic power transmission, a step-change mechanical gear box driven by the motor and having at least two mechanical gear ratios, a hydraulic transmission speed control means which is adjustable to vary the output speed of the hydraulic transmission, and responsive to a change in the pump speed to vary the output speed of the hydraulic transmission in the sense of maintaining the pump speed constant, and gear change means operative to select one gear ratio at a time, and responsive to adjustment of the hydraulic transmission speed control means to a setting corresponding to a relatively low hydraulic transmission speed, to select the lower fixed gear ratio, and to adjustment of the transmission speed control means to a setting corresponding to a relatively high hydraulic transmission output speed to select the higher fixed gear ratio, said gear change means including a depressible actuator member for each gear ratio, of which that corresponding to the lower gear ratio is operative to engage the lower gear ratio and disengage the higher ratio when depressed, and that corresponding to the higher ratio is operative to engage the higher gear ratio and disengage the lower gear ratio when depressed, and a cam member which is operative to depress the first described actuator member when the hydraulic transmission speed control means is adjusted to its relatively low speed setting, and to depress the second described actuator member when the hydraulic transmission speed control means is adjusted to its relatively high speed setting.

3,302,488
AUTOMATICALLY VARIABLE PLANETARY TRANSMISSION
Frederick J. Graff, 190 S. Main St., St. George, Utah 84770
Filed Feb. 5, 1963, Ser. No. 256,423
21 Claims. (74—751)

1. In a transmission driven by a torque producing engine, torque dividing means operatively connected to said engine for operatively establishing a plurality of power paths from said engine, torque combining means operatively connected to said power paths, output means driven by said torque combining means through one or more of said plurality of power paths, drive ratio establishing means operatively engageable with the torque combining means and the torque dividing means to initiate drive through one of said plurality of power paths at a predetermined drive ratio between the engine and the output means, and torque ratio responsive means operatively connecting said output means to the torque combining means for rendering same effective to transmit power at variable drive ratios through said plurality of power paths above a predetermined torque ratio between the engine and the output means and at a fixed drive ratio below said predetermined torque ratio.



3,302,489
INERTIA FLUID TORQUE TRANSMITTER
Hendrik Cancrinus and Eric Helmüt Friedmann, Cape Town, Cape Province, Republic of South Africa, assignors to Inpower Works (Proprietary) Limited, Cape Town, Cape Province, Republic of South Africa
Filed Oct. 7, 1963, Ser. No. 314,340
Claims priority, application Republic of South Africa, Oct. 19, 1962, 62/4,388
20 Claims. (Cl. 74—752)



1. A torque transmitter which comprises a carrier; at least one planet wheel mounted on the carrier to rotate about its own axis; a drum adapted for containing liquid and being co-axial with the carrier and a second axis, the carrier and drum being mounted to rotate about the second axis; drive connecting means connected to the carrier for connecting it to a source of rotary power; a driven wheel co-axial with the second axis; connecting means connected to the driven wheel for connecting it to a load to absorb rotary power; the planet wheel and the driven wheel being drivingly connected; a plurality of vanes of curved section for entrapping liquid and being fast with the planet wheel and spaced circumferentially away from and around the planet wheel axis, and having openings defined between inner and outer lips directed in one direction about the planet wheel axis, there being provided radial openings between the inner lips of adjacent vanes on the near side of the planet wheel axis, and also radial openings between the outer lips of adjacent vanes on the far side of the planet wheel axis; at least one curved inner shroud fast with the carrier and extending arcuately along part of the inner lips of the vanes for engaging sealingly with the inner lips of the vanes to seal off at least one radial inner opening between the lips of adjacent vanes for preventing rejection of liquid over the inner lips of the vanes; whereby when the quantity of liquid is placed in the drum, and when the carrier and the drum are rotated, the liquid is flung out in an annular layer against the inner peripheral surface of the drum under the action of centrifugal force, and whereby when the planet wheel rotates about its axis, the curved vanes pass through

the annular layer of liquid and entrap liquid in them and displace the entrapped liquid inwardly away from the periphery of the drum in a direction towards the second axis, and whereby the inner shroud prevents the rejection of liquid over the inner lips of the vanes until the vanes have rotated beyond the inner shroud, the mass of entrapped liquid being subjected to centrifugal force and generating a moment about the planet wheel axis which is transmitted from the planet wheel to the driven wheel, thus providing a torque about the second axis, available to drive a load.

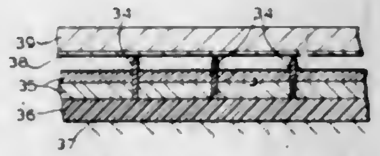
3,302,490
METHOD OF MAKING AN ARCUATE FORME FOR CUTTING AND CREASING SHEET MATERIAL

Thomas Desmond Bishop, Solihull, England, assignor to The Deritend Engineering Company Limited, Birmingham, England, a British company

Filed Aug. 19, 1964, Ser. No. 390,683

Claims priority, application Great Britain, Aug. 28, 1963, 33,971/63; Sept. 5, 1963, 35,028/63; Sept. 27, 1963, 38,086/63

1 Claim. (Cl. 76—107)



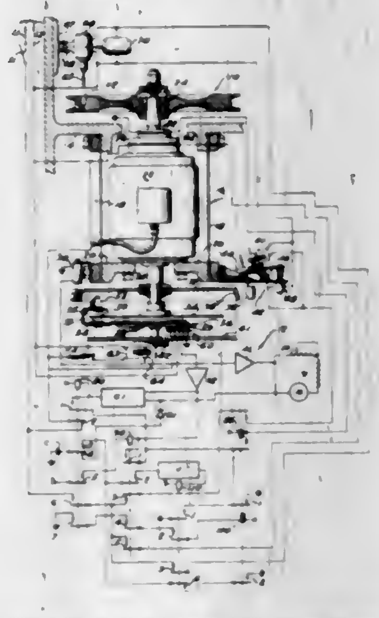
A method of making an arcuate forme for cutting and creasing sheet material, comprising the steps of supporting an arcuate plate of a tough, strong indentable material on a roll, supporting at least one rule for movement tangentially of the arcuate plate, in a position perpendicular to the surface of the plate, applying pressure to the working edge of the rule to indent the plate by embedding the opposite edge of the rule in the plate, rotating the roll and simultaneously moving the rule tangentially of the plate in the same direction and at the same velocity as the surface of the plate to continue the embedding of the rule in the plate.

3,302,491
AUTOMATIC UNBALANCE LOCATION AND BALANCE APPARATUS

Thomas E. Bjorn, Northbrook, and Norman H. Kadivnik, Morton Grove, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia

Filed Oct. 16, 1964, Ser. No. 404,237

7 Claims. (Cl. 77—5)



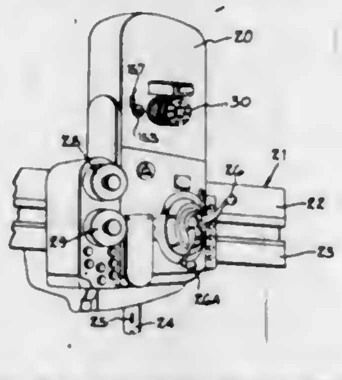
1. An arrangement for locating a position of unbalance in a rotatable workpiece comprising first means adapted to rotate with said workpiece, second means adapted to rotate independently of said workpiece, third means for generating a pulse each time said first and second means are in a predetermined spacial relationship to each other, fourth means for generating a pulse each time said position of unbalance passes through a predetermined plane, means for terminating rotation of said second means in response to the simultaneous generation of said pulses, and for slowing rotation of said workpiece and said first means without stopping rotation of said workpiece, and means operable responsive to the subsequent realignment of said first and second means in said predetermined spacial relationship for thereafter terminating rotation of said first means and workpiece to locate said position of unbalance in said plane.

3,302,492
SENSING DEVICE

Miles L. Weidig, Kenwood, Ohio, assignor to The Carlton Machine Tool Company, Cincinnati, Ohio, a corporation of Ohio

Filed Nov. 17, 1964, Ser. No. 411,865

4 Claims. (Cl. 77—32.1)



1. An apparatus for automatically controlling a traversing spindle carrying a tool in a machine comprising a spindle, a tool in said spindle, hydraulic fluid means for effecting traverse of said spindle, said hydraulic fluid exerting fluid pressure in response to presettable automatic control means, and presettable control means initially operable to move said spindle to contact with a workpiece, means for stopping the flow of fluid pressure upon contact of said tool in said spindle with said workpiece a power feed, and means for simultaneously engaging said power feed, when said tool contacts said workpiece, comprising, a pressure switch, an electrical element in said pressure switch, said electrical element in said switch producing a signal when the flow of fluid pressure is stopped, a power feed for said spindle, said power feed activated by said signal from said electrical element, and means for feeding said tool into a workpiece to a predetermined depth and means for rapidly retracting said spindle and tool from said workpiece after a predetermined depth of said tool has been reached.

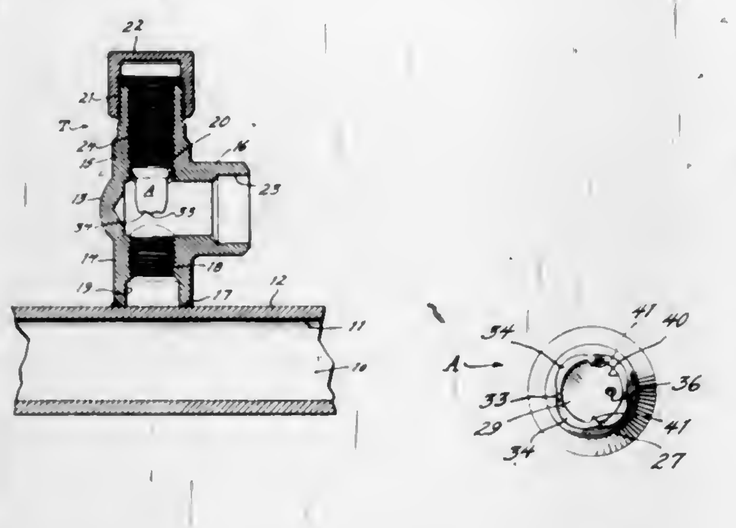
3,302,493
TAPPING T TOOL HAVING PENETRATING END WITH THREADED BORE

William L. Hulslander, Charles Glover, and Robert N. Paterson, all of Bradford, Pa., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed June 1, 1964, Ser. No. 371,626

7 Claims. (Cl. 77—42)

1. In a tapping T for pipe formed of extrudable material, comprising a body portion adapted to be secured to a pipe and having an internally threaded bore directed radially toward the pipe and a tapping tool having a threaded shaft portion screwed into said threaded bore, an outer end portion having a wrench-engaging means and a hollow inner end portion having a pipe wall penetrating edge and a bore extending into said tool from said edge, said tool being rotatable by said wrench-engaging means to screw said tool toward a pipe on which said body portion is secured to force said penetrating edge into the pipe wall to form a hole therein, whereby a portion of material of said wall is extruded into said bore to form a core, the improvement which consists in providing in said bore adjacent said penetrating edge at least one thread cutting projection of small circumferential extent projecting inwardly toward the axis of said bore to form in said core as it is extruded into said bore at least one thread having a pitch variable in accordance with the rate of extrusion of material into said bore, the interengagement of said at least one projection and thread acting to retain said core in said bore when said tool is withdrawn from said hole by rotation in the opposite direction.



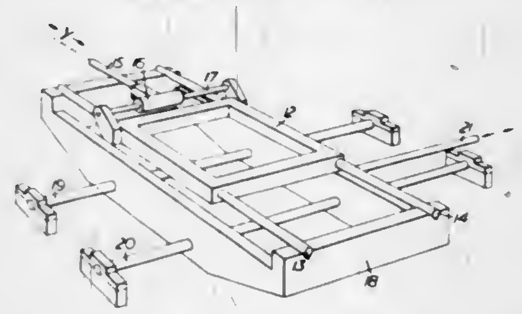
3,302,494
AUTOMATIC DRILLING MACHINE

Patrick Arnold Taysom, Cardiff, Wales, and Robert Edwin Kirk, Brookmans Park, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed May 27, 1964, Ser. No. 370,520

Claims priority, application Great Britain, July 8, 1963, 26,972/63

1 Claim. (Cl. 77—63)



In an automatic drilling machine, a drilling table and means for positioning said drilling table and a workpiece carried thereby with respect to the drill bit of said drilling machine, said drilling table comprising a four-sided frame open in the center for accommodating said workpiece and a plurality of clamps positioned on one side of said four-sided frame for holding an edge of said workpiece, said drilling table having in cooperative arrangement therewith a centrally located spindle for supporting said workpiece at a point directly opposite the drilling position of said drill bit, said means for positioning said drilling table comprising a pair of parallel rods and a frame in which said parallel rods are journaled, said drilling table being slidable upon said parallel rods, a shaft mounted on two brackets respectively positioned on either side of said drilling table and passing through a sleeve, a drive shaft coupled to said sleeve for moving said drilling table in a direction parallel to said pair of rods, said pair of rods being in turn supported by a four-sided frame, said frame being movable in a direction orthogonal to the direction in which said drilling table slides upon said pair of rods, said frame having means for moving it in said orthogonal direction to impart a second dimension to the positioning of said drilling table and said workpiece with respect to said drill bit.

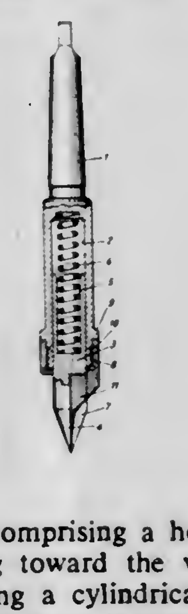
3,302,495
COUNTERSINK

Edgar Schmid, Mulhestrasse 485, Gerlafingen, Switzerland

Filed July 30, 1964, Ser. No. 386,260

Claims priority, application Switzerland, Aug. 6, 1963, 9,710/63

5 Claims. (Cl. 77—73.5)



1. A countersink comprising a holder having a longitudinal bore opening toward the working end thereof, a centering pin having a cylindrical portion slidable in and accurately guided by said bore, said centering pin having at its outer end a conical centering surface for engaging the rim of a bore in a workpiece and at least one longitudinal peripheral groove therein, a cutting member having an annular portion disposed about said centering pin and removably secured to the working end of said holder, at least one cutting part integral with the annular portion of said cutting member and extending axially outwardly therefrom, said cutting part extending radially inwardly into said groove of said centering pin and having an inclined cutting edge defining with the axis of the tool and angle equal to or greater than the corresponding angle of said conical centering pin surface, spring means acting between the bore in said holder and the centering pin to urge the latter outwardly toward the work and in engagement with the rim of a hole to be countersunk, and stop means on said centering pin and said member to limit outward axial movement of the centering pin under the action of said spring.

3,302,496
POWER-OPERATED WRENCH

Colin Campbell Mitchell and William David Stevenson, Edinburgh, Scotland, assignors to F.N.R.D. Limited, London, England, a British company

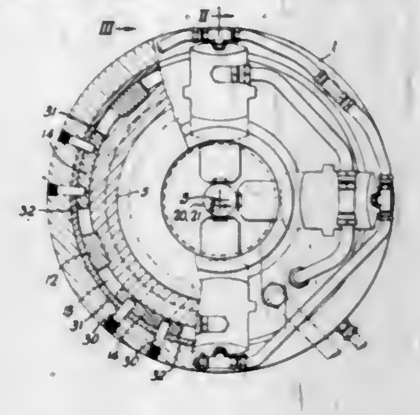
Filed Oct. 23, 1964, Ser. No. 406,073

Claims priority, application Great Britain, Oct. 25, 1963, 42,209/63

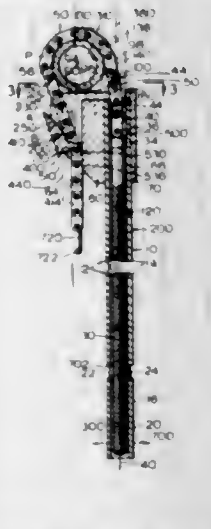
10 Claims. (Cl. 81—53)

1. Power means for making and breaking a twist joint between two members, comprising two interacting assemblies adapted for rotation relative to one another about the common axis of said twist joint and each having gripping devices, one for gripping one of said members and the other for gripping the other member, one of said interacting assemblies being provided with at least one vane member extending into a co-operating arcuate passage formed in the other of said interacting assemblies,

and means for introducing actuating fluid into said cooperating passage to one side of said vane member to cause powered relative movement in one sense between said vane member and an end wall of said passage to cause relative movement between said two assemblies, and therefore between said two members, to make said twist joint between them, and to the other side of the vane member to cause powered relative movement in the opposite sense between said two assemblies, and therefore between said two members, to break said twist joint.

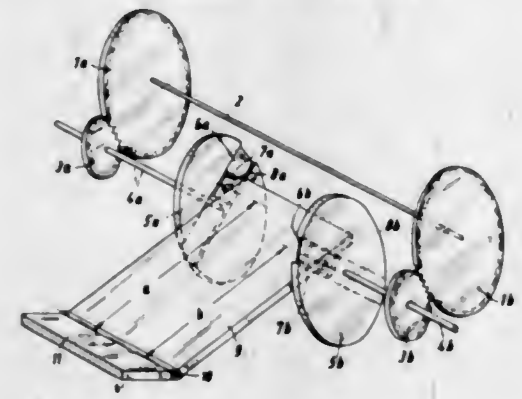


3,302,497
CHAIN PIPE WRENCH
Dale D. Paden, 1682 Whitmore, Omaha, Nebr. 68112
Filed Feb. 23, 1965, Ser. No. 434,446
4 Claims. (Cl. 81—65)



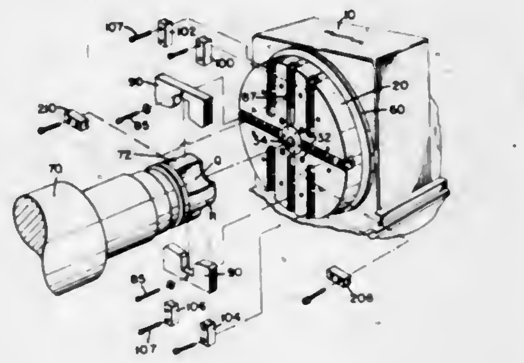
1. A wrench comprising: an elongated handle having a gripping end and an outer end, a head attached to said outer end of said handle, a jaw forming a part of said head and attached to the remainder of said head, said jaw having a gripping surface, said gripping surface being disposed at approximately a right angle to the elongation of said handle and facing away from said gripping end thereof, an elongated flexible puller having a first portion disposed adjacent one end of said gripping surface, means for moving said first portion of said puller transversely of said gripping surface in a direction toward said gripping end of said handle, said puller having a second portion of approximately U-shape when in use and having one end attached to said first portion, said puller having a third portion having one end attached to the other end of said second portion, and means attaching said third portion of said puller to said wrench head, said head having a puller engaging portion disposed adjacent one end of said gripping surface, said puller engaging portion being in a position for engaging said first portion of said puller to hold said first portion of said puller at a substantial spacing from the central portion of said gripping surface, the position of attachment of said third portion of said puller to said head being substantially spaced from said engaging portion of said head in a direction transversely of said handle, said wrench having an open space on that side of said third portion of said puller which faces away from said first puller portion to permit said third portion to move laterally toward and away from said engaging portion of said head so as to assume positions of varying inclination with respect to the elongation of said handle, whereby when a cylindrical pipe is disposed between said jaw and said second portion of said puller at a time when said puller has a slight amount of slack between it and said pipe, a rotating of said handle around the axis of said pipe in a clockwise direction as said wrench is viewed from a side thereof which disposes said first puller portion on the right-hand side of said second puller portion will cause said pipe to roll across said jaw from a first position in which said pipe is disposed at a first distance from said engaging portion of said head, in which first position said puller can slide freely around said pipe because of said slack, to a second position in which the axis of said pipe is disposed at a second and sufficiently greater distance from said engaging portion of said head that the slack is removed from said puller, said means for moving said first portion of said puller comprising the provision of an elongated opening through said handle extending transversely to said gripping surface, a threaded shaft extending longitudinally through said handle opening, said threaded shaft being freely slidable longitudinally of said handle, means attaching said threaded shaft to said first portion of said puller, a threaded hand grip threadedly attached to said threaded shaft and disposed at the outer end of said handle and rotatable with respect to the outer end of said handle, said hand grip being of a size sufficiently large to receive the full grip of an operator's hand, said handle opening having an end adjacent said head which has an approximate circular cross section providing an axis, that end of said gripping surface which is closest to said handle being disposed substantially closer to the adjacent edge of the wall of said handle opening than to the axis of the handle opening.

3,302,498
APPARATUS FOR MACHINING NON-CIRCULAR PROFILES
Georg Spinner, Erzgiessereistr. 33, Munich, Germany
Filed Aug. 12, 1964, Ser. No. 389,150
Claims priority, application Germany, Aug. 23, 1963,
S 86,877
8 Claims. (Cl. 82—18)



1. A machine tool comprising a rotatable spindle, workpiece gripping means carried by said rotatable spindle, drive means for rotating said rotatable spindle, a cross slide rest, a machining tool mounted on the cross slide rest, and a control apparatus for transversely displacing said cross slide rest, said control apparatus comprising a transmission, said transmission having an output connected to said cross slide rest and an input, means for coupling said input to said drive means, said transmission being designed to effect a periodic extension and retraction movement of the cross slide rest in response to a constant input speed so that the tool which engages the workpiece performs a substantially non-circular motion relative to the workpieces said transmission further comprising a link which is pivoted at one end to said cross slide rest, an output shaft rotating at a constant speed, two members mounted on said output shaft for rotation therewith, each of said members being provided with a guide, each of said guides having a slide block slidably mounted therein, said guides extending substantially at right angles to each other, two pivot pins spaced in the longitudinal direction of said link, each of said pivot pins being arranged to pivotally connect said link to one of said slide blocks.

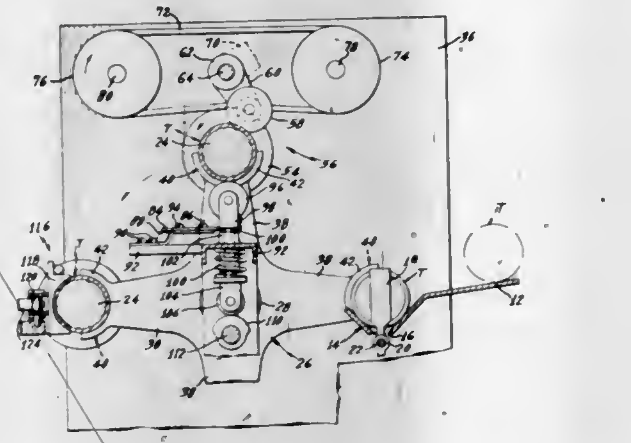
3,302,499
APPARATUS FOR CHUCKING WORKPIECES
Jack N. Binns, 4886 Oaklawn Ave., Cincinnati, Ohio 45227, and Carl E. Clutter, Mason, and Roger G. Heaton, Amelia, Ohio; said Clutter and said Heaton assignors to said Binns
Filed Oct. 4, 1963, Ser. No. 313,866
14 Claims. (Cl. 82—40)



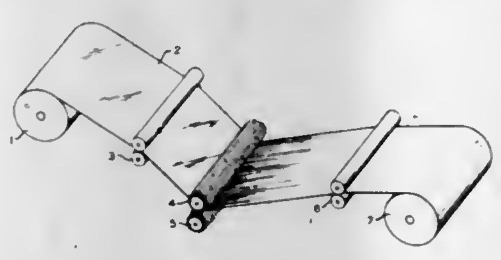
6. A lathe chuck for clamping a workpiece having an axis of rotation and a pair of rigid lugs extended radially outwardly from said axis, said chuck comprising a circular body having a face and an outer perimeter, and means for mounting the body concentrically upon a lathe spindle for rotation therewith, a set of four radial clamp jaws and means on the body for shifting the jaws toward and from the axis of the chuck body, two of said jaws being opposed along a vertical line, and the remaining two jaws being opposed along a horizontal line, and a second set of four offset clamp jaws including means to shift the jaws of said second set toward and from a vertical line passing through the chuck body axis of rotation, the four jaws of the second set being parallel to and laterally spaced from the horizontal jaws of the first set of jaws, with two jaws of the second set aligned with one another at one side of the horizontal jaws, and the remaining two jaws of the second set being aligned with one another at the opposite side of the horizontal jaws, the aligned jaws of the second set at opposite sides of the horizontal jaws being laterally spaced apart a distance approximating the span of the radially extended lugs of the workpiece.

3,302,500
ARTICLE POSITIONING APPARATUS
Robert Ronald Hackenberger, Mexico, Leon Eugene Hackenberger, Thompsontown, and Horace Clayton Fritz, Jr., Duncannon, Pa., assignors to American Can Company, New York, N.Y., a corporation of New Jersey
Filed June 24, 1964, Ser. No. 377,764
4 Claims. (Cl. 82—97)

1. Apparatus for cutting a cylindrical tubular article into several container bodies comprising a cylindrical mandrel, said mandrel having an outside diameter slightly smaller than the inside diameter of said tubular article, means to move said article axially and onto said mandrel, gauging means adjacent to one end of said mandrel for engaging the leading end of said article and positively positioning said article with respect to said mandrel, means for rotating said mandrel and said article thereon, a plurality of cutting knives having cutting edges extending perpendicularly to the longitudinal axis of said mandrel for cutting said article into several container bodies, a skew roll rotatably mounted with its axis of rotation lying at an obtuse angle to said mandrel, said skew roll being spring biased against the outer surface of said article to urge said article against said gauging means when said mandrel and said article are rotated.



3,302,501
METHOD OF FIBRILLATING PLASTIC FILM BY PASSING THE FILM THROUGH ROTATING PIERCING MEANS
Max E. Greene, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Sept. 24, 1965, Ser. No. 490,024
6 Claims. (Cl. 83—2)

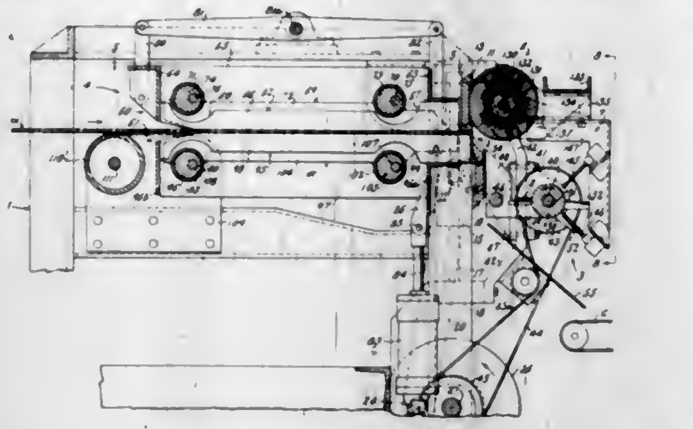


4. A method for pretreating a film for subsequent fibrillation comprising partially penetrating the film at a plurality of points by passing a plurality of piercing means into said film and withdrawing said piercing means therefrom without substantial movement of said piercing means in a direction substantially perpendicular to the thickness axis of said film.

3,302,502
METHOD AND APPARATUS FOR DICING MATERIAL
Paul Geyer, Detroit, Mich., assignor to United States Rubber Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 22, 1964, Ser. No. 405,750
6 Claims. (Cl. 83—44)

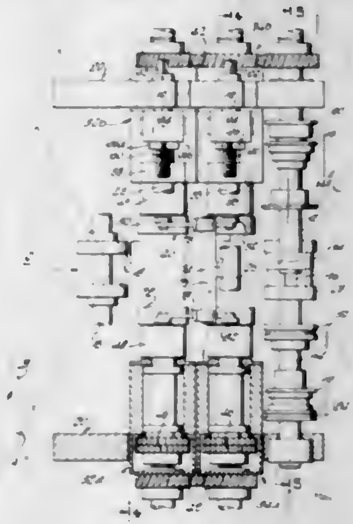
1. A method of cutting a longitudinally extending web of sheet material into a plurality of small pieces, comprising: transversely and repeatedly slicing said web to form elongated, narrow strips of said material; and cut-

ting each of said strips at a plurality of points along its length to form said plurality of small pieces, the plurality of cuts in each individual strip being progressively made during a common cutting stroke.



3,302,503
BLANK CUTTING DEVICE

Helmut Hornung, Westchester County, N.Y., assignor to F. L. Smithe Machine Company, Inc., New York, N.Y., a corporation of New York
Filed Nov. 5, 1964, Ser. No. 409,151
12 Claims. (Cl. 83—300)

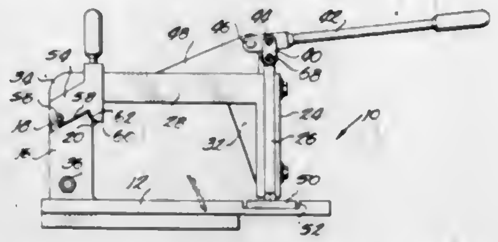


6. In a machine for cutting blanks to a predetermined configuration, means for directing blanks one after the other through the machine, support means including a pair of side frame means and a member extending between said pair of side frame means, said side frame means having formed openings therein, drive means, a plurality of cutting units each including a housing and a pair of rotary cutting assemblies carried by said housing and cooperating with each other to cut away a portion of each blank as it passes through the machine, said or each cutting unit being operatively and removably connected to said drive means, and means removably connecting said units to said member to be supported thereby and for selective removal therefrom by displacing said units toward the center of said machine when any one of said units requires sharpening, so that when one unit is removed it can be replaced by an identical unit to enable the operation of the machine to continue.

3,302,504
PUNCH PRESS

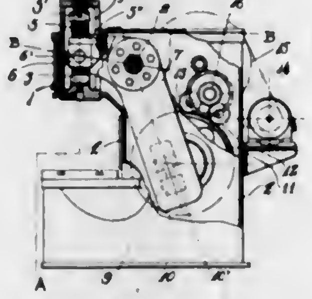
William J. Fisher, Du Page County, Ill. (5737 Dover Drive, Lisle, Ill. 60532)
Filed Oct. 30, 1964, Ser. No. 407,637
2 Claims. (Cl. 83—564)

1. Punching apparatus comprising a base, an upright standard secured to said base, a frame having a first arm pivotally mounted on said standard and a second arm extending over said base in spaced relation thereto, said standard having an inclined upper surface and a shoulder, a latch pivotally mounted on said first arm, said latch having a tang adapted to engage said shoulder to lock said frame in operative position, a guide mounted at the end of said second arm and extending in spaced parallelism to said first arm, a first die slidably disposed in said guide, a cooperating second die received in said base, said frame being swingable from a position in which said first and second dies are in cooperating relation to a position in which said first die is away from said second die.



3,302,505
MACHINE PRESS

Shozo Shiokawa, Toyonaka, Osaka-fu, Japan, assignor to Hiroyasu Shiokawa, Toyonaka, Japan
Filed Jan. 11, 1965, Ser. No. 424,786
Claims priority, application Japan, Jan. 17, 1964, 39/2,815
2 Claims. (Cl. 83—628)

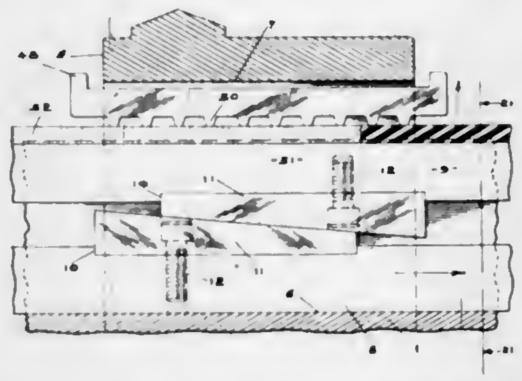


1. A machine press comprising a C-type frame, a supporting shaft in said frame, a lever rotatably supported on said supporting shaft and having one end in the lower part of said frame and having a slot in said one end, a crankshaft slidably mounted in said slot, a gear wheel rotatably mounted in said frame and on which said crankshaft is eccentrically mounted, a flywheel shaft rotatably mounted in said frame, a flywheel on said flywheel shaft, a pinion gear on said flywheel shaft, two intermediate pinions meshed with said pinion gear and said gear wheel, the other end of said lever having two heads thereon, a nut rotatably mounted between the two heads on said other end of said lever, a ram adjusting threaded shaft threadedly mounted in said nut, a hollow ram slidably mounted in the end of the C-type frame for vertical movement therein, and supporting members on both ends of said ram between which said threaded adjusting shaft is mounted, said ram having an opening in the back thereof through which said two heads on said lever enter the ram.

3,302,506
PRINTER-SLOTTER MULTIPLE HEAD LOCK

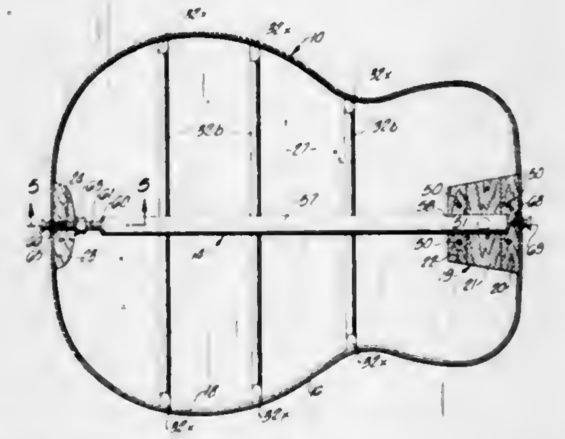
Charles T. Turner and Orville L. Appler, Baltimore, Md., assignors to Flynn & Emrich Company, Baltimore, Md., a corporation of Maryland
Filed Dec. 4, 1964, Ser. No. 415,936
11 Claims. (Cl. 83—665)

1. A multiple head lock for printer-slotters and the like including a shaft mounted for rotation around an axis and having blank working heads longitudinally adjustable thereon, the periphery of the shaft closely fitting the hub of the heads, the heads having a keyway in their inner surface, the shaft having a radial longitudinally adjustable lift bar in the base of said slot, a radially movable locking bar spaced radially outside the lift bar in the slot and extending into the keyway in the heads to axially locate the heads on the shaft, means in the keyway to receive the impingement of the locking bar thereon, said bars having a plurality of mutually engaging longitudinally spaced wedges on adjacent faces thereof, whereby longitudinal movement of the lift bar projects the locking bar to locking position against said means in the keyway in the heads, to lock the heads longitudinally on the shaft, the keyway in the interior surface of the hub of the head having a resilient pad facing the shaft secured in said keyway, the locking bar having teeth projecting radially outwardly thereon and projecting into said keyway and on extending the locking bar by adjustment, firmly impinging upon the resilient pad to lock the head on the shaft.



3,302,507
GUITAR, AND METHOD OF MANUFACTURING THE SAME

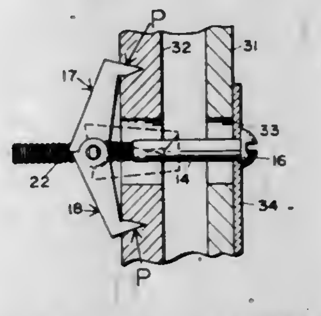
Clarence L. Fender, Fullerton, Calif., assignor, by mesne assignments, to Columbia Broadcasting System, Inc., New York, N.Y., a corporation of New York
Filed June 7, 1963, Ser. No. 286,216
24 Claims. (Cl. 84—267)



1. An acoustic guitar, which comprises
a hollow wooden body having top and bottom sound boards generally parallel to each other,
a neck,
means to connect said neck to said body,
neck-truss means mounted longitudinally is said neck, said neck-truss means being adjustable to vary the curvature of said neck,
body-truss means mounted in said body in general alignment with said neck-truss means,
said body-truss means being adjustable independently of said neck-truss means to vary the forces in said top sound board,
means to operably associate with each other the adjacent end portions of said neck-truss means and body-truss means, and
a plurality of guitar strings mounted in tensioned relationship over said neck and over said top sound board and connected thereto.

3,302,508
TOGGLE BOLT

Sam B. Topf, Coral Gables, Fla., assignor of one-half to Louis Rolnick, Miami Beach, Fla.
Continuation of application Ser. No. 354,903, Mar. 26, 1964. This application Mar. 15, 1966, Ser. No. 543,445
1 Claim. (Cl. 85—3)



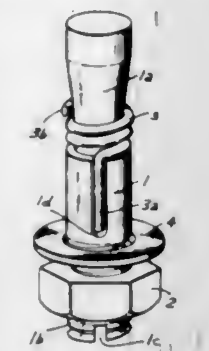
A toggle bolt having a nut, a screw having a head portion at one end threadedly mounted in said nut along the other end, said nut having a pair of lugs extending in opposite directions and in substantially coplanar relationship, a pair of wing members, said wing members having an elongated main wall portion with side walls extending at substantially right angles along edges of said main wall portion, said side walls having a bore for pivotally mounting said wing members on said lugs, said main wall portions having a substantially semi-circular opening along one end thereof permitting said screw to pass freely therethrough, said end of said main wall portions having shoulders which engage each other to limit the swinging movement of said wing members, spring means mounted on one of said lugs and engaging said wing members yielding urging said wing members to swing to their extended position and prong members mounted in substantially coplanar relation with said side walls at said other end of said wing members and extending beyond said side walls toward said head portion of said screw, said prongs each having an outer edge portion extending at substantially a right angle to said main wall portions, an inner edge portion substantially parallel to said outer edge portion, and an inclined edge portion forming a substantially acute angle with said outer edge portion and an obtuse angle with said inner edge portion for resisting the outward movement of said prongs from the wall resulting from pushing said nut inwardly thus causing the prongs to more firmly grip the wall between them.

3,302,509
EXPANSION ANCHOR

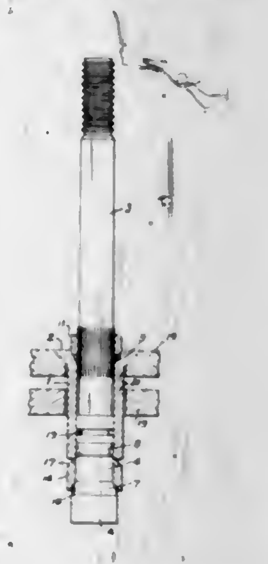
Henry J. Modrey, 158 Eagle Drive, Stamford, Conn. 06903
Filed Apr. 3, 1964, Ser. No. 357,073
8 Claims. (Cl. 85—64)

1. An expansion anchor for locking in a mounting hole formed in a support member, said anchor comprising a bolt having a cylindrical portion and a tapered portion of circular cross-section outwardly tapered from the respective end of the cylindrical portion toward the respective end of the bolt, said cylindrical portion including a lengthwise recess in its outer wall, an elastic locking member in the form of a spirally wound wire encompassing said tapered portion and having a maximum inner diameter less than the maximum outer diameter of said tapered bolt portion and larger than the minimum outer diameter thereof, said locking member being radially expandible between a relaxed position of minimum inner diameter and a tensioned position of expanded inner diameter, one end of said locking member terminat-

ing in a bent-off tang engaging said recess lengthwise slidable therein in the relaxed position and also in the tensioned position of the locking member to hold said member rotationally captive on the bolt but lengthwise displaceable in reference thereto, said locking member upon insertion of the anchor into the mounting hole and retraction of the bolt in reference to the locking member being radially expanded by engagement with said tapered bolt portion whereby the locking member engages the hole wall along substantially the entire circumference of the locking member.

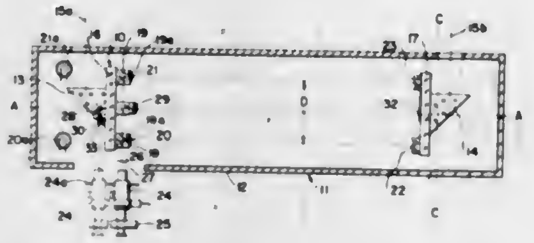


3,302,510
DIE-DRAW BLIND RIVET WITH NON-DEFORMING DIE
Roland H. Gapp, Santa Ana, Calif., assignor to Textron Industries, Inc., a corporation of Delaware
Filed Nov. 27, 1964, Ser. No. 414,317
4 Claims. (Cl. 85—77)



1. A rivet assembly for tightly securing sheets together, said rivet assembly including,
(a) a tubular rivet shank fitting into aligned holes in the sheets,
(b) a rivet head on one end of said rivet shank,
(c) a tail on the other end of said rivet shank,
(d) a stem extending through said tubular rivet tail, shank and head,
(e) a pulling portion of said stem extending beyond said rivet head and being slidable through said rivet,
(f) a cylindrical portion on said stem adjacent the rivet tail,
(g) an elongated and radially enlarged blind head on the blind end of said stem,
(h) a joining portion connecting said blind head to said cylindrical portion, said joining portion being tapered converging from the diameter of said blind head to the diameter of said cylindrical portion,
(i) the improvement of a substantially non-deformable die surrounding said cylindrical portion between said joining portion and said rivet tail,
(j) said die having a tapered socket in the end thereof adjacent to and bearing on said tapered joining portion,
(k) the relative hardness and ductility of the stem, the die and the rivet shank being such that when the rivet is set the non-deforming die is pulled into the rivet tail and expands the tail against the adjacent sheet and then clinches the sheets together and then resists further pull into said rivet tail whereby continued pull of the stem wiredraws said joining portion and said enlarged blind head through said die and into said rivet shank and rivet head,
(l) means to interlock said rivet head and stem in said wiredrawn position.

3,302,511
OPTICAL SYSTEM FOR DETERMINING DEVIATION IN BODY ORIENTATION
Allister L. Baker, Denville, George Geier, Teaneck, and Conway D. Hillman, Millburn, N.J., assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
Filed June 30, 1961, Ser. No. 121,133
7 Claims. (Cl. 88—14)



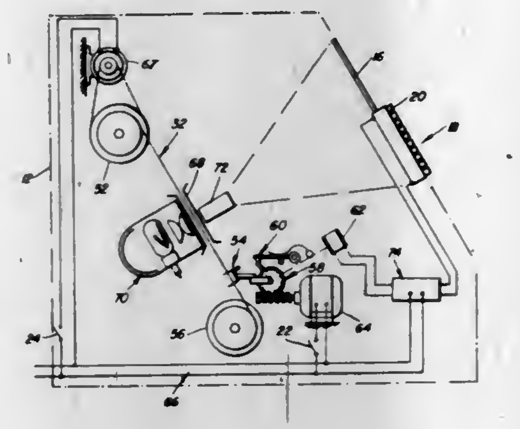
1. Optical means for determining deviation in relative orientation about three mutually perpendicular axes of two bodies lying on a major datum axis comprising:
(a) first indexing means connected to the first of said bodies;
(b) second indexing means connected to said first body and lying in a common plane with said first indexing means, said plane being perpendicular to said datum axis;
(c) an objective connected to said first body;
(d) third indexing means connected to said first body and disposed at the focal plane of said objective;
(e) first image-forming reflecting means connected to the second of said bodies;
(f) second image-forming reflecting means connected to said second body;
(g) zero power reflecting means connected to said second body;
(h) means for projecting first and second light beams respectively to said first and second indexing means, thence to said first and second image-forming reflecting means along paths parallel to said datum axis, said reflecting means being so disposed as to form images of said first and second indexing means proximately juxtaposed at a common plane;
(i) means for projecting a third light beam to said third indexing means, thence to said objecting from which said beam emerges as collimated light, thence to said zero power reflecting means along a path parallel to said datum axis, said reflecting means being so disposed as to reflect said beam to said objective, whereby an image of said third indexing means is formed at said focal plane;
(j) means for observing said first and second index images and establishing the separation between said images at said image plane, variations in said separation indicating deviations in relative orientation of said first and second bodies with respect to said major axis; and

(k) means for observing said third indexing means and its image and establishing the separation between said third indexing means and its image in two perpendicular directions at said focal plane, variations in said separations indicating deviations in relative orientation of said first and second bodies with respect to two perpendicular axes disposed normal to said major datum axis.

3,302,512
OPTICAL INSTRUMENT FOR MEASURING RELATIVE ANGULAR DISPLACEMENT OF TWO OBJECTS ABOUT A TWIST AXIS
Donald E. Davidson, La Habra, Calif., assignor to Davidson Optronics, Inc., West Covina, Calif., a corporation of California
Filed Feb. 19, 1963, Ser. No. 259,648
9 Claims. (Cl. 88—14)

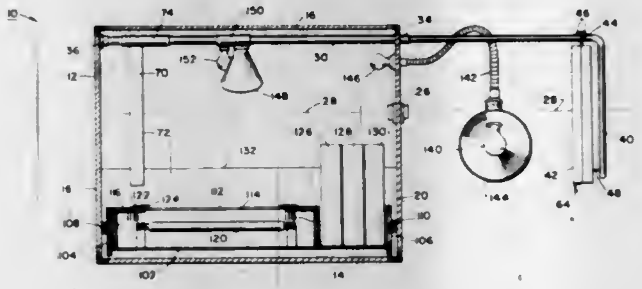
1. An optical instrument comprising:
a single optical objective having an optic axis;
a light transmitter on said axis including a pair of light sources, means for transmitting light from one source to said objective at one side only of a boundary plane parallel to said axis and transmitting light from the other source to said objective at the opposite side only of said plane, and a boundary element extending transversely of said axis within said plane;
said objective producing from light from both sources a unitary optical boundary image of said boundary element in an image plane transverse to said axis;
a light receiver including means in said image plane for receiving and displaying said boundary image and reference means defining the intersection of said image plane with an optic plane parallel to said axis;
a single first adjustable optical light deflecting means on said axis between said transmitter and receiver for rectilinear deflection of all the lights rays from both sources defining said boundary image in a transverse direction of said optic plane to translate the entire boundary image along a transverse direction line of said optic plane; and
a single second adjustable optic light deflection means between said transmitter and receiver in the path of only that portion of the light rays from both sources which defines one end of said boundary image for deflecting said portion of the light rays in a direction parallel to said direction line to translate said one end only of said image relative to the other end of said image along a direction line parallel to said first mentioned direction line.

3,302,513
LEXICON INDEXING MACHINE
Ioannis Papayannopoulos, 53 Pandanasis, Patras, Achaia, Greece
Filed Feb. 28, 1964, Ser. No. 348,240
13 Claims. (Cl. 88—24)



1. Apparatus for obtaining the definition of words comprising; visual display means for displaying written intelligence, information record means bearing said written intelligence and coded indicia corresponding thereto, movable means operably mounting said information record means for transfer of the written intelligence to the visual display means, selectively movable sensing means rendered operative by the visual display means during said transfer of the written intelligence for scanning the coded indicia on the information record means and control means responsive to said transfer of written intelligence to the visual display means for rendering the same operative to display only written intelligence corresponding to the coded indicia selected by movement of the selectively movable sensing means.

3,302,514
PHOTOGRAPHIC REPRODUCING DEVICE
Robert L. Morris, 5034 Haywood Parkway, Dallas, Tex. 75232
Filed May 11, 1964, Ser. No. 366,388
9 Claims. (Cl. 88—24)



1. A photographic device comprising:
(a) a substantially light-tight enclosure means having fixed walls,
(b) photographic lens means having an optical axis disposed in one fixed wall of the enclosure means for projecting an image through the wall of the enclosure means,
(c) a pair of rods mounted within said enclosure means extending parallel to said axis adjacent to the top of said enclosure means,
(d) a pair of tubular sleeves telescopically mounted from said fixed wall of said enclosure means and extending away from said rods in direction parallel thereto,

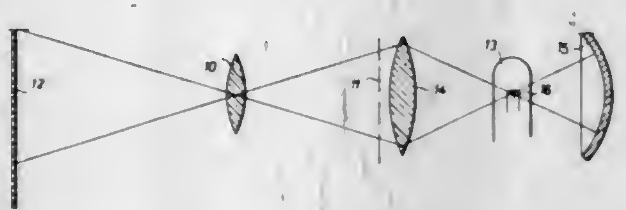
(e) a copyholder disposed outside the enclosure means suspended from said sleeves and movable longitudinally of the optical axis for holding a copy such that its image will be projected through the lens means generally along the optical axis into the interior of the enclosure means, and

(f) a film holder disposed in the enclosure means suspended from said rods and movable longitudinally of said rods for holding a film in position to be exposed by light projected generally along the optical axis from the copyholder,

whereby a copy may be reproduced, enlarged or reduced as desired by moving the film holder and copyholder along the optical axis relative to the lens means.

3,302,515
PROJECTION APPARATUS OR SYSTEM PROVIDED WITH CONCAVE REFLECTOR

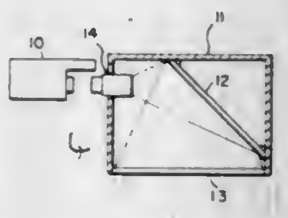
Jean A. Knus, Zurich, Switzerland, assignor to Alos AG, Zurich, Switzerland, a corporation of Switzerland
Filed May 15, 1964, Ser. No. 367,771
Claims priority, application Switzerland, May 28, 1963, 6,691/63
5 Claims. (Cl. 88—24)



1. Projection system comprising a projection screen, an objective and an illuminating apparatus, said illuminating apparatus incorporating a light source, a condenser and a concave reflector, said concave reflector being provided with means modifying the reflection capability thereof such that it gradually decreases from the outside towards the center of said concave reflector, said modifying means comprising a reflecting metal covering which reduces in thickness towards the center of said concave reflector.

3,302,516
TRANSMISSION SCREEN ATTACHMENT FOR PROJECTORS

Irving Stapsy, 5737 Wilkins Ave., Pittsburgh, Pa. 15217
Filed July 21, 1964, Ser. No. 384,136
3 Claims. (Cl. 88—24)



1. A projection system comprising in combination,

(a) an image projector,

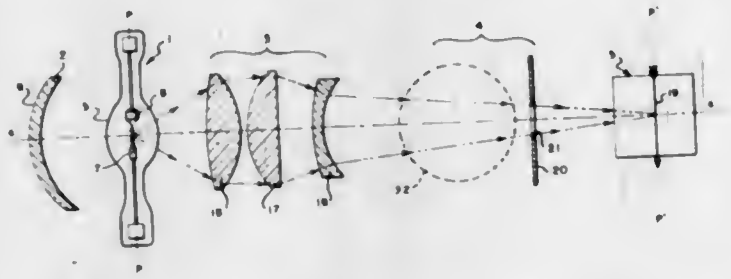
(b) an enclosure having a translucent screen in one wall thereof,

(c) means for projecting images from the projector onto the screen, said means including an opening in a side wall of the enclosure containing an afocal objective formed of a plurality of lens elements and capable of added magnification over a range including 3× without varying the spacings of any of the lens elements of the attachment,

(d) an inclined folding mirror positioned to direct the beam from the afocal attachment through the translucent screen.

3,302,517
XENON OPTICS SYSTEM

Joseph F. Henkel, 15 Genesee St., Hicksville, N.Y. 11801
Filed Sept. 25, 1964, Ser. No. 399,207
23 Claims. (Cl. 88—24)



1. An optical lens system for use in a projection apparatus having a projection lens positioned along the optical axis of said lens system and at the forward end thereof comprising:

(a) a xenon light source positioned at a predetermined position along said optical axis and including:

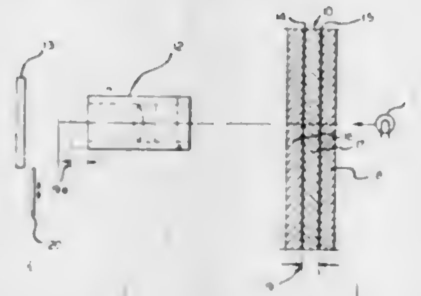
  (1) a pair of spaced electrodes lying in a vertical plane extending transversely of said optical axis for forming a xenon arc extending thereacross;

(b) a first lens means spaced along said optical axis forwardly of said source for collecting light emitted from said source into a converging beam; and

(c) a second lens means having a concave lens surface spaced along said optical axis forwardly of said first lens means, with said surface disposed in said converging beam, for forming an image corresponding to only an intermediate portion of said light source in said projector lens.

3,302,518
OPTICAL WEIGHING MACHINE

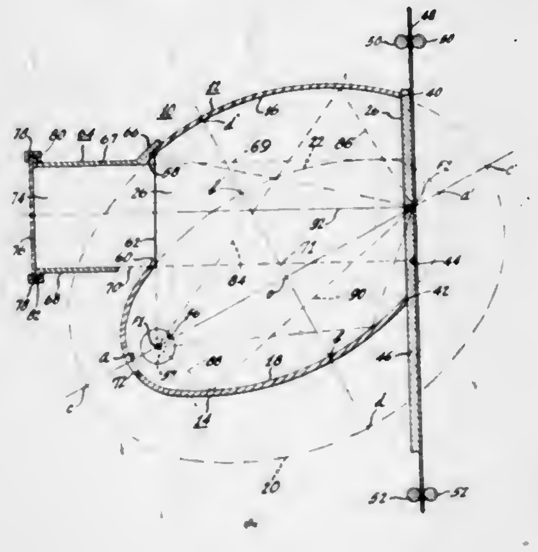
Pieter Jacob Six, Wassenaar, Netherlands, assignor to Maatschappij Van Berkel's Patent N.V., Rotterdam, Netherlands, a limited-liability company of the Netherlands
Filed Oct. 5, 1964, Ser. No. 401,422
Claims priority, application Germany, Oct. 8, 1963, M 58,454
3 Claims. (Cl. 88—24)



1. In combination with an optical weighing apparatus, a device for reading out data responsive to the weight of goods weighed by said apparatus, said device comprising a transparent scale having a plurality of image planes of data arranged in parallel spaced relation from each other, transparent means for spacing said image planes of data in said parallel spaced relation so that the image planes of data are in fixed position behind one another, means for directing a light source through said scale, a screen, and an objective lens having a very low depth of field movable along an axis extending perpendicular to said image planes of data in increments equal to the spacing between said image planes of data for selectively focusing on only one of said image planes of data at any one time and for transmitting that image plane of data onto said screen.

3,302,519
OPTICAL ILLUMINATING SYSTEM

Charles J. Young, Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Jan. 7, 1965, Ser. No. 423,994
8 Claims. (Cl. 88—24)



1. In apparatus of the type wherein an object is to be illuminated and an image thereof is to be projected through a lens system to an image plane, an optical illuminating system comprising, in combination,

a pair of reflectors of different ellipticity, each of said reflectors comprising portions of the concave walls defining hollow right elliptical cylinders,

said reflectors being disposed with their concave walls facing each other and sharing a single pair of line foci,

means to dispose said object relatively much closer to one of said line foci than to the other of said line foci, and

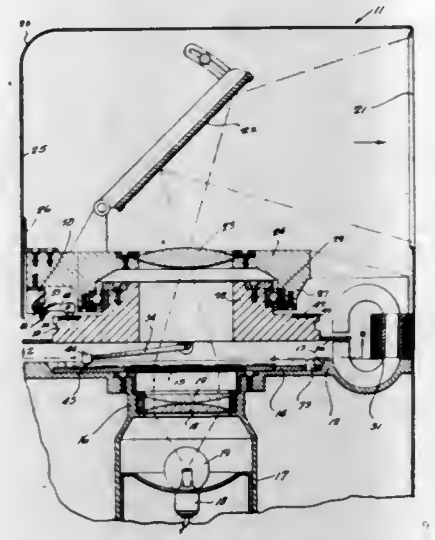
an elongated source of light disposed along said other of said line foci to illuminate said object,

said reflectors having a pair of opposed edges spaced from each other and defining opposite edges of an opening through which light reflected from said object can pass for projection by said lens system to said image plane, said pair of opposed edges being disposed to prevent direct rays of light from said source of light from passing through said opening, whereby all said direct rays of light adjacent to said opening are reflected by said reflectors to said one of said line foci.

3,302,520
PHOTOGRAPHIC SLIDES WITH SOUND TRACK

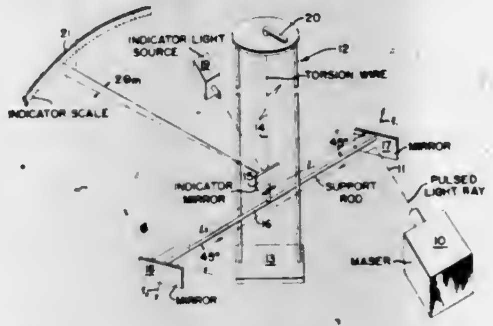
Panayotis C. Dimitracopoulos and Constantine D. Pezaris, Montreal, Quebec, Canada, assignors to The A. V. Corporation N.V., Curacao, Netherland Antilles, a corporation of the Netherlands
Original application May 5, 1959, Ser. No. 811,083, now Patent No. 3,122,053, dated Feb. 25, 1964. Divided and this application Nov. 27, 1963, Ser. No. 334,072
4 Claims. (Cl. 88—28)

1. A unitary combined sound and picture-projection tablet comprising a relatively thin, flat support carrying on one face thereof a stationary open spiral sound track whose radial width is small compared with the outer radius of said track, and a photographic projection transparency secured fixedly on said support with its transparent area wholly within the inner diameter of said sound track; said support being light-transmitting at least in the area covered by said transparency.



3,302,521
INSTRUMENT FOR MEASURING ENERGY IN A LIGHT PULSE

Rodney E. Grantham, Bethesda, and Morton Stimler, Hyattsville, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Feb. 28, 1963, Ser. No. 261,911
4 Claims. (Cl. 88—23)



1. A device for measuring the energy of a light beam emitted from an optical MASER which comprises a torsion ballistic pendulum having a rotatable rod,

a pair of mirrors each respectively secured to opposite ends of said rod with the reflecting surfaces thereof in mutual parallel and facing relation such that the reflecting surfaces are disposed at an angle of 45° with respect to the axis of the rod,

means including a torsion wire connected to the rod at the mid-point thereof supporting the rod in a horizontal position for rotative movement about said mid-point from an initial position of rest,

a reflecting mirror secured to said wire and rotatable rod,

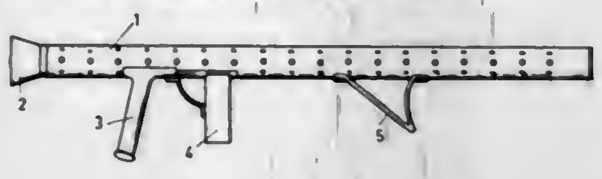
means for projecting a beam of light on said mirror at an oblique angle with respect to the surface thereof,

an indicating scale traversed by the reflected beam of light from said light projecting means variably in accordance with the degree of rotative movement of said rod from said initial position of rest,

and means including an optical MASER positioned to suddenly project a high intensity light beam momentarily on one of said pair of mirrors in a direction to cause the beam reflected therefrom to impinge upon the second mirror of said pair and impart a ballistic impulse to said rod sufficient to move the rod about the axis of said wire from an initial position of rest.

3,302,522
WEAPONS FOR FIRING SELF-PROPELLED MISSILES

Pierre Laureys, 39 Boulevard de Montmorency, Paris, France
Filed Oct. 12, 1964, Ser. No. 403,305
3 Claims. (Cl. 89—1.807)

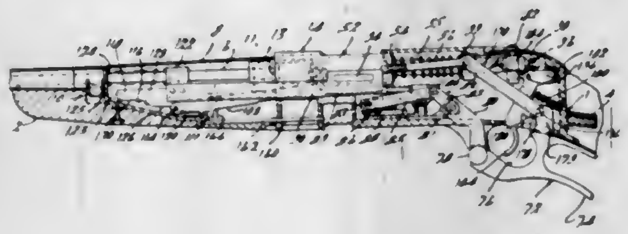


1. A weapon for firing self-propelled missiles comprising:

(A) a tubular support open at both extremities;
(B) an outer protective sleeve for said support consisting of a perforated tube; said sleeve and said tube being secured by means of cylindrical front and back separator bushes; said front separator bush having on the front face thereof a radially expansible safety ring for maintaining a missile in place; said back separator bush having a conical flash trap secured thereto;
(C) an electrical firing circuit comprising a dry cell, an interruptor, and a missile connected together by insulated electrical conductors fitting between said support and said sleeve;
(D) a firing butt consisting of a box having a removable face and a recess for said dry cell, a frontal opening for a trigger actuating said interruptor, and an opening communicating with said sleeve for permitting passage of said electrical conductors.

3,302,523
AIR OPERATED PROJECTILE FIRING APPARATUS

Jules Edmond Van Langenhoven and Eugene Elton Billingslea, Rogers, Leopold C. Sage, Fayetteville, James C. Adams, Rogers, and Ronald W. Joyce, Springdale, Ark., assignors to Daisy Manufacturing Company, Rogers, Ark., a corporation of Nevada
Filed July 7, 1965, Ser. No. 470,028
16 Claims. (Cl. 89—7)

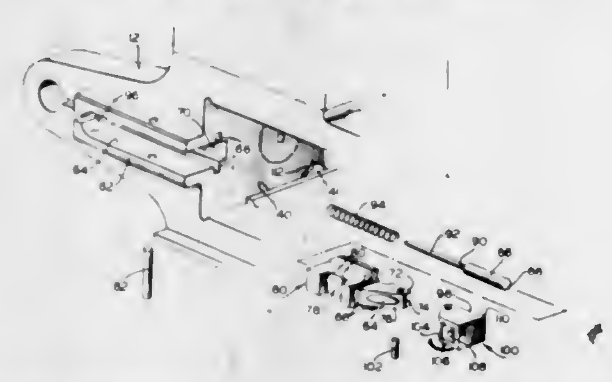


1. A repeating gun for firing rounds of ammunition, said ammunition comprising a projectile having an associated propellant capable of being ignited by surface contact with high temperature air, said gun comprising:

receiver means for supporting the projectile mechanism of the gun;
barrel means for guiding the projectile from the gun after ignition of the propellant;
a separate axially slidable ammunition holding means for holding a round of ammunition in a firing position in alignment with said barrel means and for receiving a round of ammunition in a loading position and for holding the round of ammunition during transfer from the loading position to the firing position;
a separate transfer means slidably supporting said ammunition holding means for axial movement between the firing position and a transfer position and being reciprocably transversely movable between a firing position and a loading position;
a source of high temperature air having a temperature at which the propellant is ignitable by surface contact therewith;
breech means for connecting said source to said ammunition holding means in the firing position;
a firing chamber formed by firing chamber means in said breech means and adapted to surround said propellant in the firing position;
air delivery means connecting said source to said firing chamber and comprising passage means extending from said source to said firing chamber;
elevator means for moving said transfer means between the firing position and the loading position;
ammunition loading means mounted adjacent said elevator means and being movable axially between an extended position and a retracted position and adapted to move a round of ammunition from storage into said ammunition holding means during movement from the retracted position to the extended position;
and cocking means movable from a retracted position to an extended position and back to the retracted position during a cocking cycle and being connected to said elevator means and said ammunition loading means for moving said transfer means between the firing position and the loading position and for moving said ammunition loading means between the extended position and the retracted position during a cocking cycle.

3,302,524
CARTRIDGE STOP MEANS FOR EXTERNALLY POWERED AUTOMATIC GUNS

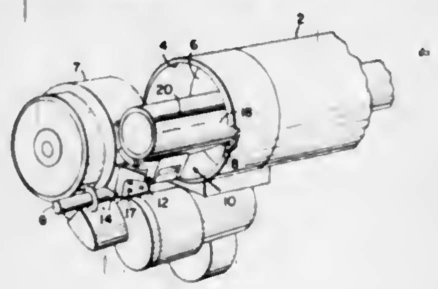
Clifford E. La Fever, Livonia, and Jerome Deja, Dearborn Heights, Mich., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Oct. 12, 1965, Ser. No. 495,358
7 Claims. (Cl. 89—33)



1. In an automatic gun having a receiver with a transverse feedway therethrough for the slidable passage of a linked belt of cartridges, a barrel slidably mounted in the receiver for reciprocal movement from and toward a battery position located at a predetermined distance from the rear endwall of the cartridge feedway, and feed mechanism for intermittently advancing the cartridge belt through the feedway in synchronism with the reciprocal movement of the barrel, the improvement of a cartridge belt stop member slidably mounted in the side of the receiver adjacent the exit end of the cartridge feedway therein, a vertical surface at the forward end of said slidable member disposed within the feedway, spring means normally urging said slidable member forwardly to position said vertical surface thereon in the transverse path of the rim on the leading cartridge in the belt, a pawl pivotally hinged to the forward end of said slidable member, a slidable plunger seated against the front end of said spring means for urging said pawl forwardly to position one side thereof in longitudinal alignment with said vertical surface on said slidable member whereby the front end of said pawl is disposed in the rearward path imparted to the link on the leading cartridge during the return of the barrel to battery position and thereby serves to force said slidable member to the rear to retract said vertical surface beyond the rear endwall of the cartridge feedway, and means for limiting the movement of said slidable member in either direction whereby, at the conclusion of rearward movement, said pawl is positioned in the transverse path of the rim on the leading cartridge to be pivoted outwardly thereby during the subsequent ejection thereof from the feedway in response to the continued feeding movement of the cartridge belt.

3,302,525
MISSILE LOADING TRAY FOR BREECH-LOADED GUN-LAUNCHERS

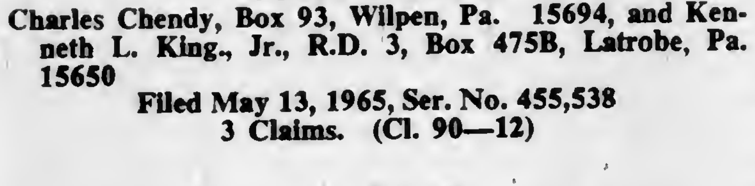
James P. Haine, Santa Ana, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed May 6, 1965, Ser. No. 455,042
3 Claims. (Cl. 89—45)



1. In a gun-launcher for guided missiles including a firing tube, the bore of said firing tube having keyway means formed therein, a breech closure member pivotally mounted for swinging movement laterally between an open and closed position with respect to said firing tube at the loading end thereof; the improvement comprising a loading tray hingedly mounted for movement with said breech closure member, said tray including an elongated plate having a concave upper surface for cradling a missile having fin means placed thereon, guide means formed in said surface including a groove extending the length thereof with the forward end being in continuous, coaxial alignment with said keyway means of the firing tube when the breech closure member is swung into its open position and the tray is swung therewith into loading position, whereby said missile fin means will be received and guided with a predetermined orientation axially into the firing tube.

3,302,526
CUTTING TOOLS

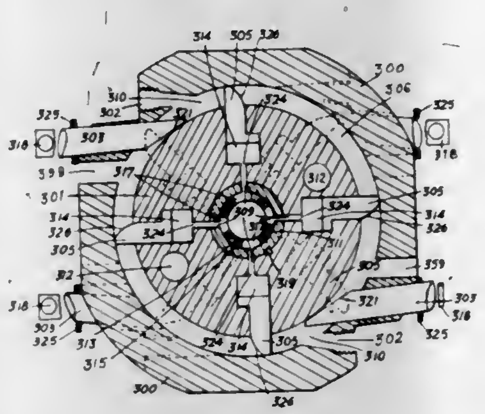
Charles Chendy, Box 93, Wilpen, Pa. 15694, and Kenneth L. King., Jr., R.D. 3, Box 475B, Latrobe, Pa. 15650
Filed May 13, 1965, Ser. No. 455,538
3 Claims. (Cl. 90—12)



1. A cutting tool comprising an elongated hollow body adapted for rotation by a prime mover, end mill means in one end of said body, an axial passage in said end mill means communicating with the interior of the hollow body, a shaft rotatable and axially movable in said passage, said shaft extending beyond said end mill means and having a point thereon, spring means in the hollow body normally urging the shaft outwardly through the passage and antifriction bearing means between the shaft and said spring.

3,302,527
HYDRAULIC TRANSMISSION

Guy H. Tripp, 209 N. Columbian Road, Bay City, Mich. 48707
Filed Nov. 23, 1964, Ser. No. 415,848
2 Claims. (Cl. 91—138)

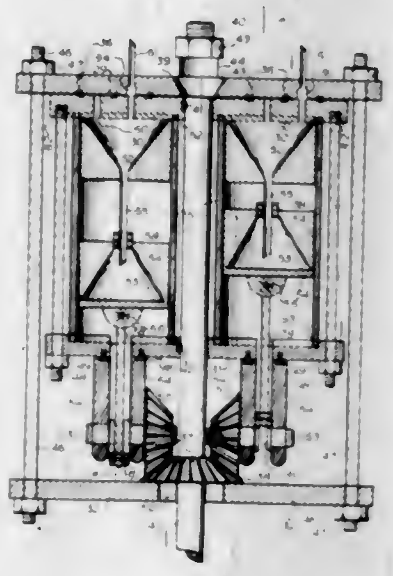


1. A hydraulic motor comprising a stator containing a large central bore and end walls spaced along the axis of said bore and closing the ends thereof, a cylindrical rotor rotatable about the axis of said bore and the outer peripheral surface of said rotor being in close relation to the inner surface of said stator bore and journalling said rotor in said stator, a plurality of annular grooves in said outer peripheral rotor surface, said annular grooves being sealed by the inner surface of said stator, a plurality of inlet passages in alignment and communicating with at least one of said annular grooves and tangent thereto, the other end of said passages communicating with said outer surface of said stator, said inlet passage directing liquid in one direction of rotor rotation, an abutment slidably mounted in said stator adjacent to and displaced from each said inlet contra to said one direction of rotation, each said abutment having a cam surface on the end thereof to divide said groove, and an outlet passage communicating with said groove adjacent to and displaced from each said abutment contra to said direction of rotation, each said outlet communicating with the outer surface of said stator, and inlet passages, abutments and outlet passages for at least another of said annular grooves wherein said abutments and passages are arranged for the opposite direction of rotation, a plurality of slots in the radially inner surface of each said groove extending into said rotor, a vane in each of said slots, each of said vanes extending radially outward of said slot and sealingly dividing said groove and slidingly engaging said stator bore, cam surfaces on the radially outer end of each of said vanes arranged to cooperate with the cam surfaces of said abutments to depress the vanes into their slots to pass said abutments, an output shaft fixed to said rotor and extending through said stator end walls, said output shaft being hollow from one end at least through said rotor, individual passages through said rotor and output shaft communicating each slot beneath the vane with said hollow portion of said shaft, an adjustable, hollow timing sleeve in said hollow portion of said output shaft having openings to communicate periodically with said individual passages, fluid supply means to said hollow portion of said timing sleeve, and further individual passages communicating with said slots beneath the vanes and extending to the adjacent stator end wall, and openings in said stator end wall arranged to communicate periodically with said further individual passages, said timing sleeve openings and said end wall openings being arranged to permit said vanes to be depressed in their slots when passing said

abutments and to be extended at other times, and means to raise the abutments out of the grooves for rotation in said one direction when the rotor is to rotate in the opposite direction and vice versa.

3,302,528
TWIN COMPRESSION CHAMBER MOTOR

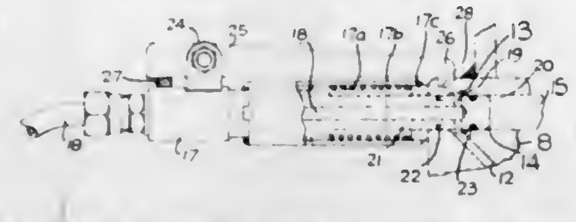
**Lionel H. Rosenhaft, Kings County, N.Y.
(1053 E. 55th St., Brooklyn, N.Y. 11234)
Filed Mar. 16, 1965, Ser. No. 440,114
1 Claim. (Cl. 91—180)**



A piston type gear orbiting motor in combination having twin compression chamber piston cylinders formed in a circle around and parallel to a motor shaft, each one of said piston cylinders housing a separate compression chamber in the upper piston cylinder section, a piston with a separate built-in compression chamber in the lower piston cylinder section, suitable telescopic tubes properly sealed against leakage, said telescopic tubes being a movable linkage for hydraulic interchange between said separate upper piston cylinder compression chamber and said separate compression chamber built into said piston, a means of anchoring a piston rod to the lower section of said piston, a piston rod anchored to said piston; all of said piston cylinders forming said circle around said motor shaft are securely anchored between a front motor faceplate and a rear motor faceplate, said front motor faceplate having a series of hydraulic interchange ports pierced through said front motor faceplate, said hydraulic interchange ports in communication with said upper piston cylinder compression chamber, two such said ports provided for each said piston cylinder, said ports forming two circles in-between and on both sides of said circle of said ports are recessed circular cavities, each said recessed circular cavity providing housing for inserting suitable ring type laminated pressure sealing and pressure isolating gaskets to separate the different operating hydraulic pressures between above said circle of hydraulic interchange ports; said rear motor faceplate having one oblong aperture for each said piston rod for piston rod working area, each said piston rod projecting beyond said rear motor faceplate through said oblong apertures and each said piston rod connected to an individual crankshaft with a pair of individual crankshaft bearings, each said pair of crankshaft bearings fastened to rear of said rear motor faceplate one each said pair of crankshaft bearings straddling one said oblong aperture, each said individual crankshaft having an individual drive gear anchored thereto; provide a suitable fluid source with a four way valve directing hydraulic flow through a suitable hydraulic interchange faceplate to said hydraulic interchange ports on said front motor faceplate.

3,302,529
HYDRAULIC MINE ROOF SUPPORTS

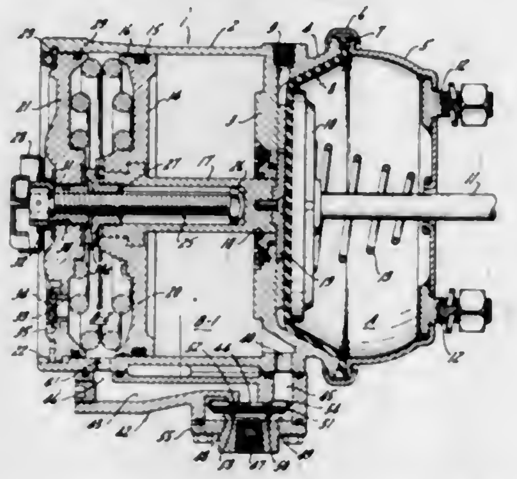
**Laurence William Taylor, Woodthorpe, and Frank Town, Burton Joyce, England, assignors to W. E. & F. Dobson Limited
Filed Jan. 18, 1965, Ser. No. 426,325
Claims priority, application Great Britain, Jan. 18, 1964, 2,315/64
8 Claims. (Cl. 91—432)**



1. A hydraulic control means for mine roof supports in which hydraulic fluid is supplied to the pressure chamber of a hydraulic prop from an external fluid line to which a hydraulic coupling is connected to provide a charging unit for removable plug-in fitment to a coupling valve of the prop, characterised by having means forming when the charging unit is fitted, sealed passage means for the charging fluid in the region of the junction between the fluid outlet passage of the charging unit and the fluid inlet passage of the coupling valve whereby there is a balancing of forces so that pressure of the charging fluid does not oppose connection of the hydraulic coupling to the coupling valve.

3,302,530
PRESSURIZED BRAKE CYLINDER USING INLET PRESSURE AS A BOOST

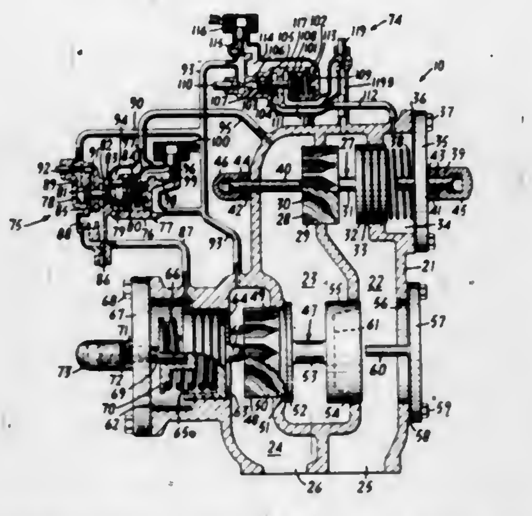
**Harold L. Dobrikin, Highland Park, and Charles Horowitz, Skokie, Ill., assignors to Berg Mfg. & Sales Co., Des Plaines, Ill., a corporation of Illinois
Filed Feb. 1, 1965, Ser. No. 429,411
5 Claims. (Cl. 91—440)**



1. A brake actuator including a housing, a movable wall dividing said housing into an air chamber and a spring chamber, an inlet in said air chamber, a first passage communicating said inlet with said air chamber, a second passage communicating said spring chamber with said air chamber through said first passage, a valve member at said inlet, said valve member being movable into a first position closing communication between said first and second passages and opening communication between said first passage and said inlet in response to air entering said inlet under a pressure greater than the pressure in said air chamber, said valve member being movable into a second position closing said inlet and opening communication between said first and second passages to communicate said air chamber with said spring chamber in response to diminution of pressure at said inlet below the pressure in said air chamber, and means exhausting air above a predetermined pressure from said spring chamber to atmosphere.

3,302,531
ELEVATOR CONTROL SYSTEM

**Duane J. Arbogast, Olive Branch, and Lawrence F. Jaseph and Richard W. Green, Memphis, Tenn., assignors to Dover Corporation, Memphis, Tenn., a corporation of Delaware
Filed Aug. 3, 1964, Ser. No. 386,829
10 Claims. (Cl. 91—446)**

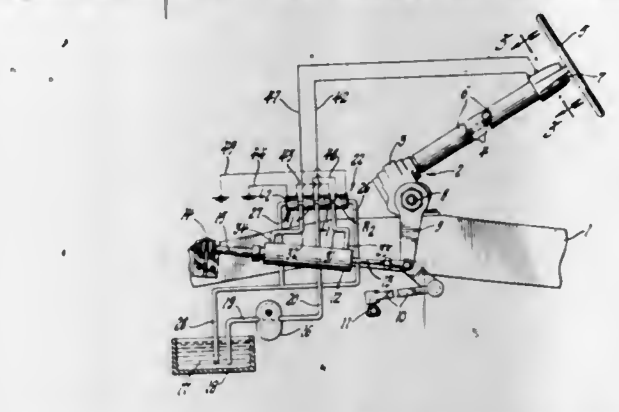


3. A constant speed lowering control means for a hydraulic elevator system including a jack cylinder containing hydraulic fluid, an elevator car plunger reciprocable therein, a pump and a reservoir, comprising a valve casing including an inlet chamber, an intermediate chamber and a discharge chamber, said inlet chamber being in continuous communication with said intermediate chamber through a first passageway of variable effective size and said intermediate chamber being in selectively controllable intermittent communication with said discharge chamber through a second passageway, an inlet port in said chamber adapted to be connected to the jack cylinder of a hydraulic elevator system with which the control means is adapted to be used, a discharge port in said discharge chamber adapted to be connected to the reservoir of a hydraulic elevator system, selectively operable speed control valve means disposed in said first passageway for controlling the variable effective size thereof, said control valve means having two operative positions corresponding to two lowering speeds of an elevator car plunger with which the control means is adapted to be used, regulator valve means disposed in said second passageway for regulating fluid flow therein, said regulator valve means including pressure responsive means associated therewith adapted to selectively seal said second passageway against hydraulic fluid flow from said intermediate chamber to said discharge chamber to interrupt communication therebetween, and positioning means coupled to said regulator valve means and sensitive to the pressure differential between said inlet and intermediate chambers for adjusting said regulator valve means to provide a pressure in said intermediate chamber such that the pressure differential between said inlet and intermediate chambers remains substantially constant under varying pressure conditions in said inlet chamber.

3,302,532
ELECTROHYDRAULIC POWER STEERING SYSTEM

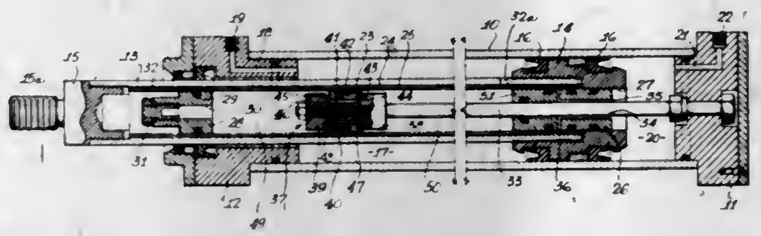
**Robert W. Graham, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 20, 1966, Ser. No. 563,006
3 Claims. (Cl. 91—459)**

1. In a hydraulic system, a source of hydraulic fluid containing discreet magnetizable particles of low retentivity and operative when magetized to impede flow of said fluid, a pump, a two-way hydraulic motor having two fluid connections, each adapted to receive or return pressure fluid in accordance with the direction of motor operation, a valve having an inlet for receiving fluid under pressure from said pump, said valve further having two openings connected to said motor connections, two outlets for return of fluid to said source, two passages connecting said inlet to said openings and two passages connecting said openings to said outlets, electromagnet means adjacent each said passage and energizable to magnetize the particles in the fluid therein, a source of electric current, and means operable to regulate energizing current to the electromagnet means adjacent the passage connecting said inlet to one of said openings and to the electromagnet means adjacent the passage connecting one of said outlets to the other of said openings for controlling movement of said motor in one direction thereof, and operable to regulate energizing current to the other two of said electromagnet means for controlling movement of said motor in the other direction thereof.



3,302,533
AIR CYLINDER WITH HYDRAULIC CONTROL

**James F. Hutter and Leonard Kelly, Peterborough, Ontario, Canada, assignors to Sphere Investments Limited, Nassau, Bahama Islands
Filed June 14, 1965, Ser. No. 463,829
5 Claims. (Cl. 92—8)**

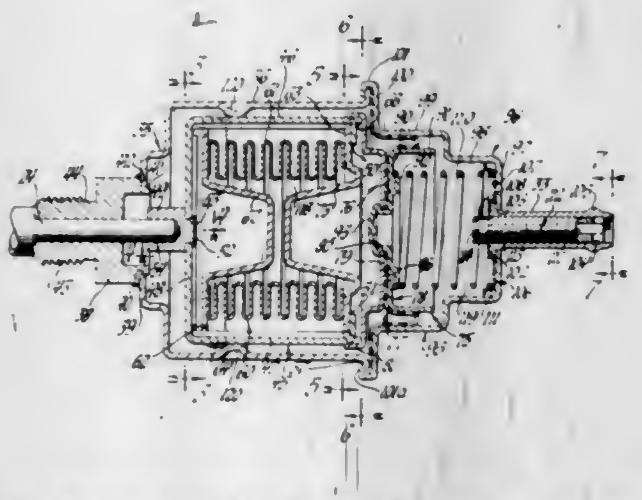


1. A hydraulically controlled air cylinder comprising a main cylinder, a hollow push rod extending axially into said cylinder, an air piston fixed to said push rod in said cylinder and providing a rear air chamber on one side of said air piston and a forward air chamber on the other side of said air piston, a hydraulic control cartridge in said push rod comprising a tube having an external diameter less than the internal diameter of said push rod to provide an annular air passage between said tube and push rod, a hydraulic piston rod fixed to and axially arranged in said cylinder, said hydraulic piston rod extending through said air piston, a hydraulic piston assembly mounted on said hydraulic piston rod in said tube and providing a rear oil chamber on one side of said piston assembly and a forward oil chamber on the other side of said piston assembly, means providing an oil flow passage through said piston assembly from one of said oil chambers to the other, means controlling oil flow through said oil flow passage, and a cover slidably mounted in said tube adjacent each end thereof and closing a respective one of said oil chambers, a first one of said covers being exposed to air in said forward air chamber and a second one of said covers being exposed to air in said rear air

chamber, said covers having floating movement in said tube in response to differential fluid pressures thereon, said air piston rod having a port communicating with said forward air chamber and said annular air passage, means providing an air inlet and outlet port communicating with said forward air chamber, and means providing an air inlet and outlet port communicating with said rear air chamber.

3,302,534
VACUUM MODULATOR

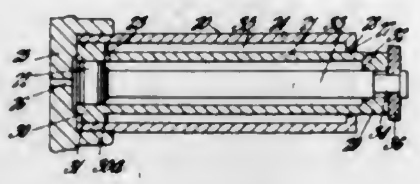
Richard J. Bauer, Davison, and Gary L. Gass, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 17, 1965, Ser. No. 488,045
3 Claims. (Cl. 92—36)



1. A vacuum modulator assembly composed of an assembly of five subassemblies including lower case, yoke, bellows, diaphragm and upper case subassemblies, respectively, said lower case subassembly comprising a lower case of generally cylindrical configuration having an adapter secured to an end wall of said lower case, an opening through said adapter for receiving mechanism to be controlled by said modulator, said yoke assembly comprising a generally U-shaped yoke having a base and a pair of spaced arms extending from said base, a guide secured to said base, said mechanism to be controlled including axially movable means extending through said adapter opening into contact with said guide, said yoke assembly comprising a bellows and first and second end plates secured to said bellows and forming with said bellows an evacuated chamber within said bellows, said diaphragm subassembly comprising a diaphragm protector, a diaphragm and a diaphragm connector assembled to each other, said upper case subassembly including a generally cylindrical shaped upper case and a hollow nipple secured to one end of said case, means on said lower case coacting with said first bellows end plate for preventing axial movement of said first end plate relative to said lower case, said yoke arms extending parallel to said bellows and gripping said second end plate, said diaphragm connector including a flange gripping said second end plate, said upper case being secured to said lower case and gripping the periphery of said diaphragm between said lower and upper cases such that said diaphragm and upper case form a second chamber adapted to be connected to a source of variable vacuum, said diaphragm assembly, said yoke and said second bellows end plate being movable as a unit, a spring seat disposed in said second chamber, a calibrating spring acting upon said diaphragm protector, adjustable mechanism in said hollow nipple and contacting said spring seat for varying the effective force of said calibrating spring, and a passage through said adjustable mechanism for admitting vacuum from said vacuum source to said second chamber.

3,302,535
HYDRAULIC PISTON AND CYLINDER COMBINATIONS

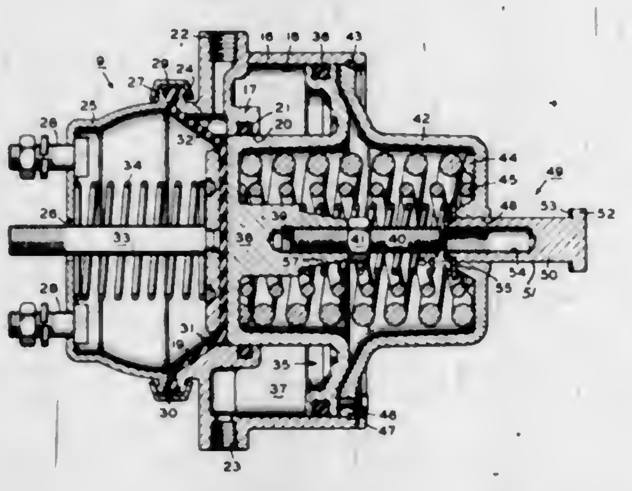
Reginald Henry Procter and Frederick Henry William Sanders, Westminster, London, England, assignors to English Drilling Equipment Company Limited, London, England, a British company
Filed Dec. 17, 1964, Ser. No. 419,170
Claims priority, application Great Britain, Dec. 19, 1963, 50,131/63
8 Claims. (Cl. 92—52)



1. A multi-stage hydraulic piston and cylinder device comprising an outer cylinder, an intermediate cylinder telescopically mounted in said outer cylinder for sliding therein, between retracted and extended positions, under the influence of liquid introduced into the outer cylinder, said intermediate cylinder including a cylindrical wall and an outwardly directed shoulder portion leading from said wall, said shoulder portion co-operating piston-wise with said outer cylinder whereby when said intermediate cylinder is in a retracted position within said outer cylinder the walls of said cylinders define an annular space therebetween, inner piston means telescopically mounted within said intermediate cylinder for sliding therein, between retracted and extended positions, under the influence of liquid introduced into the intermediate cylinder, means defining port means through said wall of said intermediate cylinder and means for controlling a flow of liquid from said annular space through said port means to the interior of said intermediate cylinder behind said piston means as said intermediate cylinder moves from its retracted position towards its extended position.

3,302,536
DISABLING MEANS FOR A FRICTION DEVICE OPERATING MECHANISM

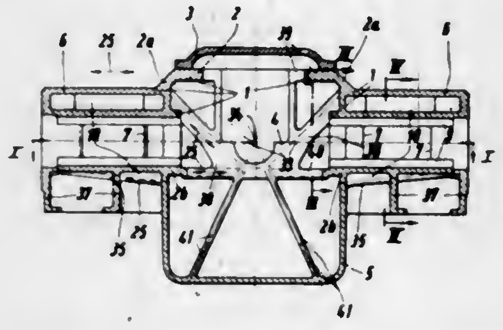
Cyril B. Fites, St. John, Mo., assignor to Wagner Electric Corporation, St. Louis, Mo., a corporation of Delaware
Filed May 28, 1964, Ser. No. 370,848
4 Claims. (Cl. 92—130)



1. In a friction device operating mechanism having a housing, resiliently urged means movable in said housing toward an operative position for energizing a friction device in response to fluid pressure less than a predetermined value supplied to said resiliently urged means from a source of said fluid pressure and also movable toward an inoperative position in said housing when the fluid pressure supplied thereto exceeds the predetermined value, means for disabling said resiliently urged means comprising a disabling member slidable in said housing, a force responsive end on said disabling member exteriorly of said housing, a driving end on said disabling member interiorly of said housing for driving engagement with said resiliently urged means when said resiliently urged means is in its operative position, and spring means biased between said resiliently urged means and said driving end to normally urge said driving end toward a position predeterminately spaced from said resiliently urged means to prevent interfering engagement therewith when said resiliently urged means is in its inoperative position, said disabling member being movable against said spring means in response to an applied force on the force responsive end thereof to drivingly engage said driving end with said resiliently urged means when said resiliently urged means is in its operative position and move said force responsive end into bearing engagement with said housing, and said disabling member being thereafter movable in response to the applied force to drive said resiliently urged means against said spring means toward its inoperative position to mechanically de-energize the friction device.

3,302,537
MACHINE FRAME, ESPECIALLY FOR PISTON COMPRESSORS AND PISTON STEAM ENGINES

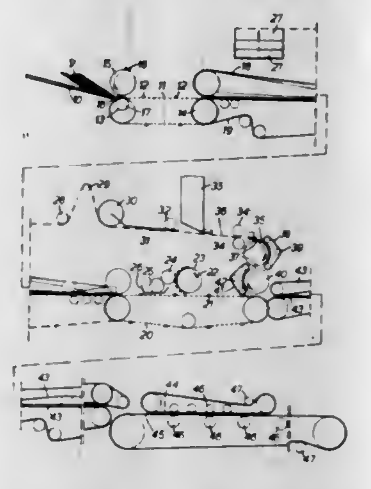
Helmut Blaudszun and Heinz Jacoby, both of Berlin, Germany, assignors to Borsig Aktiengesellschaft, Berlin, Germany
Filed May 29, 1964, Ser. No. 371,214
4 Claims. (Cl. 92—261)



1. A machine housing structure for opposed cylinder type engines, especially piston compressors and steam engines, which consists of a single unitary cast piece having a crank housing section for receiving crankshaft means having only one pair of cranks, an oil pan section, two slide path housing sections respectively located on opposite sides of said crank housing section, and two cross-head guiding sections respectively located on opposite sides of said crank housing section and in alignment with respective ones of said cranks, the horizontal central section of said housing structure substantially having the contour of a rectangle with two diagonally oppositely located corners respectively cut off by two substantially parallel lines, said housing structure having its crank housing section provided with two pairs of arms with the arms of each pair forming an upright V with each other while flaring toward the top portion of said housing structure, said crank housing section also being provided with two flange portions at the top portion of said housing structure and with two drip edges at substantially the level at which the apex of said V is located, said oil pan section being provided with ribs forming an inverted V with each other, each of said slide path housing sections being provided with ribs extending in the longitudinal direction of said housing structure and also being provided with substantially vertical and horizontal leg portions, whereby the housing structure unit forms a girder-like construction.

3,302,538
CARTON LINING MACHINES

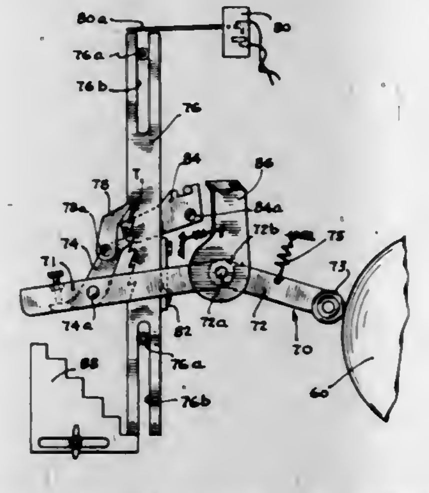
Willie Hepworth, Sutton, Surrey, England, assignor to Pembroke Carton and Printing Company Limited, Basildon, Essex, England, a British company
Filed Mar. 13, 1964, Ser. No. 351,648
3 Claims. (Cl. 93—36.01)



1. In a carton lining machine comprising means for continuously and positively advancing carton blanks through the machine in regularly spaced relationship, an adhesive printing roller for applying adhesive to the carton blanks advanced by said advancing means, a rotary cutter for severing appropriate lengths of a tubular lining, feeding means for feeding a preformed tubular lining to the rotary cutter, means for transferring the cut lengths of lining from the cutter to the carton blanks advanced by said advancing means at a position subsequent to the printing of the latter with adhesive and driving means for driving said printing roller, said rotary cutter and said transfer means for the cut lengths of lining all continuously and positively in a fixed speed relationship with the means for advancing the carton blanks the improvement which consists in that independently variable driving means is provided for continuously and positively driving said feeding means at an independently variable speed.

3,302,539
SIGNATURE TRANSFER MECHANISM

Robert P. Moffet, Chicago, Ill., assignor to Commerce Clearing House, Inc., Chicago, Ill., a corporation of Delaware
Filed Dec. 6, 1965, Ser. No. 512,591
3 Claims. (Cl. 93—93)



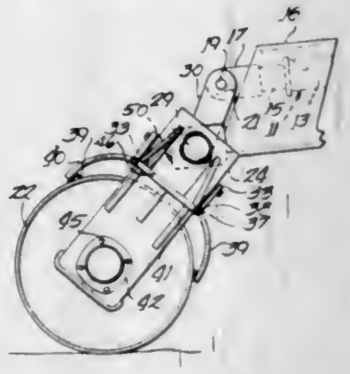
1. A transfer feed mechanism for transferring signature units from a first intermittently operated conveyor having a first predetermined period of actuation cycle to a second intermittently operated conveyor having a period of actuation cycle constituting a multiple of said first cycle period, comprising in combination:

- a first drive mechanism for said first conveyor including a continuously rotating shaft;

- control means operable to actuate said first drive mechanism to advance said first conveyor one cycle for each rotation of said shaft;
- transfer mechanism operable in unison with said shaft and effective to transfer signature units singly from said first conveyor to said second conveyor;
- a stepping member mounted adjacent said continuously rotating shaft;
- pawl means effective to move the stepping member stepwise from a predetermined start position in the amount of one step per rotation of said shaft;
- release means operable to restore said stepping membeh to said predetermined start position when the same reaches a predetermined final position;
- a second drive mechanism for the second conveyor; and
- means to actuate said second drive mechanism when the stepping member reaches said final position, said means including switch means to initiate said activation of the second drive mechanism upon momentary closure with lock-in elements effective to maintain actuation until the second conveyor advances one complete cycle.

3,302,540
METHOD AND APPARATUS FOR COMPACTING, ROLLING AND FINISHING THE EARTH

Gabriel Fuentes, Jr., 1456 Asia St., Stop 22,
Santurce, Puerto Rico
Filed Mar. 2, 1964, Ser. No. 348,645
8 Claims. (Cl. 94—50)



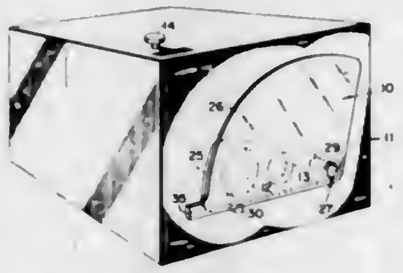
6. A compaction roller attachment for earth working equipment having a telescopic boom with hydraulic piston means included therein comprising a cylindrical member closed at both ends, a substantially U-shaped support frame having its cross member pivotally affixed to the end of said boom transversely thereto with the two arms thereof depending downwardly, axle means rotatably supporting said cylindrical member between the arms of said support frame, pivot ears affixed to said cross member and to one end of said hydraulic piston means, the extension and retraction of said hydraulic piston means pivoting said support frame and said cylindrical member about the pivotal connecting point between said cross member and said boom, whereby said roller attachment can be extended and pivoted simultaneously.

3,302,541
EXPOSURE CONTROL APPARATUS

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Apr. 13, 1964, Ser. No. 359,091
7 Claims. (Cl. 95—10)

5. In a camera having an exposure aperture and a viewer aperture through which light from a scene being photographed can pass, exposure control apparatus comprising:

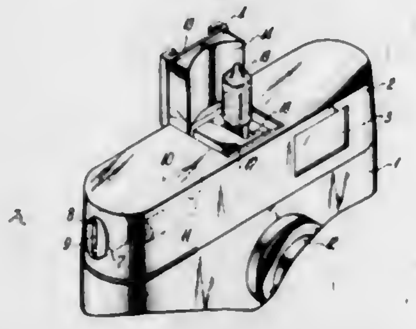
- a viewfinder system operably connected to said viewer aperture and through which an operator can see the scene being photographed;
- means associated with said viewfinder system for producing a reference spot of light of predetermined brightness within the field of view of said viewfinder system; and
- means to change simultaneously by the same amount the attenuation of light from said scene reaching said exposure and viewer apertures for effecting a visual match between the brightness of a selected portion of said scene as viewed by an operator through said viewfinder system and the brightness of said spot, said last-named means comprising



- a first plane polarizer in superposed relationship to both said exposure and viewer apertures; and
- a second plane polarizer covering both of said apertures in superposed relation to said first polarizer and rotatable relative thereto for changing the angular relationship between the directions of polarization of said first and second polarizers.

3,302,542
CAMERA WITH BUILT-IN FLASH ASSEMBLY

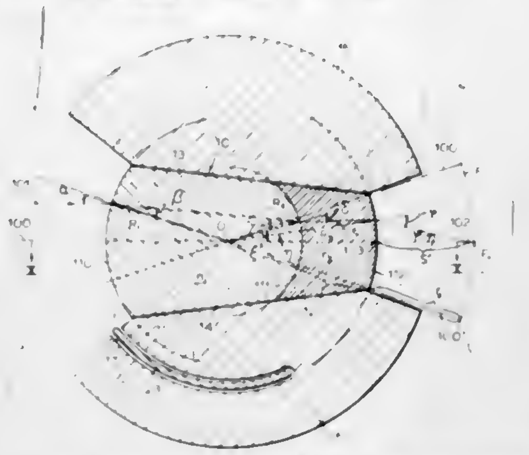
Paul Greger, Braunschweig, and Herbert Weidner, Volkmarode, Steinkamp, Germany, assignors to Voigtlander A.G., Braunschweig, Germany, a corporation of Germany
Filed May 4, 1964, Ser. No. 364,407
Claims priority, application Germany, May 7, 1963, V 15,124
24 Claims. (Cl. 95—11)



1. In a camera with built-in flash assembly, a camera housing, a hollow cap mounted on said camera housing and defining therewith a space for accommodating components of the camera, said cap having a top wall formed with an opening, an accessory shoe having a normal position substantially flush with said top wall of said cap in alignment with said opening thereof, said shoe having an outer face directed toward the interior of said cap in said normal position of said shoe, means connecting said shoe to said cap for turning movement relative thereto from said normal position to a flash position where said shoe projects from said cap and has its outer face directed forwardly, and reflector means connected to said shoe for turning movement therewith and having in said flash position of said shoe an operating position adapted to cooperate with a lamp of the flash assembly for reflecting the light thereof, the space defined between said cap and housing accommodating said reflector means when said shoe is in its normal position.

3,302,543
WIDE-ANGLE DIOPTRIC SYSTEM

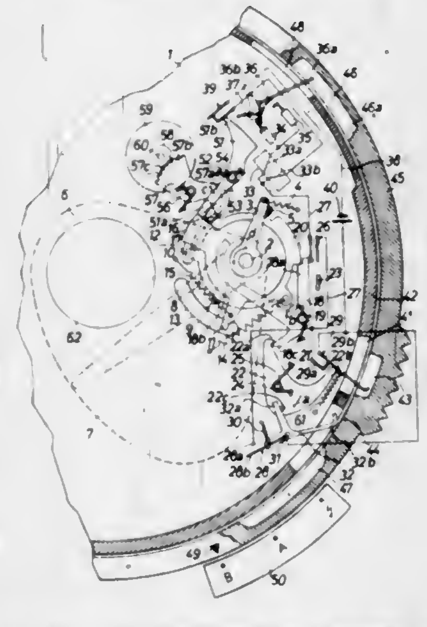
Karl F. Ross, 5121 Post Road, Bronx, N.Y. 10471
Filed Oct. 21, 1963, Ser. No. 317,724
3 Claims. (Cl. 95—16)



1. In an optical objective system, in combination, supporting means forming a substantially flat receiving surface for projected light rays and dioptric means adapted to focus incident rays upon said receiving surface, said dioptric means including a sectoral lens having two outer surfaces and at least one inner surface all circularly curved around an axis parallel to said receiving surface within a limited sectional sectoral field angle, said lens being rotatable about said axis, and further including image-flattening lens means fixedly positioned with reference to said receiving surface, said lens means having at least one optically effective curved surface extending over an angle substantially larger than said field angle in the plane of rotation; and means for rotating said sectoral lens about said axis.

3,302,544
EXPOSURE CONTROLS FOR CAMERAS

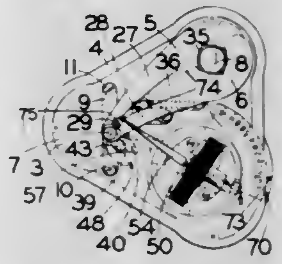
Gerd Kiper, Unterhaching, Munich, Germany, assignor to Agfa Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 20, 1964, Ser. No. 412,649
Claims priority, application Germany, Nov. 23, 1963, A 44,630
15 Claims. (Cl. 95—60)



1. In a camera, in combination, shutter means having leading and trailing members both of which are movable from cocked to rest positions, said leading member of said shutter means moving from said cocked to said rest position thereof in advance of said trailing member so as to expose film and said trailing member of said shutter means then moving from said cocked to said rest position thereof to terminate an exposure; blocking means movable between blocking and release positions and when in said blocking position thereof blocking movement of said trailing member from said cocked to said rest position thereof; electrical means cooperating with said blocking means for moving the latter from said blocking to said release position thereof to release said trailing member for movement from said cocked to said rest position thereof; and manually operable means operatively connected to said electrical means for placing the latter in a selected one of three positions, namely, a B position, an automatic position, and a flash position, said manually operable means when placing said electrical means in said B position providing manual determination of the termination of the exposure so that said electrical means is actuated by the operator to displace said blocking means from said blocking to said rest position at an instant selected by the operator in order to make time exposures, said electrical means when placed by said manually operable means in said automatic position automatically determining the instant of displacement of said blocking means from said blocking to said release position in accordance with the lighting conditions, and said electrical means when in said flash position automatically displacing said blocking means from said blocking to said release position after a period of time suitable for making flash exposures.

3,302,545
AUTOMATIC EXPOSURE CONTROL FOR CAMERA

Hans A. Bakke, Swampscott, Mass., assignor to General Electric Company, a corporation of New York
Filed Oct. 20, 1958, Ser. No. 768,454
24 Claims. (Cl. 95—64)



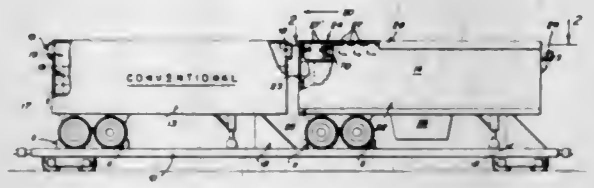
12. In a camera having a lens system for focusing an image of a viewed scene onto a photosensitive surface; a photocell positioned for energization by said scene; an electric measuring instrument having a pivoted coil connected to said cell and energized thereby to assume an angular position as a function of the intensity of said light; a pointer driven by said coil; an actuating device accessible to the camera operator; at least one movable diaphragm vane forming an exposure aperture aligned with said lens system, the size of said aperture being a function of the position of said vane; and sensing means connected to said vane for movement in a predetermined path to sense the position of said pointer upon movement of said vane, for determining the size of said aperture; an arrangement for positioning said vane, comprising: a first spring normally maintaining said actuating device in an initial position and adapted to be overcome by manual movement of said device away from said initial position; a second spring opposed to said first spring and having a force lighter than the force of said first spring, for moving said vane and for moving said sensing means into engagement with said pointer in response to movement of said actuating device away from said initial position; override means adapted for movement into the path of said sensing means for intercepting said sensing means irrespective of the position of said pointer; and manually operable selecting means coupled to said override means for moving the latter into said path.

18. A light-controlled photographic diaphragm stop regulator comprising: a photoelectrically displaceable control member controlled in response to the ambient

light level of a scene to be photographed, a pair of vanes having portions defining a completely peripherally enclosed aperture therebetween the size of which varies with the relative position of said vanes, said vanes being adapted to be positioned such that said aperture is interposed in the path of light through a lens being controlled, an actuator member which displaces said vanes and enables said control member to move therebetween and out of contact with said vanes in response to said light level, whereby on actuation of said actuator said vanes are no longer displaced thereby, and means to move said vanes relative to one another upon actuation of the actuator to define an aperture the size of which is determined by the position of said control member through said vanes contacting said control member.

24. In an automatic exposure control device, a mounting plate, a galvanometer mounted on the plate and having a rotatable coil, a diaphragm blade having a tapered opening and mounted pivotally on the plate at a point spaced from the galvanometer, manually operable means for urging the blade in a predetermined direction, and interengaging cam means carried by the coil and the blade for limiting movement of the blade in accordance with the rotative position of the coil.

3,302,546
VENTILATION SYSTEM FOR CARGO BODY
Eric Rath, Miami, Fla., assignor to Rath Company, Coral Gables, Fla., a corporation of Florida
Filed Dec. 4, 1964, Ser. No. 415,953
4 Claims. (Cl. 98—9)

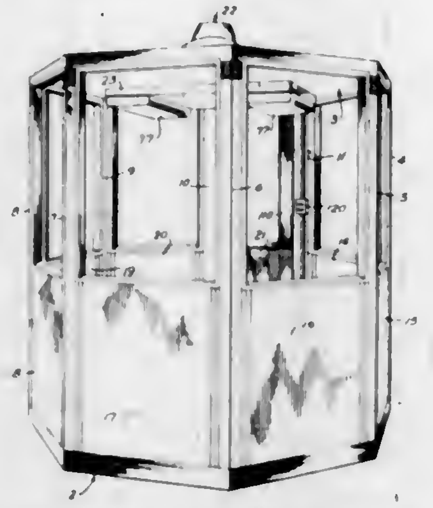


1. In a ventilation system for a vehicular cargo body having a floor, vertical walls and a roof, the combination comprising air intake means, said air intake means being supported below said floor and including means for introducing air regardless of the direction of travel of said vehicular cargo body, air-distribution means cooperating with said air intake means, said air-distribution means being integral with said floor for distributing air to substantially the entire upper surface of said floor, and an air discharge means for the air rising up from said air-distributing means comprising a plurality of discharge ports positioned in an upper portion of said cargo body, the air distribution means comprises a plurality of transversely spaced, longitudinally arranged, air distribution plenums, said plenums comprising a substantially flat floor member having integral upstanding T-shaped members running longitudianlly of said floor members.

3,302,547
GENERAL PURPOSE PORTABLE ROOM WITH VENTILATING MEANS
Seymour Wasserman, Jackson Heights, N.Y., assignor to Industrial Acoustics Company, Inc., Bronx, N.Y., a body corporate of New York
Filed Sept. 2, 1964, Ser. No. 393,844
7 Claims. (Cl. 98—33)

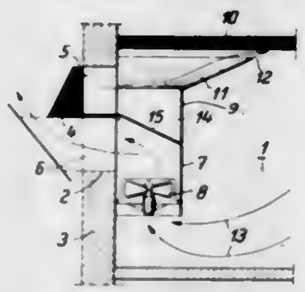
1. In a general purpose portable room, the combination of

a floor member and a ceiling member, the peripheries thereof being in the shape of similar polygons;
a plurality of like column members disposed between the vertices of said polygons and adapted to structurally support said ceiling member, at least one of said column members being hollow and acoustically lined;
wall sections disposed between said columns to provide a room enclosure;
an air supply port communicating between the interior of said lined column and said room enclosure;



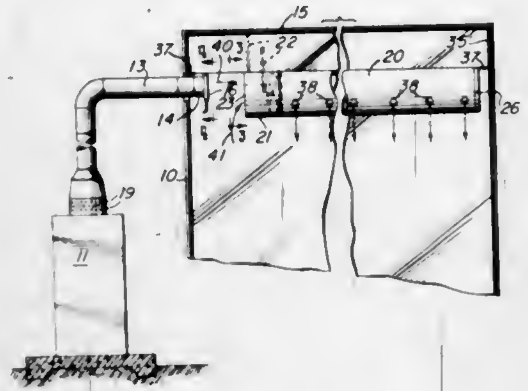
an air intake port spaced above said air supply port and communicating with the interior of said lined column;
and fan means operative to draw fresh air into said room enclosure via said air intake port, the acoustically lined hollow column, and said air supply port.

3,302,548
VENTILATING DEVICE FOR SPACES IN BUILDING
Horst Kohlmeyer, Bremervorde, Germany, assignor to Lohmann-Apparatebau K.G., Cuxhaven, Germany
Filed Dec. 30, 1964, Ser. No. 422,166
Claims priority, application Germany, Dec. 30, 1963, L 46,688
6 Claims. (Cl. 98—33)



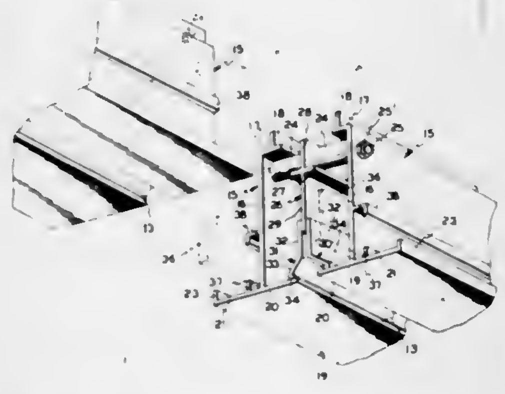
1. A ventilation unit comprising a housing adapted to be mounted on the inside of a wall of a room to be ventilated associated with a wall opening defined in said wall, said housing having a fresh air intake opening extending over a first part of the cross sectional area of said wall opening, an outlet opening facing and opening into the interior of said room, a separation wall defining a first air passage between said fresh air intake opening and said outlet opening and extending into said wall opening, an exhaust opening extending over a second part of the cross sectional area of said wall opening, an inlet opening facing and opening into the interior of said room and arranged in said housing remote from said outlet opening, said separation wall also defining a second air passage between said exhaust opening and said inlet opening, a blower having a high pressure side and a low pressure side mounted in said second air passage for drawing a stream of air from said inlet opening to and out of said exhaust opening, said separation wall including a port communicating with said first and second air passages on said high pressure side of said blower, and adjustable valve means within said port, said outlet opening directing air ejected therefrom away from the air stream entering said inlet opening.

3,302,549
ATMOSPHERE DISTRIBUTING APPARATUS
William I. Tibbitts and Robert N. Bose, both of St. Joseph, Mich., assignors to Whirlpool Corporation, a corporation of Delaware
Filed Oct. 2, 1964, Ser. No. 401,147
3 Claims. (Cl. 98—38)



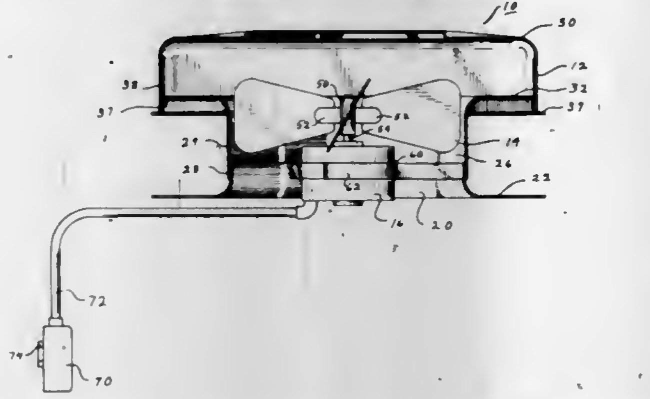
1. Apparatus in an enclosure for distributing a growth promoting in said enclosure for growing plants, comprising: supply means for supplying said atmosphere; distributing duct means above said plants; fluid flow activating means in said duct means for effecting the flow of atmosphere through said duct means, said duct means having outlet passages spaced therealong for distributing atmosphere from the duct means to the plants; means for selectively delivering and preventing delivering of said growth promoting atmosphere from said supply means into said duct means; and means for introducing enclosure atmosphere into said duct means for recirculation in said enclosure selectively with or without additional growth promoting atmosphere from said supply means, whereby when said means for selectively delivering and preventing delivering is preventing delivery of growth promoting atmosphere, recirculation of enclosure atmosphere only is achieved by way of said duct means.

3,302,550
AIR DISTRIBUTOR
Quentin R. Thomson, 2804 E. Malvern St., Tucson, Ariz. 85716
Filed Dec. 31, 1964, Ser. No. 422,809
8 Claims. (Cl. 98—40)



1. An air distributor having in combination, parallel walls laterally spaced apart and defining the sides of an elongated passage adapted for the flow of air through said passage, each of said parallel walls having an inwardly directed wall the inner edges of which are spaced apart to form a slot for the passage of air therethrough, an intermediate wall held in spaced relationship to said parallel walls and terminating above said inwardly directed walls, said intermediate wall forming a support for a pair of individually, vertically slidable vane members, and means for supporting said vane members in vertically adjusted positions, said vane members adapted to bear against said inwardly directed walls when in fully lowered position to prevent flow of air through said slot.

3,302,551
VENTILATOR
Paul D. Van Belle, and John F. Randolph, Jr., Niles, Mich., assignors to Kool-O-Matic Corporation, Niles, Mich., a corporation of Michigan
Filed June 22, 1964, Ser. No. 376,808
2 Claims. (Cl. 98—43)

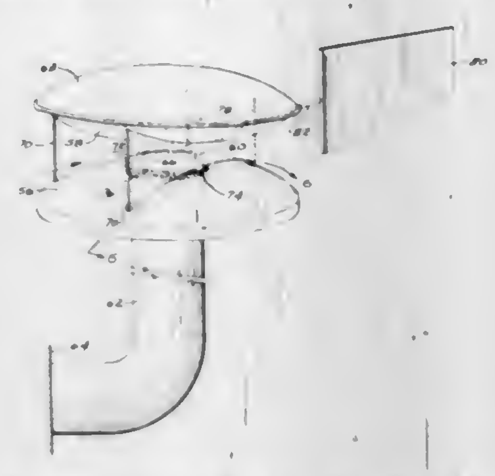


1. A ventilator for installation on horizontal, inclined and vertical surfaces of roofs and walls having a hole connected with the space to be ventilated, comprising a rectangularly shaped base having a radially extending flange and a round center air passage, a neck portion connected to said base and having a round center air passage connected to said first air passage and a radially extending flange with a plurality of openings therein spaced outwardly from the periphery of said neck and inwardly from the periphery of said second mentioned flange, a mesh material covering the holes in said last mentioned flange, said second mentioned flange being connected by an annular curved portion of a relatively large diameter, a rectangularly shaped head member having a top panel and side walls connected to the peripheral edge of said last mentioned flange, the inner edges of said walls extending toward said first mentioned flange to a point between said flanges to form a shield for the openings in said second mentioned flange, a radially outwardly extending flange on the inner edges of said side walls, a bladed fan mounted in said last mentioned air passage on a hub on an axis parallel with the axis of said center passages and having the blades intersecting the plane of said second mentioned flange, an electric motor mounted in one of said passages and having a shaft connected to said hub, and a bracket having three radially extending arms connected to said motor and to said base for supporting said fan.

3,302,552
VENTING APPARATUS INCLUDING VENTURI MEANS
Bruce R. Walsh, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed Mar. 17, 1965, Ser. No. 440,507
5 Claims. (Cl. 98—70)

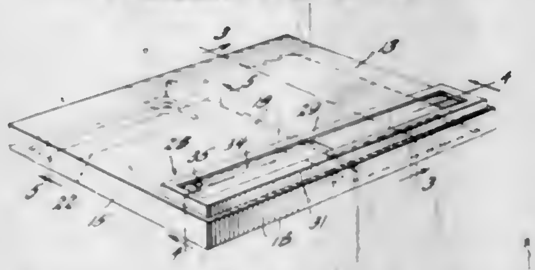
1. A venting apparatus comprising a pair of saucer-like disks whose convex surfaces face each other, first support means adapted to support said disks in coaxial spaced-apart relationship, central opening means in at least one of said facing disks, a pair of curved plates disposed between said disks on diametrically opposed sides of said central opening means with the convex surfaces of said plates facing each other across said central opening means, each of said plates contoured longitudinally to correspond to, but be slightly spaced-apart from, the contiguous surfaces of said disks to define a venturi channel bounded on two lateral sides by said pair of plates and

bounded from above and below by said disks with said central opening disposed at the throat of said venturi channel, second support means for securing said plates in fixed spaced-apart relationship, rudder means attached to said plates and projecting beyond an end of said plates, rotatable means, said plates mounted on said rotatable means, said apparatus adapted so that the action of the wind upon said rudder means induces said pair of plates to revolve as a unit upon said rotatable means around said central opening means while said disks remain stationary whereby said venturi channel continuously faces into the wind.



3,302,553
VENTILATING ACCESSORY FOR AIR CONDITIONING UNITS

Bernard Shearn, 327 E. 102nd St.,
New York, N.Y. 10029
Filed Apr. 18, 1966, Ser. No. 543,202
5 Claims. (Cl. 98—94)

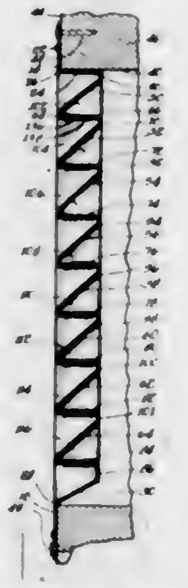


3. An accessory for use with an air conditioning unit to supply outside and room air to the unit comprising, a casing, said casing having a top, a bottom, sides, an inside end and an outside end, a longitudinally arranged partition within said casing connected to the top, bottom, and both ends thereby dividing the interior of the casing into a fresh-air duct means and a room-air duct means alongside thereto, said fresh-air duct means having a fresh-air intake opening located adjacent the outside end, and an outlet opening in the top adjacent the inner end, said room-air duct having a room-air intake opening adjacent the inside end and an outlet opening in the top adjacent the outlet opening of the fresh-air duct, a damper means comprising a movable member mounted on the top adjacent said outlet openings and movable over said outlet openings to variably and alternatively cover and uncover said outlet openings, guide means along the outlet openings cooperating with said movable member to guide it over the openings.

3,302,554
ONE PIECE LOUVER UNIT

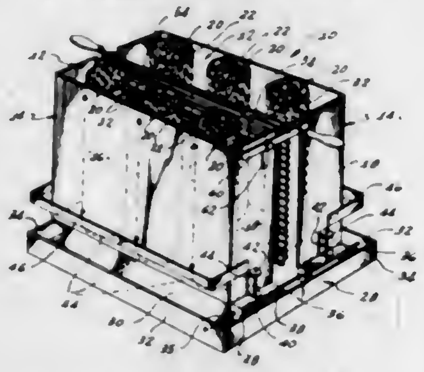
Donald L. Rousey, Des Plaines, and Roger D. McCutcheon, Northfield, Ill., assignors to Leslie Welding Co. Inc., Franklin Park, Ill., a corporation of Delaware
Filed Jan. 5, 1965, Ser. No. 423,462
6 Claims. (Cl. 98—121)

1. A one-piece sheet material louver unit comprising a marginal portion having opposite side sections having marginal edges, a plurality of vertically spaced inclined louver sections extending between said side sections, a plurality of generally horizontal sections extending between and adjacent upper and lower end margins of immediately adjacent louver sections, connecting sections integrally joining said generally horizontal sections to said upper and lower margins of adjacent louver sections, certain of said connecting sections being disposed substantially in a common plane and integrally joining said marginal edges of said opposite side sections, opposite ends of said louver sections and said generally horizontal sections being separate from and spaced inwardly from said opposite side sections and the marginal edges thereof, generally triangular end sections integrally joining adjacent end edges of immediately adjacent louver sections and generally horizontal sections, each of said generally horizontal sections having opening means therethrough, and a plurality of louver elements integral with each of said generally horizontal sections and inclined in respect thereto and traversing each of said opening means.



3,302,555
CHARCOAL BRAZIER

Rodney T. Burwell, 3762 Alta Mesa Drive,
Studio City, Calif. 91604
Filed May 24, 1965, Ser. No. 458,061
8 Claims. (Cl. 99—390)



3. A charcoal brazier comprising:

a drip pan including a bottom wall and upstanding side and end flanges rising from the edges of said wall,

a rod extending between and supported by said side flange adjacent and parallel to one end flange of said drip pan,

a pair of charcoal receptacles each including a 3-sided metal housing including an outer wall and two end walls, whereby the inner side, top and bottom of said housing are open, and a plurality of charcoal baskets mounted side by side within said housing against said outer wall thereof, each charcoal basket having an open top and a multiplicity of openings in its side wall,

a pair of slides mounted on said rod for movement therealong, each slide including an upstanding pin,

a bracket on one end wall of each receptacle housing, said housing brackets being perforated to receive said slide pins for supporting said charcoal receptacles in an upright position on said drip pan with the open inner sides of said receptacles confronting one another, said receptacles being bodily adjustable toward and away from one another and being swingable toward and away from one another about said slide pins,

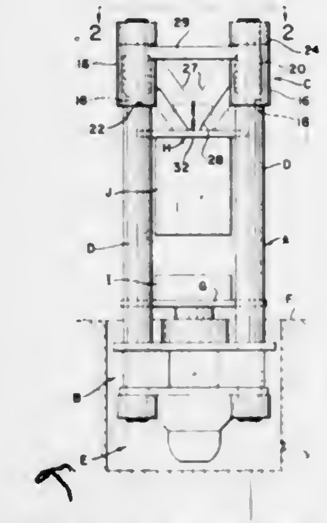
a pair of arms hinged to the end walls of one of said receptacle housings adjacent the upper end and inner side of said one housing,

a pair of brackets mounted on the end walls of the other receptacle housing for receiving the outer ends of said arms and supporting said arms in a generally horizontal position when said charcoal receptacles are supported in position on said drip pan, and

a food holder comprising a pair of wire grills and rods extending outwardly from the upper edge of said food holder for resting on said arms, thereby to suspend said food holder in a vertical position between said charcoal receptacles.

3,302,556
PRESS FRAME

Stanley H. Durbin, Canton, Ohio, assignor to E. W. Bliss Company, Canton, Ohio, a corporation of Delaware
Filed May 20, 1965, Ser. No. 457,378
3 Claims. (Cl. 100—214)



1. A four column press including a bed restrained at the ends of four columns extending therefrom and a pair of platens supported in relation to the bed such that one is fixed and the other is reciprocal relative thereto, said fixed platen being positioned symmetrically with respect to the press axis and extending in a plane normal thereto and within the working stroke of the reciprocal platen and comprising

integrally formed truss means for distributing the load on the fixed platen equally to the ends of the columns as axial forces including

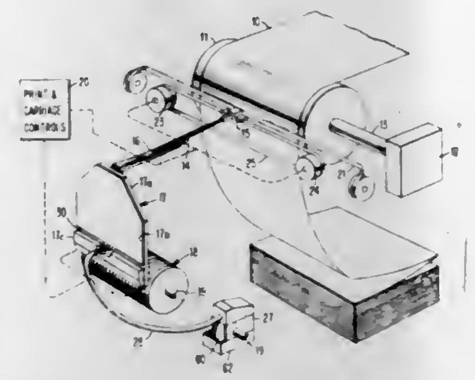
a truss head connected to the fixed platen at the press axis,

a plurality of truss arms each extending diagonally from the truss head and connected to the end of one of said columns and

horizontal members extending laterally between the ends of each column and interconnecting each truss arm so as to absorb any bilateral forces transmitted to the column, each truss arm being connected at the point where two of the horizontal members adjoin each other so as to provide open spaces between the truss arms and the horizontal members.

3,302,557
LUBRICATION OF PRINT WIRES

Victor R. Simpson, Owego, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed May 29, 1964, Ser. No. 371,195
6 Claims. (Cl. 101—1)



1. In combination

a relatively long flexible print wire,

a flexible guide tube disposed to slidably receive said print wire,

support means for said guide tube adjacent one end thereof for securing said end with a projecting end portion,

means for moving said wire longitudinally in said tube including a drive slug attached to the wire at said projecting tube end and having an axial bore about a portion of the wire open at the end adjacent the tube and closed at the end remote from the tube, said slug having a recess on one side and opening into the bore at the end adjacent the tube and of less depth than said bore,

means for actuating said slug longitudinally between positions in which the tube end enters the bore beyond the bottom of the recess and in which the tube end clears the portion of the bore beyond the bottom of the recess,

and means supplying oil to said recess for admission to the bore when the tube end clears the portion of the bore beyond the bottom of the recess.

3,302,558
EMBOSSING APPARATUS

Stanley W. Otto, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri
Filed Apr. 12, 1965, Ser. No. 447,372
5 Claims. (Cl. 101—23)

1. In combination with a thin material converting machine having means for transporting thin material in a path, embossing apparatus comprising:

(a) a first rotary die member mounted on said machine and having a die portion adapted to rotate through a tangent position with said path,

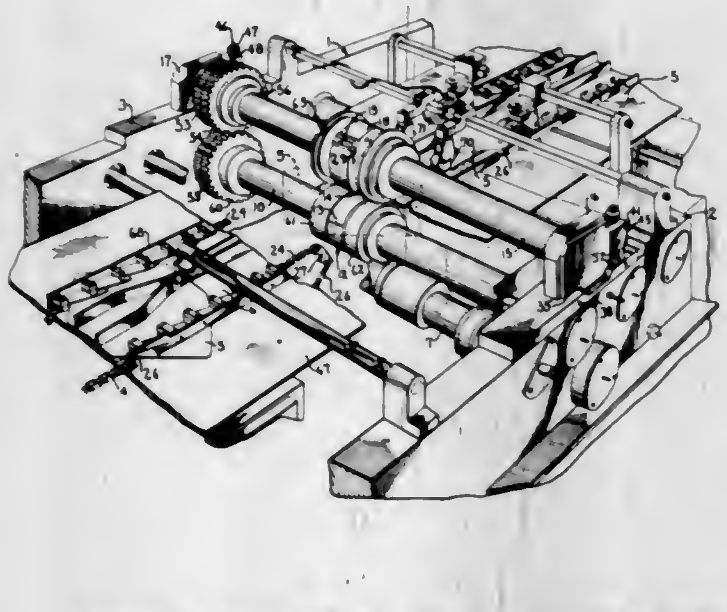
(b) a second rotary die member mounted on said machine in opposed relation to said first die member and having a die portion mateable with said first die portion and adapted to rotate through said tangent position with said path, and

(c) motion transmitting members connected to said die members and cooperating to cause said die members to rotate synchronously and said first and second die portions to simultaneously arrive and mate at said tangent position,

(d) said die members respectively including a first and a second shaft, bearing means rotatably mounting said second shaft, said bearing means including a shaft bearing receiving one end of said second shaft, a housing containing and supporting said bearing and having a rear hinge pin receiving portion, a mounting bracket fixed to one of said side walls and having a pin received in said housing at said hinge pin receiving portion for vertically pivotally mounting said housing on said bracket,

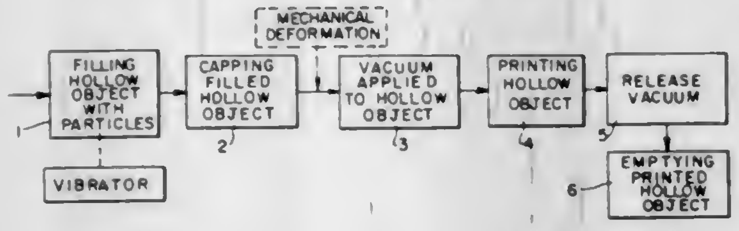
(e) a forwardly extending block on said housing and spaced above said bracket, said block having a vertically extending bore therewith, an elongated rod extending vertically through said bore and having a lower end portion pivotally mounted on said bracket and a threaded upper end extending above said block, a nut on said threaded upper end, a helical compression spring surrounding said rod an bearing at opposite ends thereof against said nut and block for resiliently urging said housing and second shaft downwardly, and

(f) a vertically extending limit screw threadedly engaged in said housing adjacent said rod and bearing downwardly against said mounting bracket to limit the downward movement of said housing, whereby said second shaft may move upwardly to limit pressure exerted between said die portions.



3,302,559
METHOD AND APPARATUS FOR PRINTING ON THE SURFACE OF PLASTIC HOLLOW OBJECTS

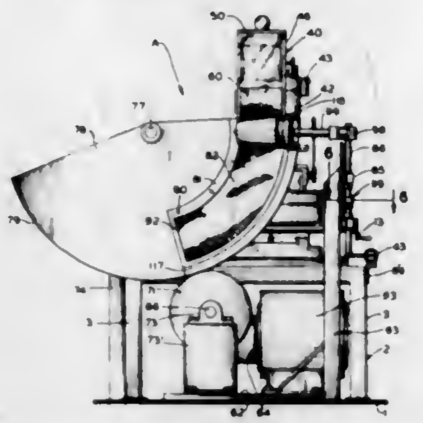
Emery I. Valyi, 5200 Sycamore Ave.,
New York, N.Y. 10071
Filed Sept. 9, 1965, Ser. No. 486,156
9 Claims. (Cl. 101—36)


MECHANICAL DEFORMATION
FILLING HOLLOW OBJECT WITH PARTICLES
CAPPING FILLED HOLLOW OBJECT
VACUUM APPLIED TO HOLLOW OBJECT
PRINTING HOLLOW OBJECT
RELEASE VACUUM
EMPTYING PRINTED HOLLOW OBJECT
VIBRATOR
1
2
3
4
5
6

1. The method of printing on the surface of a deformable plastic hollow object having deformable walls which comprises filling said object with removable particulate material which is inert to the material of said walls and is of a size such that it remains free of said walls after being subjected to printing pressure, applying from an outside source a rigidifying force to temporarily rigidify said particulate material to form a support for said walls and subjecting said walls to printing pressure in a printing zone, removing the rigidifying force to release said particulate material, and removing the same from said hollow object after printing.

3,302,560
SEMI-AUTOMATIC ELECTROSTATIC PRINTING SYSTEM HAVING MOVING SCREEN

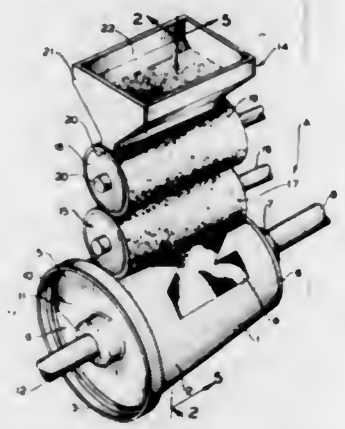
James W. Edwards, Creve Coeur, and Shelly W. Mays, Jr., and Harry J. Larrigan, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed June 11, 1965, Ser. No. 463,109
14 Claims. (Cl. 101—38)



1. A device for electroscopic deposition printing comprising base means, an electrically charged screen having solid and opened areas operatively mounted on said base means for shifting into and out of printing position, an electrically charged mandrel support shaft operatively mounted on said base means and being shiftable into and out of printing position, an article receiving mandrel rotatably mounted on said mandrel shaft, fluid pressure means for alternately maintaining a vacuum on said mandrel to retain an article and a positive pressure to eject an article, said mandrel having a conically shaped end wall, an aperture in said end wall and communicating with said fluid pressure means, a plurality of teeth surrounding said aperture and engaging said article, a supply of electroscopic ink operatively associated with said base means, delivery means associated with the supply of ink for delivering electroscopic ink to said screen, and means for creating an electrical potential difference between said mandrel and said screen to create an electrostatic field, whereby electroscopic ink will pass through the opened areas of said screen onto an article disposed on said mandrel, when the latter and the screen are shifted to printing position.

3,302,561
ELECTROSTATIC SCREEN PROCESS PRINTING WITH CURVED SCREENS

James W. Edwards, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed July 19, 1965, Ser. No. 472,982
14 Claims. (Cl. 101—38)



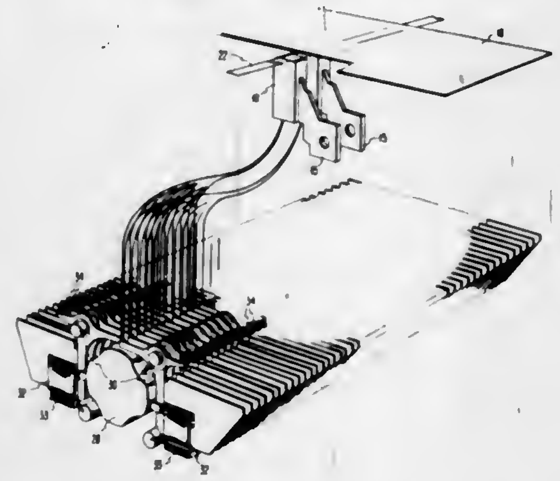
1. An apparatus for electrostatically printing articles having a curvilinear shape, said apparatus comprising a screen having a circumferentially closed and continuous surface of revolution with a surface contour substantially similar to the article to be printed, supporting means coaxially positioned with respect to said screen for holding the article in spaced relation to the screen, means for coaxially shifting said supporting means into and out of the continuous surface of revolution of said screen, ink supply means for feeding electroscopic ink to said screen, and means for establishing an electrostatic field between said supporting means and screen so that ink will flow through the open mesh portions of said screen to the article and thereby transfer the image pattern on said screen to the article.

ERRATA

For Class 101—39 see:
Patent No. 3,302,579
Patent No. 3,302,580

3,302,562
MEANS TO PREVENT EXCESSIVE FRICTIONAL LOADING IN A WIRE PRINTER

Roland D. Nelson, San Jose, Calif., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 29, 1964, Ser. No. 378,616
11 Claims. (Cl. 101—103)

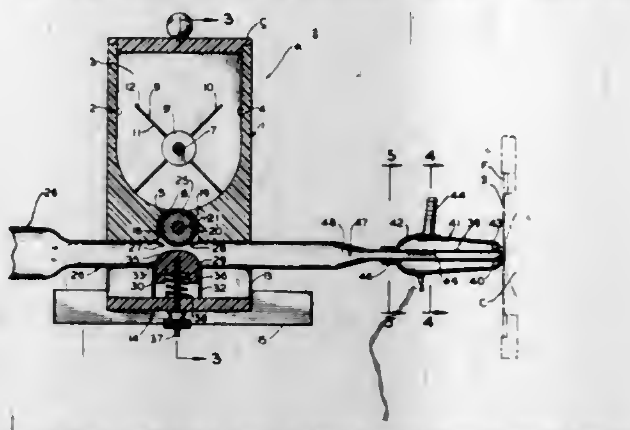


1. A wire printing mechanism, comprising:
an enclosure;
a plurality of selectively movable character forming elements having first character forming portions and having second portions thereof passing through said enclosure;
a fluent material disposed in said enclosure surrounding said second portions of said character forming elements; and
pressure forming means to pressurize said fluent material in said enclosure to block the passage of foreign material from said character forming portions beyond said second portions of said character forming elements.

3,302,563
INK FEEDING MECHANISM FOR ELECTROSTATIC PRINTING SYSTEMS

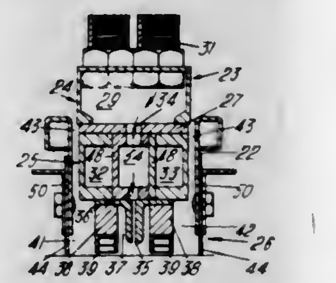
James W. Edwards, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed June 3, 1965, Ser. No. 461,044
14 Claims. (Cl. 101—114)

1. A feeding mechanism for electrostatic printing systems and the like which include a counter-electrode and an electrically charged screen with an electrostatic field established therebetween; said feeding mechanism comprising a container of electroscopic ink, metering means associated with said container for delivering a charge of electroscopic ink to a transfer area, delivery means associated with said transfer area to carry said ink particles in a fluid media at a first velocity to said screen, means for separating the fluid media from the ink particles before the ink particles reach the screen, said last named means reducing the ink particles to a second velocity which is less than said first velocity and means associated with said delivery means to deliver the ink in a band relatively narrow in one dimension where the ink particles are then carried by the electrostatic field established between said screen and counter-electrode.



3,302,564
STENCIL-PRINTING MACHINE

Ernest Wilford, Crossflatts, Bingley, England, assignor to The Bradford Dyers' Association Limited, Bradford, England, a British company
Filed July 20, 1964, Ser. No. 383,775
Claims priority, application Great Britain, July 19, 1963, 28,727/63
4 Claims. (Cl. 101—123)



1. A stencil-printing machine for pile fabric comprising a stencil having imperforate ends and a central perforated part, a support for the fabric passing beneath said stencil, and applicator means mounted for reciprocating movement over said stencil and having a bottom opening extending over the entire length of said applicator means for the supply of free-flowing coloring liquid under pressure to said stencil, a pair of inner squeegees secured to said applicators means on opposite sides of said opening and adapted to bear on said stencil, a pair of outer squeegees secured to said applicator means and spaced from said inner squeegees on opposite sides thereof to define bounding chambers extending over the entire length of said applicator means outside said inner squeegees, and means for applying suction to said chambers to draw away coloring liquid leaking under said inner squeegees into said chambers.

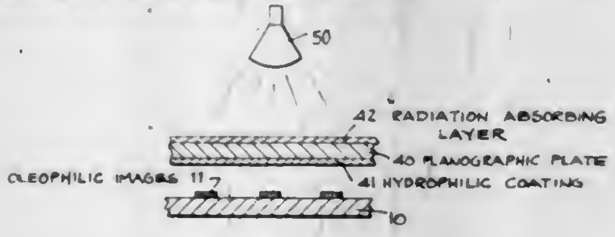
3,302,565
THERMOGRAPHIC METHODS AND PRODUCTS

Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y., a corporation of New York
Filed Sept. 19, 1963, Ser. No. 309,924
9 Claims. (Cl. 101—149.2)

2. The method of forming on a planographic printing plate oleophilic images which correspond exactly to images on an original sheet, which comprises the steps of:

(a) superposing an original sheet having thereon infrared radiation-absorbing original images, a transfer sheet comprising a translucent foundation carrying a layer of heat-transferable oleophilic imaging composition which does not absorb infrared radiation, and a thin translucent paper donor sheet having a smooth treated surface having good receptivity for said heat-transferable imaging composition and having the ability to release said imaging composition to the surface of a planographic plate under the effects of heat, the treated surface of said donor sheet being in surface contact with said imaging composition;

(b) applying infrared radiation to said original images through said donor and transfer sheets for a period of time sufficient to selectively heat said original images and cause corresponding areas of the layer of imaging composition to soften and adhere to the treated surface of the donor sheet;

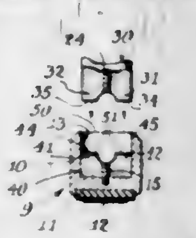


(c) separating the transfer sheet and donor sheet whereby portions of the imaging composition remain adhered to the donor sheet in the form of oleophilic images corresponding to the original images;

(d) superposing the imaged donor sheet with a planographic printing plate having a nonmelting infrared radiation-absorbing layer thereon so that the images on the donor sheet are in surface contact with the printing surface of the plate, and applying infrared radiation to said plate to heat the plate and cause said images to soften and adhere to the plate surface; and

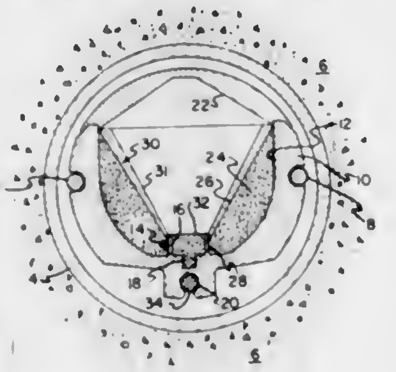
(e) separating the donor sheet and the planographic printing plate whereby the images remain adhered to the plate surface and transfer from the surface of the donor sheet in the form of oleophilic images corresponding to the original images.

3,302,566
HANDLE AND STAMP BODY MAGNETICALLY COUPLED
Paul G. Blanchet, 61 Cleveland St., Orange, N.J. 07050
Filed July 22, 1964, Ser. No. 384,302
4 Claims. (Cl. 101—405)



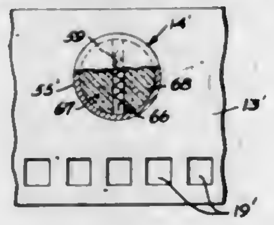
1. A hand stamp assembly comprising stamping means, first magnet means nonrotatably secured thereto, said stamping means having a recess therein, said first magnet means disposed in said recess and having a pair of poles of opposite polarity, said poles located in said recess and disposed below the upper limit of said recess, a detachable handle, second magnet means nonrotatably secured to said handle but rotatable in unison with said handle, said second magnet means having a pair of poles of opposite polarity, at least a portion of said second magnet means located in said recess with the poles of said first magnet means being adjacent the polarity-unlike poles of said second magnet means whereby said handle and said stamping means are magnetically coupled in operative relationship, said handle being rotatable in unison with said second magnet means to rotate said second magnet means thereby to dispose the poles thereof adjacent the respective like-polarity poles of said first magnet means whereby said first and second magnet means are in repelling relationship and said handle is easily detachable from said stamping means.

3,302,567
SHAPED-CHARGE BOOSTER
Alexis A. Venghiattis, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed Mar. 9, 1964, Ser. No. 350,331
2 Claims. (Cl. 102—24)



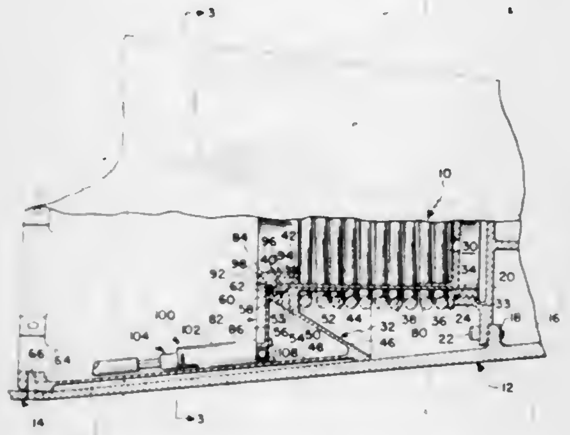
1. A shaped charge comprising:
a housing having a cup-shaped interior;
a main charge of explosive material positioned in said cup-shaped interior;
said main charge having an exterior surface mating with the interior wall of the housing and a frusto-conical inner surface and a cylindrical passage adjacent the small end of the frusto-conical inner surface;
a nonexplosive liner covering the frusto-conical inner surface;
a thin cylindrical member opposing said cylindrical passage;
a solid cylindrical booster formed of high explosive material completely filling said cylindrical member, the minimum cylindrical area of the booster opposing the cylindrical portion of the passage of the main charge being at least as great as to the cross sectional area of the passage of the main charge; the booster terminating in a portion of smaller diameter that approaches the exterior wall of the housing, and
means adjacent the exterior wall of the housing to initiate the detonation of the small diameter of the booster, the detonation of the booster resulting in cylindrical shock waves which detonates the main charge.

3,302,568
CONCATENATED SERIES OF PROPELLANT CHARGES
Richard E. Biehl, Pearl River, N.Y., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Dec. 27, 1962, Ser. No. 247,671
1 Claim. (Cl. 102—34.5)



A concatenated series of propellant charges for a pulse rocket motor system, comprising in combination a first flexible elongated strip of electrically nonconductive rupturable material, a plurality of discrete fuel propellant charges mounted on said strip in longitudinally spaced series relationship, a second flexible elongated strip of electrically nonconductive material bonded to said first strip and forming therewith domed capsules enclosing said charges between said first and second strips, said first strip having a generally flat exterior surface and said second strip being shaped to form said domed capsules, each of said capsules having an internal heat-rupturable septum dividing said capsule into two compartments, each of said compartments containing a liquid propellant fraction which on contact with the other said fraction causes combustion by hypergolic reaction, each of said capsules containing an electrical resistance element in thermal contact with said septum, each of said capsules having a pair of electrical contacts formed in circuit with said resistance element and borne by said first strip and extending therethrough and having exposed surfaces substantially flush with the exterior surface of said first strip for frictional engagement with external electrodes, whereby when an electrical circuit is completed through said contacts and said resistance element said septum will be ruptured by heat causing contact of said two liquid propellant fractions and consequent combustion thereof to rupture said first strip.

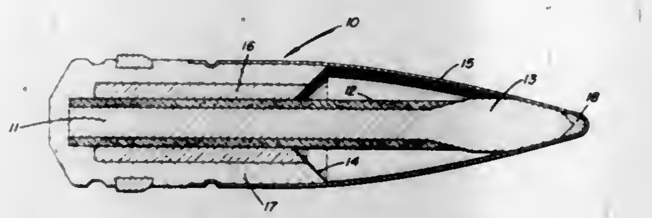
3,302,569
QUICK RELEASE SEPARATION MECHANISM
William L. Newcomb, Rte. 1, Box 164, Carrollton, Va. 23314
Filed Dec. 23, 1965, Ser. No. 516,151
10 Claims. (Cl. 102—49)



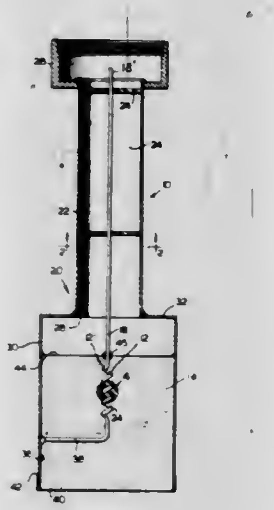
1. In a quick release separation device the combination comprising: fingered means for securement to one element; retainer means adapted for securement to a second element to be releasably connected to said first element and to engage said fingered means; resilient means for disposal between said fingered and retainer means to effect separation of said elements; latching means for releasably securing said fingered means and retainer means together; and releasing means for operable attachment to said latching means, whereby a signal from a remote location activates said releasing means to effect movement of said latching means and thereby permit said resilient means to force said fingered and retainer means away from one another to effect separation of said elements.

3,302,570
ARMOR PIERCING, FRAGMENTING AND INCENDIARY PROJECTILE
Frank R. Marquardt, Alexandria, Va., assignor to Walter G. Finch, Baltimore, Md.
Filed July 23, 1965, Ser. No. 474,329
12 Claims. (Cl. 102—52)

1. A projectile for piercing armor, comprising structure defining a projectile body, an elongated penetrator of relatively smaller diameter extending forward from said body and terminating in an enlarged head for piercing said armor, incendiary material surrounding said penetrator and terminating at said enlarged head, said incendiary material having a smaller diameter than that of said enlarged head for piercing said armor therewith, and windshield structure defining a smooth surface of transition between said body and said enlarged head.

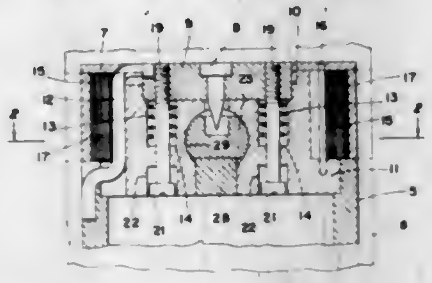


3,302,571
ELECTRIC INITIATOR
Carlton M. Slough, Henrico County, Va., assignor to Texaco Experiment Incorporated, Richmond, Va., a corporation of Virginia
Continuation of application Ser. No. 110,012, May 15, 1961. This application May 11, 1964, Ser. No. 366,238
5 Claims. (Cl. 102—70.2)



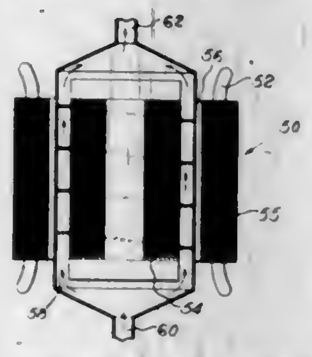
1. An electric initiator safeguarded against premature initiation from radio frequency electromagnetic wave energy comprising a fuse wire, a heat sensitive composition in heat exchange relationship to the fuse wire, an electrical conductor having one end connected to one end of the fuse wire and the other end of the electrical conductor being connectable to a source of initiating current, an electrically conductive tubular member surrounding the electrical conductor and extending from a point adjacent said one end of the fuse wire a length equal to the length of the electrical conductor, said length being not less than two wavelengths, λ_{co}, at a cut-off frequency of F_{co}, said tubular member being dimensioned transversely such that F_{co} equals $C/2a$ where a is equal to the major waveguide interior cross-section dimension in centimeters, C is equal to the velocity of light in centimeters per second and F_{co} is equal to at least about 2 kilo-megacycles; conductive electrical shielding means encasing said fuse wire and said heat sensitive composition, said shielding means having one wall surface mechanically and electrically joined to said tubular member, and at least one further wall surface formed of initiation destructible conductive material, and electrical conductor means electrically connecting the other end of the fuse wire and said shielding means.

3,302,572
DELAYED FUZE MECHANISM
Charles W. Lindberg, Hopkins, Elvin W. Tlam, Excelsior, and Robert L. Bonde, Minneapolis, Minn., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed June 3, 1965, Ser. No. 461,214
4 Claims. (Cl. 102—79)



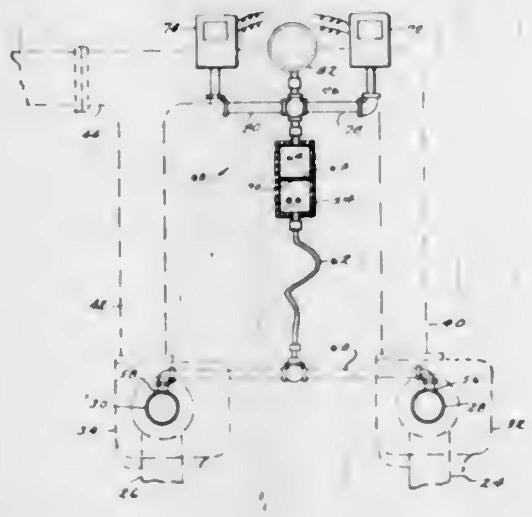
1. A delayed fuze mechanism for projectiles in flight and subjected to spin operation above a pre-determined speed, comprising in combination,
a fuze base having a cylindrical peripheral surface,
a central axially-movable inertial block therein,
a firing pin carried by said block and movable axially therewith from an unarmed position to an armed position,
a pair of release arms in the periphery of the base engaging the inertial block for locking said block and firing pin in the unarmed position,
a transversely-movable bolt in said base,
a bolt-locking element lying in said peripheral surface of the fuze base for holding the bolt in a normal retracted position,
a detonator element carried by said bolt and movable therewith to an armed position in alignment with the firing pin in its armed position upon release of said bolt locking element,
a plurality of flexible ribbon elements wrapped in layers about the periphery of said base to lock and hold said release arms and bolt locking element in place,
releasable cover means for said ribbon elements surrounding and engaging the outer layer thereof to hold said ribbon elements in place during initial flight and rotation of a carrier projectile and,
means responsive to a predetermined speed of rotation of said fuze for releasing said cover means and said ribbon elements to introduce a time delay in unwinding and releasing said firing pin and bolt to the armed position well into the flight range.

3,302,573
APPARATUS FOR PUMPING LIQUID METALS
Julian Louis Ledeen, 32 Park Road,
Maplewood, N.J. 07040
Filed June 5, 1964, Ser. No. 372,819
21 Claims. (Cl. 103—1)



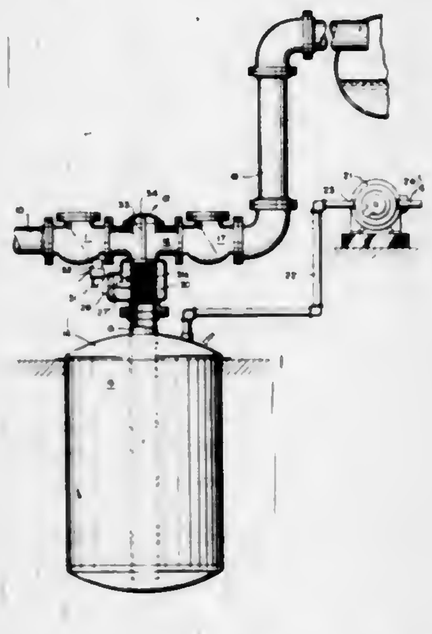
1. Apparatus for pumping electrically conductive fluid comprising:
an electrically conductive, arcuate, tubular conduit for conducting the electrically conductive fluid from an entrance position to an exit position;
magnet pole means including an even number of spaced magnet pole pairs placed such that the electrically conductive, arcuate, tubular conduit is between the magnet pole pairs and the magnetic flux fields are directed therethrough;
the directions of the fields produced by adjacent magnet pole pairs being opposite in direction;
the magnet pole pairs being spaced and shaped so that the edge of one magnet pole is separated from the edge of the next adjacent magnet pole by a distance not less than the width of the final air gap in each magnet pole pair and not more than four times this width and such that there is a rapid change of direction of the magnetic flux field in the electrically conductive, arcuate, tubular conduit between adjacent magnet pole pairs and there is substantially no field-free region traversed by the electrically conductive fluid;
means operatively connected to the magnet pole means for mechanically moving the magnet pole means lengthwise along the electrically conductive, arcuate, tubular conduit thereby creating electrical eddy currents in the electrically conductive fluid which interact with the magnetic flux fields so as to produce additive propulsive forces on the electrically conductive fluid from the entrance position to the exit position.

3,302,574
PRESSURE RESPONSIVE PUMP CONTROL
Ryan D. Mitchell, Thomasville, Ga., assignor to Davco Manufacturing Corporation, Thomasville, Ga., a corporation of Georgia
Filed Jan. 14, 1965. Ser. No. 425,414
6 Claims. (Cl. 103—25)



1. In combination with a sump or the like, a pump-out system for maintaining the surface of liquid in said sump between predetermined levels, said system comprising: first and second motor driven pumps disposed adjacent said sump, each pump having an inlet and an outlet; circuit means interconnecting said pumps for operating said pumps alternately; a separate pump-out pipe connected to each pump inlet and communicating with the liquid in said sump; a pressure tap conduit extending between said pump-out pipes at a location outside said sump, said conduit passing liquid in the direction determined by whichever pump is operating; first and second pressure sensitive elements for generating a control signal for the drive motor of said first and second pumps, respectively; and gas-filled conduit means extending from said pressure sensitive elements to a common junction with said pressure tap conduit, said junction being disposed intermediate the ends of said pressure tap line, whereby the locations of the connections between the pressure tap line and the pump-out pipes and between the pressure tap line and the gas-filled conduit means may be selected so as to compensate for differences in the hydraulic characteristics of the sets of pump and pump-out pipes and to thereby provide equal pressure signals to said pressure sensitive elements regardless of which pump is operating.

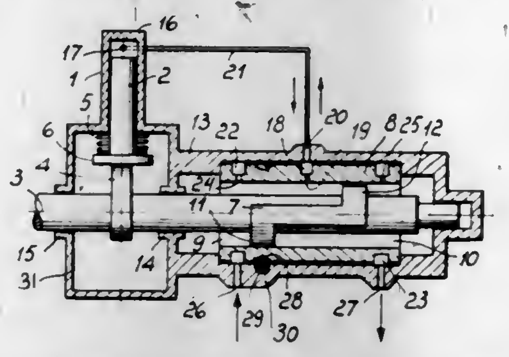
3,302,575
CONTROL FOR SEWAGE EJECTORS AND SUMP PUMPS
Irving Callender Jennings, % Nash Engineering Co., South Norwalk, Conn. 06854
Filed Dec. 11, 1964, Ser. No. 417,616
7 Claims. (Cl. 103—26)



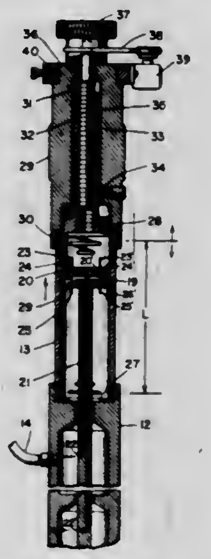
1. In a pumping system, a closed tank adapted to receive a liquid therein, a conduit extending into the tank and having an opening near the bottom of said tank, a chamber disposed outside of said tank and connected to said conduit, said conduit communicating said chamber with the liquid in said tank at predetermined levels of said liquid, a float in said chamber, a pump, means operating said pump when actuated upon rise of said float and causing cessation of operation on fall of the float, said pump driving liquid up said conduit and through the float chamber, the arrangement being such that said operating means remain actuated until the liquid level falls below said opening of said conduit, screen means defining a passage into and out of the float chamber and defining a main path of flow with said conduit, said screen means isolating the float from the inlet and outlet of the chamber, a discharge conduit connected with the main path of flow above the float chamber, said pump driving liquid through the conduit, float chamber and discharge conduit upon operation.

3,302,576
VARIABLE-DELIVERY PUMP WITH STATIONARY CYLINDERS
Smil Reis, Viale Campania 29, Milan, Italy
Filed Mar. 24, 1965, Ser. No. 442,416
Claims priority, application Italy, Mar. 27, 1964, 6,770/64
7 Claims. (Cl. 103—37)

1. A variable-delivery pump with stationary cylinders, comprising at least one cylinder, a piston in said cylinder, a cam and a shaft solid with said cam, for displacing said piston along its stroke, a spring reacting between said cylinder and said piston for keeping said piston in contact with said cam, a rotating distributor fixed to said cam shaft for opening and closing suitably the suction and the exhaust respectively into and from said cylinder, a rotative barrel and ports in said rotative barrel for said suction and exhaust, said distributor turning in said rotative barrel, said rotative barrel being angularly adjustable in respect to said piston stroke, for changing the timing of said suction and exhaust in respect to said piston stroke, thus changing the pump delivery.



3,302,577
PUMP METERING DEVICE
Alfred G. Barstow, 8420 Otis St., South Gate, Calif. 90280, and Russell W. Burns, Venice, Calif.; said Burns assignor to said Barstow
Filed Nov. 10, 1964, Ser. No. 410,190
3 Claims. (Cl. 103—38)

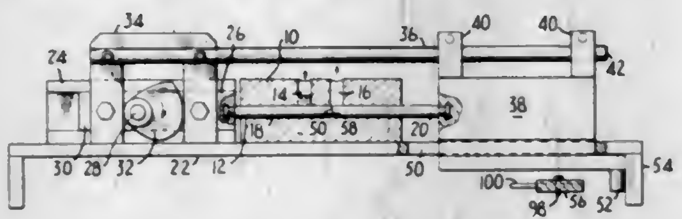


1. In a fluid pump including an actuating rod mounted for reciprocation between first and second limit stops defining the stroke of said pump and wherein the quantity of liquid delivered during each reciprocation is a function of the length of said stroke, a pump metering device adapted to be secured to said pump, said device including a housing having a central bore; an elongated sleeve member longitudinally movable in said bore and having internal threads, one end of said sleeve constitutes a stop means defining one of said limit stops; keying means holding said sleeve member against rotation within said bore while permitting longitudinal movement thereof; and a lead screw threadedly received in said sleeve and keyed against longitudinal movement whereby rotation of said lead screw moves said sleeve in a longitudinal direction to vary the position of said stop means to thereby vary the length of said stroke.

3,302,578
METERING PUMP
Alfred J. Anderson, Livingston, N.J., assignor to H. V. Hardman Co., Inc., a corporation of New Jersey
Filed Apr. 28, 1965, Ser. No. 451,589
13 Claims. (Cl. 103—38)

1. A pump for pumping flowable materials comprising:
(a) a cylinder with an inlet port in its sidewall at one point along the longitudinal axis of the cylinder and

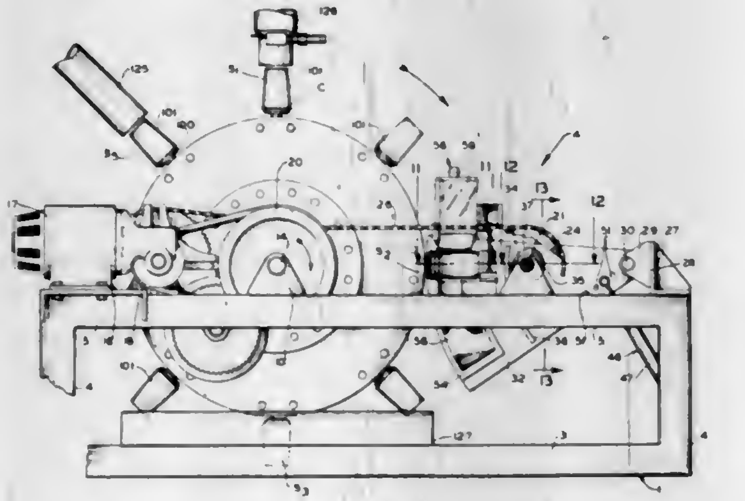
an outlet port in its sidewall at another point along the longitudinal axis of the cylinder,
(b) two pistons arranged in tandem within the cylinder,
(c) cyclic drive means which strokes the two pistons back and forth in synchronism within the cylinder, said cyclic drive means being connected to one of said pistons through a single drive rod without employing cams and to the other piston through a connection which during operation of the drive means provides continuous engagement of said drive means with said other piston and



(d) means for varying the magnitude of the stroke said single rod connected piston with respect to the other piston so that said two pistons move relative to each other at each end of the stroke, moving away from each other adjacent the inlet port to draw the flowable material into the cylinder and towards each other adjacent the outlet port to expel the flowable material from the cylinder.

3,302,579
ELECTROSTATIC PRINTING WITH OSCILLATING SCREEN FRAME AND DUAL PRINTING AT A SINGLE STATION

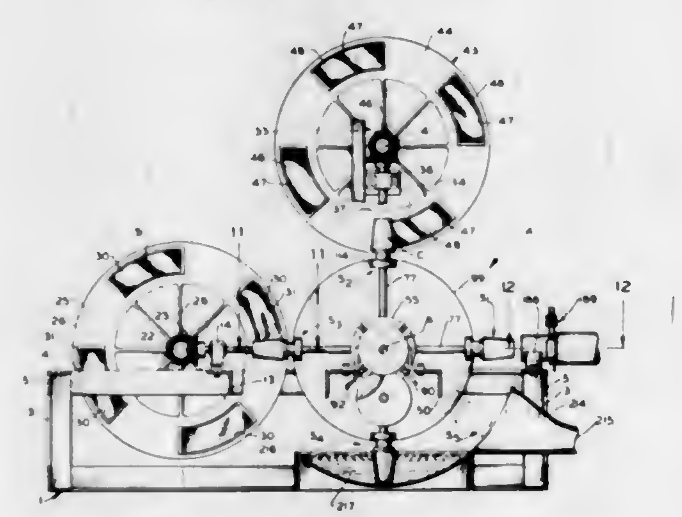
James W. Edwards, Creve Coeur, Shelly W. Mays, St. Louis, and Rodney W. Stout, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Aug. 25, 1965, Ser. No. 482,447
20 Claims. (Cl. 101—39)



1. An electrostatic printing apparatus comprising:
(a) base means,
(b) a first continuously rotatable shaft operatively mounted on said base means,
(c) an actuating wheel operatively mounted on said shaft and rotating through continuous 360° revolutions,
(d) a second shaft operatively disposed in spaced relation to said first shaft,
(e) a slot-wheel having a plurality of engageable slots operatively mounted on said second shaft and being intermittently rotatable,
(f) an extended pin on said actuating wheel for engaging any of said slots on said slot-wheel and rotating the slot-wheel through 90° arcs during 90° arcuate rotational movements of said actuating wheel,
(g) a turret operatively connected to said slot-wheel and being rotatable therewith so that said turret is moved to successive positions which are spaced 45° apart,
(h) a plurality of article retaining means mounted on said turret and being sized to retain desired articles for printing,
(i) an oscillating screen frame operatively mounted on said base means and being shiftable between upper and lower positions during a printing cycle,
(j) an electrostatic printing screen operatively associated with said screen frame and being movable therewith,
(k) means for feeding a supply of electroscopic ink to said screen when said article retaining means are aligned with said screen,
(l) means for moving said movable screen frame in pretimed relationship to said turret so that each one of said article retaining means becomes aligned with said screen,
(m) and means for creating an electrostatic field between said screen and article retaining means so that ink will pass through the open portions of the screen to the article retaining means.

3,302,580
ELECTROSTATIC PRINTING WITH ROTATING SCREEN FRAME AND PLURAL PRINT STATIONS

James W. Edwards, Creve Coeur, Shelly W. Mays, St. Louis, and Rodney W. Stout, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Aug. 25, 1965, Ser. No. 482,475
24 Claims. (Cl. 101—39)

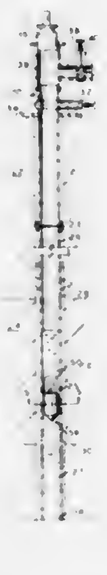


1. An electrostatic printing apparatus comprising:
(a) base means,
(b) a rotatable screen frame operatively mounted on said base means and having at least one individual electrostatic printing screen associated therewith,
(c) a first continuously rotatable shaft operatively mounted on said base means,
(d) an actuating wheel operatively mounted on said shaft and rotating through continuous 360° revolutions,
(e) a second shaft operatively disposed in spaced relation to said first shaft,
(f) a slot-wheel having a plurality of engageable slots operatively mounted on said second shaft and being intermittently rotatable,
(g) an extended pin on said actuating wheel for engaging any of said slots on said slot-wheel and rotating the slot-wheel through arcs of selected length during arcuate rotational movements of said actuating wheel through said selected length,

(h) a turret operatively connected to said slot-wheel and being rotatable therewith so that said turret is moved to successive positions which are spaced apart the arcuate distance of said selected length,
(i) a plurality of article retaining means mounted on said turrent and being sized to retain desired articles for printing,
(j) means for feeding a supply of electroscopic ink to said screens when said article retaining means are aligned with said screens,
(k) means for moving said rotatable screen frame in pretimed relationship to said turret so that each one of said article retaining means becomes aligned with one of said screens,
(l) and means for creating an electrostatic field between said screens and article retaining means so that ink will pass through the open portions of the screen to the article retaining means.

3,302,581
GAS WELL TREATMENT METHODS

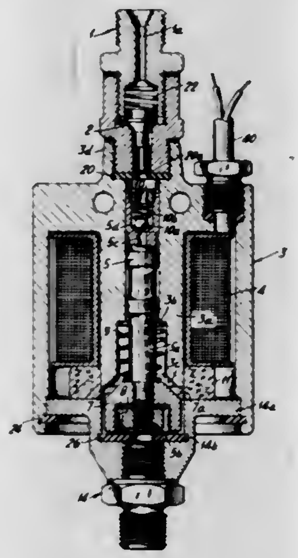
Julius Gordon Burch, Hutchinson County, Tex.
(822 S. McGee, Borger, Tex. 79007)
Original application July 27, 1965, Ser. No. 475,125. Divided and this application Apr. 27, 1966, Ser. No. 545,685
6 Claims. (Cl. 103—52)



1. A process of treating a gas producing well which well also produces liquid water, said well comprising a formation producing gas and water, a tubing string passing from the well surface to said formation, perforations in said tubing providing communication between said formation and the bore of said tubing string, and a discharge valve at the top portion of said tubing string and operatively connected thereto, which process comprises the steps of
(a) blowing the well by opening said discharge valve, and creating an annular column of liquid water in the tubing string bore,
(b) closing the well in by closing said discharge valve and transferring the water in said annular column of liquid water to the bottom of the tubing string bore,
(c) passing down the well a collapsible plug within a container of smaller external diameter than the internal diameter of said tubing and entrapping gas at closed in formation pressure in said plug and passing said container and plug to the bottom of said column prior to the major portion of said water returning to said formation,
(d) separating said plug from its container,
(e) expanding the plug to a resilient and sliding fit with the internal surface of said well bore,
(f) opening said well discharge valve and reducing the pressure in said tubing string bore,
(g) expanding the gas within said plug and moving said plug and the water thereabove upward of said tubing and
(h) passing said liquid water out of said tubing.

3,302,582
ELECTROMAGNETIC PUMP

Siegfried Kofink, Zell (Neckar), Germany, assignor to J. Eberspacher, Neckar, Germany
Filed Mar. 15, 1965, Ser. No. 444,097
Claims priority, application Germany, Mar. 14, 1964, K 52,386; June 27, 1964, K 53,338
19 Claims. (Cl. 103—53)



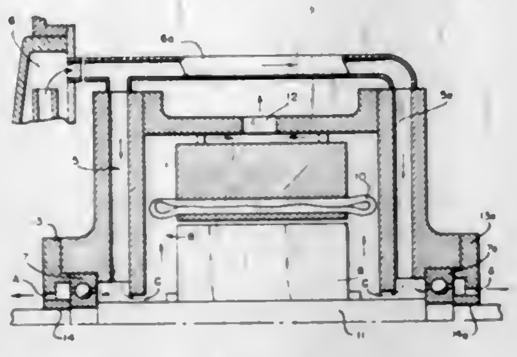
1. A piston pump, particularly for pumping fuel for oil furnaces, comprising means defining a cylinder, a hollow piston reciprocable in said cylinder, the bore of said piston defining a passage for the flow of fluid therethrough, an armature connected to said piston, said piston having a piston rod portion of non-magnetic material at least in the range of said armature, a magnet coil around said cylinder and adjacent said armature, discharge conduit and valve means connected to said cylinder, and inlet conduit and valve means connected to said cylinder including means defining a concentric annular slot in said cylinder which is in communication on the suction side of said cylinder through the bore of said piston.

3,302,583
SUBMERSIBLE PUMPS

James W. Hunt, Banstead, Surrey, England, assignor to Conch International Methane Limited, Nassau, Bahamas, a Bahamian company
Filed Jan. 7, 1965, Ser. No. 424,098
Claims priority, application Great Britain, Feb. 7, 1964, 5,238/64
3 Claims. (Cl. 103—87)

1. A submersible pump unit for discharging a liquefied hydrocarbon gas or gas mixture at or near its boiling point comprising
(a) a pump having an outlet for discharging fluid under pressure,
(b) a motor having a shaft connected to said pump for driving same, and having bearings for said shaft,
(c) passage means from the outlet of said pump to said bearings, said passage means being dimensioned to conduct fluid from said pump outlet to said bearings at substantially the outlet pressure of the pump,
(d) flow means in the bearings for conducting said fluid from said passage means through the bearing at substantially the outlet pressure of the pump,

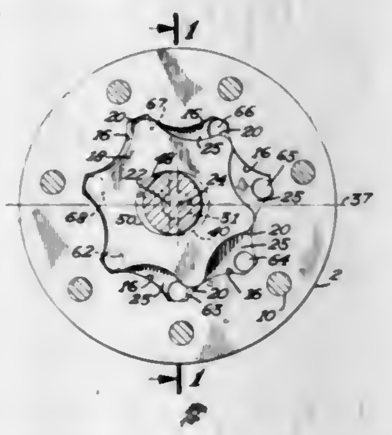
(e) flow restriction means in the direction of flow beyond said flow means, for restricting the flow of



fluid through said bearings to an amount sufficient for lubrication of the bearings.

3,302,584
VALVING ARRANGEMENT FOR FLUID PRESSURE DEVICE

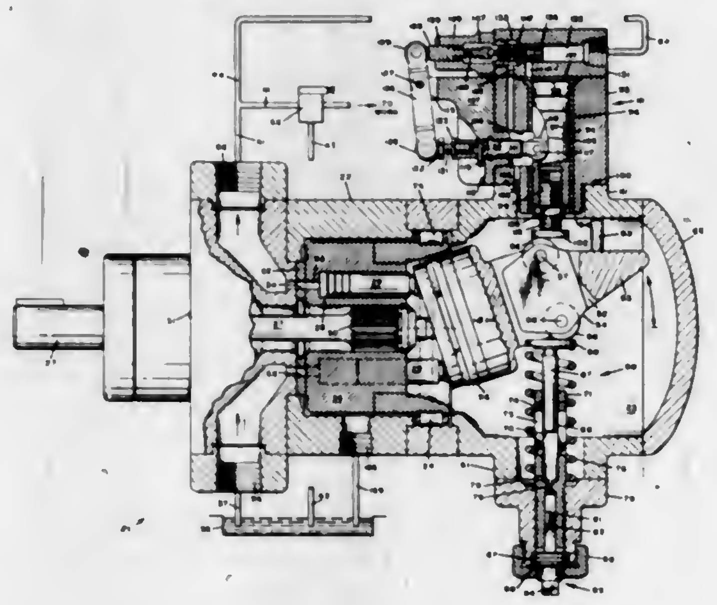
Hugh L. McDermott, Minneapolis, Minn., assignor to Char-Lynn Company, Minneapolis, Minn., a corporation of Minnesota
Filed Sept. 1, 1965, Ser. No. 484,181
4 Claims. (Cl. 103—130)



1. In a fluid pressure device, casing means, said casing defining internally thereof a flat wall surface and a plurality of passages, said passages having equally spaced openings in said wall surface arranged circumferentially relative to a reference axis, chamber forming means for forming expanding and contracting chambers having fluid communication with said passages, generally ring shaped valve means eccentrically disposed relative to said axis and having an end surface slidably engaging said casing wall surface, said valve means cooperating with said casing to define interior and exterior valve chambers, drive means between said chamber forming means and said valve means for orbiting said valve means about said axis in synchronism with said chamber forming means, said openings being spaced from said axis so that upon orbiting of said valve means said openings connected to said expanding chambers have fluid communication with one of said valve chambers and said openings connected to said contracting chambers have fluid communication with the other of said valve chambers, said valve means having equilateral polygonal sides with each side having parallel edges, said sides being equal in number to said openings, said openings being elongated and arranged tangentially to a circle having its center coincident with said axis, each of said openings having parallel sides, valve restraining means for limiting the movement of said valve to only orbital movement relative to said axis, said valve means being indexed relative to said openings by said valve restraining means so that each of said valve sides are parallel to a corresponding one of said openings during said orbital movement of said valve means, and said casing having fluid inlet and outlet means in respective fluid communication with said interior and exterior valve chambers.

3,302,585
CONTROL FOR VARIABLE DISPLACEMENT PUMP OR MOTOR

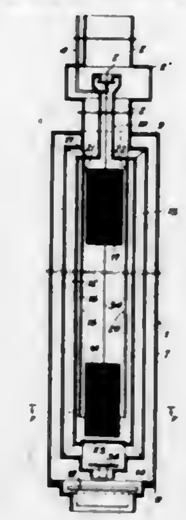
Cecil E. Adams, Gerald E. De Villers, and George M. Hipple, all of Columbus, Ohio, assignors to Abex Corporation, a corporation of Delaware
Original application Sept. 24, 1962, Ser. No. 225,484. Divided and this application Jan. 17, 1966, Ser. No. 534,559
7 Claims. (Cl. 103—162)



1. The combination comprising,
a cross-center fluid pressure translating device having two ports and a displacement varying member shiftable in opposite directions to vary displacement and flow between said ports,
a first torque limiter assembly on one side of said member, said first torque limiter assembly comprising,
piston means for moving said member in one direction and for limiting its movement in the opposite direction,
said piston means including a cam surface, the shape of said cam surface reflecting the graphical interrelation between pressure, volume and torque,
servo means for moving said piston means in said one direction to selectively position said member,
said servo means including a movable valve member which controls application of motive fluid through said servo means to said piston means, said movable member having a face thereof, disposed to pressure,
an elastic cam follower means engaging said cam surface and applying an elastic force opposing fluid force acting on said face of said movable member, the magnitude of said elastic force increasing in inverse proportion as said displacement decreases,
a second torque limiter assembly substantially identical to said first assembly, said second assembly being located on the opposite side of said displacement varying member for shifting said displacement varying member in the direction opposite that of the first assembly,
means applying fluid at the pressure at the said respective ports to the respective movable members of said assemblies tending to move said movable member to apply fluid to move said piston means,
means supplying motive fluid to said servo means,
and opposed spring means urging said displacement varying member toward each other.

3,302,586
PROCEDURE AND DEVICE TO LIFT LIQUIDS BY MEANS OF PRESSURE FLUIDS

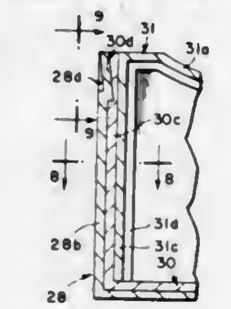
Vincenzo Brugnoli, 158 Viale Regina Margherita, Rome, Italy
Filed Mar. 2, 1964, Ser. No. 348,597
Claims priority, application Italy, Mar. 29, 1963, 6,114/63
8 Claims. (Cl. 103—232)



1. A pneumatic liquid-lifting device which comprises, in combination:
(a) a substantially closed container having a top portion and a bottom portion;
(b) supply means for admitting a liquid to said container;
(c) an elongated conduit having two longitudinal end portions and another portion intermediate said end portions, one of said end portions having an orifice in the bottom portion of said container;
(d) a source of gas under pressure communicating with said container;
(e) valve means interposed between the top portion of said container and said intermediate portion of said conduit; and
(f) valve actuating means responsive to the liquid level in said container for opening said valve means if the liquid level in said container is below a predetermined value, and for closing said valve means if said liquid level is above said value.

3,302,587
AIR SLED FREEWAY

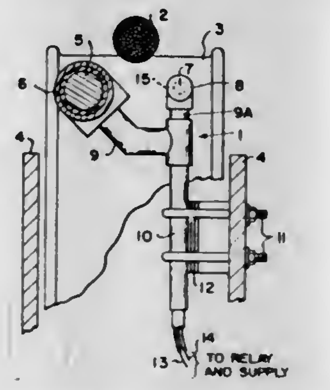
William C. Knox, Jr., 504 S. 150th, Seattle, Wash. 98148
Filed Mar. 12, 1964, Ser. No. 351,420
4 Claims. (Cl. 104—23)



1. In combination, track means presenting an upper travel surface and having respective longitudinal passages for pressurized lift gas and propulsion gas beneath said surface, a plurality of upwardly directed lift jets spaced along said surface and fed by said pressurized lift gas, a plurality of propulsion jets spaced along said surface and fed by said pressurized propulsion gas, each of said propulsion jets having a jet component in a given travel direction along said surface, control means for varying the lift gas pressure and the propulsion gas perssure independently of one another and a vehicle for said track track adapted to be floated above said path by pressurized fluid from said lift jets and having a plurality of longitudinally spaced reaction surfaces facing generally away from said travel direction and arranged to be successively impinged by the gas from said propulsion jets to propel the vehicle over said travel surface while floating.

3,302,588
AERIAL TRAMWAY SAFETY DEVICES

William Frederick Bennett, 940 15th St., West Vancouver, British Columbia, Canada
Filed July 7, 1964, Ser. No. 380,889
2 Claims. (Cl. 104—178)

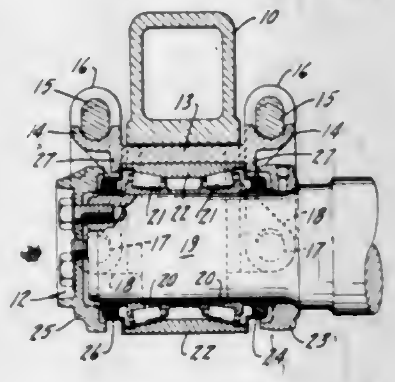


1. In an aerial tramway, the combination of a carrying cable of magnetically permeable material, cable supporting means including a sheave normally having said cable in engagement therewith, and proper cable position detecting means comprising a magnet mounted on said cable supporting means at one side of said cable, a magnetically actuated electric switch mounted on said cable supporting means at the relatively opposite side of the cable from said magnet whereby the cable in its normal sheave engaging position passes in a plane between the magnet and the switch, said switch having operative and inoperative positions, the field strength of said magnet normally being absorbed by said cable when the latter is in its proper sheave engaging position and said switch is in its operative position, but said switch being actuated to its inoperative position by the field of the magnet when the cable is displaced from its proper position between the magnet and the switch, and holder means for mounting the magnet and the switch on said cable supporting means, said holder means comprising clamp means provided on sadi supporting means, a vertical standard vertically slidably adjustable in said clamp means, and a pair of transversely spaced casings of non-magnetic material provided on said standard and containing said magnet and said switch respectively, said clamp means being laterally adjustable whereby the standard with said magnet and said switch may be adjusted laterally relative to said cable, and vertical adjustment of the standard in the clamp means permitting the magnet and switch to be raised and lowered relative to the cable.

3,302,589
LATERAL MOTION AXLE BEARING ADAPTOR FOR RAILWAY CAR TRUCK

Ray C. Williams, Chicago, Ill., assignor to Standard Car Truck Company, Chicago, Ill., a corporation of New Jersey
Filed Dec. 17, 1965, Ser. No. 514,522
1 Claim. (Cl. 105—222)

In combination, a railroad car truck side frame having pedestals downwardly extending therefrom to define a window therethrough, the window having parallel vertical side walls, a railroad car axle and a generally cylindrical anti-friction bearing housing therefor contained within the window, the diameter of the housing being less than the horizontal width of the window, a bearing adaptor having a flat horizontal top, and a generally cylindrical concave under surface resting on, conforming to and interlocking with the housing to inhibit relative movement thereof, the adaptor having vertically disposed side walls extending downwardly from the top, intersecting the lower boundary of the concave under surface, terminating above the horizontal axis of the housing and penetrating the space between the outer periphery of the housing and the window walls to positively inhibit contact of the housing with the window walls, flanges extending laterally from the top of the adaptor beyond the truck frame, having elements extending radially on both sides of the frame, the clearance between such elements being sufficient to provide limited axial movement of the adaptor with respect to the frame, load carrying means free to swing as the adaptor moves axially with respect to the frame, interposed between the frame and the adaptor, engaging the frame and the adaptor above the lower periphery of the housing.



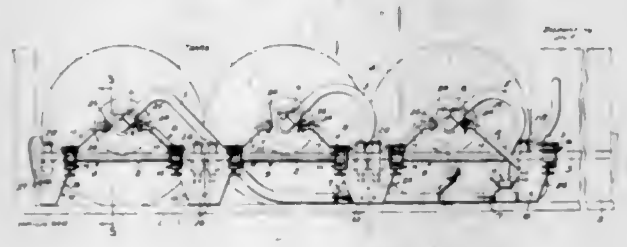
3,302,590

TIE-DOWN ASSEMBLY

Wentworth D. Kneller, Levittown, Pa., and John C. Perry, Sherborn, and Stanley T. Athas, Lowell, Mass., assignors to the United States of America as represented by the Secretary of the Army

Filed Apr. 29, 1965, Ser. No. 452,036

3 Claims. (Cl. 105—367)



1. A tie-down assembly for the securement of a series of side-by-side arranged containers on the bed of a vehicle having sides including in combination; a pair of spaced, opposite-hand bracket assemblies detachably secured on each side of the vehicle and opposite the ends of each container, and a frame assembly pivotally connected at one of its ends to a container and at its other end to a bracket assembly; each said bracket comprising a flat plate having a pair of bored ears integral with its inner side for pivotal attachment to said frame, said plate having an outwardly extending lip at its upper edge, a pair of side walls and a top wall fixed to said lip, there being an elongated slot in each said side wall and in alignment with each other; and a clamping means having a bolt extending on both sides thereof to ride in said elongated slots whereby said clamping means may be moved towards or away from said plate for clamping said bracket to a side of the vehicle side.

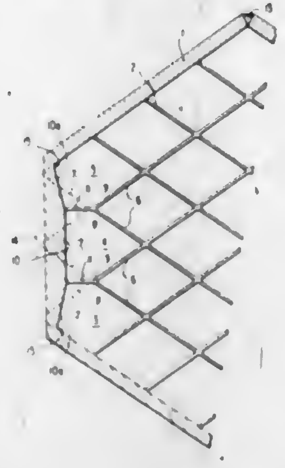
3,302,591

DOUGH DIVIDER

Karl Heinrich Wilhelm Schmidt, 28 Fohrsterstrasse, Alfeld (Leine), Germany

Filed Oct. 9, 1964, Ser. No. 402,870

5 Claims. (Cl. 107—15)



1. A dough divider and working head comprising:
means forming a circumferential ring;
a knife grid within said ring forming a field of contiguous working compartments of rhombus-shaped cross section, each of which compartments has acute apexes in consequence of which said grid has two opposite sides toward which the acute apexes of the compartments are directed;
said ring having, at the two sides toward which said acute apexes of said compartments are directed, at least substantially flat inner surfaces;
at least one of said compartments on each side having its acute apex spaced from the corresponding flat inner surface of said ring; and
partition means extending from said spaced apexes to the corresponding inner surface, thereby to form a plurality of laterally outermost compartments having a rhomboidal cross section differing from said rhombus-shaped cross section of the remaining compartments, each of said outermost compartments having a cross-sectional area substantially equal to such area of the remaining compartments.

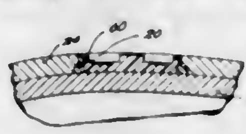
3,302,592

DIE CONSTRUCTION

Frank Charles Werner, Grand Rapids, Mich., assignor to Werner Machinery Company, Grand Rapids, Mich., a corporation of Michigan

Filed Dec. 4, 1962, Ser. No. 242,302

5 Claims. (Cl. 107—68)



1. A rotational cookie die assembly comprising: a tubular cylindrical drum having rotational axle means on its central axis; a plurality of configurated cookie-forming die inserts retained in the periphery of said drum in a pattern to die form cookie dough with rotation of said drum on said axis, each having a curved outer surface area and a peripheral surface flush with the outer surface of said drum; each insert being positioned in a respective drum opening substantially larger than the insert; each opening being undercut around at least portions thereof spaced from said drum periphery; and solidified molding material in said opening around said insert and bonded thereto, flush with the drum periphery, filling said undercut and bonded thereto to sealingly anchor said insert in position.

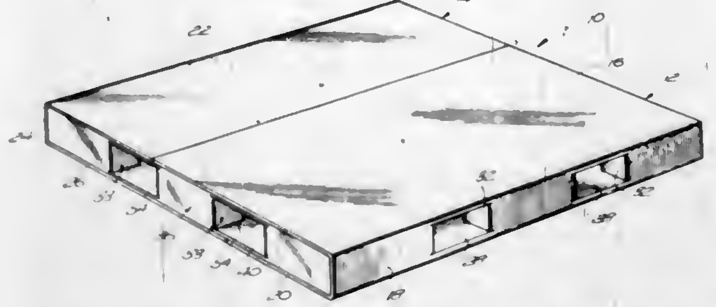
3,302,593

PALLET

Harold S. Roberts, Pawtucket, R.I., assignor to Roberts Paper Company, Lincoln, R.I., a corporation of Rhode Island

Filed Nov. 1, 1965, Ser. No. 505,818

8 Claims. (Cl. 108—56)



1. In a load carrying pallet, an inner assembly including a first inner member and a second inner member that interengages said first inner member, both said inner members including horizontal panels that are located in spaced relation with respect to each other and to which side panels are joined, the horizontal panels of said inner assembly having edges that are disposed in mating relation, the side panels of said inner assembly defining the side walls of said pallet and having openings formed therein for receiving the arms of a fork-lift truck, an outer assembly including outer members that define a sleeve in which said inner assembly is located in telescoping relation, said outer members having opposed side walls that are 90° removed from the side walls of said inner assembly and in which spaced openings are formed for receiving the arms of a fork-lift truck.

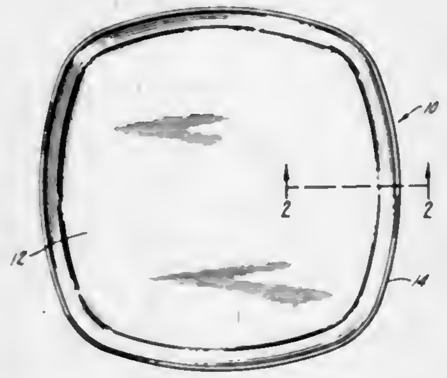
3,302,594

TURNTABLE

Louis H. Barnett and Edmund R. Luther, Fort Worth, Tex., assignors to Loma Industries, Fort Worth, Tex., a corporation of Texas

Filed Oct. 7, 1965, Ser. No. 493,765

4 Claims. (Cl. 108—139)



1. A turntable which includes, in combination,
a platform being planar throughout a substantial portion thereof, the planar portion having a top to receive a deposited article, and a bottom,
a plurality of spaced mounting members fixed to the bottom of the platform, each mounting member having an arcuate flange portion, each arcuate flange portion being substantially parallel to the bottom of the platform,
a lower stationary annular raceway member, said raceway member having a circumferential line within the substantially planar portion of the platform, said annular raceway having a bottom adapted to contact a supporting base, continuous walls on the inner and outer annular edges of the bottom extending towards the platform bottom, a continuous raceway flange at the top of the outer annular wall of the raceway, said flange positioned above the arcuate flange portions of the mounting members so the position of the annular raceway is defined by the mounting members,
a continuous roller retainer ring in the raceway, said ring dimensioned to fit in the raceway portion formed by the bottom of the raceway and the inner and outer annular walls, and a plurality of roller bearing means confined within the ring at spaced positions, whereby the platform is adapted to be rotated upon the roller bearing means rotatably confined within the ring and within the raceway which is stationarily positioned on the support base.

3,302,595

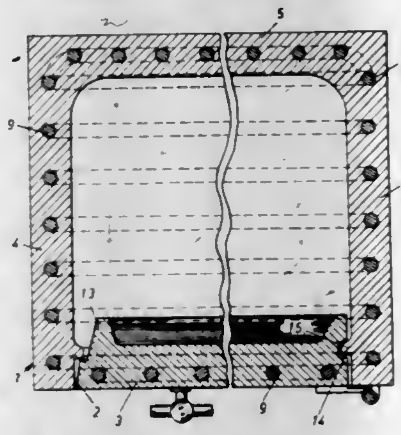
SAFE

Erik A. Sabel, Ojebyn, Pitea, Sweden

Filed July 20, 1964, Ser. No. 383,621

Claims priority, application Sweden, Feb. 13, 1964, 1,744/64

1 Claim. (Cl. 109—85)



A method for making a safe body comprising coiling a steel rod in somewhat spiral shape to form a reinforcement for the back wall of the safe and coiling the rod to form generally helical loops to form reinforcement for the side, top and bottom walls of the safe, holding the loops of the general helix in spaced relationship to each other, coating the rod with a mixture of sand and resin, inserting the coiled rod into a mold, and casting cast iron alloy about the rod in the form of a safe body, the alloy being of such nature that after being cast it is brittle and has a Brinell hardness of at least 400.

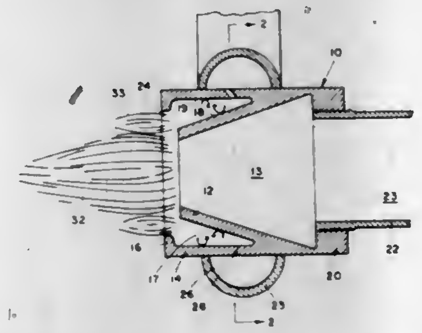
3,302,596

COMBUSTION DEVICE

Robert E. Zinn, Lexington, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts

Filed Jan. 21, 1966, Ser. No. 522,182

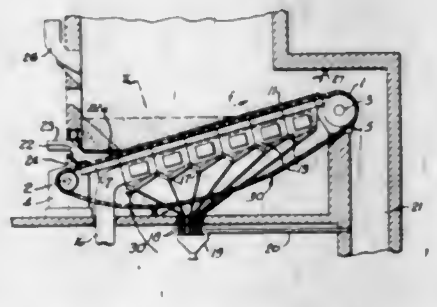
8 Claims. (Cl. 110—22)



8. A combustion device suitable for burning powdered coal in combination with fuel gas, comprising in combination
(a) a centrally-positioned, frusto-conical nozzle adapted to support a flame at its forward, smaller diameter end;

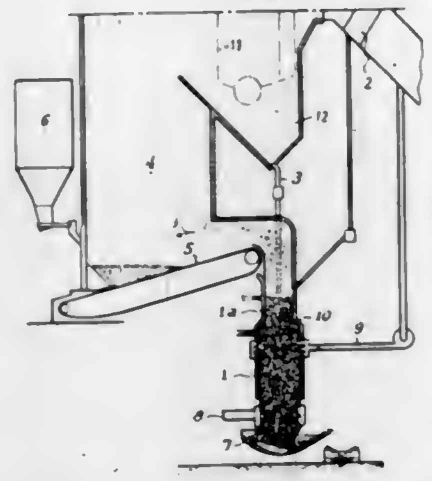
(b) means for delivering a mixture of powdered coal suspended in a gaseous medium containing air to said nozzle;
(c) an outer chamber wall surrounding the forward portion of said nozzle, extending beyond said nozzle and defining therewith a low-velocity combustion zone, said outer chamber wall terminating at its forward end in an inwardly directed peripheral lip, said low-velocity combustion zone being adapted to provide around said flame a separate, stable, continuous ignition ring directly adjacent to said flame;
(d) separate manifold means associated with said outer chamber wall;
(e) means for supplying to said manifold means a fuel gas-air mixture; and
(f) a plurality of ports in said outer chamber wall providing fluid communication between said manifold means and said low-velocity combustion zone.

3,302,597
MECHANICAL GRATE
Albert Godel, 66 Rue d'Auteuil, Paris, France
Filed July 12, 1965, Ser. No. 470,963
Claims priority, application France, Apr. 13, 1965,
12,995
1 Claim. (Cl. 110—40)



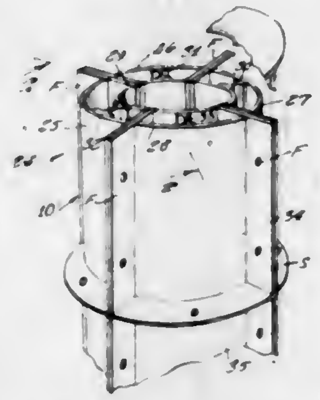
In a furance having a front portion, a rear portion and a bottom, a support mounted upon said bottom in said front portion, a rotary roller carried by said support, another support mounted upon said bottom in said rear portion, another rotary roller carried by said other support and situated at a higher level than the first-mentioned roller and extending parallel thereto, a mechanical grate consisting of an endless chain-like member extending over said two rollers and driven thereby, said grate having an upper section and a lower freely hanging section, beams carried by said supports, slides supporting said upper section and carried by said beams, means carried by said beams and forming partitioned passages located close to and below said upper section and communicating therewith, means supplying blowing air to said passages to form a fluidized bed of combustible particles above said upper section and including means regulating said supply of air, said partitioned passages terminating above said lower freely hanging section, whereby said lower freely hanging section is devoid of contact with said partitioned passages, chain guides carried by said beams and laterally engaging said grate, water-circulating pipes carried by said lateral chain guides, said partitioned passages having inclined bottoms, means located at the lower ends of said inclined bottoms for the removal of ridlings, a pneumatic seal located in said front portion and having means blowing air under pressure upon the upper section of said grate adjacent the first-mentioned roller and a shoe sliding upon the surface of the moving upper section of said grate and located in front of said pneumatic seal to prevent the air blown by said pneumatic seal from escaping outwardly, said seal preventing the escape of the fluidized bed, said rear portion having an ash-collecting shaft adjacent the second-mentioned roller.

3,302,598
COMBUSTION PROCESS AND APPARATUS
Albert Godel, 66 Rue d'Auteuil, Paris, France
Filed Jan. 13, 1965, Ser. No. 425,179
Claims priority, application France, Feb. 13, 1964,
963,597
10 Claims. (Cl. 110—165)



2. In combination with a main furnace which produces clinkers and grit containing carbon; a vertical auxiliary furnace having an open top connected with said main furnace for receiving clinkers and grit dropped from said main furnace, means connected with said auxiliary furnace for supplying a controlled amount of air and neutral flue gas to said auxiliary furnace to develop post-combustion therein, to obtain a total recovery of all sensible and latent calories contained in the clinkers without reaching the temperature causing the fusion of the clinkers; and means located at the bottom of said auxiliary furnace for removing cooled clinkers while maintaining a substantially constant height of column thereof.

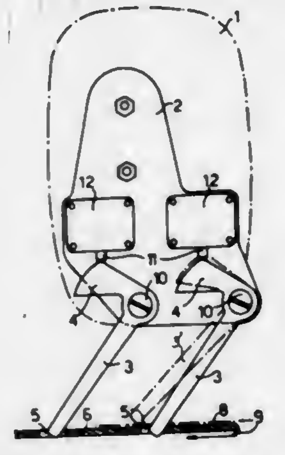
3,302,599
HERMET AIR-SEALED SMOKESTACK
Richard E. Lawrence, 22 Glenwood Road,
Roslyn, N.Y. 11576
Filed June 9, 1965, Ser. No. 462,555
2 Claims. (Cl. 110—184)



1. A sectional smokestack construction comprising a plurality of hollow cylindrical smokestack sections superposed on each other forming joints therebetween, each section including concentric inner and outer walls, each section of the outer wall including a plurality of segmental sectional portions with flanges along the long edges thereof, said flanges extending outwardly and inwardly of the sectional portion, the inner extending portion of the flanges contacting the outer surface of the inner wall, the flanges being in juxtaposed position, a radial annular flange disposed between the adjacent end edges of the outwardly extending portions of the first-named flanges, stiffeners between the inner and outer walls across the joints between the sections, and annular

flanges across the top and bottom ends of the end sections for sealing off the space between the inner and outer walls.

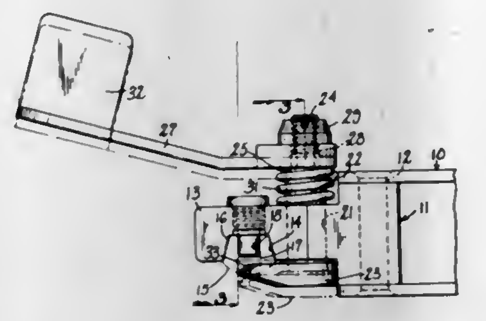
3,302,600
CENTRALIZED AUTOMATIC CONTROL FOR MACHINE EMPLOYED IN MANUFACTURING GARMENTS
Serge Cheron, Troyes, Aube, France, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy
Filed Feb. 24, 1964, Ser. No. 346,867
Claims priority, application France, Feb. 25, 1963,
925,926
4 Claims. (Cl. 112—219)



1. In a garment sewing machine having a working table, at least one needle operating to form a line of stitching, a presser foot for holding the fabric of the garment to be worked during forming of the stitches, a motor for driving the machine, a clutch between the motor and the machine, and a thread cutter, an automatic control comprising an inlet feeler and an outlet feeler arranged to be slightly lifted by the fabric upon travel of the fabric over the working table near the zone at which the presser foot is arranged, a microswitch associated with each feeler and mechanically actuated by the feeler with which it is associated for starting the machine automatically upon insertion of the fabric under the inlet feeler and stopping the machine automatically upon withdrawal of the fabric from under the outlet feeler, a centralized automatic control box, three relays arranged in said centralized automatic control box, including a starting relay energized by the operation of said inlet feeder and of said outlet feeler, the outlet feeler superseding the inlet feeler when the latter is released on feed of the fabric beneath the presser foot, a thread cutter operating relay energized when the outlet feeler is released on completion of the work, and a self-feed relay adapted to cut out the high voltage supply on breakage of the thread, a microswitch for the thread cutting device for controlling said high voltage cutout, and a manually operated lever microswitch for stopping the machine and placing it in a safety condition, cutting out said high voltage supply.

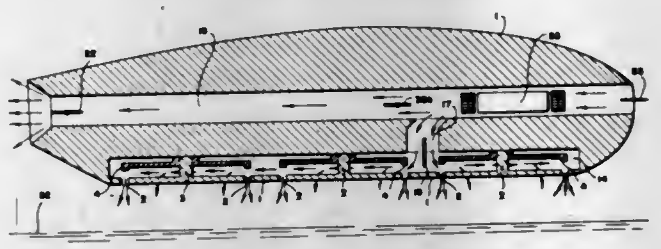
3,302,601
ADAPTER FOR SEWING MACHINE ATTACHMENT
Robert W. Burgess, Orange, and Edward J. Wanat, New Haven, Conn., assignors to Mite Corporation, New Haven, Conn., a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,625
4 Claims. (Cl. 112—257)

1. An adapter for detachably mounting a sewing machine attachment on the presser bar of a sewing machine, said adapter comprising a bracket, an elongated groove formed in said bracket along one side thereof dimensioned to receive the aforesaid presser bar of a sewing machine with which the adapter is intended to be used, the depth of said groove having a dimension adapted to be less than the thickness of that portion of the aforesaid presser bar which is to be received in the groove, a short stub pin secured in and projecting from the bottom of the groove in said bracket and adapted to be received in a transverse hole in the presser bar for positioning the



bracket on the presser bar, lever-operated cam means pivoted to said bracket on an axis offset from said groove and movable to a position covering said groove and bearing against the exposed side of the presser bar to lock the presser bar within the groove, and means for permanently securing said bracket to the sewing machine attachment.

3,302,602
SUBMERSIBLE VESSELS
Alexandre Korganoff, 6 Rue de Castellane, Paris, France
Filed Feb. 26, 1965, Ser. No. 436,722
24 Claims. (Cl. 114—16)

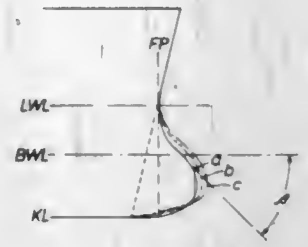


1. A vessel adapted to operate submerged and on the surface of water and above the surface of land and water without contact between the vessel and such surface comprising:
(a) a hull,
(b) gas thrust generator means within said hull and operable to produce gas under pressure when said vessel is above, on and submerged in water,
(c) nozzle means on a lower portion of said hull and directed downwardly to produce a lifting thrust, and
(d) valved duct means interconnecting said gas thrust generator means and said nozzle means to direct gas thrust from said gas thrust generator means to said nozzle means, said lifting thrust at least partly supporting the vessel above said surface as it travels or hovers thereover, said nozzle means being operable when said vessel is above, on and submerged in water.

3,302,603
SHIP'S HULL CONSTRUCTION
Ernst Eckert, Ahrensburg, near Hamburg, Germany, assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Aug. 12, 1964, Ser. No. 389,157
Claims priority, application Germany, Oct. 15, 1963,
E 25,678
10 Claims. (Cl. 114—56)

1. In a ship's hull constructed as a full form cargo carrier vessel having a block coefficient of at least 0.75 and a designed Froude number of less than 0.25 and operating throughout a wide range of load or ballast condi-

tions wherein the ballast waterlines (BWL) are between 45% and 80% of the load waterline (LWL), the improvement comprising a protruding bulb portion of the bow of said vessel having a length (*l*) ahead of the forward perpendicular of said vessel, wherein the vessel length is (L) and a ratio of said length (*l*) over the maximum beam (*b*) of the bulb portion at the forward perpendicular of the vessel is in the range of about 0.5 to 2.5, and in which the measurements of said bulb portion comply with the equation

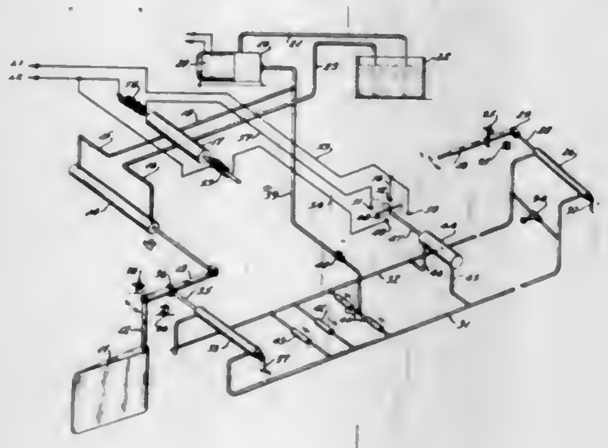


$$\frac{l\times b^2}{B_{\bullet}\times\frac{L_{\bullet}}{20}\times\frac{d}{2}}=\text{Constant (C)}$$

wherein the value of C is between 0.05 and 0.20.

3,302,604
FLUID ACTUATED FOLLOW-UP STEERING CONTROL MECHANISM

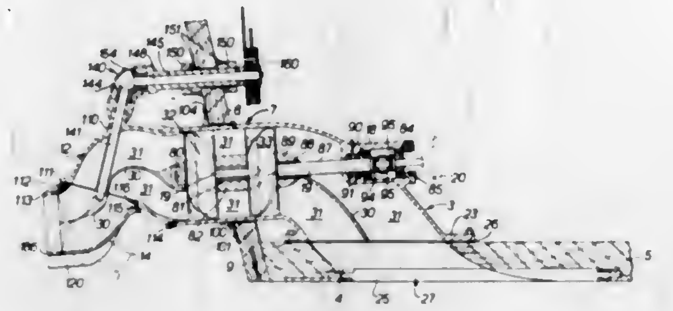
Herman R. Stuteville, Nashville, Tenn., assignor to Nashville Bridge Company, Nashville, Tenn.
Filed Sept. 7, 1965, Ser. No. 485,168
6 Claims. (Cl. 114—150)



1. Apparatus for controlling the operating of a steering mechanism of a vessel having a helm and a rudder from a remote position comprising a first fluid cylinder located adjacent to said helm, said first cylinder having a piston connected to said helm, a second fluid cylinder located adjacent to said rudder, said second cyliner having a piston connected to said rudder, a pair of fluid lines connecting said first and second cylinders in a closed balanced fluid system, a pressure responsive actuator connected to said pair of fluid lines intermediate said first and second cylinders, and means carried by said actuator for selectively operating said steering mechanism, whereby when said helm is operated in either direction the piston of said first cylinder will cause the pressure in one of said fluid lines to be increased and will operate said actuator and said steering mechanism to move said rudder and movement of said rudder will move the piston of said second cylinder to return said fluid lines and said actuator to balance condition, thereby deactivating said steering mechanism.

3,302,605
WATER JET PROPULSION APPARATUS

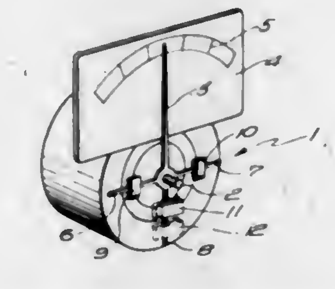
Siegfried Kuether, % Tamco Limited, Gladstone Ave., La Salle, Ontario, Canada
Filed Dec. 29, 1964, Ser. No. 421,796
Claims priority, application Canada, Feb. 14, 1964, 895,749
4 Claims. (Cl. 115—12)



1. A water jet propulsion unit for watercraft comprising a housing having an inlet end and an outlet end adapted for mounting within said craft and an impeller rotatably mouted within said housing; water intake means for delivering water to said impeller inlet comprising a subdivided conduit open at one end, via the hull of said craft, to ambient water and connected at the other end to said housing inlet in such a manner that inflow in said conduit terminates at said impeller substantially coaxially with the rotational axis thereof; a water exhaust connected to the outlet end of the impeller housing and adapted to extend outwardly from the transom of said hull to provide directional thrust to said craft, said exhaust including an elbow-shaped nozzle rotatably and angularly mounted with respect to the longitudinal axis of said unit for passing rearward thrust substantially parallel to said longitudinal axis and forward thrust below said unit and craft, said nozzle being positioned co-planar with or above the lower surface of said hull.

3,302,606
INSTRUMENT BALANCE WEIGHT

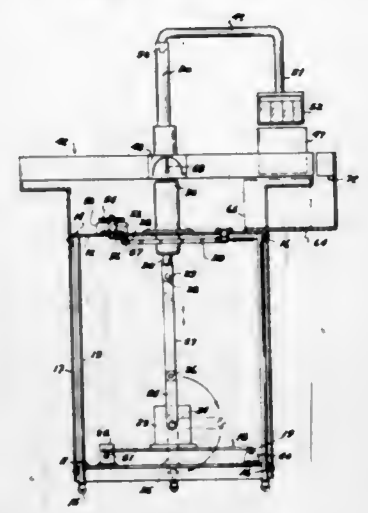
Fred Vacha, Bow, N.H., assignor to Beede Electrical Instrument Co., Inc., Penacook, N.H., a corporation of New Hampshire
Filed June 14, 1966, Ser. No. 557,506
3 Claims. (Cl. 116—136.5)



1. A balance weight providing a concentrated adjustable mass for the movable crossarm of an instrument comprising a unitary, generally flat strip of spring metal folded to provide a pair of hinged confronting platens, the spring tension of said hinge acting to oppose separation of said platens, one of said platens having an open channel extending thereacross substantially parallel to said hinge, the depth of said channel being shallower than the thickness of said crossarm upon which said balance weight is to be stationed; and the open side of said channel facing the confronting platen.

3,302,607
TISSUE-STAINING AND PROCESSING MACHINE

Sidney David Kobernick, 19370 Stratford Road, Detroit, Mich. 48221
Filed Apr. 30, 1965, Ser. No. 452,186
13 Claims. (Cl. 118—11)

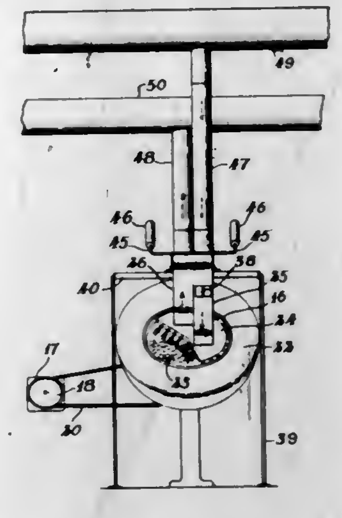


1. In a tissue-staining a processing machine, a housing;
a crank motor on the housing including an arcuately rotatable intermittently reciprocal crank;
an intermittently and vertically reciprocal shaft guidably mounted upon and projecting above the housing flexibly and pivotally connected to said crank;
an inverted U-shaped rod at one end axially secured to said shaft;
a slide carrier suspended from its other end for reciprocal intermittent movement in a vertical plane;
a turntable co-axial of said shaft journaled upon said housing for rotation in a horizontal plane below said slide carrier;
the series of apertured support compartments in the turntable arranged in a circle at a radius corresponding substantially to the slide carrier;
a plurality of dye and solvent carrying tanks nested respectively in a number of said compartments adapted to receive said slide carrier on downward movement thereof for immersion of tissue carrying slides in said carrier;
a motor on the housing connected to the turntable to intermittently rotate the turntable short incremental distances equal to the distance between tank centers;
and a stationary rinsing tank mounted upon said housing below said turntable and slide carrier;
said slide carrier adapted to drop through an empty compartment of the turntable when stationary for immersion in said rinsing tank.

3,302,608
PELLET COATING APPARATUS AND DUST COVER SYSTEM THEREFOR

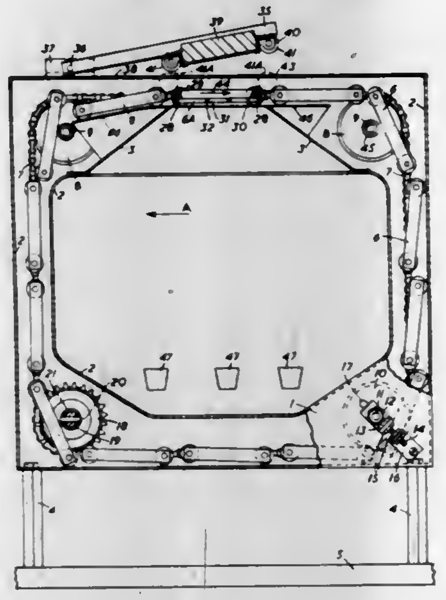
Uzal E. Coons, Oaklawn, and Herbert D. Bredehorn, Chicago, Ill., assignors to Wm. Wrigley Jr. Company, Chicago, Ill., a corporation of Delaware
Filed Sept. 17, 1963, Ser. No. 309,458
11 Claims. (Cl. 118—19)

1. Pellet coating apparatus and a dust cover system therefor comprising, in combination, a rotary tumbling drum having an axis of rotation and an opening substantially concentric to said axis, means for supporting said drum for rotation about said axis, means for driving the drum, a generally planar cover of segmental shape fitting loosely in said opening in the drum in generally flush relationship to an end of the drum, means supporting said cover for swinging movements to and away from said opening in the drum, said cover being hollow and having air inlet and exhaust conduits extending therethrough and spaced peripheral air outlet openings therein, means for supplying air to the interior of the cover for discharge through said spaced peripheral air outlet openings, means for supplying air to said inlet conduit and the interior of the cover at a predetermined rate, means for exhausting air through said exhaust conduit at a rate exceeding said predetermined rate, and said air inlet and exhaust conduits comprising said means supporting the cover for swinging movements.



3,302,609
MASK-WORK REGISTRATION DEVICE IN VACUUM DEPOSITION APPARATUS

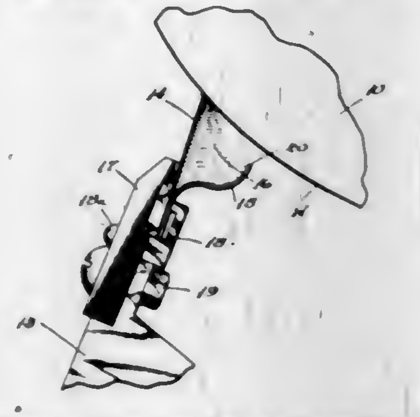
Peter Albert Walker and John Laurence Clarke, Stevenage, England, assignors to International Computers and Tabulators Limited
Filed June 5, 1963, Ser. No. 285,828
Claims priority, application Great Britain, June 8, 1962, 22,248/62
6 Claims. (Cl. 118—49)



1. Vacuum deposition apparatus, including means to support a substrate within a vacuum chamber; a plurality of sources of material for the vacuum deposition of films on said substrate; a plurality of masks each mounted in a mask holder; chain means encircling said sources and arranged to move said mask holders in turn into a predetermined position between said sources and said substrate, said mask holders having leading and trailing edges relative to the direction of movement and being pivotally attached to said chain means at said leading edges; means to guide said trailing edges of said mask holders; and engaging means to engage said substrate supporting means with that mask holder which is at said predetermined position to effect registration of the mask relative to said substrate, said substrate supporting means being movable towards said mask holder to effect said engagement.

3,302,610
INVERTED TRAILING BLADE

Ralph P. Mahoney, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Filed Oct. 10, 1963, Ser. No. 315,168
8 Claims. (Cl. 118—126)

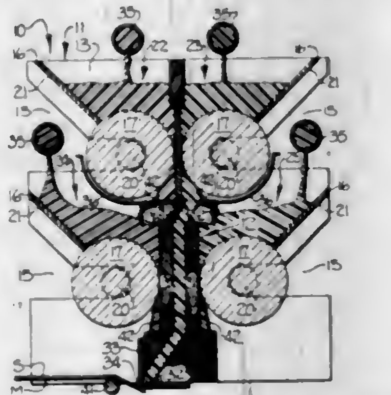


1. A mechanism for coating a travelling paper web comprising,

a rotary backing roll for supporting a travelling web,
a coating applicator roll forming a coating applying nip with the backing roll, a coating pan below said applicator roll so that the applicator roll will carry coating upwardly onto the surface of the web,
a doctor back following said nip having a trailing doctor blade in smoothing relationship with the coating on the web surface,
and a coating retainer member projecting outwardly in advance of the blade and forming a coating retaining channel with the blade for containing a quantity of coating against the face of the blade and web and increasing the hydraulic pressure between the blade and web.

3,302,611
STRIPING APPARATUS

Graves T. Gore, Ware Shoals, S.C., assignor to Riegel Textile Corporation, a corporation of Delaware
Filed June 26, 1964, Ser. No. 378,207
3 Claims. (Cl. 118—411)

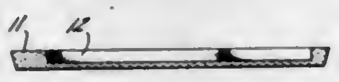


1. Apparatus for applying stripes of different colors to a longitudinally traveling web of base material comprising:

(a) a stationary frame having an elongated central portion;
(b) means including a portion of said central portion of said frame defining a plurality of unconnected separate substantially parallel compartments carried by said frame and extending substantially along the entire length of said central portion of same frame and spaced from each other for receiving separate supplies of different colors of striping material;
(c) a plurality of unconnected, separate ducts formed in said central portion of said frame and spaced from each other, a plurality of said ducts leading from each of said compartments for receiving and passing therethrough the stripping material from each of said compartments;
(d) a plurality of separate substantially parallel driven feeding and pumping rolls separately rotatably mounted on said frame and only one of which is associated with each of said compartments to form part of each of said compartments and adapted to continuously feed and pump the striping material in a constant stream from said associated compartments through said ducts;
(e) a nozzle member carried by said frame and having a plurality of orifices therein spaced from each other transversely of the traveling web of material and separate ones of said orifices communicating with said ducts for depositing the striping material in separate stripes on the traveling web of base material without intermixing thereof.

3,302,612
PATTERN MASKS AND METHOD FOR MAKING SAME

Guy R. Stutzman, Greenwood, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 12, 1963, Ser. No. 308,606
7 Claims. (Cl. 118—504)

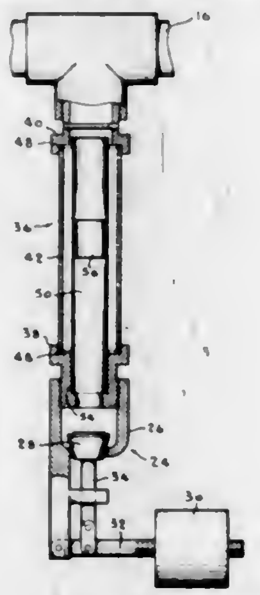


7. A thin film pattern mask comprising,

a plate of graphite having a thin membrane section surrounded by a wall section,
at least one group of slots cut through said membrane section, and
a thin metallic coating on the side of said plate opposite said wall section.

3,302,613
AIR RESERVE INDICATOR FOR MILKING SYSTEMS

Daniel O. Noorlander, Madison, Wis., assignor to Dairy Equipment Company, Madison, Wis., a corporation of Wisconsin
Filed Feb. 5, 1965, Ser. No. 430,639
6 Claims. (Cl. 119—14.14)

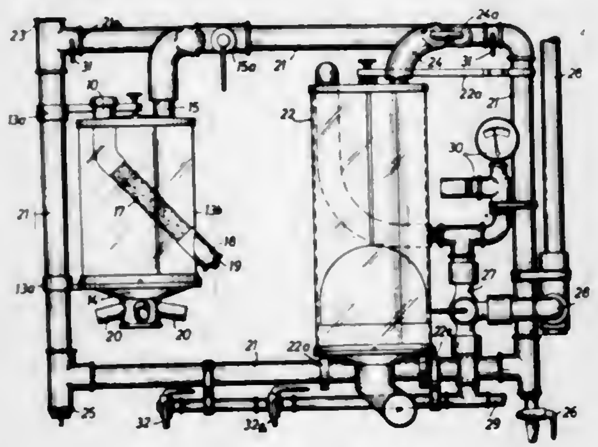


6. A milking system having a set of teat cups operating under the control of a pulsator connected to a vacuum line comprising:

a vacuum controller means communicating with the vacuum line and operative to control the amount of vacuum in the milking system, said vacuum controller means including a reciprocating plug type valve member operatively connected at its end to an adjustable weight means; and
an air reserve indicating means connected between said vacuum controller means and the vacuum line, said air reserve indicating means operative to indicate a drop in air flow through said vacuum controller below a predetermined level, said air reserve indicating means further including a tube member having a longitudinally extending opening in the wall thereof and having an air flow sensing indicator member slidably mounted in said tube member.

3,302,614
MILKING MACHINE

Günther Karnath, Eschenhahn, Taunus, Germany, assignor to Kurt Karnath, Wiesbaden, Germany, Günther Karnath, Eschenhahn, Taunus, Germany, and Max H. Hoepli, New York, N.Y.
Filed July 21, 1965, Ser. No. 475,321
Claims priority, application Germany, Mar. 3, 1965, K 55,433, K 55,537
10 Claims. (Cl. 119—14.36)



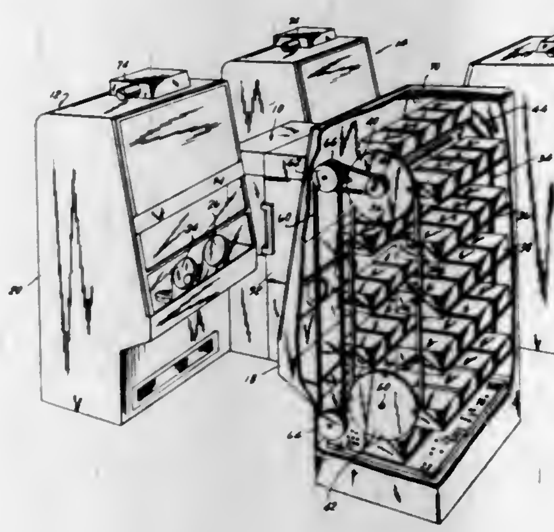
1. Milking machine having a pulsator unit including an atmospheric air intake, an air chamber connected thereto, and a milk-air mixture chamber in communication with said air chamber; a check valve located between said air chamber and said milk-air chamber to permit air to enter from said air chamber into said milk-air chamber and block flow of milk and air mixture into said air chamber; outlet means connected to said milk-air chamber, said outlet means having smooth interior walls to prevent accumulation of milk residue as the milk-air mixture passes therethrough; and milk-air separating means including a vacuum vessel, connected to said outlet means, said vacuum vessel having a milk filter located therein to remove the milk from said milk-air mixture by drawing the milk-air mixture through the filter within the vacuum chamber and to separate the milk from the air within the vessel.

3,302,615
CONTROLLED ENVIRONMENTAL SYSTEM FOR HANDLING AND REARING LABORATORY AND RESEARCH ANIMALS

Helmut G. Tietje, Westwood, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J., a corporation of New Jersey
Filed Apr. 15, 1965, Ser. No. 448,536
27 Claims. (Cl. 119—15)

5. A controlled environment system for handling and rearing of animals and other forms of life and for resting on the floor of a room comprising:

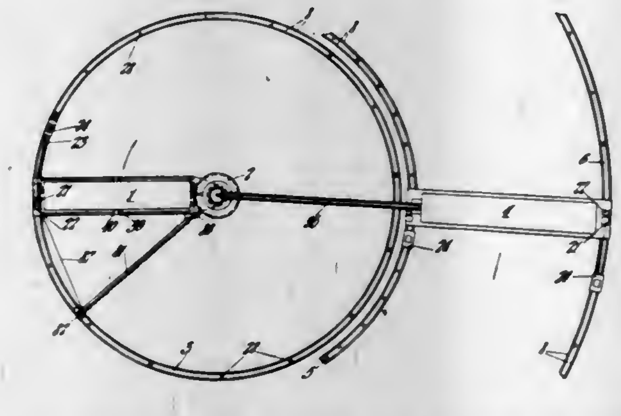
a sterilizing unit having a compartment adapted to be subjected to sterilizing conditions, said sterilizing unit having at least one access means for transferring matter to and from the unit;
at least one housing unit in juxtaposition with respect to the sterilizing unit and having an interior adapted to be subjected to controlled environmental conditions, said housing unit having access means for transferring matter to and from the housing unit; and



an atmosphere excluding connection between the sterilizing unit and housing unit interconnecting the access means of said units whereby matter may be transferred between said units through said access means without affecting the controlled environmental conditions.

3,302,616
LIVESTOCK ENCLOSURE

Rowland Aquila Bradshaw, 46 St. Aidans St., Stoke-on-Trent, England
Filed Sept. 9, 1965, Ser. No. 486,030
Claims priority, application Great Britain, Sept. 17, 1964, 37,931/64
6 Claims. (Cl. 119—21)

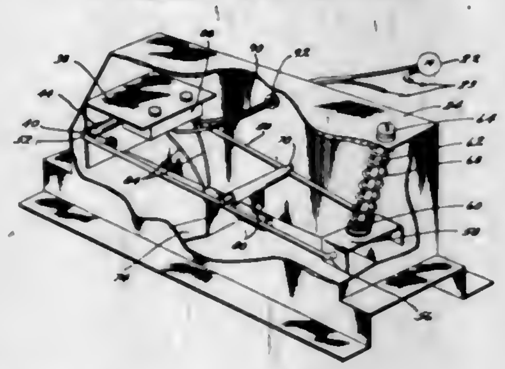


1. A system for the housing and feeding of livestock comprising running track laid in a closed path upon the ground over which livestock is intended to forage for food, an enclosure for livestock having a bottom opening, wheels on which said enclosure is mounted, movable along said track, an anchor trolley movable along said track and positioned in front of the enclosure, anchor means operably related to said trolley for preventing movement of the trolley in the direction of the enclosure, a motor driven drum winch upon the enclosure, cable means wound around the drum of the winch and connected to said anchor trolley, at least one displaceable member positioned in the front boundary of the enclosure and close to the ground, which is displaceable by livestock within the enclosure reaching for forage in front of the enclosure, and electrical switch means operably associated with said dis-

placeable member serving to initiate operation of the winch motor to move the enclosure forward along the track step by step.

3,302,617
FLOW CONTROL APPARATUS FOR ELONGATED FEED CONVEYORS FOR ANIMALS

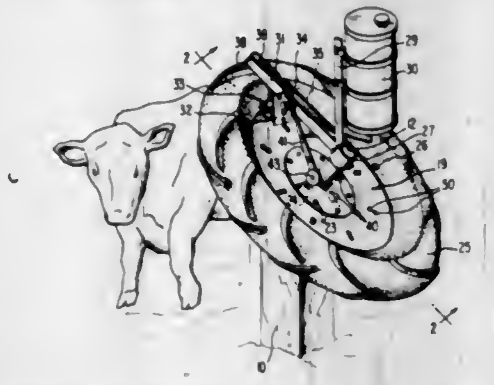
Edward F. Bares, Grand Haven, Mich., and Richard A. Haggard, Nacogdoches, Tex., assignors to Big Dutchman, Inc., a corporation of Michigan
Filed May 7, 1964, Ser. No. 365,769
5 Claims. (Cl. 119—52)



1. A feed level control unit for attachment to an animal feed conveyor trough comprising: an enclosure support; a mount inside said support; adjustable means retaining said mount in said support, ~~and~~ allowing vertical adjustment of said mount; said adjustable means including operative portions accessible from the exterior of said support to allow convenient adjustment thereof; a feed sensor suspended from said mount and having vertical movement relative to said mount in response to the feed level in the conveyor trough; and switch means in said housing operably associated with said mount in a position to be actuated thereby with a predetermined vertical movement of said sensor.

3,302,618
LIVESTOCK LIQUID TREATMENT APPARATUS

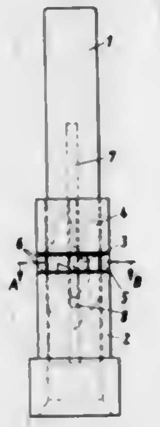
Fred L. Holgerson, Box 215, Meriden Rte., Cheyenne, Wyo. 82001
Filed Sept. 10, 1965, Ser. No. 486,274
4 Claims. (Cl. 119—157)



3. A livestock treatment apparatus comprising a fixed support having an inclined upper face spaced above ground during use, an axle member anchored to said support and projecting thereabove substantially at right angles to said inclined face, a tubular hub element freely rotatably mounted upon the axle member, a rigid disc body portion secured to the hub element and projecting radially of the hub element and axle member a distance which is substantial in comparison to the elevation of the support above the ground, a vehicular tire carcass secured to the peripheral portion of the disc body portion and projecting a substantial distance radially thereof, the disc body portion and tire carcass lying in an inclined plane and being of a diameter whereby the upper and lower extremities of the tire carcass lie substantial distances above and below the top of the support, means connected with the disc-like body portion enabling it to turn in one direction and resisting reverse rotation thereof, spaced cam projections on the disc body portion radially outwardly of the axle member, and liquid supply means mounted upon the axle member and including a follower element activated by the cam projections and adapted during rotation of the disc body portion in one direction to discharge liquid upon the upper extremity of the tire carcass.

3,302,619
BALL PRESSURE MECHANISM FOR PENS

Erich Schodterer, Erbach, Odenwald, Germany, assignor to Jacob Ritter Kom. Ges., Brensbach, Odenwald, Germany
Filed June 4, 1965, Ser. No. 461,420
Claims priority, application Germany, June 27, 1964, R 38,240
2 Claims. (Cl. 120—42.03)



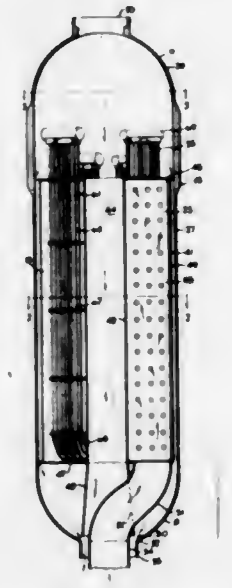
1. In a writing implement having a tubular body with a writing end and an opposite end, writing means longitudinally slidable in said body between writing and retracted position, spring means in the body urging the writing means toward retracted position, means for releasably locking the writing means, and locking means mounted on said opposite end, the improvement which comprises, in combination, in said tubular body a jacket having a horizontal perforation in the form of a slit constricted toward the outside of said jacket and capable of elastically yielding under pressure; a pressure pin having a longitudinal groove corresponding in all positions to said slit; said groove crossing said slit; a roll body inserted, and freely moving, in the hollow formed by the crossing of said groove and said slit after insertion therein.

3,302,620
CIRCULAR CROSS FLOW IN STEAM GENERATOR

Horst F. Menzel, Poway, Calif., assignor to General Dynamics Corporation, New York, N.Y., a partnership
Filed Nov. 18, 1963, Ser. No. 324,434
6 Claims. (Cl. 122—7)

1. A stream generator comprising an outer containment shell having a vertically elongated cylindrical side wall, a top head and a bottom head, a vessel defining an elongated vertically disposed chamber of annular cross-section closed at opposite ends concentrically positioned within the space defined by said cylindrical side wall of said shell, said annular chamber being of a reduced diameter as compared to said cylindrical side wall and forming therebetween an annular vertically elongated passageway, a vertically elongated gas-impervious baffle plate within said vessel extending transversely across said annular chamber, a vertically elongated perforated baffle plate adjacent one side of said gas-impervious baffle plate, circumferentially spaced therefrom and forming therewith an inlet passageway within said chamber on one side of said gas-impervious baffle adapted to be connected to a source of pre-heated gas through the lower end of said

chamber, said perforated baffle plate defining a plurality of vertically spaced orifices providing communication between said inlet passageway and said annular chamber, means defining an outlet opening in the upper end of said chamber adjacent the opposite side of said impervious baffle through which the gas may be discharged from said chamber into the space defined by said top head, the relative positions of said inlet passageway and said outlet causing the gas to travel in a general circular path through said chamber from said inlet orifices to said outlet opening, said annular chamber defining vessel additional defining a cylindrical passageway concentric with said chamber and interiorly located with respect thereto communicating between said top head and said bottom head adapted to cause said gas to flow downwardly therethrough into said bottom head, said annular passageway defined by said cylindrical side wall and said annular chamber also being in communication with said top and bottom heads whereby a portion of said gas is caused to travel therethrough to cool said shell, means defining an annular discharge passage connected to the lower end of said bottom head whereby said gas may be caused to discharge from said shell, and at least two vertically disposed horizontally spaced tube bundles adapted to transport the fluid to be heated, said tube bundles being disposed in said path of circular gas flow within said annular chamber.



3,302,621
METHOD OF SUPPORTING HORIZONTAL HEATER TUBES FIRED FROM BOTH SIDES

Eric Klein, Verona, N.J., assignor to Foster Wheeler Corporation, New York, N.Y., a corporation of New York
Filed May 27, 1965, Ser. No. 459,351
4 Claims. (Cl. 122—510)

1. A tube furnace comprising

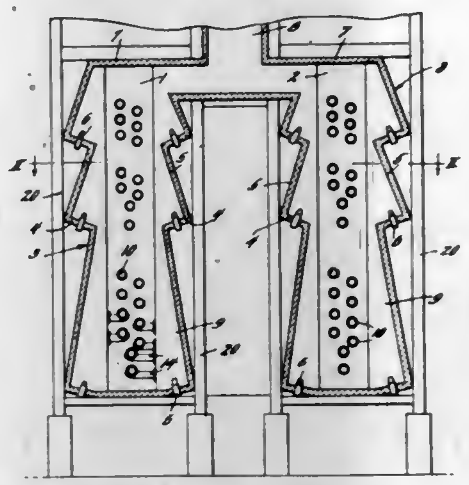
a chamber including a pair of substantially parallel side walls defining an elongated furnace radiant section, the furnace radiant section having a longitudinally extending chamber center line;

burner means heating said radiant section;

substantially horizontal tubes extending parallel to and between said side walls in proximity with said center line subjected to radiant heat in said chamber;

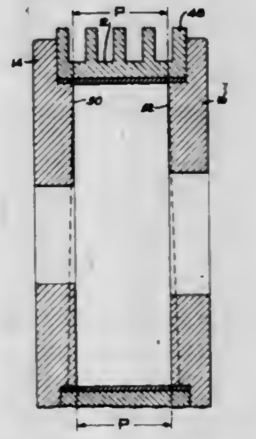
the side walls including a plurality of spaced vertically extending indentations alternately disposed lengthwise of the chamber projecting inwardly towards said tubes, the indentations having innermost surfaces close to the chamber center line;

means for supporting said tubes comprising a plurality of vertically extending support columns located within said indentations but exposed to ambient conditions whereby the support columns are shielded from high temperatures within said furnace, and individual supporting elements for each tube connected with said tubes extending through said innermost surfaces and secured to said support columns.



3,302,622
HOUSINGS FOR ROTARY COMBUSTION ENGINES

Charles Jones, Paramus, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Mar. 4, 1965, Ser. No. 437,076
10 Claims. (Cl. 123—8)

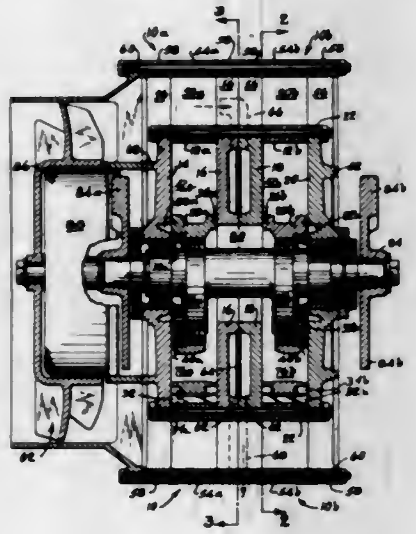


1. In a rotary combustion engine having a hollow outer body the inner surface of which defines a cavity and a rotor disposed within said cavity for relative rotation within said outer body, said rotor having a plurality of circumferentially-spaced apex portions having sealing cooperation with the inner surface of outer body to define a plurality of variable volume working chambers, intake means in one region of said outer body for supplying air to said working chambers for combustion therein adjacent a second region of said outer body and exhaust means for discharging the burnt gases produced during combustion from a region adjacent to said second region of said outer body whereby said outer body during normal engine operation has relatively high heat input regions and relatively low heat input regions with said relatively high heat input regions and relatively low heat input regions being circumferentially-spaced such that the heat input to said outer body and thermal expansion resulting therefrom is nonuniform; said outer body comprising a pair of axially-spaced end walls and a peripheral wall interconnected with said pair of axially-spaced end walls, the axial spacing of said end walls, increasing in the relatively high heat input regions relative to the axial spacing in said relatively low heat input regions during normal engine operation, and the dimensions of said peripheral and said end walls being such that said end walls have a nonparallel relationship when said engine is cold with the axial spacing therebetween being

relatively less in the portion of said outer body having said relatively high heat input regions than in the portion of said outer body having said relatively low heat input regions, and said nonparallel relationship being such that during normal engine operation when the spacing of said end walls increases in the relatively high heat input regions said end walls will have a substantially parallel relationship.

3,302,623
AIR COOLING FOR MULTI-UNIT ROTARY COMBUSTION ENGINES

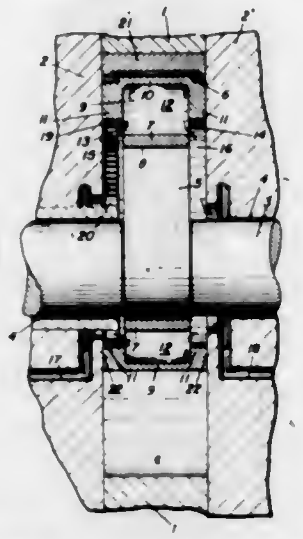
Hans-Georg Zimmermann, Heilbronn (Neckar), Germany, assignor to N.S.U. Motorenwerke Aktiengesellschaft, Neckarsulm, Germany, and Wankel G.m.b.H., Lindau (Bodensee), Germany
Filed May 28, 1965, Ser. No. 459,699
Claims priority, application Germany, June 13, 1964, N 25,112
6 Claims. (Cl. 123—8)



1. An air-cooled housing for a multi-unit rotary combustion engine including two coaxially aligned rotary combustion engine units having a common crankshaft and each said unit having an outer body including a pair of axially-spaced end walls interconnected with a peripheral wall to define a cavity, a multi-lobed rotor supported in each cavity for rotation relative to its associated outer body with said rotor being disposed in sealing engagement with the inner surface of said outer body to form a plurality of working chambers therebetween which chambers, during relative rotation between said rotor and its outer body, vary in volume, intake means for each unit disposed in a first region of its outer body for supplying air to the working chambers thereof for combustion adjacent a second region of its outer body, and exhaust means for each unit disposed in said second region of its outer body for discharging the combustion gases from each said unit, said second region of each said unit having a substantially higher heat input than said first region thereof, said air-cooled housing comprising; a plurality of spaced cooling fins projecting from the outer peripheral surface of each outer body with said fins on each unit extending in a direction parallel to the engine axis and being aligned with fins on the other unit to define a plurality of axially extending cooling air passages for conducting an axial flow of cooling air across the outer peripheral surface of each outer body of said multi-unit rotary combustion engine, and said rotary combustion engine units being disposed relative to one another, as viewed in the axial direction, with a first region of one of said units being aligned with a second region of the other of said units so that when cooling air is directed axially across the outer peripheral surface of said units it will first flow across a relatively low heat input region of one of said units and subsequently across a relatively high heat input region of the other of said units in one portion of the outer peripheral surface of said engine while in a portion circumferentially-spaced from said one portion the cooling air will first flow across a relatively high heat input region of said one unit and subsequently across a relatively low heat input region of said other of said units whereby a substantially balanced cooling of said engine housing outer surface is obtained.

3,302,624
ROTARY PISTON AND COOLING MEANS THEREFOR

Yasuo Tatsutomi, Hiroshima-ken, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima-ken, Japan
Filed June 22, 1965, Ser. No. 465,845
Claims priority, application Japan, June 24, 1964, 39/35,909; July 21, 1964, 39/41,611, 39/41,612, 39/41,613
7 Claims. (Cl. 123—8)



1. A rotary internal combustion engine, comprising an annular casing having a trochoidal shaped internal peripheral wall, a crankshaft extending through said annular casing, a triangular rotary piston eccentrically rotatably mounted on said crankshaft for rotation within said casing and defining between said piston and said casing a chamber for combustion of gases, said casing having intake and exhaust means through which the gases to be combusted and the products of combustion are drawn in and exhausted, said triangular piston being hollow and having an internal wall forming a piston bearing boss supporting the piston on the crankshaft, and having an exterior wall and lateral end walls defining the hollow interior of the piston, cooling fluid vanes extending radially outwardly within the hollow interior of said piston from the internal wall to the exterior wall and extending between the lateral end walls at an angle to a radial plane through the axis of rotation of the piston, said lateral end walls having apertures therein between said vanes for the passage of cooling fluid, and said annular casing having lateral end walls with apertures therein opposed to the openings in the lateral piston end walls for the passage of cooling fluid therethrough.

3,302,625
ENGINE

Kelly Gore Cunningham, 1419 Myers Ave., Dunbar, W. Va. 25064
Filed May 15, 1964, Ser. No. 367,641
3 Claims. (Cl. 123—11)

3. A rotary internal combustion engine with a fuel supply and exhaust system, the engine comprising:

a housing having an operating section and a control section;

a chamber casing assembly, including chamber casing walls, defining a chamber, mounted in the operating section of the housing;

the casing walls having a space therebetween;

a shaft extending through the housing having first spline means thereon in the operating section and second spline means thereon in the control section;

a first plate secured to the first spline means of the shaft for rotation with the shaft and having arms thereon, the plate extending into the space between the casing walls;

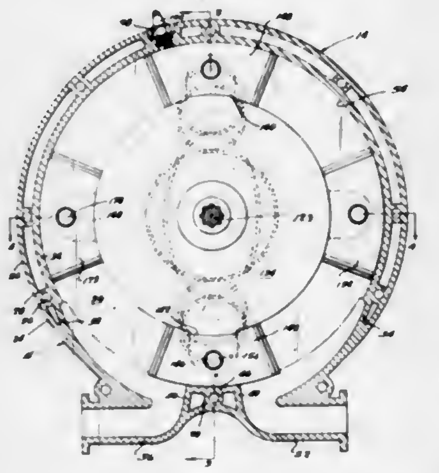
a piston mounted on each of the arms and movable in the chamber;

a second plate mounted adjacent the first plate about the shaft and having second arms thereon;

a second piston on each of the second arms, the second plate being disposed in the slot and the second pistons being movable in the chamber;

a division wall at one side of the operating section of the housing;

the casing walls having openings therein on opposite sides of the division wall, one such opening being an inlet opening for fuel, and the other such opening being an exhaust port for the products of combustion;



ignition means mounted in the housing and firing at a selected location in the chamber adjacent the exhaust port;

a control gear assembly mounted in the control section of the housing and including a substantially elliptical main gear rotatably mounted on the shaft and connected to the second plate for rotation therewith;

a circular drive gear secured to the second spline means of the shaft;

a pair of stub axles spaced substantially equidistantly on opposite sides of the shaft in the control section;

a first gear mounted on each axle and constantly meshed with the circular gear; and

a second, eccentrically mounted gear on each stub axle constantly meshed with the main gear and fixed to the first gear, respectively, the main gear rotating with the first plate, and the circular gear rotating with the second plate.

3,302,626
FLUID MACHINE

Jerome Zarembski, 13547 Roselawn, Detroit, Mich. 48238
Filed June 10, 1964, Ser. No. 374,133
9 Claims. (Cl. 123—16)

1. A fluid machine, comprising, in combination:

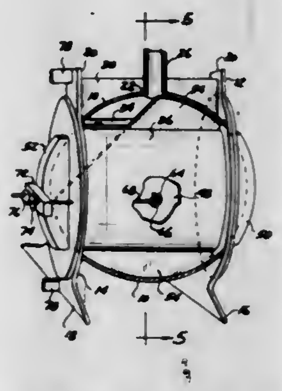
a stator having a central aperture which is spherical in configuration and having a pair of opposed parallel circular apertures at opposite ends;

a cylindrical rotor supported for rotation within said stator about the axis of said two circular apertures, said cylinder being formed of two halves separated by a plane which passes through the axis of said cylinder, said two halves being joined to one another along a pair of circular lines, one disposed at each end of the rotor cylinder, the ends of said two lines being joined by slots formed along the perimeter of the rotor parallel to the axis thereof and on diametrically opposed sides thereof;

a single stator vane fixed to the stator and projecting radially inward therefrom so that its radially inward edge makes a fluid sealing contact with the cylindrical surface of the rotor;

a rotor vane generally circular in shape with a radius corresponding to the radius of said central spherical aperture and a diameter at least as great as the length of the rotor cylinder, said rotor vane having a flat formed thereon along a chord having a length corresponding to the length of said rotor cylinder, and said rotor vane disposed within said stator so as to rotate about an axis perpendicular to the plane dividing said two rotor halves;

a pair of spaced and parallel flat members disposed within the rotor and adapted to form a housing within which the rotor vane moves;



a first gear fixed with respect to said stator;

a second gear in mesh with said first gear and rotatably supported on said rotor for rotation about an axis parallel to and displaced from the central axis of said rotor, whereby said second gear orbits about said first gear as the rotor rotates;

means connected to said second gear to said rotor vane so as to cause said vane to rotate about its axis in timed relation to the rotation of the rotor about its axis, whereby the surfaces of said vane extend through said two slots and move into fluid-sealing contact with the spherical surface of the stator and then retract into said slots in timed relation to the rotation of said rotor, one complete extension and retraction cycle occurring during each rotation of said rotor;

and fluid ports formed in the stator on opposite sides of the stator vane.

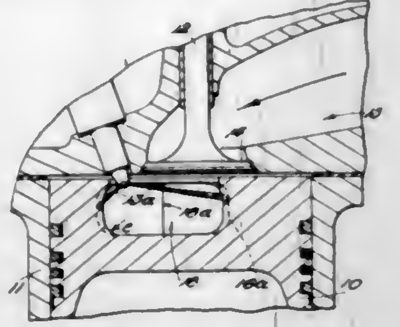
3,302,627
INTERNAL COMBUSTION PISTON ENGINES

Alberto Jorge Morris, Dursley, England, assignor to R. A. Lister & Company Limited, Dursley, England, a British company
Filed Oct. 13, 1964, Ser. No. 403,508
Claims priority, application Great Britain, Oct. 17, 1963, 41,124/63
11 Claims. (Cl. 123—30)

1. A piston for an internal combustion engine, said piston comprising:

(a) a single combustion chamber formed in the crown of the piston, the combustion chamber having:
(b) an entry orifice in the top surface of the crown,
(c) a flat bottom wall, and
(d) an encircling boundary wall formed with spaced projections directed away from the boundary wall towards the central zone of the chamber and providing a number of recesses separated by said projections;

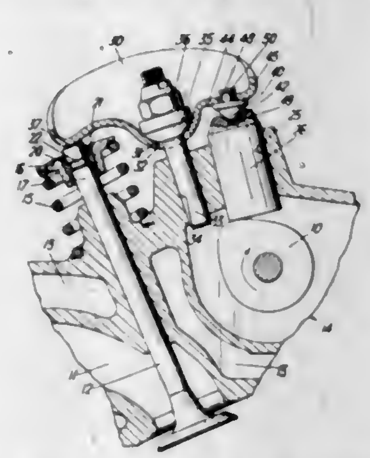
(e) said projections extending full height of the encircling boundary wall, and



(f) said encircling boundary wall being undercut with respect to the entry orifice.

3,302,628
INTERNAL COMBUSTION ENGINE VALVE GEAR

Clayton Blaine Leach, Konigstein-Johanniswald, Germany, assignor to General Motors Corporation, a corporation of Delaware
Filed Dec. 21, 1965, Ser. No. 515,417
Claims priority, application Germany, Jan. 20, 1965, O 10,611
4 Claims. (Cl. 123—90)

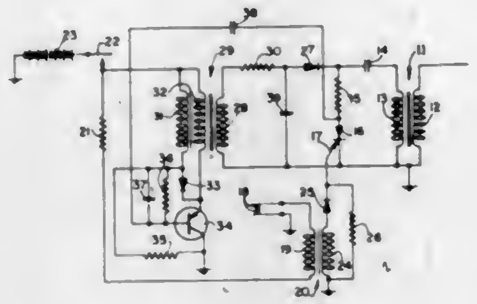


2. Valve gear for an internal combustion engine comprising a reciprocable member having an end portion, an oscillating member having an end portion facing said first named end portion and a slide member engaging both said end portions and in thrust transmitting relationship therewith, said slide member and one of said end portions having coacting surfaces to form ball-and-socket-like engaging surfaces and said slide member and the other of said end portions having coacting surfaces to form slidably engaging surfaces, said slide member being of generally mushroom shape and having a spherical head for engaging said one end portion and a slide face opposite said spherical head with a stem extending therefrom into a slot formed in said other end portion, said slide member being non-detachably connected with said oscillatory member.

3,302,629
CAPACITOR DISCHARGE IGNITION SYSTEM WITH BLOCKING OSCILLATOR CHARGING CIRCUIT

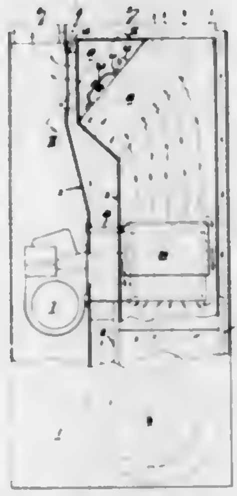
Charles L. Shano, Morton Grove, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Sept. 21, 1964, Ser. No. 397,824
5 Claims. (Cl. 123—148)

1. In an ignition system for an internal combustion engine, which system has an ignition coil for supplying high voltage firing pulses to the internal combustion engine and pulse means operable in synchronism with the internal combustion engine, a firing circuit for providing intermittent current flow in the ignition coil to produce firing pulses therein, including in combination, capacitor means, blocking oscillator charging means coupled to said capacitor means and including an electron control device having input and output circuit means, inductance means connected between said input and output circuit means and providing regeneration action in said electron control device, controlled rectifier means connected in series with said capacitor means and the ignition coil, means for triggering said blocking oscillator charging means coupled between said controlled rectifier means and said input circuit means, and means for coupling said controlled rectifier means to the pulse means to turn said controlled rectifier means on said capacitor means thereby discharging in response to a pulse from the pulse means, through said ignition coil for producing a firing pulse therein.



3,302,630
HOT AIR FURNACE

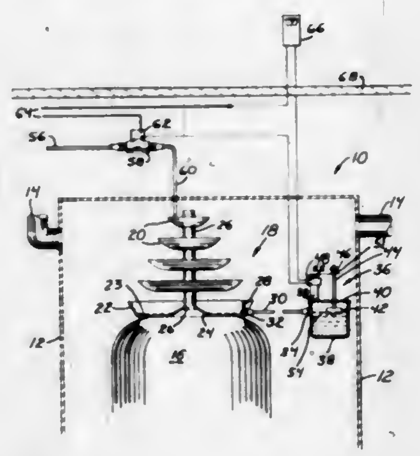
Sidney Volk, Benton Harbor, Mich., assignor to Home Furnace Company, Holland, Mich., a corporation of Michigan
Filed Oct. 18, 1965, Ser. No. 496,845
6 Claims. (Cl. 126—110)



1. A fuel burning and heat exchange assembly for a forced air furnace comprising:
a heat exchanger having a radiator section, a burning section, and a flue gas exit section;
an outer envelope surrounding said heat exchanger, said outer envelope having a cold air intake and a hot air outlet;
a plurality of passageways in said radiator section, some of said passageways being isolated from flue gases produced in said burning section to form hot air passageways, others of said passageways extending from said burning section to said flue gas exit section to form flue gas passageways through which the products of said burning section must pass before exiting from said inner envelope;
means for forcing air between said outer envelope and said heat exchanger, a major portion of said air passing through said air passageways before it is expelled at said hot air outlets; and
means affixed over the downstream side of said flue gas passageways for restricting the flow of flue gases therethrough, said restricting means being adjustable whereby the backpressure of said flue gases within said flue gas passageways may be varied so as to provide continual optimal heat exchange efficiency despite variations in combustion conditions.

3,302,631
HUMIDIFIERS

Glenn A. Kellogg, 55237 Moss Road,
South Bend, Ind. 46628
Filed Apr. 26, 1965, Ser. No. 450,634
3 Claims. (Cl. 126—113)

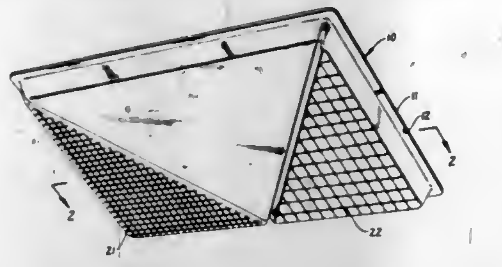


1. A humidifier adapted for use with a forced air heating system having a casing with ducts therein comprising:
(a) a firepot positioned in the casing;
(b) a base pan in proximity with said firepot, said pan being of thin wall construction of a material having a high thermal conductivity and further having a bottom contour complementary to the firepot on which it is in proximity with;
(c) a hollow tube means extending from a central portion of said base pan, said tube means forming a support for a plurality of evaporator pans positioned thereabove;
(d) a plurality of evaporator pans positioned along said tube means in spaced apart relationship and extending from said tube means in a stacked arrangement whereby the pan above any respective pan is smaller in overall periphery than the pan located beneath it;
(e) means to supply water to a topmost evaporator pan comprising a water discharge line disposed above the said evaporator pan; and,
(f) means for limiting the amount of water in said base pan to a maximum of one-eighth of an inch, said means including a float chamber in communication with said base pan, a float member in said chamber having a stem extending therefrom, a switch attached to said float chamber, a solenoid actuated valve for controlling said water supply means, and, means to actuate said switch to thereby open said valve to allow water to be deposited in said evaporator pans.

3,302,632
MICROWAVE COOKING UTENSIL

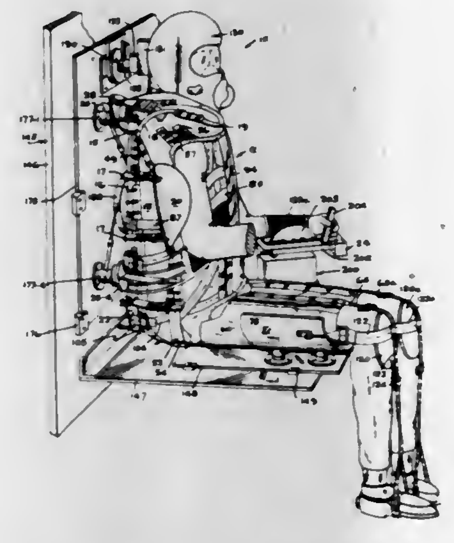
Edward C. Fichtner, Burlingame, Calif., assignor to Wells Manufacturing Company, San Francisco, Calif., a corporation of California
Filed Dec. 6, 1963, Ser. No. 328,595
9 Claims. (Cl. 126—390)

7. A microwave cooking utensil comprising: a vessel having first and second microwave transmission paths therethrough, first and second compartments in said vessel in said first and second paths respectively and adapted to contain different foods with said vessel having respective first and second wall portions in each of said first and second paths outide of the other path with said first and second wall portions being positioned with respect to each other to provide said different paths for transmission of microwave energy through said utensil, and with said portions constructed to regulate the transmission of microwave energy therethrough at different rates for cooking different foods in said compartments at different rates.



3,302,633
UNIVERSAL PILOT RESTRAINT SUIT AND BODY SUPPORT THEREFOR

Hubert C. Vykukal, Mountain View, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Dec. 12, 1961, Ser. No. 158,916
30 Claims. (Cl. 128—1)



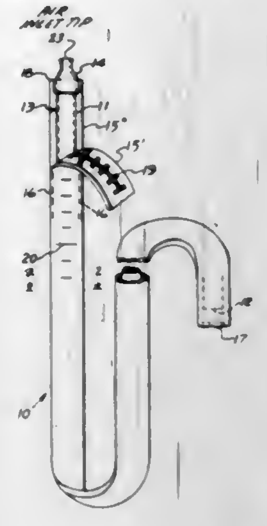
18. A combination universal pilot restraint suit and posture positioning means therefor comprising; body support means; restraint suit means; said restraint suit means including a helmet, a cushioned rigid back structure; chest and pelvic restraints securable to said rigid back structure; cushioned thigh supports suspended from said rigid back structure; knee restraints slung from said cushioned thigh supports, forearm restraints; releasable attachment means between said body support means; said helmet, cushioned back structure, thigh supports and forearm restraints; operator means for simultaneously releasing said cushioned back structure and thigh support attachment, and separate operator means respectively for releasing said helmet attachment and forearm attachment to provide both rapid egress and freedom of movement.

3,302,634
INFLATABLE STRING FOR MARKING INTERNAL BLEEDING

Myron W. Mazellan, 517 Milltown Road,
North Brunswick, N.J. 08846
Filed Sept. 13, 1963, Ser. No. 308,866
5 Claims. (Cl. 128—2)

1. In a blood-absorbing string taken orally for locating bleeding in the gastro-intestinal tract, as described, and provided with radio-opaque markers along the length thereof, the improvement comprising

a continuous, radio-transparent elongated, collapsible thin-walled tube, serving as the core for the string, and having an open end and a swallowable closed end,



a layer of absorbent, radio-transparent material attached to the outside of said tube, and

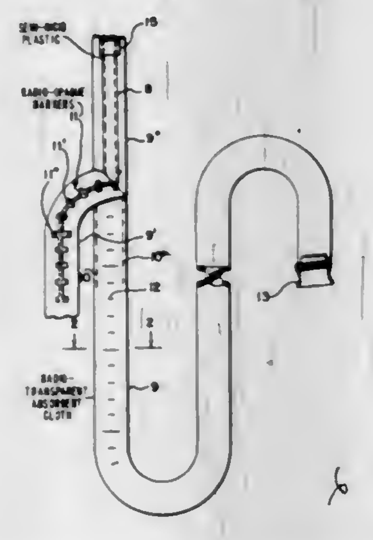
inflation medium-receiving means attached to the open end of said tube.

3,302,635
SEMI-RIGID DEVICE FOR MARKING INTERNAL BLEEDING

Fred E. Pittman, 525 E. 68th St., New York, N.Y. 10021

Filed Sept. 19, 1963, Ser. No. 310,113

7 Claims. (Cl. 128—2)



1. In a blood-absorbent device adapted to be introduced into the gastro-intestinal tract for locating bleeding, said device being provided with radio-opaque markers along the length thereof; the improvement comprising,
- a continuous, radio-transparent, semi-rigid, flexible elongated core serving as the central element of said device, and
- an absorbent radio-transparent cloth cover disposed tightly and completely over the outer surface of said core.

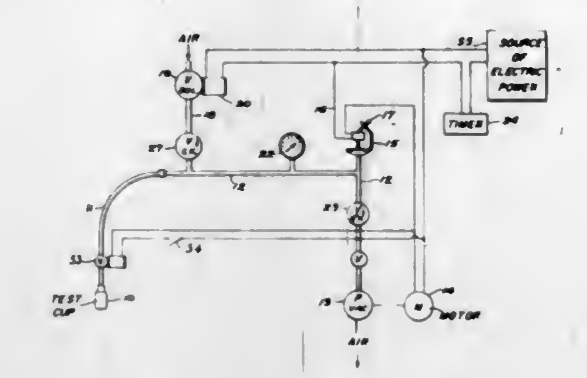
3,302,636
BAROSTATIC SKIN CAPILLARY FRAGILITY TESTING APPARATUS

Charles Alan B. Clemetson, San Francisco, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Oct. 23, 1963, Ser. No. 318,390

13 Claims. (Cl. 128—2)

1. Apparatus for clinically producing petechiae under controlled conditions, comprising: a cup having an opening adapted to contact a person's skin, a vacuum piping system connected to said cup by a flexible conduit, a power-driven suction pump for rapidly producing a partial vacuum of predetermined intensity in said system, timing means preset at a predetermined time interval, said pump having means for maintaining said vacuum at said predetermined intensity through said time interval, means for substantially simultaneously starting said pump and initiating said time interval, and means effectuated by said timing means to release said vacuum in said system at the end of said time interval.

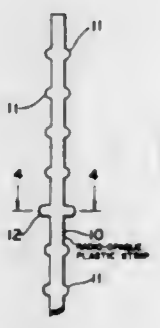


3,302,637
RADIO-OPAQUE MARKING STRIP FOR INTERNAL BLEEDING MARKERS

Myron W. Mazellan, 517 Milltown Road, North Brunswick, N.J. 08846

Filed June 3, 1965, Ser. No. 461,076

3 Claims. (Cl. 128—2)



1. A string device for locating internal bleeding, as described, comprising:
- a semi-rigid plastic tube,
- a textile cover disposed over said tube,
- a narrow elongated flexible radio-opaque marker strip attached to the outside of the cover, and
- a series of distance indicia serving as an integral part of said strip and disposed at the sides thereof.

3,302,638
MERCURY SPHYGMOMANOMETERS

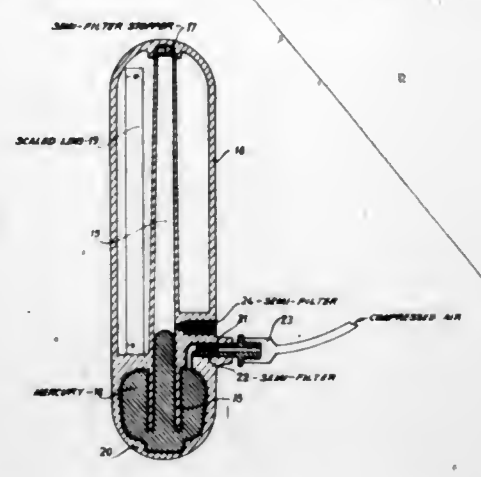
Pedro Pere Parera, 10 Vilana St., and David Fabra Llaurado, 51 Ave. San Antonio Maria Claret, both of Barcelona, Spain

Filed Sept. 20, 1963, Ser. No. 310,438

Claims priority, application Spain, Sept. 24, 1962, 281,022

4 Claims. (Cl. 128—2.05)

1. An apparatus for measuring arterial tension comprising a housing constituting a compression chamber and having upper and lower ends, a mercury supply in the lower end of the housing, an upwardly tapering tube having upper and lower ends within the compression chamber communicating at its lower end with the mercury supply and at its upper end to the compression chamber, and a semi-filter closure means communicating exteriorly of the housing and with the interior of the tube in proximity to the zero level of the mercury column in the tube.

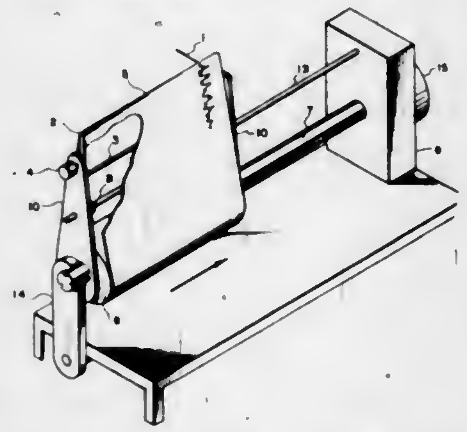


3,302,639
RECORDING DIAGNOSTIC MACHINES

Arthur Koffler, 87 Bartina Lane, Stamford, Conn. 06902

Filed June 23, 1964, Ser. No. 377,188

7 Claims. (Cl. 128—2.06)



1. In a diagnostic machine in which at least one physiological condition is transformed into electrical quantities which actuate at least one recording stylus over a moving recording medium and which machine requires making a series of traces on the moving medium, the traces for each physiological condition having the same relative scale, the improvement which comprises, in combination with said machine,
- (a) an endless belt recording medium under the stylus, means for driving said medium in its circumferential direction through a series of single revolutions, thus producing a separate trace for each revolution,
- (b) means for temporarily stopping the said circumferential movement at the end of each revolution, and
- (c) means for laterally translating the medium by the amplitude of at least one trace.

3,302,640
HYDROTHERAPY UNIT INSTALLATION WITH PUMP AND MOTOR OUTSIDE TUB

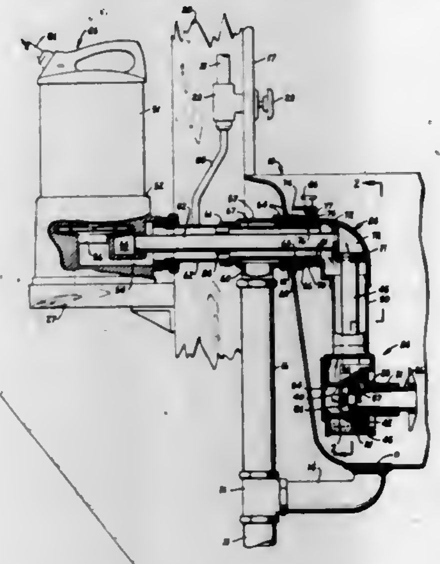
Candido Jacuzzi, Lafayette, Calif., assignor to Jacuzzi Bros., Inc., Richmond, Calif., a corporation of California

Filed June 16, 1964, Ser. No. 375,463

11 Claims. (Cl. 128—66)

1. In a bathtub having an overflow opening therethrough and a hydrotherapy apparatus associated therewith comprising:
- (a) a nozzle housing positioned in the bathtub below the normal water level therein, said housing having therein a water inlet and discharge outlet; and,
- (b) a pump and driving motor therefor positioned outside of the bathtub, said pump having a vacuum inlet and pressure outlet;

an improved assembly for interconnecting said housing and pump comprising:
- (a) a fitting received in the overflow opening of the bathtub and having therein:
  - (1) a duct extending in fluid communication between the interior of the bathtub and a waste conduit to the exterior of the bathtub; and,



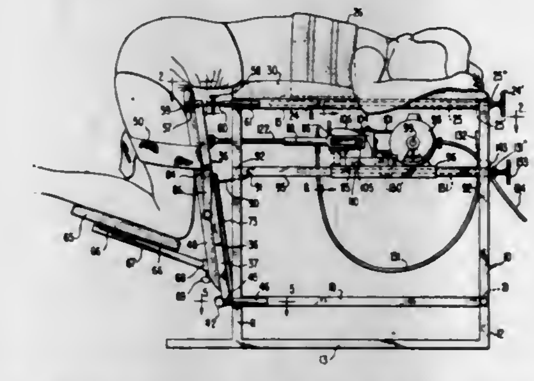
  - (2) passage means for the extension of conduit means therethrough;
- (b) intake conduit means extending through said passage means and in fluid communication between said water inlet and said vacuum inlet; and,
- (c) discharge conduit means extending through said passage means and in fluid communication between said pressure outlet and said discharge outlet.

3,302,641
LUMBAR TRACTION TABLE

William E. Berne, Columbia, S.C., and John Nebera, Charlotte, N.C., assignors to La Berne Manufacturing Company, Inc., Columbia, S.C., a corporation of South Carolina

Filed Nov. 4, 1964, Ser. No. 408,883

16 Claims. (Cl. 128—71)



1. A therapeutic traction table comprising an upper support for the torso of a patient, a movable unit extending downwardly from one end of said support, a kneeling pad extending outwardly from the lower end of said unit and being of sufficient extent to accommodate the knees and adjacent portions of the shins of a patient and support the patient's weight, means for supporting said unit for movement toward and away from said support in engagement with the fronts of the thighs of the patient kneeling on said kneeling pad, a force-transmitting device connected to said unit, and power means for alternately applying a force to said force-transmitting device and releasing force therefrom to alternately move said unit toward and

away from said support to alternately apply a traction force to the spine of the patient and to release such traction force.

3,302,642
METHOD FOR PROVIDING A PLASTIC SURGICAL SUPPORT

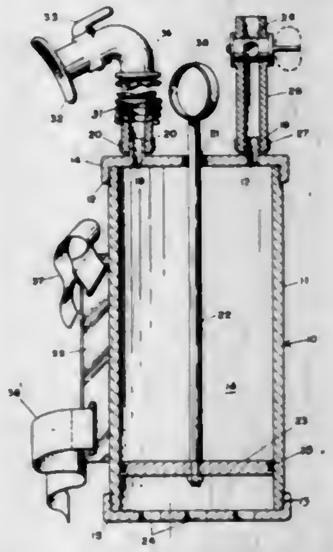
Robert H. Allen, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Nov. 29, 1963, Ser. No. 327,079
5 Claims. (Cl. 128—90)

1. A method for providing support to broken and sprained limbs comprising:

(1) applying a normally crystalline polymeric material while in a flexible, essentially amorphous state to said limbs, said polymeric material being maintained at a temperature tolerable to human flesh, and
(2) allowing said normally crystalline polymeric material to crystallize at ordinary room temperature to form a rigid support for said limbs.

3,302,643
UNDERWATER BREATHING APPARATUS

John W. Allmand, 300 Cypress Drive,
Miami, Fla. 33149
Filed Aug. 10, 1964, Ser. No. 388,533
2 Claims. (Cl. 128—142)

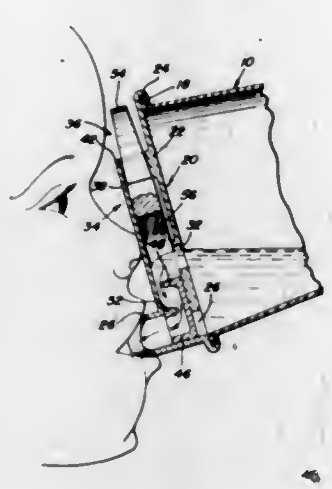


1. An underwater breathing apparatus comprising a tank, said tank having a cover at each end mounted thereon to form an air chamber, a piston slidably mounted on said tank, one of said covers having a plurality of openings, a piston rod secured at one end to said piston slidably mounted in one of said openings, a charging member mounted on the free end of said piston rod, an inflexible tube mounted on another of said opening in said one of said covers, a valve mounted on the free end of said inflexible tube controlling the flow of air into and from said tank, a flexible tube secured to another of said openings, a mouth piece mounted at the free end of said flexible tube, and at least one opening in the other of said covers permitting the flow of water into said tank and against said piston, subjecting said air in said air chamber to the pressure of said water.

3,302,644
ORAL MEDICINE ADMINISTERING DEVICE FOR CHILDREN

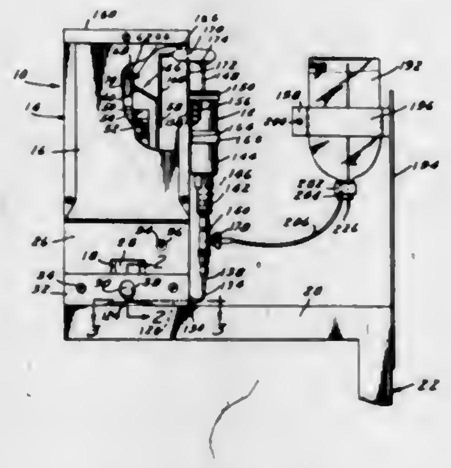
Harold J. Kennedy, R.R. 2, and Renos E. Haltom, R.R. 3, both of Cloverdale, Ind. 46120
Filed July 26, 1963, Ser. No. 297,873
10 Claims. (Cl. 128—222)

1. A medicine dispensing liquid container including a wall closing said container, said wall including a pair of liquid passing ports therethrough, a common liquid discharge opening defined on said wall and communicated with said ports for the selective reception and discharge of liquid therefrom, means for selectively closing each port while simultaneously opening the other port, said selective closing means including a medicine receptacle, and means diverting fluid flow from said one of said ports through said receptacle for subsequent discharge through said discharge opening.



3,302,645
CHICKEN VACCINATION AND DEBEAKING APPARATUS

Jesse W. Lockmiller, 9427 S. La Serna Drive, Whittier, Calif. 90605
Filed Nov. 22, 1963, Ser. No. 325,599
6 Claims. (Cl. 128—223)

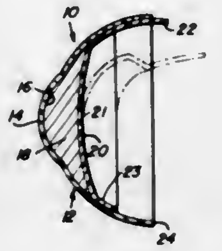


1. In apparatus of the character described:

(A) mechanism support means comprising an upright plate having a notch that extends upwardly from the lower edge of said plate;
(B) a stationary blade member secured to the plate and over said notch, said member having an opening therein with an arcuate, upwardly facing sharp cutting edge at the inner face of said member;
(C) a movable blade having an arcuate notch in the lower end curved oppositely of the cutting edge of the fixed blade member, said movable blade being operably mounted for cooperative cutting action with the fixed blade;
(D) actuating means for actuating said movable blade;
(E) means for discharging fluid medicament forwardly of said fixed blade and below the sharp cutting edge thereof;
(F) and means connecting said actuating means with said fluid discharge means whereby said fluid discharge means is actuated by said actuating means for discharging fluid.

3,302,646
APPARATUS FOR TREATING EYE INFECTION

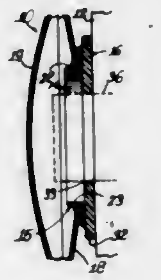
Charles A. Behney, Cochise Lane, Bisbee, Ariz. 85603
Filed Jan. 10, 1964, Ser. No. 337,053
1 Claim. (Cl. 128—260)



An apparatus for treating eye infection of animals comprising, a cup-like shield made of an insoluble, flexible material having an undeformed curvature of slightly less than the curvature of the cornea and sclera up to the attachment of the conjunctiva thereto, the rim region of said shield being adapted for insertion into the eye socket between the eyelids and the sclera, a central portion of the shield deviating from said curvature to project between the eyelids and form a pocket aligned with the cornea, a therapeutic ointment contained in and substantially filling said pocket, a cup-shaped retainer removably disposed within said shield and disposed within the confines thereof, said retainer having an imperforate bottom wall of substantially circular configuration projecting across said pocket and, in combination therewith, defining a sealed chamber for the ointment, and a continuous substantially frusto-spherical side wall disposed in contiguity with the inner surface of said rim region of the shield, an adhesive removably securing said side wall of the retainer to said inner surface, and a pull tab projecting outwardly from the rim of said retainer beyond the rim of the shield whereby the retainer as a whole may be pulled from the shield to expose the ointment preparatory to application of the apparatus to the eye.

3,302,647
SEALING PAD FOR A POST-SURGICAL DRAINAGE POUCH

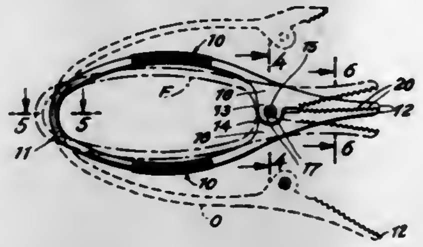
Arthur E. Marsan, Chicago, Ill., assignor to Hollister, Incorporated, a corporation of Illinois
Filed Mar. 3, 1964, Ser. No. 349,020
6 Claims. (Cl. 128—283)



1. For use with a post-surgical drainage pouch adapted to receive drainage from the stoma of a patient, a semisolid gelatinous sealing ring comprising an oleaginous nonexaporative vehicle having a healing powder therein of a sufficient quantity to produce a semisolid gel, said ring having a central opening of a size to receive the stoma of a patient, said ring adapted to be telescoped on the stoma between the skin of a patient and the drainage pouch to form a seal therebetween.

3,302,648
CLAMPING IMPLEMENT

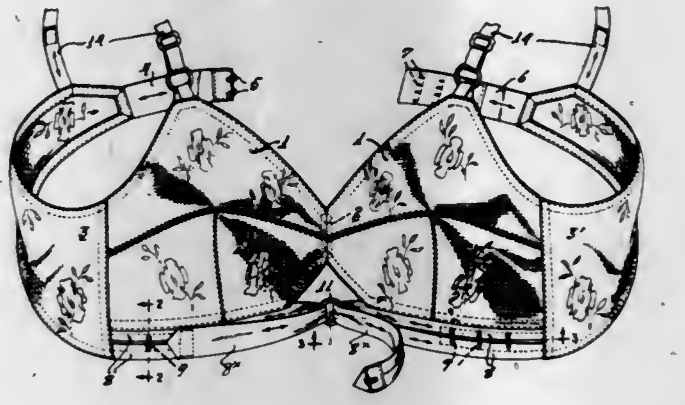
Steven A. Nelson, Los Angeles, Calif., assignor of one-half to Charles E. Barry, Los Angeles, Calif.
Filed Aug. 13, 1964, Ser. No. 389,385
1 Claim. (Cl. 128—325)



A clamping implement suitable for use as a hemostatic clamp comprising an elongated unitary loop-shaped body forming a pair of handle levers laterally spaced from each other at one end and smoothly converging toward each other and integrally connected at the other end by an arcuate bight portion, said levers terminating at the one end in a pair of confronting jaws including an inner complementary serrated portion adapted to grip tissue therebetween when the jaws close upon themselves, interengageable shoulder portions including ears of complementary design formed on the levers in the region adjacent the respective jaws to form a pivot interconnecting the levers, one of said ears having an aperture, the other ear being formed with integral segmental pivot pin means, said pin having an enlarged segmental head larger than said aperture when in normal position but smaller than said aperture when said segmental pin and head are compressed together, said loop-shaped body being made of resilient flexible material so that said pivoted levers are preloaded and normally placed in spreading tension such as to cause said jaws to press toward one another for gripping said tissue whereby the jaws may be opened by shifting the handle levers toward each other.

3,302,649
BRASSIERE

Enrico Bruno, Brooklyn, N.Y., assignor to Maidenform, Inc., New York, N.Y., a corporation of New York
Filed Feb. 15, 1965, Ser. No. 432,779
2 Claims. (Cl. 128—487)

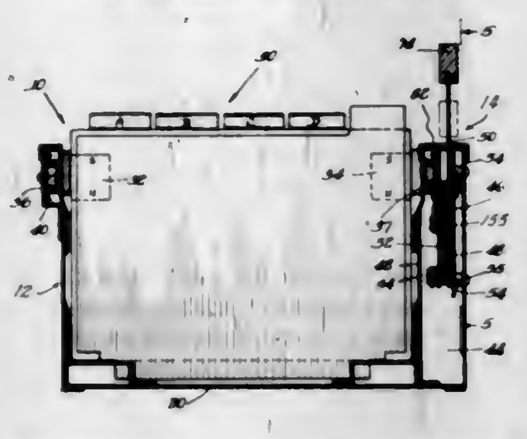


1. A brassiere comprising a pair of cups joined at the center line of the brassiere, a back band seamed to each cup, interconnecting means for the back bands, and a flexible strip secured at one end to each of said back bands and seamed to the lower margin of each cup, each strip having an elongated reversely folded extension, a connecting member located at the vertical center line of the brassiere and adapted to receive and permit folded sliding movement of both strip extensions, a plurality of eyes carried by said flexible strip below each cup, and hook means carried at the end of each strip extension whereby the strip may be hooked into adjustment with any of its plurality of eyes.

3,302,650
AUTOMATIC DEMAGNETIZER FOR MAGNETIC TRAY

Robert J. Stuckel, Mount Prospect, Ill., assignor to Business Efficiency Aids, Inc., Skokie, Ill., a corporation of Illinois

Filed July 7, 1964, Ser. No. 380,848
8 Claims. (Cl. 129—16)

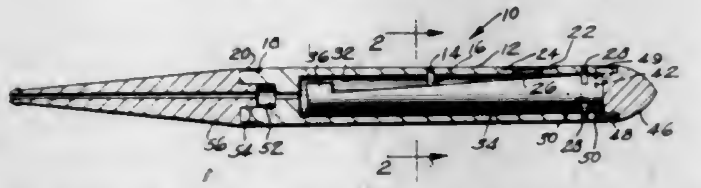


8. A file assembly comprising: a container having first and second spaced apart substantially parallel sidewall means which are interconnected by a base wall to support a plurality of card members on which are mounted first and second spaced apart elements of a magnetizable material, said card members being located in said container with juxtaposed surfaces positioned in a series of filing planes extending transversely of said container; a first magnet means fixedly supported by said first sidewall means adjacent to said first magnetizable element; and a second magnet means attached to a plate member supported by said second sidewall means, said second magnet means having transverse and longitudinal axes positioned in a mounting plane which extends perpendicularly to said filing planes, and actuator means connected to said plate member for moving said second magnet means longitudinally and vertically relative to said container from a first position adjacent said second magnetizable element to a second position in which the longitudinal axis of said second magnet means is below said second magnetizable element, said second magnet means being moved from said first position to said second position with both its longitudinal and transverse axes in said mounting plane.

3,302,651
PIPET

Dale B. Baker, 1018 E. Imperial Ave., Apt. 2, El Segundo, Calif. 90245

Filed July 30, 1964, Ser. No. 386,135
1 Claim. (Cl. 131—185)

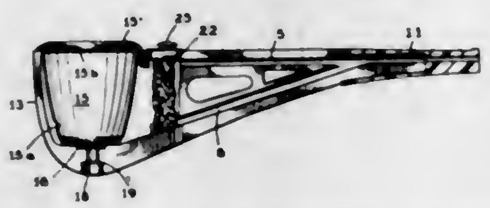


A smoking device including an elongated hollow cylindrical member at one end portion and a mouthpiece attached thereto at the other end portion of the device, said mouthpiece and member having a common longitudinal axis, the free end portion of said members having an opening and a cap member for closing the same, said cap member having a hollow tubular tray attached thereto, adapted to fit within the hollow cylindrical member and to be slidable relative thereto when said cap is removed from said opening, said tray having a U-shaped slot in the upper portion thereof extending from the end thereof adjacent to the mouthpiece to a portion thereof adjacent to that end of the tray which is secured to the cap, the portion of the tray adjacent to the mouthpiece having lip members on opposite sides of the end portion of the slot, the lips terminating in flared portions adapted to bear against the internal wall of said hollow cylindrical member for stabilizing said tray when it is slid outwardly of said cylindrical member, said cylindrical member having a plurality of transverse slots adjacent the free end thereof each having an arcuate plate therein, said plates being adapted to guide said tray as it is slid within said member and to limit the outward movement of the tray with respect thereto, the upper portion of the intermediate portion of the member having a transverse slot therethrough having a packing plate therein, said packing plate having a smoke passing central aperture therethrough and having an external shape to fit in and conform with the interior of the tray and having extensions thereof on the portion of the plate above the tray adapted to extend across the adjacent portion of the interior of the cylindrical member and said cylindrical member having an aperture through the wall portion thereof overlying the slot in the tray and having a washer surrounding said wall aperture to prevent charring of the same, whereby said tray may be slid out of said cylindrical member, filled with tobacco through the slot therein and slid back in the cylindrical member, said packing plate retaining and packing the tobacco in said tray so that the tobacco therein may be ignited through the wall aperture, said wall aperture providing means whereby air may enter the tobacco in the tray for combustion thereof therein.

3,302,652
SMOKING PIPE

Fred L. Weber, 11410 NE. 9th Ave., Miami, Fla. 33161

Filed May 14, 1964, Ser. No. 367,445
4 Claims. (Cl. 131—207)



1. A smoking pipe of the character described of plastic material and with the pipe being formed in two mating sections that are connected together and bonded against separation to form the complete pipe, the bowl of the pipe being adapted to receive a tobacco receptacle detachably fixed within the bowl, the pipe having a stem portion having a horizontal conduit for the passage of smoke from burning tobacco within the receptacle and having an inclined conduit that communicates with the first named conduit to receive saliva that is normally deposited within the bottom of the bowl, the first named conduit extending through a relatively reduced tapered end of the stem, a mouthpiece having a socket formed therein for fitment over the reduced end of the stem, the pipe being provided with a chamber located between the bowl and said end that opens upon the top of the stem, a filter device fitting within the chamber and with the filter device including an absorbent pad, the pad intersecting the first and second named conduits to first filter the smoke and to partially absorb the saliva passing through the inclined conduit.

3,302,653
HEAD COVERING APPARATUS FOR USE IN STREAK COLORING HAIR

Richard A. D'Agostino, 19496 Hubbell, Detroit, Mich. 48235

Filed May 13, 1965, Ser. No. 455,406
3 Claims. (Cl. 132—9)

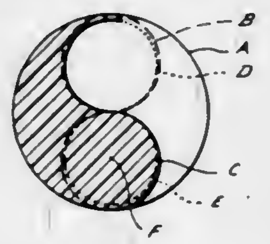
1. A cap for use in selectively coloring strands of hair, comprising: a pair of cap sections of identical configuration, one section being formed of heavier film plastic than the other, each section consisting of a pair of identical sheets having one flat edge, a domed section, and an elongated tail section, each pair of sheets being sealed together in opposition on all edges except the flat edge,

such pair of cap sections being joined in complementary relationship with one another with their open sides over the head of the wearer and their tail sections gathered to tighten the cap about the head.

3,302,654
CONTINUOUSLY VARIABLE ANGLE HELICAL ROLLER COMB

Leslie R. Scamman, 1435 Allston, Houston, Tex. 77008

Filed Mar. 30, 1964, Ser. No. 355,757
8 Claims. (Cl. 132—122)



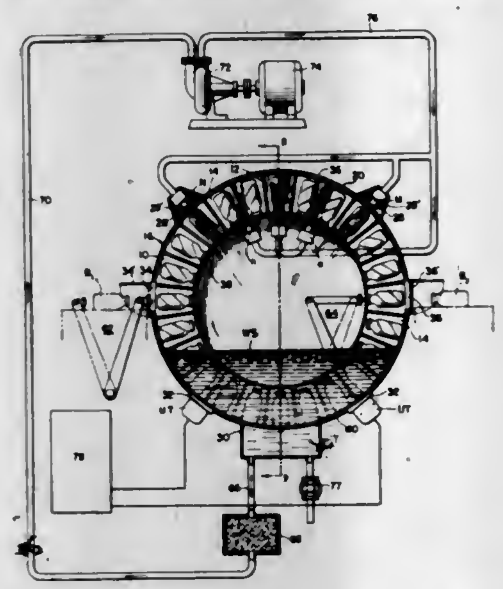
1. A roller comb comprising
a generally cylindrical body, and
only a single row of longitudinally aligned, laminar, hemi-crescent shaped teeth extending outwardly from the body transverse to the axis of the body and curving about the body in substantially the same rotative direction,
the outer peripheries of said teeth lying on circles of larger diameter than said body,
said outer peripheries of the teeth having arcuate extents of the order of 180 degrees,
said body lying entirely within said circles and being substantially tangent thereto,
the diameter of said body being substantially half that of said circles,
the inner peripheries of said teeth lying on circles of substantially the same diameter as said body that are substantially tangent to said circles defining the outer peripheries of said teeth and substantially tangent to said body at points substantially diametrically opposed on said body from the points of tangency with the body of said circles defining the outer peripheries of said teeth.

3,302,655
APPARATUS FOR SPRAYING AND ULTRASONIC WASHING OF BOTTLES

Noburo Sasaki, Makio Mishima, and Yasuo Sugai, all of Tokyo, Japan, assignors to Kabushiki-Kaisha Nihon Seikosho and Zaidanhojin Sekitan Sogo Kenkyusho, Tokyo, Japan

Filed Dec. 23, 1964, Ser. No. 420,755
Claims priority, application Japan, Dec. 30, 1963, 38/71,648
2 Claims. (Cl. 134—79)

1. In an apparatus for automatically washing bottles and the like, the combination of a cylindrical enclosure whose axis is substantially horizontal, a rotatory circular disk-like holder member mounted within said cylindrical enclosure for rotation about the horizontal axis and including a plurality of radial partition walls disposed at predetermined, angularly equal intervals on the entire peripheral zone of one face of said circular disk-like holder member to form a plurality of compartments for receiving bottles to be washed, a retaining annulus surrounding internally the innermost edges of said radial partition walls to support bottles in said compartments on said rotatory circular disk-holder member, a drive for driving said rotatory circular disk-like holder member about its horizontal axis, nozzle means disposed so as to spray a warm washing solution into those portions of said compartments traveling in the upper portion of said enclosure, said nozzle means including at least one nozzle for spraying a jet of warm washing solution into said portions of said compartments from a position radially outwardly of the compartments to wash the exterior surfaces of the bottles, and at least one nozzle for spraying a jet of warm washing solution into said portions of said compartments from a position radially inwardly of the compartments to wash the interior surfaces of the bottles, said warm washing solution used to wash the bottle falling into an amount of warm washing solution being accumulated in the bottom portion of said enclosure, means for generating an ultrasonic wave and transmitting the same into said amount of warm washing solution, said bottles held in said compartments being exposed alternately to said jets of warm washing solution and said ultrasonic wave in said amount of washing solution, a reservoir attached to the bottom portion of said enclosure externally thereof and communicating with the interior of said enclosure, means for recirculating the warm washing solution from said reservoir to said nozzle means, and a barrier strip less in radial length than the partition wall being disposed between the two bottles of each pair of adjacent bottles in order to accommodate a predetermined number of bottles in stacked state in each of said compartments.



3,302,656
METHOD AND MEANS FOR MOVING AN IRRIGATION SYSTEM

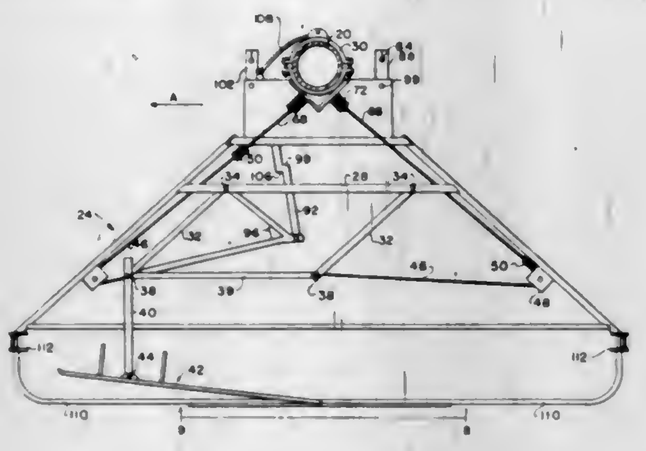
Ralph D. Boone, 2920 Axtell, Clovis, N. Mex. 88101

Filed Sept. 23, 1964, Ser. No. 398,647
10 Claims. (Cl. 137—1)

1. In an agricultural irrigation system having
(a) an elongated pipe adapted to carry a plurality of sprinklers and adapted to carry water under pressure,
(b) a plurality of vehicles movingly supporting said pipe,
(c) a reciprocating powered element on each vehicle,
(d) means on each vehicle for moving the vehicle and thus the pipe responsive to reciprocation of the powered element,

(e) at least one power cable extending along the pipe to each vehicle, and
(f) means attached to the power cable for reciprocating that power cable;

the improved structure for reciprocating each of the powered elements responsive to reciprocation of the power cable comprising:

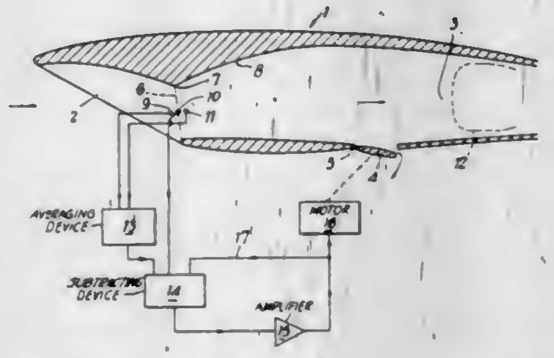


(g) two stationary pulleys mounted on each vehicle,
(h) a traveling pulley attached to each powered element, and
(j) said power cable reeved around one of the stationary pulleys then around the traveling pulley and then around the other of the stationary pulleys.

3,302,657

CONTROL OF A GAS FLOW AS A FUNCTION OF THE POSITION OF A STANDING SHOCK WAVE IN THE GAS

Leslie Bullock, Ware, England, assignor to Hawker Siddeley Dynamics Limited, a company of Great Britain
Filed Jan. 8, 1965, Ser. No. 424,378
Claims priority, application Great Britain, Jan. 14, 1964, 1,621/64
10 Claims. (Cl. 137—15.2)

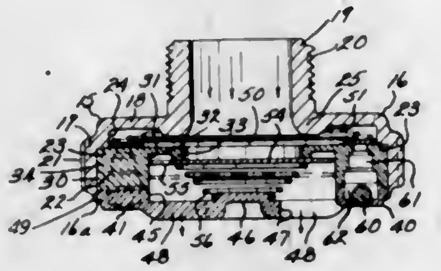


1. In combination with a duct carrying a gas flow in a selected one of the directions to and from an engine and modifying means for modifying the geometry of said duct to thereby adjust the position of a standing shock-wave existing within said gas flow within said duct for a range of high speeds of said gas flow, sensing means responsive to the departure of said standing shock-wave from a desired position relative to said duct to derive an error signal representing said departure, and control means responsive to said error signal and arranged to control said modifying means in the sense to tend to restore said standing shock-wave to said desired position, said sensing means including at least three temperature-sensitive elements located within said gas flow, one of said temperature-sensitive elements being located substantially at said desired position, at least one other of said temperature-sensitive elements being located at one side of said desired position, and at least one other of said temperature-sensitive elements being located at the other side of said desired position, and said sensing means including comparison means for combining the output signals of said temperature-sensitive elements to derive said error signal.

3,302,658

MECHANICAL VENT FOR TANKS

Joseph H. De Frees, 414 Liberty St., Warren, Pa. 16365
Filed Apr. 15, 1964, Ser. No. 359,891
9 Claims. (Cl. 137—43)

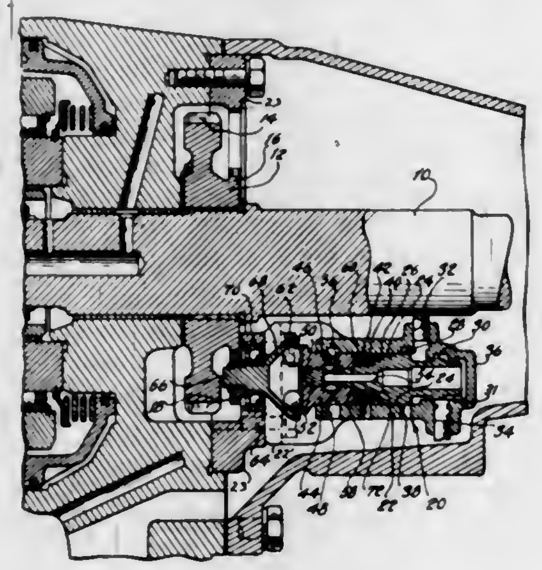


1. Vent means for mounting in a manhole cover of a tank; said vent means comprising means defining cavity means having ports at the top and bottom thereof; check ball means captively disposed in said cavity means and adapted to close off either of said ports by force of gravity; first spring biased valve means overlying and normally closing off the uppermost of said ports; means defining a separate passage through said vent means; and second spring biased valve means normally closing off said separate passage from the bottom thereof, whereby a pressure differential on either side of said vent means is substantially equalized either through said cavity means by unseating said check ball means and said first valve means or through said separate passage by unseating said second valve means, and whereby when said vent is inverted, said check ball means closes off the uppermost of said ports to prevent spillage from the tank.

3,302,659

MULTIPLE GOVERNOR VALVE ASSEMBLY

Edward Francis Platz, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Mar. 23, 1964, Ser. No. 353,870
3 Claims. (Cl. 137—54)



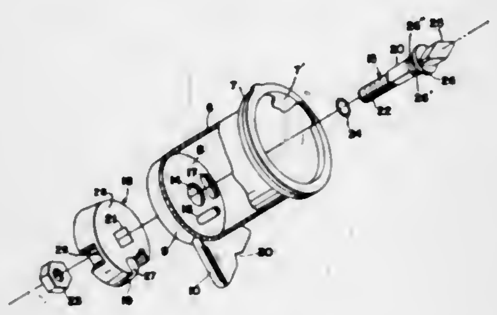
1. A fluid pressure operated governor valve mechanism for producing a pressure signal that is proportional in magnitude to the driven speed of a driven member comprising a valve body, a valve chamber formed in said

valve body, a secondary modulator valve element situated in said valve chamber, means for supplying control pressure to said valve chamber, means for distributing governor pressure from said valve chamber, primary valve means for inhibiting the modulating action of said secondary valve element, centrifugally operated weights engageable with said primary valve means, and a rotary cam adapted to contact said weights and to create a non-radial component of the centrifugal force acting on the latter, said cam being drivably connected to said primary valve means to overrule the inhibiting action of the same when the speed of rotation of said driven member increases to a value greater than a predetermined value.

3,302,660

TAPPING VALVE FOR BEER KEG

Baron F. Haag, Wickliffe, Ohio (10261 Mayfield Road, Chesterland, Ohio 44026)
Continuation of application Ser. No. 390,682, Aug. 19, 1964. This application Apr. 22, 1966, Ser. No. 544,453
6 Claims. (Cl. 137—240)



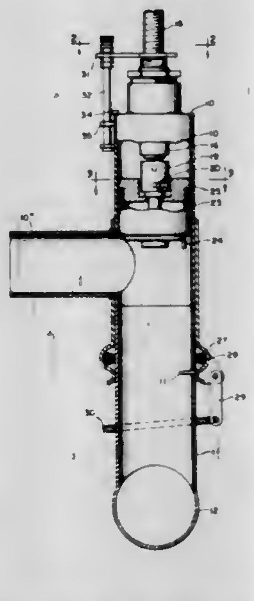
1. In a keg tapping valve adapted for combination with a keg having an interior and a tapping valve orifice for the dispensing of beer therefrom and being of the type of keg which is charged and from time to time recharged with beer, the interior of said keg being sterilized prior to each recharge, which sterilizing of said keg is normally accomplished by the application of an alkali solution followed by rinse water under pressure, said tapping valve being adapted to enable the pressure-dispensing from said keg of substantially the entire volume of beer charged into said keg and being further adapted to enable the complete rinsing from said keg of said alkali solution by said rinse water to thereby insure that none of said alkali solution will remain in said keg to contaminate the beer subsequently charged into said keg, the valve comprising:

(a) a tubular hollow body member having keg-exterior and keg-interior ends, said member being attached to said tapping valve orifice of said beer keg and extending into the interior of said keg,
(b) a chamber extending longitudinally of said body member, and terminating in an end wall at said keg-interior end, said end wall having a port opening therein;
(c) means for admitting fluid into said chamber comprising a radial extension attached to said body member adjacent to said end wall and on the keg-interior side of said end wall, said radial extension having a passageway extending the length thereof;
(d) a sealing means on the keg-interior side of said end wall having a first and a second port, said first port in said sealing means adapted to provide a communicating passageway between said end wall port opening and said passageway in said radial extension;
(e) a spindle means, having an accessible portion disposed within said chamber and extending through said end wall and said valve member, adapted to rotate in one direction and thereby to change the relative positions of said sealing means and said radial extension and to bring said sealing means first port into beer-flow communication with said radial extension passageway and said end wall port opening, and also to rotate in the opposite direction to change the relative positions of said sealing means and said radial extension and thereby to take said sealing means first port out of beer-flow communication with said radial extension passageway and to bring the second port located in said sealing means into communication with said radial extension passageway thereby bringing the adjacent end of said radial extension passageway into direct communication with the interior of said keg;
(f) a draining means adapted to drain liquid from said sealing means first port when said first port is out of communication with said radial extension;
(g) said sealing means second port and said radial extension passageway being out of communication with each other when said sealing means first port and said radial extension passageway are in beer-flow communication;
(h) said sealing means second port and said radial extension passageway means being in communication with each other when said end wall port opening and said radial extension passageway are out of communication with each other;
(i) and when the relative positions of said radial extension passageway and said sealing means have the sealing means second port positioned in communication with said radial extension passageway, a vent is thereby provided at the adjacent end of said radial extension passageway to the interior of said keg, thereby allowing drainage of liquid from said radial extension passageway.

3,302,661

MAIN LINE-LATERAL SPRINKLER VALVE

Leonard H. Williams, Rte. 1, Box 135, Hermiston, Oreg. 97838
Filed June 26, 1964, Ser. No. 378,134
7 Claims. (Cl. 137—322)

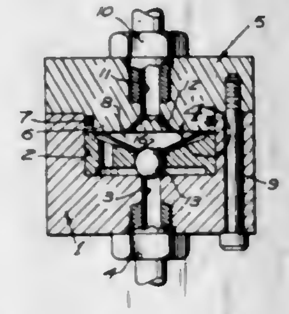


7. In a main line-lateral irrigation valve positionable on a riser and having a housing and valve operating means: a detachable, expandable, hollow plug, open at the top, provided with a means at its lower surface; means, having an opening therethrough, engageable with the top of said plug; expanding means disposed through said opening and in said expandable plug and coacting with said means at its lower surface, said means being complementary to a valve operating means of a main line-

lateral valve housing; and other means, disposed in a riser, retaining said expandable plug against rotation within said riser.

3,302,662
ANTIFLUTTER BALL CHECK VALVE

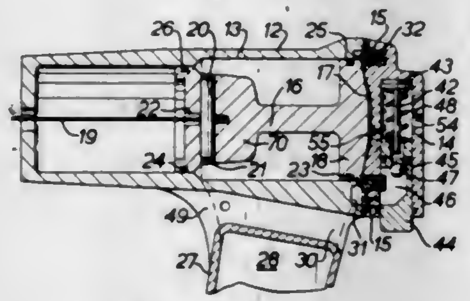
James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of William F. MacGlashan, Jr., 1141 S. Pasadena Ave., Pasadena, Calif. 91105
Filed May 21, 1964, Ser. No. 369,337
2 Claims. (Cl. 137—539)



1. An antiflutter ball check valve, comprising:
(a) a body structure defining an inlet, an outlet, and a value chamber therebetween;
(b) a ball valve engageable with said inlet;
(c) a baffle disk having a central guide bore for said ball valve, and a ring of ports surrounding and spaced from said guide bore;
(d) and a retainer spring in the form of a disk interposed between said baffle plate and the outlet end of said chamber, said spring having a central portion overlying said guide bore and engaging said ball valve, and radiating spring fingers.

3,302,663
PILOT VALVE SYSTEM FOR FLUID ACTUATED FASTENER DRIVING MACHINES

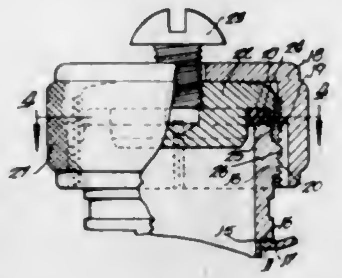
Vernon D. Roosa, 184 Wood Pond Road,
West Hartford, Conn. 06111
Original application Aug. 2, 1963, Ser. No. 299,589. Divided and this application July 7, 1965, Ser. No. 470,011
1 Claim. (Cl. 137—596)



For use in a fluid actuated fastener driving machine valve mechanism comprising a circumferential movable control valve member, actuating valve means operatively connected to said control valve member, said actuating valve means including a slider member therewithin movable to engaged and disengaged positions and provided with a first recess and a contiguous wider second recess, a ball normally seated at the junction between said first and second recesses, a stem member narrower than said first recess and normally extending therewithin short of said ball, a coil spring member about said stem abutting said slider, movement of said slider to engaged position unseating said ball and thus actuating said control valve member, movement of said slider to disengaged position allowing seating of said ball.

3,302,664
SAFETY CAP ASSEMBLY FOR PRESSURIZED FOUNTS OF GASOLINE BURNING DEVICES

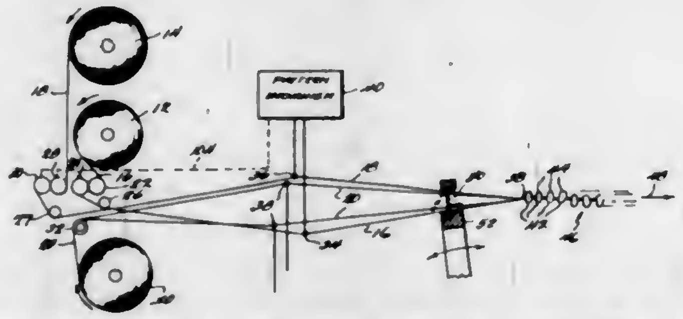
William H. Plamann, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans., a corporation of Kansas
Filed Apr. 7, 1964, Ser. No. 358,016
3 Claims. (Cl. 138—89)



1. In a safety cap assembly, including a filler bushing having a lower portion for attachment to a pressurized fount of a gasoline burning device and an externally threaded upper portion, an internally threaded closure cap received on said bushing upper end portion in threaded engagement therewith, and gasket means mounted within said cap for establishing sealing engagement with the upper end of said bushing at a level outwardly of the zone of threaded engagement between said cap and bushing, the means for achieving a safe release of the fount pressure when said cap is unscrewed characterized by said cap being provided with a plurality of circumferentially spaced, axially aligned channels extending inwardly from the lower end thereof to the level of said sealing engagement, said cap being formed of a substantially softer metal than said bushing, said channels having a greater depth than the root depth of the threads in said cap, and providing open paths of communication for both liquid and vapor between the exterior atmosphere at the bottom of said cap and said level of sealing engagement adjacent said gasket.

3,302,665
METHOD OF WEAVING TERRY FABRIC

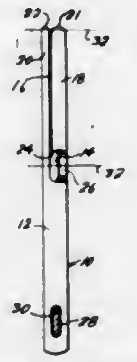
William L. McHargue, Fairfax, Ala., assignor to West Point-Pepperell, Inc., a corporation of Georgia
Original application Jan. 19, 1965, Ser. No. 426,647. Divided and this application Apr. 7, 1966, Ser. No. 540,970
5 Claims. (Cl. 139—25)



1. The method of weaving contrasting patterns in both faces of terry fabrics, the steps comprising: interweaving a ground warp and two independent and distinct terry warps with filling to produce terry loops on both faces of the fabric; overfeeding the two terry warps by different constant amounts so that the height of the loops produced by each terry warp differs from the height of the loops produced by the other terry warp and controlling the formation of said loops to cause the loops produced by one of said terry warps to be formed in predetermined pattern areas on one face of the fabric and in other predetermined pattern areas on the opposite face of the fabric, and to cause the loops produced by the other of said terry warps to be formed in the remaining areas of said fabric and so that the remaining areas on each face of the fabric are in registration with said pattern areas on the opposite face of the fabric.

3,302,666
HEDDLE

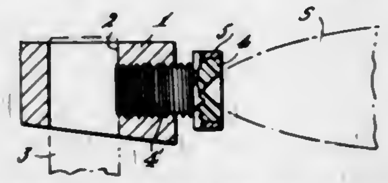
Dorathy Ann Tow, 3130 Portage Bay Place E.,
Seattle, Wash. 98102
Filed Dec. 16, 1964, Ser. No. 418,677
4 Claims. (Cl. 139—96)



1. A heddle, said heddle comprising:
(a) a thin, substantially flat elongated body being longer than wide;
(b) in the body there being an aperture;
(c) a slit in a first end portion of the body and connecting with said aperture;
(d) said slit dividing said first end portion of the body into a wide strip and a narrow strip;
(e) said wide strip adjacent the aperture and adjacent the slit curving downwardly to form a hook for positioning a thread in said aperture; and
(f) a second aperture in a second end portion for receiving a lower heddle rod.

3,302,667
PICKER-STICK BLOCK FOR LOOMS

Lloyd G. Urquhart, Westboro, and Francis A. Depuy, Arlington, Mass., assignors to H. F. Livermore Corporation, Boston, Mass., a corporation of Delaware
Filed Sept. 21, 1965, Ser. No. 488,880
6 Claims. (Cl. 139—159)

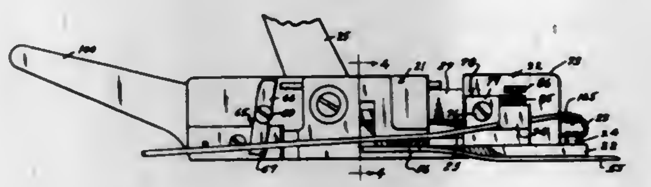


1. A picker-stick block having an opening to receive a picker stick and a threaded opening extending inwardly from the front of the block to the stick opening, a screw extending through the threaded opening into engagement with the picker stick, the head of the screw having a tapered recess to receive the end of the shuttle and being formed of tough elastic material to absorb shuttle shock and the screw being adjustable lengthwise to clamp the block on the picker stick.

3,302,668
BINDING TOOL

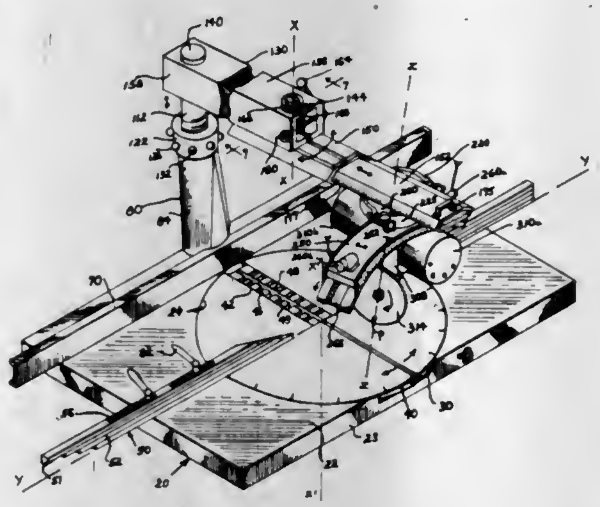
William Hucal, 3814 N. Wilton Ave.,
Chicago, Ill. 60613
Filed Sept. 21, 1964, Ser. No. 397,843
8 Claims. (Cl. 140—93.2)

1. A device of the class described, comprising a base plate having a rear head rigidly secured to the rear end portion thereof, a forward head slidably mounted on the forward end portion thereof, a front wire gripper resiliently mounted upon said forward head and movable therewith, a rear wire gripper resiliently mounted upon said rear head and adapted to rigidly hold a wire as the forward head and front gripper are moved toward said rear head, a bell crank pivotally mounted upon said rear head with an arm extending upwardly and an arm extending downwardly, a pin slidably arranged in a horizontal bore in said rear head and extending forwardly and rearwardly from said rear head, the rear end of said pin adapted to contact the bell crank upwardly extending arm, the said downwardly extending arm of said bell crank adapted to contact said rear gripper to render it inactive when said upwardly extending arm is moved rearwardly upon contact thereof by said pin when it is moved rearwardly, said pin adapted to be moved rearwardly upon contact with said forward head when it is moved to extreme rear position, a pivoted operating lever attached to said rear head, a link connecting said forward head and said operating lever, and a pivotally mounted knife in said rear head adapted to sever a wire and operable by said operating lever.



3,302,669
MOTOR POWERED RADIAL ARM TOOL SUPPORT

Adolph Edler, 56 Marvin Drive, King Park,
Long Island, N.Y. 11102
Filed June 29, 1964, Ser. No. 378,550
9 Claims. (Cl. 143—6)

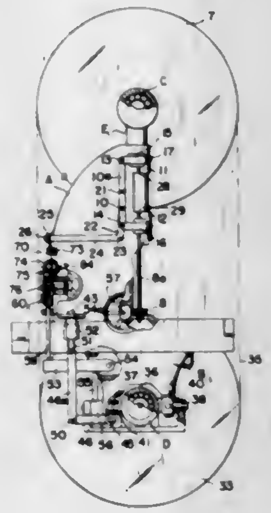


1. In a radial saw in combination: a horizontal flat rectangular table structure; a column assembly at a rear edge of said table, said column assembly including a fixed axially vertical hollow cylindrical base, a column axially movable in said base, said column having an external thread, an internally threaded nut rotatably engaged with the external thread of said column, means holding said nut rotatably on the upper end of said column base so that rotation of said nut advances and retracts said column axially in said column base; an arm secured at one end to said column and extending forwardly horizontally over the center of said table, a turret assemby supported at the forward other end of said arm and rotatable on a vertical axis passing through the center of the table, a track clamp secured to said turret and rotatable therewith, a track horizontally slidable in said clamp, and a saw blade carriage

supported by said track so that the carriage is movable horizontally on a line in a vertical plane including the vertical axis of said column, the axis of rotation of said turret assembly and the center of said table, a first arcuate rail supported by said carriage, a second arcuate rail supported within said first rail and movable circumferentially with respect to the first rail, a third rail supported within said second rail and movable along the second rail, and motor means carried by the third rail for rotatably supporting a saw blade with a bottom edge adjacent the table; said first, second and third rails each having a center of curvature at a common point at the bottom edge of the saw blade, said motor means supporting the saw blade so that said point lies in said vertical plane including the axis of rotation of said turret assembly, the vertical axis of said column and the center of said table.

3,302,670
HIGH-TENSION BAND-SAW MACHINE

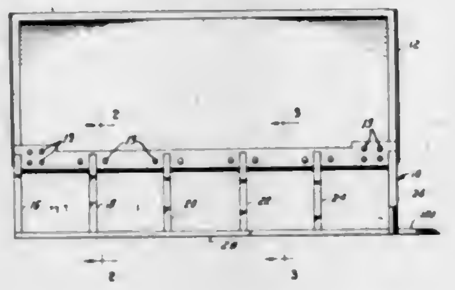
Suekichi Yumino, 2 6-chome Kitahachijonishi,
Sapporo-shi, Japan
Filed Nov. 18, 1963, Ser. No. 324,527
Claims priority, application Japan, Nov. 22, 1962,
37/52,820; Oct. 16, 1963, 38/54,697
3 Claims. (Cl. 143—27)



1. A band saw machine comprising a main frame, hangers supported by the main frame, an upper saw blade wheel mounted for rotary movement in the main frame, a lower saw blade wheel mounted for rotary movement in the hangers, a saw blade trained over said upper and lower saw blade wheels, said upper and lower wheels being adjustable for varying the vertical distance therebetween, each of said upper and lower wheels having a main shaft with opposite ends, a combined cylindrical roller bearing and a thrust ball bearing for the respective ends of each main shaft, a case enclosing each of said combined bearings, means for mounting the bearing cases of the main shaft for the upper wheel to the main frame, means for mounting the bearing cases of the main shaft for the lower wheel to be freely movable in said hangers vertically and in a horizontal direction perpendicular to the axis of the main shaft within certain limits, a mechanism capable of providing a quantitative indication of the state of adjustment of the tension distribution in the saw blade through utilization of an automatic stabilization phenomenon, and mechanism capable of adjusting the saw blade, said indicating mechanism including a connecting bar actuated by adjustment displacements of the bearings for the main shaft of the lower wheel, two flat bars pin-jointed respectively to the ends of the connecting bar, two rotatable shafts respectively coupled to and actuated by the flat bars, a calibrated dial means coupled to and actuated by one of the rotatable shafts, an indicating pointer coupled to and actuated by the other of the rotatable shafts, and the pointer being adapted to function cooperatively with the dial means to provide a quantitative indication.

3,302,671
CUTTING ATTACHMENT FOR USE WITH THE MOLD BOARD

Cloyed S. Basham, 10661 Newkirk,
Dallas, Tex. 75228
Filed Apr. 6, 1964, Ser. No. 357,684
5 Claims. (Cl. 144—34)

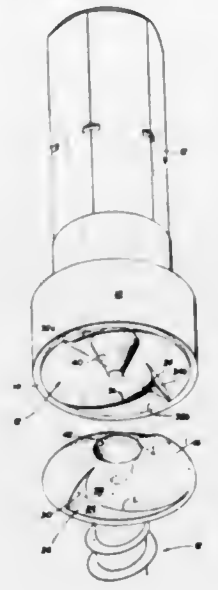


1. An attachment for use with a bulldozer having a straight moldboard that comprises:
(a) a mounting plate having a plurality of bolt holes positioned for alignment with selected bolt holes normally used for attaching a cutting edge to said moldboard whereby said mounting plate can be attached to said moldboard;
(b) a plurality of depending members, each of said depending members including a forwardly extending portion, and two diverging rearwardly extending portions, one of said rearwardly extending portions being of greater cross section than the other at the junction therebetween;
(c) means connecting the other of said rearwardly extending portions to the front of said mounting plate whereby a reentrant opening is defined between the rear of said mounting plate and each of said one rearwardly extending portions;
(d) each of said reentrant openings being of a shape whereby when said mounting plate is attached to said moldboard the lower front portion of said moldboard extends into said reentrant openings and said rearwardly extending portion abuts against a bottom surface of said moldboard;
(e) adjustable means for drawing said rearwardly extending portions tightly against the abutting portion of said moldboard;
(f) a cutting blade having a rear cutting edge and a front cutting edge; and
(g) means connecting the lower extremity of each of said depending members to the cutting blade for supporting said cutting blade in a horizontal plane below the bottom of said moldboard;
(h) the forwardly extending portions of said depending members being of variable length whereby at least a portion of said front cutting edge and said rear cutting edge is disposed at an angle to the line of travel.

3,302,672
SCREW DRIVING TOOL

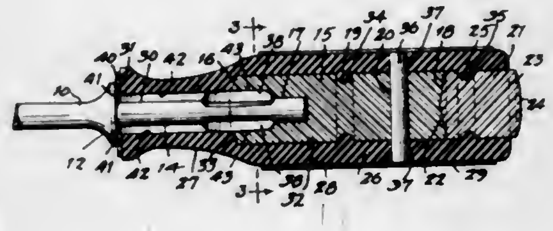
Marvin Walton, 134 Tuscaloosa Ave.,
Atherton, Calif. 94025
Filed July 12, 1965, Ser. No. 471,152
6 Claims. (Cl. 145—50)

1. A screw driving tool comprising a cylindrical head having an end surface, said end surface containing a concavity defined by adjacent segments of two complementary hemispheres, said segments being displaced to opposite sides of the center axis of said head upon said end surface to form with said end surface a pair of oppositely located, inwardly projecting ribs terminating in driver surfaces located at either side of said center axis in a common plane containing said axis.



3,302,673
COMPOSITE TOOL HANDLE

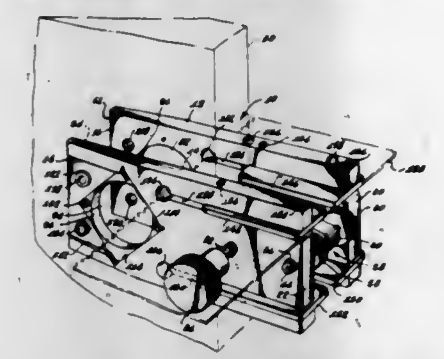
Harold S. Forsberg, 5300 Main St.,
Stratford, Conn. 06497
Filed Feb. 8, 1965, Ser. No. 430,803
16 Claims. (Cl. 145—61)



1. In a hand tool:
(a) a tool part comprising
  (1) a shank including a bolster portion, and
  (2) a stud extending from said bolster portion in axial alignment with said shank; and
(b) a handle part comprising
  (1) a relatively rigid core member having forward and rearward ends and a stud-receiving axial pocket, extending rearwardly from said forward end, and
  (2) an elastic casing having forward and rearward ends, an axial core-receiving pocket opening at one end to said rearward end of said casing and having an annular shoulder at its opposite end rearwardly spaced from said forward end of said casing, and an axial stud-receiving passage extending from the forward end of said casing to said shoulder;
(c) said core member being secured within said core-receiving pocket with its forward end butted against said shoulder and its stud-receiving pocket axially aligned with said stud-receiving passage; and
(d) said stud being forcibly received in said axially aligned passage and pocket with said bolster portion of said tool shank opposed to the forward end of said casing.

3,302,674
UNIT LOCK INSTALLATION JIG

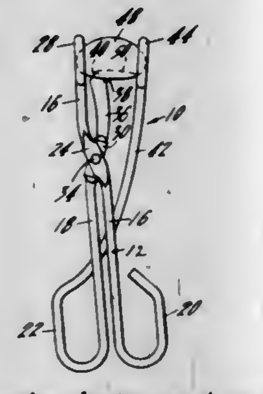
Fred J. Russell, 8635 Otis St., South Gate, Calif. 90280, and Roger J. Nolin, Monterey Park, Calif.; said Nolin assignor to said Russell
Filed Oct. 4, 1965, Ser. No. 492,656
19 Claims. (Cl. 145—129)



1. In a unit lock installation jig, apparatus comprising:
a body member adapted to be positioned in engagement with a door face adjacent an edge thereof;
a pair of saw guides in said body member, each positioned for guiding a saw such as to make a pair of spaced-apart saw cuts inwardly from such door edge;
and a drill guide in said body member positioned for guiding the boring of a cross-hole through such door from face-to-face thereof,
said pair of saw guides and said drill guide being positioned relative to one another in said body member such that one of the thus guided saw cuts is directed toward joining one circumferential portion of such cross-hole and the other of the thus guided saw cuts is directed toward joining another circumferential portion of such cross-hole.

3,302,675
NUT HOLDING AND CUTTING TOOL

Frances A. Odler, 59 Astor Court,
Commack, N.Y. 11725
Filed Jan. 22, 1965, Ser. No. 427,404
10 Claims. (Cl. 146—13)



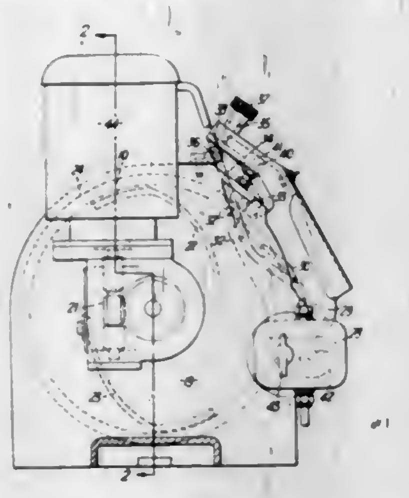
1. A nut shell cutting instrument comprising,
a first means for seating and gripping a nut shell,
cutting tool means pivotally secured to said seating and gripping means, and
second means for seating and gripping a nut shell,
said second means connected coextensive with said cutting tool to move coincidental therewith and flex relative thereto.

3,302,676
ROTARY CHIPPING MACHINE

Edward James Wright, Kings Norton, Birmingham, England, assignor to Peerless & Ericsson Limited, Birmingham, England, a British company
Filed Apr. 6, 1964, Ser. No. 357,533
Claims priority, application Great Britain, May 24, 1963, 20,936/63
6 Claims. (Cl. 146—78)

1. A rotary chipping machine comprising a hollow casing defining an inner surface, a path on said surface, a

rotor rotatable inside the casing and effective to urge potatoes along said path, a slicer knife holder mounted on the casing and having two ends, a pivot shaft attaching one of said ends to the casing, a slicer knife mounted on the slicer knife holder in a position to cut potatoes urged along said path, clamping means attaching the other of said ends to the casing and effective to urge the other of said ends towards the casing, a block removably mountable on the casing and an abutment on said block for the slicer knife holder, whereby the block determines the position of the slicer knife relative to said surface so that slices of a given thickness may be cut.

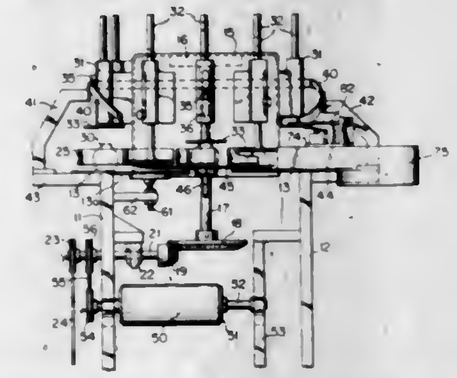


3,302,677
SLICING MACHINE

Charles G. P. Oldershaw, Avon, N.Y., assignor to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

Filed Jan. 2, 1964, Ser. No. 335,084

12 Claims. (Cl. 146—105)



1. In an apparatus for removing successive slices from a substantially spheroidal object, a bed plate providing a flat supporting surface for said objects, means for conveying said objects in an orbital path over said surface, cutting means disposed in a plane parallel to that of said surface and in a zone at which it intersects the orbital path of said objects to remove a slice from each object when passing through said cutting zone, and intermittently operable hold down means carried by said conveying means and effective to bear against the top of said objects only when passing through said cutting zone for holding the associated object in firm engagement with the said cutting means.

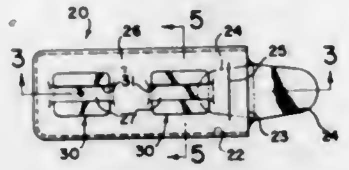
3,302,678
CONCEALMENT MEANS FOR KEYS

Charles W. Leguillon, 211 Overwood Road, Akron, Ohio 44313

Filed June 30, 1965, Ser. No. 468,397

10 Claims. (Cl. 150—40)

1. In a container for a key capable of being magnetically held firmly to a nonplanar surface of a paramagnetic metal support, in combination, a distortionable walled envelope having a pocket therein suitable for containing a key, and a magnetic element removably attached to an outer side distortionable wall of said envelope so as to be capable of tilting in any direction independently of the said outer side distortionable wall, whereby the removably attached magnetic element may tilt on contact with the paramagnetic metal support to produce a larger area of contact therewith.



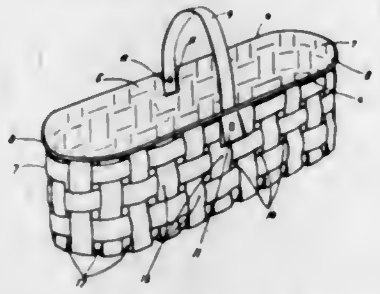
3,302,679
BASKETS, PANNIERS, BOWLS AND THE LIKE

Pietro Padovani, Chievo, Verona, Italy, assignor to I.S.A.P., S.p.A., Chievo, Verona, Italy

Filed Feb. 15, 1965, Ser. No. 432,521

Claims priority, application Italy, Feb. 20, 1964, 4,051/64

25 Claims (Cl. 150—48)



1. A basket made of thin flexible thermoplastics sheeting for fruit or the like, said basket having a base, side walls secured to said base and diverging in a direction away from the base, and a rim bounding the top of said side walls, said rim being bent back outwardly and downwardly, said side walls being reinforced between said rim and said base by ribs, and the length of said ribs being less than half the height of said side walls, wherein each rib adjoins adjacent ribs at an angle and wherein said ribs are spaced apart so that appropriately shaped surfaces are formed between them, the arrangement of ribs and surfaces giving the impression of a trellis pattern.

3,302,680
LOW MOISTURE CONTENT PNEUMATIC TIRE CARCASS RUBBERIZED LAMINATES AND VULCANIZABLE RUBBERY POLYMERS USED THEREIN

Frank C. Rote and Rollin H. Spelman, Akron, Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed July 30, 1964, Ser. No. 387,548

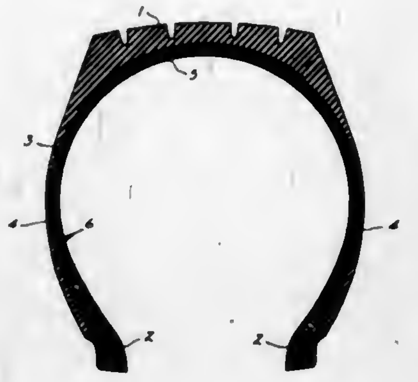
17 Claims. (Cl. 152—357)

4. A vulcanizable carcass composition for pneumatic rubber tires containing per 100 parts by weight of rubbery polymer about 2 to 12 parts by weight of CaO and an amount of Al_2O_3 substantially greater than the amount of calcium oxide.

15. In a method of making a tire wherein tread stock, inextensible beads and a carcass formed of ply layers are assembled to form an uncured tire which is then expanded and cured in a vulcanizing mold, the improvement comprising the steps of:

(a) preparing a vulcanizable ply stock composition comprising rubber having dispersed therein, based on about 100 parts by weight of said rubber, about 2 to 12 parts by weight of finely divided CaO and about 3 to 25 parts by weight of Al_2O_3, the amount of Al_2O_3 being in excess of the amount of CaO,

(b) coating a layer of tire cords, formed from textile fibers of the group consisting of nylon and polyolefins, with said composition, and



(c) forming said tire carcass of one or more plies of said rubberized cords.

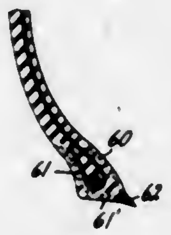
3,302,681
TIRE COVERS

Georges Louis Travers, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France

Filed May 10, 1965, Ser. No. 454,461

Claims priority, application France, May 19, 1964, 975,032; July 22, 1964, 982,699

7 Claims. (Cl. 152—362)



1. A pneumatic tire casing having tread, side walls extending inwardly from opposite edges of said tread, and beads containing bead wires at inner edges of said side walls, each of said beads having a base wall and interior and exterior walls respectively joining said base wall at an inner tip portion and an outer heel portion, and a bead reinforcing ply entirely within each bead and arranged between said bead wire and one of said interior and base walls of said bead and having a free edge extending toward and terminating in an area in said bead adjacent to and spaced from said bead tip portion.

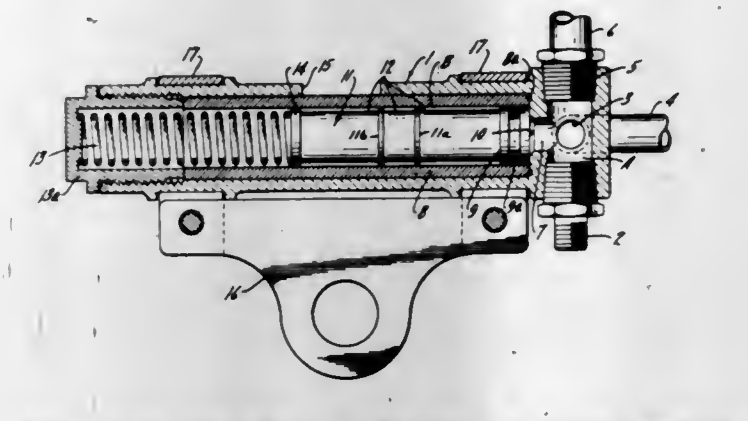
3,302,682
TIRE PRESSURE DEVICE

Arthur A. Berg, Lincolnwood, Ill., assignor, by mesne assignments, to Berg Mfg. & Sales Co., Des Plaines, Ill., a corporation of Illinois

Filed June 1, 1964, Ser. No. 371,630

2 Claims. (Cl. 152—415)

1. In combination, an elongated tubular housing, a chamber at one end of said housing, a filler opening communicating with said chamber, a pair of spaced outlets communicating with said chamber, a second chamber in said housing, a piston reciprocal in said second chamber, a passage communicating said chambers on one side of said piston and yielding means on the other side of said piston and engaging said piston to urge the same toward said passage and indicia means carried by said piston, a hollow cylindrical member formed of transparent material and substantially filling said second chamber, said cylindrical member slidably receiving said piston, said housing having an opening overlying a portion of said cylindrical member, a shaft extending into said cylindrical member and bearing said indicia, a plurality of annular flanges longitudinally spaced on said shaft and engaging the inner surface of said cylindrical member to center and guide said shaft.



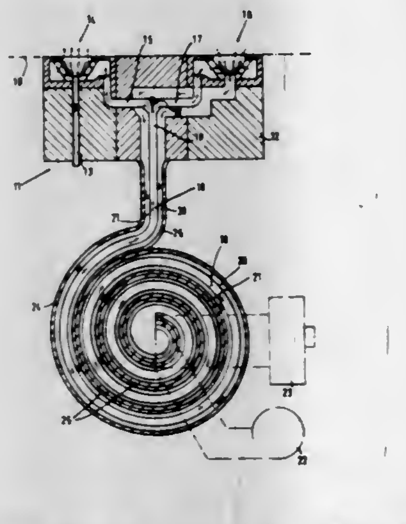
3,302,683
HEAT TREATMENT APPARATUS

William George Kemp, Handsworth Wood, Birmingham, England, assignor to Wellman Incandescent Furnace Company Limited, Smethwick, England, a British company

Filed Apr. 7, 1965, Ser. No. 446,160

Claims priority, application Great Britain, Apr. 16, 1964, 15,741/64

1 Claim. (Cl. 158—4.5)



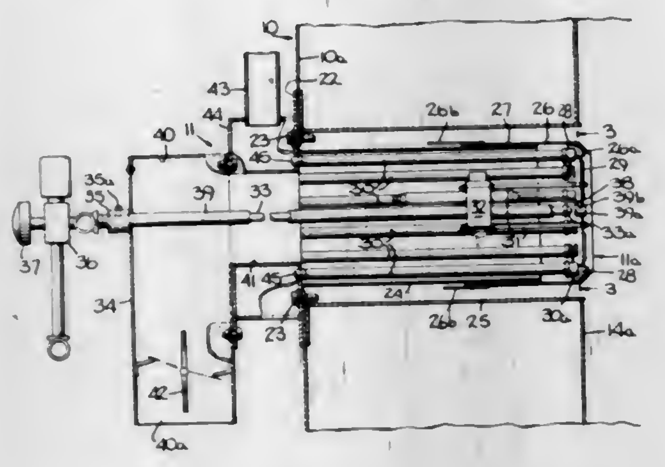
A heat treatment furnace comprising a burner opening leading into the furnace, a duct for supplying fuel to the burner opening, an exhaust opening for extraction of gases from the furnace, a heat exchanger having an exhaust gas passage connected to receive furnace gases from the exhaust opening, and having an air supply passage arranged to conduct combustion air in contraflow heat exchange relationship with the exhaust gas passage, a first hot air duct for conducting preheated air from such air supply passage to the burner opening, a second hot air duct for conducting preheated air from such air supply passage to the exhaust opening, and an air flow control for determining the distribution of the preheated air between the two hot air ducts, in order to supply the preheated air to the burner opening for complete combustion of the fuel during warm up of the furnace, and during normal operation of the furnace to supply part of the preheated air to the burner opening for producing a reducing atmosphere in the furnace while supplying the remainder of the preheated air to the exhaust opening to complete the combustion of the furnace gases entering the exhaust gas passage, the heat exchanger being adapted to preheat the air to at least 1000° C. during normal operation of the furnace.

3,302,684
COMBINATION GAS AND LIQUID FUEL BURNER

Edward J. Banko, Colonia, N.J., assignor to Aero-Flow Dynamics, Inc., (L. J. Wing Mfg. Co. Division), Linden, N.J., a corporation of New York

Filed Apr. 15, 1965, Ser. No. 448,494

10 Claims. (Cl. 158—11)



1. A combination gas and liquid fuel burner of the induced draft type comprising an elongated and plainly cylindrical blast tube for conveying combustion air in a linear flow pattern towards a combustion end thereof, a centrally apertured turbulator mounted at said combustion end of the blast tube within the path of said combustion air, said turbulator being substantially disc-like in shape having outer diameter less than the inside diameter of said cylindrical blast tube and being mounted concentrically within said blast tube to provide by-pass air spacing between the outer periphery of said turbulator and the interior surface of said blast tube, said turbulator further including blade means providing openings for turbulating combustion air passing therethrough, the area of said centrally apertured turbulator relative to the transverse area of said cylindrical blast tube being such that the ratio of the amount of air by-passing said air spacing, to the amount of air passing through its said blade means openings is on the order of 7.5:1, said blade means having an air inlet side facing the interior of said blast tube, liquid fuel feeding means including a nozzle for emitting liquid fuel at a location adjacent to the central aperture of said turbulator at said air inlet side of its said blade means, and gas fuel feeding means including gas emitting orifice means disposed within said blast tube adjacent to said inlet side of the turbulator blade means, said gas emitting orifice means being oriented to direct emitted gas in direction transversely of said direction of flow of combustion air through said blast tube.

3,302,685
DEVICE FOR DETECTING BURNER FLAME

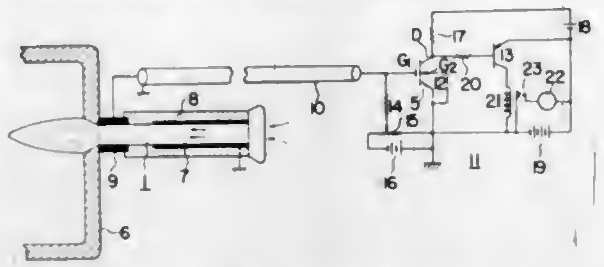
Naoya Ono, Kodaira-shi, and Junzo Haraguchi and Jazuo Takasugi, Tokyo-to, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan

Filed May 17, 1965, Ser. No. 456,444

Claims priority, application Japan, May 20, 1964, 39/28,159

1 Claim. (Cl. 158—28)

A device for detecting the combustion flame of a burner comprising a nozzle part forming the end of said burner and made of an electrically conductive material; means for electrically insulating said nozzle part from the ground; and potential amplifying means for detecting and indicating the potential difference in the absence of current between said nozzle part and the ground, thereby indicating the presence or absence of a combustion flame in response to the magnitude of said potential difference; said nozzle part being arranged to deliver a flame in nonconducting relation to the ground.

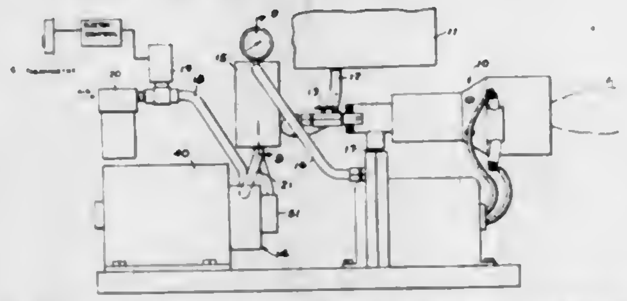


3,302,686
BURNER APPARATUS

Timothy Y. Hewlett, Jr., 1205 Champlain St., Toledo, Ohio 43604

Filed June 1, 1964, Ser. No. 371,510

9 Claims. (Cl. 158—76)



1. In a burner apparatus, the combination comprising a burner assembly,

means interconnecting said burner assembly and a source of fuel oil,

a compressor including a plurality of radial vanes operable with a cam surface,

said compressor having an air inlet and an air outlet,

reservoir means associated with said compressor and communicating with the radially inner ends of said vanes for supplying fuel oil to said vanes to yieldingly urge said vanes radially outwardly into engagement with said cam surface,

an oil separator including a chamber to which air from said compressor outlet is directed for separating the oil from said air,

said oil separator having oil collecting areas and means connecting the oil collecting areas thereof with said reservoir means of said compressor whereby said oil from said separator is returned to said reservoir means of said compressor and air pressure is applied to the oil in the reservoir means through said connecting means to yieldingly urge the vanes radially outwardly,

and means providing communication for passage of air from said separator to said burner assembly whereby air under pressure is supplied to said burner assembly,

said burner assembly being of the oil aspirating type to draw fuel oil from said source when air under pressure is supplied thereto.

3,302,687
GAS PILOT LIGHT

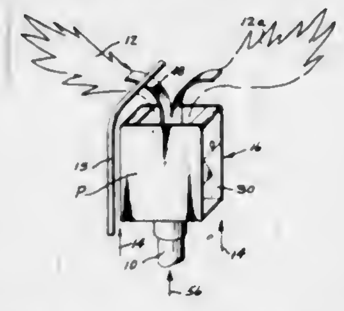
Erwin G. Gjerde, Whittier, Calif., assignor to Hydro Combustion Corporation, Santa Fe Springs, Calif., a corporation of California

Filed Sept. 13, 1965, Ser. No. 486,603

3 Claims. (Cl. 158—115)

1. A pilot light especially adapted for use in a high velocity air stream, comprising:

a body having a first pair of opposed vertical side walls connected at their lower ends by a horizontal bottom wall, the underside of said bottom wall facing said air stream, said body also having a second pair of vertical side walls connecting said first side walls, the lower ends of said second side walls being spaced upwardly from the lower end of said first side walls to define a pair of air inlets exposed to said air stream, with the upper end of said second side walls being bent inwardly over the upper end of said first side walls to define a pair of opposed lips, the space between said lips being open, and the lower end of said second side walls being turned horizontally inwardly to define a pair of shelves and then downwardly and outwardly to define a pair of legs, with the space between the side walls above said shelves comprising an ignition chamber;



gas inlet means on said lower wall including an orifice aligned with the center of said ignition chamber whereby air from said air stream and gas from said orifice will mix within said ignition chamber, said air stream cooperating with said legs and shelves to create a venturi effect within said ignition chamber, whereby a reduced pressure is provided within said ignition chamber;

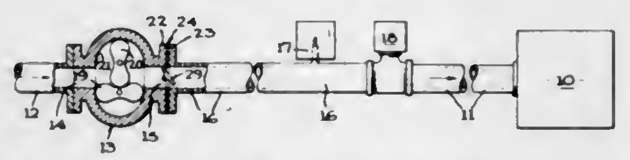
and baffle means in said ignition chamber that includes a pair of upwardly and oppositely outwardly directed baffle arms that direct flame from said ignition chamber in opposite directions generally normal to the direction of said air stream.

3,302,688
GAS METERING AND BURNER SYSTEM WITH MEANS FOR PREVENTING BACKFLOW

James E. Thrush, Peoria, Ill., assignor to Dressser Industries, Inc., Dallas, Tex., a corporation of Delaware

Filed Aug. 19, 1965, Ser. No. 480,915

8 Claims. (Cl. 158—115)



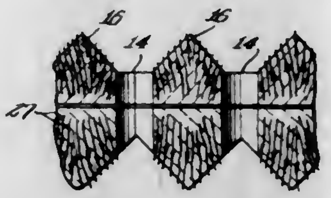
1. A low pressure gas metering system comprising in combination a gas supply line adapted to receive gas under pressure, a rotary positive displacement meter having an inlet and an outlet and a pair of rotatably mounted intermeshing rotors adapted to be rotatably driven by the gas for metering the flow of gas from the gas supply line, said inlet being connected to said supply line, a downstream gas supply pipe connected to said meter outlet, a first and a second gas consuming appliance connected to said downstream pipe, said second appliance being downstream of said first appliance, a fast-acting valve for controlling the flow of gas to said second appliance, said second appliance having a gas consumption rate greater than that of said first appliance, and a flapper valve mounted between said meter outlet and said downstream pipe, said flapper valve being arranged for automatic rotational movement between an open and a closed position, said flapper valve being rotatable to its open position in response to normal gas flow through said meter and to its closed position in response to a pressure build-up in said downstream pipe due to closure of said fast-acting valve to prevent counter rotation of said rotors and evacuation of the downstream pipe.

3,302,689
CATALYTICALLY ACTIVE RADIANT TILE

William C. Milligan, 1618 San Angelo Blvd., San Antonio, Tex. 78201

Filed Feb. 11, 1965, Ser. No. 431,858

14 Claims. (Cl. 158—116)



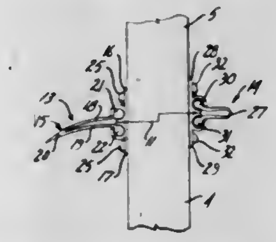
1. A catalytically active radiant heater tile comprising a highly porous refractory plate having an input surface and an opposed combustion surface, said refractory plate containing a combustion catalyst dispersed therein and having a pore volume area of at least 100 square meters per gram, said plate having regularly spaced passageways of substantially equal diameter in parallel rows permitting a uniform flow of combustion gases from said input surface to said combustion surface, a plurality of continuous ridged surfaces extending beyond the plane of said passageways at said combustion surface, the bases of said ridges terminating at said rows and having their peaks between adjoining rows, said plate being sufficiently porous to provide for significant diffusion of combustion gases through its pores in addition to the gases passing through said passageways, thereby heating the interiors of said ridges and raising the radiant energy output from said ridges.

3,302,690
GUARD FOR MULTIPLE SECTIONED DOORS

Raymond M. Hurd, 2548 S. 78th St., West Allis, Wis. 53214

Filed May 4, 1964, Ser. No. 364,569

3 Claims. (Cl. 160—40)



1. A protective cover assembly for horizontally sectionalized garage doors and the like, comprising

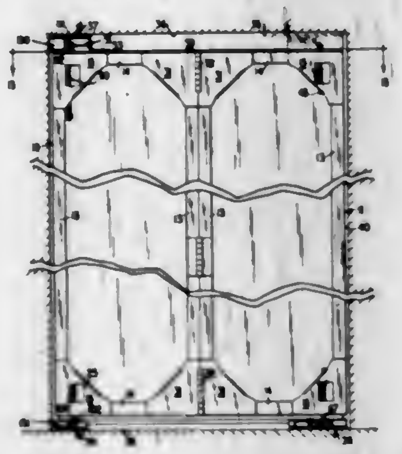
a generally V-shaped member of flexible material defining a pair of panels of a substantially constant thickness interconnected by an integral thickened point at the outer proximal edges with the outer surfaces of the panels and the point being in alignment to define a generally triangular cross-section, said thickened point establishing a strong firm junction whereby said panels flex during the opening and closing of the door, the inner free edges of each panel having enlarged beads integrally secured thereto, and

anchor strips one each for mounting of the free edges to the proximal edges of adjacent garage door sections, each anchor strip having a mounting base and a socket extending longitudinally thereof to receive the corresponding bead with an entrance to the socket smaller than the bead but larger than the thickness of the panel to permit pivotal movement of the panel relative to the anchor strips.

3,302,691
FOLDING DOOR

George M. Andrews, Syracuse, N.Y., and Charles W. Gibson, Bloomingdale, Mich., assignors to Vega Industries, Inc., Syracuse, N.Y., a corporation of New York

Filed Nov. 30, 1964, Ser. No. 414,676
7 Claims. (Cl. 160—206)



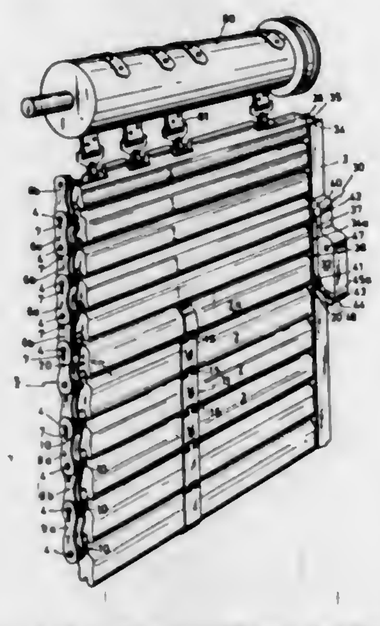
1. A folding door structure for a door opening, an upper track member fixedly mounted to the header in the door opening and extending between the jams thereof, said track member being formed with a roller receiving slot having inwardly extending side flanges extending in spaced parallel relation, a lower track member formed with a roller receiving slot and being fixedly mounted to the sill of the opening and extending between the jams thereof, a pair of first and second panel members hingedly joined along their vertical edges and being of vertical dimension for insertion in said opening between said track members, the first of said panels being provided with vertically aligned upper and lower pintle pins extending from the upper and lower edges of said first panel in spaced relation to said hinged joint, the outer ends of said pins being journalled in said upper and lower track members, said upper pintle pin being axially slidable in said first panel, spring means acting on said pin to yieldingly urge the same upwardly, said lower pintle pin having a stop collar member adjustable axially of the pin for engaging said first panel for the support of said first panel by said lower pintle pin, upper and lower roller pins mounted in said second panel of said pair in spaced relation to said hinged joint, said lower roller pin having a roller journalled thereon for movement along the slot in said lower track member, said upper roller pin having a roller journalled thereon for movement along the flanges of said upper track member, means restraining downward movement of said upper roller pin relative to the roller journalled thereon, said upper and lower roller pins being axially slidable in said second panel.

3,302,692
SYSTEM FOR TILTING THE SLATS IN ROLLER BLINDS HAVING TILTING AND SEPARABLE SLATS

Jaime Colom Grau, Plaza General Primo de Rivera 31, Tarrasa, Spain

Filed Jan. 27, 1965, Ser. No. 428,296
Claims priority, application Spain, Feb. 10, 1964, 296,295
8 Claims. (Cl. 160—133)

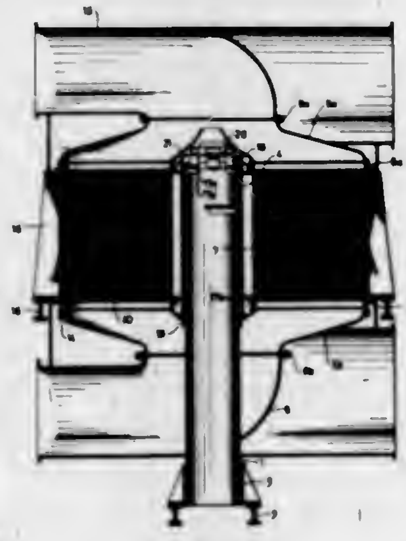
1. In a blind arrangement having two vertical guide means provided with ribs and a number of tilting separable slats pivotally connected at their ends to a pair of side chains and also being connected to front chains which transmit the tilting movement of a leader slat to the other tilting slats, a system for tilting the slats comprising in combination; a movable component comprising a guiding peg at one end of the leader slat near one of the lateral ribs of the corresponding vertical guide means of the blind; a stationary component comprising a first auxiliary guiding path for guiding the peg, such path communicating with the vertical guide means via a bottom passage and via a top passage, the first auxiliary guiding path being disposed near the vertical guide means with a portion of the said lateral rib interposed between the vertical guide means and the first auxiliary guiding path; compelling means which acts on the peg, at least when the leader slat rises and reaches the said bottom passage, to transfer the peg from the vertical guide to the first auxiliary guiding path; and peg-accompanying means which bounds a second auxiliary guiding path which extends into the first auxiliary guiding path and away from the vertical guide means.



3,302,693
REGENERATIVE HEAT EXCHANGER WITH STATIONARY HEAT RETAINING MASS AND ROTATABLE CONNECTIONS

Albert Gsell, Weinheim, Bergstrasse, Germany, assignor to Svenska Rotor Maskiner Aktiebolag, Stockholm, Sweden, a company

Filed Jan. 3, 1964, Ser. No. 336,853
3 Claims. (Cl. 165—4)

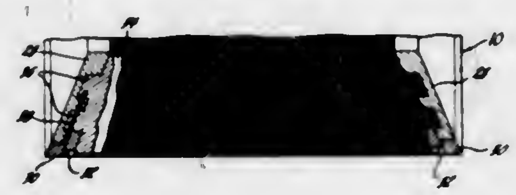


1. A regenerative heat exchanger comprising a stationary annular heat retaining mass, duct members at both ends of said mass rotatable around a substantially vertical axis for directing a fluid flow axially through said mass, a connecting tube interconnecting the duct members at opposite ends of said mass, said connecting tube passing centrally through said mass, a central supporting tube extending from below through the lower rotatable duct member and upwardly through said connecting tube, and a thrust bearing at the upper end of said supporting tube for rotatably mounting the upper end of said connecting tube.

3,302,694
MEANS TO RESIST DISTORTION OF A ROTARY REGENERATOR MATRIX

Paul E. Beam, Jr., Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Mar. 29, 1965, Ser. No. 443,379
5 Claims. (Cl. 165—10)



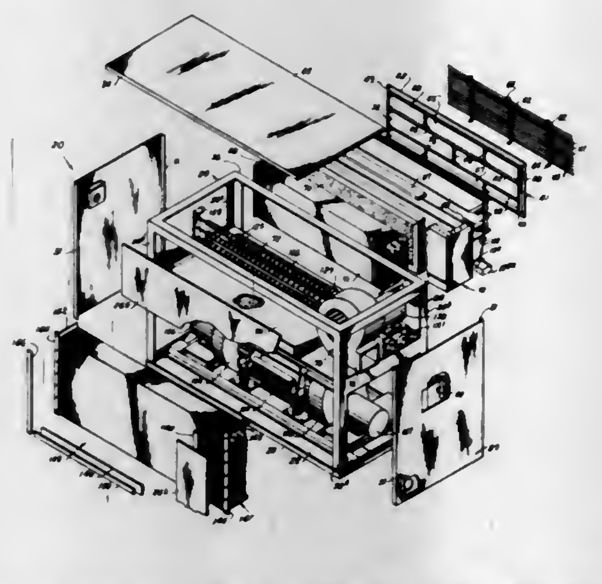
1. A rotary regenerator matrix comprising, in combination,
two mutually spaced coaxial annular rigid rims
a body disposed between the rims and extending from one rim to the other, the rims being at the edges of the body
the body having faces terminating at the edges of the rims and including heat exchange structure porous to fluid flow from face to face of the body between the rims
the body including rigid members extending from one rim to the other and rigidly connected to the rims
the matrix normally having a relatively cold side and a relatively hot side in operation
characterized by the facts that the cross-section of the matrix is generally trapezoidal, narrower at the hot side than the cold side, with the body narrower at the hot side and the rims converging toward each other toward the hot side, so that stresses arising from differential thermal expansion due to temperature gradients in the rims and in the said rigid members are in opposition, thus tending to minimize thermal distortion of the matrix.

3,302,695
AIR CONDITIONING MEANS INCLUDING CONTROLS THEREFOR

Harris Foster Payne, Arlington, Tex., assignor to Frigiking Company, Dallas, Tex., a division of Cummins Engine Company, Inc., a corporation of Indiana

Filed Dec. 2, 1964, Ser. No. 415,293
11 Claims. (Cl. 165—27)

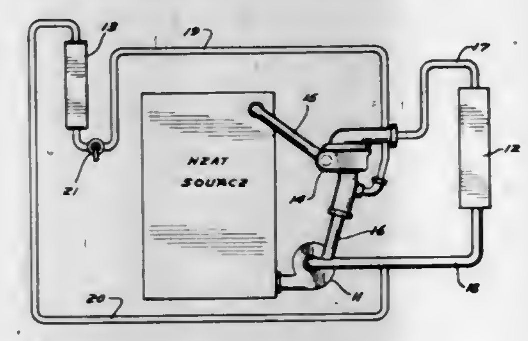
1. An air conditioning apparatus including: a housing providing a first chamber and a second chamber; a refrigerant gas cooling system including an electrically energizable compressor for compressing a refrigerant gas, a condenser for cooling and liquefying the compressed gas and an evaporator wherein the liquified gas evaporates and expands, said evaporator being mounted in said first chamber and said condenser being mounted in said second chamber, said housing having a first inlet aperture and a first outlet aperture spaced from each other and opening from the exterior of said housing to said first chamber; first electrically energizable air moving means for moving air into said first chamber through said first inlet aperture, through said evaporator and to the exterior of said housing through said first outlet aperture, said housing having a second inlet aperture and a second outlet aperture spaced from each other and opening to said second chamber; second electrically energizable air moving means for moving air into said second chamber through said second inlet aperture, through said condenser and to the exterior of said housing through said second outlet aperture, said housing having a connecting aperture providing communication between said first and said second chambers; closure means for closing said first inlet aperture and said connecting aperture; electrically operable drive means for moving said closure means to close said first inlet aperture and simultaneously open said connecting aperture and to open said first inlet aperture and simultaneously close said connecting aperture; and control means for selectively energizing said compressor, said air moving means and said electric drive means, said control means having selector means operable to cause said closure means to open said connecting aperture and close said first inlet aperture and cause operation of said first air moving means, said selector means also being operable to cause said closure means to close said connecting aperture and open said first inlet aperture and cause simultaneous operation of said compressor and both of said air moving means.



3,302,696
PRESSURE RESPONSE BY-PASS VALVE FOR HEAT EXCHANGE SYSTEMS

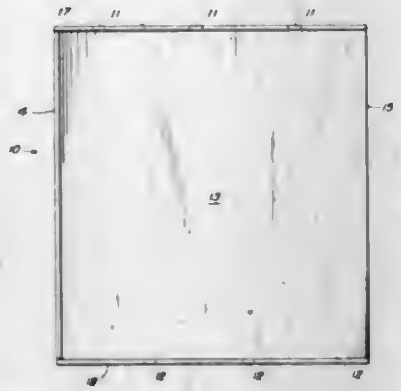
James R. Rogers, 407 4th St., P.O. Box 6,
Sauk Centre, Minn. 56378

Filed Feb. 8, 1965, Ser. No. 431,226
3 Claims. (Cl. 165—37)



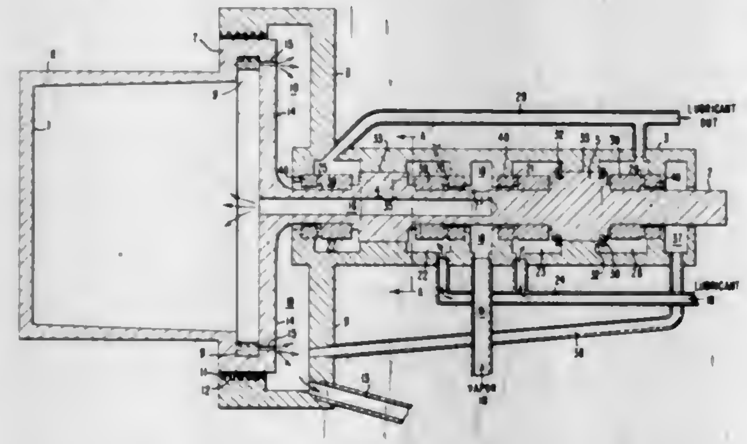
1. A fluid flow system having at least a heat source, a pump, first and second heat exchanger units receiving heated fluid for cooling thereof and a recirculation line by-passing the second heat exchanger and including:
(a) means for restricting the flow of fluid through said by-pass whereby a positive back pressure may be developed to provide sufficient pressure to force the heated fluid to the first of said exchangers;
(b) a temperature responsive control member controlling fluid flow to the second of said heat exchangers; and
(c) said restrictor means arranged to open in response to a predetermined pressure acting thereagainst.

3,302,697
DEVICE FOR IMPROVING HEAT TRANSFER AIR FLOW
Robert B. Jacko, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Aug. 5, 1965, Ser. No. 477,485
1 Claim. (Cl. 165—80)



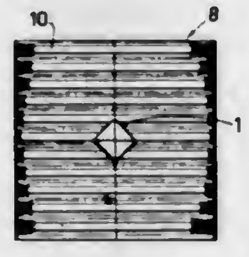
A heat transfer device for a fluid system comprising, an area over which fluid is to be passed, a first retaining means contiguous with said area, a second retaining means contiguous with said area and parallel to said first retaining means, a first plurality of equally spaced inlet orifices retained by said first retaining means, a second plurality of equally spaced inlet orifices retained by said second retaining means so that fluid entering said inlet orifices is directed toward said second inlet orifices and fluid entering said second inlet orifices is directed toward said first inlet orifices, the spacing between said first plurality of orifices being the same as the spacing between said second plurality of orifices, the orifice of each of said plurality of orifices aligned with the points which are equidistant between the orifices of the other plurality of said inlet orifices, a fluid exit contiguous with said area and extending between said first and second retaining means, the plane of said exit being perpendicular to said retaining means, and enclosing means for forming an enclosed device containing said inlet orifices and said fluid exit thereby causing fluid entering said first and second inlet orifices to pass over said area in serpentine paths and out through said exit.

3,302,698
HEAT EXCHANGE APPARATUS
Donald W. Edwards, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,598
3 Claims. (Cl. 165—89)



1. A yarn handling apparatus comprising a cylindrical shell over which yarn is heated and advanced, a shaft connected to the cylindrical shell and a support housing for the shaft, said shell having a closed end outboard from the shaft and an interior peripheral frusto-conical surface sloping outwardly in a gradual manner from such end and terminating in a groove recessed in the periphery of the shell and a plurality of spaced orifices communicating with the groove and with a collector chamber external of the shell, the said shaft being rotatably journaled in spaced bearings in the support housing and having an internal passageway communicating with the interior peripheral surface of said shell, and the said support housing for the shaft comprising condensible vapor inlet means communicating with the internal passageway of the shaft, a pair of spaced bearings located on either side of such condensible vapor inlet means, a first set of rotary seals interposed between the condensible vapor inlet means and the adjacent spaced bearings to enclose said condensible vapor inlet means, a second set of rotary seals located along the shaft exteriorly to the pair of spaced bearings and in opposed relationship to the first set of seals to enclose each of said bearings therebetween, pressurized lubricant-coolant inlet means located between the bearings and the first set of rotary seals, and exit means located between the bearings and said second set of seals for removing spent lubricant-coolant.

3,302,699
SHOT DISTRIBUTING MEMBER FOR SHOT CLEANING APPARATUS FOR GAS-SWEPT HEATING SURFACES
Ture Valfrid Hedentorp, Stockholm, and Oskar Julius Stigenberg, Harnas, Sweden, assignors to Aktiebolaget A. Ekstroms Maskinaffar, Stockholm, Sweden, a Swedish joint-stock company
Filed Apr. 19, 1965, Ser. No. 449,257
Claims priority, application Sweden, Apr. 27, 1964, 5,223/64
4 Claims. (Cl. 165—95)

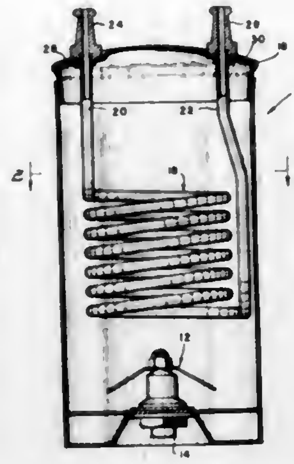


1. In heat exchanging apparatus having an angular cross-section shape and comprising gas-swept heating surfaces, the provision of pipe means for conveying cleaning shot into said apparatus and at least one stationary shot distributing member disposed below the outlet of said pipe means and above said heating surfaces, said at least one distributing member having a pyramid-like shape and being disposed with its sides facing the corners of said heat exchanging apparatus.

3,302,700
BLENDER HEAT EXCHANGER APPARATUS
William F. Dugan, Stamford, Conn., assignor to Dynamics Corporation of America, New York, N.Y., a corporation of New York
Filed Mar. 9, 1965, Ser. No. 438,287
1 Claim. (Cl. 165—109)

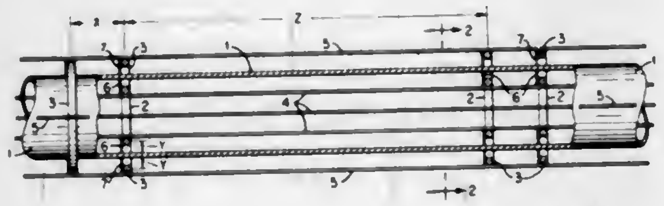
An electric motor driven blender comprising,
an upright container having lobular sidewalls defining a plurality of upright columns for receiving material to be blended;
high speed rotating blade means supported at the bottom of said container and circulating said material in said plurality of upright columns defined by said lobular sidewalls;
a removable cover fitted to said container;

a hollow laterally extending helical coil for the circulation of heat exchange fluid carried and depending from said cover;



said helical coil being inserted centrally of said container spaced from said lobular sidewalls and traversing each of said plurality of columns when said cover is applied to said container; and
fluid connecting means for said coil projecting outwardly of the said cover.

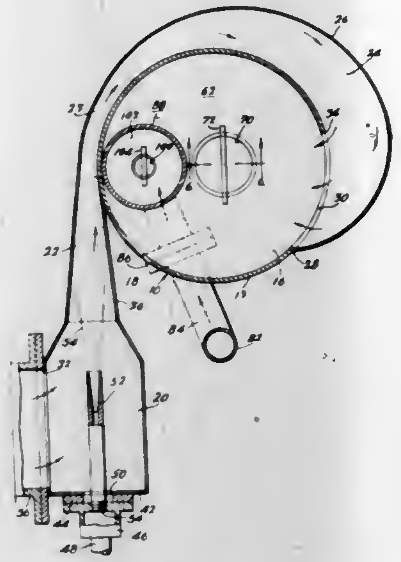
3,302,701
TURBULENCE PROMOTER FOR INCREASED HEAT AND MASS TRANSFER
David G. Thomas, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 19, 1965, Ser. No. 498,169
8 Claims. (Cl. 165—109)



1. Means for increasing the convective heat or mass transfer between an exchange surface and a fluid flowing in contact with said surface, comprising: a multiplicity of turbulence promoters disposed normal to the direction of fluid flow, the projected areas in the direction of flow of said turbulence promoters having a width D, said turbulence promoters being spaced apart from said exchange surface a distance substantially equal to said width D, said turbulence promoters being spaced apart from each other by alternative first and second spacing distances, said first spacing distance lying within range from 7 to 15 times said width D, and said second spacing distance lying within the range from 50 to 100 times said width D.

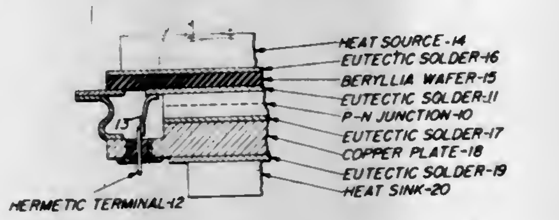
3,302,702
STEAM JET VACUUM PUMP
Frederick Boehm, Philadelphia, Pa., assignor to Schutte and Koerting Company, Cornwells Heights, Pa., a corporation of Pennsylvania
Filed June 14, 1965, Ser. No. 463,551
10 Claims. (Cl. 165—112)

1. A combined steam jet vacuum pump and condenser comprising a condenser having a cylindrical condenser shell, a steam jet vacuum pump comprising aligned linear suction and entraining chambers, said entraining chamber being tangentially aligned with respect to said cylindrical condenser shell, and arcuate-shaped throat and



diffuser sections of said pump connected with said entraining chamber, said arcuate-shaped sections overlying said cylindrical condenser shell with the diffuser opening into said shell.

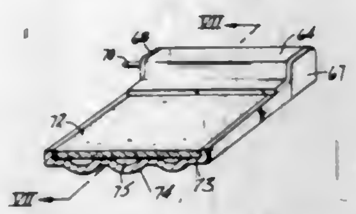
3,302,703
THERMAL VALVE
Franklin G. Kelly, Long Beach, Calif., assignor to TRW Inc., a corporation of Ohio
Filed July 3, 1964, Ser. No. 380,136
4 Claims. (Cl. 165—135)



1. In combination,
a heat source and a heat sink in close proximity to each other, a P material and an N material joined to form a junction,
said P–N junction connected between said heat source and said heat sink and electrically insulated from said heat sink and said heat source, said P material and said N material being oriented between said heat source and said heat sink such that heat flows from the heat source to the heat sink through one of said materials then through the junction then through the other of said materials,
and electrical biasing means for controlling the biasing of said P–N junction whereby forward biasing raises the thermal conductivity and reverse biasing lowers the thermal conductivity.

3,302,704
COMPOUND METAL STRUCTURE
Emery I. Valyi, Riverdale, N.Y., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Application Sept. 21, 1964, Ser. No. 398,128, which is a division of application Ser. No. 202,612, June 14, 1962, now Patent No. 3,201,858, dated Aug. 24, 1965. Divided and this application May 14, 1965, Ser. No. 464,893
1 Claim. (Cl. 165—170)

A compound metal structure adapted for use as a heat exchanger comprising a porous body superimposed on a first section of an impervious metal sheet, with a first portion of the confronting faces of said sheet and said body metallurgically bonded to each other at their surface contacting points and with a second portion of said confronting faces forming enclosed fluid channels extending between said confronting faces, an integral end of said sheet forming a tubular header which is in engagement with said porous body, said header disposed in communicating relationship with said channels, said header having inlet means communicating therewith.

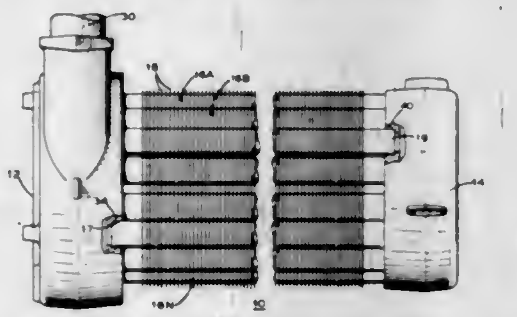


3,302,705
HEAT EXCHANGER

Wilson J. Witten, Jr., Louisville, Ky., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 21, 1964, Ser. No. 397,747

11 Claims. (Cl. 165—176)



1. A heat exchanger comprising: a main header including a housing defining a chamber, means for dividing said chamber into an inlet region and an outlet region, inlet conduit means for feeding fluid to said inlet region, outlet conduit means for removing fluid from said outlet region; a floating return header including a housing defining a chamber remote from said main header; a plurality of horizontally disposed, spaced tubular conduits, at least one of said tubular conduits connecting the inlet region of the chamber of said main header to the chamber of said floating return header, at least one other of said tubular conduits connecting the outlet region of the chamber of said main header to the chamber of said floating return header; said tubular conduits defining a substantially hollow cylinder and providing, in addition to the fluid flow connections between said headers, the sole mechanical support for said floating return header.

3,302,706
SOIL GAS PROSPECTING FOR PETROLEUM

Robert R. Thompson, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

No Drawing. Filed Feb. 21, 1964, Ser. No. 346,416

10 Claims. (Cl. 166—4)

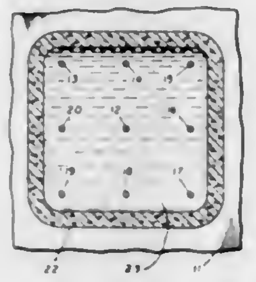
1. A method for recovering oil from a subsurface geological formation comprising analyzing soil gas samples taken over a survey area to determine the total hydrocarbon content and the ratio of two different hydrocarbons in said samples, plotting the total hydrocarbon content and the ratio of said two different hydrocarbons on a map of said survey area, determining the ratio of said two different hydrocarbons in soil gas samples taken over fields producing from formations from which production might be expected below said survey area, and drilling a well within said survey area at a location indicated to be promising by the total hydrocarbon contents of samples taken over said survey area, said well being drilled to a formation producing a ratio of said two different hydrocarbons like the ratio determined over that portion of the survey area in which said well is drilled.

3,302,707
METHOD FOR IMPROVING FLUID RECOVERIES FROM EARTHEN FORMATIONS

Marion L. Slusser, Arlington, and Carl Connally, Jr., Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

Filed Sept. 30, 1964, Ser. No. 400,481

9 Claims. (Cl. 166—4)



1. A method for the in situ placement of a barrier to fluid flows in openings in subterranean deposits, comprising the steps of:

(a) providing a plurality of spaced-apart wells in fluid communication with openings in the deposit,

(b) introducing into openings in the deposit, via one of said wells, a barrier-forming fluid sufficient in quantity to form a barrier to fluid flow of a desired areal extent when disposed in its ultimate position and introducing into openings in the deposit, via one of said wells, a driving fluid for excluding the barrier-forming fluid from communicating openings between wells,

(c) closing other of said wells not used for introducing the driving fluid to fluid flows during the introduction of the driving fluid except for a monitoring flow suitable to detect a flow therefrom of said driving fluid, and

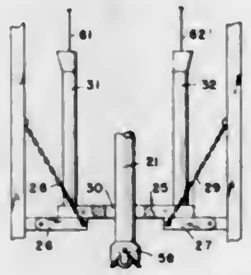
(d) opening the other of said wells after detection of said driving fluid to a flow of said driving fluid suitable to circulate the barrier-forming fluid from the communicating openings and the wells.

3,302,708
UNDERWATER WELL BASE STRUCTURE

Norman E. Montgomery, Metairie, La., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Oct. 9, 1963, Ser. No. 315,026

5 Claims. (Cl. 166—.5)



1. An underwater wellhead apparatus adapted to be positioned on the ocean floor, said apparatus comprising

a laterally-extending wellhead support base having a large-diameter vertical substantially central opening extending therethrough,

auxiliary base means having a central opening of smaller diameter and being removably secured to said wellhead support base adjacent the central opening therein, means for removably securing said auxiliary base means to said wellhead support base, and support means carried on and extending radially inwardly relative to said central opening of said auxiliary base means and forming means for reducing the effective diameter of said opening thereof, and

a tubular well member adapted to extend through said smaller-diameter central opening of said auxiliary base means.

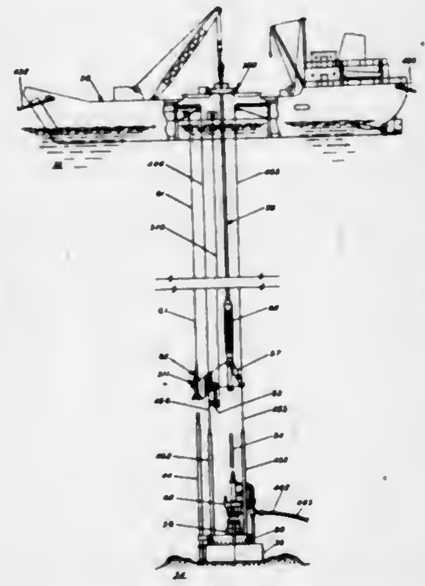
3,302,709
METHOD FOR ATTACHING AND DETACHING A WORKING BASE TO AN UNDERWATER WELL BASE

William R. Postlewaite, Menlo Park, Calif., assignor to Chevron Research Company, a corporation of Delaware

Original application Nov. 5, 1962, Ser. No. 235,215, now Patent No. 3,236,302, dated Feb. 22, 1966. Divided and this application June 3, 1965, Ser. No. 482,959

7 Claims. (Cl. 166—.6)

4. A method of attaching and detaching a working base and the flexible guidelines attached thereto to a permanent base of a subsea well site from an operational base of a drilling vessel located on the surface of a body of water comprising disconnectably connecting a working base to said permanent base, said working base including at least a pair of flexible guidelines fixedly connected thereto and extending from said working base to an operable connection in the operational base of said vessel, lowering said working base and said permanent base from said vessel to the sea bottom, fixedly connecting said permanent base to said sea bottom, extending a pilot line from an operable connection on said operational base of said vessel into the water and guiding said pilot line along said guidelines to the subsea permanent base, disconnectably connecting said pilot line to said permanent base, disconnecting said working base from said permanent base, and removing said working base including the guidelines fixedly connected thereto from said permanent base.



3,302,710
METHOD FOR RECOVERING HYDROCARBONS

Aziz S. Odeh, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed Feb. 7, 1964, Ser. No. 343,280

6 Claims. (Cl. 166—9)

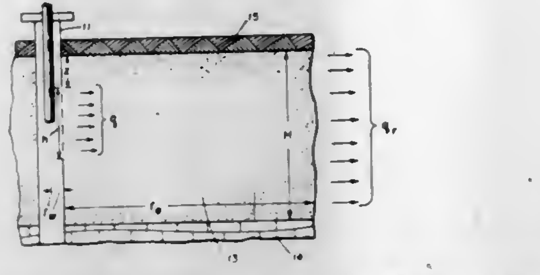
1. A method for the production of hydrocarbons by obtaining optimum fluid flowing conditions in a reservoir having a strata of thickness H penetrated by a wellbore of radius r_w, which wellbore is in fluid communication with the strata over an interval of height h with said interval disposed at a distance z from one horizontal boundary of the strata responsive to a differential velocity potential $\Delta\phi$ existing in the strata between the wellbore and a radial boundary r_e of the strata comprising the steps of:

(a) flowing fluids at a fluid flow rate q through the interval between the wellbore and the strata in the relationship:

$$\Delta\phi=\frac{q}{2\pi H}\left[\ln\frac{r_e}{r_w}+\frac{2}{\pi^2R_w\bar{h}}\sum_1^\infty\frac{[I_0(n\pi R_e)K_0(n\pi R_w)-K_0(n\pi R_e)I_0(n\pi R_w)]\cos n\pi y\,[\sin n\pi y_2-\sin n\pi y_1]}{n^2[K_0(n\pi R_e)I_1(n\pi R_w)+K_1(n\pi R_w)I_0(n\pi R_e)]}\right]$$

wherein $R_e=r_e/H$, $R_w=r_w/H$, $y=z/H$, y_1 and y_2 are particular expressions, of the general expression $y=z/H$, for the specific coordinate locations of the top and bottom of said interval, $\bar{h}=h/H$, and

(b) producing hydrocarbons by such flowing fluids until substantial quantities of the hydrocarbons are recovered from the reservoir.

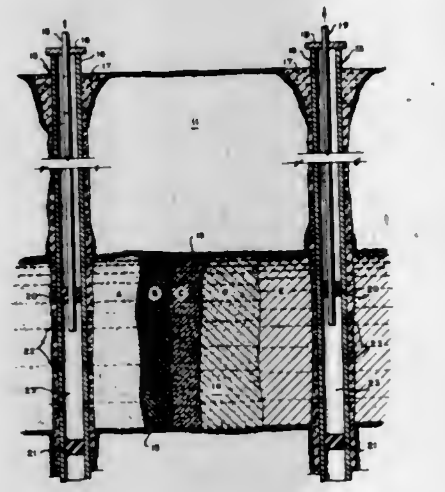


3,302,711
PETROLEUM RECOVERY WITH CHEMICAL INTERACTING FLOODS FORMING ORGANIC SULFONATES

Richard E. Dilgren, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Sept. 22, 1964, Ser. No. 398,329

8 Claims. (Cl. 166—9)



1. A method of recovering petroleum dispersed in permeable subterranean reservoir formations which are penetrated by at least one injection well and at least one production well which comprises the steps of first injecting through said injection well into said formation a slug of oil-miscible liquid that contains a sulfonatable organic compound and is capable of diluting and interconnecting droplets of petroleum in said formation, subsequently injecting an aqueous alkali metal bisulfite solution as the frontal portion of a water-flood and thereby displacing the partially diluted petroleum from said formation and forming surface-active organic sulfonates at the petroleum-water interfaces by the interaction of said

organic compound and said alkali metal bisulfite solution, said sulfonates aiding the displacement of said partially diluted petroleum, and recovering the displaced petroleum through said production well.

3,302,712
AQUEOUS SOLUTION FLOW IN A SUBTERRANEAN FORMATION

Harold L. Townsend and Sherrod A. Williams, Jr., Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

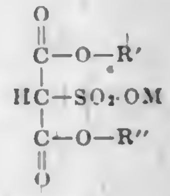
No Drawing. Filed Sept. 24, 1964, Ser. No. 399,075

16 Claims. (Cl. 166—9)

1. In a method for the recovery of oil from an oil-containing subterranean formation by injecting a flooding liquid through an injection well into said formation and producing oil from said formation through a production well, the improvement comprising injecting into said formation an active aqueous solution having incorporated therein

from 0.04 to 0.77 mol percent of at least one salt selected from the group consisting of ammonium salts and alkali metal salts which form strong electrolytes in distilled water, and

from 0.0008 to 0.04 mol percent of at least one M dialkyl sulfosuccinate having the following structural formula:



$$\begin{matrix} \mathrm{O} \\ \| \\ \mathrm{C{-}O{-}R'} \\ | \\ \mathrm{HC{-}SO_2{\cdot}OM} \\ | \\ \mathrm{C{-}O{-}R''} \\ \| \\ \mathrm{O} \end{matrix}$$

where

M is a cation selected from the group consisting of Li^+, K^+, Na^+, NH_4^+, anilinium, o-toluidinium, p-toluidinium, n-toluidinium, methylammonium, ethylammonium, n-propylammonium, iso-propylammonium, n - butylammonium, iso - butylammonium, sec-butylammonium, and tert-butylammonium,

R′ is an alkyl group containing 5 to 16 carbon atoms, inclusive, and

R″ is an alkyl group containing 5 to 16 carbon atoms, inclusive.

3,302,713
SURFACTANT-WATERFLOODING PROCESS

George P. Ahearn and Walter W. Gale, both of Houston, Tex., assignors to Esso Production Research Company, a corporation of Delaware

No Drawing. Filed July 6, 1965, Ser. No. 469,920

23 Claims. (Cl. 166—9)

1. A method for the recovery of oil from a subterranean reservoir which comprises injecting a surfactant into the reservoir and producing oil displaced by said surfactant, said surfactant comprising a water-dispersible product obtained by sulfonating at least a portion of the sulfonatable constituents which occur in the 700–1100° F. (corrected) boiling range fraction of a petroleum crude.

3,302,714
CEMENTING PIPE IN WELLS

William G. Bearden and Kenneth A. Blenkarn, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

No Drawing. Filed Dec. 4, 1964, Ser. No. 416,123

15 Claims. (Cl. 166—21)

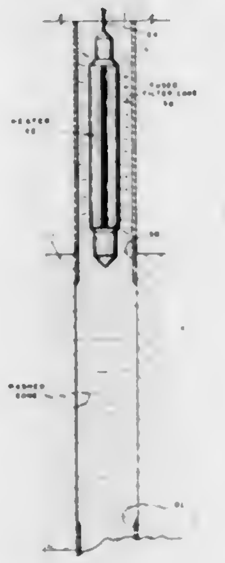
1. A method for cementing a pipe in a well comprising placing said pipe in said well, introducing cement slurry around the outside of said pipe and, before said cement slurry has set, at least partially sealing the inside of said pipe at a level below the final level of the cement in the well outside the pipe, restraining downward movement of the sealing means at least in part by a means other than said pipe, and providing a sufficiently greater pressure above said sealing means than below said sealing means to cause said pipe to buckle in said cement slurry whereby said cement slurry is puddled, thereby improving the quality of the cement job.

3,302,715
METHOD OF DRILLING AND COMPLETION OF WELLS IN THE EARTH AND DRILLING FLUID THEREFOR

Floyd A. Smith, Tulsa, Okla., and Joseph W. Graybeal, Midland, and Mercer H. Parks, Houston, Tex., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware

Filed Oct. 27, 1964, Ser. No. 406,840

7 Claims. (Cl. 166—25)



1. A drilling fluid comprising:

a liquid carrier selected from the group consisting of oil, water, and mixtures thereof;

particulated sulfur having particle sizes in the range of 10 to 325 mesh, in the amount of 1 to 50 pounds per 42-gallon barrel of drilling fluid; and

a particulated weighting agent in the amount of 0 to 200 pounds per 42-gallon barrel of drilling fluid.

2. The method of drilling and completing a well to recover connate fluids from a productive earth formation, comprising:

compounding a drilling fluid including between 1 and 50 pounds of sulfur per 42-gallon barrel of drilling fluid, said sulfur being particulated in the range of 10 to 325 mesh;

with said drilling fluid, drilling a borehole into the earth whereby a filter cake is formed on the sides of the borehole, said filter cake including said particulated sulfur; and

heating the filter cake on the sides of the borehole to fuse the particulated sulfur in the filter cake.

3,302,716
METHOD AND COMPOSITION TO REDUCE FILTER LOSS OF FLUIDS EMPLOYED IN WELLS

Sherrod A. Williams, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Mar. 25, 1966, Ser. No. 537,328

24 Claims. (Cl. 166—31)

1. A fluid to be employed in a well, said fluid containing said constituents and having a continuous aqueous phase, said continuous aqueous phase containing in an amount sufficient to reduce the filter loss thereof a compound selected from the group consisting of sulfonated poly (2,6-dimethylphenol) and the alkali metal, alkaline earth metal, and ammonium salts thereof and having a molecular weight of at least 5,000.

9. In a process for drilling a well in the earth wherein a drilling fluid containing solid constituents and a continuous aqueous phase is circulated through said well during said drilling, the steps comprising adding to said drilling fluid a compound selected from the group consisting of sulfonated poly (2,6-dimethylphenol) and the alkali metal, alkaline earth metal, and ammonium salts thereof, said compound having a molecular weight of at least 5,000 in an amount sufficient to reduce the filter loss of said drilling fluid but insufficient to increase the viscosity of said drilling fluid to such an extent that it cannot be circulated, and circulating said drilling fluid in said well.

19. In a process for cementing a well in the earth wherein a cement composition containing solid constituents comprising hydraulic cement and having a continuous aqueous phase is placed in said well, the steps comprising adding to said cement composition a compound selected from the group consisting of sulfonated poly (2,6-dimethylphenol) and the alkali metal, alkaline earth metal, and ammonium salts thereof, said compound having a molecular weight of at least 5,000 and in an amount sufficient to reduce the filter loss of said cement composition, and placing said cement composition in said well.

3,302,717
SELECTIVE PLUGGING OF SUBTERRANEAN FORMATIONS TO INHIBIT INTRUSION OF WATER

Samuel R. West, Evansville, Ind., and Francis E. Dollarhide, Tulsa, Okla., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 26, 1961, Ser. No. 162,185

5 Claims. (Cl. 166—33)

1. The method of fracturing a well penetrating a subterranean formation into which water intrudes which comprises admixing a particulate cross-linked oil insoluble water-insoluble polyacrylamide polymer capable of swelling upon exposure to aqueous media with an oil base liquid, said polymer being used in the ratio of between about 10 and 400 pounds per 1000 gallons of oil base liquid, injecting said oil base liquid-polymer mixture down said well and to said formation at sufficient pressure whereby fractures are created extending into said formation and at sufficient rate whereby said polymer is carried into said fractures, discontinuing injecting said liquid-polymer mixture whereby the polymer is permanently deposited in said fractures and on contacting water the polymer swells impeding movement of water in the fracture.

3,302,718
CONSOLIDATION THROUGH LATERAL CHANNELS

Michael Prats and Edmond H. Bruist, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Nov. 17, 1964, Ser. No. 411,830

5 Claims. (Cl. 166—33)

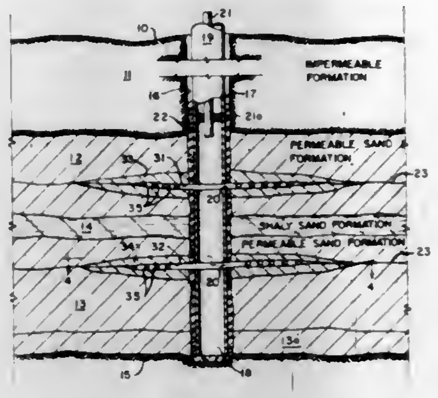
1. A method of reducing sand intrusion into well boreholes penetrating an unconsolidated, fluid-producing reservoir formation having non-uniform permeability comprising the steps of:

(a) determining the depth boundaries of at least one layer within said reservoir formation in which the permeability is substantially uniform;

(b) casing said borehole and sealing said casing in said reservoir with sealant to the extent of its vertical traverse of said reservoir;

(c) perforating said casing and sealant between said depth boundaries of at least one layer in said reservoir formation in which the permeability is substantially uniform; and

(d) forcing a solids-free, fluid grain-bonding consolidating agent through the resulting perforations into said uniformly permeable layer whereby a layer of substantially uniform permeability is consolidated into a permeable porous mass when said fluid consolidating agent sets.



3,302,719
METHOD FOR TREATING SUBTERRANEAN FORMATIONS

Paul W. Fischer, Whittier, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Jan. 25, 1965, Ser. No. 427,921

28 Claims. (Cl. 166—42)

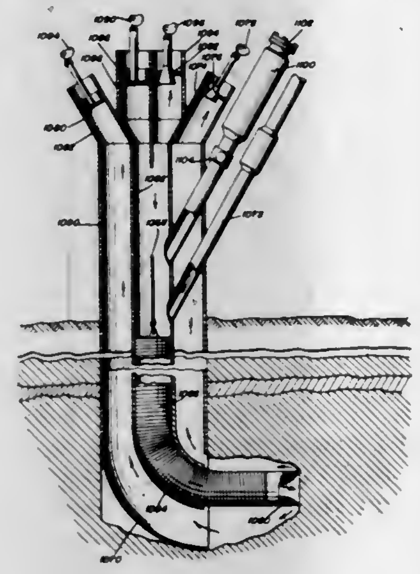
1. A process for treating subterranean formations penetrated by a well bore comprising the step of injecting a treating fluid through said well bore and into said formation, said treating fluid comprising a pumpable carrier fluid having solid particles suspended therein, said solid particles comprising a homogeneous mixture of between about 20 and about 40 weight percent of a polymer component, between about 10 and about 60 weight percent of a wax component and between about 15 and about 70 weight percent of a resin component.

3,302,720
ENERGY WAVE FRACTURING OF FORMATIONS

Clarence W. Brandon, Tulsa, Okla., assignor of twelve and one-half percent to Orpha B. Brandon, Tulsa, Okla., five percent to Harvey B. Jacobson, Washington, D.C., and fifty percent jointly to N. A. Hardin, Catherine H. Newton and Hazel H. Wright, all of Forsythe, Ga.

Filed June 17, 1957, Ser. No. 665,995

26 Claims. (Cl. 166—42)



1. A method of recovering oil from an oil bearing strata penetrated by a well bore which includes the step of applying fluid pressure to the interior of the well bore

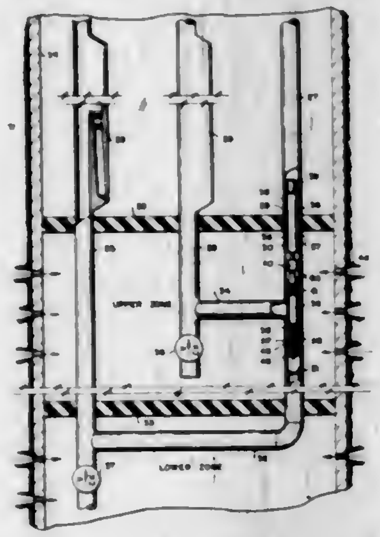
upon the face of the strata, alternately varying the pressure of the applied fluid above and below the internal pressure of the strata immediately adjacent said face to cause thereby fracture and rupture of said face from the internal pressure of the strata.

3,302,721
DUAL ZONE COMPLETION SYSTEM WITH SPECIAL VALVE

Edward D. Yetman, Bakersfield, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Feb. 28, 1964, Ser. No. 348,176

7 Claims. (Cl. 166—45)



1. A method of establishing fluid communication selectively with one of two isolated fluid producing formations traversed by a well, comprising:
   - (a) partitioning the wellbore and establishing upper and lower separated zones within the wellbore respectively adjacent said two isolated producing formations and in flow communication therewith;
   - (b) establishing fluid flow communication from a location outside the well to one of said zones through first conduit means;
   - (c) establishing fluid flow communication from said location outside the well through said partitioned portion of the well bore to the other of said zones with second conduit means;
   - (d) providing fluid flow communication between each of said first and second conduits and said location outside the well through a common conduit;
   - (e) positioning conduit closure means in said common conduit in a first position that allows fluid flow communication between said common conduit and said first conduit and simultaneously blocks fluid flow communication between said common conduit and said second conduit; and,
   - (f) shifting said closure means to a second position within said common conduit that allows fluid flow communication between said common conduit and said second conduit and simultaneously blocks fluid flow communication between said common conduit and said first conduit.

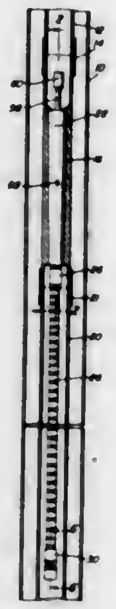
3,302,722
WIRE LINE RETRIEVABLE WASH PIPE BOTTOM HOLE ASSEMBLY

Milton H. Madeley, Sr., Lafayette, La.
(3000 W. Kansas, Apt. 402, Midland, Tex. 79701)

Filed Oct. 25, 1963, Ser. No. 318,920

1 Claim. (Cl. 166—157)

A wash device for a well bore having a pipe string therein comprising a seating nipple constituting a component of said pipe string having an internal seat, a wash pipe assembly insertable into and retrievable through said pipe string and nipple, said wash pipe assembly including a body having a seating surface engageable with said seating nipple, a wash pipe member depending from said body, said body and wash pipe member having a continuous fluid passage disposed therethrough, a downwardly discharging and non-return foot valve assembly on the string surrounding a lower end of said wash pipe member preventing fluid flow upwardly into said fluid passage and a locking device comprising cooperating, longitudinally extending key and groove on the seating surfaces of said body and nipple preventing relative rotation therebetween, said seating surfaces forming cam surfaces directing said key into said groove upon axial movement of said body and nipple toward each other.

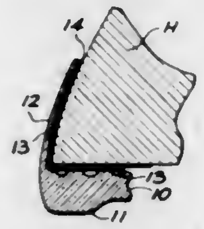


3,302,723
NAILLESS HORSE SHOES

Darrell L. Renkenberger, Berlin Center, Ohio 44610, and Harold G. Brown, Ellsworth, Ohio 44416

Filed Sept. 9, 1965, Ser. No. 486,055

2 Claims. (Cl. 168—4)



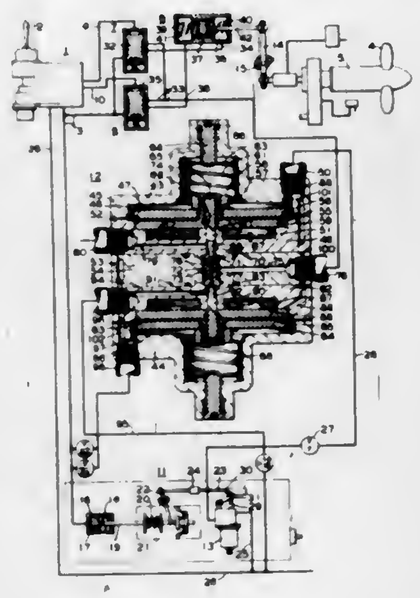
1. A horse shoe made of resilient material having a curved upper surface adapted to receive a horse's hoof, resilient tab means formed integrally with the resilient material and projecting upwardly and adapted to clampingly engage an outer surface of a horse's hoof and position the horse shoe on the hoof, the upper surface of the horse shoe and the engaging surface of the tab means receiving a bonding means and being provided with a plurality of cavities for receiving the bonding means, said bonding means including a contact cement that is applied to an under surface of a horse's hoof and to the surfaces of the horse shoe, whereby the bringing together of the said hoof and the said horse shoe provides adhesive engagement therebetween while the cavities provide spaced areas of increased thickness of said contact cement.

3,302,724
AUTOMATIC CONTROL APPARATUS FOR VARIABLE PITCH PROPELLERS

Ralph C. Brooks, Ahoskie, N.C., and Paul E. Olson, Lexington, Ky., assignors to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed June 11, 1965, Ser. No. 463,161

2 Claims. (Cl. 170—135.74)



1. An automatic control apparatus for variable pitch propellers, comprising:
   - (a) means for providing a first pressure selectively variable in magnitude,
   - (b) means responsive to said first pressure to vary the pitch of a propeller in accordance with the magnitude of said pressure,
   - (c) means responsive to said first pressure for controlling the speed of an engine in accordance with the magnitude of said pressure,
   - (d) means for providing a second pressure selectively variable in magnitude in accordance with the engine load, and
   - (e) means responsive to pressure differential between said first pressure and said second pressure to modify the effect of said first pressure upon said pitch varying means to increase or decrease the propeller pitch depending upon whether said second pressure is less than or greater than, respectively, said first pressure and until said first pressure and said second pressure assume a predetermined minimum pressure differential therebetween.

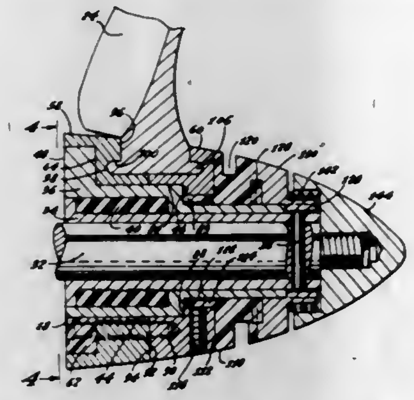
3,302,725
VARIABLE PITCH MARINE PROPELLER

Peter F. Brimble and Joseph F. Scheidbach, Los Angeles, Calif., assignors to Stuart A. Krieger, Norman J. Allin, Bradley Kendis, Alvin S. Isaacson, and Stanley L. Gendler, doing business as Westwood Associates, Los Angeles, Calif.

Continuation of application Ser. No. 385,086, July 24, 1964, which is a continuation of application Ser. No. 129,147, Aug. 3, 1961. This application Oct. 22, 1965, Ser. No. 513,611

15 Claims. (Cl. 170—160.13)

9. A variable pitch propeller for being mounted on a rotating drive shaft, said propeller including the combination of:
   - hub means having a passage extending therethrough for receiving said drive shaft, said hub means including:
   - first and second members positioned to be disposed concentric about the drive shaft and being movable relative to each other,
   - mounting means on said hub means,
   - at least one propeller rotatably positioned on said mounting means for rotating about a line normal to the axis of said shaft to vary the pitch of said blade,
   - pitch means interconnected with at least one of said members and movable between a plurality of stations when that member moves, said pitch means being interconnected with the propeller blade to vary the pitch of the blade in response to the position of the pitch means, and



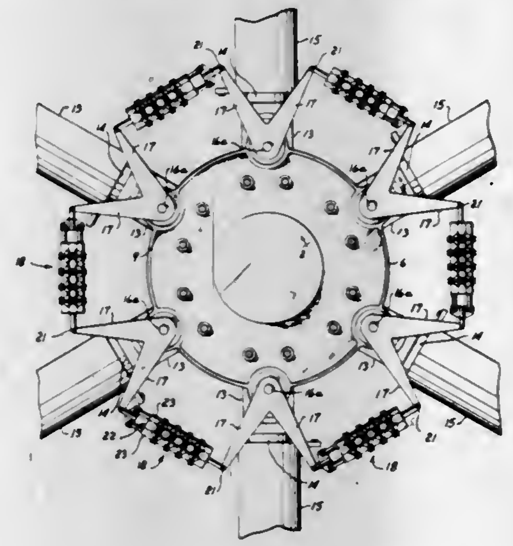
   - means constructed and arranged to move one of said members when the hub means overruns the drive shaft.

3,302,726
LAG-LEAD DAMPER FOR AIRCRAFT SUSTAINING ROTOR BLADES

Paul H. Stanley, Glenside, Pa., assignor to Autogiro Company of America, Jenkintown, Pa., a corporation of Delaware

Filed Oct. 23, 1965, Ser. No. 503,537

5 Claims. (Cl. 170—160.55)



5. In an aircraft sustaining rotor having a plurality of blades individually pivotally mounted for lag-lead motion about upright axes, a lag-lead motion damper device comprising an assembly of damper members linearly displaceable with respect to each other in either direction from a mid-position and having friction surfaces in contact with each other, and means for urging the damper members into frictional interengagement including means providing for progressive increase in the pressure of frictional interengagement with increase in displacement movement thereof in either direction from said mid-position.

3,302,727
ONION TOPPER

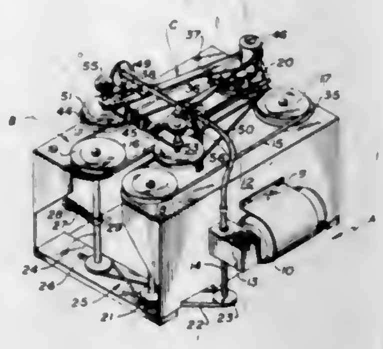
Frank L. Ray, P.O. Box 1275, Stockton, Calif. 95201

Filed Sept. 2, 1964, Ser. No. 393,881

13 Claims. (Cl. 171—61)

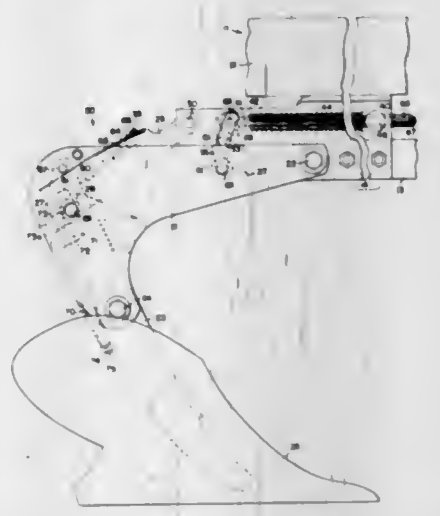
1. An onion topping machine comprising: frame means, conveyor means mounted on said frame means

adapted to transport an onion in a generally upright position, first cutting means associated with said conveyor means to cut leaves from one end of an onion as the onion is moved along by said conveyor means, and a root cutting assembly pivotally mounted on said frame means including second cutting means, said root cutting assembly being positioned so as to contact the body of an onion



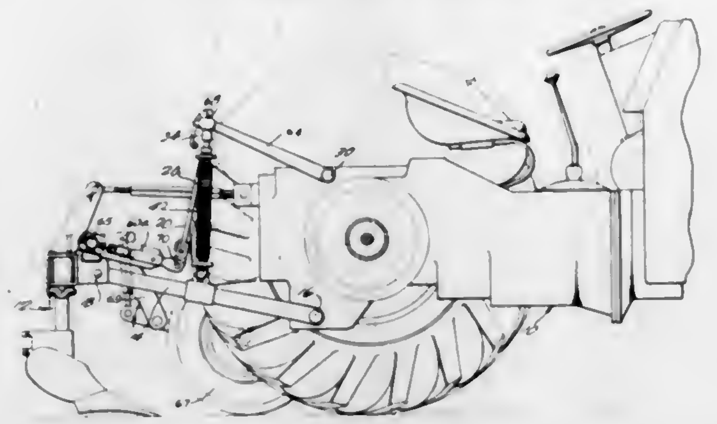
being transported by said conveyor means and be pivoted an amount directly proportional to the onion body size, said second cutting means being positioned to engage and sever roots only on the end of the onion body opposite the leaves after the root cutting assembly has been pivoted by the onion body and the onion advanced adjacent said second cutting means by said conveyor means.

3,302,728
PLOW SAFETY STANDARD
James F. Sullivan, East Moline, and Loren G. Arnold, Rock Island, Ill., assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Nov. 20, 1964, Ser. No. 412,703
3 Claims. (Cl. 172—265)



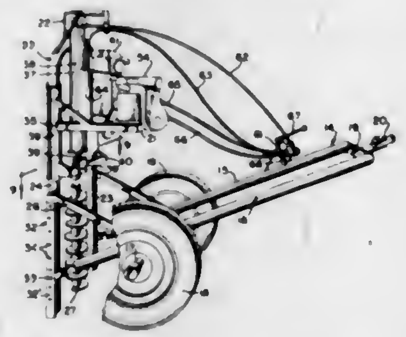
1. In a plow or the like, a main beam extending in a generally fore-and-aft direction, a generally vertical plow standard, a plow bottom fixed to the lower portion of said standard, a generally L-shaped member having an upper forwardly extending part and a lower downwardly extending part, first means pivotally connecting the forward portion of said forwardly extending part to said main beam, second means pivotally connecting the lower portion of said downwardly extending part to said standard below the upper end thereof, an upper link, third means pivotally connecting the upper link at its forward end to the main beam to the rear of the first means, fourth means pivotally connecting the rear end portion of said upper link with the upper portion of said standard, means yieldably restraining said L-shaped member against upward movement relative to said main beam, and means releasably connecting the rear portion of said upper link with the upper part of said standard.

3,302,729
MECHANICAL ATTACHMENT OR DEVICE REPLACING CONNECTING RODS BETWEEN LIFT ARMS ON TRACTOR AND PULL TUGS
Asa O. Pitzer, Felt, Okla. 73937
Filed Dec. 30, 1964, Ser. No. 422,330
3 Claims. (Cl. 172—414)



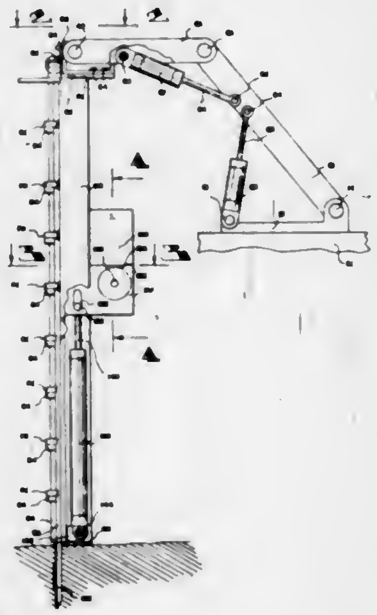
1. Means for controlling gage wheels and tools being lifted out of or into the ground by a tractor having a pair of hydraulic lift arms and a pair of pull tugs, said means including a tool bar pivotally connected to said pull tugs, a rock shaft connected to said tool bar, gage lever arm means connected to said rock shaft and having gage wheel means mounted thereon, a rock arm connected to said rock shaft, a V-shaped member having the ends of the arms thereof connected to said lift arms and having the other end connected to said rock arm, said attachment means further including square-configured telescopically adjustable male and female members having one end pivotally connected to said lift arms and the other end pivotally connected to said pull tugs, said female members each having an elongated slot in a peripheral portion thereof, said male members each having a stop pin insertable therein and for engaging an end of the elongated slot when in operation for lifting said gage wheels and tools from out of the ground and means to bias said male and female members into engagement with each other for displacing said stop pin from an end of the elongated slot.

3,302,730
EARTH BORING MACHINE
John V. Bellsmith, 5592 Crow Canyon Road, Hayward, Calif. 94546
Filed Sept. 5, 1963, Ser. No. 306,848
3 Claims. (Cl. 173—28)



1. In a unitary earth-boring machine comprising an elongated rigid vehicular chassis intermediately carried on a ground-engaging support means for its normally permitted rocking about its axis of support and unitarily carrying at a forward end thereof in upwardly extending relation thereto a frame adjustably supporting a carriage mounting a unitary earth-penetrating auger adapted for its working application in an upright line fixedly related to the carriage, a drive mechanism cooperative between the frame and carriage for effecting up-and-down adjustments of the carriage, separate drive mechanisms cooperative between the carriage and auger for actuating the auger, the center of gravity of the machine assembly being dipsosed forwardly of said axis of ground support of its chassis, and a ground-engaging foot means provided at the bottom end of said carriage-mounting frame and adapted for its normal gravital engagement with the ground adjacent the working line of the auger while disposing the chassis in upwardly sloping relation with respect to the point of attachment of the carriage-supporting frame thereto, whereby a lowering of the rearward end of the chassis is operative to lift the carriage-supporting frame clear of the ground for a location-changing movement of the machine on the ground support for the chassis.

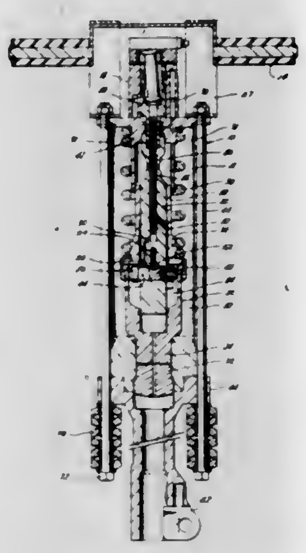
3,302,731
POST DRIVING AND COMPACTING MACHINE
James W. Perry, 302 W. Coulter, Phoenix, Ariz. 85013
Filed Sept. 27, 1965, Ser. No. 490,195
13 Claims. (Cl. 173—112)



1. In a post driving and compacting machine the combination of: a ground supported frame; first means vertically movably mounted on said ground supported frame; a post holding and guiding frame suspended from said first means; substantially perpendicular guides on said guiding frame for engaging a post to be driven into the ground; a hammer carriage vertically movably mounted on said guiding frame; a post engaging member fixed to said hammer carriage and engageable with an upper end of a post guided by said guides; a second means tending to force said hammer carriage downwardly relative to said guiding frame and to force said post engaging member into firm contact with a post guided by said guides; a vertically movable hammer on said hammer carriage; and power operated means disposed to actuate said hammer vertically and to thereby successively cause vertical downward impact of said hammer relative to said hammer carriage to thereby cause the force of said successive impact to be applied to said post while it is also urged downwardly by said second means and said post engaging member.

3,302,732
IMPACT TOOL
Jack A. Roll, Bryan, Tex., assignor, by mesne assignments, to Hughes Tool Company, Houston, Tex., a corporation of Delaware
Filed Oct. 28, 1963, Ser. No. 319,331
10 Claims. (Cl. 173—123)

1. In an impact tool having a housing, a driving shaft mounted in the housing for rotation relative to said housing, a hammer assembly in the housing and positioned about the shaft for axial movement relative to said shaft, a cam connected to the hammer assembly, at least one bearing follower connected to said shaft and positioned to mate with said cam to retract said hammer assembly as the driving shaft is rotated, said cam having an inclined surface and an axially aligned shoulder surface permitting sudden axial travel of the hammer assembly in one direction, a spring in said housing and around the shaft urging said hammer assembly in said one direction to provide an impact, the improvement comprising,



said spring being a coil spring having first and second ends, the first end being connected to the housing, the second end of the spring being adjacent to and acting against the hammer assembly, a threaded connection for threadably receiving at least the first end of the spring, and a shoulder adjacent the threaded connection for limiting the distance the spring can be threaded on said connection.

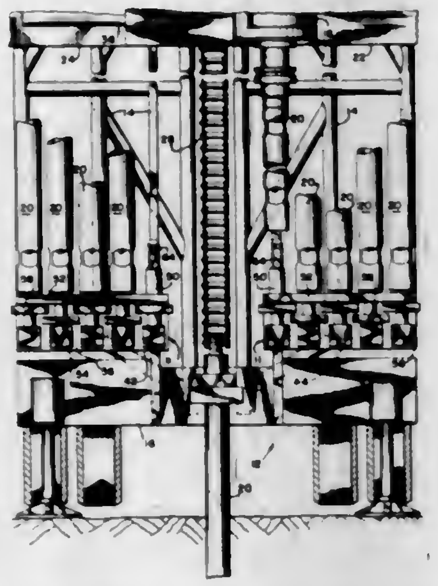
3,302,733
METHOD OF SEALING A PERMEABLE POROUS MEDIUM
Raymond A. Humphrey, Tulsa, Okla., assignor, by mesne assignments, to Esso Production Research Company, a corporation of Delaware
No Drawing. Filed July 1, 1963, Ser. No. 292,107
8 Claims. (Cl. 175—59)

4. A process for the recovery of core samples from a borehole in the earth which comprises advancing a rotary core-bit into the earth at the bottom of the borehole, while circulating downhole an aqueous dispersion of finely divided oil-extended reclaimed rubber, whereby the samples recovered are sealed substantially as cut, thereby capturing the original fluids contained therein.

3,302,734
METHOD OF SEALING A PERMEABLE POROUS MEDIUM
Victor G. Meadors, Tulsa, Okla., assignor, by mesne assignments, to Esso Production Research Company, a corporation of Delaware
No Drawing. Filed July 1, 1963, Ser. No. 292,108
8 Claims. (Cl. 175—59)

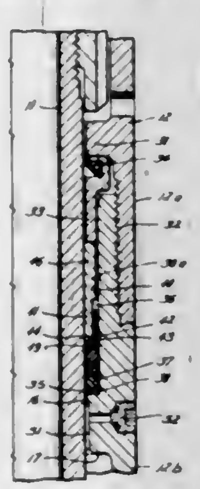
1. A process for the recovery of core samples from a borehole in the earth which comprises advancing a rotary core-bit into the earth at the bottom of said borehole, while circulating downhole a fluid comprising a dispersion of finely divided reclaimed rubber in water, whereby the sample recovered are sealed substantially as cut, thereby capturing the original fluids contained therein.

3,302,735
ROCK DRILLING APPARATUS
Carl T. Klem, Riegelsville, and Laszlo Gyongyosi, Easton, Pa., assignors to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed July 31, 1964, Ser. No. 386,709
7 Claims. (Cl. 175—85)



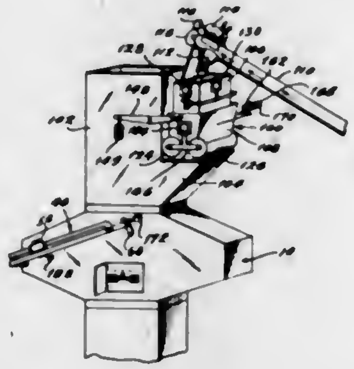
1. In a rock drilling apparatus, the combination of
(a) a drill tower supported by a base,
(b) a mounting slidably attached to said tower for longitudinal movement along said tower substantially parallel to the axis of the hole being drilled,
(c) a rack supported by said base adapted to store drill pipes in a position parallel to the axis of the hole being drilled and in a plane intersecting the axis of the hole being drilled,
(d) a rotary head supported by said mounting for longitudinal movement therewith along the axis of the hole being drilled,
(e) said mounting including means to permit transverse movement of said rotary head relative to the axis of the hole being drilled, and
(f) motor means to move said rotary head selectively from a position in axial alignment with the hole being drilled to a position in axial alignment with each of said drill pipes in said rack.

3,302,736
WELL TOOL SEAL
James W. Kisling III, Houston, Tex., assignor to Schlumberger Technology Corp., Houston, Tex., a corporation of Texas
Filed Sept. 12, 1963, Ser. No. 308,387
7 Claims. (Cl. 175—297)



6. A well tool sized for passage through a well bore and having body members, a fluid pressure chamber formed within said body members, an annular recess in said body members at one end of said fluid pressure chamber, a first metallic annular ring member in said recess, said first ring member having an inclined surface, and a second metallic annular ring member in said recess, said second ring member having an inclined surface slidably engaging the inclined surface of the first ring member, said recess having means for holding one of said ring members against longitudinal movement in one direction while permitting longitudinal movement of said other ring member, said ring members having surface means radially expandable upon relative longitudinal movement of said ring members for sealingly engaging said body members, and means for providing a high pressure fluid communication path between said fluid pressure chamber and said other ring member.

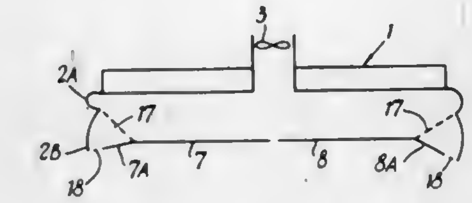
3,302,737
WEIGHER-CONTROLLED FEED DISPENSING DEVICE PROVIDING PREDETERMINED FEEDING SCHEDULE
Howard G. Stults, Hettick, Ill. 62649
Original application Feb. 14, 1964, Ser. No. 344,926, now Patent No. 3,261,416, dated July 19, 1966. Divided and this application May 23, 1966, Ser. No. 552,250
6 Claims. (Cl. 177—114)



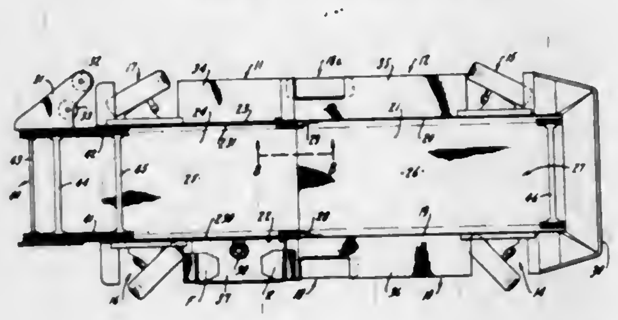
4. Means for weighing predetermined amounts of granular material comprising a stationary housing having an inlet, inlet means for feeding granular material into the stationary housing through the inlet, controllable closure means in the first housing to cause material to accumulate therein, means for moving the closure means to an open position to allow material accumulated therein to discharge, a second housing positioned to receive material discharged from the first housing and from the inlet feed means, means movably supporting said second housing including means to weigh the material that accumulates therein, means responsive to the accumulation of a predetermined weight of material in the second housing for releasing the material that has accumulated therein, and means for restoring the release means to a position closing the second housing after the material is discharged therefrom.

3,302,738
AIR-CUSHION BORNE VEHICLES
Alan Edgar Bingham, Swindon, England, assignor to Vickers-Armstrongs (Engineers) Limited, Millbank, London, England, a British company
Filed Mar. 31, 1964, Ser. No. 356,307
Claims priority, application Great Britain, Aug. 5, 1963, 13,761/63
3 Claims. (Cl. 180—7)

1. An air-cushion borne vehicle comprising a body, a skirt of flexible material depending from the underside and along the peripheral portion of the vehicle body, said flexible skirt being made up of horizontally-extending convolutions or folds to provide a plaited type structure, the uppermost convolution being more flexible than the lower convolution, panelling entirely of flexible material located within the confines of the skirt and spaced from the underside of the vehicle body to form therewith ducting for leading air to the peripheral portion of the vehicle adjacent to the skirt, said panelling being supported in a position so that the lower edge of the bottom fold of the skirt extends below the level of the panelling, downwardly directed flexible portions of the panelling around the periphery thereof extending downwardly and outwardly so that their outer edges are adjacent to the lower edge of the bottom fold of the skirt, to define therewith an opening for directing air in a downward jet stream thereby forming an air curtain along the periphery of the vehicle skirt, means for securing the portions of the panelling to the skirt and means on the vehicle for directing air from an air supply into said ducting.

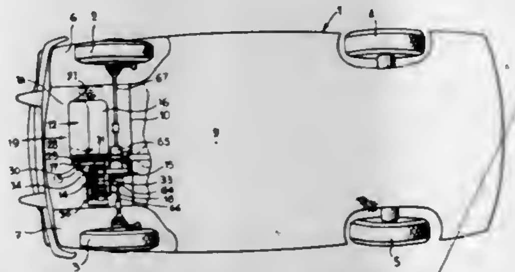


3,302,739
SHUTTLE CARS WITH SIX DRIVEN WHEELS
William R. Beck, Palos Heights, and John S. Newton, Glen Ellyn, Ill., assignors to Goodman Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed Nov. 19, 1963, Ser. No. 324,732
13 Claims. (Cl. 180—24)



1. A haulage vehicle having a maximum width material carrying chamber for a given overall body width, said vehicle including, in combination,
a plurality of articulately connected body sections each of which has a pair of side walls and a bottom to form an upwardly open material carrying chamber, the lower portion of which is of substantially constant width,
wheel means associated with the body sections in load supporting relationship therewith, said wheel means including
a set of wheels associated with each end portion of the vehicle,
each wheel in each set of end wheels being characterized in that
firstly, it is non-braked, and
secondly, it is steerable, each of said end wheels being swingable about a substantially vertical axis which is located between the inner side of the wheel tire and the side of the adjacent body section,
a set of wheels associated with the body sections intermediate the end sets of steerable, non-braked wheels, the inner face of each wheel of each of said sets of wheels being equally outwardly spaced from the adjacent side wall with the wheels on each side of the vehicle being in longitudinal alignment,
each wheel in each set of intermediate wheels being characterized in that
firstly, it is provided with brake means, and
secondly, it is non-steerable, each of said intermediate wheels being spaced outwardly from the side of the adjacent body section a distance sufficient to accommodate brake means between the intermediate wheel and the side of the adjacent body section, which side is located no closer to the center axis of the vehicle than the sides of the body sections adjacent the end wheels,
each of said wheels driven by a motor individual thereto, each of said motors being disposed in the space between said inner face of the wheel and the adjacent side of a corresponding section and within the peripheral confines of said wheel, said brake means being disposed between said motor and said side of the adjacent body section
to thereby provide a material carrying chamber of maximum width within the fixed overall width limitation of the vehicle.

3,302,740
FRONT WHEEL DRIVE AGGREGATE FOR MOTOR VEHICLES
Dante Giacosa, Turin, Italy, assignor to Fiat Società per Azioni, Turin, Italy
Filed Oct. 12, 1964, Ser. No. 403,075
Claims priority, application Italy, Oct. 15, 1963, 21,601/63
2 Claims. (Cl. 180—42)

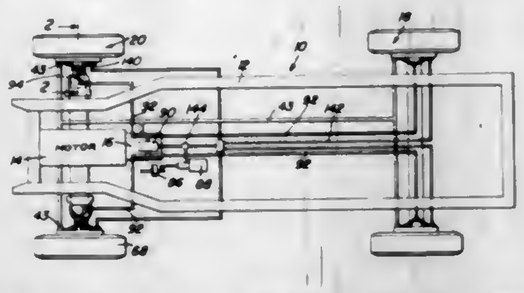


1. A power transmission unit, more particularly for fore wheel driven vehicles having a body comprising; an assemblage of members including an engine, a friction clutch, a gear box and a differential gearing, rotatable shafts in said members cooperating therebetween for transmitting power from the engine to the driven wheels of the vehicle, rigid casings enclosing said members of the unit and interconnected therebetween to form an integral body and arranged at the fore vehicle part between the fore wheels, the axes of said rotatable shafts being arranged transversely of the vehicle, the said gearbox comprising a primary and secondary shaft, the primary shaft being coaxial with the engine crank shaft and connected with the latter by means of said friction clutch, the secondary shaft having fixedly secured thereto a spur pinion meshing with a toothed rim of the differential gear, attachment means being further provided on said integral body for securing it to said vehicle body, and the engine shaft, the primary and secondary shafts of the gearbox and the differential gear shafts arranged with their axes situated in a common plane inclined to a vertical plane containing the longitudinal axis of the vehicle.

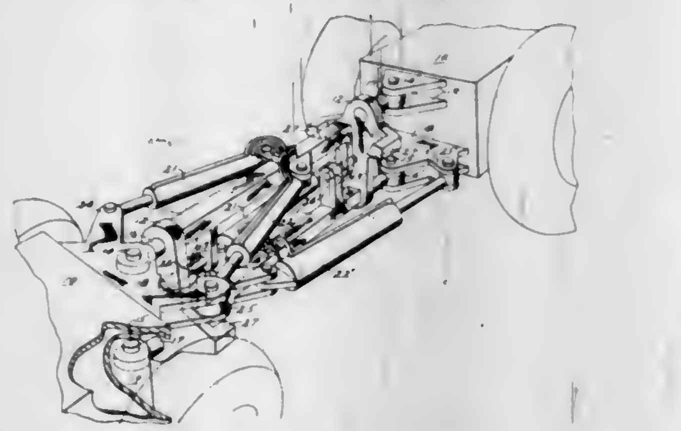
3,302,741
FLUID DRIVE SYSTEM FOR VEHICLES
John Brazuk, Box 165A, R.F.D. 1, Green Lane, Pa. 18054
Filed Apr. 8, 1963, Ser. No. 271,115
5 Claims. (Cl. 180—44)

1. A fluid drive system for a vehicle having ground-engaging wheels and conventional brake shoes incorporated therein, said system including a fluid drive motor connected with each of the driving wheels, a prime mover, pump means driven by the prime mover for producing pressurized fluid, means communicating the pressurized

fluid to the drive motors for driving the drive wheels, each fluid motor including a fluid pressure operated retarding means, and foot pedal means for operating the conventional brake shoes and automatically operating the retarding means of the fluid motor when the vehicle is moving forwardly thereby assisting in slowing the vehicle for reducing the wear on the conventional brake shoes.

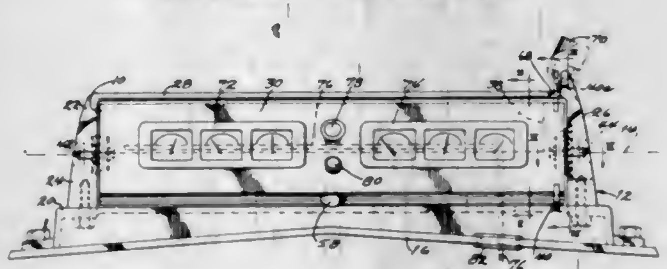


3,302,742
STEERING COUPLING FOR TWO TRACTORS
Donald E. Sunderlin, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Apr. 19, 1965, Ser. No. 449,225
2 Claims. (Cl. 180—79.2)



1. A steering coupling for use between two tractors coupled for use as a single machine comprising similar vertically spaced beams extending from each tractor toward but not entirely to the other tractor, power means to impart angular movement in a generally horizontal plane between both tractors and their respective beams to cause steering action of the machine, and means connecting each beam to the other on a common horizontal pivotal axis.

3,302,743
LOCKABLE INSTRUMENT PANEL
Hugo O. Mosquera, Wheaton, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed June 7, 1965, Ser. No. 461,865
13 Claims. (Cl. 180—90)



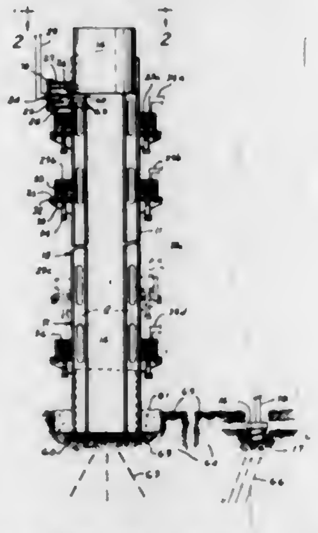
1. Bipartite instrument structure for a vehicle, comprising:

a supported rotor part for carrying the instruments and having, as viewed in end elevation, a generally cylindrical shape and a longitudinal axis; and

a housing part supporting the supported part for rotation about its longitudinal axis aforesaid;

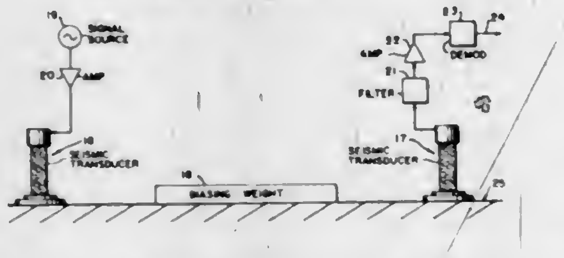
said housing and supported parts, along a corresponding longitudinal side thereof, presenting respectively, as viewed in cross section, an instrument housing opening and a generally chordwise extending instrument panel which register in their operative relation.

3,302,744
ELECTRO-MAGNETIC ACCELERATION METHOD OF INCREASING IMPACT OF DROPPED BODY AND APPARATUS THEREFOR
Frederick L. Lemm, 5411 Pocahontas, Bellaire, Tex. 77401
Filed Dec. 2, 1963, Ser. No. 327,375
6 Claims. (Cl. 181—.5)



6. The method of setting up impact vibrations in the earth comprising lifting a mass of magnetic material of predetermined weight to a predetermined elevation above the earth's surface, releasing the weight to fall by gravity and thereafter abetting the fall by the acceleration of induced magnetism by magnetic means disposed substantially below said predetermined elevation.

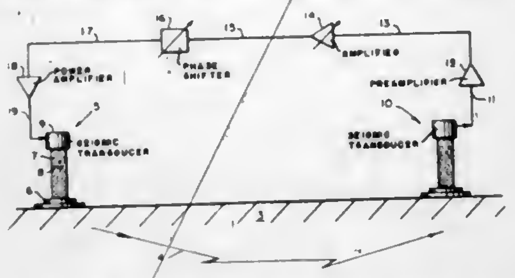
3,302,745
GENERATION AND RECEPTION OF LOW FREQUENCY SEISMIC WAVES
Kurt Ikrath, Elberon, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Feb. 6, 1964, Ser. No. 343,161
4 Claims. (Cl. 181—.5)



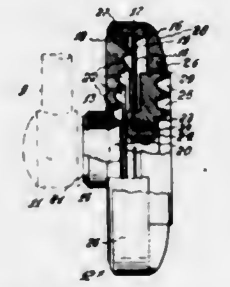
2. A method of detecting subsonic frequency seismic waves comprising the steps of biasing a portion of the earth into the non-linear stress-strain region, applying a locally generated seismic wave of sonic frequency to said portion of the earth, and detecting one of the modulation products resulting from the heterodyning within the earth of said subsonic frequency wave and said locally generated seismic wave.

3,302,746
SELF-EXCITED SEISMIC SYSTEMS
Kurt Ikrath, Elberon, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 4, 1964, Ser. No. 349,505
10 Claims. (Cl. 181—.5)

1. A self-excited seismic system comprising a tuned seismic transmitter transducer and a tuned seismic receiver transducer resting on the earth a short distance apart, a variable gain amplifier and a variable phase shifter connected in cascade between the output of said receiver transducer and the input of said transmitter transducer, said phase shifter and amplifier being adjusted so that the phase shifted and amplified output of said receiver transducer supplies the input to said transmitter transducer, thus producing sinusoidal oscillation.

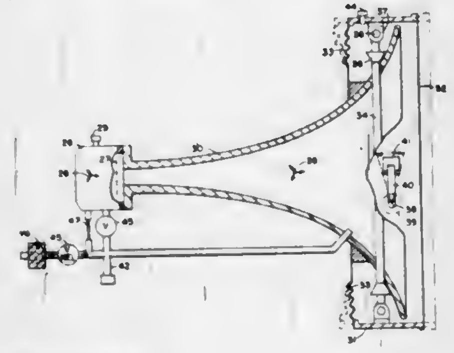


3,302,747
FLEXIBLE-TUBING STETHOSCOPE
Eduard Taeschler, 18 Katzenschwanzstrasse, Zurich, Switzerland
Filed Feb. 24, 1965, Ser. No. 434,997
Claims priority, application Switzerland, Feb. 28, 1964, 2,533/64
6 Claims. (Cl. 181—24)



1. A flexible-tubing stethoscope comprising a diaphragm box, mounted in the diaphragm box a metal diaphragm having a centrally disposed aperture, mounted on the metal diaphragm a listening cup extending away from the metal diaphragm and thus having a side facing the metal diaphragm and a side facing away from the metal diaphragm and having a centrally disposed bore, the centrally disposed bore of the listening cup extending to and coaxially with the centrally disposed aperture of the metal diaphragm, and defined on the side of the listening cup facing away from the metal diaphragm at least one recess concentric with respect to the bore.

3,302,748
LOUDSPEAKER SYSTEM
Prentiss B. Reed, 4104 Huntington Road, Huntsville, Ala. 35802
Filed Apr. 11, 1963, Ser. No. 272,390
10 Claims. (Cl. 181—31)



1. In combination,

a sound generator diaphragm,

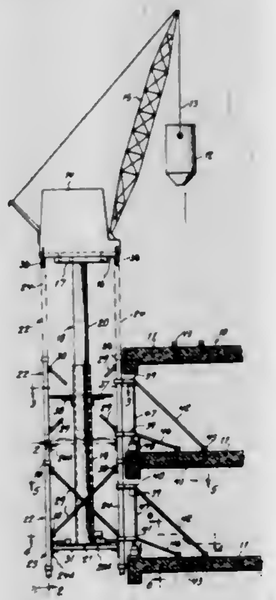
acoustically conducting means confining a dense gas portion in front of the diaphragm,

means confining a dense gas portion at the rear of the diaphragm,

a small communicating means or capillary joining the front and rear portions of gas,

and an accommodator or compensation apparatus communicating with the portions of gas and reacting to ambient effects, accommodating, as required, ambient effects on said portions of gas, by withdrawing or providing gas, as required.

3,302,749
DERRICK SCAFFOLD STRUCTURE
William G. Heaphy, 24 Powder Horn Hill, Wilton, Conn. 06897, and Bruce McLanahan, 850 Park Ave., New York, N.Y. 10016
Filed May 10, 1965, Ser. No. 454,579
8 Claims. (Cl. 182—82)



1. A supporting structure for a derrick comprising staging units each including corner posts, means for connecting the posts to provide a rectangular open frame section, means connecting said posts for supporting removable flooring means, one of said frame sections at its upper end being adapted to mount the cab of a derrick, guide pins detachably connecting the cab to the frame section, a power operated lift unit depending from the cab including a movable foot plate supported on the flooring means for raising and lowering the cab, means associated with said lift unit for steadying engagement with said corner posts, and means for suspending each of said units outside a building and from one of the floors of the latter.

3,302,750
SCAFFOLD HOISTING MEANS
Carter H. Arnold, Redwood City, Calif., assignor to Western Gear Corporation, Redwood City, Calif.
Filed Oct. 26, 1964, Ser. No. 406,344
3 Claims. (Cl. 182—112)

1. Hoisting apparatus comprising:

a supporting member adapted to be positioned at an elevated point relative to a structure,

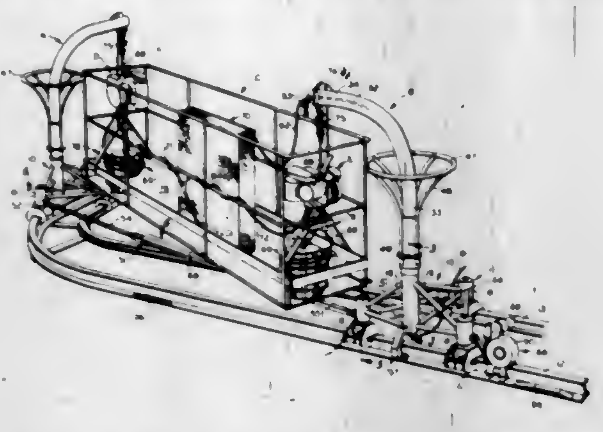
a first rope secured at its upper end to said member and depending therefrom,

a hoisting unit secured to said first rope for moving an associated load vertically along the length of said first rope,

a second rope secured at its upper end to said member and depending therefrom,

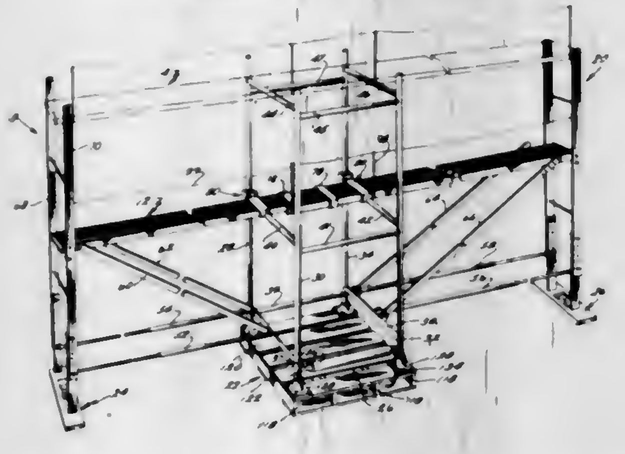
gripping means coacting between said load and said second rope for gripping said rope to hold said load against movement relative to said second rope,

sensing means carried by said first rope for sensing the tension therein,



means operatively connecting said sensing means and said gripping means for automatically actuating the latter to hold said load on said second rope when the tension on said first rope is above or below a predetermined range.

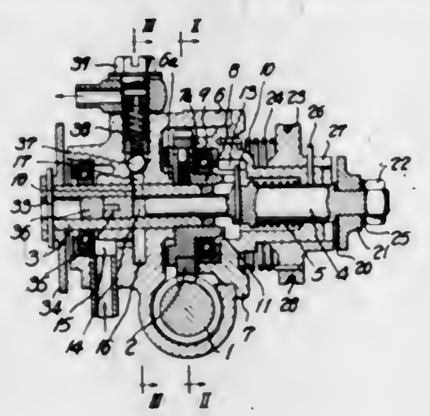
3,302,751
SCAFFOLDING CONSTRUCTION
Russell W. Ahlberg, 1028 Walsh SE.,
Grand Rapids, Mich. 49507
Filed Jan. 25, 1965, Ser. No. 427,895
10 Claims. (Cl. 182—118)



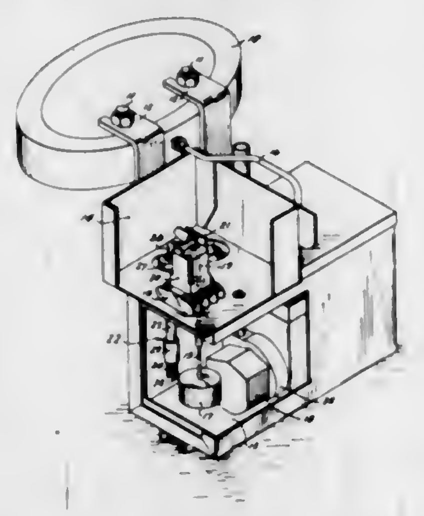
1. A form of scaffolding construction, comprising in combination: a single free-standing vertical tower having structure-supporting means at a plurality of predetermined heights; generally horizontally disposed planking secured in vertical arrestment upon at least some of said tower supporting means and extending laterally away from opposite sides of the tower; a pair of vertically-disposed, non-free-standing end structures, each having supporting and attaching means at substantially the same predetermined heights as said tower supporting means; one of said vertical end structures positioned at each of the extended ends of said planking; said planking extending from one of said end structures to the other end across said tower to provide a platform thereupon; each of the ends of the planking being secured to the corresponding end structure by said attaching means and supported thereby at said predetermined heights, whereby said vertical end structure is in turn held in said vertical position by said planking, and a substantially rigid scaffolding structure results which may be moved integrally from place to place.

3,302,752
LUBRICATING PUMP FOR TWO-CYCLE GASOLINE INTERNAL COMBUSTION ENGINE
Nobuo Shiokawa, Hamamatsu-shi, Japan, assignor to Yamaha Motor Co., Hamamatsu-shi, Shizuoka-ken, Japan, a corporation of Japan
Filed Oct. 21, 1964, Ser. No. 405,510
8 Claims. (Cl. 184—6)

1. A lubricating pump for a 2-cycle gasoline internal combustion engine comprising a pump case including a cylindrical portion, a distributor rotatably fitted in said cylindrical portion of the pump case, said distributor being rotated at a speed in proportion to the engine speed, said distributor having a cylinder axially formed therein, a plunger slidably mounted in said cylinder, said distributor having a radial oil port therein, said pump casing having at least one suction port and at least one discharge port therein adapted for being successively in communication with said oil port as the distributor rotates; cam means and cam follower means between said distributor and said plunger for reciprocating the plunger in the distributor cylinder as the latter undergoes rotation, said cam means being constructed relative to the oil port such that the latter is in communication with a suction port as the plunger is undergoing suction stroke in the cylinder so that oil is drawn into the cylinder, whereas when the plunger is undergoing pressure stroke the oil port is in communication with a discharge port for delivery of oil, and a plunger spring urging the cam means and the cam follower means into engagement.

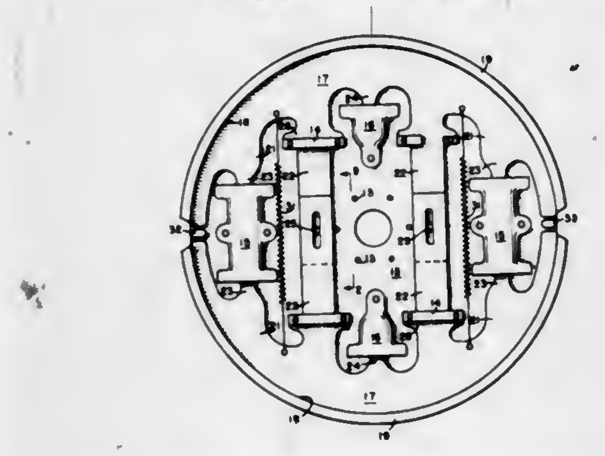


3,302,753
HYDRAULIC ELEVATORS
Kenneth R. Rosenberg, 8536 N. Pelham Parkway,
Milwaukee, Wis. 53217
Filed Mar. 4, 1966, Ser. No. 531,895
6 Claims. (Cl. 187—1)



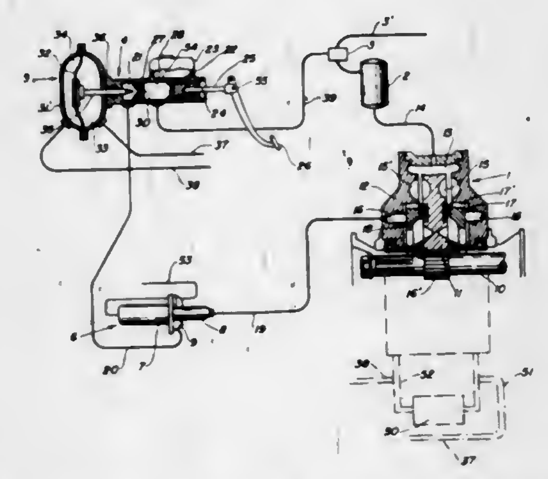
1. In a hydraulic power system including an oil reservoir, means for detecting the presence of water in said reservoir comprising: a probe element in said oil reservoir, said probe having a pair of spaced electrodes adapted to be immersed or partially immersed in a liquid contained in said reservoir; means connecting said probe electrodes to a source of electricity to permit a current to be passed between said electrodes, the greater electrical conductivity of water as compared to oil causing an increased current flow therebetween when said electrodes are immersed or partially immersed in water rather than oil; and electric sensing means operatively connected to said probe and adapted to detect the increased current flow through said probe electrodes in the event water is present in said oil reservoir.

3,302,754
BRAKE APPARATUS
Thomas A. Austin, Mill Valley Road,
Belchertown, Mass. 02186
Filed Aug. 24, 1965, Ser. No. 482,172
2 Claims. (Cl. 188—78)



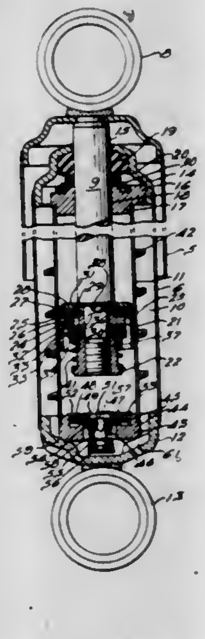
1. Brake apparatus comprising a base member mounted on a vehicle, said base member supporting guiding, actuating, and adjusting means mounted thereon, a plurality of flexibly interconnected brake shoes, each shoe having a rim portion and a web portion, a plurality of projections extending from said web portion intermediate the ends of said brake shoe, some of said projections operatively engaging said activating means, others of said projections having shoulders formed thereon, said shoulders abutting said guiding means, said guiding means encircling said last mentioned projections to closely restrict movement thereof in a plurality of directions.

3,302,755
HYDRAULIC-DECELERATOR SYSTEM
John R. Botterill, Frankfurt am Main-Eschersheim, Fritz Ostwald, Buchschlag, Hesse, Carl Press, Offenbach, Main, and Wilhelm Knapp, Bad Homburg vor der Hohe, Germany, assignors to Alfred Teves, Maschinen- und Armaturenfabrik K.G., Frankfurt am Main, Germany, a corporation of Germany
Filed Feb. 16, 1965, Ser. No. 433,032
Claims priority, application Germany, Feb. 22, 1964, T 25,672; Mar. 3, 1964, T 25,739
17 Claims. (Cl. 188—86)



1. A hydraulic decelerator system for an automotive vehicle provided with a shaft coupled with wheels of said vehicle, said system comprising: a hydraulic decelerator operatively connected with said shaft and having a rotating member mounted thereon and a relatively stationary member connected with the vehicle chassis for reducing the rotary speed of said shaft upon the application of hydraulic fluid under pressure to said decelerator; fluid-responsive friction-brake means in said decelerator energizable with fluid under pressure for frictionally interconnecting said members and bringing said shaft to a standstill; and brake-operating means on said vehicle for supplying fluid under pressure to said friction-brake means and said hydraulic decelerator, thereby actuating same, said brake-operating means including differential-valve means provided with a passage, a valve body co-operating with said passage for selectively blocking and unblocking same, master-cylinder means for applying fluid under pressure to said differential-valve means, decelerator-energizing means responsive to the pressure of fluid supplied by said master-cylinder means and flowing through said passage for applying hydraulic fluid under pressure by said decelerator, control means responsive to the degree of hydraulic braking by said decelerator of said shaft for the selectively displacing of said valve body relatively to said passage, and conduit means connecting said fluid-responsive friction-brake means with said differential-valve means for energization of said friction-brake means in inverse relationship to the degree of hydraulic braking of said shaft by said decelerator, thereby maintaining the total braking force applied to said vehicle by both said hydraulic decelerator and said friction-brake means substantially constant for all shaft speeds at a given pressure within said master-cylinder means.

3,302,756
SHOCK ABSORBER
Brouwer D. McIntyre, Monroe, Mich., assignor to Monroe Auto Equipment Company, a corporation of Michigan
Filed Nov. 27, 1964, Ser. No. 414,198
1 Claim. (Cl. 188—88)



In a shock absorber, a piston, a cylinder for said piston including a head, said head having a valve seat, a reservoir, and a valve disc between the reservoir and said cylinder movable to and from said seat, said valve disc being made of a porous metal.

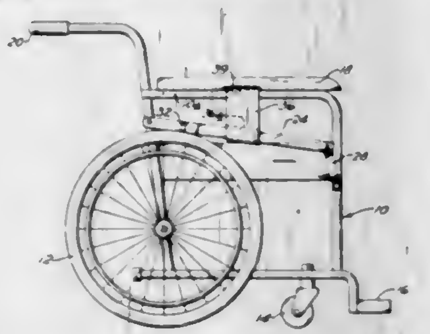
3,302,757
AUTOMATIC IMMOBILIZING DEVICE
Hodge M. Eagleson, Jr., Memphis, Tenn., and Robert C. Richards, Coraopolis, Pa., assignors to Aid Incorporated of Pennsylvania, Burgettstown, Pa.
Filed Mar. 18, 1965, Ser. No. 440,877
7 Claims. (Cl. 188—167)

1. In a wheelchair having a frame and a chair supported by at least two wheels rotatably mounted to either

side of said chair, the improvement in combination therewith of immobilizing means comprising:

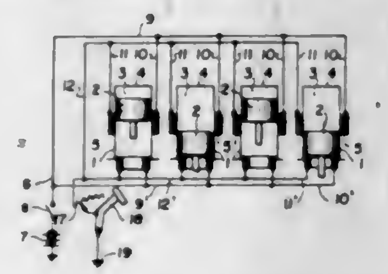
(a) two elongated lever members each pivotally mounted at one end to said frame, each said lever members being substantially horizontally positioned, one each of said lever members being positioned adjacent one each of said wheels and each being disposed to engage and immobilize the adjacent wheel when urged pivotally downwardly;

(b) spring means operatively connected to and disposed to urge each said levers pivotally downwardly into engagement with said wheels;



(c) a belt attached at either end to one of said levers, being suspended from said frame and extending across said chair and in a position to be sat upon by a person, said belt being of a length to restrain said levers from engaging and immobilizing said wheels when sat upon by a person and of such length that said spring means urges said levers into engagement with said wheels when a person rises from said belt.

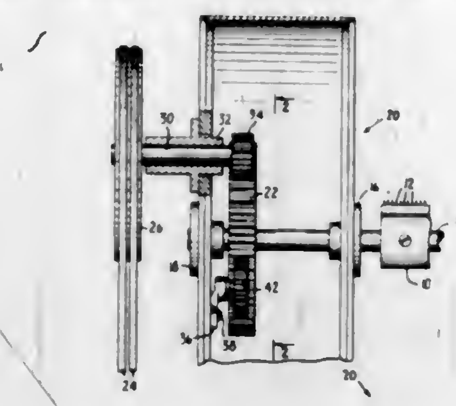
3,302,758
VEHICLE BRAKE
Edward L. Gordon, 2001 Center Ave., Pittsburgh, Pa. 15218
Filed Nov. 23, 1964, Ser. No. 412,987
4 Claims. (Cl. 192—3)



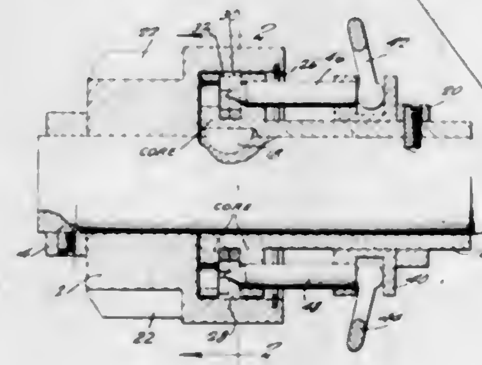
1. In combination with a vehicle having an internal combustion engine including a plurality of non-magnetic cylinders containing reciprocable, magnetic pistons therein, auxiliary braking magnetic means surrounding each of said cylinders for retarding reciprocation thereof when the pistons are immediately adjacent said magnetic means, a brake pedal operating conventional vehicle brakes, and means operated by said pedal for controlling said auxiliary braking magnetic means.

3,302,759
TRANSMISSION AND BRAKE
John H. Nydam, North Uxbridge, Mass., assignor, by mesne assignments, to Whitin Machine Works, Inc., Whitinsville, Mass., a corporation of Massachusetts
Filed May 23, 1962, Ser. No. 197,123
5 Claims. (Cl. 192—4)

1. In a combing machine having a comb cylinder mounted on a shaft for rotation therewith, a gear secured to said shaft, and driving means coupled to said gear to rotate said shaft and cylinder in a given direction, brake means for preventing reverse rotation of said shaft and cylinder comprising a bracket fastened at one end to the machine, a pin fixed against rotation at the other end of said bracket, a one-way braking device mounted on said pin, and an additional gear coupled to said braking device and engaging the gear secured to said shaft, the braking device being disposed to enable free rotation of said additional gear when said shaft is rotating in said given direction and to lock said additional gear against rotation when said shaft tends to rotate in a direction opposite to said given direction.



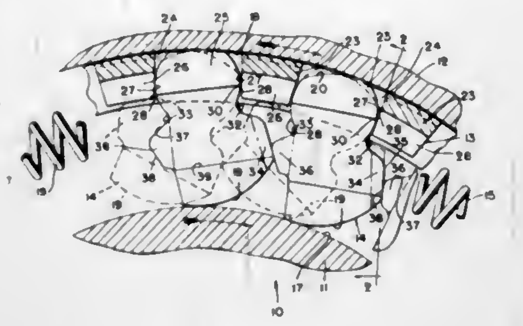
3,302,760
CONTROL MEANS FOR AN ALL-METAL CLUTCH
Asa J. Taylor, 3110 Ezekiel Ave., Zion, Ill. 60099
Filed Mar. 17, 1965, Ser. No. 440,447
4 Claims. (Cl. 192—38)



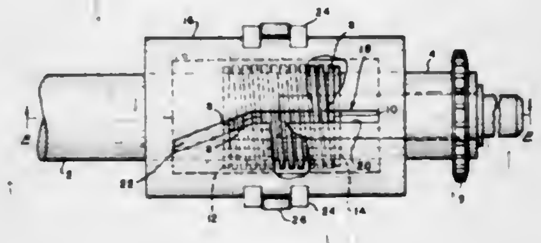
1. In a clutch mechanism including roller members, split disc members having apertured projections, said roller members being disposed between the apertured projections about the split disc members, a gear or pulley housing, a shaft disposed in said gear or pulley housing, a gear mounted on said shaft, said gear having an annular recess about the shaft, a sleeve mounted on and keyed to said shaft, said sleeve extending within said recess, said split disc members extending into said recess, a sliding collar annularly disposed about said sleeve and having pins whose ends are axially extendable into engagement with said apertured projections of said disc members.

3,302,761
SPRAG LOCK RETAINER ASSEMBLY
Thaddeus F. Zlotek, Center Line, Mich., assignor to Formsprag Company, Warren, Mich., a corporation of Michigan
Filed Jan. 25, 1965, Ser. No. 427,802
10 Claims. (Cl. 192—45.1)

1. A clutch sprag for assembly with a retainer and other identical sprags of a circumferentially compact annular series between races of an overrunning clutch, said sprag having radially opposite ends provided with surfaces for releasable driving action between and on said races, said sprag having first and second formations of substantial size projecting respectively from leading and trailing circumferential sides of the sprag, in respect to the driving direction of the clutch, the first formation of said sprag being engageable with the second formation of a preceding sprag to limit tilt in a driving phase of said releasable driving action, the second formation of the first named sprag being engageable with the retainer in a release phase of said action to limit movement of said first named sprag away from a race drivingly engaged thereby in said driving phase.



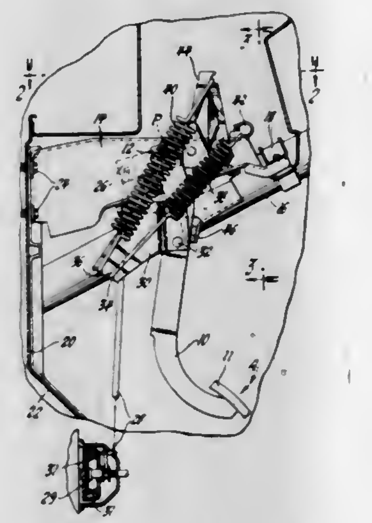
3,302,762
SPRING CLUTCH HAVING AXIAL ACTUATOR MEANS
Edward R. Conlon, Bristol, Conn., assignor to Associated Spring Corporation, Bristol, Conn., a corporation of Delaware
Filed Sept. 4, 1964, Ser. No. 394,403
17 Claims. (Cl. 192—81)



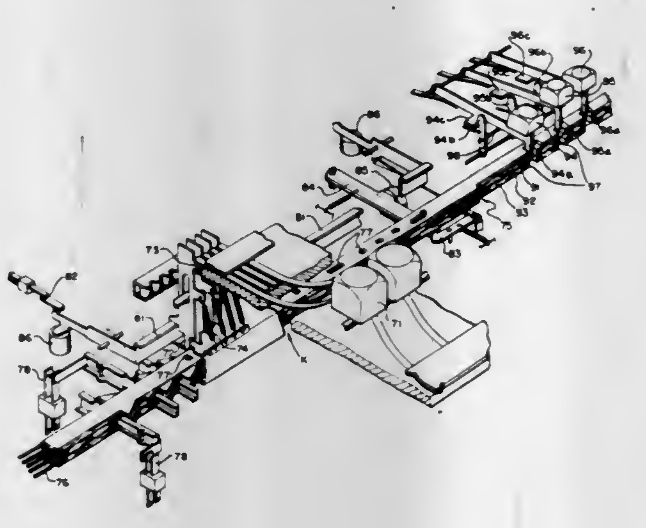
1. A clutch for connecting and disconnecting two aligned relatively rotatable shafts, comprising a helical coil spring mounted co-axially with the shafts and having its end parts overlapping the end parts of the shafts, actuator means movable axially of the spring and having parts engaging the ends of the spring and operable on such axial movement to move the ends circumferentially of the spring and with respect to each other to change the radial dimension of the spring to move it into and out of driving relation to the shafts, and means for imparting such axial movement to the actuator.

3,302,763
CLUTCH PEDAL WITH SPRING ASSIST
Marvin T. Wobrock, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 6, 1964, Ser. No. 409,488
3 Claims. (Cl. 192—89)

1. In a motor vehicle having a clutch, said clutch having an engaged position and a disengaged position and being movable therebetween, a control mechanism for controlling movement of said clutch between said positions, said control mechanism including a mounting bracket secured to said motor vehicle for supporting said control mechanism, a clutch push rod operatively connected to said clutch for moving said clutch between said positions, a clutch pedal shaft rotatively mounted on said mounting bracket, a clutch pedal push rod lever secured to one end of said shaft for rotation therewith, said clutch push rod pivotally connected to said push rod lever for effecting movement of said clutch by rotation of said shaft, a clutch pedal rigidly secured to said shaft for rotation therewith, a stop secured to said mounting bracket for limiting rotative movement of said clutch pedal in one direction, a return spring having one end anchored to said mounting bracket and the other end connected to said clutch pedal, said return spring being under tension for continuously biasing said clutch pedal to rotate in said one direction, a balance spring having one end anchored to said mounting bracket and the other end connected to said clutch pedal, said balance spring being under tension for continuously biasing said clutch pedal to rotate in a direction opposite from said one direction.



3,302,764
KEYBOARD ENCODER WITH PLURAL AND DIFFERENT SETS OF CODE MEMBERS
John E. Hickerson, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed July 29, 1965, Ser. No. 475,680
4 Claims. (Cl. 197—16)



1. A key operated machine comprising, in combination,

- a plurality of keybuttons operable manually for causing different machine functions,
- a stop member operatively associated with each of said keybuttons for actuation thereby,

a first plurality of operatively adjacent slides, each individually longitudinally movable between active and inactive positions,

a second plurality of operatively adjacent slides, each individually longitudinally movable between active and inactive positions and positioned operatively adjacent said first plurality of slides,

openings in all of said slides in each plurality in alignment with each other at points opposite said stop members when said slides are in their inactive positions, said openings adapted to receive said stop members when actuated and being of such lengths that each of said slides is either held against movement by a stop member or is permitted to move to its active position,

means yieldingly urging said slides toward their active positions,

means releasably holding said slides in their inactive positions,

means operating on actuation of any one of said stop members for releasing said holding means,

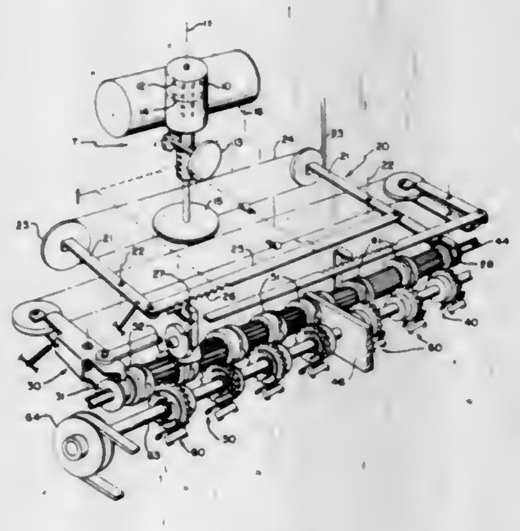
means operating in response to movement of said slides to active positions for producing a function representative of the keybutton actuated, and

manually controllable means for conditioning said first and second plurality of slides for response to said keybuttons by selectively, alternately, positively inhibiting longitudinal movement of said first plurality of slides and permitting movement of said second plurality and vice versa.

3,302,765
CHARACTER SELECTION FOR SINGLE ELEMENT PRINTING MECHANISM EMPLOYING CAM PAIRS

John E. Hickerson and Henry R. Kruspe, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed July 29, 1965, Ser. No. 475,687
4 Claims. (Cl. 197—16)



1. In a printer having a character matrix that is positionable along at least one coordinate axis for character selection, the selector mechanism comprising:

a support shaft,

a matrix positioning mechanism mounted on said shaft and operatively connected to the character matrix for positioning the matrix along its coordinate axis,

said matrix positioning mechanism comprising a plurality of first face cams mounted on said shaft for rotatable movement,

a plurality of second face cams equal in number to said plurality of first face cams and mounted securely against rotation on said shaft adjacent respective ones of said first face cams to form a plurality of face cam pairs,

one of said face cams being held substantially stationary axially with respect to said shaft and the remaining face cams being mounted for axial movement on said shaft,

said pairs of cams being mutually interconnected for the transfer of axial motion therebetween,

one cam of each pair having a camming face that includes angularly spaced high and low dwell portions facing associated ones of the other cam of each pair, the distance between said high and low dwell portions being dimensionally related to increments between character locations on the character matrix,

each of said other cams of each pair having a follower portion that engages the camming face of associated ones said one cam of each pair,

a continuously active source of rotational energy,

rotative motion transmission means operatively connected to said energy source and individually to each of said first cams for effecting rotative motion thereof, when operated, for a predetermined angular increment sufficient at least to bring said high and low dwell portions into alternate cooperative engagement with the follower portion of said pairs,

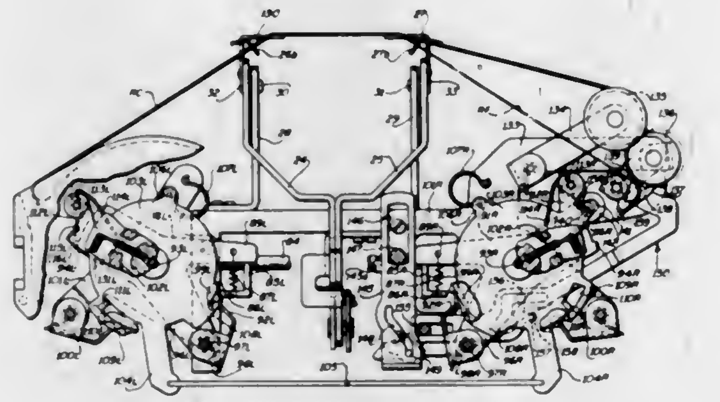
control means for selectively individually operating one or more of said transmission means,

means operatively connecting all of said cams to the character matrix for delivering the aggregate axial movement thereof to position the character matrix along its coordinate axis.

3,302,766
RIBBON HANDLING MECHANISM

Paul F. Page, Newington, Conn., assignor, by mesne assignments, to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware

Original application Sept. 12, 1962, Ser. No. 223,159. Divided and this application Oct. 22, 1965, Ser. No. 500,743
5 Claims. (Cl. 197—158)



1. Typewriter ribbon feeding mechanism for operation in a first mode with a carbon ribbon being wound from a carbon ribbon supply spool to a carbon ribbon take-up spool and for operation in a second mode with a fabric ribbon being wound from a fabric ribbon supply spool to a fabric ribbon take-up spool comprising,

a frame,

a vibrator arm rockably mounted on said frame and having a ribbon support secured thereto,

two ribbon spindles each adapted to be frictionally coupled to either a different one of said carbon ribbon spools or a different one of said fabric ribbon spools,

ribbon spindle index means to unidirectionaly irreversibly rotate a predetermined one of said spindles a

character space increment during each type stroke in said first mode of operaton and to undirectionally rotate either of said ribbon spindles a character space increment during each type stroke in said second mode of operation,

tensioning means to engage and transport said carbon ribbon in said first mode of operation only,

drive means reciprocally operative through a uniform stroke in synchronism with each typing cycle,

engaging means connecting said ribbon spindle index means and said tensioning means to said drive means,

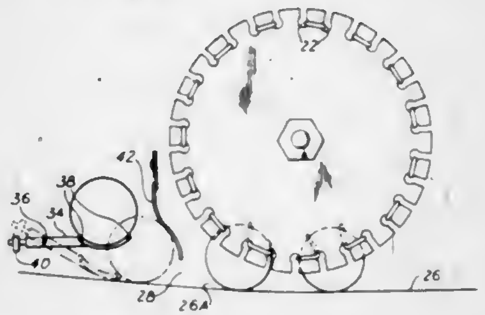
disengaging means for disconnecting said tensioning means from said engaging means in said second mode of operation,

and coupling means for connecting said drive means to said vibrator arm.

3,302,767
EGG HANDLING EQUIPMENT

Henry Y. Kuhl and Paul R. Kuhl, both of Copper Hill-Reaville Road, Flemington, N.J. 08822

Filed May 6, 1965, Ser. No. 453,589
4 Claims. (Cl. 198—25)



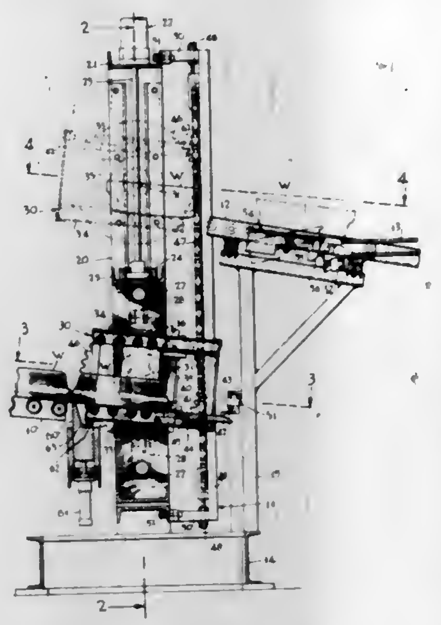
1. Means for moving eggs in a controlled manner over an egg supporting surface comprising a drum embodying parallel discs of substantially equal diameter spaced apart a distance substantially exceeding the length of the eggs to be moved and arranged with the peripheries of the discs spaced from said egg supporting surface a distance substantially less than the diameter of the eggs to be moved, means carried by said discs for holding eggs in engagement with said surface during movement of the eggs over said surface including a plurality of flexible and elastic bands extending from one of said discs to the other adjacent the peripheries of the discs, said bands being parallel to each other and spaced substantially equal distances from the axes of said discs, said bands further being spaced apart a distance substantially less than the diameter of the eggs to be moved so that a plurality of said bands will engage each egg and urge the same toward said surface whereby adjacent eggs will be spaced from each other by oppositely deflected bands urging the eggs apart during the movement thereof over said surface.

3,302,768
ARTICLE INVERTING APPARATUS

William C. Cooper, Royal Oak, Mich., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Oct. 21, 1965, Ser. No. 499,530
7 Claims. (Cl. 198—33)

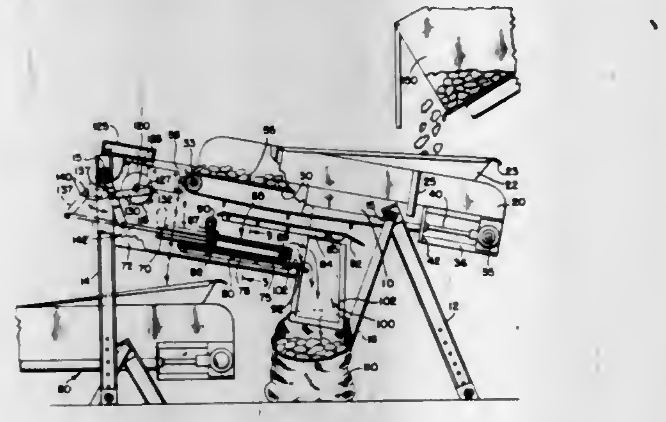
1. Article inverting apparatus comprising in combination, an infeed conveyor, an offtake conveyor, an article container, means to vertically move and means to mount said article container on a turning axis between said conveyors, a movement control device mounted adjacent the article-receiving position of said container for controlling actuation of said moving means and control operating means for operating said control device, said control operating means being actuated by an article entering said container when the container is in article receiving position and said control operating means being moved away from control operating position when the container is moved away from article receiving position.



3,302,769
BULK MATERIAL SAMPLER

Peter J. Platzer, Minnetonka, and Emil H. Anderson and Richard O. Selenski, Richfield, Minn., assignors to Dean Gamet Manufacturing Company, Minneapolis, Minn., a corporation of Minnesota

Filed Apr. 14, 1965, Ser. No. 448,077
9 Claims. (Cl. 198—43)

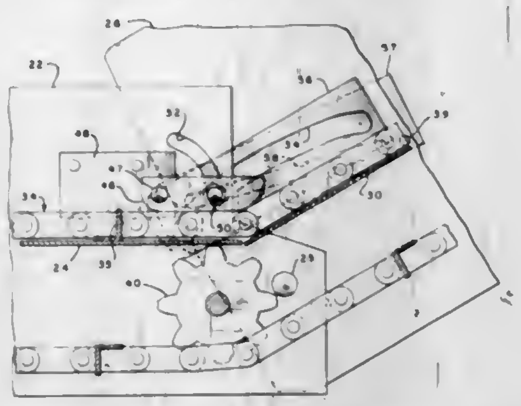


1. A bulk material sampler including, a platform adapted to be positioned in a bulk material conveying line, an open top receiving hopper positioned on said platform, a continuous type belt conveyor positioned at and forming a floor for said hopper, roller means journaled in said platform and mounting said belt type conveyor and including motor means connected to at least one roller of the roller means for continuously moving the belt type conveyor, said conveyor extending partially over the extent of the platform and including a discharge opening at one end of said platform, guide means positioned below said belt type conveyor and extending beyond the discharge opening from said end of said platform underneath the conveyor, a sample tray slidably mounted in said guide means, motor means mounted on said platform and connected to said sample tray to oscillate said tray back and forth from a position beneath said discharge opening to a position under said belt conveyor, and a sample hopper positioned under said belt conveyor and adjacent said sample tray on said guide means when it is positioned beneath the conveyor such as to receive bulk material from the tray.

3,302,770
CONVEYOR

Bruce D. Schwalm, Leola, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed Feb. 8, 1966, Ser. No. 525,881
7 Claims. (Cl. 198—109)

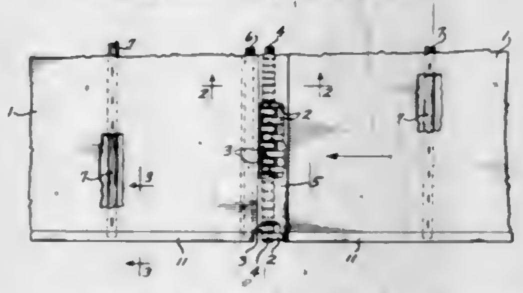


1. Material handling apparatus comprising conveyor means, said conveyor means having a first section and a second section angularly adjustable relative to said first section, guide means pivotally mounted on said first section, cam means on said second section, following means operatively connecting said guide means to said cam means so that angular adjustment of said second section results in a corresponding angular adjustment of said guide means.

3,302,771
PEAVINER APRON

Robert D. McLauchlan, 1510 15th Ave. W., Seattle, Wash. 98199

Filed Nov. 12, 1963, Ser. No. 322,771
3 Claims. (Cl. 198—193)



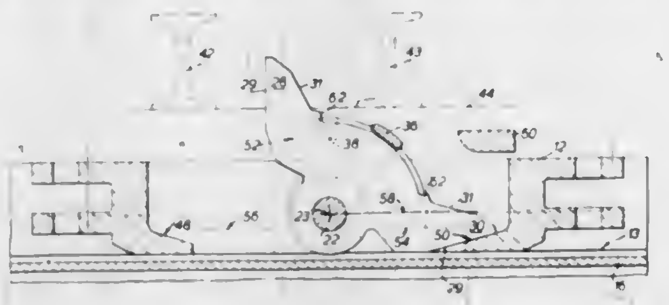
1. A peaviner apron for traveling over a roller in a direction transversely of the rotative axis of such roller, comprising a sheet of flexible material including adjacent end portions extending transversely of the length of the apron, interdigitated loops connected to said respective sheet end portions, a slat extending through and interconnecting said interdigitated loops, and a second slat secured to the underside of the sheet end portion ahead of the interconnected loops in the direction of sheet travel for engagement with such roller to lift said interconnected loops relative to the roller.

3,302,772
TRANSFER MEANS

James Francis Alsop, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England

Filed Mar. 31, 1964, Ser. No. 356,137
Claims priority, application Great Britain, Apr. 3, 1963, 13,141/63
4 Claims. (Cl. 198—221)

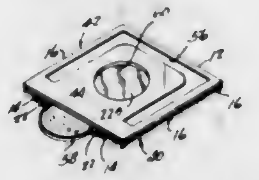
1. In combination with a support table having a horizontal support surface, apparatus for moving objects along the surface, the apparatus comprising a carriage located below the support surface and arranged to be moved in either of first and second opposite directions, a first rotatable member pivotally mounted on the carriage for rotation about a horizontal axis normal to the first and second directions, the first rotatable member having first and second angularly spaced extending parts and being rotatable about said axis between two stable positions relative to the carriage, in a first of which positions it is prevented from further rotation in one direction about said axis and the first extending part projects above the support surface, and in the second of which positions it is prevented from further rotation in the other direction about said axis and the second of the extending parts projects above the support surface, the first rotatable member having a center of gravity positioned such that in order to rotate from one stable position to the other stable position the center of gravity must pass over said axis, and the member being positioned relative to the support surface such that it can ride under the support surface without the center of gravity rising to a vertical plane through said axis, a second rotatable member pivotally mounted for rotation about said axis, and having two stable positions, in a first of which it is prevented from further rotation in one direction about said axis, and in a second of which it is prevented from further rotation in the other direction about said axis, and having a center of gravity positioned such that in order to move from one stable state to the other stable state it must pass over said axis.



3,302,773
NUMISMATIC RECEPTACLE

Charles L. Weir, 9 Belmar, and Fred N. Shoemaker, 13 Valley Drive, both of Little Rock, Ark. 72204

Filed Dec. 3, 1965, Ser. No. 511,415
3 Claims. (Cl. 206—.83)

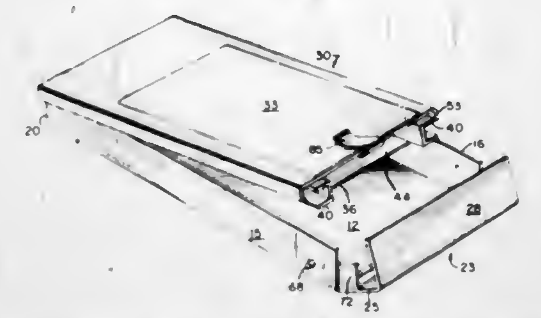


1. A laminated numismatic display device or receptacle comprising a pair of side walls each having a continuous periphery, each of said side walls including a strip of semi-rigid material having a sheet of flexible transparent material bonded to a side thereof, each of said strips having a centrally located opening formed therein and extending transversely therethrough to receive a coin to be displayed, said side walls being superimposed on one another with said sheets juxtaposed relative to one another and interposed between said strips in face to face relationship, said sheets having freely separable confronting faces, means bonding said strips and sheets to one another from a first given point to a second given point adjacent the peripheral marginal edges of said side walls and leaving an unbonded portion between said points, said sheets each having a central portion thereof closing the adjacent end of said opening formed in their respective associated strip and being distensible therein upon extension across opposite sides of said coin to permit viewing of the obverse and reverse sides of said coin therethrough as it enters said central portions after passing between the unbonded portions of said sheets extending between said points.

3,302,774
SALES TICKET CARRIER

Joseph Zalkind, 15 E. 18th St., New York, N.Y. 10003

Filed June 24, 1965, Ser. No. 466,775
7 Claims. (Cl. 206—40.5)

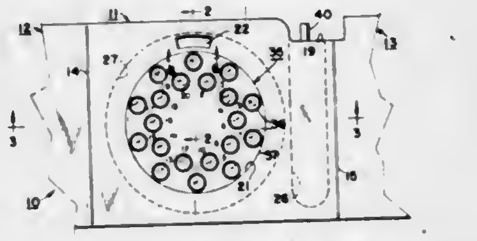


1. A carrier for sales tickets and the like comprising a box-like casing having a bottom wall and three fixed walls generally normal thereto and having a wall movably mounted with respect thereto, said latter wall being movable between a generally perpendicular position and an angularly related position with respect to said bottom wall and having an integral foreshortened top panel extending perpendicularly thereto, a top wall closure structure comprising a construction having a pair of spaced panels in parallelism to effect a compartment therebetween, said spaced panel construction being pivotally mounted to said casing and having at least one structural element extending therebeyond to be disposed below said foreshortened top panel when said panel construction and said top panel are in container closing position, said top panel and an upper panel of said spaced panel construction having edges facing each other when in said closing position and being coplanar at that time, said spaced panel construction having an inner panel spaced from said bottom wall of said container in said closed position, and bias means for biasing said spaced panel construction away from said bottom wall, said compartment being substantially within said casing when said panel edges are coplanar.

3,302,775
REMINDER-DISPENSER DEVICE

Raymond Finkelston, Jr., Philadelphia, and Maurice D. Hartman, Jr., Harleysville, Pa., assignors to Sparks Corporation, Harleysville, Pa., a corporation of Pennsylvania

Filed Apr. 13, 1965, Ser. No. 447,838
2 Claims. (Cl. 206—42)

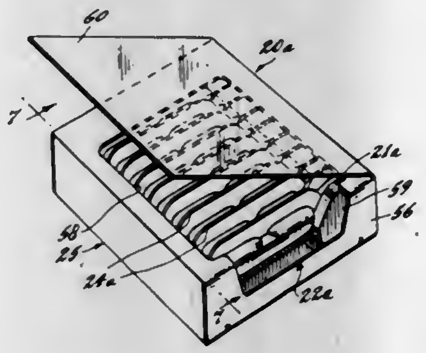


1. A reminder-dispenser device for pills and the like, said device comprising a pair of facing walls, securing means securing said walls together in spaced relation, a generally circular pill carrier interposed in the space between said walls and supported therein for rotative movement, a plurality of pill pockets arranged in circular array on said carrier for rotation therewith and facing toward one of said walls, said one wall being provided with an outlet opening located along the path of pocket movement for passing pills from said pockets through said one wall, an exhibit part carried by said carrier for movement therewith and underlying a wall of said pair of walls, and a window in a wall of said pair of walls exposing an underlying portion of said exhibit part, said exhibit part being markable for indicating the pill-consumption period corresponding to the pill pocket proximate to said outlet opening, said carrier comprising a generally flat carrier sheet, said carrier sheet being formed with blisters projecting from one face of said carrier sheet and defining said pockets, and said exhibit part comprising a card in facing engagement with said one face of said carrier sheet and apertured to receive and extending radially outward beyond said blisters.

3,302,776
DISPLAY-DISPENSER FOR PACKAGES

George C. Sparks, 101 Rorer St., Erdenheim, Pa. 19100

Filed July 21, 1964, Ser. No. 384,188
3 Claims. (Cl. 206—44)



1. A display-dispenser for packages comprising a pair of elongate supports disposed in longitudinally extending facing spaced relation, a connecting part extending between said supports on one side thereof, said supports each being provided at longitudinally spaced locations therealong with a plurality of transverse slots in facing relation with the slots of the other support, each of said slots being open through one end thereof away from said connecting part, and a plurality of packages extending between said supports and each having oppositely outwardly extending margins removably engaged in respective slots, said packages being selectively removable by withdrawal of said margins through the open slot ends, said connecting part being provided with a plurality of additional slots in respective alignment with said first-mentioned slots, said packages each having an additional margin removably engageable in a respective additional slot, said supports and connecting part being integrally fabricated of a single sheet, said sheet being formed with a pair of generally parallel rows of spaced upset portions in opposite margins of said sheet, the spaces between said upset portions defining the slots of said supports, said sheet being formed in the region intermediate said margins with an intermediate row of spaced upset portions extending medially between said pair of rows, the spaces between the upset portions of said intermediate row defining the slots of said connecting part, and a receptacle containing said single sheet with said opposed sheet margins swung upwardly toward each other relative to said intermediate sheet region.

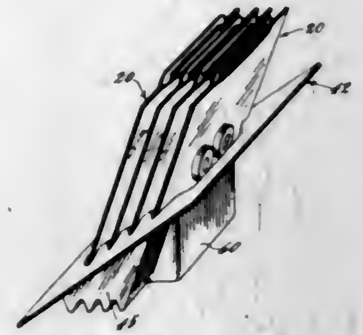
3,302,777
PACKAGE CONSTRUCTION

George C. Sparks, 101 Rorer St., Erdenheim, Pa. 19100

Filed Nov. 18, 1964, Ser. No. 412,071
9 Claims. (Cl. 206—44)

5. A dispensing package comprising a bottom wall having laterally extending generally parallel corrugations; a pair of side walls upstanding from opposite sides of said bottom wall adjacent to opposite ends of said corrugations; front and back walls upstanding from the front and back of said bottom wall; a top wall extending across the top of said front, back and side walls; said top wall having an opening located over said bottom-wall corrugations; the side edge margins of said opening each being

provided with a plurality of notches located over respective bottom-wall corrugations; and a plurality of packets extending through said opening each having its lower edge margin engaged in a respective one of said corrugations and its side edge margins engaged in respective adjacent notches, whereby said packets are effectively retained in parallel relation and readily removable upward through said top-wall opening.

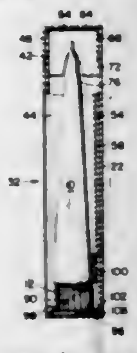


3,302,778
CONTAINER

Carroll J. McGorty, Granville, and Benjamin A. Cuoco, Springfield, Mass., assignors to Boxmakers, Inc., Westfield, Mass.

Filed July 23, 1965, Ser. No. 474,375

5 Claims. (Cl. 206—45.14)



1. A display container in combination with a capped article in the nature of a tube, bottle or container comprising, a plurality of hingedly interconnected panels, certain of said panels constituting supporting surfaces for the article while exposing a substantial portion of the article to view, certain other of said panels constituting locking means for releasably holding the articles at its distal ends, said certain other of said panels constituting locking means comprising a first panel having an aperture adapted to receive one end of the article therein and a second panel having a locking tab adapted to engage the opposite end of the article, the first panel being deformable so that it frictionally engages the respective one end of the article and the second panel being deformable so that it precludes axial movement of the respective opposite end of the article.

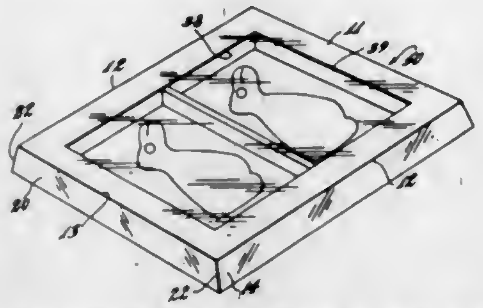
3,302,779
DISPLAY PACKAGE

George C. Sparks, 101 Rorer St., Erdenheim, Pa. 19100

Filed Nov. 18, 1964, Ser. No. 412,017

1 Claim. (Cl. 206—45.31)

A package construction comprising a generally polygonal top wall, said top wall being provided with a generally central thru opening, a plurality of depending side walls depending from the edges of said top wall about the periphery thereof, adhesive securing means securing said side walls together in their depending relation, bottom flaps extending inwardly from the lower edges of said side walls and terminating in bounding relation with a bottom opening substantially congruent to said top wall opening, a bottom panel removed from said top wall opening substantially congruent thereto and in closing relation with said bottom opening, interengaging means on said flaps and bottom panel retaining the latter in said closing relation, and an upwardly facing receptacle of heat-sealable material on said bottom panel beneath said top opening said receptacle including a generally polygonal bottom wall heat-sealed to said bottom panel, a plurality of upstanding side walls upstanding from the edges of said bottom wall adjacent to and spaced inward from said depending sidewalls, and upper flanges on the upper edges of said upstanding side walls heat-sealed to said top wall, whereby said package construction provides a staunch unitary structure with said receptacle and its contents cushioned by the outward spacing of said depending side walls.

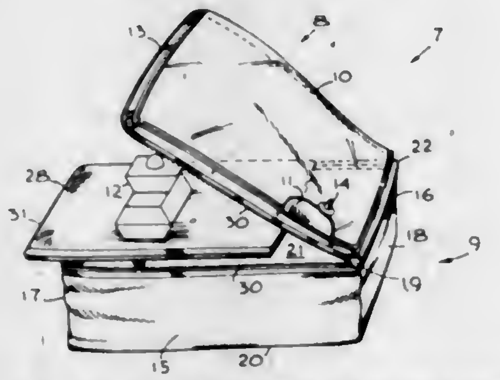


3,302,780
PACKAGING MEANS

Jack Massman, 807 Cinthia St., Beverly Hills, Calif. 90210, and Matthew Allen, Los Angeles, Calif.; said Allen assignor to said Massman

Filed Jan. 12, 1965, Ser. No. 424,917

11 Claims. (Cl. 206—46)



1. A package for packing a fragile object comprising: an object receiving compartment;
a fluid tight compartment hingeably connected to said object compartment;
an impact shock absorbing cushion contained in said object receiving compartment;
a partition member disposed on said shock absorbing cushion resiliently supporting the object within said object receiving compartment; and
means for introducing a gaseous fluid into said fluid tight compartment for skin packing the object contained in said object receiving compartment against said partition member and thereby rendering it immobile within the object receiving compartment.

3,302,781
COMBINED BRACKET ARRANGEMENT AND DISPENSING CARTON FOR ROLLS OF WEB MATERIAL

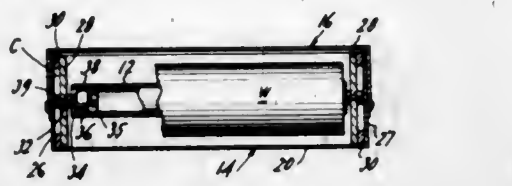
Robert J. Rudnick, Rockville Centre, N.Y., assignor to The Mutual Paper Co. Inc., Brooklyn, N.Y.

Filed Nov. 6, 1964, Ser. No. 409,451

5 Claims. (Cl. 206—58)

1. In a dispensing carton for rotatably mounting rollers of sheet material including a unitary case body including a base, a pair of spaced apart upstanding side walls and spaced apart upstanding front and rear walls

which form an internal housing for mounting said rollers, and a case cover adapted to fit over said case body, a pair of rigid bracket inserts of unitary construction removably secured in confronting relation to said side walls, stub shafts fixed to each of said bracket inserts in spaced apart and aligned relationship, and plug inserts rotatably mounted on said stub shafts and said plug inserts being removably secured to said rollers such that said rollers can be detached from said plug inserts and said bracket inserts can be detached from said side walls upon the depletion of said sheet material.

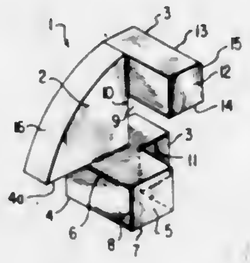


3,302,782
ADJUSTABLE CORNER PACKAGING PAD

Joseph M. Pezely, Jr., Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Oct. 20, 1964, Ser. No. 405,208

3 Claims. (Cl. 206—62)



1. A corner packaging pad comprising: two identical modules, each module including a body of shock absorbing material comprising: a first flat side, a second flat side substantially parallel to said first flat side, a first edge substantially perpendicular to the two flat sides, a tongue projecting from the first flat side, adjacent said first edge, in a direction substantially perpendicular to the plane of the first side, a second edge substantially perpendicular to the two said sides and also substantially perpendicular to and intersecting the plane of the said first edge, a groove in said first edge, the dimensions of the cross section of the tongue being substantially equal to the dimensions of the cross section of the groove, said latter cross section being taken in a plane parallel to the plane of the said sides, wherein the tongue of each of the two modules is inserted into the groove of the other of the two modules.

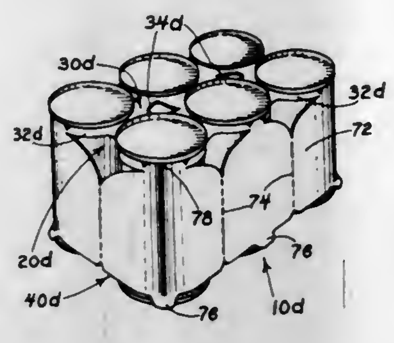
3,302,783
CARRIER FOR CONTAINERS AND THE LIKE

Wayne B. Lyon, Deerfield, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed Sept. 24, 1964, Ser. No. 398,861

10 Claims. (Cl. 206—65)

1. A carrier package comprising at least one pair of adjacently positioned containers arranged in side by side substantially abutting relationship, of one-piece carrier means made of sheet material assembled to said containers adjacent one end thereof for embracing and securing said containers thereto in positions generally corresponding to the container placement, said carrier means including a cover element for at least the sides of said containers including a substantially peripherally continuous skirt means associated with said carrier means and enveloping a substantial portion of the container sides, the peripheral measurement of said skirt means relative to the peripheral dimension of said containers as a group taken around the sides thereof preventing lateral displacement of said containers at points remote from said carrier means, and means for transporting the package.

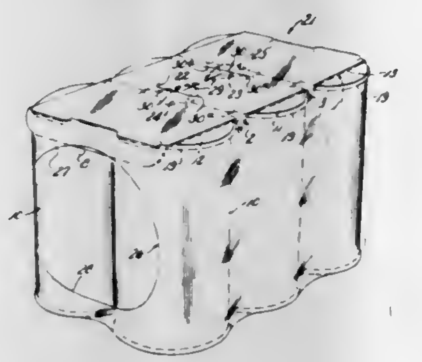


3,302,784
PACKAGE ASSEMBLY INCLUDING A TOP MEMBER AND AN ENDLESS HEAT SHRUNK ENCLOSURE BAND

Bruce G. Copping, Akron, Ohio, assignor to Geo. J. Meyer Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin

Filed Jan. 12, 1965, Ser. No. 425,037

12 Claims. (Cl. 206—65)



1. A carrier and package assembly for a plurality of cylindrical articles, such as cans, having laterally protruding chime rings at their upper ends and comprising
- a top means having a pair of downwardly extending center sections, each having a double wall and a pair of parallel downwardly directed walls forming edge sections, one of said walls of each of said center sections being an outer wall and being spaced from an edge section about the distance of a diameter of said cans for receiving a row of cans therebetween, and the remaining walls of said center sections being spaced for receiving a row of cans therebetween,
- a plurality of cans positioned below said top means in a plurality of transversely extending rows to provide an assembly of cans,
- at least one wall of each of said double wall center sections being continuous from margin to margin of said top means to provide stability thereto,
- chime engaging means on each wall of said center and edge sections in opposed relation and engaging the chime rings of said cans, and
- open ended heat shrunk endless band means tightly engaging said cans and top means and extending fully around the sides, tops and bottoms of said cans in said assembly to retain said cans grouped together into a compact unitary assembly with said top means and to further hold said chime engaging means and cans in engagement.

3,302,785

PHOSPHATE MATRIX BENEFICIATION PROCESS

Ernest W. Greene, Westfield, N.J., assignor to Minerals & Chemicals Philipp Corporation, Menlo Park, N.J., a corporation of Maryland

No Drawing. Filed Oct. 14, 1963, Ser. No. 316,154
14 Claims. (Cl. 209—5)

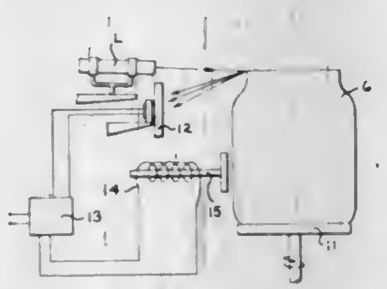
1. A method for beneficiating phosphate matrix containing gangue including sand and clay and also containing friable agglomerates of slimed phosphate minerals which would normally report in washer slimes when said matrix is blunged and then deslimed to eliminate clay, said method comprising:
   forming a blunged aqueous pulp of said matrix containing a dispersing agent, without desliming said pulp, subjecting it to froth flotation with an anionic collector reagent for selectively floating slimed phosphate minerals, thereby producing a froth product which is a concentrate of slimed phosphate minerals and a tailing which is a mixture of clay slimes, coarse phosphate minerals and sand, desliming said tailing, and recovering said froth product and said deslimed tailing.

3,302,786

INSPECTING GLASS CONTAINERS WITH LASERS

Keith Conrad, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio

Filed Sept. 29, 1964, Ser. No. 400,104
4 Claims. (Cl. 209—111.5)



1. The method of inspecting glass containers for defects such as checks and the like which comprises
   directing a laser beam into the wall of the container in such a manner that a substantial portion of the wall of the container is illuminated by reflection of the laser beam internally within the wall of the container,
   causing a defect to redirect a portion of the laser beam out of the wall of the container,
   creating a signal in response to said redirected portion of the beam,
   and rejecting the container in response to said signal.

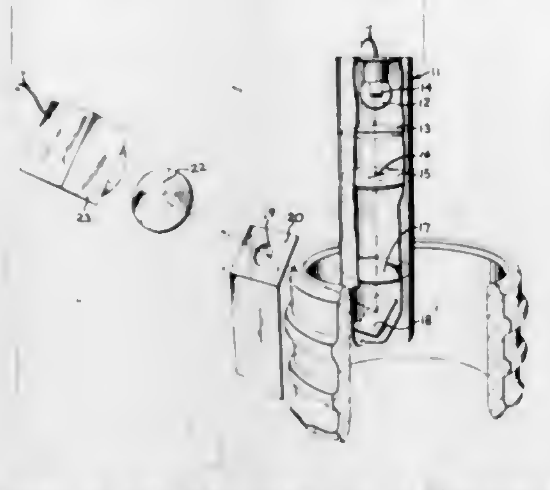
3,302,787

INSPECTING GLASS CONTAINERS FOR LINE-OVER-FINISH DEFECTS

Hans R. Rottmann, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio

Filed Dec. 19, 1963, Ser. No. 331,743
1 Claim. (Cl. 209—111.7)

An apparatus for inspecting a glass container for line-over-finish defects in the top portion of the finish which comprises
   means for directing a beam of light downwardly,
   a mask having an elongated aperture,
   means for focusing said light beam in an elongated spot overlying said aperture,
   means for redirecting and focusing an image of the aperture into a beam which extends upwardly from within the container and radially outwardly and is focused into an image of the aperture in the finish that extends generally radially,
   means for causing relative rotation between said beam and said container,
   light sensitive means positioned exteriorly of the container with its line of vision in the normal path of the light beam through said finish,
   A mask positioned between said finish and said light sensitive means in the normal path of said beam whereby said light sensitive means is energized by deflection of the light beam by a line-over-finish defect beyond the periphery of said mask,
   means responsive to energization of said light sensitive means for creating a reject signal,
   and means for rejecting a container in response to said reject signal.

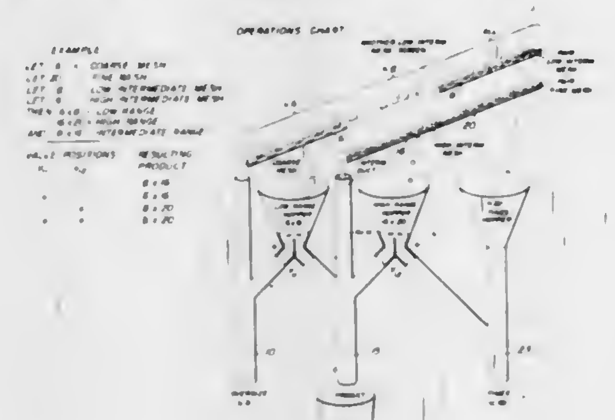


3,302,788

APPARATUS FOR CLASSIFYING MATERIALS

Walter J. Sackett, Jr., Severna Park, Md., assignor to The A. J. Sackett & Sons Co., Baltimore, Md., a corporation of Maryland

Filed Aug. 5, 1963, Ser. No. 299,921
3 Claims. (Cl. 209—355)



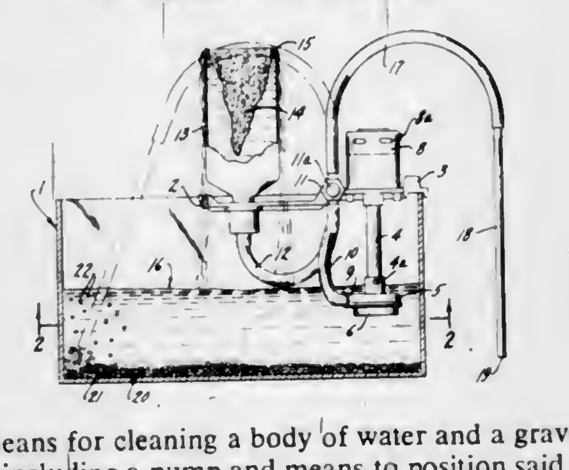
1. Apparatus for grading sizes of particulate material, comprising an upper inclined series of screens arranged with the first screen thereof to initially receive said particulate material, a lower inclined series of screens arranged to receive the screenings from said upper series of screens, each screen of said upper and lower series of screens being arranged to receive the overflow of the preceding screen of its respective series, the numerical representation of the screen size of the first screen of each said upper and lower series of screens being greater than that of the last screen of its respective series, first means receiving the screenings from said first screen in said lower series of screens, whereby the fine sizes of said particulate material are isolated, second means receiving the overflow from said last screen of said upper series of screens, whereby the coarse sizes of said particulate material are isolated, third means receiving the overflow from said last screen of said lower series of screens to isolate an intermediate size of said particulate material, fourth means for receiving the respective intermediate screenings from said lower series of screens, fifth means for receiving other intermediate screenings from said upper series of screens, first control means directing the intermediate screenings of said lower series of screens between said first means and said third means, and second control means directing the intermediate screenings of said upper series of screens between said second means and said third means.

3,302,789

MEANS AND METHOD OF MAINTAINING A FISH ENVIRONMENT

Harley R. Holt, River Forest, Ill., assignor to Ray-Wayland Corporation, Chicago, Ill., a corporation of Illinois

Filed July 1, 1964, Ser. No. 379,600
14 Claims. (Cl. 210—70)



2. Means for cleaning a body of water and a gravel bed therein including a pump and means to position said pump in said body of water, a valve means, a conduit communicating said pump and said valve means, a filter body, a second conduit communicating said valve means with said filter body, a third open-ended conduit communicating with said valve means, said valve means being operable to place said pump in communication therethrough with said filter body and alternately to place said pump in communication therethrough with said third conduit, the open end of said third conduit being positionable adjacent said gravel bed.

7. The method of cleaning a gravel bed within a body of water which comprises the steps of withdrawing water from said body, delivering said withdrawn water under pressure against said gravel bed within said body of water to agitate the particles of said gravel bed, discharging deleterious particles from said gravel particles into said body of water.

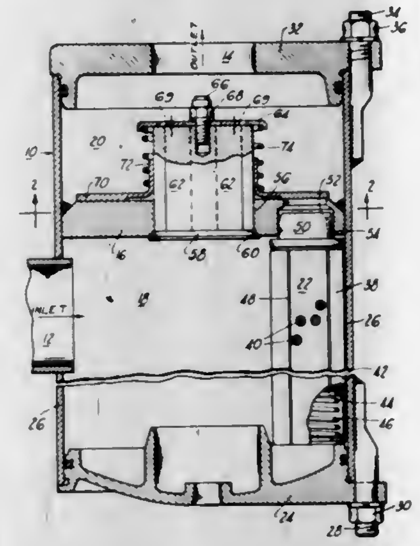
3,302,790

FILTER UNIT HAVING CHECK VALVES INSURING ONE-WAY FLOW

Walter Kasten, Madison Heights, Mich., assignor to The Bendix Corporation, Madison Heights, Mich., a corporation of Delaware

Filed May 13, 1964, Ser. No. 367,070
3 Claims. (Cl. 210—134)

3. A fluid filtering device comprising housing means having fluid inlet and outlet passage means, partition means connected to said housing means and located between said inlet and outlet passage means, a single central return port and a plurality of surrounding filter ports located in said partition means for permitting communication between said inlet and outlet passage means, normally porous means operatively connected to said filter ports for filtering the fluid flowing from said inlet passage means to said outlet passage means, and valve means operatively connected to said partition means for permitting fluid flow from said inlet passage means to said outlet passage means only via said porous means and filter ports and for permitting reverse fluid flow from said outlet passage means to said inlet passage means only via said return port, said valve means including first valve seat means located on the inlet passage means side of said partition means, second valve seat means located on the outlet passage means side of said partition means, a first valve member seatable on said first valve seat means for preventing fluid flow from said inlet passage means to said outlet passage means via said single central return port, said first valve member including guide means which extend through said single central return port to the outlet passage means side of said partition means and a spring retainer operatively connected to said guide means, a second valve member seatable on said second valve seat means for preventing reverse fluid flow from said outlet passage means to said inlet passage means via said plurality of surrounding filter ports, and a single compression spring which abuts said spring retainer and said second valve member for uring both said first valve member and second valve member towards their respective valve seat means.

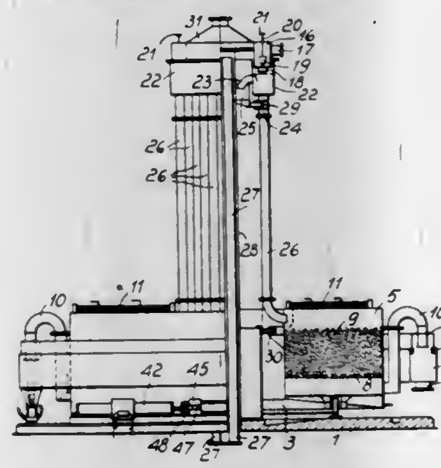


3,302,791

APPARATUS FOR TREATMENT OF SOLUTIONS BY BODIES OF GRANULAR SUBSTANCES WHICH MAY BE REGENERATED

Giuseppe Assalini, Via De Gasperi 19/3, and Giuseppina Brandoli, Corso Sardegna 46/8, both of Genoa, Italy

Filed Sept. 26, 1963, Ser. No. 311,774
Claims priority, application Italy, Oct. 6, 1962, 19,848/62; Aug. 2, 1963, 15,822/63
4 Claims. (Cl. 210—203)



1. Apparatus for treating a liquid with a solid, comprising a series of contiguous containers for the solid, means for moving the containers about a closed circuit with intermittent movements spaced apart by dwell periods, means for supplying a liquid to be treated successively to said containers during said dwell periods, means for simultaneously supplying regenerating fluid including at least one wash liquid to other of said containers during said dwell periods, and siphon means for

removing said liquid to be treated from said plurality of containers after treatment, said siphon means being so disposed as to maintain the level of liquid in said plurality of containers at least about as high as the height of said solid in said plurality of containers.

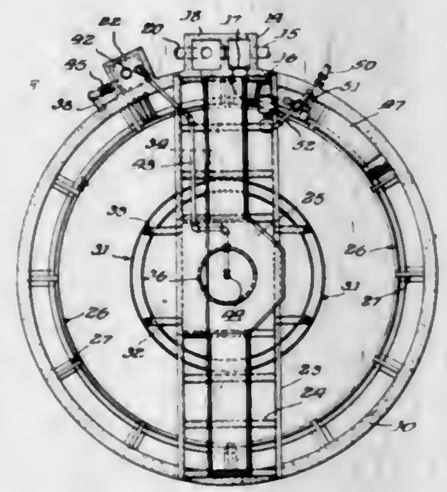
3,302,792

CLARIFYING APPARATUS

Burd Hikes, Wilmette, and William L. Berk, Mount Prospect, Ill., assignors to Lakeside Engineering Corporation, Chicago, Ill., a corporation of Illinois

Filed Aug. 5, 1964, Ser. No. 387,733

3 Claims. (Cl. 210—207)



1. In a settling device, in combination, a circular tank having a vertical cylindrical wall and a bottom wall, a circular skirt depending within the tank in spaced relation with the cylindrical wall, said skirt terminating short of the bottom wall and dividing the tank into an annular chamber around the skirt and into a centrally disposed clarifying chamber within the skirt, an inlet conduit for supplying incoming liquid to the annular chamber, a launder positioned within the clarifying chamber for decanting the clear liquid, a partition wall in the annular chamber sloping downward from the inlet conduit to approximately midway of the depth of the annular chamber, a second partition wall in the annular chamber sloping upward from the first partition wall to terminate a short distance below the level of the liquid in the annular chamber, said first and second partition walls forming a hopper shaped receptacle for collecting grit particles from the liquid delivered to the annular chamber by the inlet conduit.

3,302,793

FEEDING DEVICE FOR CENTRIFUGES

Fritz Walter Schneider, Dortmund, and Ingo Stohlmeier, Essen, Germany, assignors, by mesne assignments, to Beteiligungs- und Patentverwaltungsgesellschaft mit beschränkter Haftung, Essen, Germany

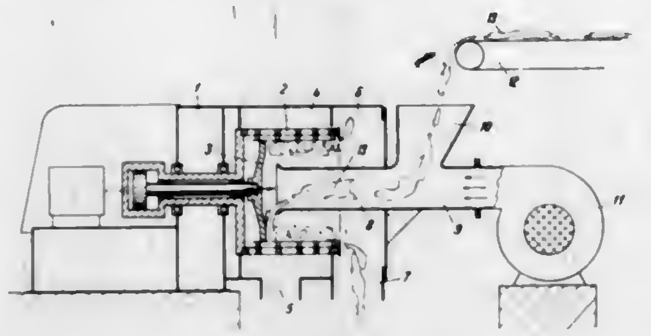
Filed June 25, 1963, Ser. No. 294,461

Claims priority, application Germany, July 4, 1962, K 47,145

1 Claim. (Cl. 210—210)

A centrifuge including a device for feeding of particularly large curled, longitudinally shaped fly goods of a predetermined fluidity, comprising

- a centrifuge housing,
- a sieve drum rotatably mounted in said centrifuge housing and having a reciprocating slide bottom and being open at its end opposite said slide bottom,
- a filtrate receiving housing having a filtrate outlet branch and surrounding said sieve drum,
- a solid goods receiving housing disposed adjacent said filtrate receiving housing and communicating with said open end of said sieve drum and having a solid goods outlet branch,
- a substantially straight feeding tube entering into and having one end terminating within said sieve drum,
- a hopper communicating with said feeding tube intermediate its ends and adapted to feed fly goods of a predetermined fluidity into said feeding tube, and
- a source of pressurized fluid operatively connected with the other end of said feeding tube, in order to convey said fly goods into said sieve drum.



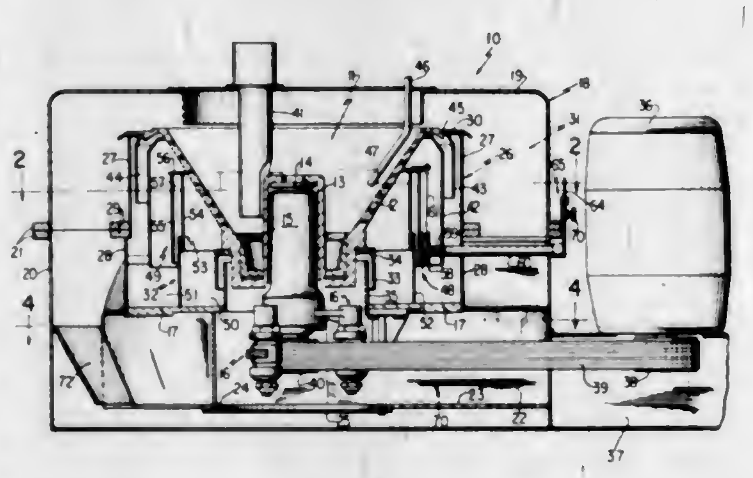
3,302,794

CONTINUOUS CENTRIFUGAL WITH ADJUSTABLE LIQUIDS SEPARATOR

Thomas R. Laven, Hamilton, Ohio, assignor to The Western States Machine Company, Hamilton, Ohio, a corporation of Utah

Filed Oct. 30, 1964, Ser. No. 407,645

6 Claims. (Cl. 210—369)



1. In a continuous centrifugal including a basket rotatable on a vertical axis and having a perforate, frustoconical circumferential wall increasing in diameter toward the upper end of the basket, means for feeding a mixture of solids and liquid into the basket for travel upwardly along the perforate wall under the influence of centrifugal force, a cylindrical casing wall concentrically surrounding the basket and having its upper end proximate to the upper end of the basket to define a liquids receiving chamber around the basket, and an outer curb wall spaced from said casing wall to define therebetween a chamber for receiving solids which are discharged over said upper end of the basket; a separator for selectively separating liquids driven centrifugally through lower and upper portions of said perforate wall of the basket comprising a cylindrical partition extending upwardly, and arranged concentrically within said liquids receiving chamber to divide the latter into radially inner and outer compartments which receive the liquids passing through the portions of said perforate wall respectively below and above an upper edge of said partition, said partition having a fixed section between said casing wall and the lower end portion of the basket and a movable section in telescopic relation with said fixed section and defining said upper edge of the partition, means for adjusting the vertical position of said movable section relative to said fixed section to vary the height of said upper edge and thereby change the portions of said perforate wall through which liquids drain into said inner and outer compartments, respectively, and conduits extending from said inner and outer compartments at the bottom of the latter for draining liquids from the respective compartments, said means for adjusting the vertical position of said movable section including pulleys rotatably supported at locations spaced apart around said partition, a cable wrapped on each of said pulleys and having its opposite ends secured to said movable section at vertically spaced locations on the latter, and means for controlling the rotational positions of said pulleys.

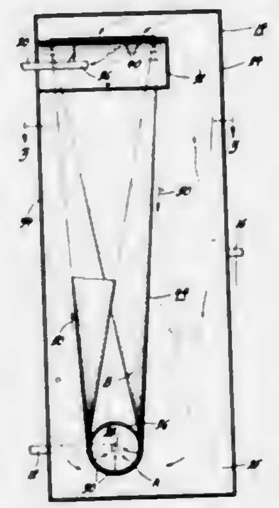
3,302,795

SELF-CLEANING FILTER

James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 30, 1963, Ser. No. 305,617

4 Claims. (Cl. 210—391)



1. A filtering system comprising means forming a filtering chamber wherein contaminants are filtered from unfiltered fluid supply means for supplying unfiltered fluid to said chamber, means in communication with said supply means for supplying filtered fluid from said chamber and including a perforated supply housing in said chamber, means in communication with said supply means for removing the filtered contaminants from said chamber and including a perforated backwash housing in said chamber spaced from said supply housing and at substantially right angles thereto, and filter means circumscribing said housings in a manner to cover the perforations therein and interposed in fluid flow intercepting relationship between said means for supplying unfiltered fluid and both said means for supplying filtered fluid and said means for removing the filtered contaminants, each portion of said filter means being movable sequentially into a first position in engagement with said supply housing for filtering contaminants from unfiltered fluid flowing from said means for supplying unfiltered fluid to said means for supplying filtered fluid and then into a second position in engagement with said backwash housing for removing the contaminants filtered in said first position from said filter means as said unfiltered fluid flows from said means for supplying unfiltered fluid to said means for removing the filtered contaminants, said filter means comprising an endless belt of filtering material having a half twist therein whereby one surface portion of said belt alternately faces away from said supply housing and toward said backwash housing.

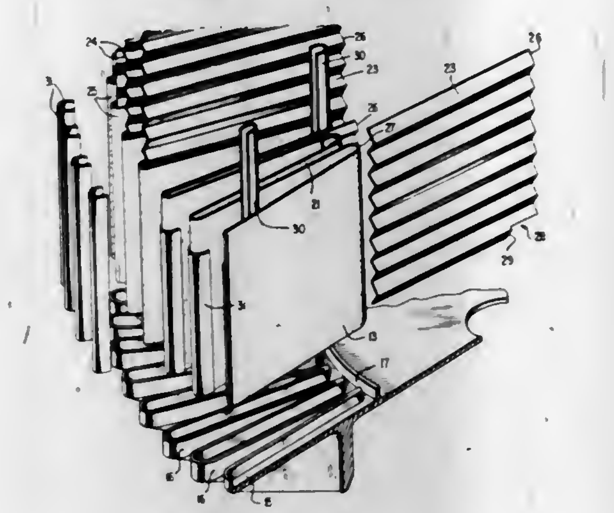
3,302,796

BARRIER FILTER ELEMENT ASSEMBLY

George T. Downey, Corry, Pa., assignor to Aero-Flow Dynamics, Inc., Corry, Pa.

Filed Feb. 28, 1964, Ser. No. 348,161

1 Claim. (Cl. 210—487)



A removable fluid filter cartridge comprising a pair of end caps each having inner surfaces, a generally cylindrical filter media extending between and secured to said end caps, said filter media including a number of pleats, each pleat having end edges, one said end cap being provided with a port aligned with a central area defined by the inner surface of the filter media, a spacer positioned within each pleat of the filter and engaging the facing surfaces thereof, said end caps each having radially extending pleated members, said pleated members corresponding to said number of pleats in said filter media, said radially extending pleated members having vertical side walls and extending continuously around the outer peripheral surfaces of said end caps so that open areas are formed between adjacent pleated members, said filter media being secured to said end caps by inserting said end edges of said filter pleats into said radially extending pleated members such that said vertical side walls enclose said end edges, said inner surfaces of said each end cap includes a circular ridge formed thereon, said circular ridge having a top surface and a side surface facing the outer periphery of said end cap, said radially extending pleated members extending inwardly from the outer periphery of said each end cap nearly to said circular ridge, said circular ridge being in non-abutting relationship with said radially extending members, said spacers including longitudinal side edge portions extending inwardly into said central areas, said edge portions having lip portions which abut against said side surface and said top surface of said circular ridge to hold said spacers in a radial position and to form a seal between said lip portions and said circular ridge.

3,302,797

DISPLAY RACK

Harvey L. Kolster, Independence, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri

Filed June 28, 1965, Ser. No. 467,425

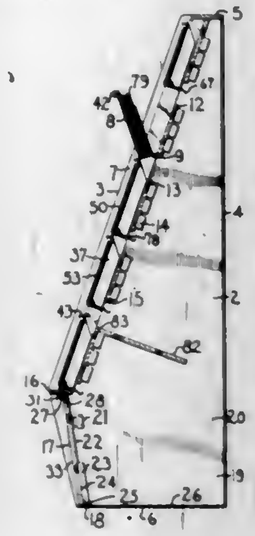
14 Claims. (Cl. 211—55)

4. A display rack comprised of:

(a) a housing means having at least two opposed side walls and an open front,

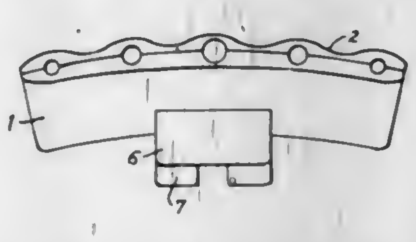
(b) supporting rod members extending between and connected to said side walls,

(c) means pivotally mounted on the supporting rod for display and storage of merchandise having a removable bottom wall and notches in said means, the supporting rod members being received in said notches, and a means on said storage and display means for releasably supporting the removable bottom wall, said wall intersecting the notches in the storage and display means and lying in underlying contacting relation to the supporting rod member thereby retaining the supporting rod within the notches,



(d) means on said housing means for limiting the pivotal rotation of the storage and display means.

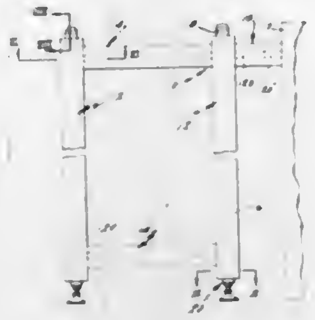
3,302,798
ARTIST'S BRUSH HOLDER
Edward V. LeBlanc, Lincoln, and Evangilos G. Galinos, Burlington, Mass., assignors to Argonaut Corporation, Lincoln, Mass., a corporation of Massachusetts
Filed July 7, 1966, Ser. No. 563,483
8 Claims. (Cl. 211—65)



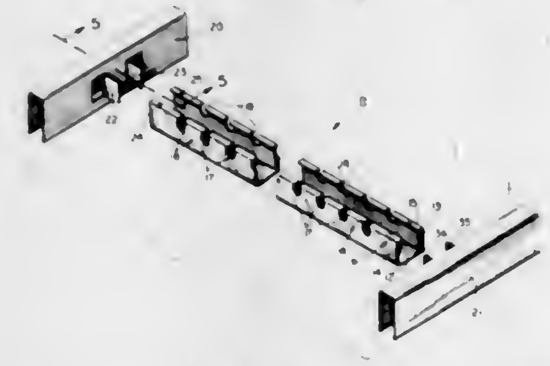
1. An improved artist's brush holder comprising:
(a) a front part having a rear face and carrying an upper resilient arm adapted to engage the upper surface of a pallette;
(b) a rear part having a front face and carrying a lower resilient arm adapted to engage the lower surface of the pallette;
(c) means for maintaining said rear and front faces in contact with each other; and
(d) a series of registering recesses in said faces defining means for holding paint brush handles.

3,302,799
POLE STRUCTURE FOR SUSPENDED FURNITURE
Leif Blodee, Holland, Mich., assignor to Herman Miller, Inc., Zeeland, Mich., a corporation of Michigan
Filed Mar. 29, 1965, Ser. No. 443,505
8 Claims. (Cl. 211—86)

2. A floor-to-ceiling support post assembly for mounting service units comprising: an elongated vertical post formed of a pair of spaced parallel panels and a pair of continuous vertical connecting cross webs between and integral with said panels spaced from their lateral edges; a passage between said panels and webs; mounting means on the ends of said panels for mounting service units thereon; said webs having enlarged, offset, elongated portions extending toward each other into said passage and forming track means; a ceiling abutting cap at the top of said post, extending down into said passage and biased therefrom; and a leg and foot assembly at the bottom of said post; said leg being telescopically received in said passage and having track receiving grooves on opposite sides thereof facing said webs.

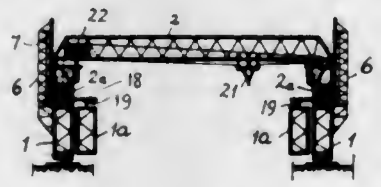


3,302,800
HANGER BAR
Alfred Zdanowski, Philadelphia, Pa., assignor to George M. Burnstein, Bala Cynwyd, Pa.
Filed Oct. 11, 1965, Ser. No. 494,325
15 Claims. (Cl. 211—123)



1. A device for supporting garment hangers with hooks in a garment carrying means comprising: an elongated member formed of a continuous wall of rigid material to provide a hollow along the length of said elongated member, and having a plurality of cut-away sections disposed at least partially in the upper portion of said elongated member to accept the hooks of hangers supported by said elongated member, wherein each of said cut-away sections includes a circular base and further including end support means formed to be secured to said elongated member and adapted to fit onto a garment carrying means and wherein said end support means has an integrally formed protrusion means extending therefrom which protrusion means fits into said hollow to support said elongated member.

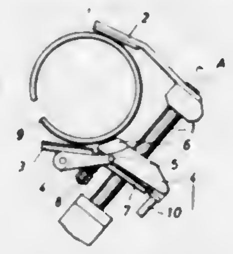
3,302,801
GANTRY CRANE WITH EXTENSIBLE BRIDGE GIRDER CARRYING LEGS
Vincenzo Poroli, Via Mola 31, Milan, Italy
Filed Feb. 17, 1965, Ser. No. 433,413
Claims priority, application Italy, Mar. 3, 1964, 4,770
5 Claims. (Cl. 212—13)



1. A gantry crane comprising at least one bridge girder and trussed legs carrying the bridge girder, said trussed legs comprising a plurality of vertically aligned and superposed trussed sections removably connected together,

at each of said trussed legs: a vertically extending and vertically movable auxiliary trussed structure laterally arranged with respect to said trussed legs and having a lower end removably connected with one of said trussed sections,
at each of said trussed legs: a jack means having a first jack member and a second jack member movable relative to each other, said first jack member being vertically rigid with said auxiliary trussed structure and said second jack member being vertically rigid with said bridge girder, power means for actuating said jack means, thereby to vertically move relative to each other said auxiliary trussed structure and said bridge girder, and
additional trussed sections to be interposed between said auxiliary trussed structure and said bridge girder when spaced from one another.

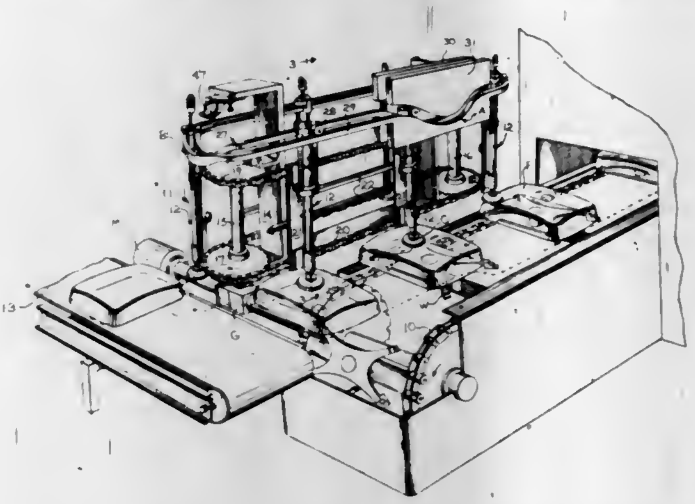
3,302,802
DEVICE FOR REMOVING SELF-RESILIENT RINGS FROM MACHINE TOOLS
Theo Müller, Pattscheid, Germany, assignor to Goetzewerke Friedrich Goetze Aktiengesellschaft, Dusseldorf, Germany
Filed Oct. 23, 1964, Ser. No. 405,908
Claims priority, application Germany, Dec. 16, 1963, G 39,397
6 Claims. (Cl. 214—1)



3. A device for removing a self-resilient split piston ring from machine tools and the like wherein the ring is clamped with the gap closed comprising; a holder, a pair of spaced jaws in adjustable spaced relation on the holder and forming a mouth therebetween adapted to receive a clamped piston ring with not more than a slight clearance whereby expansion of the ring upon unclamping thereof will cause the ring to engage the jaws, spring means resiliently urging the jaws toward each other whereby the jaws will move apart under the force of the ring when the ring expands, actuating means for moving said jaws away from each other to release a ring held therein, means on the holder limiting the movement of said jaws toward each other and means for tilting said holder to present a ring in said jaws in a substantially horizontal position for release from the jaws whereby the ring can be dropped on a receiving spike or the like.

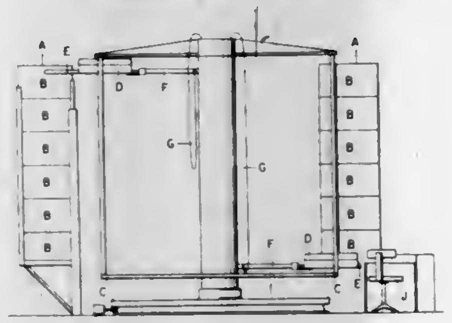
3,302,803
ARTICLE HANDLING AND TRANSFER DEVICE
Daniel P. Mooney, New Lexington, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Nov. 12, 1964, Ser. No. 410,544
20 Claims. (Cl. 214—1)

1. The combination comprising
a first endless conveyor having spaced work holders thereon for moving articles in a predetermined path,
a second endless conveyor adjacent to said first endless conveyor and angularly related thereto,
and transfer means adjacent said conveyors comprising a plurality of spindles,
means for moving said spindles in an endless path a portion of which is adjacent said first conveyor and another portion of which is adjacent said second conveyor,
each said spindle having a flexible cup thereon formed with a chamber surrounded by a flexible annular flange which is adapted to engage an article on a work holder on the first conveyor,
means in the portion of the path of said spindles adjacent said first conveyor for moving said spindles successively toward said first conveyor in timed relation to the movement of said first conveyor so that the flange of the cup on the end of the spindle engages an article on a work holder on said first conveyor and air is expelled from the chamber of the cup creating a vacuum to support the article on the spindle,



means for raising each spindle after engagement with an article for elevating the spindle and the article supported thereby to remove the article from the work holder,
and means adjacent said other portion of the path of the spindles when they are adjacent said second conveyor for venting the chamber of the cup on each spindle and thereby releasing the article from the spindle for removal by said second conveyor.

3,302,804
APPARATUS FOR CLASSIFYING AND OTHERWISE HANDLING ARTICLES
Joseph Angus Harris, Greenisland, Northern Ireland, assignor to Short Brothers & Harland Limited, Belfast, Northern Ireland, a company of Northern Ireland
Filed Mar. 2, 1964, Ser. No. 348,528
Claims priority, application Great Britain, Mar. 5, 1963, 8,783/63; July 16, 1963, 28,167/63
7 Claims. (Cl. 214—16.4)



1. Apparatus for classifying articles, comprising a plurality of discrete compartments arranged about a central axis in a plurality of vertically spaced tiers to form a substantially circular rack, each of said compartments having a retractile floor and means for substantially instantaneously retracting said floor, charging and discharging stations located at respective points in the circumference of said rack, a turntable mounted within said rack for rotation about said axis, at least one transfer unit carried by said turntable and adjustable thereon in elevation to an operating level appropriate to any one of the tiers of the rack, means for continuously rotating said

turntable to bring said transfer unit into operative positional relationship with said charging and discharging stations and with the different compartments of a tier in turn, said transfer unit comprising a delivery carrier member and a removal carrier member in such fixed vertically spaced relationship that when said transfer unit occupies an operational position relative to any tier of the rack, said delivery carrier member is disposed at a level above said tier and said removal carrier member is disposed at a level below said tier, said delivery carrier member having a retractile floor and said transfer unit having means for substantially instantaneously retracting said floor, and selector means adapted to actuate said floor-retracting means of said compartments and of said transfer unit selectively.

3,302,805

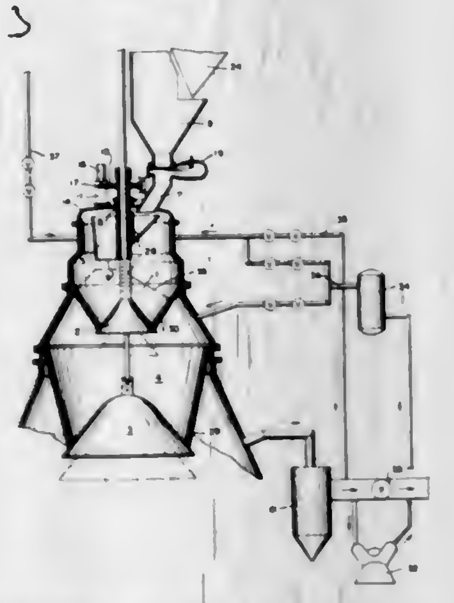
MATERIALS DISTRIBUTOR OF A BLAST FURNACE

Teruo Tsutsumi, Yokohama-shi, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan, a company of Japan

Filed Oct. 1, 1964, Ser. No. 400,827

Claims priority, application Japan, Dec. 14, 1963, 38/67,286

3 Claims. (Cl. 214—37)



1. An apparatus for distributing materials to a blast furnace having a given axis, said blast furnace including a bell and a first bell hopper having a common axis coinciding with said furnace axis and said first hopper being closed off from the outer atmosphere and an outer stationary hopper offset with respect to and situated to one side of said furnace axis outwardly beyond said first hopper, a rotatable chute housed within said first hopper, a rotary shaft having an axis coinciding with said furnace axis and fixed to said chute for transmitting rotary movement thereto, such shaft extending fluid-tightly along said furnace axis through said first hopper outwardly to the exterior thereof, means operatively connected with said shaft at the exterior of said first hopper for rotating said shaft for thus also rotating said chute, a charging inlet installed above said first hopper at the same side of said furnace axis as said outer stationary hopper, and said charging inlet communicating fluid-tightly with the interior of said first hopper and situated beneath and being connected to said stationary hopper, and sealing means disposed between said stationary hopper and said inlet for sealing off said outer stationary hopper from said charging inlet, and means mounting said sealing means for movement between a sealing position sealing off said outer hopper from said inlet and an open position providing free communication between said outer hopper and said inlet so that charging material can flow from said outer hopper through said inlet into said first hopper, said sealing means being supported by said mounting means for movement to a location situated out of the path of movement of material from said outer hopper to said charging inlet when said sealing means is in said open position thereof.

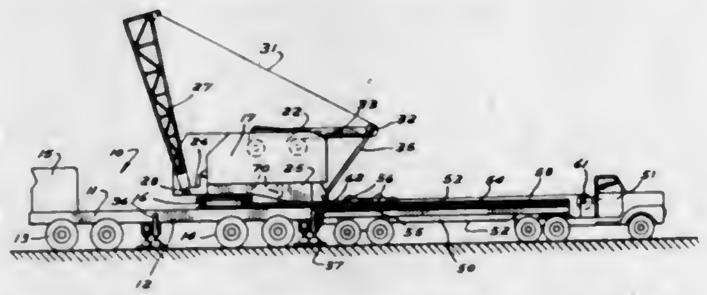
3,302,806

METHOD AND APPARATUS FOR REMOVING THE CRANE DECK FROM A CRANE CARRIER

Archer W. Brown, Minneapolis, Minn., and Robert W. Christmann, Glendale, Mo., assignors to American Hoist & Derrick Company, St. Paul, Minn., a corporation of Minnesota

Filed Jan. 6, 1965, Ser. No. 423,810

7 Claims. (Cl. 214—38)



1. The method of transporting a crane upper deck assembly separately from its normal wheel mounted crane carrier, said crane upper deck assembly including a crane deck, a cab mounted thereon, and a boom having a first section thereof pivotally mounted with respect thereto, and said crane carrier having an upper platform, comprising the steps of:
- providing a separate mobile carrier having an upper deck,
- aligning said separate mobile carrier with the crane carrier to bring said carrier platform and said mobile carrier upper deck into horizontal alignment, moving a dolly along the upper deck of the mobile carrier onto the upper platform of the crane carrier,
- separating the crane upper deck assembly from the crane carrier by elevating said deck assembly and supporting it on the dolly,
- moving the dolly and said upper deck assembly together over the upper platform of the crane carrier onto the mobile carrier, and
- transporting said crane carrier and said mobile carrier separately to a desired location for use on said upper deck assembly and crane carrier combination.

7. The combination with a mobile crane having a wheel mounted crane carrier provided with an upper platform and a crane upper deck assembly normally rotatably mounted in bearing relation with respect to said crane carrier upper platform, said crane upper deck assembly including a crane upper deck, a cab mounted thereon, and at least a first section of a boom pivotally mounted with respect thereto; of means for providing for over-the-road transportation of said crane carrier, said means including:
- a wheel mounted mobile carrier having an upper deck,
- spaced, parallel rails mounted on said upper deck and extending rearwardly therefrom,
- a dolly mounted for movement along said rails,
- spaced, parallel rails mounted on said upper platform of said crane carrier and adapted to be in adjacent, longitudinal alignment with said mobile carrier rails to receive and carry said dolly when the rear end of said mobile carrier is placed in contiguous relation to the rear end of said crane carrier,
- load bearing pockets on said crane carrier in position to underly said mobile carrier rail extensions when said rear ends are in such contiguous relationship,
- means to move said dolly along said rails to and from position under said crane deck assembly from and to position on said mobile carrier, and
- lift means to support said crane deck assembly clear of said crane carrier and on said dolly.

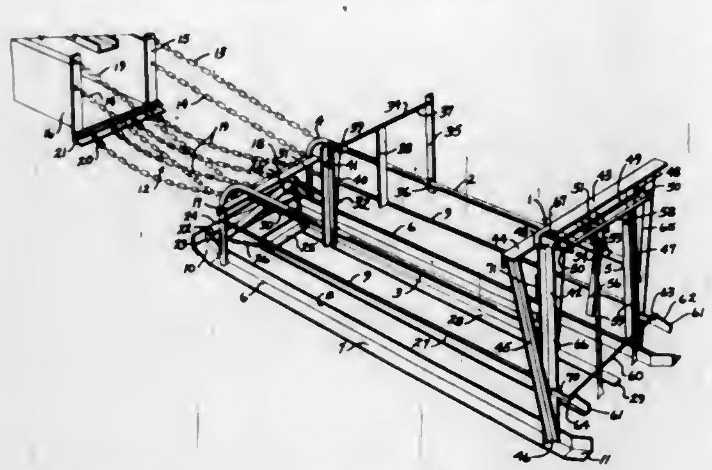
3,302,807

BALER DRAWN BALE ACCUMULATOR AND STACKER

Calvin B. Blair, Box 76, Barnard, Kans. 67418

Filed Apr. 12, 1965, Ser. No. 447,379

11 Claims. (Cl. 214—42)



5. A bale accumulator and stacker comprising:
(a) an elongated frame having a bale receiving front end and a gate supporting rear end and upwardly extending sides spaced apart to receive bales therebetween, flexible hitch means on said front end for attachment to a rear delivery hay baler, said hitch means including,
(b) at least one side chain secured to said frame at said front end adjacent each of said frame sides and extending forwardly therefrom, said side chains being generally parallel and adapted for securing to the chute of a rear delivery hay baler at side positions thereon for drawing said frame along the ground,
(c) a support extending between said frame sides at said front end, a plurality of bottom chains below said side chains and secured in spaced apart relation to said support and extending forwardly therefrom, said bottom chains being adapted for securing to said chute at bottom positions thereon,
(d) said side and bottom chains forming a retainer chute for flexibly supporting and guiding a bale issuing from said chute prior to entry into said front end.

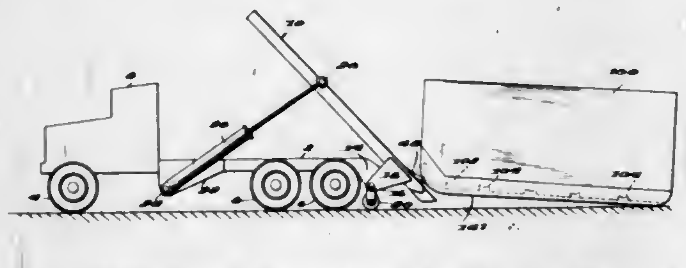
3,302,808

CONTAINER LOADING AND UNLOADING MECHANISM

William A. Herpich, 739 Hardin Way W., Galion, Ohio 44833; Charles R. Cooley, P.O. Box 21–66, Louisville, Ky. 40201; and George R. Dempster, deceased, late of Knoxville, Tenn., by Trust Company of Georgia, executor, Atlanta, Ga. 30303

Original application Sept. 22, 1960, Ser. No. 57,732, now Patent No. 3,214,045, dated Oct. 26, 1965. Divided and this application Jan. 11, 1965, Ser. No. 426,471

5 Claims. (Cl. 214—505)



1. In transporting equipment of the character described, the combination with a motor vehicle chassis, of a tilting frame extending lengthwise of the chassis, means mounting the tilting frame on the chassis for swinging movement to raised and lowered positions with respect thereto, a separate container adapted to be loaded separate and apart from the chassis, sprockets mounted at opposite ends of the tilting frame, power driven chain means extending between the sprockets, and means attached to the chain means for detachable engagement with the container and being operable upon movement forward in one direction to engage the container at one point and then back in the opposite direction to move the container one step and thereafter forward again and into engagement with the container at a second point and then back to move the container a second step for moving the container onto or off of the tilting frame.

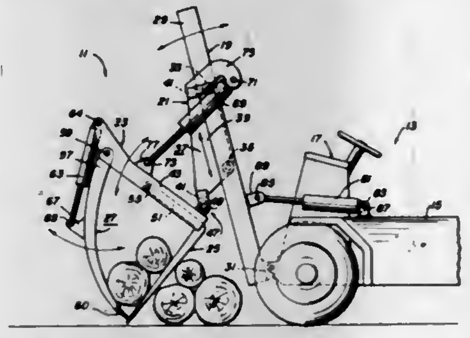
3,302,809

LOAD HANDLING MECHANISM IN A LIFT TRUCK

James J. Eaves, Louisville, Miss., assignor to Taylor Machine Works, Louisville, Miss.

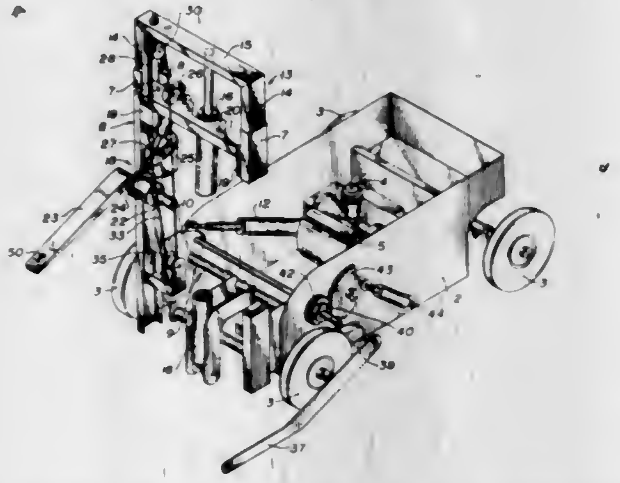
Filed Nov. 13, 1964, Ser. No. 411,055

1 Claim. (Cl. 214—654)



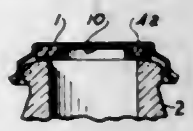
In an industrial vehicle including a chassis, a machine for manipulating logs or the like comprising an upright mast structure, means pivotally mounting said mast structure adjacent the lower end thereof from said chassis, a carriage including a frame having a lower horizontally disposed member and two laterally opposed vertically disposed members, means including a plurality of rollers journaled respectively from said vertically disposed members of said carriage frame for securing said carriage from said mast structure and for elevational movement of said carriage, a base part including a lower horizontally disposed member and four vertically disposed members secured to said horizontally disposed member and extending upwardly therefrom and with said four vertically disposed members of said base part being arranged in two pairs of members, a pair of pivot assemblies including bracket means secured respectively to said lower horizontally disposed member of said carriage and said lower horizontally disposed member of said base part, said pair of pivot assemblies including respectively pivot pin means pivotally connecting respectively said bracket means of said carriage and said base part, said base part being pivotally supported from said carriage by said pair of pivot assemblies and movable toward and away from said carriage, a pair of leg members secured to said base part with said leg members including respectively distal end portions extending outwardly and substantially perpendicularly from said lower horizontally disposed member of said base part, a pair of arm members having respectively proximal end portions and distal end portions, means pivotally mounting said pair of arm members from said base part with said proximal end portions thereof being respectively pivotally secured between the two members of each pair of said vertically disposed members of said base part, said pair of arm members additionally including a cross-member rigidly securing said pair of arm members, said cross-member being wedge-shaped in cross-section and respectively fixedly attached to and interconnecting said distal end portions of said pair of arm members, said cross-member being angled inwardly towards the lower edge thereof from the opposite side edges thereof, said pair of arm members being pivotally movable together toward and away from said pair of leg members; and individual actuating means for operatively moving selectively said mast structure, said carriage, said base part, and said pair of arm members.

3,302,810
SELF-LOADING FORK LIFT TRUCK
Fred C. Heidrick, Rte. 1, Box 1215,
Woodland, Calif. 95695
Filed Aug. 13, 1964, Ser. No. 389,267
9 Claims. (Cl. 214—660)



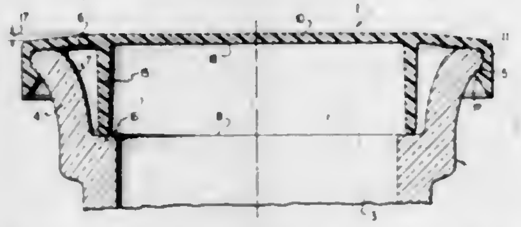
1. In a fork lift truck, capable of self-loading onto and off of the bed of a carrier, having a frame, an engine-pump mounted on the frame, a tank for containing hydraulic fluid mounted on the frame and connected to the engine-pump, a mast mounted on the frame, and a fork lift unit having fork lift arms attached to the mast, the improvement comprising attaching means for securing said fork lift arms in a fixed position relative to the carrier; lifting means actuated by fluid from the tank for causing the frame to be moved relative to the fork lift unit when the fork lift arms of the fork lift unit are fixed to the bed of a carrier; rotation means including linkages between the fork lift arms and the mast and between the mast and the frame actuated by fluid from the tank for rotating the frame and mast from a suspended position adjacent the carrier to a resting position on the carrier; and mounting means for maintaining the engine-pump operating independently of the position of the frame.

3,302,811
CONTAINER WITH CROWN-TYPE CAP
John Kosar, 29—09 Bridge Plaza N.,
Long Island City, N.Y. 11101
Filed June 21, 1965, Ser. No. 465,417
8 Claims. (Cl. 215—39)



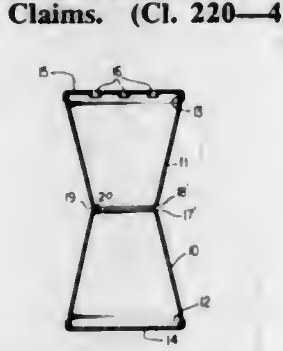
1. In combination with a crown-type container having an opening defined by an annular lip having an inner periphery, a outer periphery, and a sealing surface between said peripheries, a closure comprising a crown-type cap having a top and a depending skirt comprising a lower portion embracing the outer periphery of said lip, and an upper portion offset radially inwardly from said lower portion and overlying said sealing surface, and a resilient sealing liner adhesively seating on the inner face of said top and fitting within said upper portion of said skirt, the inner diameter of said upper skirt portion and the outer diameter of said sealing liner being greater than that of the inner periphery of said lip and less than that of the outer periphery of said lip and said liner extending radially inwardly of the inner periphery of said annular lip whereby said sealing liner sealingly engages only a radially inner portion of said sealing surface, said sealing liner having a thickness adjacent said upper skirt portion greater than the downward extent of said upper skirt portion whereby said upper skirt portion does not engage said sealing surface.

3,302,812
CONTAINER CLOSURE
Frank B. Busch, Toledo, Ohio, and Ira H. Miller, Lambertville, Mich., assignors to Owens-Illinois, Inc., a corporation of Ohio
Filed Aug. 23, 1965, Ser. No. 481,618
11 Claims. (Cl. 215—40)



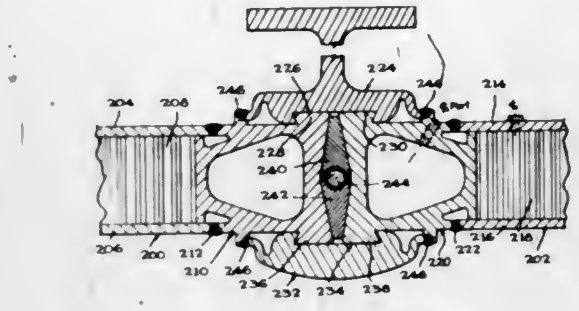
1. In combination, a container having a neck portion terminating in an open end, an enlarged coaxial recess formed in said neck portion extending from said open end and terminating in a substantially flat horizontal ledge at a fixed distance from said open end, means formed on the outer periphery of said neck for engaging and releasably retaining a closure fitment, said closure fitment including a substantially planar end panel having a size and shape generally conforming to the size and shape of said open end of said neck, a peripheral skirt depending downwardly from the outer edge of said end panel, means on the inner surface of said peripheral skirt for engaging said closure retaining means for releasably retaining said closure fitment on said open end, and a second skirt integrally formed from the same homogeneous mass of material with said end panel, said second skirt being tubular in shape and depending downwardly from said end panel in inwardly spaced relation to said peripheral skirt in position to engage said ledge when said closure is installed on said container, said second skirt being positioned on said end panel to depend into said coaxial recess in inwardly spaced relation to the side walls thereof along the full length of said recess.

3,302,813
MULTI-PIECE CONTAINERS
Wilbur A. Schaich, Maumee, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Feb. 3, 1964, Ser. No. 342,168
4 Claims. (Cl. 220—4)



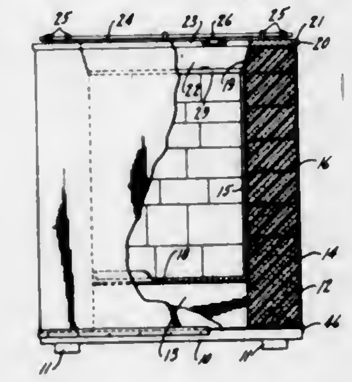
1. A plastic container comprising first and second deep drawn cup-shaped components, each of said components including a sidewall portion and a bottom portion formed integrally therewith, said bottom portions being adhered together and having apertures therein to permit communication between the components.

3,302,814
FLUID CORE JOINT
Elwood B. Dohner, Littleton, Colo., assignor to Martin-Marietta Corporation, Baltimore, Md., a corporation of Maryland
Filed Sept. 16, 1963, Ser. No. 309,210
5 Claims. (Cl. 220—5)



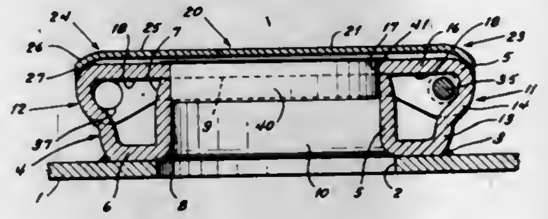
1. A joint construction comprising:
adjacent coplaner edges of two structural members;
oppositely extending flanges on each said edge extending in a plane transverse to that of said edges;
first and second cap strips extending between said edges on opposite sides thereof;
inwardly facing slots on each of said cap strips receiving one of said flanges on each of said edges;
wedge means between the facing ends of said edges, said wedge means and facing ends defining a cavity therebetween; and
an initially fluid material filling said cavity and urging said wedge means against said facing ends to urge said flanges against the sides of said slots in said cap strips.

3,302,815
INSULATED SHIPPER CONTAINER
Willard L. Morrison, Lake Forest, Ill., assignor to Elmwood Liquid Products, Inc., New York, N.Y., a corporation of New York
Filed Feb. 28, 1963, Ser. No. 261,749
10 Claims. (Cl. 220—9)



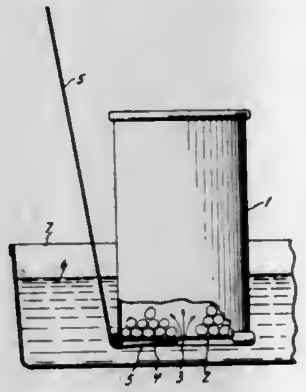
4. In an insulated shipper container, a load supporting insulating base, an insulating expandable, contractable wall extending upwardly from the base, encompassing and defining a cold storage zone closed at the bottom by the base, the wall including inner and outer membranes extending upwardly from the base, defining a gas tight insulation chamber, expandable, contractable, insulating material substantially filling the chamber, a valved air duct into the chamber, the wall being free to collapse under atmospheric pressure, laterally away from the contents of the zone and downwardly toward the base, when air is withdrawn from the chamber through the valved air duct, and to remain collapsed while the duct is closed, the insulation in the chamber being of inter-cellular, foamed, elastomeric plastic material, having a memory which causes it when released after distortion to resume its original size and shape, the inner membrane at its top being outwardly flared to define a downwardly tapering access port bounding the upper end of the storage zone, a rigid door frame encircling said port at the top of the wall, an expandable, contractable door, means for removably attaching it to the door frame to hold it in position to close the port.

3,302,816
VENT AND CLOSURE CAP ASSEMBLY
Leonard Sloper, St. Catharines, Ontario, and Peter Rezner, Beamsville, Ontario, Canada, asssignors to American Flange & Manufacturing Co. Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 5, 1965, Ser. No. 423,477
11 Claims. (Cl. 220—31)



1. A closure and venting fitting for tanks comprising a pivotally interconnected closure flange and cap, said flange having an upstanding cylindrical neck terminating in an upwardly facing free edge, a laterally outwardly extending annular base surrounding the lower end of said neck adapted to be secured about a tank wall opening, said base terminating in an outwardly facing free edge, a pair of diametrically opposed lugs integrally formed with said flange extending outwardly from said outwardly facing free edge, said lugs having an uppermost inwardly curved portion and an arm extending radially inwardly from said inwardly curved position, said cap disposed in overlying engagement with said closure flange and having a disc-like top, a depending skirt surrounding said top, a pair of diametrically opposed channel portions integrally formed with said cap extending laterally outwardly from said top, said channel portions having a top wall formed as an extension of said disc-like cap top, and spaced side walls depending from said channel top wall and extending laterally outwardly from said skirt, said channel portions confining said respective lugs therewithin.

3,302,817
CONTAINER FOR LIQUID COMBINABLE PRODUCTS
Murray L. Rollins, Old Tappan, and Thomas M. Ott, Westwood, N.J., and William H. Enzie, Weston, Conn., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
Filed Feb. 11, 1964, Ser. No. 344,065
2 Claims. (Cl. 220—53)



1. A container for use in packaging and hydrating liquid combinable products comprising, an elongate body portion of relatively rigid packing material, end closures

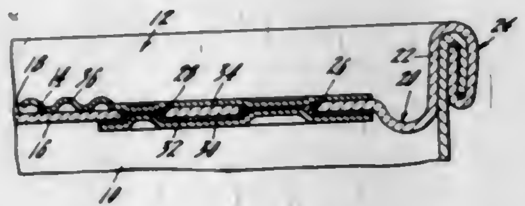
of relatively rigid packing material connected to said body portion to define therein a vacuum-sealed enclosure, one of said end closures being formed to define a perforate area intended to be submerged in a hydrating liquid, and easily opened vacuum release means for opening said container at said perforate area when submerged in a hydrating liquid, said vacuum release means including a film of water-soluble material adhered to said one end closure in sealing relation to said perforate area, said film being solublilized upon submersion in said liquid to expose said perforate area and release said vacuum in the presence of said liquid, said film of water-soluble material being firmly anchored to said one end closure by an overlying centrally apertured foil material secured about its edges to said end closure, said foil material film having an outside dimension greater than that of said water-soluble film and an interior dimension greater than that of said perforate area of said end closure.

3,302,818
CONTAINER WITH EASY-OPEN END

Alfred Edward Balocca, Wheaton, and Richard Leo Joosten, Cary, Ill., assignors to American Can Company, New York, N.Y., a corporation of New Jersey

Filed May 13, 1964, Ser. No. 367,047

8 Claims. (Cl. 220—53)



1. An easy open end closure for a container comprising:

a sheet metal end including a planar central panel and a peripheral portion adapted to be secured to a container body;

said central panel having an inner surface adapted to be disposed within said container body and an outer surface adapted to be disposed without said container body;

said central panel having at least one shaped aperture extending therethrough from said inner to said outer surfaces;

an imperforate metallic foil inner patch of substantially uniform tearability having an adhesive layer on one surface thereof;

said inner patch overlying said aperture and being disposed with a portion of said adhesive layer contacting and adhering to said inner surface surrounding said aperture and the remaining portion of said adhesive layer being exposed within the boundaries of said aperture;

an imperforate metallic outer patch juxtaposed to said outer surface and overlying said aperture;

at least one of said patches being embossed towards said other patch to bring said outer patch and the exposed portion of said adhesive layer into adhering contact, said inner patch being more readily tearable than said outer patch;

the adhesive layer within said aperture that adheres said inner and outer patches together being thinner than the adhesive layer that adheres said inner patch to said panel and a portion of said adhesive within said aperture extending laterally of the adhering surfaces of said inner and outer patches to substantially fill any voids within said aperture; and

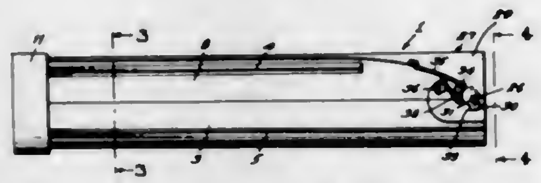
tab means on said outer patch which, when manually gripped and pulled, causes said outer patch to lift away from said end and simultaneously causes that adhered portion of said inner patch within the boundaries of said aperture to tear away from the remainder of said inner patch and remain adhered to said outer patch, thus opening the aperture in said end.

3,302,819
DELAYED OPENING PACKAGE

Simon M. Kennedy, Waurika, Okla., and James O. Pilcher II, Aberdeen, Md., assignors to the United States of America as represented by the Secretary of the Army

Filed Sept. 10, 1964, Ser. No. 395,629

6 Claims. (Cl. 220—4)



1. A delayed opening package for delivering an article at high altitude comprising a bisected container, a base member encircling the rearward ends of said container, a forward latch holding the forward ends of said container together and a handle attached to said latch and held in a locked position by said base member, said handle adapted to unlock said latch when released by said base member whereby said bisected container is parted to release said article.

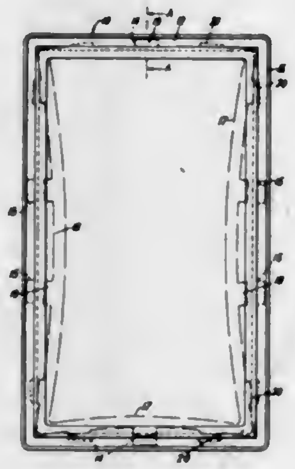
3,302,820
REFRIGERATOR CABINET ASSEMBLY

Arthur Valentine Lander, Harrow Weald, Middlesex, Robert Elliott Scott, Bovingdon, and Michael James Beechey, Wembley, Middlesex, England, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed May 12, 1964, Ser. No. 366,727

Claims priority, application Great Britain, May 16, 1963, 19,465/63

4 Claims. (Cl. 220—9)



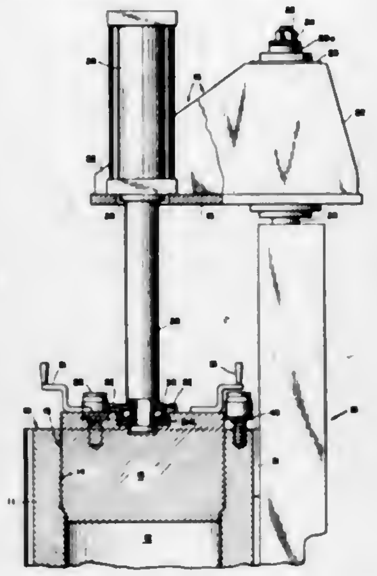
1. A refrigerator cabinet assembly comprising an outer sheet metal shell and an inner liner of synthetic plastic material wherein the shell edges are bent inwardly to form a door jamb and a flange and wherein the flange is provided with slots to receive lugs formed on the liner, the said liner being resilient to enable it to be deformed during assembly with the shell so that the lugs are sprung into and retained in the slots.

3,302,821
CLOSURE MEANS

David G. Loomis, Montclair, N.J., assignor to Midvale-Heppenstall Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Feb. 10, 1965, Ser. No. 431,505

8 Claims. (Cl. 220—39)



1. An improved closure means comprising in combination:

(a) a threaded plug;

(b) a pressure vessel provided with a threaded aperture;

(c) means for disposing the plug adjacent to the aperture and into engagement with means for guiding the plug into axial alignment with the aperture;

(d) the plug being receivable within the aperture upon axial alignment therewith;

(e) said means for guiding the plug into axial alignment with the aperture being provided with rotatable means for engaging the thread upon the plug, thereby supporting the thread upon the plug in spaced relation with respect to the thread upon the periphery of the aperture during reception of the plug within the aperture;

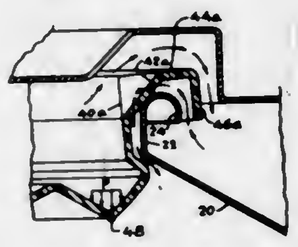
(f) the plug being urged into threaded engagement with the aperture when the plug is received therein and subjected to a pressure exerted within the pressure vessel.

3,302,822
PRESSURE EQUALIZING PACKAGE

Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed Oct. 24, 1962, Ser. No. 232,838

11 Claims. (Cl. 220—44)



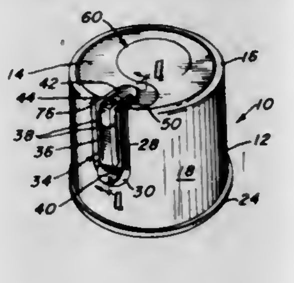
1. A pressure equalizing sanitary package comprising container means having an open end defined by a first circumferential rim and a second circumferential rim radially inwardly of said first rim, one piece snap-on manually removable closure means adapted to be inserted within and retained on said second circumferential rim of said container means, said container means having a portion thereof offset radially outwardly relative to the smallest diameter of said second circumferential rim, said offset portion being adjacent said second circumferential rim, said closure means having an end wall portion for closing off said second circumferential rim and side wall means extending upwardly from said end wall portion, knob means formed in said end wall portion adapted to be grasped by the human hand of manual removal of said closure means from engagement with said second circumferential rim, the side wall means and the second circumferential rim of said closure and container means respectively each being formed with a sealing means portion for normally engaging each other to seal said container means when in assembled relation, and one of said side wall means and said second circumferential rim being formed with an integral venting means portion spaced from said offset portion of said container means outwardly from the interior of said container means, said venting means portion being arranged relative to said respective sealing means portions to cause temporary disengagement thereof when the interior of said container is at a lower pressure than the exterior of said container to equalize the pressure therebetween and facilitate removal of said closure means from said second rim of said container means.

3,302,823
PULL-TAB, QUICK-OPENING CONTAINER

Murlin L. Hulse, 505 S. St. Andrews Place, Los Angeles, Calif. 90005

Filed Nov. 9, 1964, Ser. No. 409,644

13 Claims. (Cl. 220—54)



1. A canister having a pull-tab opening device secured thereto for opening the canister, comprising: a seamless, tubular metal body having a transverse bottom wall integral with said body and across one end and an open opposite end adapted to seat an end closure thereacross, said integral bottom wall having a severable removal area which is defined by intersecting lines of weakening, one line being circular enclosing the area to be removed from the bottom wall, including at least a substantial area of the bottom wall and a second line which describes a tortuous, medial path extending in a substantially diametric direction through the said area commencing at said intersection of the two lines so as to facilitate the opening in the bottom wall with a minimal amount of pressure and distance of pull, and a pull-tab opener secured to the removal area on said bottom wall adjacent said intersection and having its longitudinal axis oriented in said diametric direction whereby pull thereon will be in said direction starting at said point of intersection.

3,302,824
CONTAINER AND METHOD OF MAKING THE SAME OR THE LIKE

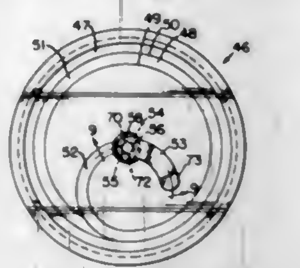
William E. Cheeley, Chesterfield, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Nov. 24, 1964, Ser. No. 413,544

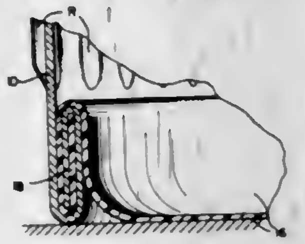
7 Claims. (Cl. 220—54)

1. In combination, a container having a wall, said wall having a tear portion and having slot means therein defining a free end of said tear portion, said free end being larger than the part of the tear portion adjacent thereto,

said tear portion having an opening passing transversely therethrough, and a tab disposed on one side of said wall and having portions thereof respectively disposed in said slot means and said opening to respectively seal said free end of said tear portion to said wall solely by the characteristics of said tab and to interconnect said tab to said tear portion, said tab having a grasping end extending beyond said slot means.

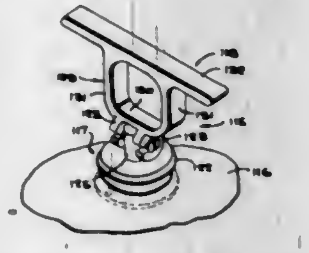


3,302,825
OPEN TOP LIQUID CONTAINER
Robert Schleeweiss, Beechhurst, N.Y., assignor to Bilnor Corporation, Brooklyn, N.Y., a corporation of New York
Filed Apr. 15, 1964, Ser. No. 359,896
13 Claims. (Cl. 220—67)



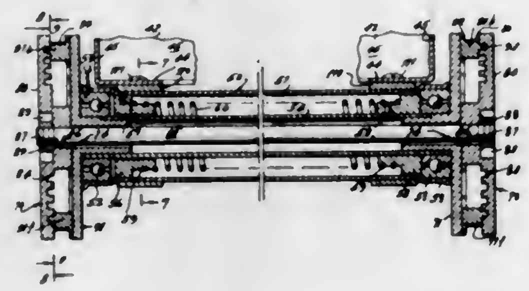
1. A collapsible liquid container comprising a coilable metal wall non-rigid in a longitudinal direction defining an enclosure, a flexible fluid impervious bottom wall, and means forming a fluid tight joint connecting said walls, comprising a seam by which the peripheral edge of said bottom wall is enclosed by a folded edge of said metal wall.

3,302,826
PLASTIC HANDLE AND CLEAT ATTACHMENT FOR CONTAINERS
John Henchert, Oak Park, and Henry E. Frankenberg, Berwyn, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Original application Mar. 30, 1961, Ser. No. 99,567, now Patent No. 3,158,284. Divided and this application May 20, 1964, Ser. No. 368,902
27 Claims. (Cl. 220—91)



1. A handle construction for containers comprising a one-piece plastic cleat member and a handle member, said cleat member including first and second axially opposite terminal portions, said first terminal portion being a generally cylindrical plug portion, said plug portion including means for sealingly securing said plug portion in an aperture of a container wall, and a hinge connection between said handle member and the second terminal portion of said cleat member, said hinge connection including an opening in one of said members and a connecting portion on the other of said members received in the opening, said hinge connection including means temporarily deformable to facilitate the connecting together of the handle and cleat members and wedge means for temporarily deforming the deformable means.

3,302,827
COUNTER MOUNTED SELF-LEVELING DEVICE
Louis Maslow, Dallas, Pa., assignor to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey
Filed Mar. 30, 1965, Ser. No. 443,917
9 Claims. (Cl. 220—93)

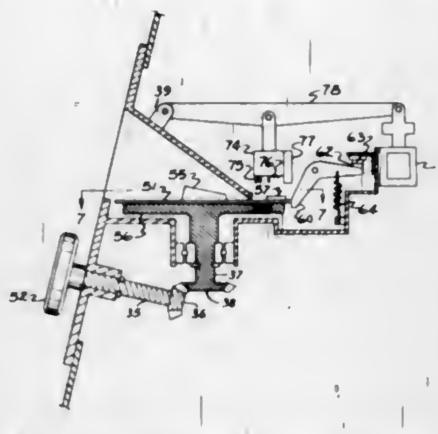


1. A self-leveling device comprising a support, a carrier assembly including a platform suspended from said support for vertical movement with respect thereto, suspension means extending between said support and said carrier assembly for suspending said carrier assembly from said support, said suspension means comprising a suspension band extending between each of a pair of opposing sides of said support and a corresponding opposing side of said carrier assembly, a reel means for each of said opposing sides of said carrier assembly, each of said bands being trained about portions of said support and said carrier assembly and having portions thereof wound about one of said reel means to form a pair of continuous loops suspending said carrier assembly from said support, said reel means each comprising a pair of spaced apart flange members, one flange member of each pair being provided with a spiral groove formed in the operative face thereof and the other flange member thereof being provided with a plurality of radially extending grooves on the operative face thereof, said operative faces being in confronting relation, a plurality of bridging elements for each of said reels, each of said bridging members having portions extending into the radial groove in alignment therewith, said bridging elements in each reel being disposed in a circular array defining a hub cage therefor about which one of said bands is wound, the level at which said carrier assembly is disposed with respect to said support being determined by the extent to which said bands are wound about said reels.

3,302,828
SYSTEM FOR AUTOMATICALLY DISPENSING PREDETERMINED QUANTITIES OF SELECTED ARTICLES
Richard R. Gomez, Chadds Ford, Pa. (1304 Andover Road, Philadelphia, Pa. 19151), and Merton Price, Lower Merion, Pa. (% Frenchtown Porcelain Co., Frenchtown, Pa. 16836)
Filed May 15, 1964, Ser. No. 367,834
4 Claims. (Cl. 221—2)

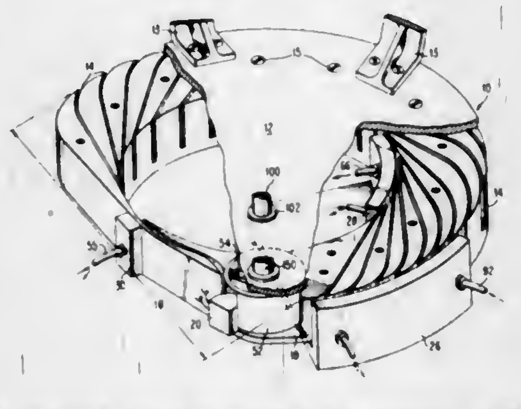
1. Apparatus for dispensing articles, said apparatus including:
- a turntable,
- a card engageable with said turntable for rotation therewith,
- a circuit,
- a first, normally open, switch included in said circuit and adapted, when closed, to connect said circuit to a source of power,

- a first sensing means responsive to the presence of said card on said turntable to close said first switch,
- a second, normally open, switch also included in said circuit,
- a second sensing means responsive to contact with a peripheral portion of said card to close said second switch,
- a third, normally open, switch,
- delivery means operatively connected to said third switch and adapted, when said switch is closed, to deliver an article from a selected storage area,



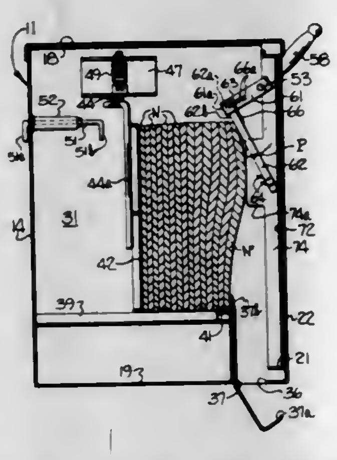
- a fourth, normally open, switch located in the path of movement of a delivered article and adapted to be closed by such article,
- recording means operatively connected to said fourth switch and adapted, when said switch is closed, to inscribe data relating to the delivered article on a portion of said card, and
- mutilating means operatively connected to said fourth switch to mutilate said peripheral portion of said card to render such portion ineffective to activate said second sensing means, thereby to prevent the closing of said second switch.

3,302,829
RANDOM ACCESS FILM STRIP STORAGE SYSTEM UTILIZING PNEUMATIC SELECTION AND MECHANCAL TRANSPORT MEANS
Richard K. Wilmer, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Sept. 14, 1964, Ser. No. 396,340
15 Claims. (Cl. 221—88)



1. A storage bin for storing a plurality of flexible film strips including separate storage chute means for each such strip, said bin comprising:
- a hollow substantially cylindrical member having inner and outer cylindrical surfaces radially spaced from each other, and
- a plurality of storage chutes located between said inner and outer cylindrical surfaces,
- each chute having an entrance slot lying in the inner cylindrical surface of said bin,
- each chute having an exit slot lying in the outer cylindrical surface of said bin,
- the inner and outer surfaces of said bin, in the areas adjacent to said entrance and exit slots, being unbroken except for said slots,
- each chute being substantially tangent to the outer cylindrical surface at its outer end and substantially tangent to the inner cylindrical surface at its inner end and,
- each chute being so shaped that a film strip entering and leaving said chute will traverse the inner and outer surfaces of the bin in the same relative direction.

3,302,830
MACHINE FOR VENDING PERIODICALS
Carroll E. Huggins, 1233 Gilmore Road, Charleston, S.C. 29407, and Hoffman N. Huggins, 3435 Apache St., Charleston Heights, S.C. 29405
Filed Jan. 13, 1965, Ser. No. 425,154
7 Claims. (Cl. 221—216)

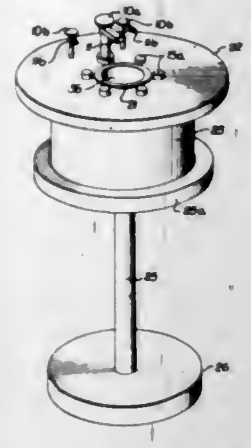


1. A machine for vending periodicals such as newspapers and the like comprising, in combination, a cabinet, means in said cabinet for supporting a stack of newspapers vertically on edge, retaining means adjacent the forward end of said stack supporting means, means for yieldingly urging said stack of newspapers against said retaining means, a discharge opening in said cabinet, an operating shaft rotatably journaled in said cabinet, newspaper impaling means on said operating shaft, stationary stripping means fixedly positioned on said cabinet separate from said newspaper impaling means, means for rotating said shaft in one direction to impale the leading newspaper in said stack with said impaling means and lift said leading newspaper from behind said retaining means, means for rotating said shaft in the opposite direction to carry said impaled newspaper downwardly and forwardly into engagement with said stripping means whereby said newspaper is removed from said impaling means by said stripping means and falls by gravity into said discharge opening.

3,302,831
BEVERAGE DISPENSING STANDS
Richard Matheney, 233 W. 64th St., Los Angeles, Calif. 90003
Filed Mar. 8, 1965, Ser. No. 438,011
8 Claims. (Cl. 222—108)

5. A beverage serving facility comprising a housing including a table top, said housing including means for receiving a plurality of beverage-containers therein, and means on said housing for dispensing beverages and mixtures thereof in the area over said table top, said means including at least one mixing valve on the housing, siphon tubes connected to at least a pair of the beverage-containers and connected for independent communication with said mixing valve, pump means on said table top and including an outlet generally overlying said table top and an inlet in said housing, and a conduit from an outlet of said mixing valve connected to the inlet of said pump means.

6. The structure as claimed in claim 5 in which said table top includes an opening therethrough through which

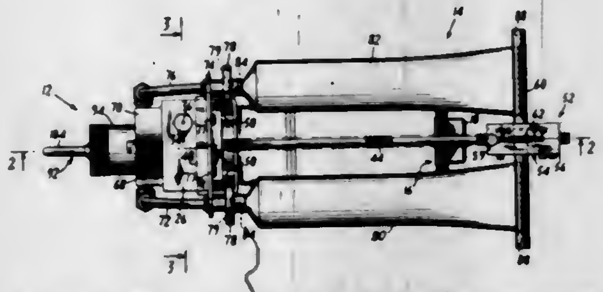


said beverage-containers can be inserted and removed, and a receptacle removably received in said opening, said pump means including an outlet overlying said opening.

3,302,832

CAULKING GUN

Kenneth V. Hardman, Upper Montclair, and Alfred J. Anderson, Livingston, N.J., assignors to H. V. Hardman Co., Inc., a corporation of New Jersey
Filed Mar. 21, 1966, Ser. No. 540,790
14 Claims. (Cl. 222—94)



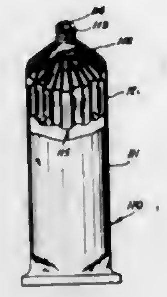
1. A device for mixing and dispensing contents from a plurality of tubes which comprises stripping means for stripping material from said tubes, mixing means for receiving, mixing and dispensing said materials from said stripping means, said mixing means comprising a chamber with an outlet port, an agitator rotatively mounted in said chamber, said chamber having a thread cut along at least a portion of its inside wall coacting with said agitator to feed the material being mixed back upon itself away from the outlet port.

3,302,833

DISPENSER FOR DISPENSING PRODUCT AT CONDITIONED TEMPERATURES

Walter Leika, Astoria, N.Y., assignor of thirty percent to Bernard Block, New York, N.Y.
Filed Dec. 21, 1965, Ser. No. 515,573
10 Claims. (Cl. 222—146)

1. A dispenser for dispensing viscous products and the like comprising a hollow elongated generally cylindrical container enclosing a space for holding viscous product, means forming a single closeable opening centrally positioned at one end of said container, the container being otherwise sealed and having an end portion containing said closeable opening and including wall means having an inner surface tapering generally inwardly toward said closeable opening, and insert means affixed in the dispenser within said end portion and having an outer surface in substantially uniformly spaced relation from said inwardly tapering wall means inner surface to form passageway means of substantially uniform width from said wall means extending along said wall means from the interior of said dispenser toward said closeable opening so as to maintain a product passing therethrough in close contact with said wall means and in good heat exchange relation therewith, the insert means being closed at the end adjacent to said opening and preventing communication between the interior of

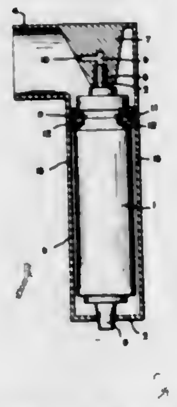


the dispenser and the opening thereof except along said outer surface of said insert means, at least one of the inner surface of the wall means and the outer surface of the insert means having a plurality of projections extending toward the other surface to facilitate heating of a viscous product disposed therebetween.

3,302,834

AEROSOL APPLICATORS

Ranulph Michael Alsop, Alderley Edge, England, assignor to Fisons Pharmaceuticals Limited, Loughborough, England
Filed Aug. 5, 1965, Ser. No. 477,410
Claims priority, application Great Britain, Aug. 11, 1964, 32,762/64
5 Claims. (Cl. 222—162)

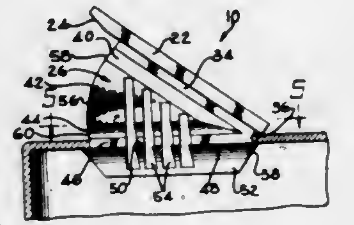


1. A pressurized aerosol dispenser for administering a medicament by inhalation, said dispenser comprising an aerosol container having an aerosol release valve and a spring loaded stem for operating said valve, a tubular housing in which said aerosol container is mounted, said housing having a delivery tube extending from one end of said tubular housing and having a free end, said free end having a shape which is adapted to be received in the mouth of a patient in substantially air tight engagement, spray means in said delivery tube engaged with said stem and having means for directing a spray of aerosol along the length of the delivery tube, manually operated means in the other end of said housing engaging with the end of said container for urging said container toward said spray means, and valve means forming part of said dispenser and operable only when said container is moved toward said spray means by said manually operated means for admitting air into the end of said delivery tube adjacent said container, whereby when a patient places the free end of the delivery tube in his mouth he can inhale a sprayed material only when the manually operated means is actuated to move the container toward the spray means to dispense a spray through the aerosol release valve and at the same time air is admitted into the end of the delivery tube adjacent the container.

3,302,835

COMBINED SHAKER DISPENSER AND CLOSURE

William J. Eckles, 1117 S. Cambridge, Anaheim, Calif. 92805
Filed Oct. 22, 1965, Ser. No. 500,520
5 Claims. (Cl. 222—531)



1. A combined shaker dispenser and closure, said combined shaker dispenser and closure being adapted to control the dispensing of material from a container having an opening, said combined shaker dispenser and closure being adapted to be inserted in the opening, the opening in the container having at least one straight edge, said combined shaker dispenser and closure comprising:

a top plate, said top plate having at least one straight edge and being of sufficient size to overlie the opening in the container with the straight edge of said top plate being adjacent the straight edge of the opening, a groove in said shaker dispenser and closure parallel to said straight edge of said top plate and positioned beneath said top plate, said groove being adapted to engage the straight edge of the opening;

first and second walls depending below said top plate, said first and second walls being connected together, an edge at the connection between said first and second walls, a top groove and a bottom groove in each of said walls, said top groove lying substantially parallel with respect to said top plate, said bottom groove lying at an angle with respect to said top groove, said top groove and said bottom groove intersecting at said first groove, a stop adjacent said bottom groove, said stop extending outwardly away from said bottom groove, an opening in at least one of said walls between said top groove and said bottom groove;

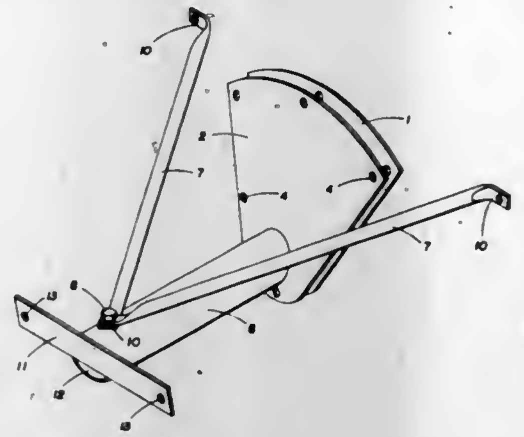
said combined shaker dispenser and closure being arranged so that it is pivotable on said first groove from a position wherein said top plate lies against the top of the container, in which said combined shaker dispenser and closure is closed, to a position wherein the top of the container is adapted to lie in said bottom groove, in which position said openings permit discharge of material from the container.

3,302,836

OUTSIDE SPARE TIRE CARRIER

Fred L. Herndon, 303 Keystone Ave., Santa Cruz, Calif. 95060
Filed Sept. 7, 1965, Ser. No. 485,517
1 Claim. (Cl. 224—42.24)

A spare tire and wheel unit carrier, for attachment to an upstanding body panel of a motor vehicle, comprising a rigid plate formed to flatly abut against said panel, means to secure the plate against the panel, an arm projecting outwardly from and rigid with the plate, and means on the outer end of the arm to detachably support the spare tire and wheel unit; said last named means comprising a rigid cross bar secured on the arm and provided with bolt holes matching corresponding holes on the wheel, the arm being tubular and the cross bar being

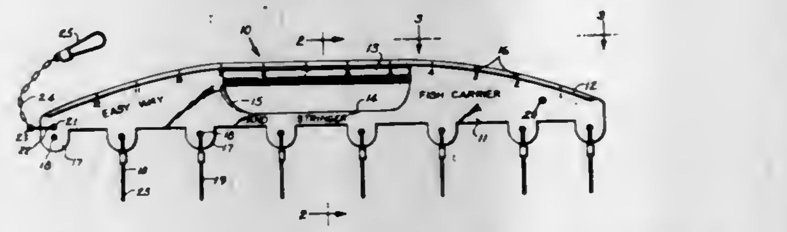


positioned to leave a portion of the arm open at its outer end.

3,302,837

FISH CARRIER

Jack R. Montgomery, 2035 W. Washington Ave., San Bernardino, Calif. 92405
Filed May 20, 1965, Ser. No. 457,320
2 Claims. (Cl. 224—46)

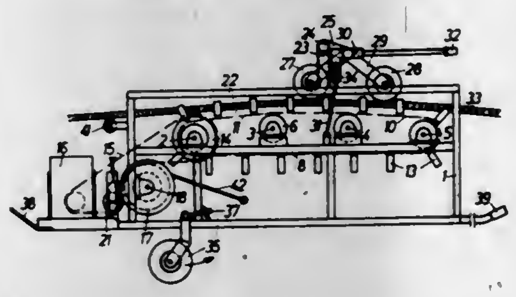


1. A fish carrier and stringer device comprising an elongated metallic body, having a plurality of clips for depending fish therefrom, and handle means for carrying said device, the upper edge of said body being arcuate in configuration and provided with a lip from the front to the rear of said body and said lip is bent over and provides stiffening for strength of said body and spaced apart graduations upon said lip of said body provides a quick reference indicator as to the length of the fish when said fish is laid alongside of said body of said device.

3,302,838

APPARATUS FOR PAYING OUT A CABLE FROM A CABLE DRUM

Jakob Thaler, 12 Segebergerstrasse, Bad Bramstedt, Germany
Filed Mar. 4, 1965, Ser. No. 437,189
Claims priority, application Germany, May 29, 1964, T 26,277
9 Claims. (Cl. 226—172)

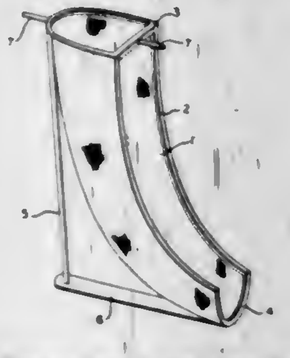


1. A cable-advancing conveyor consisting of a pair of coextensive, aligned endless sprocket chains respectively situated in spaced, parallel vertical planes with each of said chains having substantially horizontal upper and lower runs, a plurality of pairs of sprocket wheels situated with one wheel of each pair in one of said planes and the other wheel of each pair in the other of said planes, said sprocket wheels being operatively connected

with said chains for supporting and advancing the latter, a plurality of transverse bars situated in the space between said planes, extending perpendicularly with respect thereto, with each of said bars fixed to the pair of chains, said bars being parallel to each other and spaced relatively widely from each other along said chains, the distances between said bars along the lengths of said chains being substantially greater than the dimensions of said bars along the lengths of said chains, and a plurality of V-shaped cable-gripping members respectively having apexes fixed to said bars substantially midway between the ends thereof, said gripping members also being relatively widely spaced from each other and defining between themselves along the lengths of said chains spaces substantially greater than the dimensions of said gripping members along said chains, and said gripping members extending upwardly from those bars which at any given instant are situated along the upper runs of said chains, so that said gripping members have along the upper horizontal runs of said chains outwardly directed open ends for receiving a cable, whereby a cable situated in the gripping members which at any instant are situated along the upper runs of said chains will be advanced by the conveyor, said upper runs having inlet ends for receiving a cable and discharge ends from which the cable is discharged, so that a cable conveyed by the conveyor will be advanced from the inlet to the discharge ends of the chains.

3,302,839
TOW-DIVERTING CHUTE FOR DEPOSITING RUNNING TOW ON A CONVEYOR BELT

William Hampton Spruill, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Mar. 25, 1965, Ser. No. 442,590
3 Claims. (Cl. 226—196)

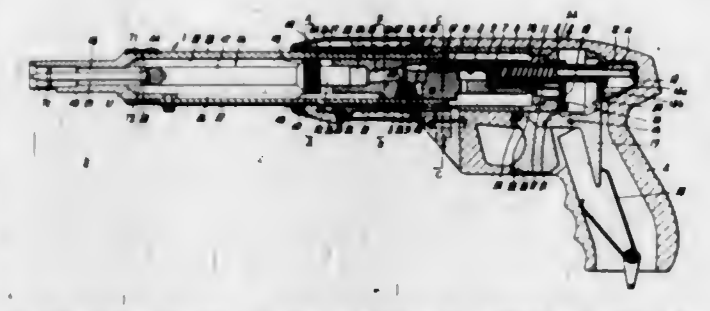


1. In a tow delivery apparatus for depositing a running length of tow on a conveyor belt in a sinuous pattern, the improvement of a wire cloth tow-diverting chute for delivering the tow to said conveyor belt without snagging, the wire cloth surface of the chute being smoothly curved to divert the running length of tow through an arc of about 60°, tapered from about 9 inches in width at the top to about 4 inches in width at the mouth to consolidate the tow between converging wire cloth walls as the tow passes through the chute, and of an over-all length between 30 and 40 inches.

3,302,840
EXPLOSIVELY ACTUATED FASTENER DRIVING TOOL

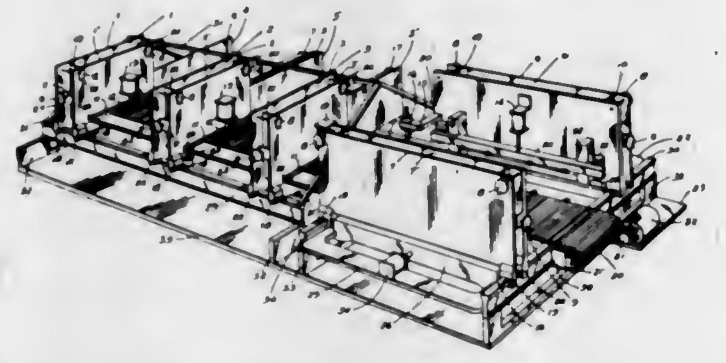
Toshishige Sekiguchi, Tokyo, and Meikichi Saba, Sagamihara, Japan, assignors to Japan Drive-It Co., Ltd., Tokyo, Japan
Filed Apr. 26, 1965, Ser. No. 450,758
Claims priority, application Japan, Apr. 27, 1964, 39/23,747
7 Claims. (Cl. 227—8)

1. An explosively actuated fastener driving tool having a front portion comprising a barrel, a cartridge receiving plug and on which said barrel is slidably mounted and a piston slidable in said barrel, and a rear portion comprising a firing mechanism, said plug being coupled to said firing mechanism, said front portion further comprising a front cylindrical member surrounding the barrel and having a plurality of projections projecting inwardly from the inner surface thereof and spaced along the length thereof, said rear portion further comprising a rear cylindrical member surrounding the barrel and having a plurality of projections projecting inwardly from the inner surface thereof and spaced along the length thereof at distances corresponding to the spacing of said projections on said front cylindrical member, said barrel having on its outer circumferential wall a plurality of projections which are spaced therealong at distances corresponding to the spacing of said projections on said front cylindrical member and engageable with and disengageable with the projections on the front and rear cylindrical members, whereby the barrel is movable in an axial direction toward or away from the cartridge receiving plug when the projections are disengaged, while the barrel is locked in position against the axial movement when the projections are engaged.



3,302,841
AUTOMATIC DUST BOTTOM ASSEMBLER

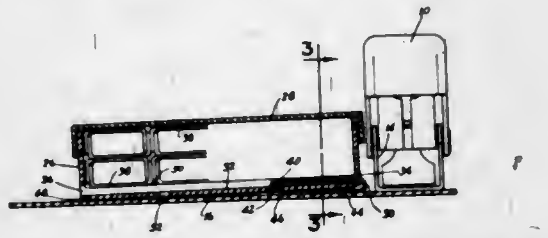
Clayborne Colon Beck, 711 Spruce St., Bedford, Va. 24523
Filed Oct. 21, 1965, Ser. No. 500,418
5 Claims. (Cl. 227—14)



1. An automatic dust bottom assembling device for assembling dust bottom composed of panels and grooved ends, monts, and rails, comprising a plurality of adjustable and aligned ends and mont hoppers mounted on a first pair of parallel space aligned support for relative adjustment therebetween; adjustable panel hoppers attached to said ends and mont hoppers at one end thereof for adjustment therewith; a pivoted bar mounted on each of said ends and mont hoppers and adapted to engage ends and monts located therein; means to activate said pivoted bar; movable spaced bars located below said ends and mont hoppers in space relationship with said pivoted bars to clamp the parts to be assembled therebetween; solenoid actuated panel pushers having an extending stepped lip portion attached to one support of said first pair of parallel supports and in alignment with said parallel hoppers, whereby said panels are moved from said hoppers onto the grooves and the ends and monts; means connected with said spaced bars to release the partially assembled dustbottom therebetween; a second pair of space parallel supports extending at right angles to said first pair; a pair of adjustable spaced rail hoppers, adjustably mounted on said second pair of supports; a conveyor belt extending under the ends and mont hoppers and between said rail hoppers in alignment therewith, whereby the release of the partially assembled dustbottom on said conveyor belt conveys same to a precise position between the rail hoppers; a motor to activate said conveyor belt; and solenoid actuated pusher means on rail said hoppers for assembling rails to said mont, ends, and panels.

3,302,842
STAPLER

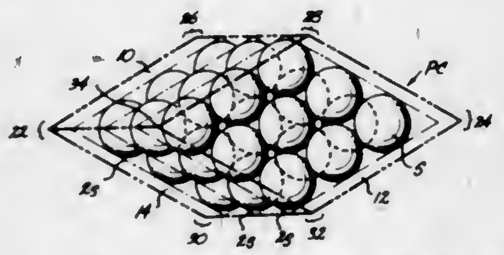
Lendrum A. MacEachron, 3820 New Brighton Road, St. Paul, Minn. 55112
Filed Mar. 4, 1965, Ser. No. 437,198
3 Claims. (Cl. 227—120)



1. A stapler comprising: a base having a laterally extending slot forming two legs, a staple clinching anvil adjacent the end of one of said legs, a staple driving head hinged to the other of said legs adjacent the end thereof to position the head over the anvil, and a staple storage box removably secured to said other of said legs near said staple driving head.

3,302,843
CONTAINER FOR SPHERICAL OBJECTS AND BLANK FOR FORMING SAME

Douglas J. Sheehan, 7406 137th NE., Redmond, Wash. 98052
Filed Oct. 19, 1965, Ser. No. 497,955
7 Claims. (Cl. 229—8)

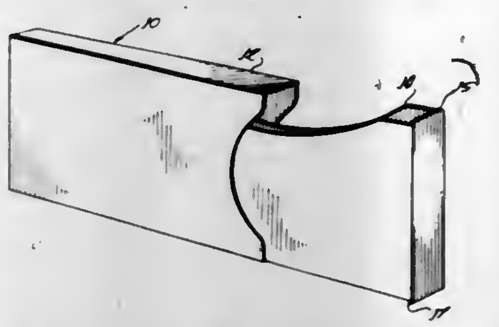


1. A container capable of stably resting on any side yet readily rollable, and capable of being stacked in an interlocking fashion, said container comprising six interconnected sides, each of said sides being essentially planar and the configuration of a parallelogram with two oppositely related included angles of substantially 60° and two oppositely related included angles of substantially 120°.

3,302,844
CARTON

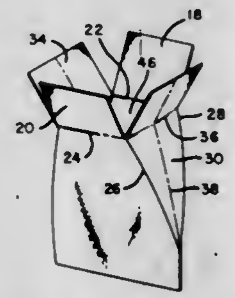
James Warren Henry, Clarksville, Ind., assignor to The Finn Industries, Inc., Chicago, Ill., a corporation of Delaware
Filed Apr. 13, 1964, Ser. No. 359,318
6 Claims. (Cl. 229—10)

1. A two-piece carton having an outer sleeve and an inner container slideably received therein, each formed of a single piece of material, a stop tab formed in the bottom wall of the outer sleeve, a withdrawal locking tab depending from the back wall of the inner container which contacts the stop tab to prevent the inner container from being removed from the outer sleeve, and a pair of tabs projecting vertically from the front wall of the inner container which engage the edges of the top and bottom walls of the outer sleeve to prevent the inner container from sliding through the outer sleeve, and a partition wall formed in the inner container dividing the same into a pair of compartments, one of which is completely visible when the withdrawal locking tab is in contact with the stop tab.



3,302,845
PAPERBOARD PACKET AND BLANK THEREFOR

Jerome Gould, Los Angeles, Calif., assignor to Leslie Salt Co., a corporation of Delaware, also doing business as Spice Islands Company, San Francisco, Calif.
Filed Jan. 21, 1965, Ser. No. 426,922
8 Claims. (Cl. 229—16)



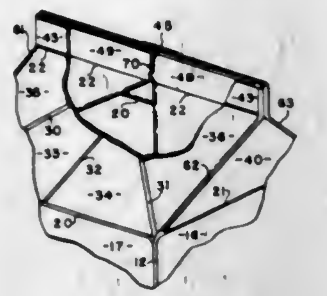
1. A packet formed of paperboard or the like comprising:
- a pair of generally trapezoidal upright front and rear main wall panels connected together by a single fold line along their upper ends,
- a pair of generally triangular side panels each connected by fold lines from said single fold line along downwardly diverging sides thereof to said main wall panels, and
- a generally rectangular bottom formed by flaps connected along fold lines to the bases of said trapezoidal main wall panels and said triangular side panels and secured together in overlapped relationship.

3,302,846
GABLE TOP CONTAINER

Isaac L. Wilcox, Fulton, N.Y., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed May 14, 1965, Ser. No. 455,777
2 Claims. (Cl. 229—17)

1. A gable top container of sheet material comprising a tubular body having four side walls of equal width, a bottom closure fixed to said body, a pair of opposed roof panels inclining toward each other and overlying the top of the body, a pair of opposed triangular end closure panels infolded between said roof panels from the opposite gable ends formed by the latter, and with their apexes located at the central area of the gable, first and second pairs of triangular fold-back panels, each pair of triangular fold-back panels being joined to the opposite sides of a respective one of said triangular end closure panels along fold lines which are in proximity with said roof panels, said fold-back panels being folded against the underside of said roof panels, a ridge panel surmounting each of said roof panels, a ridge panel surmounting each of said fold-back panels, each pair of ridge panels surmounting a

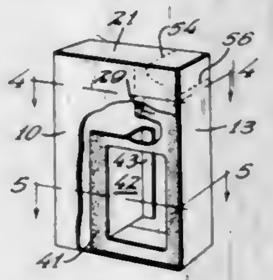
pair of fold-back panels being hinged together at the apex of the respective contiguous end closure panel and being folded about said hinge, in face-to-face relation, between



the ridge panels surmounting said roof panels, the length of each of said ridge panels surmounting each of said fold-back panels being in excess of one half the length of the ridge panels surmounting said roof panels.

3,302,847
REINFORCED POUR SPOUT CARTON

Russell J. Hennessey, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed May 20, 1965, Ser. No. 457,411
8 Claims. (Cl. 229—17)



1. A reinforced pour spout carton blank including:

a first main panel, a first side wall panel, a second main panel, and a second side wall panel connected in series by substantially parallel fold lines,

a fifth panel hinged to said second side wall panel along a glue flap hinge line,

a generally U-shaped cut in the lower portion of said fifth panel including a pair of spaced cut lines substantially perpendicular to said fold line and terminating in spaced relation to said glue flap hinge line, and a third cut line connecting the ends of said cut lines of said pair which are closest to said glue flap hinge line,

a fold line parallel to said previously described fold lines and connecting the ends of said cut lines of said pair which are most remote from said glue flap hinge line,

an additional fold line extending between the cut lines of said pair and parallel to and spaced from said third cut line dividing the area within said U-shaped cut into a partition panel and a glue panel said partition panel being substantially equal in width to said side wall panels,

a pour spout extension hinged to the upper portion of said fifth panel along a pour spout extension hinge line parallel to said previously described fold lines,

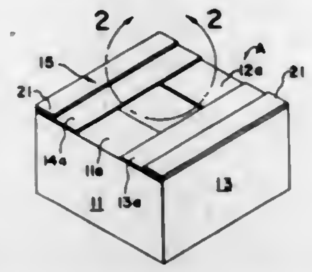
said pour spout being creased along parallel fold lines to provide a first main panel liner panel, a side wall liner panel, and a second main panel liner panel,

said first main panel liner panel being of a width substantially equal to the distance between said pour spout extension hinge line and said glue flap hinge line, and said side wall liner panel being substantially equal in width to said side wall panels, and

closure flaps hinged to certain of said panels.

3,302,848
FOLDABLE STRUCTURAL SHIPPING CONTAINER

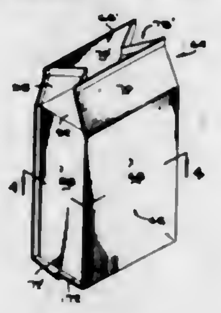
Armin Elmendorf, Portola Valley, Calif., assignor to Elmendorf Research, Inc., Palo Alto, Calif.
Filed Oct. 1, 1965, Ser. No. 492,156
5 Claims. (Cl. 229—23)



1. A container comprising, in combination, wall members substantially defining a hollow rectangular parallelepiped whose sides and ends include a wood veneer with the grain of the veneer running from the bottom to the top, an outer fiber liner bonded to the outer surface of the side and end-veneers and foldable over the top and bottom end-grain surfaces of said side and end-veneers to form overlapping end and side-flaps on both the top and bottom of the container, said top including a pair of wooden cleats with each of said cleats overlying at least a substantial portion of the top end-grain surface of one end-veneer and at least a substantial portion of part of the top end-grain surface of each side-veneer whereby a plurality of such containers can be stacked one on top of another and the load imposed upon each container by the containers placed thereabove is transmitted to the end and side veneers of that container by means of the cleats.

3,302,849
SINGLE AND MULTIPLE BLANK CARTONS

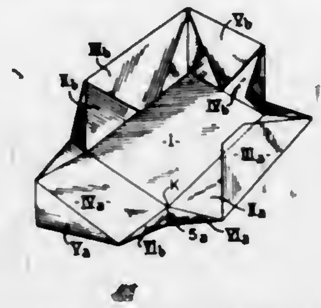
Robert T. Elias, Downers Grove, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Original application May 6, 1963, Ser. No. 278,138, now Patent No. 3,237,838, dated Mar. 1, 1966. Divided and this application Oct. 24, 1965, Ser. No. 504,717
11 Claims. (Cl. 229—23)



1. A carton comprising a bottom panel, two opposed side panels, a top panel, a front panel and a back panel, the plurality of panels forming a carton body, said panels being constructed from at least two blanks of material joined to each other, one of said blanks of material being relatively rigid and non-foldable and at least another of said blanks being relatively foldable and resilient, each of the two opposed side panels including a pair of spaced flange-forming panel portions, one of the panel portions of each of the pair of panel portions being overlyingly secured to the front panel and the other of the pair of panel portions of each of the pair of panel portions being overlyingly secured to the back panel, thereby forming a reinforcing flange at each juncture of adjacent panels, a plane taken normally through said reinforcing flanges defining a substantially polygonal outline, the material of each of said blanks being fibrous material, and the fibers of one of said blanks being longer than the fibers of the other of said blanks.

3,302,850
BLANK FOR CONSTRUCTING A BOX OF CARDBOARD OR LIKE MATERIAL AND BOX CONSTRUCTED FROM SAID BLANK

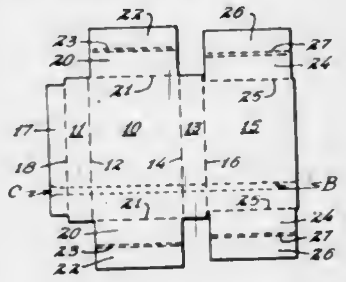
Edmond Klein, Saint-Polycarpe, Limoux, France
Filed July 9, 1965, Ser. No. 470,839
Claims priority, application France, July 17, 1964, 982,047, Patent 1,409,438
7 Claims. (Cl. 229—31)



1. Box comprising in combination a folded blank of sheet fibre-containing material having four edges which define a square blank in the initial flat state of the blank, two of said edges being parallel to the orientation of the fibres of the material, said blank comprising, defined by fold lines at 45° to said edges in the initial flat state of the blank, a rectangular centre panel constituting the bottom wall of the box, four rectangular lateral panels adjoining the centre panel and constituting vertical lateral outer walls of the box, four triangular panels in the corners of the blank and constituting vertical lateral inner walls of the box which are coextensive with said lateral outer walls and constitute four composite lateral walls, the material of which comprises two crossed fibre orientations, four triangular gores defined by parts of said four edges and by fold lines defining the vertical ends of the four lateral panels, each of said gores having a median fold line at 90° to the corresponding one of said edges, and fixing means fixing said coextensive vertical triangular panels to said vertical rectangular lateral panels and fixing each of said gores to the inner face of one of said lateral panels.

3,302,851
SHIPPING FOLDER FOR BOOKS AND SIMILAR OBJECTS

Ronald V. Johnson, Bloomington, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed Mar. 15, 1965, Ser. No. 439,560
3 Claims. (Cl. 229—37)



1. A shipping container including:

a tubular body comprising a pair of generally rectangular top and bottom wall panels connected along opposite side edges by a pair of generally rectangular side wall panels, in which the top panel is substantially shorter than the bottom and side wall panels,

an end cushion assembly and end closure assembly connected to at least one end of said shipping container including:

an end cushion panel hingedly connected to the end edge of one of said top and bottom wall panels,

an end cushion flap hingedly connected to said end cushion panel,

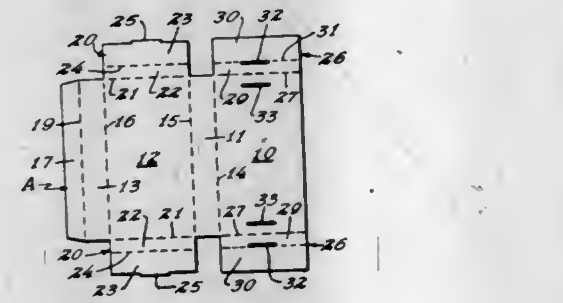
an end closure panel hingedly connected to the end edge of the other of said top and bottom wall panels, and folded into face contact with said end cushion flap, and

an end closure flap hingedly connected to said end closure panel and folded over said end cushion flap into face contact therewith and into face contact with said end cushion panel, said cushion panel, end cushion flap, end closure panel and end closure flap being of a length substantially equal to the height of said side wall panels to form an end closure for said tubular body, and

means adhering said end closure flap in face contact to said end cushion panel thereby securing the shipping container for shipment.

3,302,852
RECESSED END CONTAINERS

Ronald V. Johnson, Bloomington, and Eugene H. Isakson, St. Paul, Minn., assignors to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed May 20, 1965, Ser. No. 457,410
1 Claim. (Cl. 229—39)



A book folder and the like comprising:

a generally rectangular, elongated top, bottom, and side wall panels,

means secured to one of said side panels adapted to overlap said bottom panel to connect said panels in tubular relation,

closure flap structure secured to ends of said top and bottom wall panels,

one said closure flap at each end of said tubular structure hinged to a first of said top and bottom panels and including a first spacer flap adapted to fold into face contact with the inner surface of said first panel, and a first partition panel having an area substantially equal to the cross-sectional area of the tubular arranged panels substantially normal to the surfaces thereof and spaced from the ends of said panels, and

a second closure flap structure hinged to the second of said top and bottom panels at each end thereof and including a spacer flap adapted to fold into face contact with the inner surface of said second panel, and a partition panel on the end of said spacer flap and being of a width to fit snugly between said side wall panels and of a length substantially equal to the distance from the inner surface of said second panel to the inner surface of said first spacer flap,

said second partition panel being shorter than said first partition panel and extending across the end of said tubular structure outwardly of, and substantially parallel to, said first partition panel,

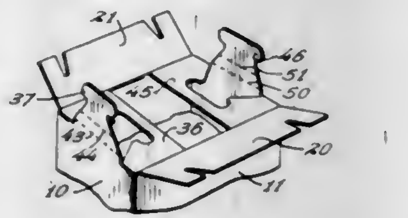
cooperable locking means on the end of said second partition panel and said first spacer flap including a tongue on said partition panel and a slot in said first spacer flap adjacent to the line of fold into which said tongue may engage,

the first of said top and bottom panels including a recess in registry with said slot in said first spacer flap when said first spacer flap is in face contact with said first of said top and bottom panels and into which the extremity of said locking tongue may extend,

said recess terminating short of the outer surface of said first of said top and bottom panels,
said tongue being of a length adapted to extend through said slot when said folder is erected and to have its extremity engaged in said recess.

3,302,853
CONTAINER CLOSURES

Frank W. Locke, Minneapolis, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed June 21, 1965, Ser. No. 465,349
4 Claims. (Cl. 229—39)

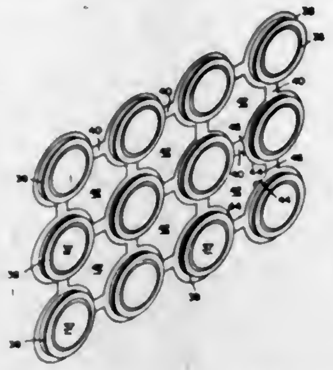


1. A closure for a container having opposed side and end walls hingedly connected in tubular relation, the closure including:
end flaps hingedly connected to the end walls,
container forming members formed from each end flap hingedly connected to the end walls and including side edges parallel to the side walls, and an end edge substantially equal in width to the end wall, the container forming members folded into coplanar and edge abutting relation,
side flaps hingedly connected to the side walls including notches in the end edges of the side flaps in opposed relation to form apertures of a predetermined width through the side flaps, folded inwardly into coplanar and edge abutting relation and into face contact with said container forming members, and
locking tabs formed from each end flap and connected to the end walls including
a neck portion being narrowed in width from the juncture of the locking tab and the end wall, and
a locking tongue connected along the neck portion being of a width equal to the predetermined width of the side flap notches folded downwardly and inserted so that when the locking tongues extend through the side flap notches, the locking tongues engage surface portions of the side flap notches thereby locking the container.

3,302,854
CLUSTER OF COVERS

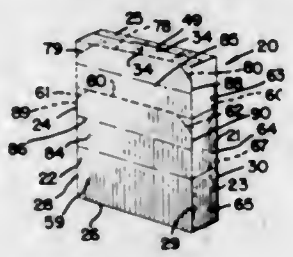
Eric L. Midgley, Danvers, Norman A. Rhodes, Waltham, and John A. Hayward, North Weymouth, Mass., assignors to Sweetheart Plastics, Inc., a corporation of Maryland
Original application Sept. 26, 1961, Ser. No. 140,841. Divided and this application Mar. 30, 1965, Ser. No. 462,771
2 Claims. (Cl. 229—43)

1. An article of manufacture comprising a plurality of cup lids formed from a sheet of plastic material and provided with downwardly flared side walls having a diameter at the bottom substantially greater than the diameter of the rims of the cups for which the lids are intended and terminating at the bottom in a margin extending outwardly from the bottom of the side wall about the periphery of each lid, the flared configuration of the side walls causing the cups and lids to align with one another when all of the lids are simultaneously placed on the cups for capping, said side walls providing a seal about the rims of the cups for which the lids are intended when the lids are pressed firmly onto the rims, a circular wall secured to the top of the side wall of each lid and being free of contact with the side walls of the cups when the lids are sealed on the rims of the cups and tabs connected to the margins of adjacent lids, each of said lids adapted to fit on the top of a cup and engage its rim.



3,302,855
REDUCIBLE CONTAINER CONSTRUCTION AND BLANKS THEREFOR OR THE LIKE

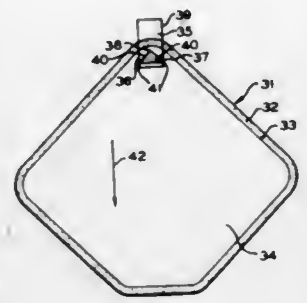
William C. Becker, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Aug. 18, 1964, Ser. No. 390,318
19 Claims. (Cl. 229—51)



1. A substantially rectangular container having opposed top and bottom wall means, opposed front and back wall means and opposed end wall means, said front and end wall means having separation line means disposed spaced from said top wall means to permit removal of the upper portions of said front and end wall means from said container, said back wall means having separation line means adjacent said top wall means and said upper portions of said end wall means to permit removal of said top wall means and said front and upper portions of said end wall means from said container to leave an upper portion of said back wall means extending above the remaining portions of said front and end wall means, said upper portion of said back wall means being adapted to close the thus reduced container when the top wall means and upper portions of said front and end wall means have been removed whereby said upper portion of said back wall means now forms a first new top wall means for the reduced container, said front and end wall means having a second separation line means disposed spaced from said first new top wall means to permit removal of the first new upper portions of said front and end wall means of said reduced container, said back wall means having second separation line means adjacent said first new top wall means and said new upper portions of said end wall means to permit removal of said new top wall means and said new upper portions of said front and end wall means from said reduced container to leave a first new upper portion of said back wall means extending above the remaining portions of said front and end wall means, said new upper portion of said back wall means being adapted to close the thus further reduced container whereby said new upper portion of said back wall means now forms a second new top wall means for the further reduced contained.

3,302,856
CONTAINERS

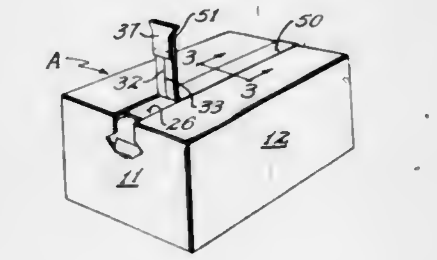
Stanley P. Thompson and Robert J. Martinovich, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Apr. 5, 1965, Ser. No. 445,643
4 Claims. (Cl. 229—51)



1. A plastic film cover comprising an unperforated oriented plastic film for covering at least one container opening, at least one plastic tear tab having one end intimately attached at approximately the edge of said film and the other end free to be grasped, the area of contact between said tear tab and said film being of an area substantially smaller than the desired torn area for said plastic when opened and being of such a configuration that it is pointed at the spot at which tearing of the film will first be initiated when the free end of said tab is pulled in the direction of said pointed part of said contact area, the orientation of said free end of said plastic tear tab relative to said pointed area of said attached end and said film being such that the free end of said tab must be pulled in a direction substantially parallel to the orientation direction of said film, the outer edges of the area of contact between said tear tab and said film being unperforated and therefore allowing said plastic film to remain unperforated until the cover is opened.

3,302,857
EASY OPENING CONTAINER

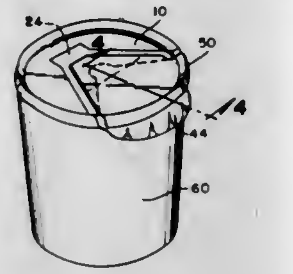
Daryl T. Martin, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed July 8, 1965, Ser. No. 470,427
5 Claims. (Cl. 229—51)



1. An easy opening container including:
rectangularly arranged side and end walls,
side and end wall closure flaps hingedly connected to said side and end walls,
weakened lines of separation extending across said side wall closure flaps parallel to the ends thereof,
said side wall closure flaps substantially meeting in end abutting relation in closed position of the container,
detachable areas in said end walls substantially aligned with the portions of said side wall closure flaps between said weakened lines, and
a strip of tape adhered to the portions of said side wall closure flaps between said weakened lines, the ends of said tape being adhered to said end walls only within said detachable areas.

3,302,858
TAB-OPEN CLOSURE CAP FOR DRINKING CUP-CARTON

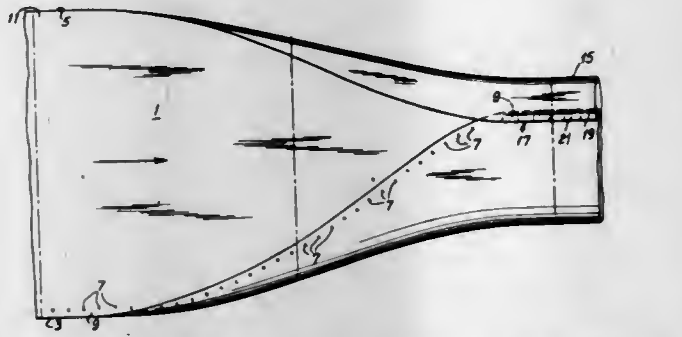
Ruth S. Miller, 3945 Connecticut Ave. NW., Washington, D.C. 20008
Filed Sept. 16, 1965, Ser. No. 487,705
5 Claims. (Cl. 229—51)



1. A closure cap for cup-cartons comprising a flat laminated blank adapted to be pressed onto the top of the cup-carton sufficiently tight to form a leak proof closure for said cup-carton, said blank consisting of three separate elements, as follows:
a bottom element consisting of a generally flat circular disc from which two portions have been cut away, namely a circular portion cut from around the center of the circle and adapted to form a filling or sipping opening in said disc and a sector cut from said disc and adapted to form a dispensing opening in said disc;
an intermediate element comprising a laminated sheet of a size and shape such that when placed on said disc, the sheet covers the two cut away portions of said disc and includes additional material adapted to extend along the perimeter of the cut away portions of said disc, said sheet including a pull tab adapted to overlie said filling opening and a bib adapted to extend outward of the curved side of said circular sector, so as to provide a portion to be gripped when it is desired to open said closure by separating the elements of said blank from one another to expose the cutaway sector in said disc and also as a sanitary protection for the lip of the cup;
and a cover piece comprising a sector shaped cover, slightly larger than the sector shaped piece cut away from the bottom element;
said three elements being secured together in face to face relationship with the intermediate element disposed between said bottom disc and said cover piece and with said cover piece overlying the cutaway portion of said bottom disc.

3,302,859
BAG

Ray P. Perry, Excelsior, Minn., assignor to Bemis Company, Inc., Minneapolis, Minn., a corporation of Missouri
Filed Dec. 21, 1964, Ser. No. 419,740
20 Claims. (Cl. 229—53)



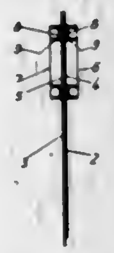
1. A bag formed from a tube having a longitudinal seam comprising overlapping margins of the material from which the tube is formed, said margins being secured together throughout their length, one of said

S

margins having a series of vents therein for escape of air from the bag, said vents being normally covered by the other margin.

3,302,860
GRIPHOLE CARRYING BAG OF HEAT-SEALABLE MATERIAL

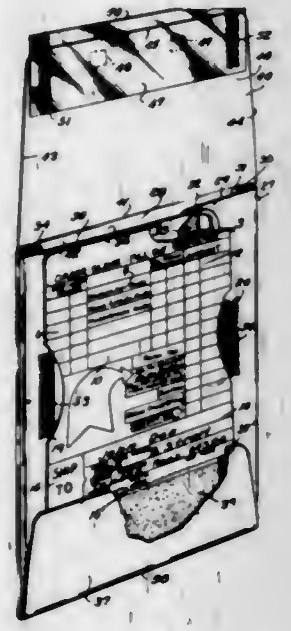
August Schwarzkopf, Lengerich, Germany, assignor to Windmoller & Holscher, Lengerich, Germany
Filed Aug. 11, 1965, Ser. No. 478,948
Claims priority, application Germany, Dec. 30, 1964, W 34,038
3 Claims. (Cl. 229—54)



1. In an open-ended shopping bag of heat-sealable material having a pair of opposite walls, each of which is provided with a griphole and an external reinforcing element heat-sealed to said walls adjacent each of said gripholes; the improvement that each of said reinforcing elements comprises at least one flange-like portion extending outwardly from and at a right angle to the respective bag wall and forming a finger-engageable surface along the edge of said griphole, and a second portion of smaller thickness than said flange-like portion, said second portion being heat-sealed in parallel relationship to said bag wall and adjoining said flange-like portion at a right angle thereto.

3,302,861
COMBINATION PROCESSING AND MAILING ENVELOPE

Walter L. Hiersteiner, Mission, Kans., assignor to Tension Envelope Corporation, Kansas City, Mo., a corporation of Delaware
Filed June 8, 1965, Ser. No. 462,187
14 Claims. (Cl. 229—70)

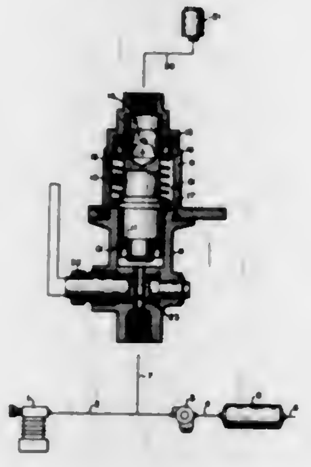


7. A processing and mailing envelope in combination with an order form having an order on the upper portion and an address on the lower portion of one face thereof and provided with cutouts in opposite side edges intermediate said upper and lower portions, said envelope including

substantially rectangular panels connected together along three edges thereof to provide a pocket and open at the remaining edges to provide an insert opening to said pocket,
a closure flap extending from one of the panels at the insert opening,
spaced apart stripes of pressure sealing adhesive on the other of said panels and located at said cutouts to center the order form therebetween,
a transparent strip to extend across the order form,
spots of adhesive temporarily fixing the strip transversely of the inner face of the closure flap,
stripes of pressure sealing adhesive on ends of said strip complementary to the stripes of pressure sealing adhesive on the said other panel,
said closure flap having a transverse fold at the insert opening to bring said strip across the order form at said cutouts and the complementary stripes of pressure sealing adhesive on said strip into sealing contact with the stripes of pressure sealing adhesive on the said other panel to leave the strip sealed to said other panel for retaining the order form when the closure flap is pulled loose from said adhesive spots to uncover the insert opening for inserting items into the pocket as specified on the order form and which are retained in said pocket upon refolding of the closure flap on its line of fold in covering relation with the order portion of the order form, and
means for sealing the closure flap in said covering relation with the lower portion of the order form exposed whereby the address thereon serves as the mailing address of the envelope.

3,302,862
AUTOMATIC INJECTION OF ANTI-FREEZING SOLUTION

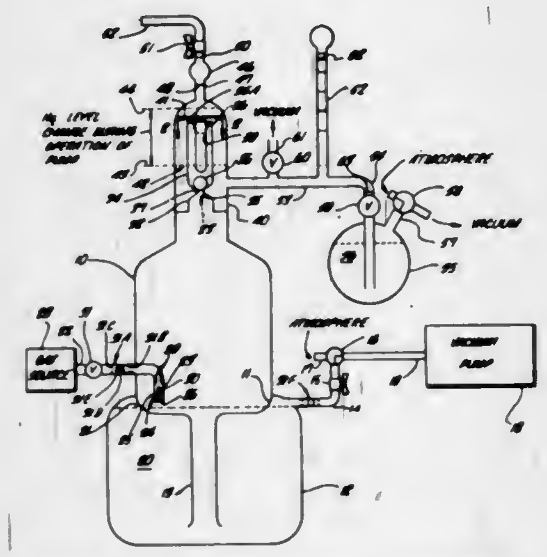
Ewald Pekrul, Hannover, Germany, assignor to Westinghouse Bremsen- und Apparatebau G.m.b.H., Hannover, Germany
Filed Oct. 20, 1964, Ser. No. 405,117
Claims priority, application Germany, Nov. 2, 1963, W 35,555
3 Claims. (Cl. 230—1)



1. A device for automatically and periodically introducing anti-freeze material into the air brake equipment of automotive vehicles by means of an anti-freeze pump, characterized by the fact that the anti-freeze pump contains a differential piston whose lower and larger surface can be encountered by the changing pressure in the compressed air line, and whose upper part, closely guided in the casing, is provided with a recess to receive the anti-freeze material, said recess being capable of being connected, in its normal position, with a pump chamber through bores that can be covered over, wherein said bores can be closed by a sealing ring when pressure is applied, while the anti-freeze material is simultaneously displaced, moving out of the pump chamber along the lower part of the differential piston and a grooved ring which seals in one direction only, namely against the pressure of the compressed air line, and arriving in the compressed air line.

3,302,863
PUMPING DEVICE

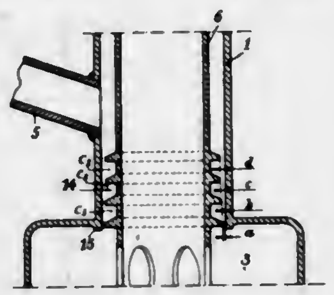
Jerome A. Rodder, 775 Sunshine Drive, Los Altos, Calif. 94022
Filed Sept. 2, 1965, Ser. No. 484,675
6 Claims. (Cl. 230—83)



1. A liquid displacement pump comprising a reservoir for holding a pool of liquid, a pumping chamber having an outlet, a conduit connecting the pumping chamber to the reservoir, means for causing the liquid to flow through the conduit back and forth between the reservoir and the pumping chamber between a low and a high position in the chamber, an inlet tube opening into the pumping chamber at a location horizontally spaced from where the conduit opens into the pumping chamber and above the liquid in the low position in the chamber, a check valve in the inlet tube adjacent the end of the tube opening into the pump chamber, and a check valve in the pumping chamber outlet.

3,302,864
OIL-VAPOR DIFFUSION VACUUM PUMP

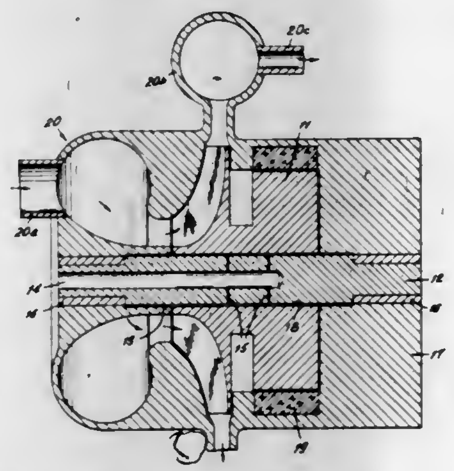
Michel Nicolas, Bievres, France, assignor to Compagnie Industrielle Francaise des Tubes Electroniques, Courbevoie, Seine, France
Filed Nov. 5, 1964, Ser. No. 409,265
Claims priority, application France, Nov. 8, 1963, 953,126, Patent 1,382,330
2 Claims. (Cl. 230—101)



1. In a vapor diffusion vacuum pump having a boiler containing and heating an organic working fluid to a vapor, an ejector comprising an inner tubular element mounted in communication with said boiler for receiving vapor of the working fluid and means defining vapor jet means for developing a vacuum with said ejector in operation, an outer wall circumferentially of said inner tube extending axially of said inner tube and spaced outwardly therefrom defining an annular space in communication with said boiler for returning condensed vapor of said working fluid to said boiler, the improvement which comprises seal means in said space to preclude working fluid in a vapor phase from said boiler entering said annular space and allowing working fluid in a condensed state to return to said boiler, said seal means comprising a plurality of collars disposed axially spaced in said tubular space extending inwardly defining in said space annular gaps of different dimensions between the inner tube and said outer peripheral wall effective to entrap condensed working fluid in a liquid phase to form respective seal rings of liquid working fluid at each of said gaps, and said gaps being of different respective dimensions and the different dimensions thereof decreasing in a direction toward said boiler.

3,302,865
GAS-BEARING ASSEMBLY

Leslie C. Kun, Williamsville, N.Y., assignor to Union Carbide Corporation, a corporation of New York
Filed July 16, 1964, Ser. No. 383,006
16 Claims. (Cl. 230—116)



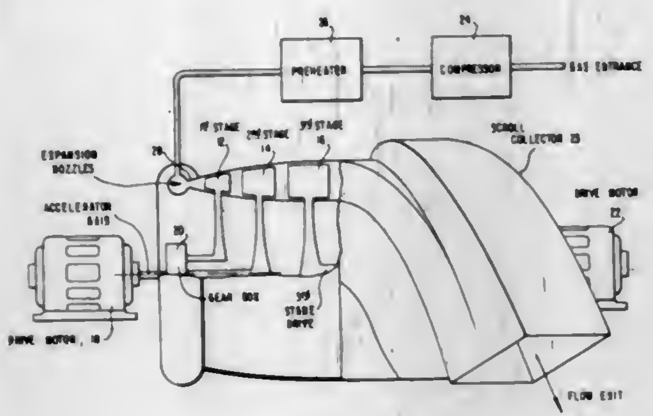
1. A gas bearing assembly comprising:
(a) a rotor having a passage therethrough substantially concentrically aligned with the axis of rotation;
(b) means for imparting speed of at least 2000 r.p.m. to said rotor;
(c) a rigid primary support member for said rotor extending longitudinally through said passage and sized to provide a narrow annular space between the outer surface of said primary support member and the passage wall;
(d) means for introducing sufficient gas into said annular space to support and radially position said rotor;
(e) elastic support means for said primary support member;
(f) a rigid secondary support member for said flexible elastic support means; and
(g) means for receiving at least part of the energy of rotation from said rotor.

3,302,866
HIGH VELOCITY FLUID ACCELERATOR

Antonio Ferri, Rockville Centre, N.Y., assignor to Polytechnic Institute of Brooklyn, Brooklyn, N.Y., a corporation of New York
Filed Mar. 16, 1965, Ser. No. 440,111
6 Claims. (Cl. 230—117)

1. Apparatus for accelerating air or other fluids to supersonic velocities of the order of Mach 15 to Mach 30 at substantially constant static temperatures and pressures comprising:
a housing having a fluid inlet and a fluid outlet positioned at opposite ends thereof;

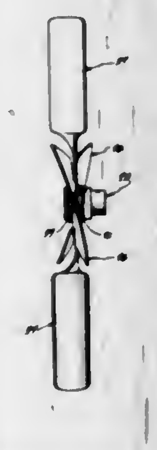
a vaned rotor in said housing, the vanes of said rotor being shaped and positioned to turn fluid impinging thereon through an angle greater than 90°;



means for positively driving said rotor;
and means including a nozzle for injecting fluid at supersonic velocity through said inlet and into the vanes of said rotor.

3,302,867
FAN ASSEMBLY

Joseph T. Roffy, 1006 S. Garfield Ave., Los Angeles, Calif. 90022
Filed Oct. 23, 1965, Ser. No. 503,397
2 Claims. (Cl. 230—134)

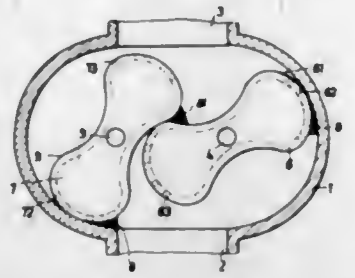


1. A fan assembly comprising a fan-blade member having a central non-circular aperture, a hub rotatable about an axis and having a non-circular boss substantially conforming in shape to the non-circular aperture, the boss having a pair of spaced-apart grooves having major planes substantially perpendicular to the hub axis of rotation, the hub being disposed through the aperture whereby the member is disposed between the grooves in engagement with the boss, and a pair of resilient retaining rings, one ring being releasably engaged in each respective groove and extending radially outwardly from the periphery of the boss to confine the member on the boss.

3,302,868
FLUID HANDLING APPARATUS FOR USE AS VACUUM PUMP

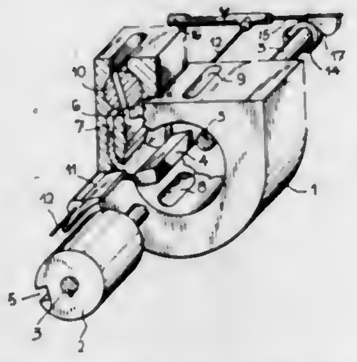
Jürgen Peter Wrede, Euskirchen, Germany, assignor to E. Leybold's Nachfolger, Cologne-Bayental, Germany
Filed Mar. 29, 1965, Ser. No. 443,574
Claims priority, application Germany, Apr. 2, 1964, L 47,474
4 Claims. (Cl. 230—141)

1. In a vacuum pump of the kind described, in combination a housing with inlet and outlet openings, at least two intermeshing rotatable lobed type impellers, hollow shafts on which said lobed type impellers are mounted, said impellers provided with openings which communicate with the cavities of the impeller and/or the shafts, said shafts provided with means to connect to a vacuum pump and a vaccum pump to draw off any medium which may be entrapped between said impellers or said impeller and said housing.



3,302,869
MULTI-PURPOSE ROTARY MACHINE

Ni Kia Tchen, 57 Blvd. General Jacques, Brussels, Belgium
Filed Apr. 2, 1964, Ser. No. 356,983
Claims priority, application Belgium, Apr. 26, 1963, 631,604
1 Claim. (Cl. 230—149)



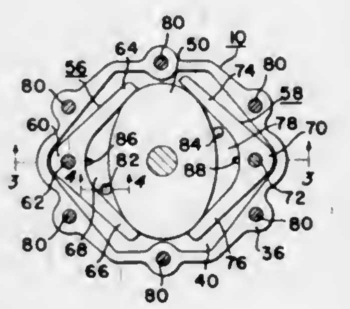
A multiple-purpose rotary machine comprising a cylinder in which is lodged concentrically a rotary piston on which is mounted at least one blade for the conveyance of a fluid admitted into the cylinder through an inlet cock provided with two inlet ducts operating respectively with their two corresponding outlet ducts, each couple of inlet and outlet ducts being destined for each direction of rotation; a twin-winged abutment is provided for closing and opening other of the two inlet ducts according to the direction of rotation desired; either of the two inlet ducts in function is closed shortly before, during, shortly after the passage of the moving blade of the rotary piston opposite said abutment; the twin-winged abutment's swinging is actuated by a system of cam and lever, the cam is mounted on the shaft of the rotary piston, the lever is able to slide and be secured in an element that is connected to the shaft of the swinging abutment; said lever has an inclined plane with a projecting part, preferably flexible, which part contacts the cam, the lever rises and falls through the medium of the cam; when the upper side of the inclined plane is in contact with the cam, the rotary piston rotates in one direction; when its lower side is in contact with the cam, the rotary piston rotates in other direction, the reversing of the rotation is ensured by the inclined plane, with a projection part, of the lever.

3,302,870
ROTARY COMPRESSOR

Carl M. Schell, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 25, 1966, Ser. No. 530,089
5 Claims. (Cl. 230—149)

1. A plural pumping chamber compressor comprising, a first end plate, a second end plate, means supporting

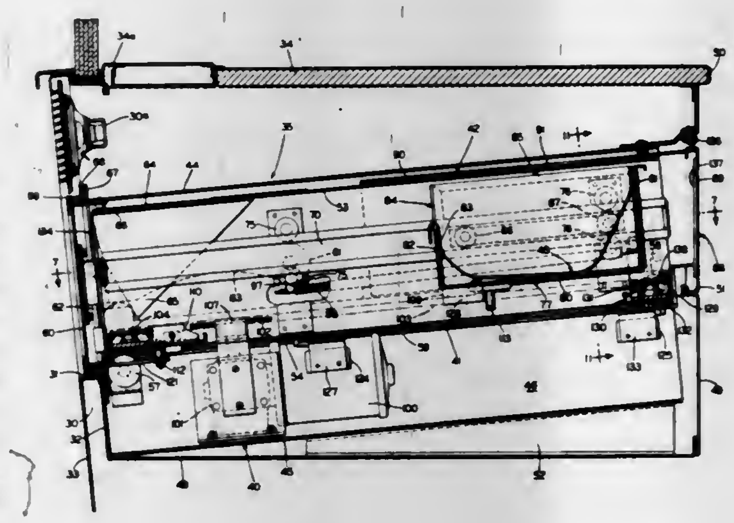
said first and second end plates in spaced relationship to form a pump mechanism enclosure therebetween, a first oscillatable rocker member located between first and second plates in engagement therewith for sliding movement relative thereto, a second oscillatable rocker member located between said first and second plates at a point within said pump mechanism enclosure spaced from said first rocker member and in engagement with said first and second end plates for slidable movement relative thereto, each of said first and second rocker members having spaced apart arms joined at a juncture point, an elliptical rotor located within said pump mechanism enclosure between said first and second rocker members having an outer peripheral surface thereon continuously engaging said spaced apart arms of each of said first and second rocker members, said rotor having an axis of rotation located on a straight line between said rocker member juncture points, means for pivotally mounting each of said rocker members at the juncture thereon between said spaced apart arms thereof to at least one of said end plates, said elliptical rotor and said spaced apart arms forming a pair of spaced apart diametrically opposite variable volume pumping chambers on the outer periphery of said rotor bounded on their peripheries solely by said rotor and said rocker arm members for balancing the fluid pressure force acting on said rotor, said end plates sealing the ends of said variable volume chambers, means forming an inlet and an outlet to each of said spaced variable volume chambers, means for rotating said rotor, said rotating elliptical rotor engaging said spaced apart arms of each of said rocker members causing said rocker members to oscillate about their pivot points, said oscillating rocker arms each cooperating with said elliptical rotor to concurrently draw fluid from said inlet and thence to discharge fluid through said outlet and to complete two discharge strokes for each revolution of said elliptical roller.



3,302,871
BANK DRIVE-UP WINDOW AND DEAL DRAWER CONSTRUCTION

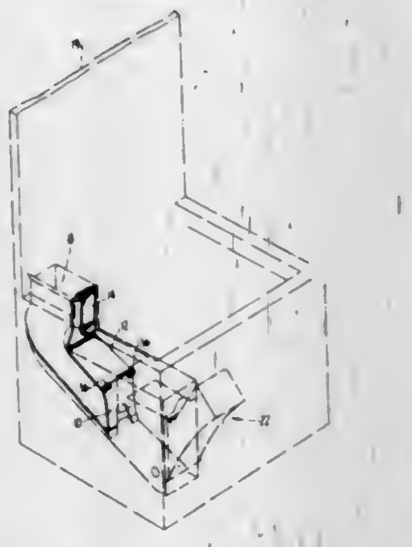
Dale O. Kettering, Canton, Nacy L. Strickland, North Canton, and Leo J. Grosswiller, Jr., East Canton, Ohio, assignors to Diebold, Incorporated, Canton, Ohio, a corporation of Ohio
Filed Aug. 5, 1965, Ser. No. 477,565
14 Claims. (Cl. 232—43.4)

1. In bank drive-up window construction of the type in which an upright window wall having inner and outer sides is formed with a deal drawer opening; in which a receptacle is mounted movable through the wall drawer opening forwardly to a customer accessible position outward of the wall outer side and rearwardly to a teller accessible position rearward of the wall inner side; and in which there is means operably connected to the receptacle for selectively driving the receptacle between the forward customer accessible and rearward teller accessible positions; the improvements including a stationary frame extending rearwardly from the window wall inner side, a main movable frame having forward and rearward ends, means mounting the main movable frame on the stationary frame aligned with the wall drawer opening and movable between rearward and forward positions, the main movable frame in the forward position extending forwardly through the wall drawer opening with the forward end thereof spaced outwardly from the wall outer side, the main movable frame in the rearward position extending rearwardly from the wall with the forward end thereof at the wall drawer opening and the rearward end thereof spaced rearwardly from the wall inner side, an auxiliary movable frame having forward and rearward ends, means mounting the auxiliary movable frame on the main movable frame movable between a forward and rearward position, the auxiliary movable frame when in the forward position being telescoped with and extending substantially between the forward and rearward ends of the main movable frame, the auxiliary movable frame when in the rearward position extending rearwardly from and with the rearward end of thereof spaced rearwardly from the rearward end of the main movable frame, means mounting the receptacle on and movable between the auxiliary movable frame forward and rearward ends, the means for driving the receptacle being constructed and arranged for driving the auxiliary movable frame from the auxiliary movable frame forward position to the auxiliary frame rearward position when the receptacle is at the rearward end of the auxiliary movable frame and for driving the receptacle along the auxiliary movable frame between the forward and rearward ends of the main movable frame when the auxiliary movable frame is in the forward position and for driving the main movable frame between the main movable frame forward and rearward positions when the auxiliary movable frame is in the forward position and the receptacle is at the forward end of the main movable frame, latch means operably connected between the receptacle and main movable frame and between the main movable frame and stationary frame for locking the main movable frame to the stationary frame when the receptacle and auxiliary movable frame are driven to move them relative to the main movable frame and for locking the receptacle to the main movable frame when the receptacle and main movable frame are driven to move them relative to the stationary frame, and the receptacle being accessible to the teller when the receptacle is at the rearward end of the auxiliary movable frame and the auxiliary movable frame is in the rearward position and being accessible to the customer when the receptacle is at the main movable frame forward end and the main movable frame is in forward position.



3,302,872
ANTI-STUFFING DEVICE FOR PAY TELEPHONE COIN RETURN CHUTE

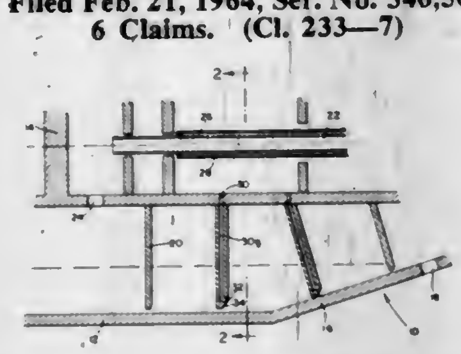
Rollie B. Nawman, Piedmont, Calif., assignor to Benner-Nawman, Inc., Oakland, Calif., a corporation of California
Filed June 15, 1965, Ser. No. 464,009
4 Claims. (Cl. 232—57.5)



1. In a coin return apparatus including a coin return chute and coin receiving means mounted at one end of said chute, the combination of: a hinge plate having a bent-over ear extending therefrom, said plate being mounted in said chute so that the ear is at said one end of said chute, and a one-way gate having means thereon in hinged engagement with said ear, said gate being free to swing outward into said coin receiving means, said gate being blocked from movement inward into said chute by said gate bearing against said hinge plate, and means releasably attaching an upper portion of said hinge plate on to a wall of said chute.

3,302,873
CENTRIFUGAL SOLIDS DELIQUEFYING AND TREATING PROCESS AND APPARATUS

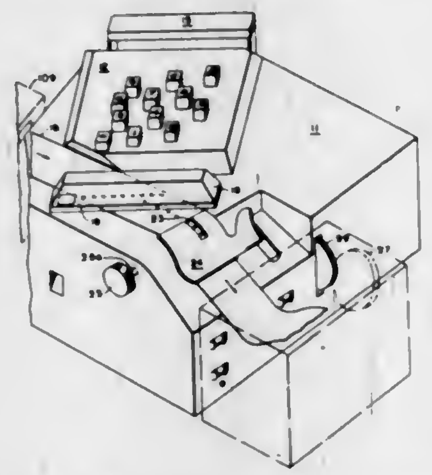
Yasuo Kowata, Tokyo, Japan, assignor to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Feb. 21, 1964, Ser. No. 346,507
6 Claims. (Cl. 233—7)



1. A centrifuge for separating liquids and solids comprising a bowl having an imperforate peripheral wall, a helical conveyor element mounted within and coaxial of said bowl, means for rotating the bowl and conveyor element at different speeds, means for feeding slurry to the bowl, the bowl being formed with a solids discharge port, a liquid discharge port and an inwardly inclined wall portion approaching said solids discharge port from the direction of the liquid discharge port, the helical conveyor element having flight portions with distal edges adjacent the peripheral wall of the bowl, the conveyor element having passage means through said portions and openings for said passage means adjacent the distal edges in the area of the inwardly inclined wall portion and at a radius greater than the radius of said liquid discharge port, means for feeding a treating liquid to the passage means, whereby treating liquid can be effectively delivered to the deep portion of the solids layer engaged by the flight portions while the solids are still submerged and as the solids approach the solids discharge port.

3,302,874
PORTABLE TAPE PEFORATOR

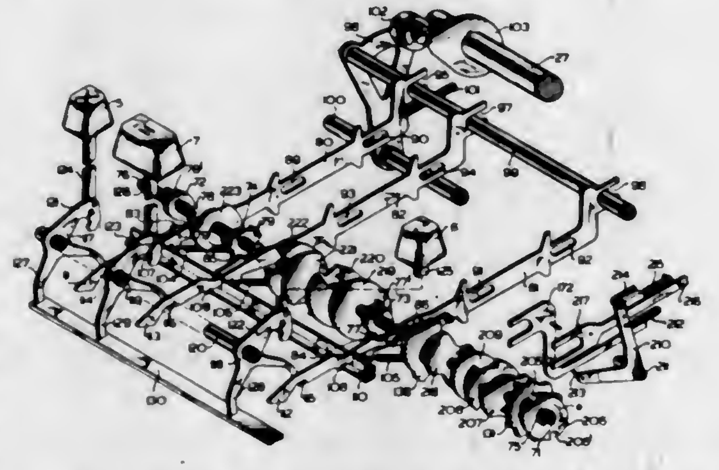
Francois Rene Gruber, North Wilmington, Mass., assignor to Automation Research Corporation, Arlington, Mass., a corporation of Massachusetts
Filed Dec. 9, 1964, Ser. No. 417,164
6 Claims. (Cl. 234—30)



1. A tape perforator comprising a housing, a plurality of supporting frames mounted within said housing, a keyboard supported by a first of said frames, a tape feed mechanism supported by a second of said frames, and a universal actuator supported by a third of said frames, a supply cassette for containing tape to be punched detachably mounted upon said housing, means actuated by said keyboard for setting up a code, means responsive to operation of said universal actuator for punching said code into said tape, and means also responsive to operation of said universal actuator for feeding tape from said supply cassette.

3,302,875
AUTOMATIC CONTROL DEVICE FOR CALCULATING MACHINES

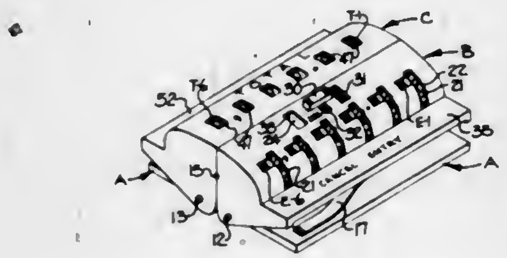
Kurt Kollmann and Wilhelm Machmer, Nurnberg, and Gottfried Burkhardt, Altenfurt, near Nurnberg, Germany, assignors to Firma Diehl, Nurnberg, Germany, a German Kommanditgesellschaft
Filed Oct. 19, 1964, Ser. No. 404,980
Claims priority, application Germany, Oct. 17, 1963, D 42,733
29 Claims. (Cl. 235—60)



1. In a calculating machine of the motor driven, printing type having at least three function keys for value input and for carrying out multiplication and division and having a rotatable main shaft connected to the drive motor and having a rotatable program control shaft with switching and control cams thereon for effecting the engagement and disengagement of setting, calculating, counting, and printing mechanisms and for controlling the means for driving and controlling the mechanisms and transmitting values therebetween, said program shaft making one half revolution made up of six steps (0, I, II, III, IV, V) during a complete calculating operation; a control device comprising; at least three differently toothed continuous-switching wheels on said program shaft, at least three parallel slides each pertaining to a respective wheel and each having a spring loaded pawl to engage the teeth of the respective wheel, latch means normally latching said slides in ineffective position, trip means for individually tripping said slides from the latched position thereof and operable by the respective function keys, and actuating means driven by said main shaft for reciprocating said slides when unlatched by their pertaining function keys, said slides being operable during a calculating operation to move said program shaft onwards stepwise in a correct sequence according to whether a multiplication or division cycle is being carried out, in one case said shaft being moved from its zero position once by two switching steps by a first one of said slides tripping a multiplier and, in another case being moved by a second one of said slides tripping a dividend input once by one step and, by subsequent tripping of a third one of said slides a plurality of times by two switching steps until it is moved into its zero position, said third slide rotating the program shaft on its last movement by only one step to reach the zero position thereof if the said slide at the commencement of the calculation was only moved by one step by said second slide.

3,302,876
COMPACT CALCULATING MACHINE

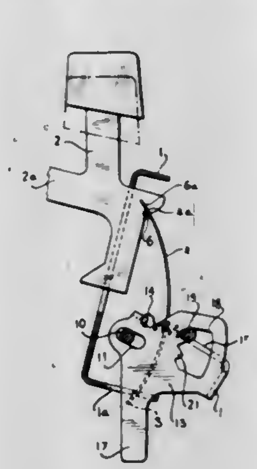
Joseph Fox, 307 Tomahawk Ave., Black Mountain, N.C. 28711
Filed Sept 3, 1965, Ser. No. 484,879
15 Claims. (Cl. 235—80)



1. A compact calculating machine comprising
(a) a series of rotatable entry wheels numbered from zero to nine,
(b) a series of rotatable total wheels numbered from zero to nine,
(c) a series of transfer members supported for rotation on a common shaft, said common shaft being maintained in a fixed position on the machine, and said entry wheels and said total wheels being normally positioned in driving engagement with said transfer members,
(d) means supporting said entry wheels for movement away from said transfer members whereby said entry wheels move out of driving engagement with said transfer members,
(e) means operable in response to movement of said entry wheels away from said transfer members for automatically returning said entry wheels to the zero position, and
(f) means for returning said total wheels to the zero position.

3,302,877
SPRING MOUNTING FOR KEYS

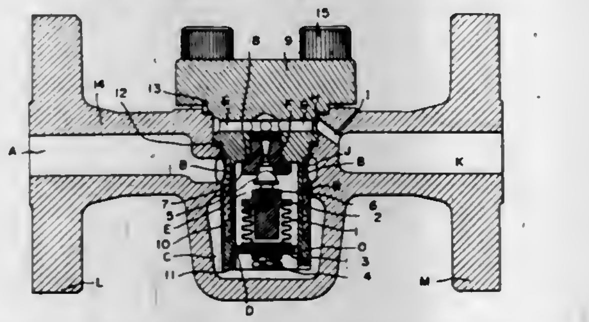
Walter Stuiber, Stein, near Nurnberg, and Herbert Decker, Nurnberg, Germany, assignors to Max Grundig, Furth, Bavaria, Germany
Filed Apr. 13, 1965, Ser. No. 447,687
Claims priority, application Germany, Apr. 21, 1964, G 40,403
19 Claims. (Cl. 235—145)



2. In a keyboard operated machine, in combination, key means operable to move to an actuated position; supporting means; spring means having a first portion abutting said key means, a second portion abutting said supporting means, and a third portion displaced when said key means move toward said actuating position and displace said first portion; and manually operated control means settable to a plurality of control positions for engaging said displaced third portion in different displaced positions and for deactivating a portion of said spring means intermediate said second and third portions thereof by limiting movement of said third portion so that a greater spring force acts on said key means after engagement of said third portion by said control means, said greater spring force being different for different control positions of said control means.

3,302,878
THERMO-SYNCHRONOUS STEAM TRAP

Katsuji Fujiwara, 191 Hiraoka-cho Nishikani, Kakogawa-shi, Japan
Filed Nov. 30, 1965, Ser. No. 510,623
6 Claims. (Cl. 236—56)

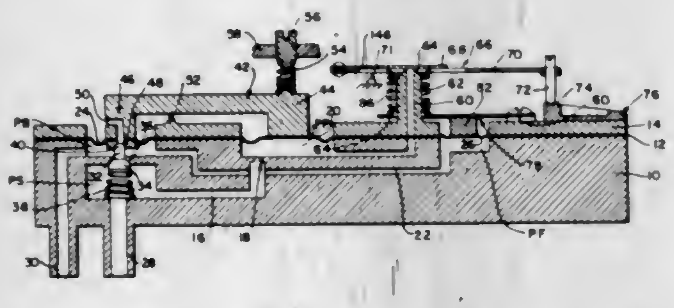


1. A steam trap comprising a body portion defining an interior condensate chamber, an inlet leading to said condensate chamber, and an outlet passage, means defining a passage leading from said condensate chamber to said outlet passage and terminating in a valve seat located adjacent the top of said condensate chamber, a control cylinder having a closed bottom and defining a control chamber around and below said valve seat communicating with said inlet, said control cylinder having an exterior wall with an annular recess, a screen fitted around the exterior wall of said control cylinder and enclosing the recess, means defining an actuating chamber within said control chamber adjacent the lower end thereof and exposed to the condensate chamber and including a member movable

upon changes in pressure within said actuating chamber, said member being disposed in alignment with and below said valve seat and movable upon increase of pressure in said actuating chamber to close said valve seat and upon decrease in pressure within said actuating chamber to open said valve seat, and water sealed within said actuating chamber having the same characteristics as the steam operating fluid for moving said movable member.

3,302,879
BIMETALLICALLY CONTROLLED PNEUMATIC THERMOSTAT

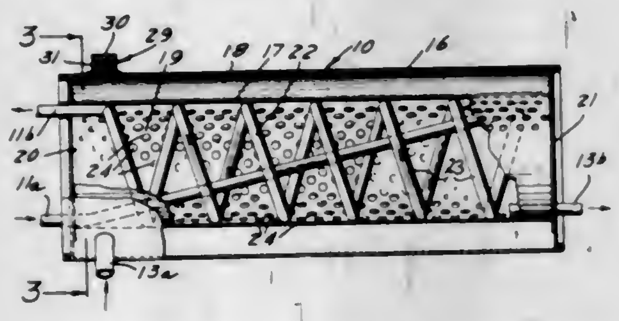
Arthur L. Good, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Aug. 11, 1964, Ser. No. 388,823
11 Claims. (Cl. 236—82)



6. In a pneumatic relay including a pilot pressure chamber, a branch pressure chamber, a relay valve in said branch pressure chamber, first and second adjacent flexible wall portions, respectively, for said pilot pressure and branch pressure chambers, and a pressure plate defining said flexible wall portions, a relay control arm extending between said first and second flexible wall portions comprising a foot engaging said first wall portion, relay valve actuating means connected with said second wall portion, fulcrum means intermediate the ends thereof and flexure hinge means mutually engaging said relay control arm, said relay valve actuating means and said pressure plate and secured to said pressure plate maintaining said control arm in position on said fulcrum means.

3,302,880
VEHICLE HEATER APPARATUS AND SYSTEM

Willibald Hubert Enders, 5319 Bayridge Road, Palos Verdes, Calif. 90274, and Hans R. Widmer, 1118 Mohawk St., Apt. 201–A, Los Angeles, Calif. 90026
Filed May 17, 1965, Ser. No. 456,135
7 Claims. (Cl. 237—2)

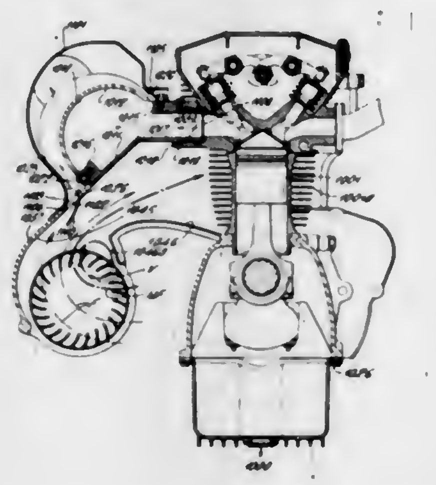


5. A heating system for a vehicle compartment, utilizing hot engine exhaust gases, comprising:

(a) means for conducting hot engine exhaust gases through a first flow path;
(b) means for conducting air through a second flow path including a vehicle compartment to be heated;
(c) a heater having a chamber forming a part of the second flow path in which the air is carried into heat transfer relation with exhaust gases for the first flow path at a point upstream of the vehicle compartment;
(d) means in said second flow path operable to induce flow of air in said second flow path through said heater and to said compartment; and
(e) means responsive to changes in the temperature of air in said heater chamber operable to connect and disconnect said chamber with respect to an air diverting flow path.

3,302,881
AIR COOLED ENGINES AND VEHICLE HEATING SYSTEMS

Nikolaus Laing, Aldingen, near Stuttgart, and Bruno Eck, Cologne-Klettenberg, Germany, assignors, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application Sept. 5, 1962, Ser. No. 221,624, now Patent No. 3,236,215, dated Feb. 22, 1966. Divided and this application Dec. 30, 1965, Ser. No. 517,663
Claims priority, application Germany, Dec. 7, 1956, L 26,393, L 26,394
6 Claims. (Cl. 237—12.3)

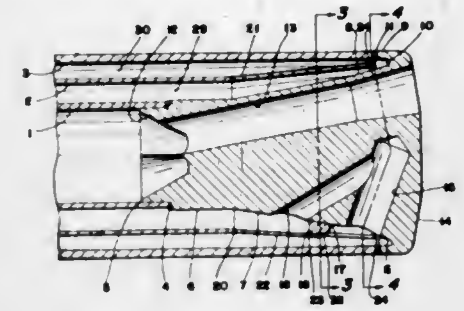


1. An air-cooled engine and heating system for a vehicle having a passenger compartment: comprising an internal combustion engine having at least a pair of cylinders in line, a crankshaft and an exhaust pipe, a bladed cylindrical rotor mounted opposite the cylinders for rotation about an axis parallel to that of the crankshaft, first and second guide walls extending from adjacent the rotor on opposite sides thereof respectively to the lower and upper ends of the cylinders, end walls joining the guide walls, said guide walls forming a diffuser and co-operating with the rotor on rotation thereof to set up a flow of air from the side of the rotor opposite the diffuser through the path of the rotating blades of the rotor and thence again through the path of the rotating blades to the diffuser, a duct about the exhaust pipe, an opening in the second diffuser wall leading into the duct, and a deflector in the diffuser to separate off a portion of the flow therein and pass it into the duct for heating by the exhaust pipe and delivery to the vehicle passenger compartment.

3,302,882
OXYGEN LANCE CONSTRUCTION

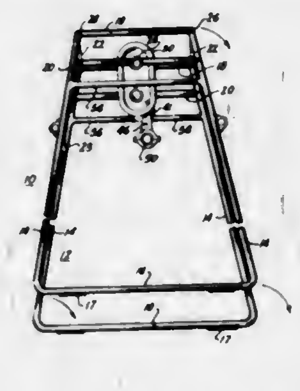
Leland H. Hutton, 2518 Claver Road, University Heights, Ohio 44118
Filed July 1, 1964, Ser. No. 379,546
9 Claims. (Cl. 239—132.3)

1. In a device of the character described, three concentrically spaced tubular members, a nozzle supported by the innermost of said members, said nozzle made as a one-piece member of copper having a series of passageways consisting of circumferentially-spaced inclined bores diverging downwardly and outwardly through said nozzle for the passage of oxygen therethrough, said nozzle having a second series of passageways consisting of cylindrical bores arranged circumferentially alternately with said first-named passageways and extending upwardly and outwardly from a region within the nozzle to the external wall of the nozzle, said nozzle having a third series of passageways consisting of cylindrical bores arranged circumferentially alternately with said first-named passageways and disposed above said second-named passageways and extending upwardly and outwardly from said second-named passageways to the external wall of said nozzle, but at an angle to the axis of said nozzle different from that of said second-named passageways, the inner ends of said second and third-named passageways having fluid communication with each other at points adjacent the inner ends of said second-named passageways, whereby a cooling fluid passing through said second or third-named passageways passes through the other of said series of second or third-named passageways.



3,302,883
MOBILE IRRIGATION SYSTEM

William H. Stout, 223 N. Jessup St., Portland, Oreg. 97217
Filed Jan. 18, 1965, Ser. No. 426,331
11 Claims. (Cl. 239—212)



11. In a mobile irrigation system including an elongated conduit,

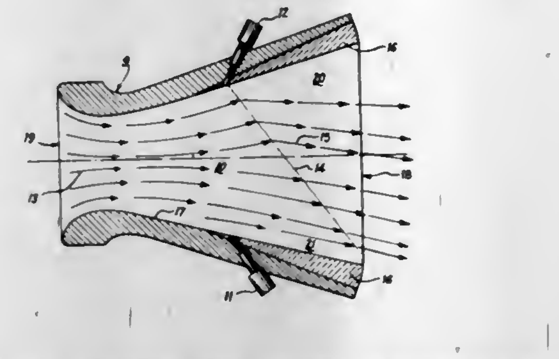
pairs of pivoted-together conduit supporting ambulatory standards spaced along said conduit;
actuatable crank means and crank actuating means supported by said standards independent of said conduit to actuate said pairs of standards to impart ambulatory movement thereto to transport said conduit over the ground; and
water dispensing means distributed along said conduit.

3,302,884
SELF-TRIMMING ABLATIVE NOZZLE

Curtiss W. Robinson, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Sept. 16, 1963, Ser. No. 308,961
5 Claims. (Cl. 239—265.15)

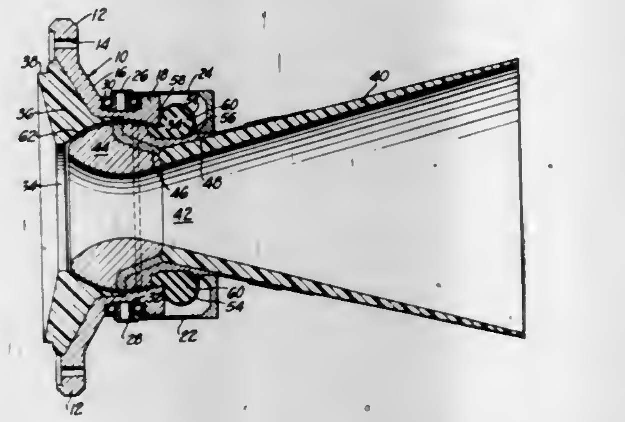
1. A reaction propulsion engine nozzle through which a jet of exhaust gas is adapted to pass having divergent side walls of relatively non-ablative material comprising in combination:

(a) jet deflector means connected to the divergent side walls for variably changing the direction of the exhaust gas jet within the nozzle, and
(b) ablative material attached to the inner surface of said walls downstream of said jet deflector means and exposed to said exhaust gas jet, whereby deflection of the exhaust gas causes unsymmetrical and uniform erosion of said ablative material thereby centering the resultant nozzle thrust vector.



3,302,885
SWIVELED ROCKET MOTOR NOZZLE

John T. Herbert, Redlands, Calif., assignor, by mesne assignments, to Lockheed Aircraft Corporation, Burbank, Calif., a corporation of California
Filed June 22, 1962, Ser. No. 204,561
6 Claims. (Cl. 239—265.19)



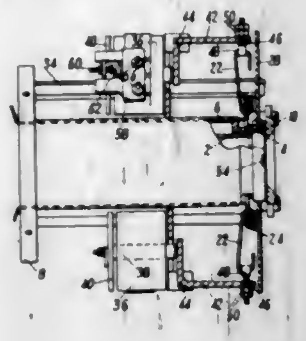
1. A swiveled nozzle for a rocket motor, comprising a stationary part, and having a spherically curved socket portion provided therein on the longitudinal axis of the nozzle, a movable part having a spherically curved ball portion that is seated within said socket portion, said ball portion having a central passageway provided therein through which the exhaust gases of the motor pass, and a sealing member in the form of a thin-walled torus of high-strength metal surrounding said ball portion, said torus being of generally C-shaped cross-sectional configuration, one edge of said torus being welded along an annular line of contact with said stationary part, and the other edge thereof being welded along a concentric annular line of contact with said ball portion.

3,302,886
JET PROPULSION MOTORS

Brian Cecil Doxey, Tewin Wood, near Welwyn, England, assignor to British Aircraft Corporation, Limited, a British company
Filed Nov. 30, 1964, Ser. No. 414,666
Claims priority, application Great Britain, Dec. 3, 1963, 47,722/63
8 Claims. (Cl. 239—265.19)

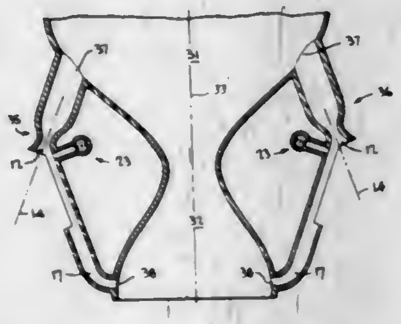
1. A jet propulsion motor having a discharge nozzle, a jet deflector plate mounted immediately behind the discharge nozzle, means defining a hole in the deflector plate having a central axis co-axial with the discharge nozzle when the said plate is in a neutral position, a plurality of parallel flexible wires connected to the deflector plate

and extending forwards from the plate, means on the motor for anchoring the forward ends of the wires, and means for moving the deflector plate laterally with respect to the nozzle for deflecting the jet discharge in any desired direction.



3,302,887
MODULATING FLUID AMPLIFIER CONTROL VALVE

Allen B. Holmes, Silver Spring, Md., John E. Foxwell, Washington, D.C., and Robert F. Kreimeyer, North Chevy Chase, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed Mar. 17, 1964, Ser. No. 352,695
9 Claims. (Cl. 239—265.23)

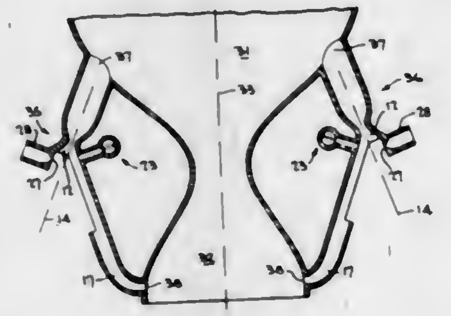


4. A secondary injection thrust vector control system for use with a reaction jet engine which has a combustion chamber, and a main reaction jet nozzle with a principal thrust axis, comprising:
(a) a bleed connected to said combustion chamber,
(b) said bleed supplying fluid to an auxiliary control nozzle, said control nozzle having a principal thrust axis that is unobstructed,
(c) a splitter located wholly on one side of said control nozzle axis, and a signal conduit continuous with said splitter, said signal conduit leading to an injection nozzle in said main reaction jet nozzle,
(d) control port means on said one side of said control nozzle axis for varying the amount of surrounding fluid entrained by the power jet formed by said control nozzle, whereby a differential pressure is created across said jet thereby causing said jet to be directed into said conduit,
(e) said differential pressure being inversely proportional to the amount of said fluid entrained by said jet.

3,302,888
SECONDARY-INJECTION THRUST VECTOR CONTROL VALVE

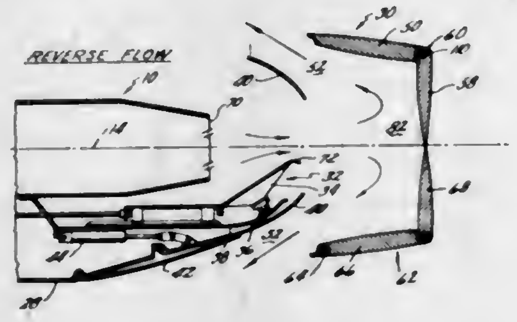
Allen B. Holmes, Silver Spring, and John E. Foxwell, Beltsville, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed May 25, 1965, Ser. No. 459,981
2 Claims. (Cl. 239—265.23)

1. A secondary injection, thrust vector system for use with a reaction jet engine which has a combustion chamber and a main reaction jet nozzle with a thrust axis, comprising:
(a) a bleed connected to said combustion chamber,
(b) an auxiliary control nozzle connected to said bleed and having an unobstructed principal thrust axis along which an auxiliary control jet issues,
(c) a semi-cylindrical section connected to said control nozzle and extending therefrom to form an open channel and being located on one side of said principal thrust axis,
(d) a splitter located wholly on the same side of said principal thrust axis as said open channel,
(e) first control means for controlling the direction of said auxiliary control jet including a passage connected to atmosphere and having a port leading into said open channel,
(f) a fluid conduit connected to said main reaction jet nozzle, said splitter adapted to direct a portion of said auxiliary jet impinging thereon to said conduit, and
(g) auxiliary control means for controlling the direction of said auxiliary jet including a pressure fluid supplied nozzle opposite the principal axis of said auxiliary nozzle from said first control means and effective to progressively control said auxiliary jet when said first control means is ineffective because of high altitudes.



3,302,889
BLOW-IN DOOR EJECTOR FOR STOL

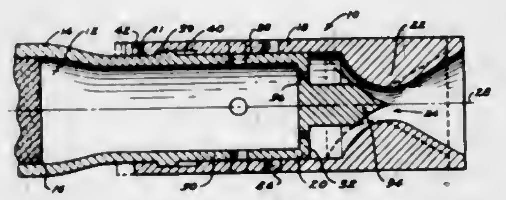
Vincent J. Di Sabato, Southington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Oct. 1, 1964, Ser. No. 400,803
7 Claims. (Cl. 239—265.29)



1. In an ejector type exhaust nozzle, a primary nozzle, a forebody having an after end and enveloping said primary nozzle, a fixed shroud located downstream of said nozzle and forebody and having a forward and an after end, said forebody after end and said shroud forward end shaped and positioned to define an ejector and thrust reverse passage therebetween, a bottom flap pivotally attached at its forward end to said shroud and being pivotable between a first position wherein it forms part of said shroud and a second position wherein it projects downwardly from said shroud, said bottom flap having a rear flap portion pivotable with respect thereto between a first position wherein it forms part of said bottom flap and a second position wherein it projects into the interior of said shroud, a top flap pivotally attached to said shroud and pivotable between a first position wherein it forms part of said shroud and a second position wherein it projects into said shroud, means to pivot said top flap and said rear flap portion of said bottom flap into said second positions to block the interior of said shroud, and means to pivot said top and said bottom flaps into said second positions to form a downwardly projecting passage.

3,302,890
ROCKET NOZZLE

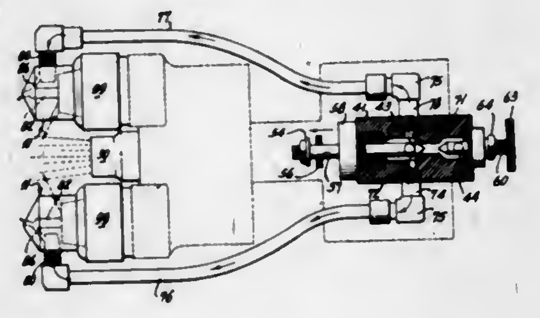
Bernard Silver, Alexandria, Va., assignor to Atlantic Research Corporation, a corporation of Virginia
Filed July 10, 1964, Ser. No. 381,669
17 Claims. (Cl. 239—265.31)



1. In combination, a rocket motor and an axial-thrust modulating rocket exhaust nozzle comprising:
(a) a housing including a pair of end walls, a first and a second chamber within said housing, said first and second chambers being separated by a partition having an opening therethrough, one of said end walls having a rearwardly directed primary exhaust port therethrough communicating with said first chamber, said housing having a laterally directed secondary exhaust port therethrough communicating with said second chamber,
(b) first means mounted within said housing for varying the effective exhaust area of said primary exhaust port, and
(c) second means mounted within said housing for varying the effective exhaust area of said opening in inverse proportion to the variation of said primary exhaust port area, the geometrical configuration of said primary exhaust port, said first means, said opening, and said second means proivding a constant sum total effective exhaust area to effect various axial thrust levels without affecting the rocket motor combustion chamber pressure.

3,302,891
APPARATUS FOR SPRAYING PLASTIC MATERIALS

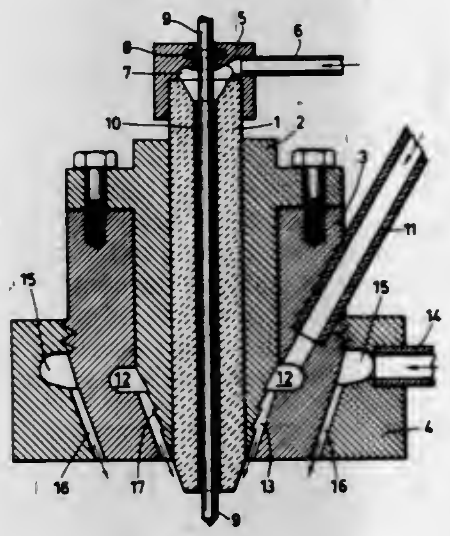
Charles Faro and Lawrence D. Hughes, Riverside, Calif., assignors, by mesne assignments, to The Flintkote Company, a corporation of Massachusetts
Original application July 19, 1961, Ser. No. 125,169, now Patent No. 3,249,304, dated May 3, 1966. Divided and this application Feb. 24, 1965, Ser. No. 452,424
9 Claims. (Cl. 239—407)



1. Apparatus for the purpose set forth, comprising a spray gun for applying plastic material of the polyester resin type, said spray gun having a nozzle including a trigger-controlled orifice for discharging a mixture of the resin and an accelerator, an air cap having a spray aperture for atomizing the mixture discharged from said orifice, a valve means mounted on the gun, means connecting the inlet of said valve means to a source of liquid catalyst, means for actuating said valve means to open and closed position simultaneously with opening and closing of said orifice by said trigger, and means for feeding said catalyst from the outlet of said valve means to said air cap, said air cap being formed with means for injecting catalyst directly into said spary aperture of said air cap from a source external to said nozzle and air cap, said last-named means being operative to cause the catalyst to create turbulence interiorly of said air cap sufficient to effect substantially uniform mixing of the catalyst with the resin discharged from said orifice.

3,302,892
METHOD AND A DEVICE FOR PULVERIZING SOLID MATERIALS

Eric Odel Folke Nilsson, Norrkoping, Sweden, assignor to Kohlswa Jernverks Aktiebolag, a Swedish joint-stock company
Filed Jan. 27, 1964, Ser. No. 340,467
Claims priority, application Sweden, Feb. 5, 1963, 1,252/63
17 Claims. (Cl. 241—1)



1. A method of pulverizing solid materials, comprising, applying mechanical vibrations on said material, and ejecting a mercurial, metallic liquid under pressure against said material.

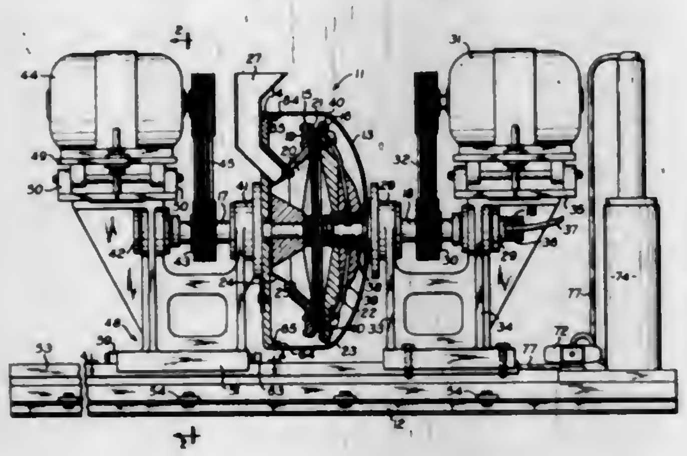
3. A device for pulverizing a rod of solid material, comprising, in combination, a holder for feeding said rod forwards and provided with at least one obliquely directed conduit, means for ejecting a mercurial, metallic liquid under pressure through said conduit against said rod, and helical guides in said conduit for giving said liquid simultaneously a helical motion.

3,302,893
DISC MILL

Friedhelm R. Feder, Westfield, N.J., John R. Thomas, Elmhurst, Pa., and William E. Willoughby, Bernardsville, N.J., assignors to Wedco, Inc., Garwood, N.J., a corporation of New Jersey
Filed Feb. 18, 1964, Ser. No. 345,740
13 Claims. (Cl. 241—37)

1. A disc mill comprising:
(a) a first disc and a second disc, said discs being mounted in opposed relation, a first shaft having said first disc mounted thereon and extending axially outwardly from the opposed discs, a second shaft having said second disc mounted thereon and extending axially outwardly of the opposed discs in a direction opposite to the direction in which the first shaft extends,

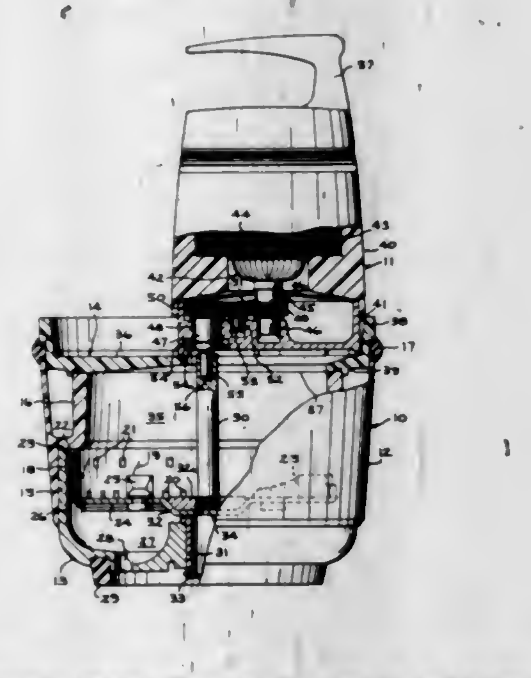
(b) means for driving each of said shafts to rotate the discs in opposite directions,
(c) a support for said first shaft and its disc and means for moving said support relative to the second disc for axially directed movement of the first shaft and its disc away and toward the second disc along a defined path,
(d) fluid pressure means for urging the movably supported disc toward the second disc,



(e) spacer means for limiting travel of the first disc toward the second disc in response to said urging of the fluid pressure means and to provide the discs spaced for milling,
(f) load sensing means for sensing overload of the mill, and overload relief means connected to the load sensing means for response to the load sensing means and effective in response to control said fluid pressure means upon occurrence of overload to move the discs apart for relief of the overload and then move the discs together to the milling spacing.

3,302,894
PIVOTED POWER UNIT FOR PORTABLE WASTE DISPOSER

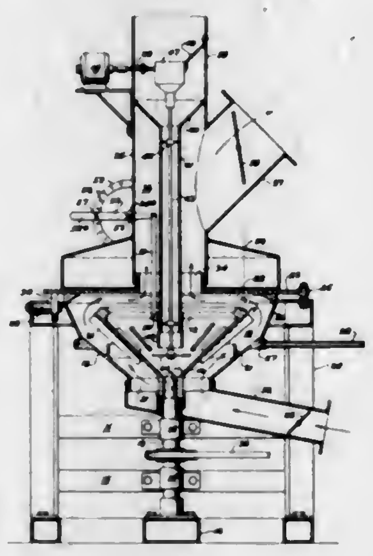
Bernard J. Brezosky, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Apr. 17, 1964, Ser. No. 360,608
7 Claims. (Cl. 241—46)



2. A portable waste disposer for use in a kitchen sink comprising:
(a) a housing forming a hopper,
(b) said housing including an upper wall defining an access opening for receiving waste material,
(c) waste material comminuting means within said hopper including a rotatable impeller having a first drive shaft extending upwardly in alignment with said access opening,
(d) a power unit including a motor and a second drive shaft driven by said motor,
(e) means for hingedly mounting said power unit on said upper wall for pivotal movement of said unit into and out of registry with said access opening,
(f) said second shaft drivingly engaging said first shaft when said power unit is in registry with said access opening to effect comminution of waste material, and
(g) a spring-biased latching arrangement for releasably securing said power unit in registry with said access opening.

3,302,895
PULVERIZING APPARATUS

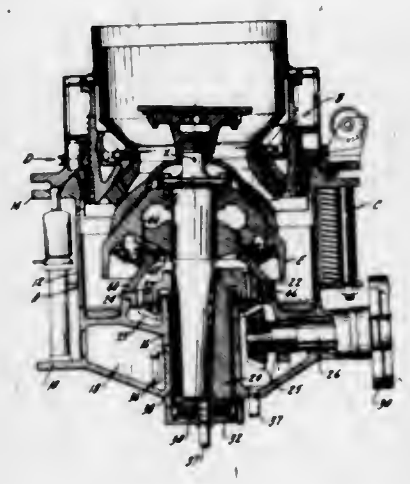
Robert W. Ryder, Los Altos, Calif., assignor to Macartney Patents, Ltd., a corporation of Nevada
Filed Aug. 26, 1963, Ser. No. 304,559
4 Claims. (Cl. 241—59)



1. In material pulverizing apparatus, an outer hollow inverted cone of frusto-conical shape having an air inlet opening in its lower end, an inner inverted hollow cone mounted for rotation inside the outer cone, the sides of the cones diverging upwardly and arranged in concentric spaced relationship to each other to form an annular grinding chamber therebetween communicating at its lower end with the inlet opening in the outer cone, means to rotate the cones in opposite directions to one another about a substantially vertical common axis, the inner cone being adapted to discharge material laterally and into the grinding chamber, means to feed raw material to be comminuted to a desired fineness into the inner cone, including a hopper, an upright delivery tube having an inlet at its upper end connected to the hopper and having an outlet at its lower end arranged to discharge the raw material into the inner cone, a motor-driven shaft extending through the delivery tube, a rotatable material distributing member connected to the lower end of the shaft and arranged below the outlet end of the delivery tube to intercept the raw material discharged from the delivery tube, whereby the raw material may be distributed onto the sides of the inner cone, means connected to the inlet opening of the outer cone to admit an air stream into the lower area of the grinding chamber, and outlet means connected to the upper area of the grinding chamber to convey the air stream and comminuted material carried thereby from the grinding chamber.

3,302,896
FRAME FOR GYRATORY CRUSHERS

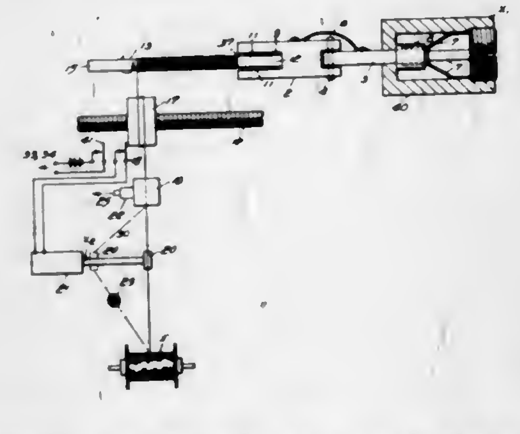
Hansjorg Balmer, Langenthal, Bern, Switzerland, and Rudolph J. Gasparac, Milwaukee, Wis., assignors to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Original application Nov. 14, 1961, Ser. No. 152,222, now Patent No. 3,140,835, dated July 14, 1965. Divided and this application Apr. 8, 1964, Ser. No. 358,265
3 Claims. (Cl. 241—285)



1. In a gyratory crusher, a circumferential main frame, a generally upright center hub therein connected to the main frame by at least three radially disposed webs, the hub being constructed to center and support a crushing head for gyration in the frame, and a drive to the head including a rotatably mounted drive shaft to transmit the drive to the head, a boss formed in one of the radially disposed webs for enclosing and supporting the drive shaft, a pinion removably mounted on the inner end of the shaft of a diameter greater than the inside of the boss, and an upwardly opening pocket in the webs at the inner end of the boss such that, during assembly, the pinion may be lowered into the pocket and connected to the shaft when it is inserted through the boss.

3,302,897
MACHINE FOR SINGLE-STEP WINDING AND CALIBRATION OF ELECTRICAL ARTICLES

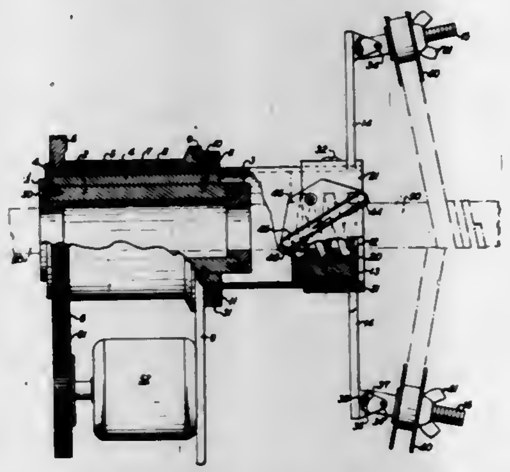
Oswald I. Gilbertson, Nutley, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 26, 1962, Ser. No. 175,633
5 Claims. (Cl. 242—9)



1. Apparatus for winding coils to a predetermined magnitude of an electrical property such as resistance or inductance comprising:
rotatable means for winding wire about a core,
a source of wire spaced from said rotatable means,
detecting means mounted adjacent to the rotatable means to detect when an amount of wire almost sufficient to provide the predetermined magnitude has been wound,
cutter means mounted between said rotatable means and said source,
control means for operating said cutter means,
measuring means for measuring the magnitude of an electrical property of the wire being wound, and
means operable to connect the wire being wound to said measuring means when the detecting means detects that an amount of wire almost equal to that required has been wound, the measuring means activating the control means to cause the cutter means to sever the wire when the measuring means determines that the predetermined magnitude of the electrical property being measured has been reached.

3,302,898
WINDING AND FEEDING DEVICE

William Franklin Smith, 338 E. Fairview Road, Oak Ridge, Tenn. 37830
Filed Oct. 15, 1964, Ser. No. 404,029
6 Claims. (Cl. 242—11)



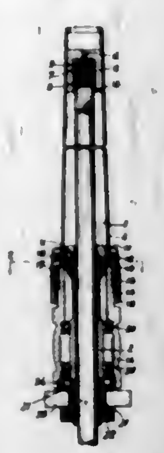
1. A taping device comprising a rotatable channeled holder having an entrance and an exit, said holder including a hollow gear element at the exit thereof, said gear element having an inner surface with a spiral depression therein, an endless member threaded in said depression for receiving an elongated workpiece in friction engagement, means for rotating said elongated workpiece to travel said endless member through the depression whereby the workpiece is drawn in the entrance and urged out the exit, tape dispensing means supported adjacent said exit for paying out tape as the tape is wound about said rotating workpiece.

3,302,899
SPINNING OR TWISTING SPINDLE

Johann Jacob Keyser, Grabenalle 16, Aarau, Switzerland
Filed July 24, 1964, Ser. No. 384,905
Claims priority, application Germany, July 30, 1963, K 50,383
8 Claims. (Cl. 242—46.4)

1. In combination with a bobbin having an upper and a lower portion; a textile spindle having a spindle shank, bobbin supporting body means freely rotatably supported by said spindle shank and supporting said bobbin, whorl means coaxially surrounding said shank and adapted to be drivingly connected to driving means, clutch means operatively disposed between said whorl means and the lower portion of said bobbin and adapted to establish and interrupt driving connection of said whorl means, a member associated with said clutch means having a first position wherein said clutch means is effective to establish said driving connection and a second position wherein said clutch means is ineffective to establish said driving connection, and means connected to said member for moving said member between its said first and second positions, said means being selectively operable during

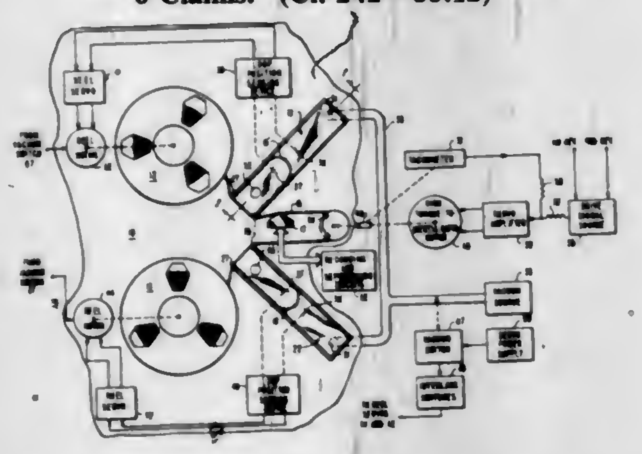
continued rotation of said whorl means to permit said bobbin to be halted and removed from said bobbin sup-



porting body means and replaced by a new bobbin and the said new bobbin set into motion.

3,302,900
TAPE TRANSPORT VACUUM CHAMBER

Robert M. Messamer, Reseda, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Sept. 24, 1963, Ser. No. 310,994
6 Claims. (Cl. 242—55.12)

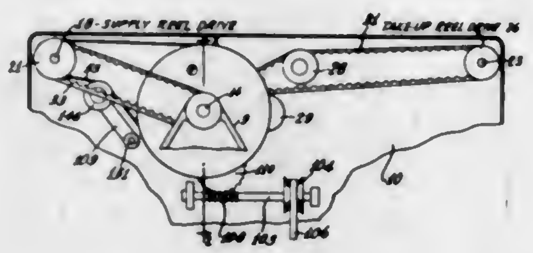


1. In a tape transport system wherein low inertia tape loops are formed in the tape path between the tape storage means and the tape driving means, an improved vacuum chamber buffer comprising an elongated enclosure having a closed end and an open entry end for receiving a tape loop, a vacuum source coupled to said enclosure through a first opening at the closed end of the chamber, one of the walls of the chamber substantially parallel to the plane of the tape loop defining a second opening adjacent the entry end of the chamber, said second opening being open to atmospheric pressure and adapted to be selectively closed, tape loop sensing means for detecting desired tape loop lengths between said first and second openings, and means for disposing a length of tape to form a substantial pressure seal across said entry end so that momentary closure of said second opening establishes a vacuum within said enclosure to pull the tape into said chamber to form a loop of the desired length.

3,302,901
FLUID DRIVE SYSTEM FOR FILM TAKE-UP AND REWIND MECHANISM

James L. Young, Canonsburg, and Ronald A. Lichalk, Pittsburgh, Pa., assignors to Radio Corporation of America, a corporation of Delaware
Filed Apr. 22, 1965, Ser. No. 449,960
8 Claims. (Cl. 242—55.12)

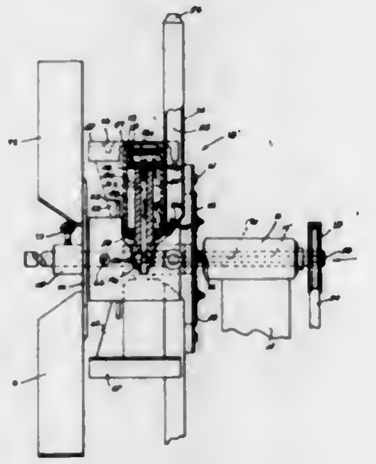
1. Drive and reeling mechanism for a strip comprising:
strip take-up means,
strip supply means,
means positively engaging said strip to impart movement thereto,
positive drive means for said strip engaging means,
a fluid coupling comprising an impeller and a runner driven thereby,
means to drive said impeller from said positive drive means,



clutch means associated with said runner for engagement with said strip take-up means,
a second clutch means on said runner for engagement with said strip supply means,
and means associated with said fluid coupling for urging either of said clutch means into driving engagement in response to rotational direction of the power input to said coupling.

3,302,902
REEL DEVICE

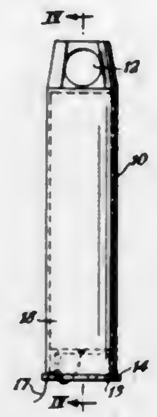
Charles L. Brinkman, 3118 Atherton Road, Dayton, Ohio 45409
Filed Dec. 20, 1965, Ser. No. 515,260
5 Claims. (Cl. 242—110.1)



1. In a device of the character described, a reel comprising shaft means,
a plurality of hollow spoke means connected to the shaft means and extending radially outwardly therefrom in equally spaced apart relation,
piston means connected to each of said spoke means,
cylinder means substantially closed at both ends thereof with said piston means disposed within the cylinder means and the spoke means extending through one of said ends for relative slidable and reciprocable movement therebetween,
means including passage means within said spoke means and said shaft means for supplying fluid under pressure into said cylinder means at the end opposite to said one end thereof, and
means including restricted passage for establishing fluid communication within said cylinder means between both ends thereof.

3,302,903
SEWING THREAD PACKAGE

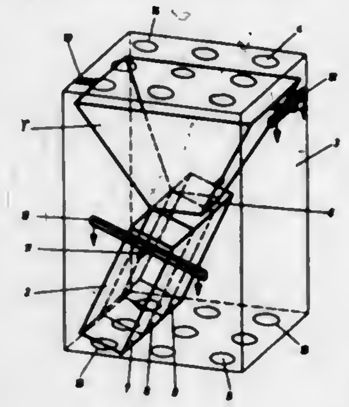
Hanus Peter Vogel, Lyndhurst, Marsham Way, Gerrards Cross, England, assignor to Gutermann & Company A.G., Zurich, Switzerland, a corporation of Switzerland
Filed Mar. 23, 1964, Ser. No. 353,844
Claims priority, application Great Britain, Apr. 2, 1963, 13,010/63
4 Claims. (Cl. 242—137.1)



1. A sewing thread package comprising an elongated container, a coreless cop of sewing thread housed in the container and adapted to be unwound from the inside of the cop, a removable cap on one end of the container, an orifice in substantially the centre of the cap, and mounting means at the other end of the housing chamber for mounting the loaded package on a supporting post to maintain the axis of the housing chamber substantially at right angles to the supporting post.

3,302,904
CENTRAL BRANCH-OFF FACILITY FOR PNEUMATIC TUBE SYSTEMS

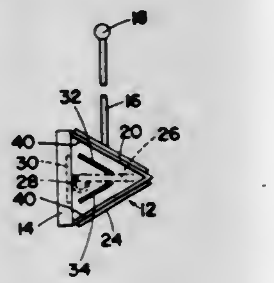
Fritz Buchwald, Berlin, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 8, 1964, Ser. No. 394,867
Claims priority, application Germany, Sept. 19, 1963, St 21,093
6 Claims. (Cl. 243—29)



1. A central branch-off facility for pneumatic tube systems for receiving carriers from dispatching tubes having the exit ports of said tubes distributed in two dimensions and for selectively feeding said carriers to receiving tubes having their input ports also distributed in two dimensions, comprising:
a first means for receiving said carriers from said dispatching tubes and selectively distributing them among output locations arrayed along a line oriented in a first direction, said first means having the general shape of a truncated pyramid and being pivoted about an axis substantially normal to said line;
a second means cooperating with said first means and having a pluraltiy of input points corresponding to said respective output locations of said first means, said second means being adapted for receiving and redirecting said carriers to an output point chosen from a plurality of output points arrayed along a line oriented in a second direction which is normal to said first direction, to distribute said carriers to output points along said line in said second direction; and
output means cooperating with said second means and comprising said receiving tubes, including the receiving tube to which the carrier is in each case to be delivered.

3,302,905
STABILIZED SATELLITE

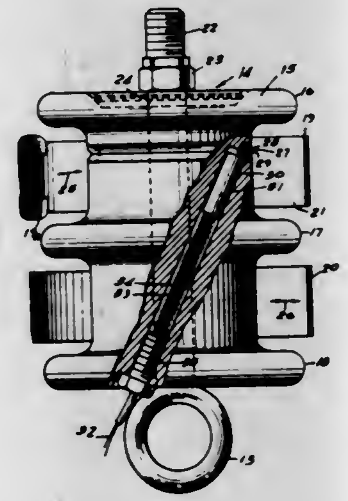
Louis K. Davis, Phoenixville, and Lamar E. Wagner, Rosemont, Pa., assignors to General Electric Company, a corporation of New York
Filed Aug. 6, 1964, Ser. No. 387,882
4 Claims. (Cl. 244—1)



1. A space vehicle having:
a front portion and a back portion;
radiation pressure orientation means providing torques around an axis to cause the front portion to face the source of the said radiation;
angular momentum storage means operative to store momentum of either sense around the said axis, responsively to ambient radiation which also impinges upon the said front portion at an acute angle, measured in a plane normal to the said axis, with the breadth of the vehicle;
means to receive radiation impinging upon the said back portion, connected to said angular momentum storage means to cause it to store angular momentum of only one said sense.

3,302,906
POSITIVE DESTRUCTION DEVICE FOR BALLOON

James A. Winker, Sioux Falls, S. Dak., assignor to Raven Industries, Inc., Sioux Falls, S. Dak., a corporation of South Dakota
Filed Mar. 8, 1965, Ser. No. 437,920
11 Claims. (Cl. 244—32)



8. A balloon end fitting for securing the material of a gathered end of a balloon envelope comprising,
an inner balloon end securing member,

an outer balloon end securing member surrounding the inner member defining a clamping space therebetween for receiving and holding gathered balloon envelope material,

a charge of explosive exposed to the balloon material in the space adjacent the upper end of said members,

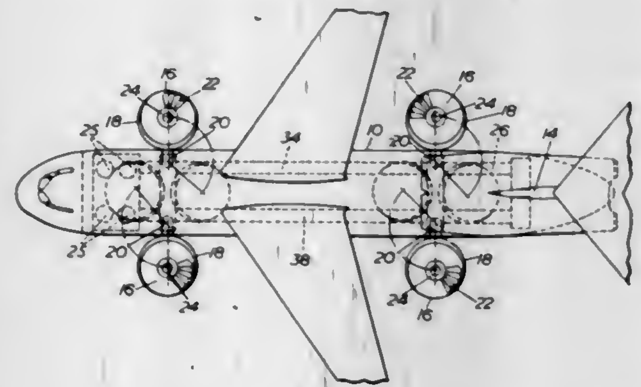
a firing means operatively positioned relative to the explosive charge for severing the balloon material to release the members from the balloon,

means on the inner balloon end securing member for attaching a payload to the balloon to be supported therefrom,

and a parachute attached to said means whereby a load will be supported by the parachute when said balloon end securing member is released by severing the balloon material by the action of said explosive charge.

3,302,907
AIRCRAFT

Geoffrey Light Wilde, Derby, and John Frederick Coplin, Littleover, Derby, England, assignors to Rolls-Royce Limited, Derby, England, a company of Great Britain
Filed Nov. 30, 1964, Ser. No. 414,536
Claims priority, application Great Britain, Jan. 9, 1964, 1,119/64
10 Claims. (Cl. 244—55)



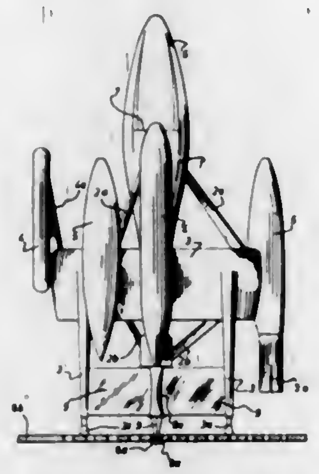
1. An aircraft having a fuselage, aerodynamic surfaces, at least one forward propulsion engine, and an additional propulsion unit which is mounted so as to be movable between a retracted position in which it is disposed within the fuselage of the aircraft, and an extended position in which it is disposed externally of the aircraft so as to be capable of producing lift forces on the aircraft independently of those produced by the aerodynamic surfaces of the aircraft during forward flight thereof, and means operable to pivot the additional propulsion unit selectively rearwardly and forwardly about a pivot axis perpendicular to the longitudinal axis of the aircraft for directing the thrust of the additional propulsion unit respectively rearwardly of the aircraft to enable transition of the aircraft from vertical to forward flight to be effected and forwardly of the aircraft to provide a braking effect and reduce the forward speed of the aircraft.

3,302,908
UNMANNED FLYING MACHINE

Michel Lazareff, Paris, France, assignor to Nord-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France, a joint-stock company of France
Filed Dec. 29, 1964, Ser. No. 421,801
Claims priority, application France, Jan. 9, 1964, 959,849, Patent 1,389,617
2 Claims. (Cl. 244—77)

1. Altitude piloting device provided in addition to a conventional distant control system mounted in an unmanned flying machine having an automatic pilot and capable of landing on a deck-landing platform subjected to the movements of the sea and including means for automatically anchoring said machine to the said platform upon contact of the machine therewith, said altitude piloting device comprising:

a detector detecting at each instant the distance D along the direction of flight of the machine separating the machine from the horizontally projected level of the deck-landing platform;



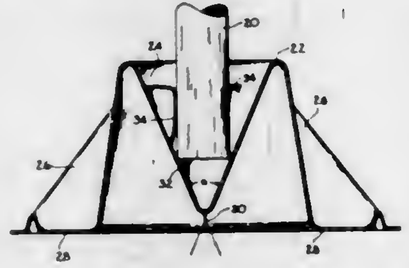
an electronic measuring circuit associated with the said detector and giving at each instant a signal dD/dt representing the relative speed of the machine with respect to the horizontally projected level of the deck-landing platform;

a second detector giving the altitude A of the machine;

an electronic computer receiving the signals D, dD/dt and A and giving an altitude order signal to the automatic pilot.

3,302,909
STAFF-TYPE BASE SUPPORT

Martin Walter Glassman, 1603 2nd St., Manhattan Beach, Calif. 90266
Filed Oct. 18, 1965, Ser. No. 497,014
7 Claims. (Cl. 248—44)



1. In combination with an object having an elongated base member and a longitudinal axis, a device for supporting the object at the base member such that the object is in a stable position, vertically balanced with respect to its weight distribution, said device comprising:

(a) a vessel having an interior surface describing an inverted right cone;

(b) a plurality of brackets, said brackets each having two flat sides, the ends of said sides being curved convex, having radii of curvature at their extremities smaller than the radius of the curvature of any right section of said vessel which said extremities may contact, and an included angle,

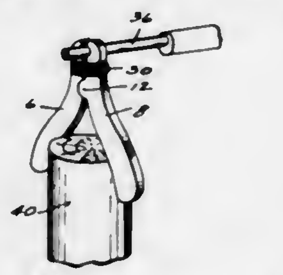
the length of said sides relative to each other, to said included angle, and to said interior surface of said vessel being such that when said extremity of each side is placed in contact with said interior surface at points the connection of which form a straight line with the apex of said conic surface, and a second line which describes the intersection of said sides is tangent at the center of said second line to a circle concentric with a right section of said conic surface; and

(c) support means for supporting said vessel in a fixed position with respect to a bearing surface;

whereby, when the elongated base member is approximately centered in said vessel in a vertically balanced position with respect to its weight distribution, and said brackets are approximately symmetrically positioned with respect to the longitudinal axis of the elongated base member and contacting the surface of the base member so that the extremities of said brackets are restrained by being in contact with said interior surface of said vessel, thereby restricting motion of the object at the points of contact of the surface of the elongated base member, and further when motion is restricted near the bottom of the base member by contact with said interior surface of said vessel, the object is supported at the elongated base member in a stable, vertical position.

3,302,910
LIGHTWEIGHT CLAMP AND STEADY REST

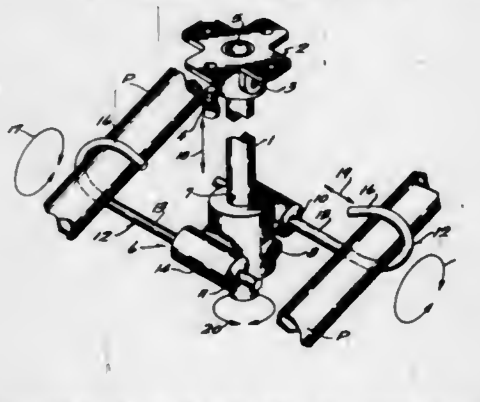
William H. Williams, 923 W. Carroll St., Portage, Wis. 53901
Filed July 7, 1965, Ser. No. 470,016
3 Claims. (Cl. 248—47)



1. A steady-rest clamp comprising a pair of elongated generally flat members each of which has opposing faces and inner and outer margins, said members being disposed in a common plane and having leg portions mutually spaced from each other in said plane, integral means providing pivotal engagement between the inner margins of said members, said means comprising a transverse channel in the inner margin of one of said members and a complementary rib on the inner margin of the other member and pivotally engaged in said channel, the inner margins of the respective members having transversely channeled jaw portions at the ends thereof remote from said leg portions, and resilient tension means encircling said members between their said jaw portions and the pivotally engaged rib and channel portions, said tension means biasing the jaw portions toward each other and holding the rib engaged in the channel.

3,302,911
PIPE HANGER

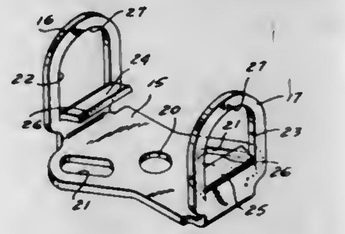
Lloyd F. Bender, Rte. 2, Hayward, Wis. 54843
Filed June 20, 1966, Ser. No. 558,677
2 Claims. (Cl. 248—59)



1. An adjustable pipe hanger for supporting pipes in any one of a plurality of positions comprising, an elongated stem, means for rigidly securing said stem to a supporting structure, a housing having a recess extending therethrough in one direction, means for releasably securing said stem in said recess for adjustment of said housing along the length of said stem, said housing having a pair of spaced apart apertures extending therethrough and generally at a right angle to said recess, a hook-arm slidable in opposite directions in each of said apertures, and means for detachably locking said hook-arms in said aperture in any selected position to which they may be slid, said hook-arms each having an open and generally U-shaped hook at one of its ends for embracingly receiving a pipe to be supported thereby, said hook-arms also being rotatable in said housing whereby after said pipe is placed in said U-shaped hook the hook-arm can be rotated slightly to snugly embrace said pipe and then locked in said adjusted position.

3,302,912
MOUNTING BRACKET FOR VALVES

Wilbur F. Hurlburt, Jr., Morristown, N.J., assignor to Automatic Switch Company, Florham Park, N.J., a corporation of New York
Filed July 7, 1965, Ser. No. 470,098
4 Claims. (Cl. 248—65)



1. A mounting bracket for use with a valve having a body provided with ports, and conduits extending from the ports, comprising:

(a) a bracket base provided with means for mounting the bracket on a supporting surface and

(b) at least two upstanding arms secured to said base,

(I) said arms being spaced apart a distance sufficient to accommodate the valve body between them with one of the ports facing each arm,

(II) each arm having a hole in registry with its respective valve port to permit the conduit extending from that port to pass through the arm,

whereby each arm completely surrounds its respective conduit and thereby prevents removal of the valve from between the bracket arms, and

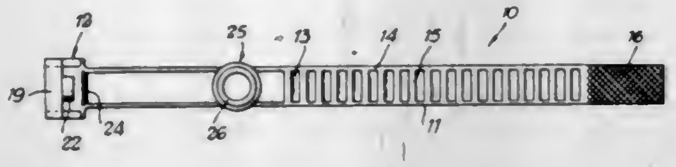
(c) a tab projecting inwardly from each arm, each tab being located between the hole in its respective arm and said base but being spaced from said base, and each tab being adapted to support the valve body arranged between said arms, whereby the valve body is supported in spaced relation to said base so as not to interfere with fasteners cooperating with the mounting means in said base.

3,302,913
STRAP FASTENING

Robert Charles Collyer, Harefield, and Alfred Edward Piper, Hillingdon, England, assignors to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed Nov. 29, 1965, Ser. No. 510,344
Claims priority, application Great Britain, Dec. 1, 1964, 48,775/64
6 Claims. (Cl. 248—73)

1. A flexible strap fastening comprising an elongate strap having one face formed with a series of recesses which extend transversely of the strap to form a series of transverse ribs in the strap and adjacent one end of the strap, projecting upwardly from the said one face only of the strap, a latch portion extending from said one face and provided with an opening extending through the said latch portion in the direction of the length of

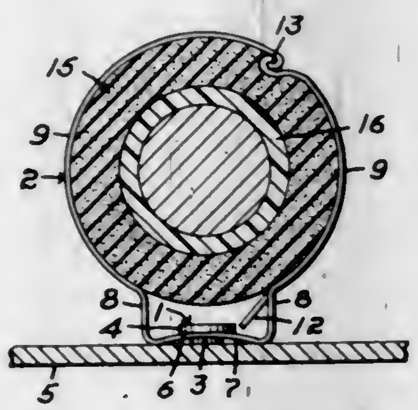
the strap and a resiliently movable lug projecting downwardly into the said opening and towards the said one face of the strap, the other end of the strap being insertable through the said opening from the said one end of the strap and the said ribs being snap-engageable past the resiliently movable lug to lock the strap in any one of a number of positions in the latch portion.



3,302,914
WIRING FASTENERS

Charles H. Becker, Braintree, Mass., assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware

Filed Nov. 2, 1965, Ser. No. 506,062
3 Claims. (Cl. 248—74)

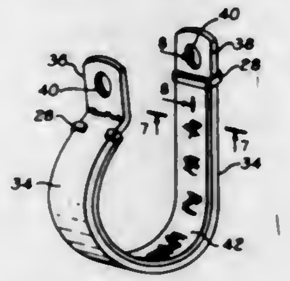


1. A fastener combination for securing wires, tubes, cables and the like articles to a supporting sheet metal panel comprising a stud having a head and a shank secured to a surface of the supporting panel at the end of the shank remote from the head without perforation of the panel such that the head of the stud is spaced from but lies in close proximity to the surface of the panel with the undersurface of the head facing inwardly toward the surface of the panel, and a clip engaging the stud, said clip including a base structure having a bottom portion and opposed upstanding side portions, said bottom portion being slightly bowed upwardly and having a slot formed therein extending from its midpoint to an open end adjacent one of said portions, said slot having a width slightly larger than the shank of said stud, at least one of said side portions having an opening formed therein adjacent said bottom portion and said slot, said opening being slightly wider than the head of said stud, said stud being seated in the slot such that its head overlies and is tensioned against the bowed portion to urge said clip tightly against the panel, locking means struck from at at least one of said bottom portion and said side portions, said locking means being located adjacent the open end of said slot, said locking means being spring acting so as to be displaceable away from said slot as the stud is passed into said slot from its open end and to spring back into a position to prevent accidental disengagement of said clip from the stud when the shank of the stud is fully seated in said slot, said locking means being disposed in said last mentioned position, and article engaging means extending upwardly from said base structure adapted to engage an article to be secured to the supporting panel by the fastener combination.

3,302,915
REMOVABLE METAL CUSHION FOR HOSE OR PIPE CLAMP

Peter P. Usher, Union, N.J., assignor to General Cable Corporation, New York, N.Y., a corporation of New Jersey

Filed June 2, 1966, Ser. No. 554,720
8 Claims. (Cl. 248—74)

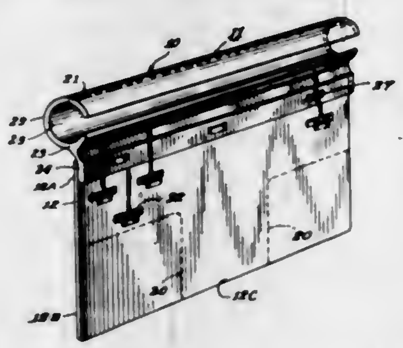


1. A metal cushion structure for a pipe clamp or the like including an elongated pad made of overlapping and multi-directional portions of wire forming a resilient pad for contact with an inside face of a pipe clamp, a holder comprising a strip of maleable material extending transversely of the length of the pad and in contact with one of the faces of the pad and generally parallel to the inside face at a location along the pad where the holder is in contact with the pad, said holder being permanently bonded to the pad and having portions extending beyond both sides of the pad for passing around the sides of a clamp and inward over a part of the width of the outside of a clamp, and another similar holder separate from the first holder and connected with the pad at a substantial distance along the pad from the first holder.

3,302,916
ANTENNA MOUNTING MEMBER

Nickolas Kriadis and Thomas J. Wright, both of Itasca, Ill., assignors to Bel-Tronics Corporation, Addison, Ill., a corporation of Illinois

Filed Dec. 11, 1964, Ser. No. 417,620
5 Claims. (Cl. 248—314)



1. A member for receiving and providing a protective cover for an antenna which antenna comprises coils wound on a rod shaped core and for mounting the antenna on an associated electronic chassis, said member comprising in combination,

(a) an elongated housing for receiving the antenna, said housing being substantially as long as the overall length of the antenna to be mounted therein;

(b) said housing being C-shaped in cross section and forming an envelope for the antenna to be received therein whereby said housing surrounds the major portion of the antenna and provides a protective mounting and cover for the antenna, and the two tips of said C-shaped housing being spaced apart to form an opening therebetween;

(c) said housing being flexibly openable from an initial position to an enlarged opened position to receive the antenna in said housing;

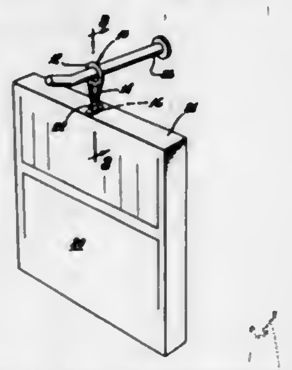
(d) said housing being closable by reflex action to its initial position to securely retain the antenna and cover a major portion thereof; and

(e) a relatively rigid base plate extending from said housing for providing a means for mounting said member onto the electronic chassis.

3,302,917
HANGER MEMBER

Morris B. Winkler, Los Angeles, Calif., assignor to Mor-Win Products, Inc., Los Angeles, Calif., a corporation of California

Filed June 16, 1966, Ser. No. 557,971
9 Claims. (Cl. 248—317)

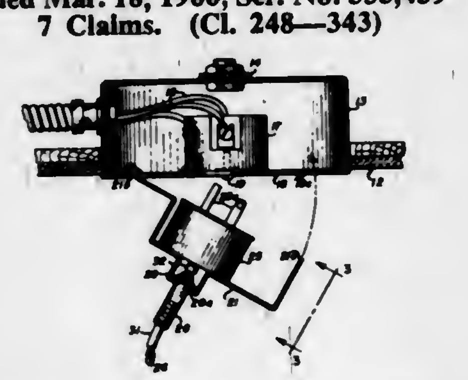


1. A hanger element for connection to an article and for removably supporting the article, said element comprising support means adapted to be removably supported on a support structure, an elongate body means depending from said support means, and at least two connector arms connected to and extending outwardly in two substantially different directions from a lower portion of said body means, at least one of said connector arms being flexibly connected to said body means for movement into a position generally lengthwise of said body means to permit ready insertion of said arms and the lower portion of said body means through an aperture in an upper wall of an article to be supported, said flexibly connected arm being constructed and arranged so that when it is returned to its outwardly extending position, it will tend to remain in substantially the outwardly extending position in response to a downward force upon it, whereby said arms will act to support the article and to maintain a connection between the hanger element and the article.

3,302,918
CEILING ATTACHMENT FOR LIGHTING FIXTURES

David A. Cohen, 744 Foothill Drive, San Mateo, Calif. 94402

Filed Mar. 18, 1966, Ser. No. 535,439
7 Claims. (Cl. 248—343)



1. Apparatus for mounting an electrical fixture from an outlet box, comprising:

a cover for said box, said cover having an electrical receptacle therein connected to a source of electrical energy;

a yoke member releasably engaging said cover;

an electrical plug member for mating with said receptacle in said cover, said plug member being disposed above said yoke member and being separable therefrom when said yoke member is disengaged from said cover to permit connection and disconnection of said plug member in said receptacle, said plug member being supported by said yoke member when said yoke member is engaged with said cover to maintain good electrical contact between said plug member and said receptacle;

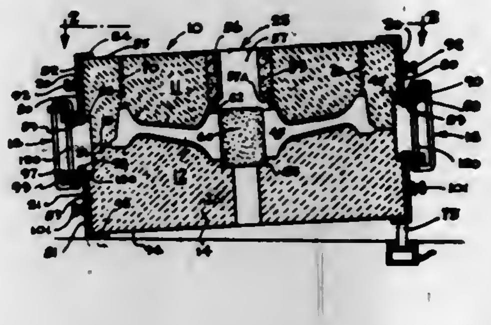
means electrically connecting said plug member to the electrical fixture; and

fixture supporting means carried by said yoke member for supporting the electrical fixture when said yoke member is engaged with said cover, said yoke member being releasable from said cover to permit disconnection of said plug member from said receptacle and removal of said fixture.

3,302,919
APPARATUS FOR CASTING METAL WHEELS

Robert H. Beetle, Mountain Lakes, and John B. Dabney, Ridgewood, N.J., assignors to Abex Corporation, a corporation of Delaware

Filed Nov. 12, 1965, Ser. No. 507,999
9 Claims. (Cl. 249—56)



4. A wheel mold for casting wheels each having a hub joined to a plate along hub fillets, and a tread, a flange, and back of flange joined to the plate along rim fillets, said mold comprising: a graphite cope section having a cavity therein; said cope section having a central opening therein leading to its cavity; a graphite drag section having a cavity therein for mating with the cavity of said cope section; strainer core means in said central opening of the graphite cope for receiving molten metal during pouring; a float core means on said strainer core to float upwardly when said cavities are full of metal; hub core means disposed on said drag and aligned with said central opening; said cope section and drag section having recesses formed along first fillet areas, a plate area, rim fillet areas, tread, flange and back of flange areas; and sand lining means in selected of said recesses including the rim fillet areas and having surfaces complementary to the wheel geometry and for receiving said molten metal thereagainst; said tread, flange, and back of flange areas being of graphite devoid of said sand lining means.

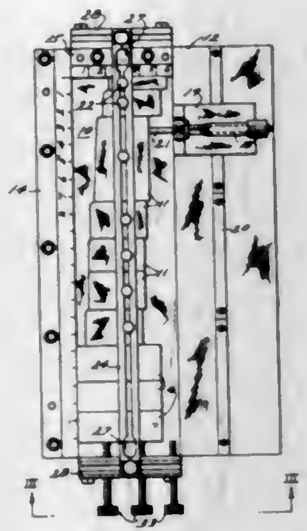
3,302,920
APPARATUS FOR PRODUCING TEMPLATES

Charles L. Dupage, Pekin, Charles E. Lipp, Peoria, Bernard G. Trunk, East Peoria, and Charles R. Wilson, Pekin, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California

Filed Sept. 25, 1964, Ser. No. 399,282
2 Claims. (Cl. 249—156)

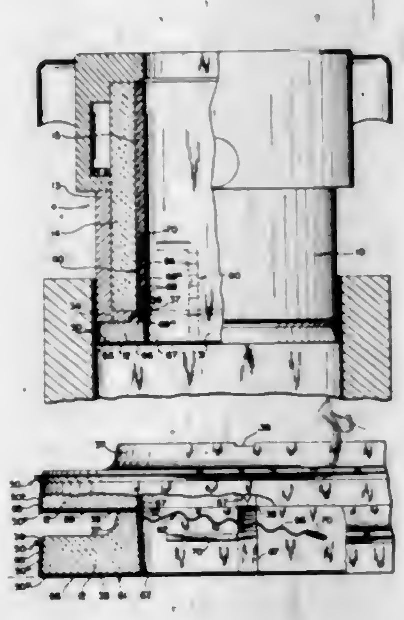
1. An apparatus for making precision templates having one profiled edge for use in tracer lathes comprising a base plate, a side wall and an end wall on said base plate, means for securing contoured blocks and spacers against

the base plate in spaced relationship to the side and end walls to form a mold into which a hardenable substance may be poured, a micrometer, a support for the micrometer, and means for guiding the support for sliding movement parallel to the side wall for adjustment of the micrometer in a direction normal to the side wall for the accurate spacing of said contoured blocks with respect to the side wall.



3,302,921
ATTACHING MEANS FOR BOTTOM RING

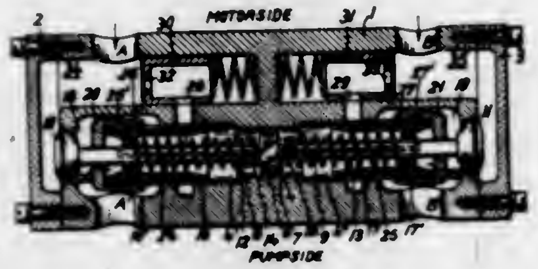
Benjamin F. Anthony, Cleveland Heights, Ohio, assignor to Oglebay Norton Company, Cleveland, Ohio, a corporation of Ohio
Filed May 15, 1963, Ser. No. 280,530
4 Claims. (Cl. 249—202)



1. An assembly for use in a hot top comprising, a hot top bottom ring member having upper and lower surfaces, an outer peripheral surface intersecting said upper and lower surfaces and an inner surface defining an opening therethrough and intersecting said upper and lower surfaces and an elongated clip member for securing said bottom ring member to an insulated hot top unit, said clip member including a first portion attached to said ring member and a second portion having a portion extending substantially parallel to the axis of the opening through said bottom ring along said inner surface of said opening in said bottom ring, said second portion projecting beyond said ring and including means for connection with said insulated hot top unit.

3,302,922
DUALLY EFFECTIVE HYDRAULIC VALVE

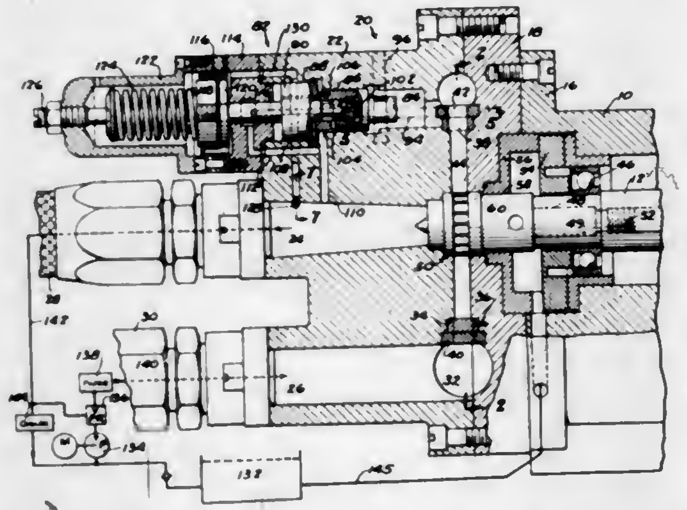
Wilhelm Gregor, Hamburg-Neugraben, and Bernhard Jorgji, Hamburg-Lokstedt, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Feb. 13, 1964, Ser. No. 344,697
Claims priority, application Germany, Feb. 13, 1963, L 44,109
3 Claims. (Cl. 253—1)



3. A hydraulic system, comprising, in combination:
(A) hydraulic motor means having an inlet and an outlet;
(B) hydraulic pump means having pressure and return lines connected to said inlet and said outlet respectively so as to define a closed flow path hydraulic system; and
(C) valve means disposed to control flow between said inlet and outlet and said pressure and return lines, said valve means including
  (1) a hollow valve body having a recoil cylinder, a cylinder chamber on each side of said recoil cylinder, two pump chambers each in communication with a cylinder chamber and one in communication with said pressure line and the other in communication with said return line, two motor chambers each in communication with a pump chamber via a valve seat aligned with the cylinder chamber, and one in communication with said inlet and the other in communication with said outlet, a radial bore formed through each cylinder chamber to communicate said chamber with the respective motor chambers,
  (2) a recoil piston disposed in said recoil cylinder and having a piston rod extending from each end thereof,
  (3) valve rods connected with and on either side of said recoil piston and passing through said cylinder chambers and said pump chambers respectively and having a valve element on the end thereof which is disposed to fit in said valve seat and block communication between the pump chambers and the motor chambers, and connected to be moved off the valve seat by said piston rod and valve rod when said recoil piston is moved,
  (4) a pot-shaped housing portion disposed within each pump chamber and opening toward the cylinder chamber, and
  (5) a hollow slide valve disposed in each cylinder chamber and having a radial wall which forms two internal spaces within each valve, with the valve rods passing through said wall, and said slide valve being disposed within said housing portion whereby the space which faces the housing portion defines a chamber therewith, a bore formed through said valve rod, said piston rod, and said piston whereby the chamber formed by the housing portion and the slide valve on one side of the recoil piston communicates with the space on the other side of said piston, said slide valve being mounted to normally block said radial bore but being slidably movable whereby said bore can provide a secondary path of communication between the motor chamber and the pump chamber even when said valve element is yet seated in said valve seat.

3,302,923
TURBINE

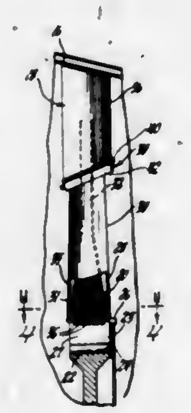
Earl A. Thompson, 1300 Hilton Road, Bloomfield Hills, Mich. 48020
Continuation of application Ser. No. 227,091, Sept. 28, 1962. This application Jan. 13, 1965, Ser. No. 426,475
16 Claims. (Cl. 253—2)



1. A turbine for driving a shaft at high speed from high pressure, low velocity liquid comprising means defining a ring-shaped inlet chamber for liquid, a rotor having a diameter less than one-half that minimum dimension of the inlet chamber which is transverse to its axis connected to drive the shaft and provided with drive vanes arranged for radially inward ingress and generally axial egress of driving liquid, means defining a free vortex chamber between the inlet chamber and the rotor including a pair of opposed end walls extending transverse to the rotor axis for axially confining a ring of liquid having the spiral motion of a free vortex to increase substantially the velocity of liquid entering the rotor over the velocity of liquid leaving the inlet chamber, means for measuring the rotary component of velocity of liquid leaving the rotor drive vanes, and means responsive to the value of the component for controlling the liquid entering the free vortex chamber.

3,302,924
DUAL AIRFOIL BLADED ROTOR

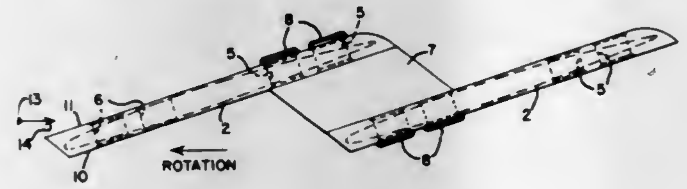
William S. Castle, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 12, 1965, Ser. No. 439,317
8 Claims. (Cl. 253—39.15)



1. A rotor comprising:
a rotor wheel,
a plurality of dual airfoils extending radially from said rotor wheel, each of said airfoils including:
a central spar secured to said wheel at its inner end,
a platform adjacent the inner end of said spar adapted to abut platforms on adjacent spars,
a first sheet metal wrapper embracing said spar and the outer surface of said platform to form a first blade,
a shroud segment including:
a closed, hollow, two-piece sheet metal box with front and rear faces, sides and inner and outer walls secured to the outer end of said first blade with said spar extending through said inner and outer walls,
means extending circumferentially from said box adapted to abut adjacent boxes to space said boxes circumferentially,
said front and rear faces having integral extensions adapted to abut adjacent front and rear faces respectively to form contiguous front and rear annular walls whereby said segments form a shroud connecting the tips of said first blades,
an axially extending sealing lip on said front annular wall,
a second sheet metal wrapper secured to said outer wall of said shroud segment and said spar to form a second blade,
inlet means in said spar inwardly from said platform,
an outlet in said box, and
conduit means in said first blade and said box extending between said inlet means and said outlet whereby a path for the flow of cooling air through said first blade is established.

3,302,925
DIAGONAL COVER PIECE FOR TURBINE BUCKET

Victor S. Musick, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 17, 1966, Ser. No. 521,141
3 Claims. (Cl. 253—77)



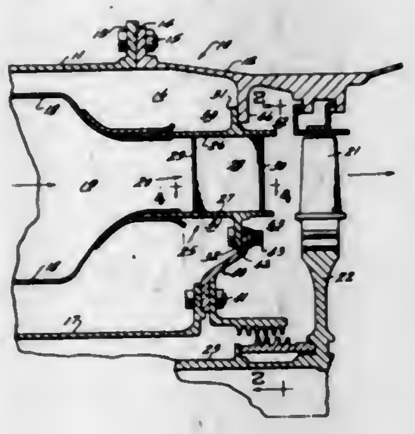
1. A turbomachine rotor assembly comprising a plurality of rotor buckets on a shaft, each of said buckets having an enlarged tip portion and two separate cover pieces fastened thereto at its tip portion and extending from the trailing portion and the leading portion of said bucket tip portion to the leading and trailing portions of adjacent bucket tip portions respectively, said cover pieces mutually lashing and spacing said buckets, said cover pieces and said buckets together defining an outer surface which is substantially cylindrical and coaxial with said rotor.

3,302,926
SEGMENTED NOZZLE DIAPHRAGM FOR HIGH TEMPERATURE TURBINE

Melvin Bobo, Topsfield, Mass., assignor to General Electric Company, a corporation of New York
Filed Dec. 6, 1965, Ser. No. 511,865
9 Claims. (Cl. 253—78)

1. In a turbine, a turbine nozzle diaphragm comprising:
an outer annular shroud ring,
an inner concentric shroud ring within said outer shroud ring,

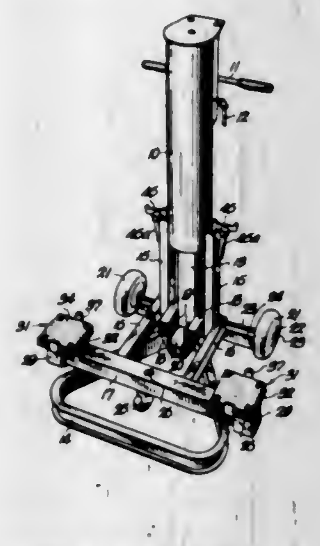
and a plurality of radially extending vanes positioned between said shroud rings and secured thereto, said vanes having axially spaced leading and trailing edges and defining therebetween flow passageways of varying cross-sectional area,
at least one of said shroud rings having a single circumferential flange projecting radially therefrom, said flange being oppositely directed from said vanes,



said shroud ring and the flange associated therewith being comprised of at least two segments,
the separation between each pair of adjacent segments downstream of said associated flange following along a line on which the pressure between said inner and outer shroud rings during turbine operation is substantially equal to the pressure downstream of said associated flange.

3,302,927
PORTABLE AUTOMOBILE LIFT HAVING TRANSVERSELY ADJUSTABLE BUMPER-ENGAGING MEANS AND SEPARATE FRAME-ENGAGING MEANS

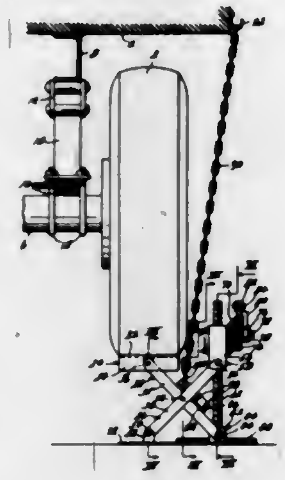
James J. Gray, St. Joseph, Mo., assignor to Gray Manufacturing Company, Inc., St. Joseph, Mo., a corporation of Missouri
Filed May 14, 1965, Ser. No. 455,875
6 Claims. (Cl. 254—2)



1. In a pneumatic lift having;
a base and a vertical column affixed thereto, a power cylinder slidably mounted on said column, and a cross frame rigidly affixed to and movable with said power cylinder,
the improvement comprising;
an extendible cross frame,
bumper engaging saddle assemblies mounted on said cross frame, and
separate removable frame engaging yokes swivelly mounted on said saddle assemblies.

3,302,928
LEVELING AND STABILIZING JACK FOR VEHICLES

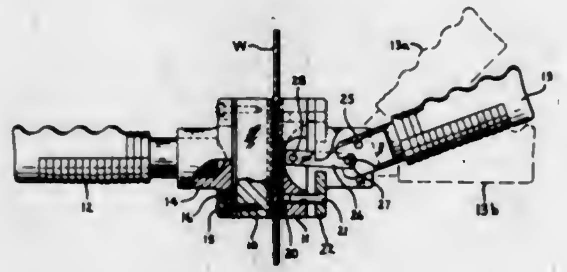
Gaylord L. White, 717 2nd St., Belton, Mo. 64012
Filed Feb. 15, 1965, Ser. No. 432,631
8 Claims. (Cl. 254—122)



1. A leveling jack for automotive vehicles comprising:
(a) a ground-engaging base plate,
(b) a horizontal platform normally disposed above and closely adjacent said base plate, and adapted to support a ground-engaging wheel of said vehicle thereon,
(c) a linkage consisting of a pair of arms pivotally joined together intermediate their ends on a horizontal axis, and extending horizontally in both directions from said axis, a first pair of corresponding ends of said arms being pivoted respectively to said base plate and said platform on axes parallel to said arm axis, the second pair of corresponding ends of said arms being horizontally offset from said platform, said second pair of corresponding ends of said arms being vertically spaced apart,
(d) a cleat pivoted on the lower of said second pair of corresponding ends of said arms on an axis parallel to said arm axis, said cleat being supported slidably on said base plate for horizontal movement at right angles to said arm axis,
(e) means preventing upward movement of said cleat from said base plate, and
(f) screw means interconnecting said second pair of corresponding ends of said arms and operable to force said arm ends apart.

3,302,929
ELECTRICIAN'S FISH TAPE PULLER

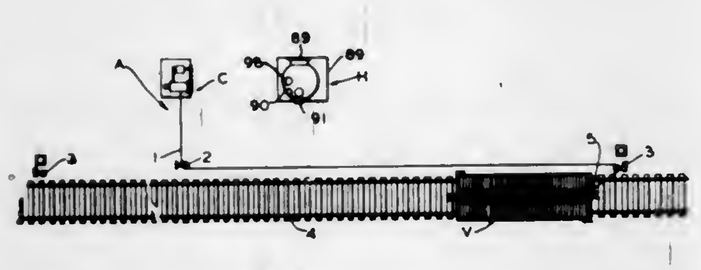
Oliver J. Danielson, 3950 St. Marys, Martinez, Calif. 94553, and Claud E. Wilcox, P.O. Box 545, Gresham, Oreg. 97030
Filed June 21, 1965, Ser. No. 465,531
7 Claims. (Cl. 254—134.3)



2. A fish tape puller comprising a fixed jaw and a movable jaw, a transverse handle on said fixed jaw, a frame member connected with said fixed jaw, a transverse handle pivotally mounted on said frame member, a toggle link interconnecting said second handle and movable jaw for opening and closing said movable jaw, a pair of parallel bores in said movable jaw, and pins on said frame member extending into said bores to support said movable jaw for sliding movement toward and away from said fixed jaw.

3,302,930
VEHICLE MOVING SYSTEM

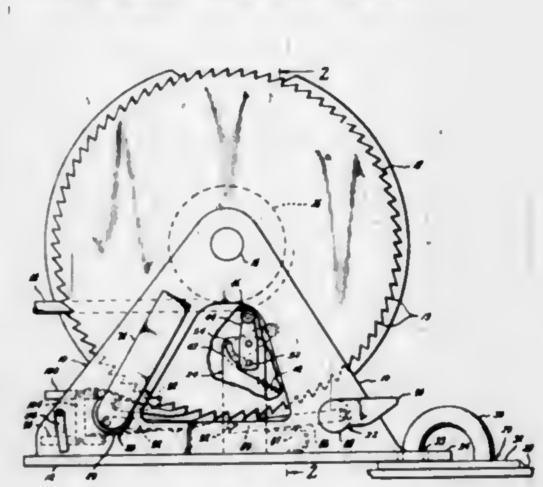
Alfred W. Nagel, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed July 31, 1964, Ser. No. 386,621
23 Claims. (Cl. 254—173)



1. In a powered winch including a plate with a cable drum mounted thereon and having a cable trained therearound for attachment to a load, and a prime mover operatively associated therewith for powering said cable drum; a safety overload device comprising base means operatively associated with said plate and being disposed therebeneath, a torsion bar operatively connecting said plate to said base means and being adapted to bias said plate in an upward direction about said torsion bar, and limit switch means operatively associated with said prime mover and being adapted to de-energize said prime mover when the vertical downward vector of the force attached to cable exceeds the vertical upward vector of the force created by the biasing means.

3,302,931
RATCHET WINCH

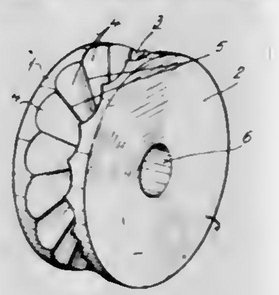
Walter L. Blackburn, 6105 England St., Houston, Tex. 77021
Filed June 15, 1966, Ser. No. 562,061
16 Claims. (Cl. 254—186)



1. A ratchet winch for interconnecting a barge train by cable including,
a base plate, side members attached to said base plate, a shaft mounted for rotation between said side members,
a freely rotatable drum mounted on said shaft having a ratchet wheel with teeth and a hand wheel connected therewith,
wedge means mounted on said drum to forcibly attach the cable to the drum,
means mounted on said base plate to expeditiously secure as well as remove said wedge means by oscillating operation of the hand wheel,
brake means engageable with said hand wheel,
means for limiting the number of winds of cable on said drum so as to maintain high mechanical advantage of the ratchet winch,
manually operable reciprocating means to drive the ratchet wheel,
freely releasable dog means engaging said ratchet wheel and limiting rotation of said ratchet wheel relative to said shaft, and
means for pivotally interconnecting one end of said base plate to a barge whereby the ratchet winch is horizontally and vertically maneuverable.

3,302,932
ARRANGEMENT IN PULLEYS FOR ROPES AND HAWSERS

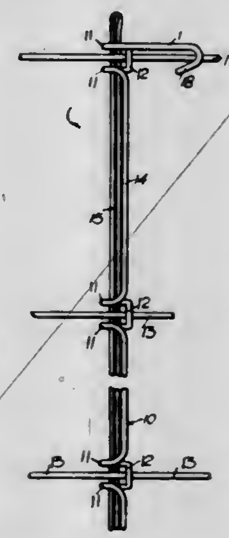
Carl Olov Harry Wallin, Bergliden 20, Ektorp, Sweden
Filed Mar. 8, 1965, Ser. No. 437,656
Claims priority, application Sweden, Mar. 11, 1964, 3,051/64
4 Claims. (Cl. 254—190)



1. A pulley for ropes, said pulley having grooves formed on each flank surface forming a V-shaped track which converges towards the center of said pulley, the grooves of one flanking surface being displaced from the grooves of the other flanking surface by approximately one-half a pitch, so that said surfaces conform to the contours of varying size ropes.

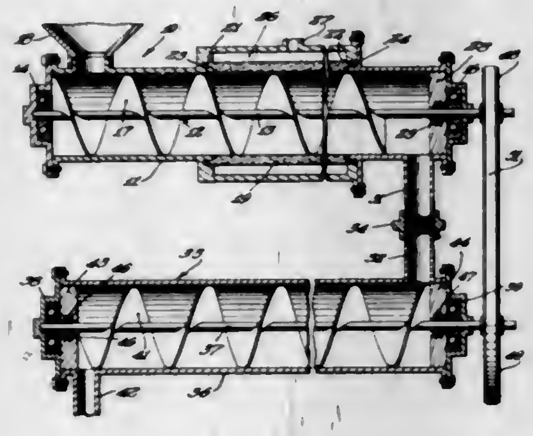
3,302,933
SUPPORTING MEANS FOR USE WITH WIRE FENCING

Charles Goodall and Maurice Goodall, both of Silverhill, Barton-under-Needwood, England
Filed Nov. 4, 1964, Ser. No. 408,850
Claims priority, application Great Britain, Nov. 18, 1963, 45,377/63
1 Claim. (Cl. 256—48)



Wire supporting means for use with wire fencing having a plurality of spaced parallel wires, said means comprising a support member in the form of a length of resilient wire, and an elongated locking rod, said support member being formed with a plurality of pairs of loops, the pairs being spaced along the length of the support member and the loops of each pair being spaced apart over the major portions of their lengths to provide a gap through which a fence wire can extend and being integrally connected together by a connecting portion which provides an abutment for the fence wire and closes one side of said gap, all the loops being co-axial and being arranged so that they extend in spaced parallel planes whilst all said connecting portions are disposed so that access to all the gaps can be obtained from the same lateral direction with respect to the length of the support member whereby the support member can be assembled to the wire fencing by displacing it in a sideways direction transverse to the length of the fencing to engage the wires of the fencing with said gaps between the loops in the support member, whereafter the locking rod can be inserted lengthwise through the co-axial loops to retain the fencing wires in position, and a laterally extending hook forming an extension of the top loop of the topmost pair of loops extending from said loop in a direction requiring resilient stressing of said hook to rotate said resilient wire member to clamp said locking rod.

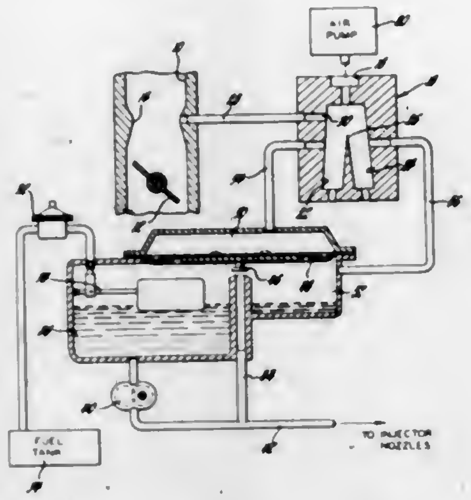
3,302,934
APPARATUS FOR MAKING POROUS MATERIALS
William C. Milligan, 1618 San Angelo Blvd.,
San Antonio, Tex. 78201
Filed June 4, 1965, Ser. No. 461,417
5 Claims. (Cl. 259—151)



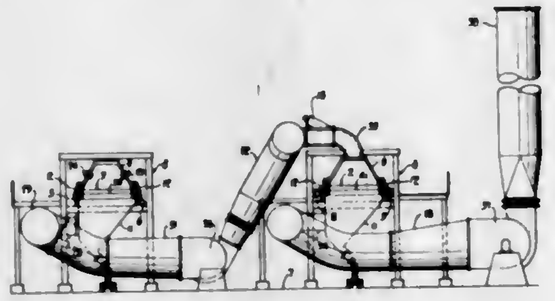
1. An aerating device for slurries comprising a first screw conveyor, means for introducing a slurry into said screw conveyor, plenum chamber defining means disposed coaxially with said first screw conveyor, said means including a fluid permeable wall adjoining said first screw conveyor, means for introducing a foam producing fluid through said permeable wall and into the slurry being conveyed by said first conveyor means, a second conveyor means receiving the discharge from said first screw conveyor, and means for driving said first and second conveyor means at differing speeds.

3,302,935
FUEL SYSTEM
Jerome B. York, Jr., Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 16, 1965, Ser. No. 487,802
4 Claims. (Cl. 261—29)

1. An internal combustion engine fuel system comprising a fuel inlet, a valve controlling fuel flow through said inlet, a fluid amplifier including an inlet port and a pair of outlets, means to direct a flow of fluid through said amplifier from said inlet port to said outlets, said amplifier being connected to a source of regulating fluid and having means to divide the fluid flow from said inlet port between said outlets in accordance with the characteristics of said regulating fluid, and means to position said valve in accordance with the difference in the fluid flow through said outlets to thereby control fuel flow through said fuel inlet in accordance with the characteristics of said regulating fluid.

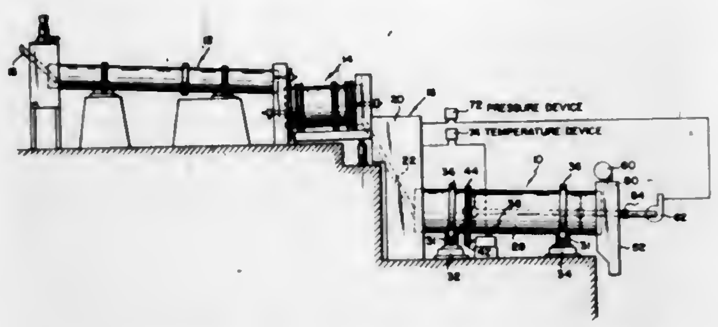


3,302,936
CIRCULAR TRAVELING GRATE MACHINE
Thomas E. Ban, Cleveland Heights, Ohio, assignor to McDowell-Wellman Engineering Company, a corporation of Ohio
Filed Nov. 23, 1964, Ser. No. 412,915
15 Claims. (Cl. 263—28)



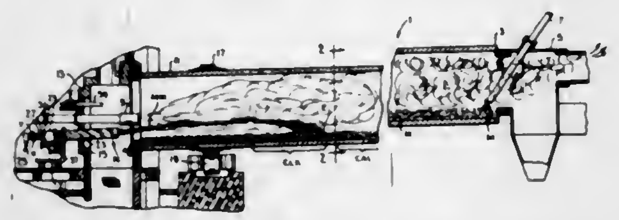
1. A horizontally disposed circular traveling grate machine comprising in combination:
(a) a circular trackway;
(b) a plurality of gas permeable pallets movable on and guided by said trackway, each pallet having a material supporting grate formed of spaced grate elements;
(c) means for moving the pallets along the trackway;
(d) stationary gas confining hood means disposed above the trackway and the pallets covering at least a portion of the trackway;
(e) stationary gas confining windbox means disposed below the trackway in chamber forming relation with said hood;
(f) liquid sealing means coacting between the upper region of the moving pallets and the lower region of the stationary hood means; and
(g) liquid sealing means coacting between the lower region of the moving pallets and said upper region of the stationary windbox means
whereby the chamber defined by the hood means and the windbox means is sealed at its marginal edges from the ambient atmosphere.

3,302,937
APPARATUS FOR COOLING METALLIC AND NON-METALLIC PARTICLES
George W. Pixley, Newburgh, N.Y., assignor to Pelm Research and Development Corporation, Newburgh, N.Y., a corporation of New York
Filed May 19, 1964, Ser. No. 368,679
7 Claims. (Cl. 263—32)



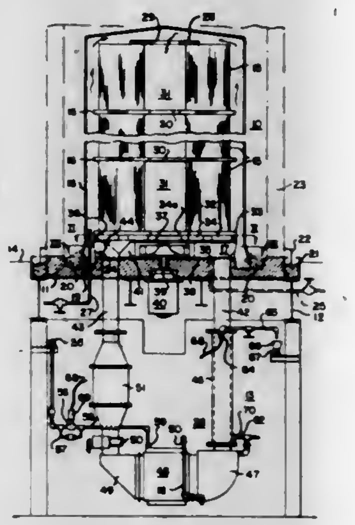
1. An apparatus for forming lightweight aggregates comprising:
(a) a heating chamber,
(b) a pressure-tight cooling chamber having input and output ends,
(c) transition means at the input end connecting said heating chamber to said cooling chamber,
(d) means to convey material through said cooling chamber,
(e) means in said cooling chamber for cooling material passing therethrough and for preheating material in said heating chamber, said cooling and preheating means including means for regulating the pressure of said cooling chamber, said regulation means including means for forcing gas into said cooling chamber adjacent said output end and means for exhausting a portion of said gas from said cooling chamber after said gas has passed a substantial distance through said cooling chamber, said exhaust means including an exhaust tube and an exhaust pressure means connected to said tube, whereby a controlled pressure is maintained substantially throughout said chamber and a regulated portion of said gas is allowed to pass into said heating chamber, said cooling chamber being rotated and said tube being supported by metal spiders along the axis of rotation of said cooling chamber.

3,302,938
CEMENT PRODUCTION IN A ROTARY KILN
Wilfred R. Bendy, Olivette, Mo., assignor to Bendy Engineering Company, Overland, Mo., a corporation of Missouri
Filed Jan. 25, 1965, Ser. No. 427,903
15 Claims. (Cl. 263—33)



14. A method for producing cement comprising feeding a major portion of cement raw material into the upper feed end of a rotary cement kiln, rotating said kiln, feeding fuel into the lower discharge end of the kiln and burning it to countercurrently heat the cement raw material as it progressively moves down the kiln through a calcining zone and then a clinkering zone and is thereafter discharged at the lower discharge end of the kiln as fully clinkered material, injecting a minor portion of cement raw material as a stream into the kiln to impinge on the general area of the clinkering zone, sensing any change in the location of said clinkering zone, and varying the rate of feed of said minor portion of cement raw material as a function of incipient changes in the location of the clinkering zone to maintain the position of the clinkering zone at a substantially fixed predetermined distance from the discharge end of the kiln.

3,302,939
INDUSTRIAL FURNACE COOLING SYSTEM
James A. Scharbrough, Mount Lebanon Township, Allegheny County, Pa., assignor to Salem-Brosius, Inc., Carnegie, Pa., a corporation of Pennsylvania
Filed May 19, 1964, Ser. No. 368,584
7 Claims. (Cl. 266—5)

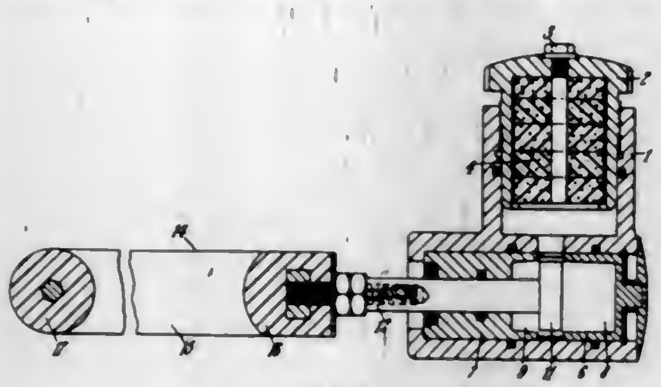


1. In a cooling system for an industrial furnace for the annealing of a stack of metal coils, having a hearth, an inner cover covering said stack and a centrifugal fan at the foot of said stack to circulate a protective atmosphere around said coils within said inner cover, apparatus comprising, in combination, an annular base having a central opening in vertical concentric alignment with the central opening through said stack, an outflow duct for an atmosphere cooling circuit connected to the interior of said base, means for cooling said outflow duct, an indirect relatively low-pressure-drop heat exchanger connected to said outflow duct, said heat exchanger having an extensive surface area for heat transfer from said atmosphere, a return duct connected to said heat exchanger to return the portion of the atmosphere being cooled to the space within said inner cover, independent fan means in said cooling circuit following said heat exchanger to regulate the flow of atmosphere through said cooling circuit and within said inner cover respectively in cooperation with said centrifugal fan, valve means in said cooling circuit following said heat exchanger to regulate the flow of atmosphere through said cooling circuit, means for circulating a liquid coolant in a countercurrent direction through said heat exchanger and first-named means, and means for regulating the flow of said liquid coolant in accordance with the temperature rise thereof in said cooling circuit.

3,302,940
BUFFERS
John Kaye Wain, Cheadle, England, assignor to Wildt Mellor Bromley Limited, Leicester, England
Filed Sept. 11, 1964, Ser. No. 395,840
Claims priority, application Great Britain, Oct. 15, 1963, 40,678/63
3 Claims. (Cl. 267—1)

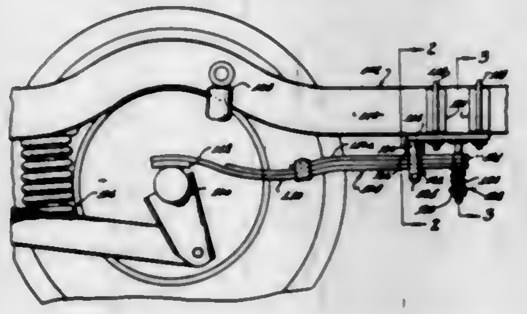
1. A buffer assembly comprising a plunger, first damping means for damping movement of the plunger away from a central position in one direction, second damping means for damping movement of the plunger away from

the central position in the opposite direction, and an abutment assembly rigidly attached to said plunger and comprising spaced, oppositely facing abutment surfaces adapted to be presented to a reciprocable part to be buffered at the ends of a stroke thereof, said abutment assembly being attached to said plunger so as to transmit movement of either abutment surface, consequent upon impact of the part to be buffered, to the plunger.



3,302,941
AUXILIARY SPRING FOR AUTOMOTIVE VEHICLES

Joe L. Giovinazzo, Los Angeles, Calif., assignor to Cambria Spring Company, Los Angeles, Calif., a corporation of California
Filed Oct. 19, 1965, Ser. No. 505,580
4 Claims. (Cl. 267—17)



1. For use on an automotive vehicle including an axle, a frame over said axle, and a main spring suspension supporting said frame on said axle, an auxiliary overload spring device comprising:

a lever below the frame supported at one end by said axle,

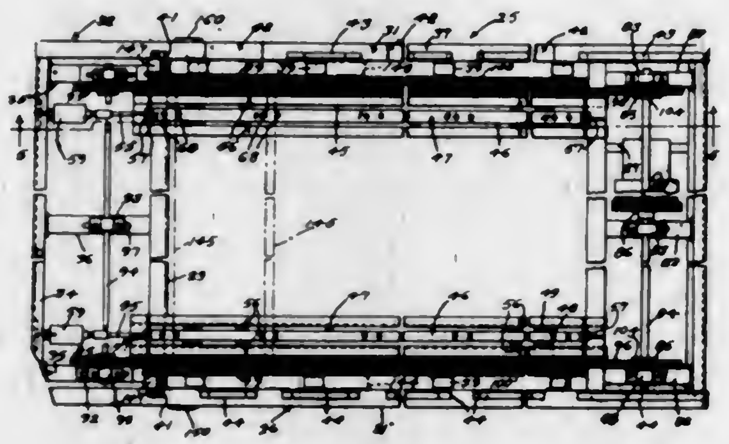
fulcrum means pivotally supporting an intermediate portion of said lever on said frame for pivoting of the lever to swing in a vertical plane, said lever from said fulcrum means to said axle comprising a spring arm of said lever,

an abutment means supported on said frame and positioned and arranged thereon underneath the extremity of the other arm of said lever for engagement by the extremity of said other arm of said lever and establishing a limiting position for pivotal movement of said other arm at the end of a predetermined range of pivotal movement of said lever corresponding to a predetermined range of increasing loading of said vehicle and consequent lowering of said frame and said fulcrum means, such that said spring arm of said lever has a range of pivotal movement without flexure, but beyond which, with still further increase in loading of said vehicle, corresponding further lowering of said fulcrum means holds the extremity of said other arm of said lever against said abutment means in said limiting position and the extremity of said spring arm by said axle while flexing said spring arm, said abutment means including a soft coil compression spring, of greatly lower spring constant than that of said spring arm, and

means supporting the bottom of said coil spring from said frame, with the upper end of said spring engaged downwardly by the extremity of said other arm of said lever throughout said range of pivotal movement of said lever.

3,302,942
PANEL FRAME ASSEMBLING APPARATUS

Frank A. Hollomon, Silver Spring, Md., assignor, by mesne assignments, to Hollomon Manufacturing Corp., Hyattsville, Md., a corporation of Delaware
Filed Jan. 29, 1964, Ser. No. 340,924
14 Claims. (Cl. 269—14)



1. A panel frame assembling apparatus comprising an elongated supporting structure, transverse abutment means rising from said supporting structure adjacent one end thereof, fixed longitudinal abutment means rising from a first side of said supporting structure and forming a right angle with said transverse abutment means, fluid pressure actuated clamps supported on the other second side of said supporting structure, substantially coplanar supporting means carried by said sides of the supporting structure between said longitudinal abutment means and said clamps and adapted to support longitudinal frame elements along said sides of the supporting structure, stud supporting rails fixed to and extending longitudinally of said supporting structure and disposed between said supporting means, stud locating means disposed adjacent and substantially parallel to said rails, and means independent of the rails supporting said stud locating means and mounted for vertical sliding movement in said supporting structure for simultaneously moving the stud locating means into and out of engagement with the studs supported by the rails, said stud locating means including longitudinally spaced pairs of upright locator elements adapted to straddle the studs supported by said rails, when said means supporting the stud locating means is in a raised position, for locating the studs at predetermined spaced intervals relative to one another between and crosswise of said longitudinal frame elements preparatory to the studs being clamped between said longitudinal frame elements by actuation of said fluid pressure clamps.

3,302,943
HOLD-DOWN CLAMP

Boyd Mericle, Jr., Jackson, Mich., assignor to Simplex Level Company, Inc., Jackson, Mich., a corporation of Michigan
Filed Dec. 19, 1963, Ser. No. 331,886
13 Claims. (Cl. 269—32)

1. A hold-down clamp comprising, in combination,

(a) an elongated lever having a forward region and a rear region,

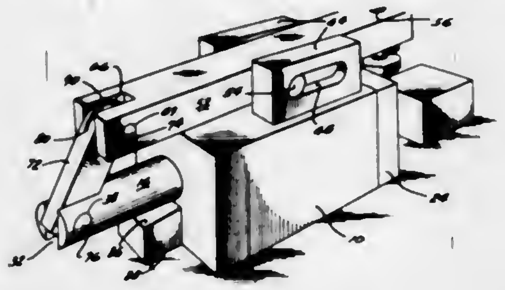
(b) a lever support supporting said lever for both pivotal movement and reciprocal movement in the direction of the length of said lever, said reciprocal lever movement in one direction constituting a locking movement and in the other direction constituting an unlocking movement,

(c) hold-down means mounted on said lever forward region,

(d) a rigid link pivotally attached at a first location to said lever rear region,

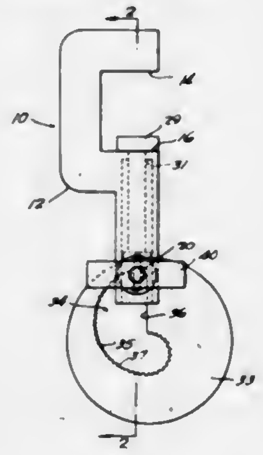
(e) a linear actuator supported for movement relative to said lever support in a direction substantially corresponding to the direction of reciprocal movement of said lever, said actuator being movable a distance greater than the reciprocal movement of said lever, said link being pivotally attached at a second location to said actuator, said second pivot location being spaced from said first pivot location, and

(f) means interposed between said rear region of said lever and said link producing a predetermined resistance to pivoting of said link relative to said lever and maintaining a predetermined angular relationship between said link and lever during reciprocal movement of said actuator and lever in a locking direction.



3,302,944
C-CLAMP

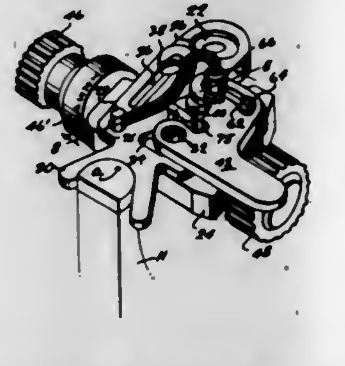
William E. Fricks, Rome, Ga., assignor of seventy-five percent to Charles L. Fricks, E. Lamar Gammage, Jr., and William W. Mundy, all of Cedartown, Ga.
Filed Nov. 6, 1964, Ser. No. 409,428
3 Claims. (Cl. 269—162)



1. A clamp comprising a frame having fixed flat opposed jaws, opposed elongated guides projecting perpendicularly from one of said jaws, a shaft extending transversely through and journaled in said guides adjacent the complemental free ends thereof, a pinion on the portion of said shaft between said guides, a plunger disposed between said guides so that one end is adjacent said pinion and the other end is between said jaws and adjacent said one jaw and operatively connected to said one jaw and guides for movement toward and away from the other of said jaws, a disc provided with a closed slot shaped to substantially semi-heart form and having a curved portion and a straight portion, the curved portion of said slot having gear teeth extending therealong and the straight portion of said slot serving as a stop, said disc being disposed so that the portion adjacent the perimeter is between said guides with its perimeter in contacting engagement with said one end of said plunger and said pinion in meshing engagement with the gear teeth on the curved portion of said slot, and hand-actuable means on said shaft for effecting rotation thereof, operation of said hand-actuable means so as to effect rotation of said shaft in one direction causing said pinion to travel in driving engagment along the gear teeth on the curved portion of said slot and rotate said disc to thereby effect execution of the movement of said plunger toward the other of said jaws.

3,302,945
FASTENER LOCATING MEANS

John G. Wright and Roy E. Smith, Atlanta, Ga., assignors to The Auto-Soler Company, a corporation of Georgia
Filed July 28, 1964, Ser. No. 385,650
5 Claims. (Cl. 269—317)



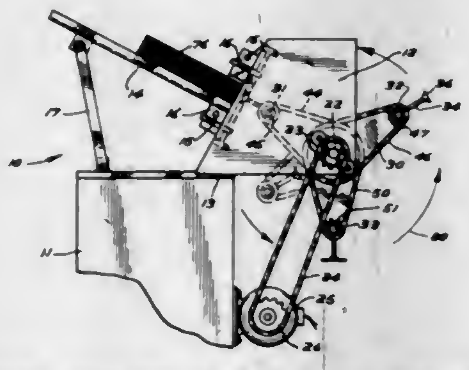
1. In a work positioning device, for a fastener inserting machine, comprising a support member, a work guiding member selectively extensible from said support member and selectively shiftable with respect thereto for locating a plurality of fastener insertion points in a spaced pattern at a selected extension thereof, and related means on said support member articulated with respect to said work guiding member for proportionately following the degree of extension thereof from said support member to limit in like proportion the selective shifting thereof so that said plurality of fastener insertion points are spaced in accordance with the degree of extension selected, the improvement which comprises an auxiliary latch means carried for following the extensible movement of said work guiding member and shiftable with respect thereto between a first inoperative position allowing the spacing of said plurality of fastener insertion points to be determined normally by said related means and a second operative position at which said auxiliary latch means engages said work guiding member to maintain the fastener insertion point spacing afforded at a greater extension of said member uniform through all lesser degrees of extension thereof.

3,302,946
ROTARY COUPON PLACER

Paul L. Anderson, Minneapolis, Minn., assignor to Thiele Engineering Company, a corporation of Minnesota
Filed Sept. 11, 1964, Ser. No. 395,673
5 Claims. (Cl. 271—29)

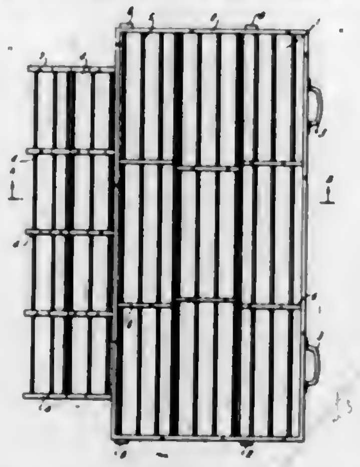
1. A rotary article placing machine comprising a main frame, an article hopper mounted on said main frame, bias means urging said articles in said hopper towards a first end thereof, a shaft rotatably mounted on said frame, a spider drivably mounted on said shaft, a plurality of tubular planet shafts rotatably mounted on said spider about separate axes spaced outwardly from the axis of rotation of said spider, said planet shafts all being spaced outwardly from the axis of said spider the same amount, a separate suction cup assembly mounted on each of said planet shafts, said suction cup assemblies comprising a tubular member open to the interior of said planet shafts and a suction cup positioned at the

outer ends of said tubular members, means to rotate said planet shafts with respect to said spider whenever the spider is rotated about its axis, including a plurality of first sprockets mounted coaxial with said main shaft, and held stationary on said main frame, the number of said first sprockets corresponding to the number of planet shafts on said machine, a separate second sprocket driv-sprockets each being aligned with one of said first sprockets, and a separate chain drivably connecting each of the first sprockets to its aligning second sprocket, a separate conduit connected to the interior of each of said planet shafts, a rotary vacuum valve comprising a rotating member mounted on and rotating with said main shaft, said conduits each being open to separate provided ports in said rotary member, said valve further including a stationary member mounted coaxially with said rotating member and held from rotation with respect to said main frame, portions of said rotary member and said stationary member engaging each other in sliding sealing relationship, said stationary member having a slot partially defined therein and open to a source of vacuum, said stationary member further being provided with a separate opening open to atmosphere, means to rotate said main shaft, each of said suction cups being positioned to engage an end article in said hopper once during each revolution of said main shaft, said slot being positioned so as to sequentially communicate with said ports and connect the interior of each suction cup to the vacuum source when each cup contacts an end article and to maintain the vacuum on each suction cup for a predetermined number of degrees of rotation of said spider, each of said ports then in turn being in communication with said atmosphere opening in said stationary member.

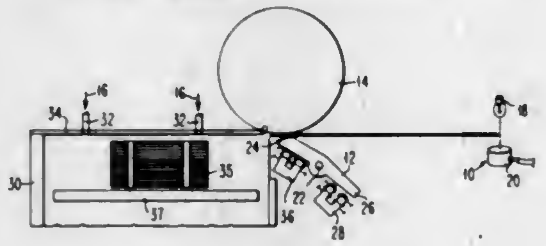


3,302,947
STACKING TABLE FOR CONTINUOUSLY OPERATING SHEET FEEDERS
Anton Breunig, Heidelberg, Germany, assignor to Schnellpressenfabrik Aktiengesellschaft Heidelberg, Heidelberg, Germany, a corporation of Germany
Filed Mar. 3, 1965, Ser. No. 436,837
Claims priority, application Germany, Mar. 6, 1964, Sch 34,761
11 Claims. (Cl. 271—62)

1. In a sheet stacking device for joining a residual stack from below with a new stack to permit continuous feeding of sheets from the top, the combination of an auxiliary stacking pallet insertable between the two stacks prior to joining them and horizontally withdrawable therefrom for combining both stacks, said pallet comprising a gridlike frame structure having a main portion and a tailend portion tapering in height from said main portion toward the rear edge of the structure, an upper group and a lower group of rollers journalled in said frame structure with their respective axes perpendicular to the longitudinal direction of withdrawal, said rollers of each group being distributed over substantially the entire transverse width of said frame structure and following each other in mutually spaced relation along said longitudinal direction, the rollers of said upper group protruding upwardly from said frame structure for supporting the residual stack, the rollers of said lower group protruding downwardly from said frame structure to support it on the new stack, said rollers in said tail-end portions having a smaller diameter than elsewhere in said frame structure to correspond to the decrease in height, said rollers of the upper group being engageable with said rollers of the lower group, and the rollers of at least one group having bearings with radial clearance, whereby the rollers of each group are abuttable against the rollers of the other group when in operation.



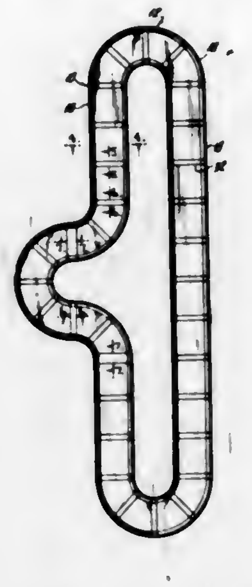
3,302,948
STACKING DEVICE FOR CARDS OR THE LIKE
Gordon H. May, San Jose, Calif., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 6, 1964, Ser. No. 380,318
10 Claims. (Cl. 271—71)



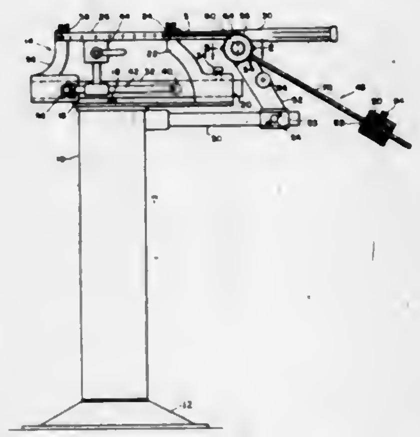
1. A device for stacking record cards moving along a card path at a speed of several hundred inches per second and above, comprising:
- card position sensing means for generating a signal indicative of a predetermined position of the card;
- selectively energizable card arresting means comprising a feed means and an arresting member having a shape complementary to said feed means;
- first gating means operable responsive to said signal from said card position sensing means to actuate said card arresting means;
- second gating means for resetting said card arresting means; and
- means for moving the card laterally from said card path.

3,302,949
TOY WATERWAY
Robert A. Wolfe, 455 Elizabeth Ave., Newark, N.J. 07112
Filed June 30, 1964, Ser. No. 379,411
4 Claims. (Cl. 272—32)

1. A toy waterway comprising a plurality of individual trough-shaped sections interfitted at adjacent ends thereof forming an endless waterway and including means for water-sealing the joints formed at said interfitted adjacent ends, each said trough-shaped section having identical first ends and identical second ends, said ends comprising means for interconnecting said sections, said first end of each section comprising an outwardly facing channel extending substantially from the top of one side of said section down said one side across the bottom of said section and up the other side substantially to the top thereof, said second end comprising an inwardly facing channel substantially co-extensive with said channel of said first end, the outer legs of the channels of said first ends of at least some of said sections being received within said channels of said second ends of others of said sections, the outer legs of the channels of said second ends of at least some of said sections being received within said channels of said first ends of others of said sections.

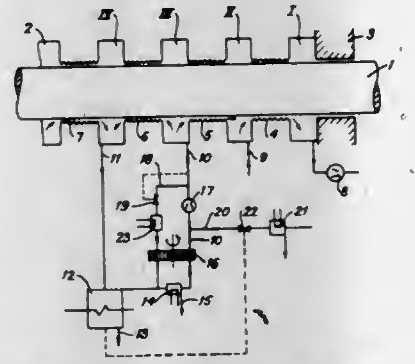


3,302,950
RACKET STRINGING MACHINE
Wesley J. Hartman, 1893 SW. Orchid, Portland, Oreg. 97219
Filed Dec. 7, 1965, Ser. No. 512,050
3 Claims. (Cl. 273—73)



1. In a machine for stringing rackets, the combination of
- a base member;
- a ratchet supporting frame pivotally mounted on said base member and adapted to support a racket with its center in a predetermined plane;
- a horizontal support attached to and extending from said base member below said racket supporting frame; and
- a string tensioning device slideably mounted on said horizontal support, said tensioning device comprising
  - an upstanding arm including a base portion having releasable means for clamping said base portion at various desired positions on said horizontal support,
  - said arm being inclined upwardly from said horizontal support towards the pivotal axis of said racket supporting frame,
  - a drum rotatably mounted at the top of said upstanding arm, the top of said drum being tangent to said center plane of said racket when supported in said racket supporting frame,
  - a friction producing facing on said drum,
  - a plurality of pins threaded radially into the periphery of said drum, each of said pins having an enlarged exteriorly smooth head extending above said facing,
  - clutch means mounted interiorly of said drum,
  - an elongated lever pivoted concentrically with said drum and attached to said clutch means, said clutch means being adapted to rotate said drum in the direction which will apply tension to racket string attached to said drum upon rotation of said lever in said direction and being adapted to slip within said drum upon rotation of said lever in the opposite direction,
  - at least one counter weight slideable along said lever,
  - means for securing said counterweight in various adjusted positions on said lever, and
  - stop means attached to said upstanding arm on one side thereof and adapted to limit the amount of rotation of said elongated lever in the tension applying direction.

3,302,951
METHOD FOR SEALING A TURBINE OR COMPRESSOR SHAFT
Carsten Balslev Olesen, Finspang, Sweden, assignor to Stal-Laval Turbin AB, Finspang, Sweden, a corporation of Sweden
Filed Jan. 26, 1965, Ser. No. 428,165
Claims priority, application Sweden, Mar. 31, 1964, 3,953/64
2 Claims. (Cl. 277—1)

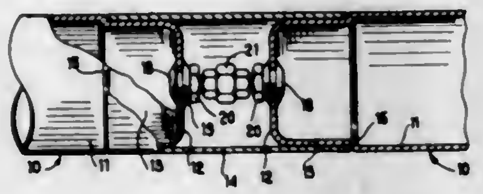


1. The method of sealing a turbine or compressor shaft by means of a sealing arrangement located between a chamber containing vapour and a bearing, and comprising the use of a series of sealing glands, which sealing glands are separated from one another by chambers I, II, III and IV in sequence from the bearing and located around the shaft, characterized in that air at atmospheric pressure is admitted to the chamber II and that air mixed with oil formed by oil leaking into the chamber I in one direction along the shaft from the bearing, and by atmospheric air leaking from the chamber II in the opposite direction, is withdrawn by a fan, maintaining a pressure lower than atmospheric in the chamber I, admitting dry blocking air into the chamber III at a pressure higher than atmospheric and which air leaks along the shaft partly to the chamber II and partly to the chamber IV, the pressure in the line leading to chamber III being kept constant due to the fact that a part of the air is returned to the suction side of a second fan through a return line provided with a pressure-controlled regulating valve, and in addition the pressure on the suction side is kept constant by supplying atmospheric air through a line provided with a regulating valve which is controlled by pressure on the suction side.

3,302,952

METHOD FOR PRODUCING CONTINUOUS, PNEUMATIC TUBULAR PACKINGS, FOR STORAGE TANKS, AND RELATED PNEUMATIC PACKINGS

Franco Michielin, Milan, Italy, assignor to ISOPREN S.r.L., Milan, Italy, an Italian limited-liability company
Filed Apr. 29, 1964, Ser. No. 363,486
8 Claims. (Cl. 277—34.3)

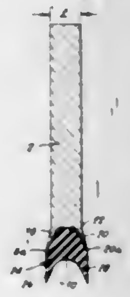


1. Apparatus for forming an annular seal between a round vessel and a slidable cover therefor, said apparatus comprising a plurality of flexible hollow bodies of substantially cylindrical shape adapted for being inflated, means connecting adjacent bodies together at their ends to form a continuous annular arrangement while providing communication between the interiors of said bodies, said bodies having end portions of reduced diameter, and sleeve means surrounding the end portions of adjacent bodies and mounted thereon to enclose the first said means, said sleeve means having an outer surface which is flush with the outer surfaces of the bodies and which forms a substantially continuous surface therewith.

3,302,953

GASKET RING AND CONDUIT COUPLING

Clarence O. Glasgow, 2620 S. Yorktown, Tulsa, Okla. 74104
Filed Feb. 25, 1963, Ser. No. 260,369
2 Claims. (Cl. 277—180)



1. An improved gasket ring for sealing a conduit coupling of the type having two opposed annular faces, said gasket ring comprising:

a relatively high tensile strength annular member having:

an outer ring portion characterized in having substantially parallel, radially extending surfaces and a thickness between said surfaces; and

two spring metal, diverging, annular sealing lips secured to the inner periphery of said outer ring portion and extending radially inwardly therefrom, said spring metal sealing lips being spaced from each other to define an inwardly facing annular groove in said high tensile strength annular member between the sealing lips, the distance between said spring metal sealing lips at their divergent, radially inner ends in the unflexed position thereof being greater than the thickness of said outer ring portion between said surfaces each of said lips further characterized in that the cross-sectional thickness thereof decreases uniformly from the point where said lip joins said outer ring portion to the radially inward portion of said lip whereby a radially inward, relatively sharp edge is formed; and

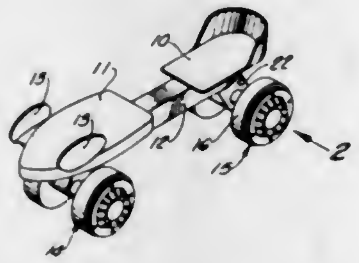
an annular resilient sealing ring partially disposed in said annular groove between said spring metal sealing lips and having two inwardly extending, annular sealing lips defining an inwardly facing annular groove in said annular resilient sealing ring, said groove in said resilient sealing ring having pressure surfaces extending substantially parallel to the surface defining and forming the annular groove in said high tensile strength member, and the sealing lips of said resilient sealing ring being further characterized in extending radially inwardly further than said spring metal sealing lips and in being more flexible than said spring metal sealing lips to respond by flexure to lower pressures than said spring metal sealing lips,

whereby when the gasket ring is disposed between said annular faces and said faces are drawn together, the annular spring metal sealing lips will be pressed together by the annular faces and form a high pressure seal therewith, and the sealing lips of said resilient sealing ring will contact and seat on said annular faces and form a low pressure seal therewith.

3,302,954

SOUND DEVICE FOR ROLLER SKATES

Charles A. Elwell, Gardena, Calif., assignor to The Toy Development Center, Inc., Beverly Hills, Calif., a corporation of California
Filed Sept. 30, 1964, Ser. No. 400,314
5 Claims. (Cl. 280—11.19)



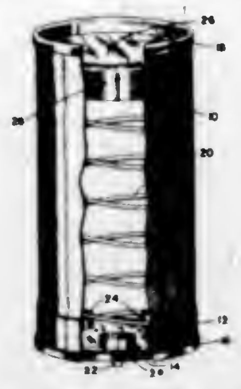
1. In a roller skate, a roller rotatably mounted on a non-rotatable portion of said skate, said roller having a central recess therein, a diaphragm extending across and covering said recess, said diaphragm being connected to said roller for rotation therewith, a stylus connected to said diaphragm for rotation with said wheel, and a nonrotatable member connected to said non-rotatable portion, said member having a roughened surface, a potion of said stylus being engaged with said roughened surface whereby said stylus moves across said roughened surface to cause sound-producing oscillations of said diaphragm upon rotation of said roller.

3,302,955

SPACESAVER SWIVEL CASTERED ROVING CAN

Herbert J. Witzgall, Jeffersonville, Pa., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 29, 1965, Ser. No. 451,850
10 Claims. (Cl. 280—79.2)

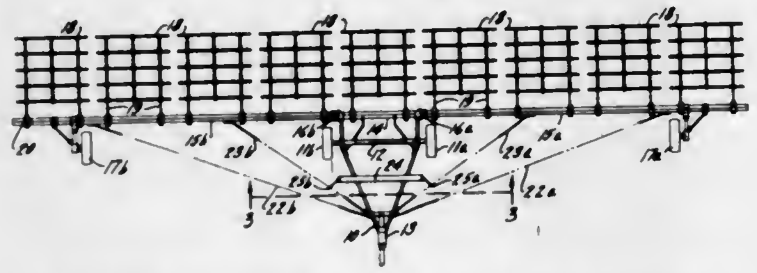
1. A roving can of the type mounted on wheels and having an internal reciprocally moving platform, said roving can comprising in combination a cylindrical hollow shell, a base, a plurality of wheels and a reciprocally moving platform, means for reciprocally moving said platform, said base being attached to a terminal end of said shell and forming in combination with said shell a cylindrical container, said base having defined therein a plurality of upwardly extending wheel mounting means, said reciprocally moving platform being a hollow cylindrical member having a depending cylindrical wall and a closed end, said platform being adapted for reciprocal movement within said shell, said platform contacting said base at the lower limits of its reciprocal movement and in combination with said base defining a compartment, said plurality of wheels being spacially related to each other and attached to said upward extending mounting means, a portion of the height of said wheels extending into said compartment.



3,302,956

STABILIZER FOR WHEELED HARROW DRAWBAR WITH FOLDING WINGS

Harry L. Sosalla, Sac City, Iowa, assignor to Noble Manufacturing Company, Sac City, Iowa, a corporation of Iowa
Filed July 16, 1965, Ser. No. 472,451
5 Claims. (Cl. 280—411)



1. A stabilizer means for use with a farm implement having

an elongated frame with ground engaging wheels mounted adjacent the rear of said frame and a towing connection located adjacent the front of the frame,

drawbar wings extending laterally of said frame and pivotally attached to rear thereof for vertical and horizontal movement relative to said frame,

ground engaging wheels attached to said drawbar wings adjacent the outer ends thereof, and

uni-directional restraining means connected to the drawbar wings and to the front of said frame to prevent rearward folding of said wings,

said stabilizer means being attached to said frame and having guides to receive said restraining means and to engage said restraining means upon tilting of the frame relative to the drawbar wings to restrain vertical movement of the wings and the frame relative to each other.

3,302,957

ANTI-JACK-KNIFING HITCH ASSEMBLY FOR TRACTOR-TRAILERS

Robert P. Allen, Walter D. Cashman, Gene W. Short, and Jack O. Winsor, all of Peoria, Ill., assignors to LeTourneau-Westinghouse Company, Peoria, Ill., a corporation of Illinois
Filed Feb. 5, 1965, Ser. No. 430,709
10 Claims. (Cl. 280—432)

1. A hitch assembly for connecting a tractor unit and a trailing unit comprising:

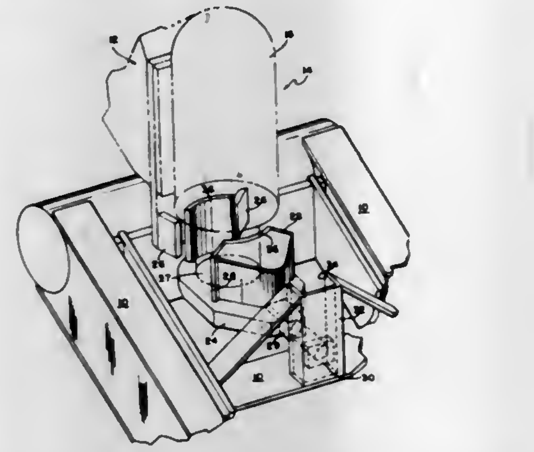
rod means mounted on one of said units for rotation about a substantially vertical axis,

a universal ball connector securing the rod means to the other of said units,

a plate attached to the rod means,

guide means mounted on said other unit,

a slider block pivotally mounted on the plate and slidably retained in the guide means,

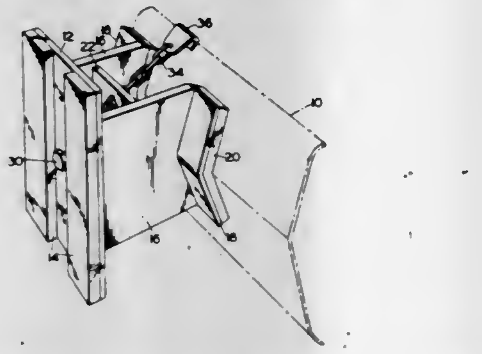


and stop means mounted on each of said one unit and the plate for limiting the angular displacement between said units.

3,302,958

BUMPER ATTACHMENT FOR PUSHING VEHICLES

Jack Fawcett, 8415 SE. 17th Ave., Portland, Oreg. 97202; Otto Franks, Portland, Oreg. (5237 SW. Washington, Lake Grove, Oreg. 97034); and James M. Seliger, 303 SE. 172nd, Portland, Oreg. 97233
Filed Mar. 8, 1965, Ser. No. 437,818
4 Claims. (Cl. 280—481)



1. A bumper attachment for pushing vehicles comprising a face plate, a pair of bracket arms integrated with said face and extending rearwardly therefrom, bumper engaging means on the rearward end of said bracket arms for fitting against a vehicle bumper on which the said attachment is to be mounted, a draw plate movably disposed between said bracket arms, link means connected to said draw plate and arranged to be releasably attached to a bumper whereby the pushing face thereof is capable of having pushing engagement with the bumper of another vehicle, and drive means on the attachment connected to said draw plate for driving the latter away from the bumper so that said link means mounts the attachment thereon.

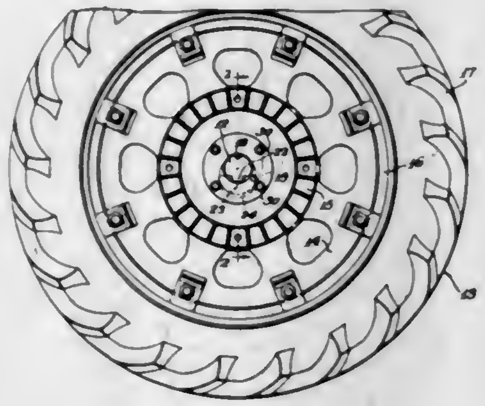
3,302,959

DRIVE WHEEL MOUNTING INCLUDING RELEASABLE CLAMPING AXLE CONNECTION

Glen E. Smelcer, Hinsdale, Ill., assignor to International Harvester Company, a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 412,923
7 Claims. (Cl. 287—52.06)

1. In combination with a tractor drive axle having a hub receiving end portion and a tractor drive wheel having a wheel structure provided with a central hub, mounting means providing a driving connection between said axle and said wheel comprising, an elongated cam member tapered along one dimension of the longitiudinal axial

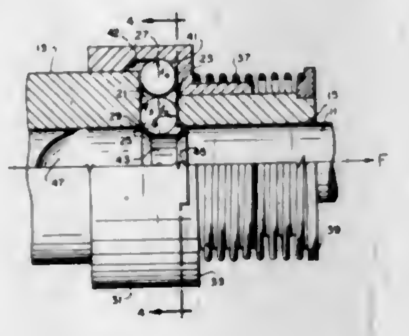
length thereof, said hub having an axial bore extending therethrough receiving said axle therein and an axially extending opening inclined relative to the axis of said bore with the smallest diameter of said opening being larger than the largest diameter of said bore and intersecting said bore throughout the axial length of said opening and receiving said cam member therein, interlocking means



formed in part on said axle and in part on said cam member and being co-operative for constraining the latter member for rotation with said axle, retainer means proximate one end of said cam member and displaceable for urging said cam into a tight drive transmitting relation between said axle and said hub, means adjustably attaching said retainer means to said hub.

3,302,960
LOCKING DEVICE WITH ROLLING DETENTS

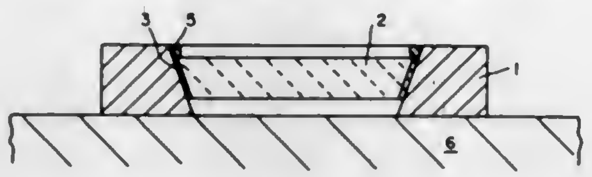
Adolf L. Herrmann, Huntsville, Ala., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 20, 1964, Ser. No. 353,634
8 Claims. (Cl. 287—119)



1. In a locking device:
- (a) a member comprising a wall portion with an aperture extending therethrough;
- (b) a pair of rounded elements disposed in abutting relationship in said aperture;
- (c) a reciprocating blocking element closing one end of said aperture and engaging one of said rounded elements;
- (d) the sidewall of said aperture adjacent said one rounded element having an opening of a size sufficient to admit passage of said one rounded element to permit rolling of said one rounded element over the other of said pair of rounded elements in a direction laterally of said aperture;
- (e) means for preventing movement of the other of said pair of rounded elements away from abutment with said one rounded element;
- (f) said lateral rolling of said one rounded element being responsive to reciprocation of said blocking element.

3,302,961
COMPRESSION CERAMIC-METAL SEAL

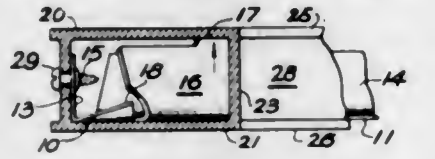
William Sidney Franklin, Bethpage, N.Y., assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 14, 1961, Ser. No. 103,160
10 Claims. (Cl. 287—189.365)



1. A compression-type hermetic ceramic-metal seal, comprising an annular metal member having a relatively high thermal expansion coefficient, a ceramic member having a relatively low thermal expansion coefficient and lying wholly within the said metal member, a metallized surface on the ceramic member opposed to the metal member, and a layer of brazing material bonding the metal member to the metallized surface of the ceramic member, said metal member exerting compressive forces on the ceramic member.

3,302,962
CORNER FASTENER FOR STORM DOORS AND THE LIKE

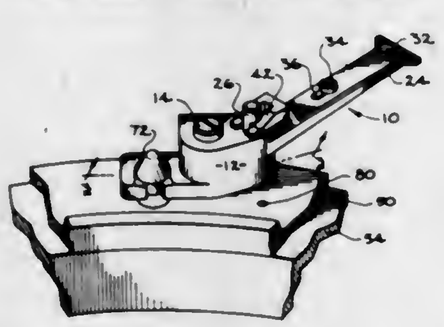
James H. Heywood, 1411 Doncaster, Youngstown, Ohio 44511
Filed Feb. 16, 1965, Ser. No. 433,116
5 Claims. (Cl. 287—189.36)



1. A corner fastener for securing hollow metal extrusions to one another in right angular relation comprising a flat L-shaped body member having longitudinally extending flanges on its outer edges, an intermediate portion of said flat body member forming a diagonal web between the right angular portions thereof, a secondary flange on said diagonal web portion, said first mentioned longitudinally extending flanges being inclined with respect to the plane of said L-shaped body member and distortable to a right angular position relative thereto when installed in a corner construction.

3,302,963
CLAMP FASTENER

Jean D. Rochfort, Simi, Calif., assignor to North American Aviation, Inc.
Filed Oct. 16, 1964, Ser. No. 404,426
6 Claims. (Cl. 287—189.36)

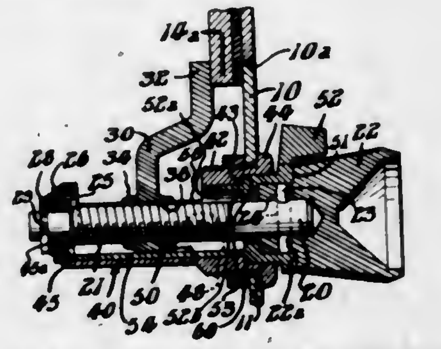


1. A clamp fastener comprising:
- (a) movable means having a rotational axis,
- (b) ramp means cooperating with said movable means,
- (c) said ramp means spaced from and selectively movable about the rotational axis in a first and a second direction,

- (d) spring means cooperating with said movable means and moving said ramp means about the rotational axis in the first direction,
- (e) restraining means cooperating with said movable means and limiting movement of said ramp means about the rotational axis in the second direction, and
- (f) release means carried by said movable means and cooperating with said restraining means to selectively disengage said restraining means so that said unrestrained spring means moves said ramp means in the first direction.

3,302,964
DOOR OR PANEL FASTENER

John K. Barry, Springfield, Pa., assignor to South Chester Corporation, Lester, Pa., a corporation of Delaware
Filed Jan. 8, 1965, Ser. No. 424,441
4 Claims. (Cl. 292—57)

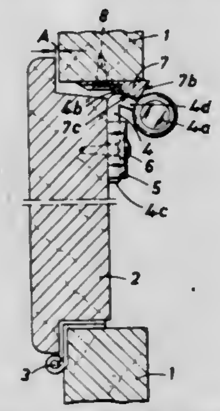


1. A fastener for locking a perimetrically lapping panel against the outer surface of a wall, said fastener comprising
- a generally cylindrical housing bracket having means for attachment to a panel through a hole therein, the main portion of said bracket being located on the inside of the panel and having an axially directed recess located along a portion of its surface,
- an indicator sleeve positioned within and concentric to the bracket for movement independently thereof, said sleeve having an indicator knob located on the outer side of the panel and an axial directed guide slot on the inner side of the panel similar in length but of smaller arc than that of the bracket,
- a threaded shaft mounted for rotation within the bracket and sleeve, said shaft having hand gripping means located on the outer side of the panel,
- a locking pawl for engaging the inner surface of the wall having an internally threaded base mouted on the threaded shaft on the inner side of the panel for axial movement thereon, said pawl extending through the recess in the bracket and the guide slot in the sleeve so that the radial location of the pawl is controlled by the indicator sleeve knob on the outside of the panel and the pawl is moved axially to tighten or loosen against the inner surface of the wall by rotation of the shaft gripping means, and a bushing mounted on the inner end of said shaft to prevent binding contact between the inner end of said housing bracket and said locking pawl.

3,302,965
FASTENERS FOR DOORS OF CABINETS AND THE LIKE

Yngve Gunnar Hasth, Vastermalm, Ransta, Sweden, and Axel Thore Wesström, Sala, Sweden; said Wesström assignor to said Hasth
Filed Feb. 13, 1964, Ser. No. 344,671
Claims priority, application Sweden, June 13, 1963, 6,546/63
7 Claims. (Cl. 292—76)

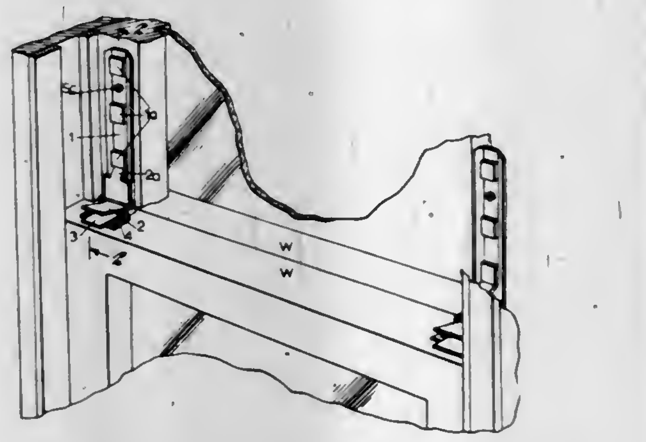
1. A fastener for doors of cabinets and similar pieces of furniture, said fastener comprising two latch members for mutual engagement, which are attached each to a respective one of the two elements comprising the door and the wall of the cabinet or other piece of furniture, at surfaces perpendicular to each other, the latch member attached to the door being more elastic than the other member so as to yield elastically to the other latch member upon closing of the door and thereby entering into interlocking engagement with the same, the latch member attached to the door being an integrally made elastic bar having an angularly bent portion to provide a first attachment leg attached to the inside of the door alongside the same and having a relatively long extension in a plane perpendicular to a hinged edge of the door, and a second leg supporting two projections which are integral with said bar and are disposed one behind the other in the direction of door closing, one of said projections being located on the outer face of said second leg near said angularly bent portion, and the other



projection extending inwardly in the direction toward which the inside of the door faces when closed, the latch member attached to the wall comprising a shoulder which at the side adapted to face the interior of the piece of furniture is formed with a locking surface cooperating with said other projection of said bar to hold the door against outward opening movements, said shoulder having, at the side facing the front of the piece of furniture, a stop surface cooperating with said first projection of the bar, to limit the inward movement of the door, the height of said shoulder increasing from the stop surface to the locking surface, the upperside of said shoulder sloping from the locking surface to the stop surface, and the leg of the bar supporting said two projections, being substantially parallel to the upperside of said shoulder and enclosing an acute angle with the attachment leg of the bar.

3,302,966
AUTOMATIC SAFETY SASH LATCH

Zan Ruchin, 5 E. 41st St., Bayonne, N.J. 07002
Filed Mar. 9, 1965, Ser. No. 438,188
4 Claims. (Cl. 292—228)

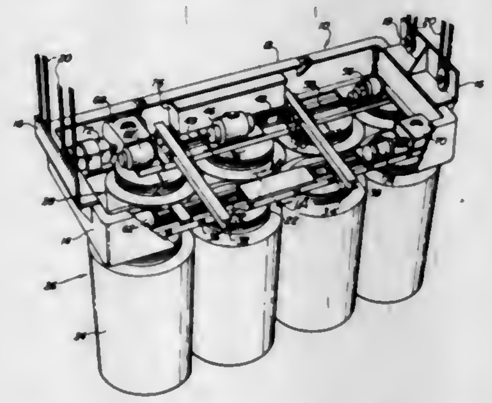


1. A window sash latching device comprising: a vertically extending keeper plate adapted to be secured adjacent a movable sash and having latch abutment plates secured flatly thereon and spaced along its length, the

opposite vertical edges of said keeper plate extending angularly outwardly; a spring-projected pivotally-mounted latch element having means adapting said latch element for securement to the sash, and having a portion for engagement with an edge of a selected one of said abutment plates; and a guide plate, secured to said means between said latch element and said keeper plate and having opposite vertical edges thereof angularly inwardly extending for guiding engagement behind the edges of said keeper plate.

3,302,967
OVERHEAD LOAD-HANDLING APPARATUS

Donald A. Harris, Vancouver, Wash., and Harold R. Scudder, Lake Oswego, and Harry G. Meister, Jr., Portland, Oreg., assignors to Hyster Company, Portland, Oreg., a corporation of Nevada
Filed Mar. 8, 1965, Ser. No. 437,964
19 Claims. (Cl. 294—65)



1. A load-handling apparatus for lifting groups of cylindrical objects wherein the objects of each group are of the same diameter but the objects of different groups may be of different diameters and wherein the objects of each group are arranged with their axes vertically disposed and wherein each group comprises at least two juxtaposed rows of objects wherein the bights formed by the objects of each row are occupied by objects of an adjacent row,

said apparatus comprising a supporting structure to be lifted,

a plurality of downwardly directed load-engaging devices each for engaging and lifting a different one of said objects,

said load-engaging devices being arranged on said supporting structure in at least two parallel banks wherein each bank contains a plurality of said load-engaging devices,

the load-engaging devices of each bank being uniformly spaced relative to one another,

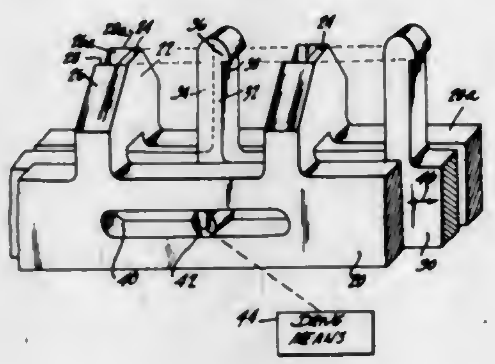
power means for shifting the load-engaging devices of each bank relative to one another so that the center distances between the devices of each bank correspond to the center distances between the objects of the group of objects to be picked up by such bank,

power means for relatively shifting said banks parallel to one another to positions where the load-engaging devices of one bank are in staggered relation to the load-engaging devices of the adjacent bank and in symmetrical relationship thereto,

and power means for shifting the banks relatively toward and away from one another so that the lateral spacing of the banks is the same as the lateral spacing of the rows of cylindrical objects to be picked up whereby to facilitate disposing said apparatus above said group of cylindrical objects with the load-engaging devices in register vertically with corresponding objects, whereafter said load-engaging devices may be lowered into lifting engagement with said objects to enable picking up of said group.

3,302,968
GRIPPER BAR

Lewis W. Bleiman, Northridge, and John B. Harrison, Los Angeles, Calif., and Erwin H. Panczner, Villanova, Pa., assignors to Radio Corporation of America, a corporation of Delaware
Filed Sept. 29, 1965, Ser. No. 491,226
4 Claims. (Cl. 294—87)



1. A device for gripping a sheet at its edge comprising, in combination:

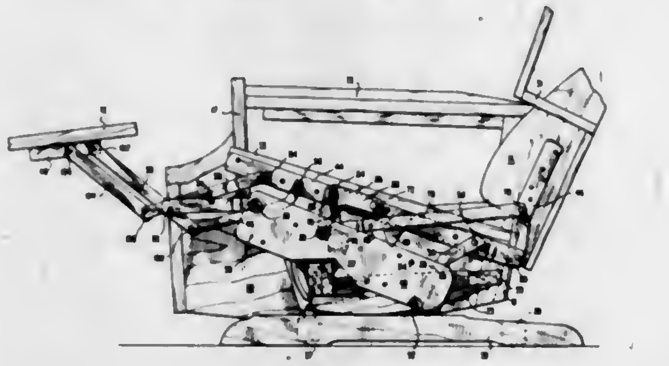
a plurality of aligned, equally spaced, first elements fixed to a common support, each element having a first flat surface and an opposite surface;

a plurality of aligned, equally spaced, second elements fixed to a common support which is movable with respect to the support for the first elements, each second element having a flat surface which is parallel to and faces the first surface of the first element, and an end portion which is rounded and overlaps the exposed free end of a first element when the second element is adjacent to said opposite surface of a first element; and

means for moving the second elements relatively to the first elements from a position at which their end portions respectively overlap the free ends of the first element to a position such that the respective flat surfaces of the second elements are parallel to and abut the respective flat surfaces of the first elements.

3,302,969
RECLINING PLATFORM ROCKING CHAIR

Ned W. Mizelle, High Point, N.C., and Billy E. Marr, Pontiac, Ill., assignors to Pontiac Design Corporation, Chicago, Ill., a corporation of Illinois
Filed Jan. 11, 1965, Ser. No. 424,624
14 Claims. (Cl. 297—85)



1. A reclining platform rocking chair comprising:

a base,

a chair portion rockable on said base,

a seat and back supported by movable links of a fixture affixed to said chair portion for movement between a normal, upright seating position in which the seat is generally horizontal and the back angularly disposed thereto at a normal seating angle and a reclined position in which said seat and back are tilted rearwardly from said normal position,

a cam member,

a cam follower member operatively associated with said cam member and having an established path of travel relative to the cam member between established end limits,

means for pivotally interconnecting said base and one of said members,

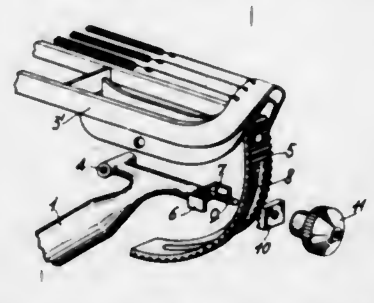
means for pivotally interconnecting the other one of said members and said chair portion,

and means for pivotally interconnecting said other one of said members and a movable link of said fixture to move said cam member relative to said follower member when said chair is moved between said normal and reclined positions,

said cam and follower members being positioned intermediate of said established end limits when said chair is in said normal position to permit rocking of said chair portion on said base in both directions and said path of travel being of a length that said cam and follower members are positioned by said movable link at one of said end limits when said chair is in said reclined position to prevent rocking of said chair portion on said base in one direction.

3,302,970
LOCKABLE JOINT DEVICE FOR A CYCLE SADDLE MOUNTED ON AN ORIENTABLE SADDLE-HOLDER

Francesco Cesare Rizzato, Padova, Italy
Filed July 22, 1965, Ser. No. 473,933
Claims priority, application Italy, Apr. 5, 1965, 7,567/65
8 Claims. (Cl. 297—195)

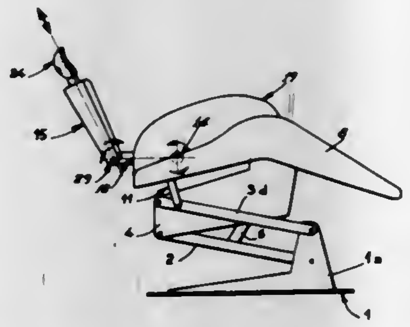


1. In the combination of a bicycle saddle and an orientable saddle-holder therefor, a lockable joint comprising a pivot axially adjustable and lockable upon said saddle-holder, said saddle being pivoted on said saddle-holder, a saddle pivot adjustable remote from its centre of oscillation, an arcuate rack integral with the saddle and a block device integral with the saddle-holder operating on said arcuate rack for adjusting the saddle position in relation to the position of the saddle-holder, said arcuate rack being located in a vertical plane and provided with a longitudinal slot, further having one end fixedly mounted on the rear part of the saddle and the other end free, said saddle-holder being T-shaped, the saddle being pivoted at the end of one arm of T, while said block device comprises a threaded spoke on the other arm of T sliding in the rack slot and a U-guide for the rack, a threaded knob cooperating with the above mentioned parts for blocking the saddle rack in relation to the frame.

3,302,971
DENTAL CHAIRS

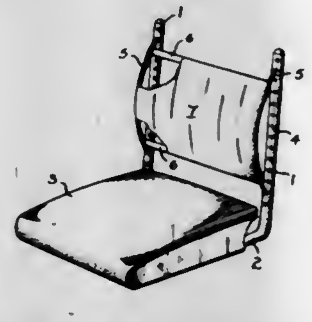
Maurice Lory, Paris, France, assignor to Etablissements E. Quetin (Societe Anonyme), Paris, France, a corporation of France
Filed Apr. 9, 1965, Ser. No. 447,006
Claims priority, application France, June 17, 1964, 978,628
10 Claims. (Cl. 297—346)

1. A power operated dental chair comprising a dental chair having a seat, a base for said chair, an actuating member, a power unit disposed in a casing immediately beneath said seat of said chair and connected with said chair and said actuating member, said casing and power unit being displaced to one side of a vertical plane extending longitudinally and centrally of said chair in which plane is located the axis of said actuating member which serves to raise and lower said seat of said chair, said seat being hingedly connected to said casing and to a parallelogram linkage on each side of said chair, said linkages being hingedly connected to said base of said chair at the front, and to said casing at the rear, said actuating member being hingedly connected to the lower arm of said linkages in such a manner that elevating movements of said actuating member simultaneously effect a longitudinal inclination of said seat.



3,302,972
SPINAL HEALTH BACK SUPPORT

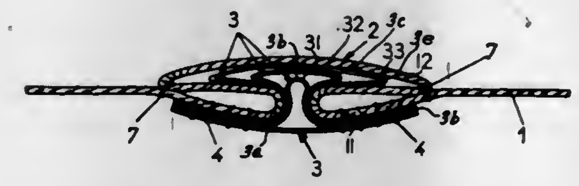
Herbert Lueders, 142 Augusta St., Glenelg East, South Australia, Australia
Filed Sept. 9, 1964, Ser. No. 395,131
Claims priority, application Australia, Sept. 13, 1963, 35,366/63
7 Claims. (Cl. 297—352)



1. A spinal health back support comprising a frame having uprights, and adjustable but lockable on the uprights a back rest of forwardly arcuate shape of variable radii and variable in position along said uprights.

3,302,973
RETAINING STRAP SYSTEM

Jean Ravau, Comines, France, assignor to Etablissements Lambin & Ravau Societe a Responsabilite Limitee, Comines, Nord, France, a corporation of France
Filed May 10, 1965, Ser. No. 454,528
Claims priority, application France, May 15, 1964, 974,688, Patent 1,393,185
6 Claims. (Cl. 297—386)

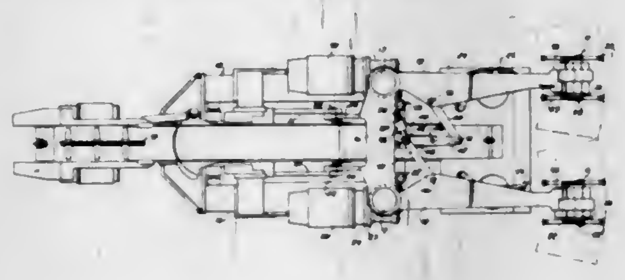


1. A retaining strap system comprising a strap including a flattened loop means formed from an integral por-

tion of said strap and a plurality of progressive fracture means adapted to hold said flattened loop means in a belt shortening condition, said progressive fracture means independent and spaced from each other and of different resistances such that on application of predetermined tensional forces to said strap said progressive fracture means yield and fracture sequentially, for corresponding different forces allowing a progressive increase in the length of said strap by release of said flattened loop means in said strap, providing energy absorption upon each yielding and fracturing and limited increase in the length of said strap by release of part of said flattened loop means in said strap without energy absorption therebetween.

3,302,974
RIPPER TYPE MINING MACHINE HAVING OPPOSITELY MOVING OSCILLATING RIPPER HEADS

Emil J. Hlinsky, La Grange Park, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation of abandoned application Ser. No. 425,653, Nov. 25, 1964, which is a continuation of abandoned application Ser. No. 220,739, Aug. 31, 1962. This application Feb. 18, 1966, Ser. No. 540,115
15 Claims. (Cl. 299—1)

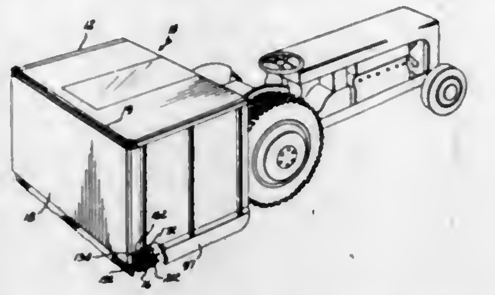


14. A mining machine comprising,
a mobile frame,
a pair of boom arms extending beyond the forward end of said frame,
means mounting said boom arms on said frame for vertical movement relative to said frame and for horizontal transverse oscillating movement relative to one another,
cutter means mounted on the end of each boom arm and rotatable about a horizontal transverse axis and having cutter bits positioned to cut in each direction of transverse oscillating movement of said boom arms,
power means for rotatably driving said cutter means,
separate power means for oscillating said boom arms,
other separate power means for vertically moving said boom arms,
and control means for said separate power means and said other separate power means for varying the rate of oscillation of the boom arms and the rate of vertical feeding movement of said boom arms inversely relative to one another.

3,302,975
ICE RESURFACING MACHINE

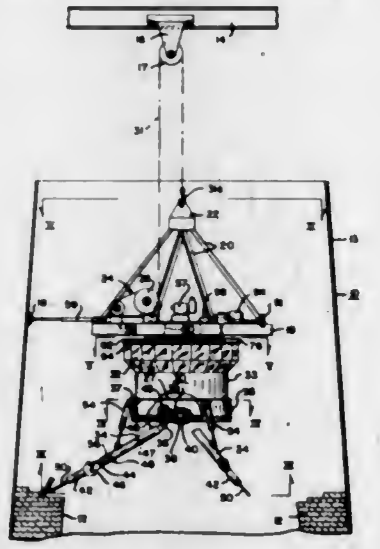
Milo B. Vandenberg, Upland, Calif., assignor of fifty percent to Boniard I. Brown, West Covina, Calif.
Filed June 29, 1964, Ser. No. 383,543
25 Claims. (Cl. 299—24)

12. An ice rink resurfacing machine adapted to be towed by a tractor, said resurfacing machine comprising an integral unitary structure including a shaved ice receptacle, a transverse scraping blade mounted on the unitary structure, and means carried by the unitary structure for removing shaved ice from in front of the scraping blade and transferring it to the receptacle, runners for supporting the structure directly on the ice surface, said blade being so positioned relative to the runners and the ice surface that the weight of the unitary structure urges the blade against the ice to provide improved ice shaving, and lift means connected with the tractor and with the unitary structure for elevating the unitary structure off the ice surface.



3,302,976
DE-LINER MACHINES FOR BLAST FURNACES AND THE LIKE

Louis A. Grant, 7886 Saltsburg Road, Plum Borough, Allegheny County, Pa. 15239
Filed Oct. 4, 1965, Ser. No. 492,778
11 Claims. (Cl. 299—70)

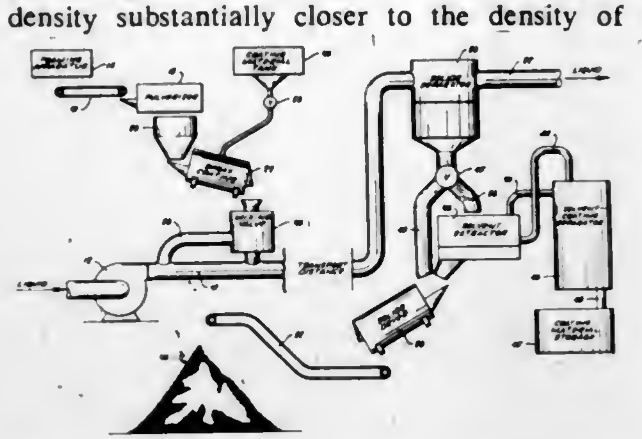


1. In an apparatus for removing furnace linings and the like, the combination comprising a platform shaped for insertion through said furnace, a carriage spaced beneath said platform but rotatably mounted on the underside thereof, a plurality of telescoping boom assemblies pivotally mounted on the under side of said carriage, said pivot mountings being disposed to permit angular and vertical displacement of said boom assemblies, lifting means for each of said boom assemblies, said lifting means being secured to said carriage at a position spaced upwardly of said boom assemblies, a power actuated chipping tool secured to the outer movable end of each of said telescoping assemblies, and means for actuating said tools and said lifting means and for rotating said carriage.

3,302,977
METHOD FOR SIMULTANEOUSLY TRANSPORTING LIQUIDS AND SOLIDS THROUGH A COMMON PIPELINE

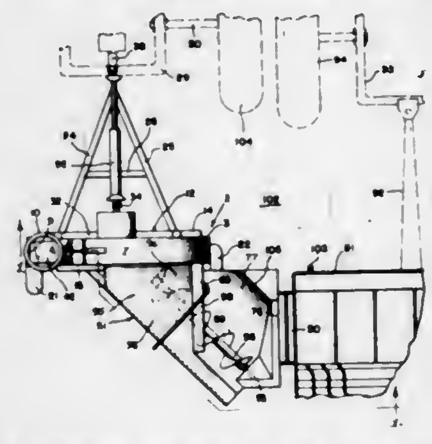
D'Arcy A. Shock and John M. Crawford, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Nov. 19, 1964, Ser. No. 412,544
13 Claims. (Cl. 302—14)

1. The method of simultaneously transporting a solid and liquid through a common pipeline comprising:
integrating at least one additional material selected from the group consisting of air and a second solid having a lower density than said first solid with said solid to produce a composite solid having a bulk density substantially closer to the density of said liquid than the density of said solid prior to the integration of said additional material;
mixing said liquid and composite solid; and
pumping said mixture through said pipeline.



3,302,978
DIAGONAL FEED MATERIAL CONVEYOR AND BLOWER MECHANISM

Thomas J. Scarnato, Park Ridge, Robert Sorensen and James J. Dryan, Chicago, and Craig M. Lawler, Downers Grove, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed May 28, 1965, Ser. No. 459,852
14 Claims. (Cl. 302—37)

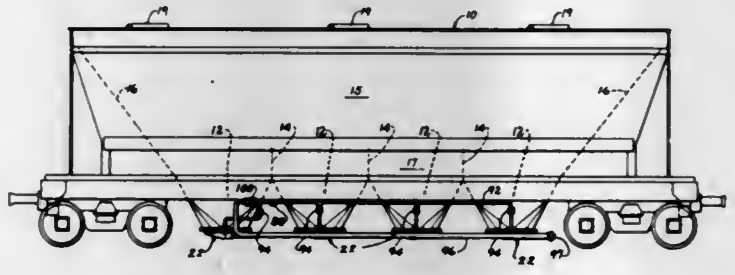


9. In a material conveying device, a generally cylindrical blower having a peripheral wall with a material outlet opening and a pair of upright side walls, one of the side walls having a material inlet opening in the lower portion thereof and a conveyor for delivering material to the blower comprising a U-shaped trough having one end connected to said one side wall in alignment with said inlet opening therein, said trough extending lengthwise diagonally away from said one side wall beyond the peripheral wall, an auger mounted for rotation within the trough on a generally horizontal axis at an acute angle to said one side wall and extending to said inlet opening and directly delivering material into the inlet opening in a direction toward the outlet opening, and an impeller in the housing rotatable on a generally horizontal axis for engaging the material entered therein and augmenting said movement of the material, the axis of the auger converging with the impeller in the direction of rotation thereof.

3,302,979
HOPPER STRUCTURE

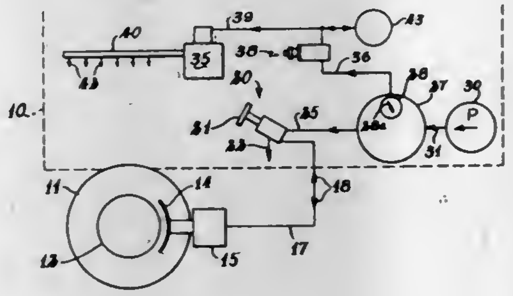
Dallas W. Rollins, St. Charles, and Willard E. Kemp, Bridgeton, Mo., assignors to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Mar. 3, 1964, Ser. No. 349,538
11 Claims. (Cl. 302—52)

1. A bottom outlet structure adapted to be secured beneath an opening in the bottom of a hopper to receive and effect pneumatic discharge of material from the hopper through the opening, said bottom outlet structure comprising a generally oval, pan-shaped housing funneling downwardly to a bottom discharge opening and adapted to communicate with the opening in the bottom of the hopper for receiving material therefrom, a gas permeable member fitted within the housing and being generally funnel-shaped to provide inner surfaces converging from the opening in the hopper, said gas permeable member being spaced inwardly from the housing to form a plenum chamber extending circumferentially between the housing and the gas permeable member and adapted to communicate with a source of gas for supplying gas under pressure to the plenum chamber, said gas permeable member comprising a gas permeable membrane on the upper side thereof and a generally rigid base on the lower side thereof having a plurality of apertures therethrough, a circumferential wall projecting generally upwardly from said housing to form said bottom discharge opening, a plurality of support ribs in the plenum chamber extending longitudinally generally radially from said circumferential wall and supporting the gas permeable member, said ribs having air passages therethrough to permit a substantially free flow of air about the circumferential wall, said base being secured along its upper marginal portion to the housing and having a lower marginal portion secured to said circumferential wall and extending around the bottom discharge opening, said housing having a portion thereof cutaway adjacent the discharge opening, and a discharge nozzle received within said cutaway portion and extending generally in a horizontal direction from the bottom discharge opening whereby material being unloaded moves along the permeable member to the bottom discharge opening.



3,302,980
FLUID AND MANUAL ACTUATED VALVE

Joseph C. Bystricky, Crystal Lake, and Arthur Rasmussen, Elk Grove Village, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia
Filed Aug. 10, 1964, Ser. No. 388,505
10 Claims. (Cl. 303—5)

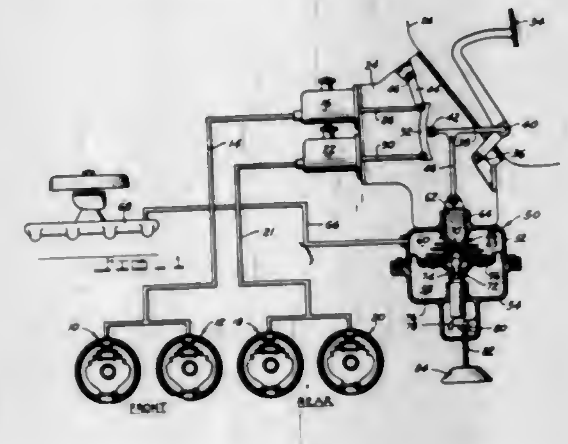


1. In a pressurized fluid control valve having an inlet passageway and an outlet passageway, automatically movable means biased in a valve closing direction and movable by fluid pressure in a valve opening direction,

valve means moved in a valve closing direction by said movable means to a position for preventing the transmission of fluid between said inlet passageway and said outlet passageway with said valve means having means responsive to fluid pressure at said inlet passageway for moving to a second position independently of said movable means to permit the passage of fluid between said inlet passageway and outlet passageway while pressure at said inlet passageway is simultaneously exerted against said movable means, and means for manually moving said valve means in a valve closing direction.

3,302,981
BRAKE PROPORTIONING SYSTEM

Stanley I. MacDuff and Ward C. Suttle, South Bend, Ind., assignors to The Bendix Corporation, a corporation of Delaware
Filed Feb. 17, 1966, Ser. No. 528,294
16 Claims. (Cl. 303—6)

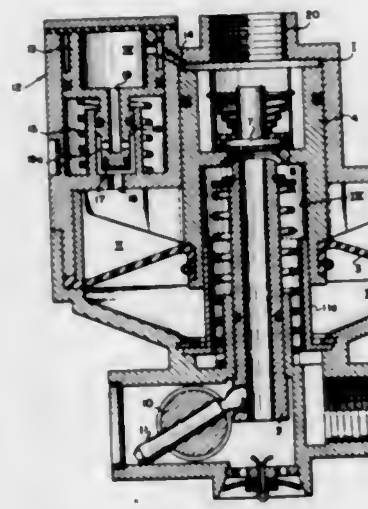


1. In a braking system for a vehicle having front and rear wheel braking means, the combination of pressure generating means for applying a braking pressure to said front and rear braking means, regulating means operatively connected to said pressure generating means for varying the braking pressure ratio between said front and rear wheel braking means, and means for automatically and continuously sensing the deceleration of the vehicle during application of said braking pressure and causing said regulating means to vary the braking pressure ratio between said front and rear wheel braking means as a function of said deceleration of the vehicle, said last named means comprising a servomechanism operatively connected to said regulating means for modifying the action thereof, an accelerometer for continuously measuring the deceleration of the vehicle, and function generating means operatively connected to said accelerometer and said servomechanism for receiving inputs from said accelerometer and programming outputs to said servomechanism so as to control the braking pressure ratio between said front and rear wheel braking means in accordance with predetermined ideal braking requirements.

3,302,982
LOAD-DEPENDENT EMPTY-LOAD VALVE

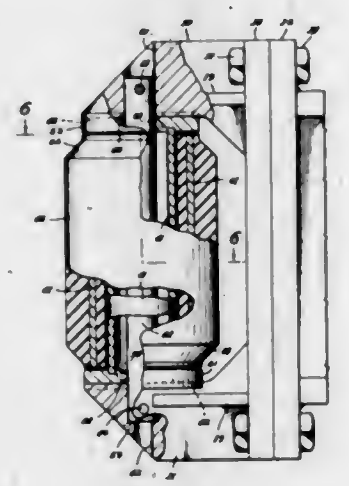
Ewald Pekrul, Hannover, Germany, assignor to Westinghouse Bremsen- und Apparatebau G.m.b.H., Hannover, Germany
Filed Mar. 18, 1966, Ser. No. 535,481
Claims priority, application Germany, Apr. 30, 1965, W 34,864
3 Claims. (Cl. 303—60)

1. A brake pressure regulator valve dependent on vehicle load for controlling the application of fluid pressure from an inlet to an outlet and thence to a brake cylinder comprising via a differential pressure responsive member having a changeable ratio of its effective surfaces and including a double seat valve device, said member having a constant effective surface subjected to the pressure at said inlet and a variable effective surface subjected on one side to the pressure at said outlet, a shut off valve for subjecting the opposite side of said variable effective surface to the pressure at said inlet, a piston connected with said shut off valve, a prestressed spring for normally moving said piston in a direction to open said shut off valve, and means for subjecting said piston to the pressure at said inlet whereby said piston will close the last named valve when the pressure at said inlet reaches a value predetermined by said spring.



3,302,983
STABILIZER

William R. Garrett, Midland, Tex., assignor to Drilco Oil Tools, Inc., Midland, Tex., a corporation of Texas
Filed Jan. 14, 1964, Ser. No. 337,631
4 Claims. (Cl. 308—4)

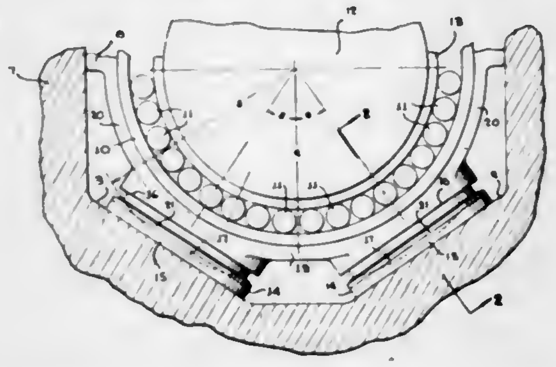


1. A drill string stabilizer comprising
a body having a flow passage extending vertically therethrough,
means for connecting the body in a drill string,
a plurality of rolling, wall-contacting means each including an axle and a roller rotatably disposed on the axle,
bracket means for supporting each wall-contacting means,
means connecting said bracket means to said body at azimuthally spaced apart positions around the body,

and means releasably mounting each axle on its bracket means, each said mounting means including upper and lower discs disposed at the ends of the axle, one of said discs being fixed to the axle and the other releasably disposed in an opening therein, each of said discs having a slot in its face on the opposite side thereof from said axle, said slots receiving respectively the under side of the top part of the bracket means and the top side of the lower part of the bracket means, and
means releasably securing said discs to said bracket means.

3,302,984
TWO-POINT SELF-ALIGNING BEARING SUPPORT

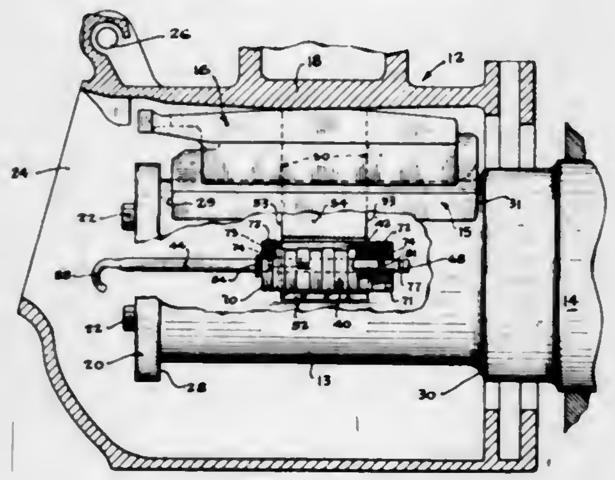
Leo A. Toth, South Bend, Ind., assignor to The Torrington Company, Torrington, Conn., a corporation of Connecticut
Filed Mar. 13, 1964, Ser. No. 351,634
5 Claims. (Cl. 308—29)



1. A self-aligning bearing support comprising a frame having spaced upwardly flaring bottom walls, a seat slidably supported on an upper surface of each wall, a journal bearing in the frame, means for supporting a journal in the bearing, the upper surface of each seat being spherical and concentric with the axis of the bearing, a boss on the bearing opposite each seat, a plate on each seat supporting a boss, said plates having spherical lower surfaces complementary to and adjustably received in the upper surfaces of the seats and a layer of lubricant between said surfaces.

3,302,985
JOURNAL STOP DEVICES

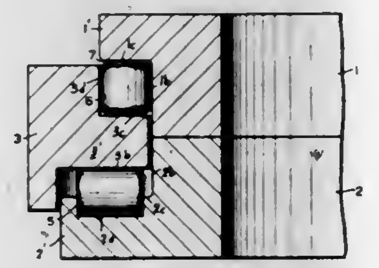
John A. Zupez, Ridgewood, and Llewellyn E. Hoyer, Wayne, N.J., assignors to Abex Corporation, a corporation of Delaware
Filed Apr. 2, 1964, Ser. No. 356,809
2 Claims. (Cl. 308—40)



1. A journal stop device adapted to be positioned in a railroad journal box, said journal stop device including a pair of support means each to be positioned on opposite sides of the journal box; individual journal stop means each individually mounted on a related one of said support means, each of said journal stop means having a journal contacting face thereon, each of said support means and each of said journal stop means having registered openings therein, a pair of mounting pin means each adapted to extend through said registered openings to secure related journal stop means to its respectively associated support means, said mounting pin means including a handle portion extending outwardly and adapted to be clasped by an operator, and spring detenting means on each of said journal stop means to hold said journal stop means on said mounting pin means in a first position when said journal stop means is being positioned about its support means to register said openings, said detenting means also operable to hold said mounting pin means against axial movement when said pin means is in its operative holding position within said registered openings.

3,302,986
DOUBLE ROW ANTI-FRICTION BEARING

Wilhelm Grolman, Dortmund-Kirchhorde, and Gerd Heimsath, Dortmund, Germany, assignors to Eisenwerk Rothe Erde G.m.b.H., Dortmund, Germany
Filed Dec. 8, 1964, Ser. No. 416,802
Claims priority, application Germany, Dec. 13, 1963, E 26,021
5 Claims. (Cl. 308—174)



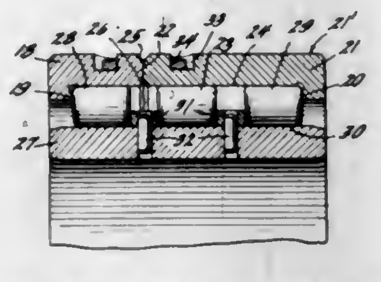
1. A double row anti-friction bearing for taking up radial and axial thrusts comprising, in combination, inner and outer race means defining between themselves a pair of races spaced from each other in axial direction, one of said races having cylindrical surface portions coaxial with said bearing and annular plane surface portions normal to the axis of said bearing and the other of said races having plane annular surface portions normal to said axis; and two groups of rolling elements respectively located in said races, said rolling elements being constructed and engaging said surface portions so that the one group of rolling elements located in said one of said races will take up radial and axial thrusts and the other group of rolling elements located in said one of said races will take up only axial thrusts imparted to said bearing.

3,302,987
MULTI-ROW CYLINDRICAL ROLLER BEARINGS

Walter Hoffmann, Herzogenaurach, near Nurnberg, and Werner Jacob, Frankfurt am Main, Germany, assignors to Industriewerk Schaeffler OHG, Nurnberg, Germany
Filed May 22, 1964, Ser. No. 369,444
Claims priority, application Germany, Jan. 4, 1960, I 17,483
3 Claims. (Cl. 308—213)

1. Multi-row cylindrical roller bearing comprising an inner race ring, an outer race ring, three rows of rollers mounted between the race rings, the one race ring having rims at the outer edges of the ring to contact the first and third rows of rollers and the other race ring having a pair of spacing rings fastened thereon with one spacing ring between the first and second rows of rollers and the

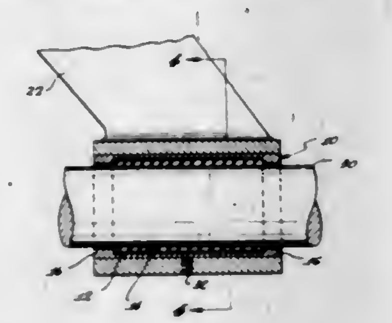
other spacing ring between the second and third rows of rollers, the said one race ring being prized apart at a parting seam extending perpendicularly to the axis of the bearing into two circumferential parts in contact with



each other at the seam with the latter being provided between two rows of rollers, and clamping means on the one race ring to permanently secure the two parts adjacent to each other at the seam.

3,302,988
SHAFT BEARING WITH REMOVABLE BEARING INSERT

Harold H. Senter, Los Angeles, Calif., assignor to Plastic and Rubber Products Company, Los Angeles, Calif., a corporation of California
Filed Dec. 17, 1963, Ser. No. 331,136
2 Claims. (Cl. 308—238)

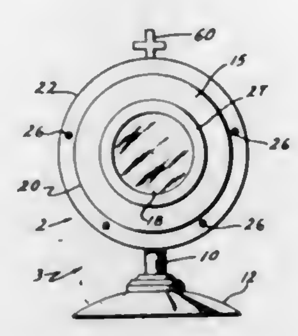


1. The combination of:
a revolving shaft exerting radially directed dynamic loads as a consequence of the rotation of the shaft;
and a sleeve type bearing surrounding the shaft to support the shaft against deflection from said dynamic loads,
said bearing including
  a rigid housing of cylindrical shape, and a laminated rubber bearing insert in the bearing housing in contact therewith and with the revolving shaft,
said insert comprising a relatively thick bearing layer of relatively hard rubber having a low coefficient of friction against the shaft and sufficient rigidity to maintain the shaft aligned under the dynamic loads
and a relatively thinner backing layer of rubber softer than said thicker layer having a high coefficient of friction to restrain the insert from turning with the shaft in the sleeve and of the order of .020 inch in thickness so that the dynamic loads do not deflect and misalign the shaft.

3,302,989
LUNA AND LUNA HOLDER

Edward S. Buchko, Meriden, Conn., assignor to The International Silver Company, Meriden, Conn., a corporation of Connecticut
Filed Jan. 6, 1965, Ser. No. 423,751
5 Claims. (Cl. 312—33)

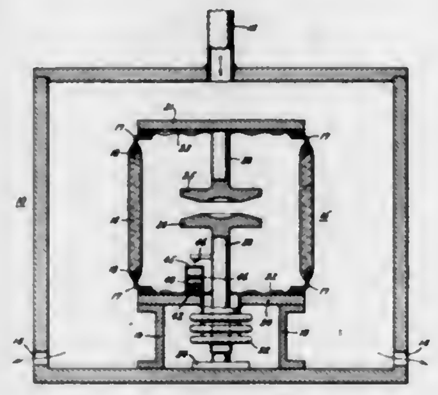
1. In combination, a luna and a holder for said luna, said holder comprising walls defining a luna chamber, one of said walls having a portion providing a slotted access opening to the interior of the chamber, said luna comprising a case for containing a Host and a support member connected to said case,
said case being insertable through the access opening of said one chamber wall, and



said support member and said slotted wall portion having interengaging means for mounting said support member in seated position on said chamber wall and said case centrally disposed in the interior of said chamber.

3,302,990
METHOD AND APPARATUS FOR EVACUATING AN ELECTRIC DISCHARGE DEVICE OF THE VACUUM TYPE

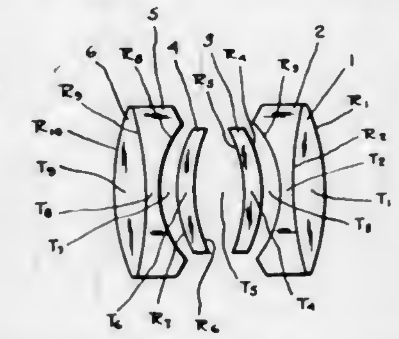
Donald R. Kurtz, Malvern, Pa., and Democritos James Veras, Stony Brook, N.Y., assignors to General Electric Company, a corporation of New York
Filed Mar. 11, 1965, Ser. No. 438,868
9 Claims. (Cl. 316—25)



1. A method of evacuating the envelope of a vacuum device comprising:
(a) providing a capsule that includes two internal compartments separated by a porous metal partition,
(b) placing in a first one of said compartments a quantity of getter material in the form of a hydride of a metal that is reversibly reactive with hydrogen and is capable of sorbing a large quantity of hydrogen at low temperatures,
(c) heating the capsule and the getter material to a sufficiently high temperature to reduce said getter material to said metal and hydrogen and to remove gases and gas-forming contaminants from the surfaces inside said capsule,
(d) venting the gases evolved by such heating to the exterior of said capsule,
(e) sealing the interior of said capsule from its exterior,
(f) placing said sealed capsule within said envelope,
(g) baking said envelope and removing from the interior of said envelope the gases evolved by said baking,
(h) sealing said envelope, and
(i) puncturing an external wall of the second of said compartments in the capsule to afford communication between said getter material and the interior of said envelope via said porous partition.

3,302,991
SYMMETRICAL SIX-ELEMENT LENS SYSTEM

Edwin W. Bechtold, Middle Village, N.Y., assignor to The Ednalite Corporation, a corporation of New York
Filed Feb. 25, 1963, Ser. No. 260,432
3 Claims. (Cl. 350—220)



1. A symmetrical six-element lens system having numerical data substantially as follows:

[EFL-100 mm.]

Lens	Radii, mm.	Thickness	Refractive Index	Dispersion
	$R_1 = +25.45$			
1		$t_1 = 5.29$	1.617	55.0
	$R_2 = -69.44$			
2		$t_2 = 1.80$	1.5497	45.8
	$R_3 = +17.44$			
		$t_3 = .88$	Air	
	$R_4 = +21.24$			
3		$t_4 = 3.78$	1.5725	57.4
	$R_5 = +31.99$			
		$t_5 = 5.4$	Air	
	$R_6 = -31.99$			
4		$t_6 = 3.78$	1.5725	57.4
	$R_7 = -21.24$			
		$t_7 = .88$	Air	
	$R_8 = -17.44$			
5		$t_8 = 1.80$	1.5497	45.8
	$R_9 = +69.44$			
6		$t_9 = 5.29$	1.617	55.0
	$R_{10} = -25.45$			

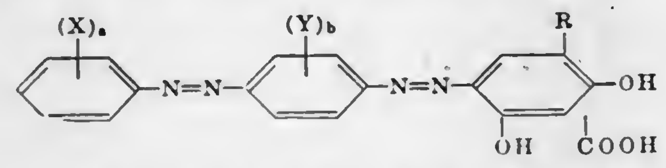
wherein the first column lists six lens elements in numerals in order front to rear; R refers to the radius of curvature of the refractive surfaces, and *t* refers to the axial thicknesses thereof or air spaces.

CHEMICAL

3,302,992
POLYOLEFINS DYED WITH GAMMA-RESORCYLIC ACID AZO DYES

Ernest M. May, Summit, and Andrew Fono, Montclair, N.J., assignors to Otto B. May, Inc., Newark, N.J., a corporation of New Jersey
No Drawing. Original application Jan. 14, 1963, Ser. No. 251,040, now Patent No. 3,236,829. Divided and this application Mar. 10, 1965, Ser. No. 442,849
17 Claims. (Cl. 8—42)

1. A composition which comprises a metallic material reacted with a dye composition having the structure:



wherein each X is a substituent group attached to the benzene nucleus independently selected from the group consisting of C_1 to C_{12} alkyl, cycloalkyl having an amount up to 6 carbon atoms, nitro, chlorine, bromine, fluorine, acetyl, N-alkylsulfonamido said alkyl containing 1–5 carbon atoms, alkoxy containing 1–4 carbon atoms, cyano, carboxyl and 2,3-benz-; wherein each Y is a substituent group attached to the benzene nuclear independently selected from the group consisting of lower alkyl, 2,3-benz-, alkoxy containing 1–4 carbon atoms, chlorine, bromine and fluorine; R is a subtituent group attached to the benzene nucleus selected from the group consisting of hydrogen and bromine; *a* is an integer from 0 to 3 inclusive; and *b* is an integer from 0 to 2 inclusive.

3,302,993
PROCESS OF RECOVERING STRONTIUM, CESIUM, CERIUM AND RARE EARTH VALUES FROM RADIOACTIVE SOLUTIONS

Lane A. Bray, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Mar. 11, 1963, Ser. No. 264,460
6 Claims. (Cl. 23—23)

1. A process of coextracting strontium, cesium, cerium and other lanthanide rate earth values from an aqueous solution containing such values comprising: adjusting the pH of said solution to a value of between 3 and 5; contacting said aqueous solution with a substantially water-immiscible aliphatic hydrocarbon solution containing a water-immiscible phenol selected from a group consisting of 4-sec-butyl-2-(α methyl benzyl) phenol, o-phenylphenol, p-dodecylphenol, p-chloro-o-benzylphenol and 4-tert-butyl-2-(α methyl benzyl) phenol and a water-immiscible alkyl phosphoric acid selected from a group consisting of bis(2-ethylhexyl) phosphoric acid, monodiisooctyl acid orthophosphate, monoisooctyl acid orthophosphate and octylphenyl acid phosphate; whereby strontium, cerium, cesium and lanthanide rare earth values are taken up by said aliphatic hydrocarbon solution; and separating said aliphatic hydrocarbon solution from said aqueous solution.

6. A process of separating cesium values from cerium and strontium values present together in an aqueous nitric acid solution with a pH of 4 comprising: contacting said aqueous solution with an aliphatic hydrocarbon solution 0.3 M in di(2-ethylhexyl) phosphoric acid and not more than 0.01 M in 4-sec-butyl-2-(α methyl benzyl) phenol, whereby cerium and strontium are taken up by said hydrocarbon solution; separating said hydrocarbon solution from said aqueous solution; then contacting said aqueous solution with a second hydrocarbon solution 0.3 M in di(2-ethylhexyl) phosphoric acid and at least 0.15 M in 4-sec-butyl-2-(α methyl benzyl) phenol, whereby cesium values are extracted; and separating said second hydrocarbon solution from said aqueous solution.

3,302,994
PROCESS PRODUCING CERIUM MOLYBDATE, TUNGSTATE AND VANADATE

Erich Ruf, Essen, Germany, assignor, by mesne assignments, to Ronson Corporation, Woodbridge, N.J.
No Drawing. Filed July 23, 1965, Ser. No. 474,482
Claims priority, application Germany, Oct. 27, 1960, G 30,800; Oct. 7, 1961, G 33,279
15 Claims. (Cl. 23—23)

1. A process of preparing pure cerium (IV) molybdate which comprises, reacting at a pH value of about between 1.0 to 1.6 an aqueous solution of a quadrivalent cerium salt selected from the group consisting of ammonium cerium (IV) nitrate and sodium cerium (IV) nitrate with a solution of ammonium molybdate, the ratio of cerium to molybdenum in the reaction mixture being between about 1:1 to 1:2, whereby a pure cerium (IV) molybdate

precipitate is formed and recovering the precipitate thus formed.

5. A process of preparing pure cerium (IV) tungstate which comprises, reacting at a pH value of about 0.8 an aqueous solution containing a quadrivalent cerium salt selected from the group consisting of ammonium cerium (IV) nitrate and sodium cerium (IV) nitrate; with a solution containing a salt selected from the group consisting of ammonium tungstate and sodium tungstate, the ratio of cerium to tungsten in the solution being about 1:1 to 1:2, whereby a pure cerium (IV) tungstate precipitate is formed and recovering the precipitate.

10. A process of preparing pure cerium (IV) vanadate which comprises mixing at a pH value of approximately 1.0 to 2.0 an aqueous solution containing a quadrivalent cerium salt selected from the group consisting of ammonium cerium (IV) nitrate and sodium cerium (IV) nitrate with a solution containing a salt selected from the group consisting of ammonium vanadate and sodium vanadate, the ratio of cerium to vanadium in the reaction mixture being approximately 1:1, whereby a pure cerium (IV) vanadate precipitate is formed, and recovering said precipitate.

3,302,995

SYNTHETIC SWELLING LITHIUM ALUMINUM SILICATE HYDRATE PRODUCT

Thomas D. Oulton, Watchung, N.J., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed May 1, 1963, Ser. No. 277,084

3 Claims. (Cl. 23—111)

1. A crystalline synthetic lithium aluminum silicate hydrate containing mol ratios of $Li_2O:Al_2O_3:SiO_2$ of about 3:1:8, the atoms of said lithium aluminum silicate hydrate being oriented in a unit cell in an expandable three-layer sheet arrangement in which the *c*-axis spacing of said unit cell expands from about 12 A. to about 16 A. upon glycolating an oriented specimen of said lithium aluminum silicate hydrate.

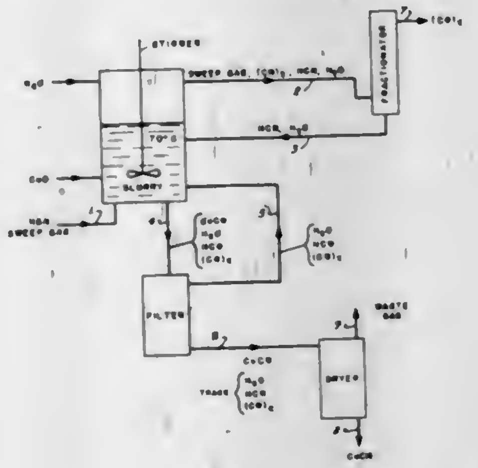
3,302,996

PROCESS FOR PREPARING CYANOGEN

Raymond E. Isbell, Sheffield, Ala., assignor to Tennessee Valley Authority, a corporation of the United States

Filed Jan. 27, 1965, Ser. No. 428,583

7 Claims. (Cl. 23—151)



1. In a process for the preparation of cyanogen in which a cupric ion-releasing reagent is contacted in aqueous medium in a reaction zone with a water soluble cyanide ion-releasing reagent to form cyanogen and byproduct material, the improvement in combination therewith yielding substantially 50 percent of the original cyanide in said water-soluble cyanide ion-releasing agent directly as cyanogen and a byproduct, cuprous cyanide material, in a single step, wherefrom said byproduct cuprous cyanide material substantially the remaining 50 percent of the original cyanide in said water-soluble cyanide ion-releasing agent is recovered by reduction of same to copper metal and cyanogen in a subsequent step which improvement comprises the steps of contacting in a reaction vessel an aqueous suspension of cupric oxide with hydrogen cyanide; maintaining the reactants in said reaction vessel at a temperature in the range from about 50° C. to about 90° C. whereby the formation of cyanogen and cuprous (I) cyanide is effected through the contacting of said aqueous slurry of cupric oxide with said hydrogen cyanide within said temperature range; simultaneously introducing into said reaction vessel a sweep gas; simultaneously exhausting from said reaction vessel exhaust gases to a fractionating vessel, said exhaust gases containing substantially said sweep gas, cyanogen, and water vapor; separating as product in said fractionating vessel cyanogen and returning the remainder of said exhaust gas from said fractionating vessel to said reaction vessel; simultaneously removing from said reaction vessel a portion of the reacted slurry and introducing same into a filtering vessel; removing from said filtering vessel cuprous (I) cyanide as byproduct and returning the resulting filtrate from said filtering vessel to said reaction vessel, and said improved process being characterized by the fact that about one-half of the original cyanide is converted in one step of said process in said reaction vessel to cyanogen and that the other half of the original cyanide is directly converted in said one step of said process in said reaction vessel to solid byproduct cuprous (I) cyanide wherefrom the other half of the original cyanide may be subsequently recovered by reducing same to copper metal and cyanogen.

3,302,997

PREPARATION OF MAGNESIUM OXIDE FROM MAGNESITE

Russell Pearce Heuer, Villanova, Pa., assignor to General Refractories Company, a corporation of Pennsylvania

Filed July 31, 1964, Ser. No. 386,544

2 Claims. (Cl. 23—201)

1. A process of producing magnesium oxide of high density from impure magnesite which contains more than 75% of magnesium oxide and more than 3% of lime on a fully calcined basis, which comprises calcining said impure magnesite at a temperature of at least about 900° C. to produce caustic calcined magnesia, then leaching the caustic calcined magnesia with a water solution of magnesium chloride to remove the slaked lime as calcium chloride, retain the bulk of the magnesia in unslaked condition and obtain magnesia containing less than 3% of lime on a fully calcined basis, separating the magnesia from the leaching solution, molding the magnesia obtained from the leaching solution into briquettes under a pressure of at least 500 p.s.i., and calcining the briquettes at a temperature of at least about 1600° C. and thus producing a dense calcined magnesia product having a bulk specific gravity in excess of 3.0.

3,302,998

SEMICONDUCTOR COMPOUND CRYSTALS

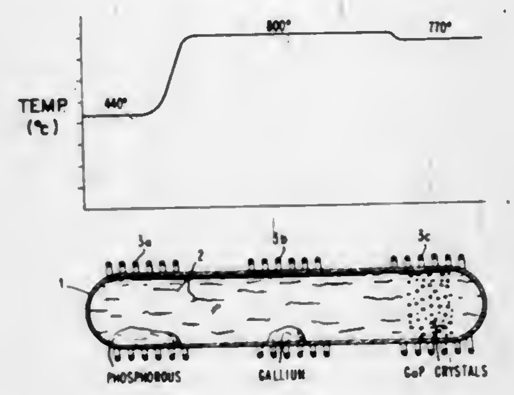
Dinsdale M. J. Compton, Solana Beach, Calif., and Vincent J. Lyons, Mount Kisco, and Patricia J. McDade, Croton-on-Hudson, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Aug. 1, 1961, Ser. No. 128,558

4 Claims. (Cl. 23—204)

1. A method of synthesizing semiconductor compound crystals comprising the steps of introducing a halogen into

a reaction container having first, second and third temperature zones, positioning in the first zone one element of the compound to be synthesized, which element is reactive with said halogen to form a mixture of different valence halides, positioning in the second zone a second element of the compound, providing a temperature gradient in said reaction container such that said first zone is at a higher temperature than said second and third zones and such that at said third zone the ratio of the two halides changes so as to provide the first element, and said second element reacts with said first element to form crystals of said semiconductor compound.



3,302,999

CARBON FOAM

Charles V. Mitchell, Shaker Heights, Ohio, assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 14, 1962, Ser. No. 238,825

6 Claims. (Cl. 23—209.2)

5. A synthetic carbon foam article characterized by a carbon atom arrangement in a lattice substantially similar to that of carbon atoms in a polyester-type polyurethane foam, a bulk density in the range from about 0.03 grams per cubic centimeter to about 0.45 grams per cubic centimeter, an ash content of less than about 0.5 percent by weight, and a thermal conductivity less than about 2 B.t.u./ft.^{2} hr. (° F./ft.).

3,303,000

PRODUCTION OF CARBON BLACK

Lyle W. Pollock, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Mar. 15, 1963, Ser. No. 265,430

4 Claims. (Cl. 23—209.4)

4. In a process for producing carbon black in a carbon black furnace wherein said furnace comprises a precombustion section having a diameter greater than its length communicating axially with a reaction section having a diameter less than that of the precombustion section and a length greater than that of the precombustion section, wherein combustion products, resulting from burning a combustible mixture of a fuel and an oxygen-containing gas, are passed into said precombustion section in a direction tangent to the cylindrical wall thereof and follow a spiral path into the reaction section, and wherein a reactant hydrocarbon is passed axially through said precombustion section and into said reaction section, the improvement comprising passing the reaction section contents tangentially into a frusto-conical section whose axis is normal to that of the reaction section and communicating with said reaction section whereby an additional centrifugal spin is imparted to the contents of the reaction zone so that carbon black particles in the formative stage are concentrated in a layer in the frusto-conical section; and recovering the carbon black produced.

3,303,001

LOW TEMPERATURE SHIFT REACTION INVOLVING A ZINC OXIDE-COPPER CATALYST

Edward K. Dienes, Louisville, Ky., assignor to Catalysts and Chemicals, Inc., a corporation of New Jersey

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,542

3 Claims. (Cl. 23—213)

1. In the process for producing hydrogen by a shift reaction involving reacting carbon monoxide with steam the improvement permitting said shift reaction to be carried out at a low temperature in the range of 350° F. to 500° F. which comprises at said temperature, at a pressure in the range of atmospheric to 800 pounds per square inch gauge, and at a space velocity of 300 to 6500 cubic feet per hour per cubic foot of catalyst passing the reaction gases, including steam, over a reduced copper oxide-zinc oxide shift catalyst containing as its active ingredients after reduction zinc oxide and copper in a weight ratio based on metal of 0.5 to 3 zinc to 1 copper prepared by coprecipitating copper and zinc as their carbonates from an aqueous solution of their soluble salts through double decomposition reaction with sodium carbonate, removing the sodium salts so that the level of sodium, calculated from sodium oxide after calcining to the oxides, is less than 0.2 percent, calcining the sodium carbonate-containing copper and zinc carbonate precipitate to form a mixture of the oxides, and reducing the oxide mixture to zinc oxide and copper.

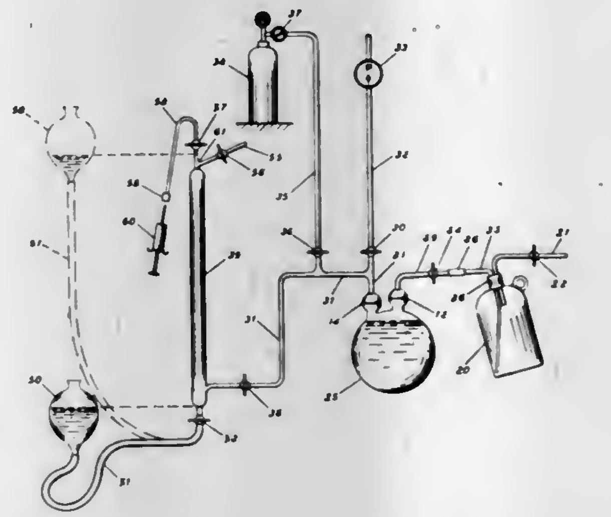
3,303,002

METHOD OF SEPARATING HYDROCARBONS FROM A SAMPLE

Clayton D. McAuliffe, Fullerton, Calif., assignor to Chevron Research Company, a corporation of Delaware

Filed Sept. 24, 1963, Ser. No. 311,072

6 Claims. (Cl. 23—230)



1. In a method of geochemical prospecting wherein samples are collected and the hydrocarbon content of said samples is determined and recorded to give an indication of the possible whereabouts of valuable petroleum deposits, the improvement in separating at least the hydrocarbons containing from 1 to 8 carbon atoms from each sample comprising the steps of establishing a vacuum of at least 0.1 mm. mercury in a chamber, closing said chamber, flowing only a liquid sample into the vacuum in said chamber at a rate equivalent to ½ gallon in from 2 to 10 minutes whereby the vacuum causes gas including any hydrocarbon constituents thereof to come out of said sample, collecting at least a portion of said gas, analyzing said gas for the hydrocarbon constituents thereof and repeating the above steps for each of the remaining samples.

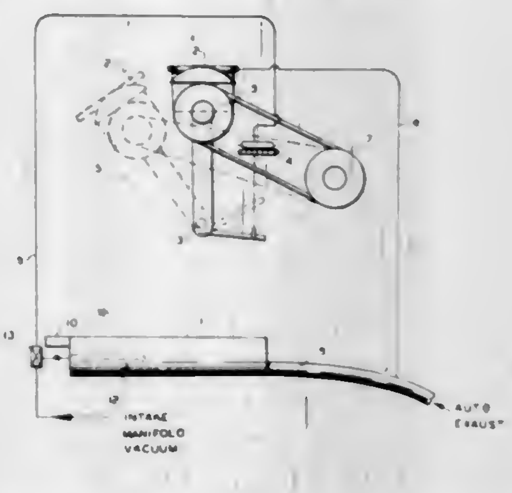
3,303,003

APPARATUS FOR PURIFYING EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Austin A. Zimmer, Elkridge, Md., assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

Filed Mar. 11, 1963, Ser. No. 264,133

4 Claims. (Cl. 23—288)



1. A combination of apparatus for automatically controlling the temperature of a catalytic exhaust purifier comprising,

(a) means for purifying exhaust gases including a housing containing an oxidation catalyst,
(b) inlet and outlet openings within said purifying means for the exhaust gases to enter and exit therefrom,
(c) a temperature sensing means positioned within said purifying means,
(d) valve means associated with said sensing means and positioned within a conduit connecting a manifold section of an internal combustion engine with a pump actuating means connected to a variable speed belt driven spring loaded air pump pivotally attached to said engine,
(e) and a second conduit connecting said pump means with said exhaust inlet opening.

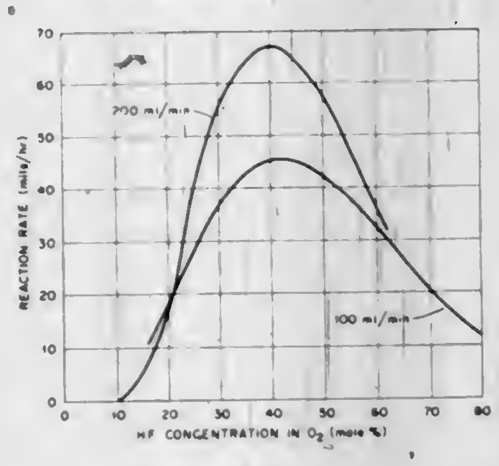
3,303,004

METHOD FOR DISSOLVING STAINLESS STEEL MEMBERS

Melvin R. Bennett, Oak Ridge, and George I. Cathers, Knoxville, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 6, 1965, Ser. No. 446,135

8 Claims. (Cl. 23—324)



1. A method for dissolving stainless steel containing members comprising the step of contacting said member with a gaseous reaction mixture of anhydrous HF and an oxygen containing gas at a temperature between 550°–650° C., thereby oxidizing said stainless steel cladding.

6. A method for the separation and recovery of fuel values from stainless steel clad spent uranium or plutonium oxide fuels comprising immersing said fuels in a fluidized bed, fluidizing said bed with an anhydrous gaseous reaction mixture comprising 40 volume percent HF in oxygen while maintaining said bed at a temperature within the range of 550°–650° C. to thereby effect an oxidation of said stainless steel cladding and thereafter separately recovering said uranium or plutonium oxide fuel values from said declad fuels.

3,303,005

TERNARY SEMICONDUCTOR COMPOUNDS AND METHOD OF PREPARATION

Lawrence Suchow, Yonkers, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 3, 1962, Ser. No. 241,505

9 Claims. (Cl. 23—367)

1. A ternary semiconducting compound having the formula $Cd_4Y_2X_3$ in which X is an element selected from the group consisting of Cl_2, Br_2 and I_2 and Y is an element selected from the post-transition subgroup of Group V of the Periodic Table.

3,303,006

METHOD OF PRODUCING SOLID METAL MATERIALS CONTAINING PRE-TENSIONED SILICA

John Godfrey Morley, Derby, and Basil Allister Proctor, Mickleover, Derby, England, assignors to Rolls-Royce Limited, a British company

No Drawing. Filed Feb. 12, 1962, Ser. No. 172,752

Claims priority, application Great Britain, Feb. 11, 1961, 5,187/61

1 Claim. (Cl. 29—194)

The method which comprises tensioning silica fibers maintained so that their longitudinal axes are substantially parallel to each other, enveloping the thus stressed fibers with a molten metal having creep characteristics and substantially the same modulus of elasticity as the fibers, allowing said metal to solidify and then releasing the tension on said fibers.

3,303,007

MOTOR FUEL COMPOSITION

Frederick L. Mueller, Arlington Heights, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Sept. 3, 1963, Ser. No. 306,337

5 Claims. (Cl. 44—56)

1. A motor fuel composition consisting essentially of a hydrocarbon mixture boiling in the gasoline boiling range and about 5 to 100 lbs. of methanol and the dioleate salt of N-oleyl 1,3-propylene diamine per 1000 barrels of said hydrocarbon mixture, the weight ratio of said methanol to dioleate salt being greater than 1 to 1.

3,303,008

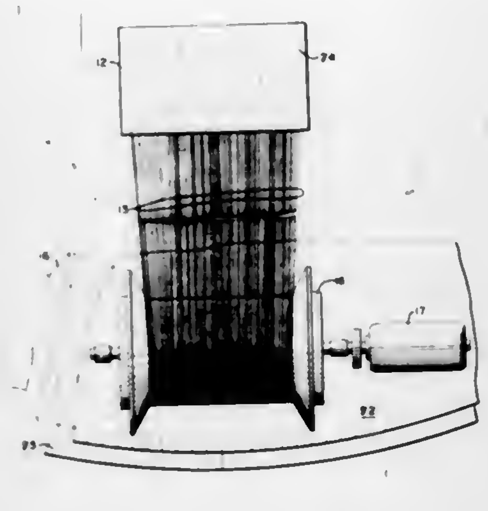
METHOD OF FORMING A GLASS REINFORCED FILAMENT PLASTIC TAPE

Frederick R. Barnet, Kensington, and Albert Lightbody, Silver Spring, Md., and Albert Lewis, Morgantown, W. Va., assignors, by direct and mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Aug. 3, 1962, Ser. No. 214,776

3 Claims. (Cl. 65—3)

1. The process of forming a glass reinforced filament plastic tape including the steps of drawing from at least one orifice plate having an elongated array of orifices therein, a plurality of molten glass filaments from at least one glass producing furnace, spraying a resin bonding substance to said filaments while the filaments are in a nearly nascent state, winding the filaments on a windup wheel to form adjacent layers of glass filament reinforced tape, and rotating the axis of the windup wheel in a plane parallel to the general plane of said orifice plate and about an axis perpendicular to said plane and passing through the geometrical center thereof to produce variations of width and thickness of the tape produced.



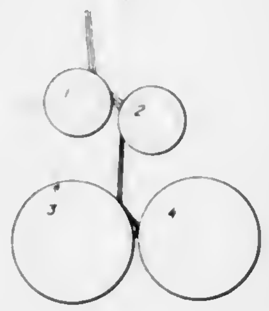
3,303,009

MINERAL WOOL-PRODUCING SYSTEM AND METHOD OF PRODUCING MINERAL WOOL

Gunnar Sagen, Copenhagen, and Karl Ejvind Haulund Christensen, Roskilde, Denmark, assignors to I/S Kahler & Co., Hedehusene, Denmark, a Danish firm

Filed Sept. 10, 1963, Ser. No. 307,914

6 Claims. (Cl. 65—8)



1. Mineral wool producing rotor system consisting of at least one rotor having a peripheral surface, means for supplying a stream of molten mineral melt to said peripheral surface and at least one further rotor receiving mineral melt ejected from another rotor and rotating at such velocity that it produces a fine wool, in which system at least one rotor has means for applying to its peripheral surface, prior to the application of the mineral melt, an amount of a slip-producing agent, and at least one other rotor which receives mineral melt ejected from another one as above set forth, and rotates at a speed at which fine wool can be produced, has no slip-producing agent applied thereto.

4. Method of producing mineral wool by acceleration of movement of mineral wool on revolving surfaces and transferring melt from one rotating surface to another in which the melt is first applied from a liquid stream to revolving surfaces wetted by a slip-producing agent which reduces adhesion of the melt to the surfaces and is repelled from said surfaces to rotating surfaces to which no slip-producing agent is applied and from which it is ejected in the form of fine wool.

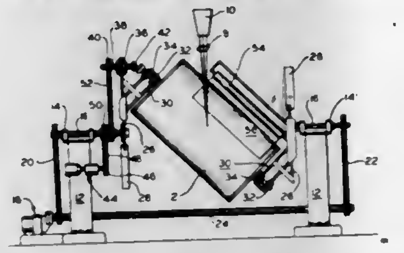
3,303,010

METHOD AND APPARATUS FOR MAKING FILAMENTOUS MATS

John E. Copenhefer, Anchorage, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky., a corporation of Delaware

Filed Feb. 24, 1964, Ser. No. 346,951

14 Claims. (Cl. 65—11)



1. The method of making a filamentous mat, comprising:

(a) feeding a filament to a former while rotating said former on its longitudinal axis and simultaneously moving said former in a rotary oscillating manner about another axis intersecting said longitudinal axis;
(b) controlling said rate of rotation of said former, relative to the rate of oscillation of said former, that successive turns of said filament are successively indexed around said former; and
(c) feeding sheet material onto the circumferential surface of said former at the same rate as said successive turns are indexing around said former.

12. Apparatus for making a filamentous mat, comprising:

(a) a former;
(b) means for rotating said former on its longitudinal axis at one angular velocity;
(c) means for moving said former in a rotary oscillating motion, about another axis intersecting said longitudinal axis, at another angular velocity;
(d) means for feeding a filament to the circumferential surface of said former for winding thereon;
(e) a roll of sheet material mounted with its axis parallel to said former longitudinal axis and adjacent said circumferential surface, the leading edge of said sheet material being attached to said circumferential surface; and
(f) means for moving said roll in synchronism with said former in its rotary oscillating motion so that said roll axis remains parallel to said former longitudinal axis and said sheet material unwinds from said roll onto said circumferential surface at a rate in accordance with the difference in said angular velocities.

3,303,011

PROCESS AND APPARATUS FOR MANUFACTURING ELONGATED GLASS PRODUCTS

Fukuhichi Fukuzaki, Tokyo-to, Japan, assignor to Kabushiki Kaisha Obara Kogaku Garasu Seizosho, Kanagawa-ken, Japan, a corporation of Japan

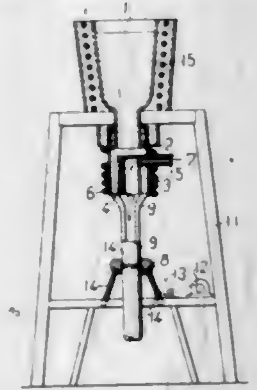
Filed Mar. 30, 1966, Ser. No. 563,937

8 Claims. (Cl. 65—88)

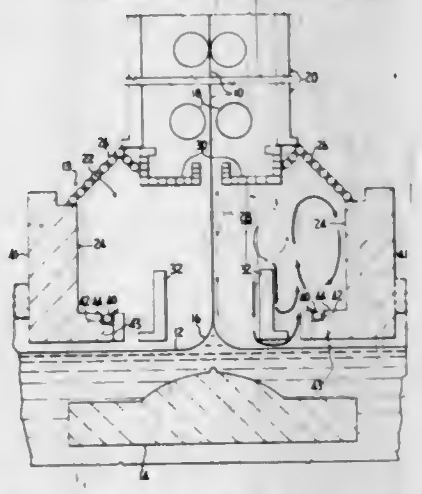
1. In a process for manufacturing glass tubing in a feed zone having stationary platinum walls and in an adjacent tube-forming zone having two stationary platinum walls, one inside the other, to define a void therebetween of the desired tubing configuration, the steps comprising passing molten glass first into the feed zone and then from said feed zone into said tube-forming zone to fill the void between said platinum walls of the tube-forming zone and form glass tubing at the trailing edge of said walls, providing said feed zone with a cross-section smaller than the cross-section of said tube-forming zone to achieve control over the flow of glass passing through said tube-forming zone, flowing a stream of ambient air through the interior of said tube-forming zone so that

the inner platinum wall thereof and the inner surface of the glass tubing formed at the trailing edge of said inner wall are exposed to the ambient atmosphere to equalize cooling of the glass tubing being formed and prevent distortion thereof, and heating the exterior walls of said feed zone and said tube-forming zone to further control the rate of flow of the glass material through the void between the walls of said tube-forming zone.

6. A glass extruding apparatus comprising a platinum-walled supply container and a detachable tube-forming nozzle adjacent to said supply container, said supply container including a constricted feed section the cross-section of which is smaller than the cross-section of said tube-forming nozzle, said constricted feed section being connected to said tube-forming nozzle to supply glass material thereto, and to control the flow of the glass through said tube-forming nozzle, heating means arranged around the exterior of said constricted feed section and of said tube-forming nozzle to further control the flow of glass through the tube-forming nozzle, said tube-forming nozzle including two stationary platinum walls which are positioned one inside the other to define a space therebetween having a uniform cross-section in the shape of the tubing desired and to also provide an innermost core space within the confines of the inner one of said two platinum walls, and an open conduit extending from the ambient atmosphere adjacent the exterior of said tubing-forming nozzle into said innermost core space to permit flow of a stream of ambient air through said innermost core space as glass tubing is being formed.

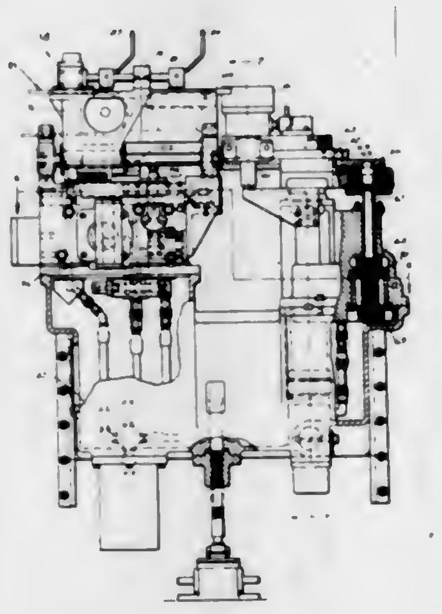


3,303,012
GLASS DRAWING KILN L-BLOCK
Cecil R. Ward, Gibsonia, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Sept. 30, 1960, Ser. No. 59,743, now Patent No. 3,208,842, dated Sept. 28, 1965. Divided and this application Feb. 12, 1963, Ser. No. 258,052
1 Claim. (Cl. 65—193)



A refractory L-block member, for use as a defining wall of a glass drawing kiln and entirely above a pool of molten glass, having two mutually perpendicular portions, the length of one normally extending in a vertical direction, the length of the other normally extending in a horizontal direction, both of said portions being substantially coextensive in width, the vertical length of said member being greater than the horizontal length thereof to provide said defining wall, the width being of greater magnitude than the thickness of either of said portions, and a recess contained in the upper surface of the normally horizontally extending portion of the refractory member at the outermost edge thereof, said recess being of lesser dimension than the length or thickness of the containing portion but extending substantially the width thereof and substantially parallel to the other of said portions.

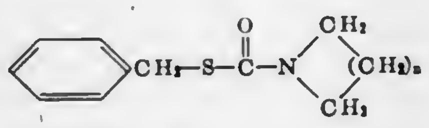
3,303,013
TAKEOUT APPARATUS FOR GLASS FORMING MACHINES
Eustace H. Mumford, Ottawa Lake, Mich., and Albert W. Rieck, Waterville, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio
Filed Apr. 28, 1961, Ser. No. 106,307
2 Claims. (Cl. 65—260)



1. A ware takeout device for a glass forming machine in which a pair of formed ware is carried by neck molds to a predetermined position and released by opening of the neck molds, comprising a pair of retractable, were receiving dead plates normally positioned at said predetermined position, means connected to said dead plates for simultaneously raising said dead plates into ware receiving position in coaxial alignment with the bottom of the ware and for lowering said dead plates and ware carried thereby until the bottom of the ware is in a fixed horizontal plane, a pair of wind boxes having flat, ware supporting, surfaces lying in said horizontal plane spaced from said dead plates and mounted parallel thereto, means connected to said dead plates for horizontally shifting said dead plates as a unit into wind box receiving position after lowering thereof, a continuously moving conveyor adjacent said wind boxes and having its upper surface moving said horizontal plane away from said wind boxes on the side opposite from the dead plates, means mounted beside the wind boxes for moving said ware laterally from said dead plates to said wind boxes and simultaneously laterally moving ware positioned on the wind boxes onto said moving conveyor, and means responsive to the movement of said ware moving means for controlling the operation of said dead plate raising and lowering means, whereby said ware is lowered from the forming machine and moved step-by-step from the dead plates to the support means.

3,303,014
BENZYL POLYMETHYLENIMINECARBOTHIOLATES AND HERBICIDAL USE THEREOF
John J. D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Apr. 22, 1966, Ser. No. 544,413
14 Claims. (Cl. 71—2.5)

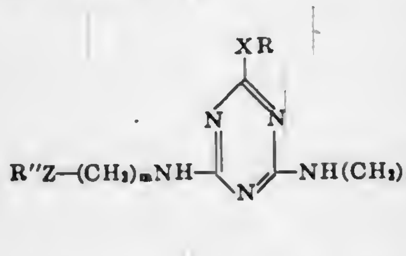
5. The method of destroying undesired vegetation which comprises applying to the soil medium before the plants to be destroyed emerge a phytotoxic concentration of a compound of the formula



where *n* is an integer 5 or 6.

3,303,015
HERBICIDAL COMPOSITION AND METHOD
Angelo J. Speziale, Creve Coeur, and Philip C. Hamm, Webster Groves, Mo., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed Dec. 27, 1960, Ser. No. 78,236
5 Claims. (Cl. 71—2.5)

1. The mehtod of selectively inhibiting the germination and growth of plants which comprises contacting plant parts with a growth inhibiting amount of a compound of the formula



where X is selected from oxygen and sulfur, Y and Z are sulfur, R, R′ and R″ are each an alkyl radical having from 1 to 8 carbon atoms, and *m* and *n* are each integers from 1 to 6.

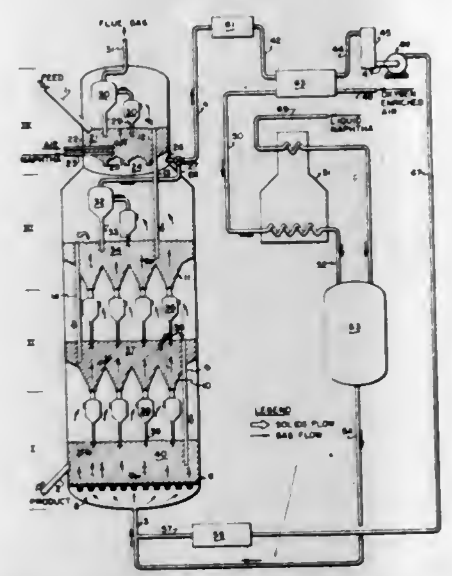
3,303,016
FERTILIZING METALLURGICAL SLAG WITH NITROGEN SALTS FOR AGGLOMERATION AND POWDERING RESISTANCE
Nicholas A. Boukidis, Evanston, Ill., assignor to Dynamic Industrial, Inc.
No Drawing. Filed Oct. 23, 1964, Ser. No. 406,146
2 Claims. (Cl. 71—62)

1. An agricultural fertilizer material resistant to agglomeration, powdering and burning of plant life comprising agricultural ground liming metallurgical slag admixed with about 15% to about 20% by weight of potassium, phosphorous and nitrogen as conventional nutrient salts, said salts of nitrogen being present in an amount sufficient to provide at least 1% by weight of nitrogen on the total mix and said slag having a CaO equivalent of about 20% to 25%.

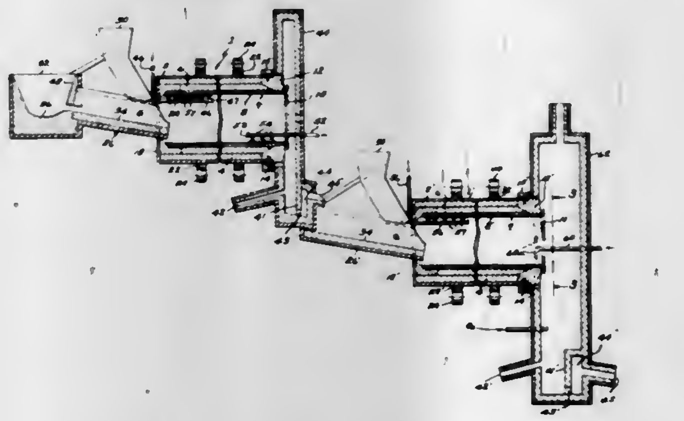
3,303,017
METAL TREATING PROCESS
Francis Xavier Mayer and Robert Glenn Tripp, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Nov. 14, 1963, Ser. No. 323,776
7 Claims. (Cl. 75—26)

1. In the process of reducing iron ore by direct reduction in a fluid bed, the improvement which consists of introducing the fluidizing gas into the fluid bed through multiple conical gas distributors, each of which is fed by a separate cyclone gas-solids separator.

2. An apparatus for carrying out the direct reduction of iron ore in a fluid bed which comprises at least two conical gas distributors, each fed by a separate cyclone gas-solids separator.



3,303,018
METHOD OF REFINING STEEL IN ROTARY REACTOR
Norman P. Goss, Cleveland, Ohio, assignor of one-half to Fuji Iron & Steel Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed Sept. 24, 1963, Ser. No. 311,015
25 Claims. (Cl. 75—51)

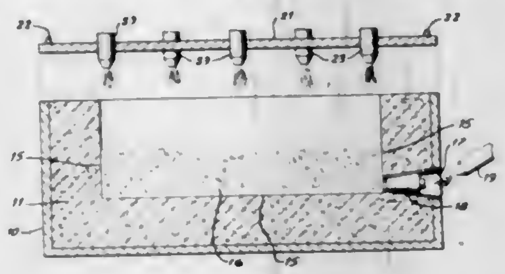


1. The method of treating molten iron comprising the steps of subjecting a continuous shallow depth stream of said molten iron to flow under supergravitational forces while confined in a generally helical path, contacting said molten iron in said path with a molten flux for removing certain impurities from said iron, said supergravitational forces separating said iron and said flux into radially outer and inner layers respectively, and subjecting said molten stream in said path to at least one jet stream directed against said flux in a radially outward direction with sufficient force to drive said flux layer into said metal layer to increase the turbulent mixing of said flux with said molten iron, whereby the reaction time is greatly decreased.

3,303,019
PURIFICATION OF ALUMINUM
Stanley C. Jacobs, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 23, 1964, Ser. No. 362,024
5 Claims. (Cl. 75—68)

1. In a process of beneficiation of impure aluminum in respect of eutectic impurity contained therein by crystallizing a fraction of said impure metal from a

chamber-contained body thereof to form in said chamber a mass of aluminum-rich crystals, removing drainable mother liquor from said mass and said chamber and thereafter progressively and directionally remelting and discharging said mass while collecting at least two fractions thereof of different eutectic impurity content, the improvement of initially discharging molten metal from said progressive remelting operation at a rate at least equal to the rate of remelting until a minor portion of said mass has been remelted and discharged, thereafter restricting the rate of discharge of molten metal from said mass while maintaining approximately the aforesaid rate of remelting until remelting of said mass is substantially complete whereby an increasing volume of remelted metal is retained in said chamber as the progressive remelting is continued, collecting as a fraction the metal discharged from said chamber during the period of said restriction discharge and, thereafter, collecting as a final fraction the molten metal undischarged at the termination of said progressive remelting.



3,303,020
PROCESS FOR THE REMOVAL OF A PLATINUM GROUP METAL FROM AN ORGANIC REACTION PRODUCT

William H. Clement, Cincinnati, Ohio, and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Oct. 21, 1963, Ser. No. 317,815
16 Claims. (Cl. 75—83)

1. A process for the recovery of a platinum group metal substantially completely from a normally liquid organic reaction product comprising a soluble platinum group metal compound selected from the group consisting of sulfates, phosphates and halides which are partially extractable from the reaction product with an aqueous mineral acid which comprises contacting said organic reaction product with a solid inert material at a temperature of at least 125° C. but less than the decomposition temperature of said reaction product for a time sufficient to precipitate the platinum group metal as the free metal while maintaining said reaction product in the liquid phase.

3,303,021
RECOVERY OF COPPER FROM LOW-GRADE COPPER SULFIDE ORES

Edward S. Roberts, Ridgewood, N.Y., assignor to Treadwell Corporation, New York, N.Y., a corporation of New York
Filed May 8, 1964, Ser. No. 365,884
9 Claims. (Cl. 75—105)

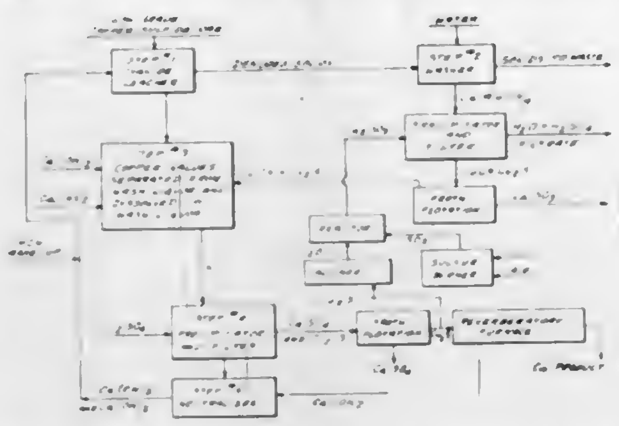
1. The process of recovering copper from low-grade copper sulfide ore, which process comprises the following steps:

Step 1, leaching the ore with an alkaline cyanide leaching medium and separating the resultant leach liquor from the denuded solids;

Step 2, washing the denuded solids with water to recover copper and cyanide values thereon and separating the copper and cyanide values from the liquor;

Step 3, mixing the separated copper and cyanide values from the leach liquor from Step 1;

Step 4, treating the liquor from Step 3 with sulfuric acid to precipitate cuprous sulfide and separating the precipitated cuprous sulfide from the liquor; and



Step 5, neutralizing the liquor from Step 4 with alkali and adding hydrogen cyanide to the neutralized liquor to form the alkaline cyanide leaching medium for use in Step 1.

3,303,022
CARBON AND COLUMBIUM CONTAINING NICKEL ALLOYS

Herbert L. Eiselstein and John Gadbut, Huntington, W. Va., assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed July 2, 1963, Ser. No. 292,493
6 Claims. (Cl. 75—170)

1. A nickel-base alloy consisting essentially of about 0.07% to about 1% carbon, at least about 1% to about 7.5% columbium, with the ratio of columbium content to carbon content being about 6:1 to about 25:1, and with the balance of the alloy, except for minor amounts of incidental elements and impurities not exceeding a total of about 1.75%, being essentially nickel.

3,303,023
USE OF COLD-FORMABLE AUSTENITIC STAINLESS STEEL FOR VALVES FOR INTERNAL-COMBUSTION ENGINES

Edward J. Dulis and August Kasak, Pittsburgh, Pa., assignors to Crucible Steel Company of America, Pittsburgh, Pa., a corporation of New Jersey
Filed Aug. 11, 1964, Ser. No. 389,524
2 Claims. (Cl. 75—128)

1. In the method of utilizing an internal-combustion engine having valves therein, the improvement which comprises using a valve of an alloy consisting essentially of, in weight percent,

	Percent
Carbon	Up to 0.08
Manganese	Up to 3.0
Silicon	Up to 0.12
Nickel	8 to 20
Chromium	16 to 25
Copper	Up to 2.0
Columbium	0.01 to 0.15
Boron	0.0005 to 0.010
Nitrogen	Up to 0.05
Carbon plus nitrogen	Up to 0.08
Iron and incidental impurities	Balance

3,303,024
NICKEL-BASE BRAZING ALLOYS

Arthur T. Cape, Monterey, Calif., assignor to Coast Metals, Inc., Little Ferry, N.J., a corporation of Delaware
No Drawing. Filed Dec. 23, 1963, Ser. No. 332,843
3 Claims. (Cl. 75—171)

1. A brazing alloy having excellent flow characteristics at brazing temperatures within the range of from about

1900° F. to about 2050° F. consisting of from 0.75 to 3.00 boron, 2 to 3.5% chromium, from 3 to 3.75% silicon, up to 8% copper, from 6 to 11% iron, and the balance essentially all nickel, the ratio of chromium to iron being maintained at all times at about 1:3.

3,303,025
ZIRCONIUM ALLOYS

Thomas Raine, Bramhall, and James Alan Robinson, Cheadle, England, assignors to Associated Electrical Industries Limited, London, England, a British company
No Drawing. Filed Dec. 11, 1963, Ser. No. 329,856
Claims priority, application Great Britain, Dec. 19, 1962, 47,937/62
5 Claims. (Cl. 75—177)

1. A zirconium alloy consisting essentially by weight of 0.5% to 1.5% copper, 0.25% to 1.5% tungsten, 0.2% to 3.0% niobium, and the remainder zirconium.

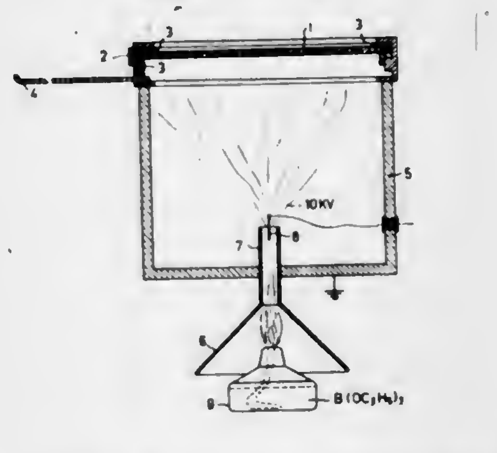
3,303,026
VACUUM INFILTRATING OF TUNGSTEN POWDER BODIES WITH COPPER-TITANIUM ALLOYS

Edward J. Zdanuk, Lexington, and Richard H. Krock, Peabody, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Mar. 11, 1966, Ser. No. 533,579
9 Claims. (Cl. 75—208)

1. A method of making a tungsten powder body infiltrated with an alloy of copper for use as an electrical contact material in vacuum environments comprising the steps of compacting tungsten particles into a desired body shape; contacting the surfaces of the compacted tungsten body with copper and titanium, said titanium for promoting the wetting of said tungsten particles; placing said tungsten body and said contacting copper and titanium in a vacuum atmosphere; and heating said tungsten body and said contacting copper and titanium so as to completely vacuum infiltrate said tungsten body with an alloy of copper-titanium thereby forming a composite material for use as a contact material in a vacuum switching device.

3,303,027
METHOD OF VISUALIZING AN ELECTROSTATIC CHARGE IMAGE BY EXPOSURE TO CHARGED PARTICLES OF BORON OXIDE

Cornelius Berthold Josef D'Artagnan Albrecht and Petrus Cornelis van der Linden, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed June 4, 1964, Ser. No. 372,517
Claims priority, application Netherlands, June 6, 1963, 293,748
5 Claims. (Cl. 96—1)



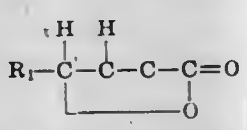
1. In a method of xerographic reproduction including the steps of providing an electrostatic charge on a photoconducting carrier, irradiating the charged carrier to produce an electrostatic latent image thereon, forming a visual image on said carrier corresponding to said electrostatic latent image, and heating said carrier to remove the visual image and regenerate the carrier, the improvement comprising the step of exposing the electrostatically charged carrier to charged particles of boron oxide to form a visual photographic image.

3,303,028
FORMATION OF DIAZO COUPLERS IN SITU

Claude M. Aebi, Endicott, and Leon A. Teuscher, Rochester N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Nov. 20, 1963, Ser. No. 325,155
9 Claims. (Cl. 96—91)

1. A light-sensitive, thermo-developable diazonium composition consisting essentially of a light-sensitive diazonium compound; a latent coupling compound, said latent coupling compound being dehydrated when heated to form an active coupling component containing an active methylene group selected from the group consisting of 5-hydroxy 5-phenyl 2-pentanone, γ,γ'-diphenyl γ-hydroxy butyrophenone, 3-benzyl 2,4-diphenyl 3-hydroxy butanoic acid, γ-phenyl γ-hydroxy butyramide and α,γ-diphenyl β-hydroxy butyric acid.

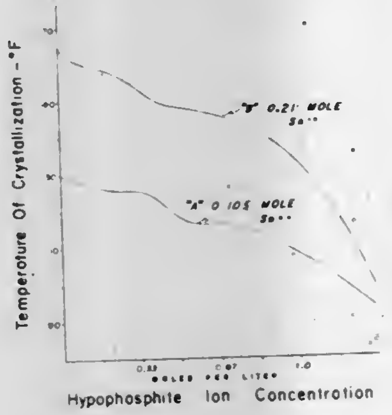
2. A light sensitive thermo-developable diazonium composition consisting essentially of a light-sensitive diazonium composition and a latent coupling compound capable of being dehydrated when heated to form an active coupling component containing an active methylene group, said latent coupling compound having the general formula of



and selected from the group consisting of α-cyano γ-phenyl γ-butyrolactone, α-aceto γ-phenyl γ-butyrolactone, α-carbetoxy γ-phenyl γ-butyrolactone and α-carboxy γ-phenyl γ-butyrolactone.

3,303,029
TIN COATING OF COPPER SURFACES BY REPLACEMENT PLATING

Lucia H. Shipley, Newton, Mass., assignor to Shipley Company, Inc., Wellesley, Mass., a corporation of Massachusetts
Filed Jan. 23, 1964, Ser. No. 339,793
16 Claims. (Cl. 106—1)



4. The method of forming an adherent tin coating on a cupreous surface, said method comprising as steps treating said surface with an aqueous tin solution for a time sufficient to deposit the desired coating thereon, and thereafter removing said surface from the solution, said solution containing a non-oxidizing acid sufficient to provide a pH not greater than about 2.0, a dissolved stannous tin salt in an amount sufficient to provide a useful tin deposit but not

substantially exceeding about 2.0 mols per liter, at least 2 mols of thiourea per mol of stannous ion, and a material selected from the group consisting of hypophosphorous acid and the alkali metal salts thereof.

3,303,030
REFRACTORY MOLD

Jerome A. Preston, Ballston Lake, N.Y., assignor, by mesne assignments, to The Dentists' Supply Company of New York, York, Pa., a corporation of New York
No Drawing. Filed June 20, 1963, Ser. No. 289,437
8 Claims. (Cl. 106—38.3)

1. A composition consisting essentially of about 65 parts of a refractory selected from the group consisting of fused quartz, zirconium oxide, zirconium silicate, mullite, sillimanite, silicon carbide, titanium dioxide, refractory aluminum oxide, silica, cristobalite, tridimite, and mixtures thereof, from about 15 to about 50 parts of finely ground calicum sulfate hemihydrate, substantially all of said hemihydrate being finer than 200 mesh, from about 0.1 to about 5.0 parts of a high temperature reducing agent which provides a reducing atmosphere at temperatures above about 1000° Fahrenheit, and from about 0.02 to about 3.0 parts of an alkali metal arsenite.

3,303,031
CARBONACEOUS RAMMING PASTE

Thomas E. Shields, Niagara Falls, N.Y., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Dec. 9, 1965, Ser. No. 512,801
20 Claims. (Cl. 106—56)

1. A cold ramming paste consisting essentially in weight percents, water in an amount of about 7% to about 14%, carbonaceous flour in an amount of about 5% to about 20%, about 10% to about 15% of a milled pitch having a melting point of from between about 150° C. and about 175° C., a temporary binder insoluble in said pitch and capable of stiffening at a temperature substantially below the melting point of said pitch, said temporary binder being calcium lignosulfonate consisting of an amount by weight of said paste of about 8% to about 15%, plastic clay in an amount by weight of said paste of about 12% to about 40%, and carbonaceous particles in an amount by weight of about 20% to about 50%, said carbonaceous flour being fine enough so that about 45% of same passes through a 200 Tyler mesh screen and said carbonaceous particles ranging in size from about ½ inch to about 1/32 inch.

3,303,032
MAGNESIA-ZIRCON REFRACTORIES

John P. Holt, Ladue, and Theodore Paul Cash, Bonne Terre, Mo., assignors to Valley Dolomite Corporation, St. Louis, Mo., a corporation of Missouri
No Drawing. Filed May 27, 1964, Ser. No. 370,677
14 Claims. (Cl. 106—57)

1. A refractory composition consisting essentially of
(a) from about 40% to about 90% basic refractory component of grain size from about U.S. 70 mesh to about 1 inch, and
(b) from about 60% to about 10% zircon of grain size smaller than 50 mesh.

3,303,033
REFRACTORY PRODUCTS

Lee D. La Grange and William A. Steele, San Diego, Calif., assignors to General Dynamics Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 16, 1962, Ser. No. 210,221
9 Claims. (Cl. 106—57)

4. A hot pressed, low permeability, high density, zirconia base refractory product consisting essentially of a zirconia base selected from the group consisting of a solid solution of zirconia and between about 15 and about 25 mole percent calcia, and a solid solution of zirconia and between about 7 and about 45 mole percent yttria, between about 0.5 and about one percent by weight of the refractory product of an alkali metal oxide, and between about 0.2 and about one percent by weight of the refractory product of an oxide of a metal selected from the group consisting of silicon, titanium, boron and germanium, said refractory product having a porosity less than about one percent measured by a method similar to ASTM procedure C20–46.

3,303,034
PLASTIC REFRACTORY

Peter T. Troell, 1701 Parkline Drive, Pittsburgh, Pa. 15227, and George L. Winchester, 5031 New Castle Road, Raleigh, N.C. 27606
No Drawing. Filed Jan. 21, 1966, Ser. No. 522,073
2 Claims. (Cl. 106—65)

1. A consolidated, plastic-refractory-size-graded ramming mixture that is suitable for installation by ramming techniques after storage periods of up to six months consisting essentially of, by weight, from 1 to 10% of bentonite containing about 2 to 3% Na_2O, up to 15% calcined alumina, and the balance a calcined aluminous material selected from the group consisting of tabular alumina, bauxite, kyanite, and diaspore, from 15 to 40% of the total aluminous material and calcined alumina being sized to pass a 325 mesh screen, said mixture being treated with a tempering agent and phosphoric acid in an amount to provide P_2O_5 equivalent to that provided by about 2 to 15%, by weight, of 85% phosphoric acid, from 40–60% of the batch being +28 mesh.

3,303,035
CLAY SLURRIES AND METHOD FOR MAKING SAME

Glen A. Hemstock, East Brunswick, and Robert J. Bergmann, Irvington, N.J., assignors to Minerals & Chemicals Philipp Corporation, Menlo Park, N.J., a corporation of Maryland
Filed Oct. 3, 1963, Ser. No. 313,583
18 Claims. (Cl. 106—72)

1. A composition adapted for use in coating paper and comprising finely divided kaolin clay, a clay dispersing agent and sodium fluoride in amount from 0.02% to 0.20% of the weight of said clay, said composition having a pH not to exceed 7.0.

3,303,036
CERAMIC COMPOSITION

Leon B. Coffin, Andover, N.Y., assignor to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
No Drawing. Filed June 6, 1962, Ser. No. 200,343
8 Claims. (Cl. 106—73)

1. A ceramic composition having high green strength and a high modulus of rupture and a high cold crushing strength when fired, consisting essentially of an admixture of lightweight aggregate, clay, from about 2% to about 12% based on the total weight of said clay and aggregate of sodium borate, and from about 2% to about 15% based on the total weight of said clay and aggregate of sodium silicate.

3,303,037
EXPANSIVE CEMENTS AND COMPONENTS THEREOF

Alexander Klein, Danville, Calif., assignor to Chemically Prestressed Concrete Corp., Van Nuys, Calif., a corporation of California
No Drawing. Filed May 12, 1966, Ser. No. 549,442
8 Claims. (Cl. 106—89)

4. A Portland type cement which in clinker form contains and wherein each particle of the ground clinker contains (a) a Portland type cement and (b) a ternary compound having the formula $(C_aX_b)(A_cY_d)\overline{S}$ wherein C, A and $\overline{S}$ represent CaO, Al_2O_3 and SO_3, respectively, X is an alkaline earth metal oxide other than calcium oxide, Y is selected from the group consisting of titanium dioxide and sesquioxides other than aluminum oxide, and the subscripts *a*, *b*, *c* and *d* are the molar proportions of C, X, A and Y, respectively, with the proviso that *a* and *c* may be zero, *b* and *d* are substantially greater than zero, $a+b=4$ and $c+d=3$; the proportion of (a) being such that the cement is essentially a Portland type cement, the proportion of (b) being such that, in the presence of an adequate amount of lime and calcium sulfate, and upon admixtures with water and a mineral aggregate to form a concrete mix, drying shrinkage of the concrete will be at least substantially compensated.

3,303,038
PROCESS OF FORMING COLLAGEN ARTICLES AND DISPERSIONS

Howard B. Klevens, Pittsburgh, Pa., assignor to Ethicon, Inc., Somerville, N.J., a corporation of New Jersey
No Drawing. Filed July 29, 1965, Ser. No. 475,875
10 Claims. (Cl. 106—155)

1. In a process of forming a dispersion of collagen from small pieces of collagen without contacting the same with an enzyme the steps of treating the pieces of collagen with a non-ionic detergent and a solubilizing agent for calcium and bound ions, removing the detergent from the collagen and swelling the collagen to form a dispersion thereof.

3,303,039
PROCESS FOR THE CONTINUOUS POLYMERIZATION OR COPOLYMERIZATION OF TRIOXANE IN THE MOLTEN STATE WITH SOLID ARYL DIAZONIUM FLUOROBORATE COMPOSITIONS

Edgar Fischer, Frankfurt am Main, and Klaus Kullmar, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Feb. 1, 1963, Ser. No. 255,646
Claims priority, application Germany, Feb. 3, 1962, F 35,929
6 Claims. (Cl. 106—270)

6. Composition of matter consisting of 1 to 40% by weight, calculated on the whole mixture, of solid aryl diazonium fluoroborate and 99 to 60% by weight, calculated on the whole mixture, of a member selected from the group consisting of a paraffin wax and a polyethylene wax having a molecular weight within the range of 4,000 to 10,000.

3,303,040
METHOD OF MANUFACTURING A MAGNETIC MEMBER HAVING A COATING OF CRYSTALLINE FERROMAGNETIC MATERIAL HAVING UNIAXIAL MAGNETIC ANISOTROPY

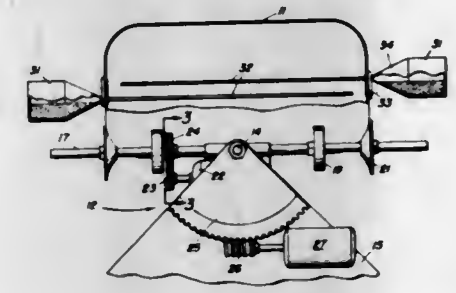
Frank G. Brockman, Dobbs Ferry, N.Y., assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 24, 1963, Ser. No. 311,204
8 Claims. (Cl. 117—7)

1. A method of manufacturing a magnetic member having a non-magnetic substrate coated with a layer of crystalline ferromagnetic material having uniaxial magnetic anisotropy comprising the steps of unidirectionally stressing the substrate below the elastic limit thereof thereby placing the substrate in strain, coating the stressed substrate with a thin film of the ferromagnetic material having a thickness substantially less than that of the substrate and subsequently removing the stress from the substrate and transferring the strain therein to the film producing uniaxial anisotropy therein.

3,303,041
METHOD AND APPARATUS FOR COATING THE INTERIOR OF HOLLOW BODIES

Jerome B. Thompson, Cumberland, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 26, 1964, Ser. No. 356,004
6 Claims. (Cl. 117—18)

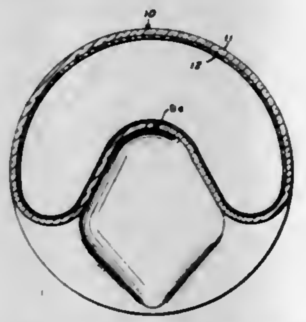
4. The method of coating the interior surface of a drum comprising:
applying a layer of adhesive to the interior surface of the drum;
rotating the drum about its longitudinal axis;
simultaneously rocking the rotating drum;



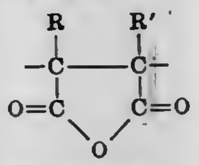
gradually introducing a quantity of granular coating material into the interior of the drum during the rotation and rocking of the drum so that the coating material will adhere to the adhesive.

3,303,042
METHOD FOR PHOSPHOR COATING A FLUORESCENT TUBE OF IRREGULAR SECTION

Allan K. Reed, Belleville, and Robert W. Repsher, Kinnelon Township, Morris County, N.J., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 24, 1963, Ser. No. 283,058
4 Claims. (Cl. 117—33.5)



1. The method of phosphor coating the interior surface of a fluorescent lamp tube which has an irregular cross section, which method comprises:
(a) flowing over the interior tube surface to be coated a coating composition comprising:
  (1) from about 25% to 50% by weight of inorganic phosphor to be coated,
  (2) from about 0.1% to 1% by weight of a water soluble polymer of acrylic acid crosslinked with from about 0.75% to 2% of polyallyl sucrose,
  (3) from about 0.3% to 1.8% by weight of an interpolymer containing a plurality of groups of the general formula:



in which R and R′ each represent at least one of the group consisting of a hydrogen atom and a lower alkyl group, and said interpolymer having been formed by the addition polymerization of (A) one of the group consisting of maleic anhydride, methyl maleic anhydride, and ethyl maleic anhydride with (B) a monomer of one of the group consisting of styrene, vinyl acetate, vinyl toluene, acrylic acid and methacrylic acid, and

(4) the balance being water;

(b) volatilizing the water from the deposited coating; and

(c) lehring the coated tube to complete the vaporization of any residual water and to volatilize organic material from the deposited phosphor coating.

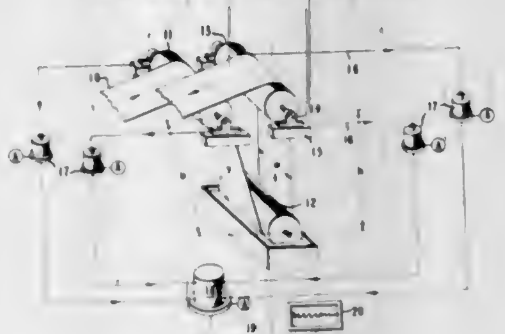
3,303,043
CHROMATOPLATE FOR USE IN THIN LAYER CHROMATOGRAPHY

Herbert Halpaap, Jugenheim, Bergstrasse, and Walter Reich, Hubert Rössler, and Dieter Waldi, Darmstadt, Germany, assignors to E. Merck Aktiengesellschaft, Darmstadt, Germany
No Drawing. Filed Mar. 6, 1963, Ser. No. 263,117
Claims priority, application Germany, June 9, 1962, M 53,170
10 Claims. (Cl. 117—33.5)

1. A chromatostrip consisting essentially of a flat, smooth support and superimposed thereon a coating of a thickness of about 50μ to about 4 mm. of an adsorbent composition comprising in percent by weight, 98–70% of a member selected from the group consisting of silica gel, siliceous earth and aluminum oxide, said member having a particle size in the range of about 2μ to about 60μ, and 2–30% of silicon dioxide having a particle size of 3–50 mμ.

3,303,044
CONTROLLING COATING WEIGHT THROUGH DIFFERENTIAL IN TENSION

Thomas Douglas Fenley, Hightstown, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Nov. 4, 1963, Ser. No. 321,248
4 Claims. (Cl. 117—34)



1. A method for continuously measuring the amount of coating applied to a moving web of flexible material which comprises

(1) determining the tension in a vertically disposed segment of the uncoated part of a continuous and moving web immediately prior to application of the coating to said segment;

(2) applying a coating to a surface of the moving web;

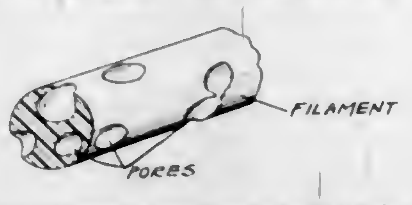
(3) determining the tension in a vertically disposed coated segment, traveling in direction opposite to that of the first recited segment and preferably of a length equal to the uncoated segment of the moving web and immediately following the step of applying said coating to said segment;

(4) computing the difference in tension between the tensions determined in accordance with steps (1) and (3) and

(5) adjusting the rate of applying the coating in accordance with any differences in tension to provide a continuous web which is uniformly coated throughout its entire length.

3,303,045
PRESSURE SENSITIVE INKED FABRIC AND METHOD OF MAKING

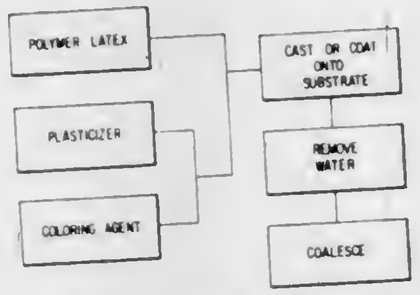
Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y., a corporation of New York
Filed Oct. 4, 1963, Ser. No. 313,803
11 Claims. (Cl. 117—36.1)



1. A novel pressure-sensitive inked fabric material comprising a multiplicity of interconnected filaments consisting essentially of synthetic plastic material, said filaments being stretched to increase their strength and to reduce their caliper and surface irregularities and containing an internal porous network of open interconnected cells and having within the cells thereof a liquid, pressure-exudable ink composition said fabric material having an ink capacity at least twice as great as conventional fabrics of equal caliper and having improved imaging properties due to the strength and compressibility of the stretched porous filaments under the effect of imaging pressure.

3,303,046
METHOD FOR MAKING LIQUID-FILLED POROUS PLASTICS AND PRODUCTS

Paul Chebiniak, Binghamton, and Robert T. Wiley, Vestal, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 30, 1963, Ser. No. 334,329
7 Claims. (Cl. 117—36.1)



1. A method for making liquid-filled, porous plastic transfer sheets comprising:

mixing an aqueous thermoplastic polymer latex with a secondary plasticizer containing a coloring agent with which it is compatible to result in the coloring agent being entrapped to form an aqueous composition containing dispersed droplets of said secondary plasticizer and coloring agent,

depositing a coating of said aqueous composition onto a substrate,

removing the water from the coating of said aqueous composition, and

coalescing the polymer to form a porous, plastic transfer sheet having said droplets of colored secondary plasticizer entrapped in the pores.

3,303,047
PRESSURE-SENSITIVE ELEMENT AND PROCESS FOR PREPARING SAME

John Edwards Castle, Hockessin, and Halsey Bidwell Stevenson, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 11, 1964, Ser. No. 351,201
13 Claims. (Cl. 117—65.2)

1. A pressure-sensitive element comprising, in order:

(a) a pressure-insensitive, flexible sheet support;

(b) a smooth layer of opaque, porous, pressure-sensitive material having microscopic-size voids, and

(c) a stratum approximately 0.1×10^{-6} to 10^{-3} inch in thickness of a metal having a hardness of less than 3 on Mohs' scale.

8. A process for making a pressure-sensitive element which comprises

(1) pressing the surface of a layer of opaque, porous, pressure-sensitive material having microscopic-size voids on a pressure-insensitive flexible sheet support at a pressure insufficient to collapse all of the pores but sufficient to form a smooth, evenly reflective surface, and

(2) then depositing a reflective film of a soft metal on the smooth surface of the porous layer.

3,303,048
TREATMENT OF POROUS AND FIBROUS MATERIAL TO IMPART WATER REPELLENCY THERETO

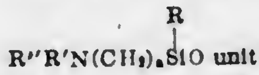
Kenneth G. Cooper and Hedley S. B. Marshall, Dinas Powis, Glamorgan, Wales, assignors to Midland Silicones Limited, London, England
No Drawing. Filed Dec. 11, 1963, Ser. No. 329,851
Claims priority, application Great Britain, Dec. 14, 1962, 47,266/62
13 Claims. (Cl. 117—135.5)

1. In a method for rendering materials water repellent the improvement comprising applying thereto the reaction product of:

(a) an aminoalkyl substituted organopolysiloxane containing in each molecule at least one

$$R''R'N(CH_2)_a—$$

substituent bonded directly to silicon the units present in the molecule being selected from the group consisting of $RSiO_{3/2}$ units, R_2SiO units, $R_3SiO_{1/2}$ units, $SiO_{4/2}$ units, $R''R'N(CH_2)_aSiO_{3/2}$ units,



$$R''R'N(CH_2)_a\overset{\displaystyle R}{\overset{|}{Si}}O \text{ units}$$

$R''R'N(CH_2)_aSi(R)_2O_{1/2}$ units, $[R''R'N(CH_2)_a]_2SiO$ units and $[R''R'N(CH_2)_a]_2RSiO_{1/2}$ units wherein each R' and R'' is selected from the group consisting of hydrogen atoms and alkyl radicals, a has a value of at least 3, the R''R'N— group is bonded to at least the third carbon atoms removed from the silicon atom and each R is selected from the group consisting of monovalent hydrocarbon and halogenohydrocarbon radicals and

(b) an acid selected from the group consisting of monocarboxylic acids, mineral acids, sulphonic acids and halogenated monocarboxylic acids.

3,303,049
ANTI-FOGGING TREATMENT FOR FILM AND COATED PRODUCT

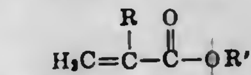
Richard L. Hill, Williamsburg, Va., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Mar. 25, 1963, Ser. No. 267,779
10 Claims. (Cl. 117—138.8)

1. An article of manufacture comprising a hydrophobic thermoplastic resinous shaped article wherein said shaped article is prepared from a hydrophobic thermoplastic resinous material selected from the group consisting of alkenyl aromatic resins, vinylidene chloride resins, cellulose esters, linear polyester resins of terephthalic acid, polyolefin resins and polyvinyl chloride resins containing a major portion of vinyl chloride polymerized therein having a coating on at least one surface of an alkali metal salt of dodecyl monochlorodiphenyl oxide monosulfonate; said coating having a thickness of between about 50 and about 500 Angstroms.

3,303,050
TEXTILE MATERIAL COMPRISING AN ACRYLONITRILE POLYMER COATED WITH A TERPOLYMER OF AN ACRYLIC ESTER, A VINYL ESTER AND A CROSS-LINKING MONOMER

Winston J. Roberts, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 23, 1965, Ser. No. 466,475
10 Claims. (Cl. 117—138.8)

1. A synthetic material comprising a textile produced from a polymer of acrylonitrile and a composition coated and cross-linked therein which imparts a cashmere-like hand to said textile, said composition being prepared by copolymerizing a mixture of (A) at least one vinyl monomer containing a cross-linkable group selected from the class consisting of methylol and epoxy groups, (B) at least one monomer of the formula



$$H_2C=\overset{\displaystyle R}{\overset{|}{C}}-\overset{\displaystyle O}{\overset{\|}{C}}-OR'$$

wherein R is a radical selected from the class consisting of hydrogen and methyl, and R' is an alkyl radical of at least eight carbon atoms, and (C) at least one monomer selected from the class consisting of vinyl acetate and vinyl proprionate, wherein the final polymer after polymerization (A) is present in an amount of about 10 mol percent to 19 mol percent, (B) is present in an amount of about 5 mol percent to 60 mol percent, and (C) is present in an amount of about 20 mol percent to 30 mol percent.

3,303,051
PROCESS OF CONDITIONING CELLULOSE ACETATE WITH HYDROXYETHYLCELLULOSE

Julien Paul, Tiverton, R.I., assignor to United Merchants and Manufacturers, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 5, 1963, Ser. No. 270,808
9 Claims. (Cl. 117—62.1)

1. The process of conditioning cellulose acetate yarns and fabrics to render them receptive to dyes having affinities for cellulosic materials, which process comprises applying to the cellulose acetate yarns and fabrics an alkaline solution of hydroxyethyl cellulose produced by reacting alkali cellulose with ethylene oxide so that from about 2% to about 10% by weight of ethylene oxide is combined with the alkali cellulose, said alkaline solution consisting essentially of from about 2% to about 8% by weight of said hydroxyethyl cellulose, from about 5% to about 9% alkali metal hydroxide and the rest substantially entirely water; and thereafter coagulating and regenerating the hydroxyethyl cellulose thus applied to the yarns and fabrics to convert it to a water-insoluble film bonded to the yarns and fabrics.

3,303,052
OVEN COATING PROCESS

Robert A. Hatch, White Bear Lake, and James A. Tolzmann, North St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed Dec. 20, 1965, Ser. No. 515,242
3 Claims. (Cl. 117—169)

1. In a process for rendering oven-surfaces readily cleansed by water from heat insolubilized deposits formed during thermal cycles, the steps of applying to substantially clean oven-surfaces an aqueous composition comprising from about 2 to 10 weight percent water-dispersed hydrophilic synthetic tetrasilicic fluorine mica and thereafter drying the said composition whereby an adherent thermally resistant water-releasable coating is formed on the said oven-surfaces.

3,303,053
PATTERN DIAMOND GROWTH ON DIAMOND CRYSTALS

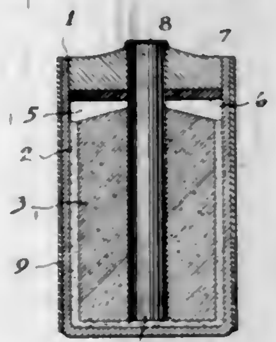
Herbert M. Strong, Schenectady, and Roy E. Tuft, Guilderland Center, N.Y., assignors to General Electric Company, a corporation of New York
Filed Mar. 26, 1963, Ser. No. 268,066
10 Claims. (Cl. 117—212)

1. The method of growing a predetermined pattern of diamond growth on a diamond surface which comprises:
(a) overlaying less than the full area of a surface of a diamond with a pattern-defining means,
  (1) said pattern-defining means being made of metal catalytic to the diamond forming reaction,
(b) subjecting said diamond and said pattern-defining means together with carbonaceous material covering said diamond surface and said pattern-defining means to a combination of pressures and temperatures above the graphite-to-diamond equilibrium line on the phase diagram of carbon whereby more diamond growth occurs on the uncovered portion of said diamond, and
(c) reducing the temperature and pressure and recovering said diamond with a predetermined pattern of growth thereon substantially corresponding to said uncovered portion.

7. As an article of manufacture, a diamond crystal having on at least one surface thereof at least one electrically isolated region of semi-conducting diamond in a preselected configuration.

3,303,054
DRY CELL HAVING AN ELECTROLYTE CONTAINING A POLY-NITRO-SUBSTITUTED AROMATIC POLYCARBOXYLIC ACID

Bernard A. Gruber, Topsfield, and Elizabeth A. McElhill, Cambridge, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo., a corporation of Delaware
Filed Jan. 30, 1963, Ser. No. 255,049
5 Claims. (Cl. 136—107)



1. A dry cell including a magnesium anode, a cathode depolarizing mix and an aqueous electrolyte, said electrolyte having dissolved in it a corrosion-inhibiting amount of a water-soluble alkali metal salt of a poly-nitro-substituted aromatic polycarboxylic acid consisting of a hydrocarbon aromatic ring structure wherein the nitro and the carboxylic substituents are attached directly to the ring carbon atoms of said aromatic ring structure.

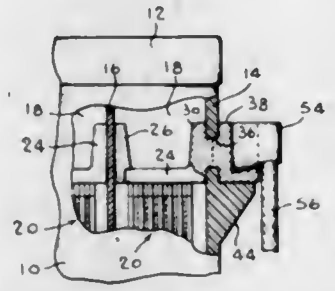
3,303,055
GAS ELECTRODE FOR A FUEL CELL CONTAINING RADIOACTIVE MATERIAL

Ricardo Salcedo Gumucio, Madrid, Spain, assignor to Yardney International Corp., New York, N.Y., a corporation of New York
Filed July 21, 1961, Ser. No. 125,780
6 Claims. (Cl. 136—120)

1. An electric-current-generating fuel-cell electrode for sustaining an electrode reaction of a gas fed into said electrode at an interface of said electrode with an electrolyte, said electrode comprising a coherent porous body having a gas-entrance side and an electrolyte-contacting side, said porous body consisting of at least two distinct layers respectively disposed along said sides and bonded together, said layer including a first layer consisting essentially of relatively coarse particles of a material selected from the group consisting of silver, carbon and copper, and a second layer consisting essentially of relatively fine particles of said material; and a radioactive substance in at least one of said layers and present in substantially 100 microcuries to 1 curie per cm.^{2} of said body.

3,303,056
BATTERY TERMINAL CONSTRUCTION

Anthony Sabatino and Daniel Orlando, both of Milwaukee, Wis., assignors to Globe-Union Inc., Milwaukee, Wis., a corporation of Delaware
Continuation of application Ser. No. 295,777, July 17, 1963. This application June 14, 1966, Ser. No. 557,592
7 Claims. (Cl. 136—135)

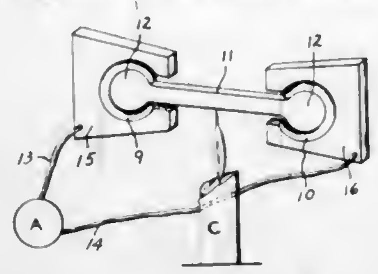


1. A battery terminal connection for connecting a battery element inside the battery case to an external battery cable through an aperture in a vertical side wall of the battery case comprising;
an internal metal strap member electrically connected to the plates of a battery element inside the battery case, a portion of said metal strap member positioned adjacent the aperture in the vertical side wall of the battery case;
an external metal terminal member positioned adjacent said aperture on the outside of said case, said external terminal member including an external connector means for releasably receiving an external battery cable;
a metal connector portion positioned inside said aperture and extending between said internal metal strap member and said external metal terminal member, the material of said connector portion being in pressure contact with said aperture with the pressure between said material and said aperture forming a fluid-tight seal at the aperture, said connector portion comprising a pair of metal projections, each formed integrally with said internal strap member and said external terminal member and each being fused to each other inside said aperture; and
gusset means on and projecting externally from said case wall below said aperture and defining an upwardly facing shelf engaging and supporting said external metal terminal member.

3,303,057
THERMOELECTRIC GENERATOR

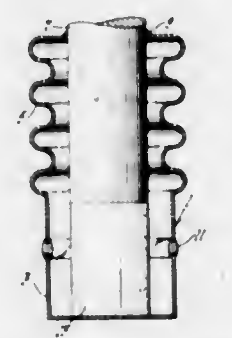
Gunnar A. F. Winckler, Orange, and Richard C. Evans, Hamden, Conn., assignors, by mesne assignments, to United Nuclear Corporation, New Haven, Conn., a corporation of Delaware
Filed May 2, 1960, Ser. No. 26,317
12 Claims. (Cl. 136—205)

1. A thermoelectric generator comprising, in combination, a heat conductor element having at each end an expanded lug, a pair of connecting elements each having a receptacle oversized with respect to said lugs and having a contour substantially matching said lugs, and a positive and a negative thermoelectric element, one thermoelectric element being disposed in each of said receptacles between each lug and connecting element, forming interlocking mechanical supports therewith and electrically connecting the elements.



3,303,058
THERMOELECTRIC MODULE

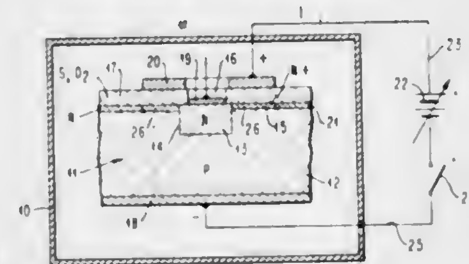
George Sonnenschein, Santa Monica, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 6, 1962, Ser. No. 242,766
6 Claims. (Cl. 136—230)



1. A thermoelectric module comprising a bellows-like member having a closed end and an open end, a thermoelectric element positioned within and having an end in good thermal and electrical contact with the closed end of said member, a good heat conducting member in good thermal and electrical contact with the end of said element spaced apart from said closed end and extending through said open end and having a gas-tight interconnection with said member, and means electrically insulating said closed end from said heat conducting member.

3,303,059
METHODS OF IMPROVING ELECTRICAL CHARACTERISTICS OF SEMICONDUCTOR DEVICES AND PRODUCTS SO PRODUCED

Donald R. Kerr, Hopewell Junction, and Donald R. Young, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 29, 1964, Ser. No. 378,862
13 Claims. (Cl. 148—1.5)



1. The method of improving at least one electrical characteristic of an electrical device which includes a semiconductor member and an insulating layer selected from the class consisting of glass and silicon oxide contiguous therewith comprising:
heating said member and said layer to a temperature at least 50° C. higher than the operating temperature range of said device;
applying a potential to an electrode on the insulating layer to produce at said higher temperature in said layer an electric field of an intensity effective permanently to fix over said operating range the surface potential of said member adjacent the interface of said member and said layer; and
cooling said member and said layer to at most a temperature in said operating range of the device.

3,303,060
ATMOSPHERIC CORROSION-RESISTANT STEEL SHEET FOR DEEP DRAWING

Mineo Shimizu and Kameo Matsukura, Kitakyushu, Japan, assignors to Yawata Iron and Steel Co., Ltd., Tokyo, Japan, a corporation of Japan
No Drawing. Filed May 28, 1963, Ser. No. 283,673
Claims priority, application Japan, June 5, 1962, 37/23,114
5 Claims. (Cl. 148—12.1)

2. A process for producing steel sheet having atmospheric corrosion resistance and deep drawability comprising steps of making an ingot consisting essentially of less than 0.10% C, less than 0.08% Si, 0.20–0.60% Mn, 0.04–0.12% P, 0.20–0.60% Cu, 0.03–0.5% As and at least one member selected from the group consisting of 0.005–0.05% Ti, 0.01–0.05% Al, 0.005–0.05% Zr and 0.005–0.05% Nb hot and cold rolling said ingot to produce a cold rolled coil, annealing said cold rolled coil in a decarburizing atmosphere gas in an open coil annealing apparatus and recrystallizing, softening and annealing said coil while decarburizing and denitriding same so as to produce a non-ageing steel containing less than 0.01% C.

3,303,061
BAINITIC IRON ALLOYS

John E. Wilson, Los Angeles, Calif., assignor to American Metal Climax, Inc., New York, N.Y., a corporation of New York
No Drawing. Filed Feb. 24, 1965, Ser. No. 435,064
4 Claims. (Cl. 148—12.3)

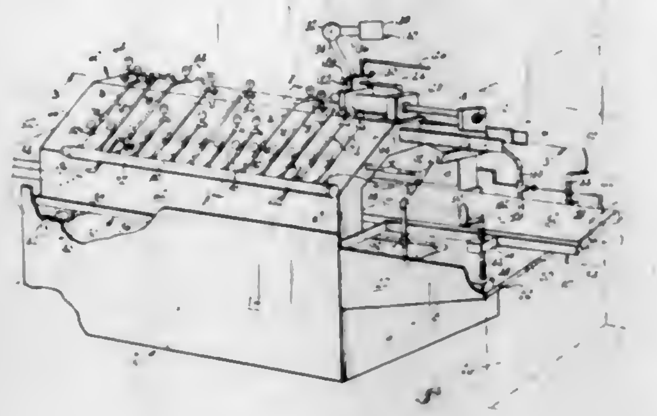
4. The method of making a structural steel member which consists in working a steel alloy containing from 0 to 0.15 percent carbon, from 0.35 to 0.75 percent molybdenum, from 0 to 1.0 percent nickel, from 0.60 to 2.00 percent copper, from 0.002 to 0.008 percent boron, from 0.01 to 0.40 percent acid soluble aluminum, and the balance essentially iron, at least a portion of said working being conducted after the alloy has been heated to a temperature sufficient to convert it to an austenite structure and the final working to form the structural member being conducted while the alloy is at a temperature in the range of 1100° F. to 1300° F., and age hardening the structural member at a temperature in the range of 900° F. to 1100° F. for a period of time sufficient to lower its transition temperature and increase its Charpy V-Notch impact strength.

3,303,062
APPARATUS AND METHOD FOR QUENCHING METAL EXTRUSIONS

Joseph A. Clumpner, Bethany, and James E. Dore, Milford, Conn., assignors to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed Aug. 28, 1963, Ser. No. 305,081
21 Claims. (Cl. 148—13)

1. A method of continuously and uniformly quenching a hot metal extrusion which is subject to intermittent movement as it emerges from an extrusion press comprising the steps of
(A) continuously quenching an extrusion at a quenching station disposed at a first location spaced from an extrusion press as said extrusion moves through said quenching station,

(B) moving said quenching station toward said extrusion press to a second location disposed nearer said extrusion press while said extrusion remains stationary to maintain said continuous quenching of said extrusion, and



(C) thereafter removing said extrusion from said quenching station.

3,303,063
LIQUID NITRIDING PROCESS USING UREA

Robert J. Pietryka, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

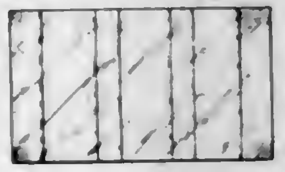
No Drawing. Filed June 15, 1964, Ser. No. 375,373
7 Claims. (Cl. 148—15.5)

4. A method of case hardening a ferrous alloy article to improve the fatigue life and wear resistance of said article, said method comprising the steps of adding urea to a fused salt mixture which includes sodium cyanide and potassium cyanide, said urea decomposing in said mixture into its decomposition products which react with said cyanides to provide a resultant salt bath containing, by weight, between about 10% to about 60% of sodium cyanate and potassium cyanate which act as the source of nascent nitrogen in said bath, immersing said article in said bath for a sufficient time at a temperature ranging between about 950° F. to about 1100° F. to form a nitride case thereon, removing said article from said path, and subsequently cooling said article to harden and compressively stress said case, thereby improving the fatigue life and wear resistance of said article.

3,303,064
ALLOY STEEL ARTICLE AND METHOD OF PRODUCING

Leslie M. Bernick, Calumet City, and Melvin B. Gibbs, Harvey, Ill., and Carlton F. Schrader, Chesterton, Ind., assignors to Inland Steel Company, Chicago, Ill., a corporation of Delaware

Filed Nov. 29, 1963, Ser. No. 327,011
10 Claims. (Cl. 148—16)



1. In a method of forming a cold reduced alloy steel sheet material which is free of objectionable longitudinally extending surface markings normally appearing in the surface thereof after cold reduction and conventional heat treatment, the improvement which comprises; heating a cold reduced low-carbon titanium containing steel sheet material having objectionable longitudinally extending surface markings in a reducing non oxidizing atmosphere to a temperature of at least about 1620° F. without previous exposure of the said cold reduced steel sheet material to surface oxidation during said heat treatment, the amount of titanium in said steel being at least sufficient to combine with all the carbon in the steel.

3,303,065
SUPERCONDUCTIVE ALLOY MEMBERS

William T. Reynolds, Peters Township, Canonsburg, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

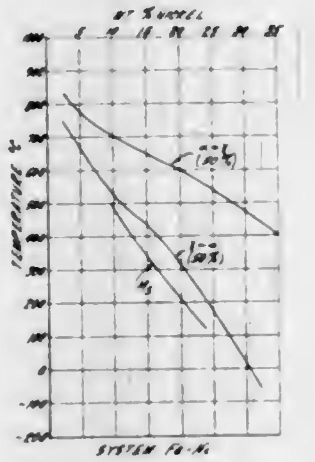
No Drawing. Filed Apr. 30, 1964, Ser. No. 364,004
9 Claims. (Cl. 148—32)

5. A superconductive alloy conductor which has been subjected to a cold reduction of over 99%, said conductor exhibiting under superconductive conditions a relatively high critical field and a critical supercurrent density in excess of 2×10^5 amp./cm.^{2} in an applied field of 20 kilogauss, said alloy conductor composed of about 25% by weight of zirconium, about 1% by weight of molybdenum and the balance niobium except for trace amounts of impurities, the critical supercurrent density being higher in an external applied field of 15 to 20 kilogauss than in a field at a level of 5 to 10 kilogauss.

3,303,066
POWDER METALLURGY AGE HARDENABLE ALLOYS

Sherwood W. McGee, Lisle, Ill., assignor to Burgess-Norton Mfg. Co., Geneva, Ill., a corporation of Illinois

Continuation of application Ser. No. 338,785, Jan. 20, 1964. This application Apr. 22, 1966, Ser. No. 554,612
13 Claims. (Cl. 148—126)

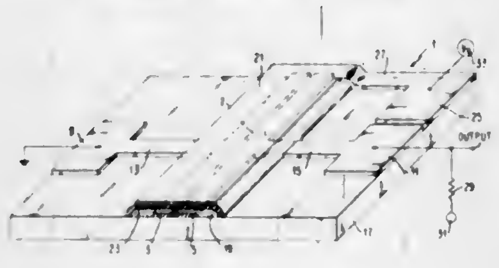


1. The method of producing an alloy which comprises the steps of mixing metallic powders of the following metals in the proportions stated, approximately 18% Ni, approximately 8% Co, approximately 0.5% Ti, approximately 4% Mo, approximately 70% Fe; mixing the metallic powders, adding approximately 1% by weight stearic acid lubricant; compacting the mixture of metallic powders and acid and forming a cold bonded compact mass on the order of 6.5 to 7.5 gm./cc.; sintering the compacted mass for approximately one-half to two hours at a temperature of approximately 2100° F. under an atmosphere of dissociated ammonia; thereafter reheating the mass at a temperature of 1500° F. for approximately one hour under an atmosphere of dissociated ammonia; thereafter cooling the mass at room temperature at the approximate rate of 100° F. per hour; and finally age hardening the mass by reheating it at a temperature of approximately 900° F. and maintaining it at that temperature for about three hours under a layer of loose iron powder.

3,303,067
METHOD OF FABRICATING THIN FILM TRANSISTOR DEVICES

Rudolph R. Haering, Kitchener, Ontario, Canada, and Mark G. Miksic, Yorktown Heights, and William B. Pennebaker, Ossining, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 26, 1963, Ser. No. 333,406
1 Claim. (Cl. 148—174)

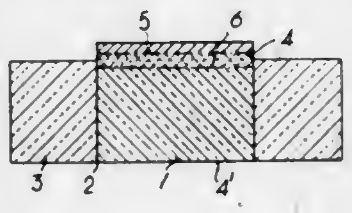


A process for fabricating thin film transistors by vapor deposition techniques comprising the steps of forming metallic source and drain electrodes defining a source-drain gap onto a substrate, vapor depositing a semiconductor compound material selected from the group consisting of cadmium sulphide and lead sulphide within said source-drain gap to define an active layer and electrically connect said source and drain electrodes, forming an insulating layer over said active layer, and forming a gate electrode over said insulating layer in field-applying relationship with said active layer, the improvement comprising the steps of vapor depositing said semiconductor compound material within said source-drain gap in a chamber containing a reactive atmosphere selected from the group consisting of oxygen and sulphur in amounts effective to compensate for sulphur vacancies in said active layer, and establishing the partial pressure of said gaseous atmosphere to reduce residual carrier density n_c in said active layer.

3,303,068
METHOD OF PRODUCING SEMICONDUCTOR DEVICES BY EMPLOYING VITREOUS MATERIAL

William Joseph Scott, Rugby, England, assignor to Associated Electrical Industries Limited, London, England, a British company

Filed Dec. 14, 1962, Ser. No. 244,685
Claims priority, application Great Britain, Dec. 27, 1961, 46,290/61
9 Claims. (Cl. 148—177)

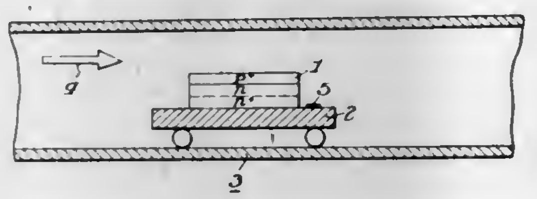


1. A method of producing a device which employs a body of refractory semi-conductor material comprising hermetically sealing a peripheral face of the body at least adjacent an edge thereof with a vitreous material and subsequently doping a face of the material adjacent said edge with an impurity and heating the semi-conductor material to form a p-n junction in the material, whereby the boundary of the junction is sealed by the vitreous material.

3,303,069
METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES

Takashi Tokuyama, Kitatama-gun, Tokyo-to, and Keijiro Uehara, Kita-ku, Tokyo-to, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan

Filed Feb. 3, 1964, Ser. No. 342,079
Claims priority, application Japan, Feb. 4, 1963, 38/4,488
1 Claim. (Cl. 148—187)



In the method of manufacturing a semiconductor device having a surface stabilized by depositing on the surface of said semiconductor device a film of silicon dioxide by the pyrolytic decomposition of an organo-oxy-silane, the steps of placing said semiconductor device in a first temperature region of a furnace having two temperature regions, the said first region having a temperature of substantially 700° C. to effect said pyrolytic decomposition of said organo-oxy-silane to form said film of silicon dioxide on the surface of said semiconductor device, placing a substance which serves as an acceptor for said semiconductor material in the second temperature region of the furnace, and heating said second region to a temperature to control the vapor pressure of said acceptor substance, thereby causing concentration of the acceptor on the surface and deposition of said film of silicon dioxide on the surface of said semiconductor surface by the pyrolytic decomposition of said organo-oxy-silane while, at the same time, to introduce by diffusion of said acceptor substance into the surface of said semiconductor device, thereby compensating for the effect of the donor type surface states of the surface of said semiconductor material.

3,303,070
SIMULTANEOUS DOUBLE DIFFUSION PROCESS

Paul F. Schmidt and Harold F. John, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 22, 1964, Ser. No. 361,865
5 Claims. (Cl. 148—187)

1. A method of simultaneous double diffusion comprising heating at an elevated temperature a semiconductive member having on at least part of one major surface thereof a phosphorus-containing layer of silicon oxide, said phosphorus containing oxide layer having a thickness of about 1000 A., heating aluminum in the presence of the heated semiconductive member to provide a vapor of aluminum in contact with the layer of silicon oxide on the semiconductive member, and continuing those conditions of heating whereby the aluminum diffuses through the oxide coating and the phosphorus diffuses from the oxide coating into the bulk of the semiconductive member said aluminum diffusing to a greater depth in said semiconductive member than said phosphorus.

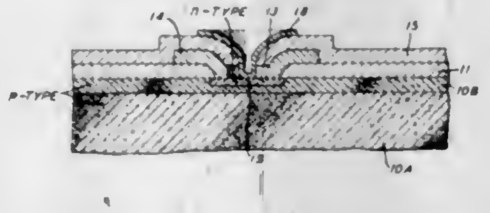
3,303,071
FABRICATION OF A SEMICONDUCTIVE DEVICE WITH CLOSELY SPACED ELECTRODES

Joseph Kocsis, Jefferson Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Oct. 27, 1964, Ser. No. 406,677
7 Claims. (Cl. 148—187)

1. The method of making a semiconductive device comprising the steps of

depositing on a surface of a semiconductive wafer a first layer of an insulating material,
removing a portion of the layer for forming an opening therein and exposing the underlying portion of the semiconductive wafer,
diffusing a significant impurity into the semiconductive wafer through said opening for forming therein a localized impurity diffused region,
depositing a first conductive coating extending over a portion of the layer and over the opening in said layer for forming a first electrical connection to the impurity-diffused region of the wafer,
depositing a second layer of insulating material over at least the portion of said conductive coating overlying the impurity-diffused region of the wafer,
removing a portion of said second layer for forming an opening therein and exposing a portion of the conductive coating which overlies a portion of the impurity-diffused region of the wafer,



treating the exposed portion of the coating with an etchant for removing said exposed conductive coating as well as an additional portion of the conductive coating underlying the perimeter of the opening in the second layer by undercutting the opening in said second layer, thereby forming an opening in the conductive coating larger than the opening in the second layer for re-exposing a limited portion of the impurity-diffused region of the wafer,
evaporating a second conductive coating through the opening in the first coating for forming a second electrical connection to the impurity-diffused region of the wafer spaced from the first electrical connection essentially by the amount of said undercutting,
and heating the wafer for introducing some of the material of said second coating into the impurity-diffused region and forming a region of the opposite conductivity type within said impurity-diffused region.

3,303,072

LOW DENSITY, NITRATE-BASED EXPLOSIVE COMPOSITIONS

George L. Griffith, Coopersburg, Pa., and Franklin B. Wells, Wharton, N.J., assignors to Trojan Powder Company, a corporation of New York

No Drawing. Filed May 26, 1965, Ser. No. 458,846

13 Claims. (Cl. 149—21)

1. An explosive composition comprising an admixture of dry particles which is free of any added amounts of water except for water which may be normally present in said particles, at least about 50% of the weight of said composition being an inorganic nitrate selected from the group consisting of ammonium nitrate and ammonium nitrate in admixture with alkali metal nitrate, said inorganic nitrate having such particle sizes that substantially 100% thereof passes a U.S. Standard No. 18 screen and at least 50% thereof passes a U.S. Standard No. 60 screen, and a solid carbonaceous fuel in an amount within the range from about 8% to about 25% by weight of the composition, said composition having an initial pouring density up to about 0.5 g./cc. and said pouring density not substantially increasing over storage of said composition at temperatures which include the ammonium nitrate IV–III solid state transition point.

3,303,073

AMMONIUM NITRATE-FUEL OIL EXPLOSIVE CONTAINING ANTI-STATIC INGREDIENT

George Whitlock Graham, Beloeil Station, Quebec, and George Russell Lusby, St. Hilaire Station, Quebec, Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada

No Drawing. Filed Mar. 12, 1965, Ser. No. 439,434

Claims priority, application Canada, May 29, 1964, 903,995

15 Claims. (Cl. 149—41)

6. An explosive composition resistant to the development of charges of static electricity comprising from 30% to 96% by weight of ammonium nitrate, from 1% to 25% by weight of a member selected from the group consisting of finely divided aluminum and alloys thereof, from 2% to 15% by weight of an oleaginous fuel from 0% to 35% by weight of sodium nitrate, and from 0.05% to 1.0% by weight of at least one additive selected from the group consisting of the reaction products of a mixture of secondary and tertiary aliphatic amines with a mixture of high molecular weight fatty acids.

3,303,074

AQUEOUS EXPLOSIVES SLURRIES CONTAINING SULFUR COMPOUNDS HAVING A LOW COEFFICIENT OF EXPANSION

William L. Schwoyer, Allentown, Pa., assignor to Trojan Powder Company, Allentown, Pa., a corporation of New York

No Drawing. Filed Dec. 6, 1965, Ser. No. 511,968

14 Claims. (Cl. 149—41)

1. An aqueous slurried explosive composition characterized by a relatively stable low coefficient of expansion with temperature comprising, in combination, an inorganic nitrate oxidizer in an amount within the range from about 10 to about 95%, a particulate active metal fuel in an amount within the range from about 0.5 to about 50%, an aqueous liquid in an amount to form a slurry, a sulfur compound selected from the group consisting of inorganic thiosulfates and organic sulfonates in an amount sufficient to inhibit the thermal expansion of the slurry, and a stabilizing metal compound unreactive with the explosive slurry components and selected from the group consisting of metals of Groups I to VIII of the Periodic Table, other than the alkali metals, alkaline earth metals, aluminum, iron and chromium, in an amount sufficient to lessen any decomposition of the sulfur compound and to inhibit thermal expansion.

3,303,075

METHOD AND APPARATUS OF STRIP WEBBING

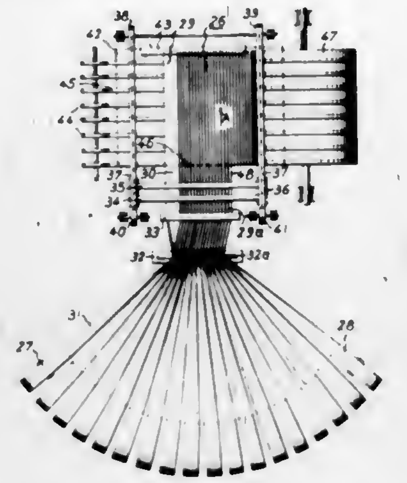
Willy Rabus, Stuttgart-Unterturkheim, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Dec. 4, 1963, Ser. No. 328,070

Claims priority, application Germany, Dec. 4, 1962, L 43,621

33 Claims. (Cl. 156—65)

1. A method of making strip webbing which is made up of transverse strips and of longitudinal bands that are secured to the transverse strips for holding the same together, said method comprising, the steps of positioning the longitudinal bands; drawing simultaneously a cluster of transverse strips, each from its respective supply roll, across the longitudinal bands for placing the transverse strips on the longitudinal bands; and cutting the cluster of transverse strips so that each has a length that corresponds to the width of the strip webbing, whereby a plurality of individual transverse strips are applied to the longitudinal bands in a stepwise manner.



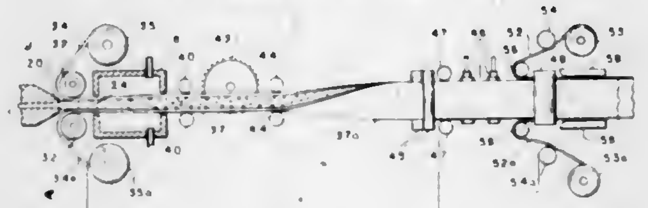
3,303,076

METHOD OF MAKING LAMINATED POLYURETHANE STRUCTURES

Frank A. Carlson, Jr., Berkeley Heights, N.J., and Dorrill K. Hatch, Jr., Kirkwood, and Robert P. Whittier, Ladue, Mo., assignors to Monsanto Company, a corporation of Delaware

Filed Oct. 25, 1962, Ser. No. 233,035

2 Claims. (Cl. 156—79)



2. A continuous process for preparing a rigid, mechanically strong, lightweight laminate structure which comprises the steps; (1) delivering a foamed urethane polymer composition, containing a gas forming agent, from a reactant mixer under pressure through an orifice and between a continuously advancing pair of covering sheets each supported by a temperature controlled roll to adhere said sheets to the foamed urethane polymer, (2) post expanding the foamed urethane polymer composition and the covering sheets by applying heat to said composition and sheets to convert a secondary gas forming agent to a gaseous state, (3) cutting the continuous assembly of the foamed urethane polymer composition and the covering sheets into a plurality of narrower assemblies of substantially equal width, (4) turning each of said narrower assemblies through an angle of 90 degrees, (5) pressing said narrower assemblies into touching relationship, (6) adhesively joining said narrower assemblies to form a core of a foamed urethane polymer that is reinforced with a plurality of substantially equidistant parallel reinforcing sheets which run throughout the length of the sheet, and (7) laminating covering sheets to the top and bottom surfaces of their reinforced foamed urethane polymer core.

3,303,077

METHOD AND APPARATUS FOR MANUFACTURING PHOTOGRAPHIC PRODUCTS

Arthur E. Baggs, Jr., South Lincoln, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Dec. 4, 1961, Ser. No. 156,575

16 Claims. (Cl. 156—108)

1. A process for the continuous manufacture of photographic products of the type herein described, said process comprising: sequentially and in spaced relationship attaching containers carrying a fluid-processing composition to a continuous, moving first web, introducing said first web with said containers attached to a substantially lighttight enclosure through a first inlet portion thereof, attaching a continuous, moving second web of photosensitive material on a flexible support to said first web along one longitudinal edge of each of said first and second webs, introducing a continuous moving third web of flexible sheet material into said lighttight enclosure through a second inlet portion thereof, attaching said third web along one longitudinal edge thereof to a portion of said first web whereby said third web overlies said containers and at least a portion of said second web, and severing an end portion of the composite web comprising said first, second and third webs from the remainder thereof, said end portion comprising said photographic product.

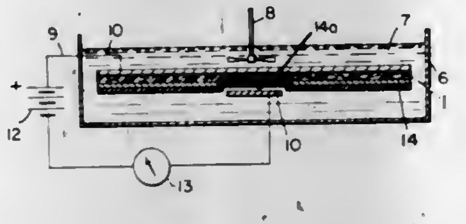
3,303,078

METHOD OF MAKING ELECTRICAL COMPONENTS

Milton D. Rubin, Newton, Mass., assignor of thirty percent to David Wolf, Randolph, Mass.

Filed May 18, 1962, Ser. No. 195,827

6 Claims. (Cl. 156—150)



1. A method of forming printed circuits having components integrally formed therein,
comprising forming a laminate of an impregnable porous dielectric layer and a conductive layer integrally bonded to one surface of said impregnable dielectric layer, masking selected portions of said dielectric layer on the surface opposite said conductive layer thereby forming unmasked areas conforming to the desired shape of said components,
depositing in said areas a selected amount of restrictive material into intimate contact with said dielectric layer and allowing said resistive material to permeate said dielectric layer and electrically contact said conductive layer,
removing said mask,
impregnating said dielectric layer with a layer of plastic resin,
and removing selected portions of said conductive layer to form a circuit with said resistive material in said areas included in said circuit and contacted by other unremoved selected portions of said conductive layer.

3,303,079

METHOD OF MANUFACTURE OF ROCKET CHAMBERS HAVING AN INTEGRAL INSULATOR OR LINER

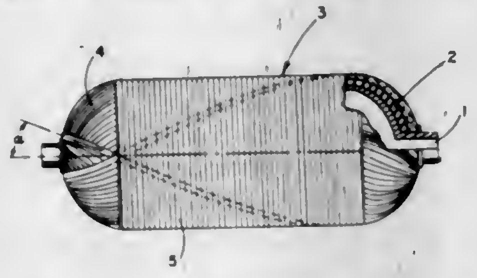
Richard P. Carter, Morris Plains, N.J., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Aug. 23, 1963, Ser. No. 304,293

2 Claims. (Cl. 156—172)

1. An improved method for forming a pressure casing having an integral insulated liner therein, said method comprising the steps of:
(a) laying-up an uncured sheet of calendered rubber stock onto a suitable hollow mandrel;
(b) winding six layers of a glass filament on top of the rubber stock at a 25° angle to the horizontal axis of the mandrel;

(c) winding six layers of a glass filament on top of the 25° helix at a 90° angle to the horizontal axis of the mandrel and crossing said first 25° helix at a plurality of positions;
(d) adding two layers of a glass filament on top of the rubber stock at a 25° angle to the horizontal axis of the mandrel whereby a total of 8 layers have been wound on top of the rubber stock;
(e) adding 3½ layers of a glass filament on top of the said 25° helix at a 90° angle to the horizontal axis of the mandrel whereby a total of 9½ layers have been wound on top of the 25° helical windings;

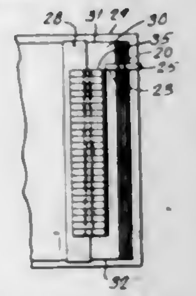


(f) introducing a settable binder onto said glass filaments;
(g) simultaneously curing both the rubber sheet and the glass filaments in an oven; and
(h) holding the curing temperature at 320° F.±10° F. for nine hours whereby the sheet of calendered rubber stock and the glass filaments are firmly bound together to form a pressure casing having improved insulation consolidation, better insulation to glass adhesion, and improved case integrity.

3,303,080

INDEX TAB ASSEMBLY AND METHOD OF USING SAME

Jorge Aguilera, 204 W. 85th St.,
New York, N.Y. 10024
Filed June 11, 1963, Ser. No. 287,107
8 Claims. (Cl. 156—216)



4. The method of applying an index tab from the assembly of claim 1 which comprises, positioning and maintaining said assembly at a predetermined location on a page, peeling an index tab from said mounting and guide strip to expose the adhesive coating of one end of said tab, and attaching the exposed end of said tab to one face of said page at an edge thereof using said mounting strip and the next adjacent tab as guides so that said index tab is located substantially the same distance from the top and bottom of said page as it was when attached to said mounting strip when said mounting strip is maintained in position on said page.

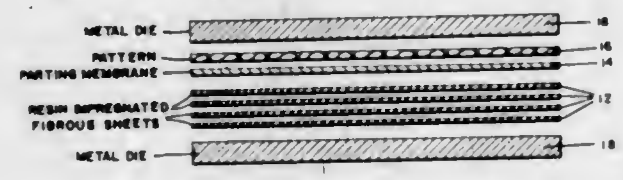
3,303,081

METHOD FOR MAKING A TEXTURED LAMINATE SURFACE

Jack Michaelson, Baltimore, Richard C. McDevitt, College Park, and Herbert I. Scher, Baltimore, Md., assignors to National Plastic Products Co., Inc., Odenton, Md., a corporation of Maryland
Filed July 1, 1963, Ser. No. 291,959
8 Claims. (Cl. 156—219)

1. In the manufacture of pressing plate dies having molding surfaces which comprise a resin impregnated fibrous sheet for the production of three-dimensional surfaced laminates, the method of:

(1) assemblying in a stack
  (a) a plurality of fibrous sheets impregnated with a thermosetting resin,
  (b) a pattern producing sheet, and
  (c) a thin parting layer interposed between (a) and (b);
(2) applying sufficient heat and pressure to the assembly to effect a lamination of said fibrous sheets and produce a negatively embossed plate of said resin impregnated fibrous sheets;
(3) removing the pattern producing sheet and the parting layer from the negative plate thereby providing said plate with a molding surface which comprises a resin impregnated fibrous sheet;
(4) assembling in a stack
  (a) a plurality of fibrous sheets impregnated with thermosetting resin;

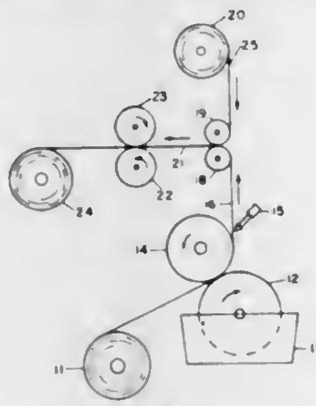


  (b) said negative plate of resin impregnated fibrous sheets, and
  (c) a thin parting layer therebetween;
(5) applying heat and pressure to form a positive master and removing the negative plate and the parting layer therefrom to provide a positive master having a resin impregnated fibrous molding surface;
(6) assembling in a stack
  (a) a plurality of fibrous sheets impregnated with thermosetting resin;
  (b) the postive master, and
  (c) a thin parting layer therebetween;
(7) applying heat and pressure to form a negatively surfaced pressure plate die for the manufacture of three-dimensional surfaced laminates, and removing the positive master and the parting layer from said pressure plate die.

3,303,082

METHOD OF BONDING POLYOLEFIN FILMS TO SHEET MATERIAL

Robert L. Wilson, Linwood, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Filed Apr. 19, 1963, Ser. No. 274,333
11 Claims. (Cl. 156—311)

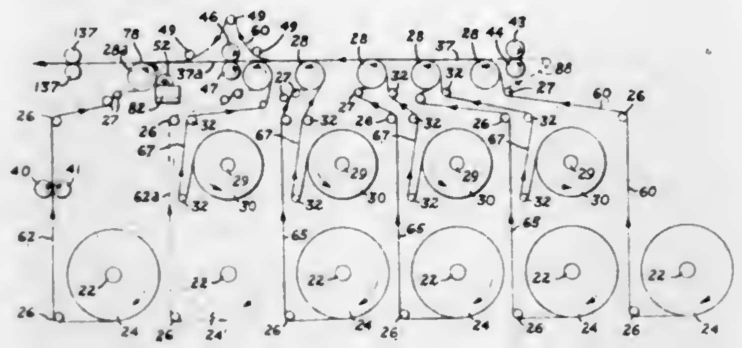


1. Method of preparing a laminate of polyolefin film and sheet material selected from the group consisting of paperboard and bond paper which comprises:
(a) coating only said film with laminating wax;
(b) pressing the coated film onto said sheet material while the wax coating is molten; and
(c) cooling said molten wax thereby bonding polyolefin film to the sheet material to form said laminate.

3,303,083

COLLATING APPARATUS

Anders Hedenström, Bromma, Sweden, assignor, by mesne assignments, to The Schriber Company, Dayton, Ohio, a corporation of Ohio
Filed Apr. 22, 1964, Ser. No. 361,674
7 Claims. (Cl. 156—513)

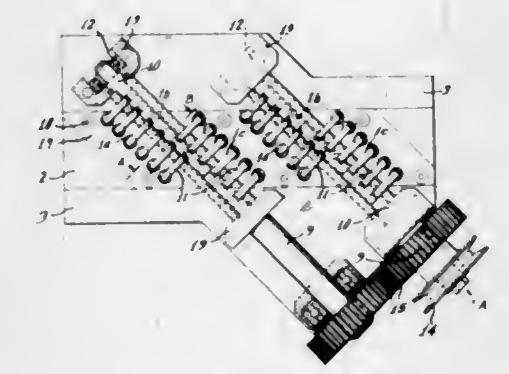


1. In a machine for assembling a plurality of continuous webs of flexible paper material into an overlapping relationship including a pair of outer webs and at least one intermediate web, a mechanism for loosely locking the webs together along the edge portion of the webs, said mechanism comprising, means for spacing one of said outer webs from the intermediate web, a first set of punch and die means adapted to receive the edge portion of an intermediate web and to perforate a series of apertures therein while said one outer web is spaced from the intermediate web, a second set of punch and die means adapted to receive the edge portion of the other outer web and operative to punch a series of tabs integrally connected thereto and extending therefrom spaced in corresponding relationship with said apertures, and means operative to extend said tabs through said apertures in the intermediate web and to join said tabs to the underneath side of said one web.

3,303,084

APPARATUS FOR WELDING SYNTHETIC PLASTIC FILMS AT SPACED POINTS

Hubert Schwanekamp, Bielefeld, and Georg Trzeciak, Wiesbaden, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed July 25, 1963, Ser. No. 297,555
Claims priority, application Germany, July 28, 1962, K 47,372
6 Claims. (Cl. 156—553)

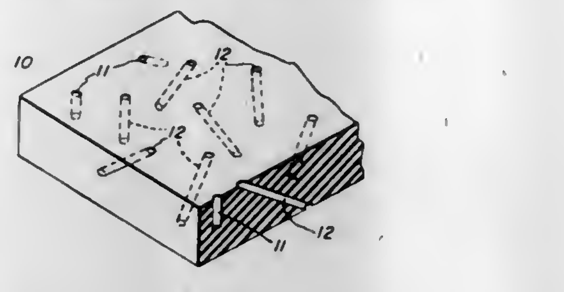


1. An apparatus for welding synthetic plastic film comprising a plurality of rows of welding elements, means for individually reciprocating groups of the elements in a direction substantially perpendicular to the welding surface, and means for moving the work to be welded past the elements in a direction oblique to the rows.

3,303,085

MOLECULAR SIEVES AND METHODS FOR PRODUCING SAME

Paul B. Price, Scotia, and Robert M. Walker, Delanson, N.Y., assignors to General Electric Company, a corporation of New York
Filed Feb. 28, 1962, Ser. No. 176,320
12 Claims. (Cl. 161—109)



9. A body suitable for use as a molecular sieve comprising a sheet having a plurality of straight-through apertures opening through the top and bottom surfaces of the sheet, said apertures being of minimum transaxial dimension between about five and about 20,000 angstroms.

3,303,086

FOAMED POLYURETHANE LAMINATE AND THE ADHESIVE COMPOSITION

Alfred J. Demers, Peabody, Mass., assignor to The Borden Company, New York, N.Y., a corporation of New Jersey
No Drawing. Filed Apr. 29, 1963, Ser. No. 276,150
9 Claims. (Cl. 161—159)

1. An adhesive composition consisting essentially of an aqueous emulsion of a copolymer of a C_1–C_4 ester of an acid selected from the group consisting of acrylic and methacrylic acids with 0.5%–5% of its weight of an alpha-unsaturated water soluble acid, an acidic water soluble curing agent in proportion to establish the pH of said emulsion at not above 8 as compounded and not above 7 during the subsequent heating to cure said copolymer, a melaminc-formaldehyde condensate reacted with said copolymer, and a stabilizer powder, the stabilizer powder being in the proportion of approximately 20–65 parts by weight for 100 parts of said ester, finely divided, substantially free of water solubles and selected from the group consisting of clay, diatomaceous earth, fuller's earth and cellulose.

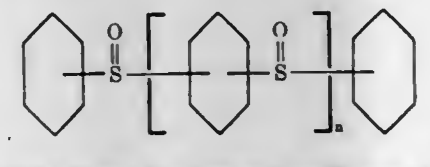
9. An article of manufacture comprising a foamed sheet of polyurethane plastic, a vapor penetrable backing member, and a dried and cured film of the adhesive of claim 1 adhereing said sheet to the backing member.

3,303,087

LAMINATES COMPRISING A LINEAR POLYARYLENE SULFOXIDE ADHESIVE INTERLAYER

Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Original application Mar. 27, 1963, Ser. No. 268.444. Divided and this application Feb. 28, 1966, Ser. No. 565,330
4 Claims. (Cl. 161—192)

1. A laminate comprising at least two strata and selected from the group consisting of glass, wood and metal and having therebetween a resin having the following generic structure



wherein *n* represents an integer sufficient to provide a molecular weight of at least 2000.

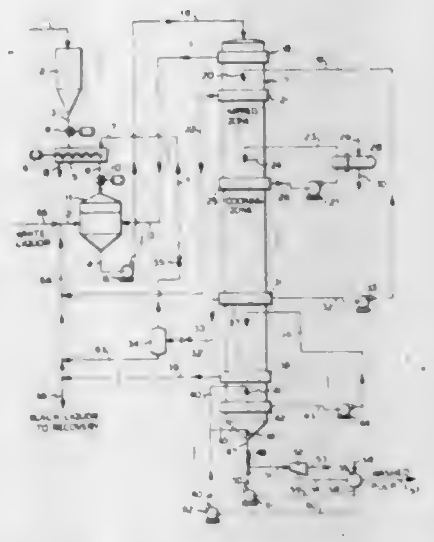
3,303,088

CONTINUOUS LIQUID-PHASE RAPID PULPING

Adolf W. Gessner, Montclair, N.J., assignor to The Lummus Company, New York, N.Y., a corporation of Delaware

Filed Apr. 19, 1963, Ser. No. 274,186

15 Claims. (Cl. 162—19)



1. A process for preparing pulp by the continuous delignification of cellulosic material at superatmospheric pressure in a digester having an impregnation zone, a delignification zone and a cooling zone, which comprises:

introducing a preheated slurry of cellulosic material and cooking liquor into the upper portion of said digester;
rapidly heating said slurry to a temperature of from about 240° F. to about 280° F.;
effecting impregnation of said cellulosic material in said impregnation zone of said digester;
rapidly heating said impregnated material to a temperature of from about 330° F. to about 385° F.;
effecting delignification of said cellulosic material in said delignification zone of said digester;
cooling said delignified material in a cooling zone comprised of at least two sub-stages in said digester;
and withdrawing said delignified material from said digestion zone.

3,303,089

METHOD OF MAKING WET FELTED BOARD OF FIBER BUNDLES AND FLAKES

Theodore T. Roubicek and Apollo Pantelejevs, New Westminster, British Columbia, Canada, assignors to Canadian Forest Products Ltd., Vancouver, British Columbia, Canada

No Drawing. Filed May 31, 1963, Ser. No. 284,335

1 Claim. (Cl. 162—142)

A method of making particle fibreboard comprising forming a slurry, the solid contents of said slurry consisting essentially of ligno-cellulosic fibre bundles containing their natural lignin which was previously softened by heat and moisture mixing a resin binder in said slurry to coat the fibre bundles and acidifying the slurry to render the resin insoluble, thoroughly mixing solid ligno-cellulosic flakes in their natural state with a resin binder solution, adding the resin coated flakes to the acidified slurry, the resin of the flakes being rendered insoluble by the acidity of the slurry, the solid contents of the final slurry consisting essentially of from about 15 to 85% of fibre bundles and correspondingly from about 85 to 15% of flakes, mixing said slurry to uniformly distribute said cellulosic bundles and flakes therein, forming a mat by felting and draining the mixed bundles and flakes on a foraminous support, and hot pressing the mat to form a sheet.

3,303,090

COMPOSITION AND METHOD FOR CONTROLLING NEMATODES WITH ORGANIC METAL CHELATES

Clarence W. Huffman, Glenview, and James C. Engibous, Mount Prospect, Ill., and Joseph B. Skaptason, Kansas City, Mo., assignors to International Minerals & Chemical Corporation, a corporation of New York

No Drawing. Filed Mar. 21, 1963, Ser. No. 266,804

15 Claims. (Cl. 167—22)

6. A method for protecting growing plants from parasitic nematocidal attack which comprises applying to said plant a non-phytotoxic nematocidally effective quantity of a systemically translocatable organic metal chelate of a metal selected from the group consisting of cadmium and silver and an organic compound selected from the group consisting of

(I) polyketones selected from the group consisting of acetylacetone, diacetyl, 2,4-diketohexane, 2,4-diketooctane, 2,4-diketodecane, 2,4-diketododecane, 2,4-diketotetradecane, 2,4-diketohexadecane, 2,4-diketooctadecane;
(II) amino carboxylic acids selected from the group consisting of ethylenediaminetetraacetic acid, diethylenetriamine pentaacetic acid, N-(β-hydroxyethyl) ethylenediamino triacetic acid, N,N,-bis(β-hydroxyethyl) ethylenediamino diacetic acid, nitrilotriacetic acid, glutamic acid, aspartic acid, pyrrolidonecarboxylic acid;
(III) the sodium salt of the amino carboxylic acids of (II);
(IV) the potassium salt of the amino carboxylic acids of (II); and
(V) the ammonium salt of the amino carboxylic acids of (II).

3,303,091

PESTICIDAL AEROSOL COMPOSITIONS

Norman G. Mailander and Louis M. Sesso, Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

No Drawing. Filed Sept. 10, 1964, Ser. No. 395,560

5 Claims. (Cl. 167—39)

1. A pressurized, self-propellant, pesticide composition consisting essentially of:

A. a stable oil-out emulsion;
B. liquid propellant having a specific gravity less than said emulsion;
C. gaseous propellant provided by volatilization of said liquid propellant;
D. pesticide; and
E. from about 0.3 to about 1.5 percent by weight of a polyethoxylated long-chain fatty acid emulsifier having the general formula: [long-chain fatty acid moiety] $[\text{ethoxy}]_x$ H, wherein [long-chain fatty acid moiety] is selected from the group consisting of: oleic, stearic, palmitic, lauric acid and mixtures thereof, and [ethoxy] represents the ethoxy moiety ($-CH_2-CH_2-O-$) and x has a value of from about 1 to about 4 and

wherein:

(1) a portion of said liquid propellant comprises the continuous phase of said stable oil-out emulsion and the remainder of the liquid propellant forms a separate liquid layer floating above said stable oil-out emulsion;
(2) said stable oil-out emulsion consists essentially of water, pesiticide, liquid propellant and a portion of said emulsifier; and
(3) said liquid propellant is a normally gaseous propellant selected from the group consisting of hydrocarbon and halogenated hydrocarbon propellants and mixtures thereof.

3,303,092

1-SUBSTITUTED 2,6-DIHALO PHENYL HYPNOTIC AND ANALGESIC

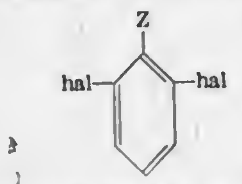
Donald E. Stevenson, Herne Bay, Kent, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 17, 1963, Ser. No. 288,502

Claims priority, application Great Britain, June 29, 1962, 25,075/62

7 Claims. (Cl. 167—52)

1. A method of inducing analgesic and hypnotic effects in animals which comprises administering to an animal in pain an effective dosage of a member of the group consisting of a compound of the formula:



and pharmaceutically acceptable salts thereof, wherein Z represents a member of the group consisting of cyano, oxime ($-CH{=}NOH$), aplha-aminooxime

$$(-C(\text{amino}){=}NOH),$$

and thioamide ($-C(S)(NH_2)$); hal represents a member of the group consisting of chlorine and bromine.

3,303,093

EMBONIC ACID SALT OF SPIRAMYCIN

Charles Romeo Marcel Schuppon, Nanterre, France, assignor to Rhone-Poulenc S.A., Paris, France, a corporation of France

No Drawing. Filed Mar. 12, 1962, Ser. No. 179,228

Claims priority, application France, Mar. 16, 1961, 855,834

1 Claim. (Cl. 167—65)

Embonic acid salt of spiramycin.

3,303,094

ANTIVIRUS ANTIBIOTIC FROM PAECILOMYCES TODICUS AND METHOD OF PRODUCING SAME

Boris Sokoloff and Yoshiharu Toda, both of Florida Southern College, Lakeland, Fla. 33803

Filed Aug. 27, 1962, Ser. No. 219,614

3 Claims. (Cl. 167—65)

1. An antiviral material produced by the process of fermentation of a culture of *Paecilomyces todicus*, nov. sp. NRRL 2975, in a nutrient medium under aerobic conditions, said material being a water-soluble, powder of a light yellow color, said material being extracted from the mycelium and medium by means of acetone and recovered from the acetone extract by barium hydroxide precipitation.

3,303,095

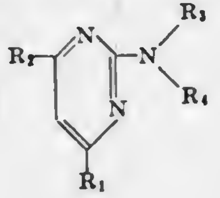
COMPOSITIONS AND METHODS FOR PRODUCING TRANQUILIZING ACTIVITY

David H. Tedeschi, Pennsauken, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,621

11 Claims. (Cl. 167—65)

5. A method of producing tranquilizing activity which comprises internally administering to animals an effective amount of a compound selected from the group consisting of a pyrimidine and a nontoxic pharmaceutically acceptable acid addition salt thereof, said pyrimidine having the following structural formula:



in which:

R_1 is a member selected from the group consisting of chlorine, bromine and methyl;
R_2 is a member selected from the group consisting of chlorine, methyl, ethyl, methoxy and trifluoromethyl;
R_3 is a member selected from the group consisting of hydrogen and methyl; and
R_4 is a member selected from the group consisting of hydrogen, methyl, ethyl, propyl, isopropyl and cyclopropyl.

3,303,096

PROCESS FOR PREPARING HIGH MOLECULAR WEIGHT PRODUCTS OF APATHOGENIC ANAEROBIC CULTURES

Heinz Feier, Lorsbach, Taunus, Dietmar Gericke, Frankfurt am Main, Georg Nesemann, Lorsbach, Taunus, and Paul Präve, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Sept. 21, 1964, Ser. No. 398,088

Claims priority, application Germany, Sept. 25, 1963, F 40,829

12 Claims. (Cl. 167—78)

1. A process for preparing alcohol-soluble high molecular weight microbial products which comprises preparing a sterile culture filtrate containing said high molecular weight products from a culture of an apathogenic anaerobic Clostridium strain selected from the group consisting of *Clostridium butyricum, Clostridium tyrobutyricum, Clostridium acetobutyricum,* and *Clostridium pectinovorum,* and then separating said high molecular weight products from the culture filtrate.

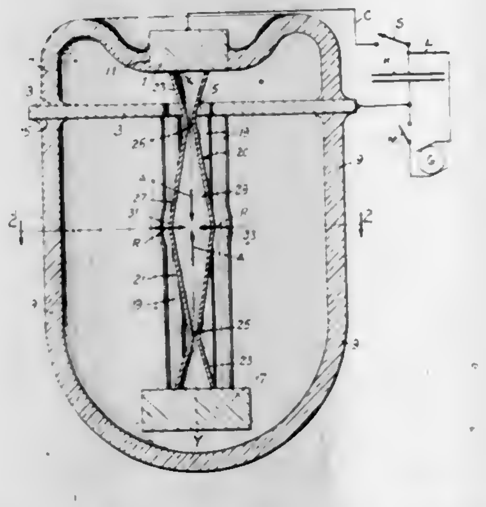
3,303,097

HIGH-PRESSURE AND -TEMPERATURE GENERATOR

George E. Mallinckrodt, 20 Kingsbury Place, St. Louis, Mo. 63112

Filed Aug. 20, 1965, Ser. No. 481,246

38 Claims. (Cl. 176—1)

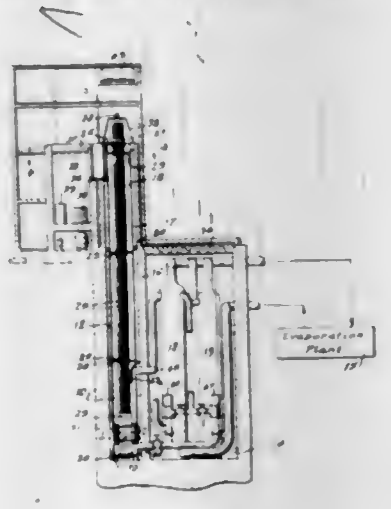


1. Apparatus of the class described, comprising an energy storage and discharge circuit, a conductive fuel-containing element symmetrically shaped around a straight axis, an array of discrete nonhelical conductors of substantially identical shapes symmetrically disposed around the fuel element, adjacent ends of the fuel element and of the conductors being connected to form symmetrically disposed radially plane loop circuits, means connecting the other end of the fuel element to one side of said circuit, means for connecting the other ends of all of the conductors to the other side of said circuit, means for releasing a surge of current from the circuit through the connecting means for parallel flows through the conductors

and serial flows through each conductor and the fuel element sufficient to vaporize the fuel element including its fuel and the conductors to form plasma, the directional flow of current through each conductor and its resulting plasma being opposite to the flow of current through the fuel element and its plasma, whereby a magnetic pinch effect is exerted upon the fuel in its plasma form.

3,303,098
NUCLEAR-POWER SEA-WATER CONVERSION PLANT

James P. Lagowski, Plainfield, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 19, 1965, Ser. No. 473,253
5 Claims. (Cl. 176—65)

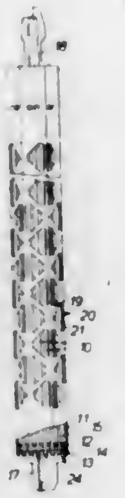


1. A method of operating a water-cooled nuclear reactor comprising circulating water directly from a reservoir through a reactor disposed at the bottom of the reservoir to an external heat exchanger without permitting the circulating water to mix with water in the reservoir and returning the water to the reservoir a short distance above the top of the reactor, the rate of circulation of the water being related to the power level of the reactor and the rate of heat removal at said heat exchanger such that the maximum temperature of the circulating water is substantially in excess of the boiling point of water at atmospheric pressure, and maintaining a sufficient depth of water in said reservoir above the reactor to suppress boiling of the water at said maximum temperature.

3,303,099
NUCLEAR FUEL ASSEMBLY

Charles Johnston, Wrea Green, Preston, England, assignor to Societe Anglo-Belge Vulcain S.A., Brussels, Belgium
Filed May 22, 1964, Ser. No. 369,367
Claims priority, application Great Britain, June 5, 1963, 22,464/63
1 Claim. (Cl. 176—78)

In a nuclear fuel assembly comprising a plurality of fuel pins supported in a bundle with their longitudinal axes parallel and a support plate to which the fuel pins are secured, means to secure each fuel pin to the support plate comprising a peg projecting axially from one end of said pin and being formed with a hollow end portion, a shoulder between the peg and the fuel pin, a hole in the support plate, at least a portion of the peg extending completely through the hole in the support plate to an extent limited by the shoulder, and a pinched deformation of the hollow portion of the peg which engages the support plate on the side thereof remote from the shoulder, the deformation being such that two points at opposite ends of a diameter of the peg at the hollow end thereof are urged towards each other by a force acting substantially perpendicular to the axis of the peg, and the axial extent of the deformation inwardly from the hollow end of the peg being determined by the axial length of the hollow portion of the peg.



3,303,100
ENZYME DIGESTION OF NUCLEIC ACID

Louis Laufer and Sidney Gutcho, Bronx, N.Y., assignors to Schwarz Bioresearch, Inc., New York, N.Y.
No Drawing. Filed Oct. 3, 1963, Ser. No. 313,433
17 Claims. (Cl. 195—28)

17. In the process of hydrolyzing nucleic acids with an enzymic medium rich in nuclease and phosphodiesterase enzymes to form primarily 5′-nucleotides, the improvement which comprises:

utilizing an aqueous suspension of discrete rapidly proliferating substantially non-comminuted seed-parts selected from the group consisting of substantially seed-free germinating seed rootlets and substantially seed-free germinating seed-stems as the enzymic medium, said medium having been substantially freed of enzymes which interfere with said hydrolysis (including phosphatase enzymes and monoesterase enzymes) by pre-hydrolysis heat treatment thereof at a temperature of from about 70 to about 85° C. for from about 0.5 to about 7 minutes in the presence of deactivator material selectively capable with said heat treatment of inactivating said interfering enzymes; and

separating spent seed-parts from the aqueous hydrolysis mixture containing 5′-nucleotides.

3,303,101
PROCESS OF PRODUCING D-RIBOSE-5-PHOSPHATE AND D-RIBOSE THROUGH FERMENTATION

Shukuo Kinoshita, Tokyo, and Kunizo Mizuhara and Takeo Suzuki, Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan, a corporation of Japan
No Drawing. Filed July 17, 1964, Ser. No. 383,511
Claims priority, application Japan, July 29, 1963, 38/37,734; Aug. 8, 1963, 38/40,697
8 Claims. (Cl. 195—31)

1. A process of producing D-ribose-5-phosphate which comprises aerobically culturing a D-ribose-5-phosphate producing microorganism selected from the group consisting of *Micrococcus glutamicus, Brevibacterium ammoniagenes* and *Bacillus cereus* microorganisms in a saccharide-containing aqueous culture medium containing 0.20 to 2.0% by weight of phosphate (as phosphoric acid radical), 0.01 to 0.2% by weight of magnesium salt (as magnesium ion), at a pH in the range of pH 6.0 to 9.0 and at 20° to 40° C., whereby D-ribose-5-phosphate is

directly produced and accumulated in the said fermentation medium, and 0.1 to 1.5% by weight of potassium salt (as potassium ion), and recovering accumulated D-ribose-5-phosphate.

2. A process of producing D-ribose which comprises aerobically culturing a D-ribose producing microorganism selected from the group consisting of *Micrococcus glutamicus, Brevibacterium ammoniagenes* and *Bacillus cereus* microorganisms in a saccharide-containing aqueous culture medium containing 0.01 to 0.2% by weight of magnesium salt (as magnesium ion) and 0.1 to 1.5% by weight of potassium salt (as potassium ion), said medium also containing 0.0001 to 1% (as ion) w./v. of at least one member selected from the group consisting of manganese, iron and zinc ions, at a pH in the range of pH 6.0 to 9.0 and at 20° to 40° C., whereby D-ribose is directly produced and accumulated in the said fermentation medium, and recovering accumulated D-ribose.

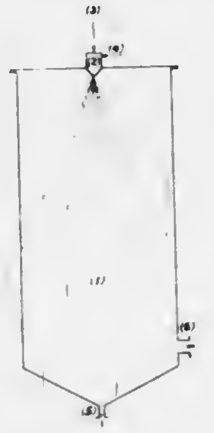
3,303,102
PRODUCTION OF DEXTROSE

Frederick C. Armbruster, La Grange, and Robert L. Bruner, Hinsdale, Ill., assignors to Corn Products Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Aug. 31, 1964, Ser. No. 393,418
4 Claims. (Cl. 195—31)

1. A process for the selective reduction of transglucosidase activity of a fungal amylase preparation possessing transglucosidase, glucamylase, and alpha-amylase activities, consisting essentially of the single step of treating said amylase preparation in an aqueous medium with acid to obtain a pH between about 1 and about 3 for a period of time not exceeding about 5 hours, to inactivate at least 40% of the transglucosidase enzyme while simultaneously inactivating less than 25% of the glucamylase and alpha-amylase enzymes present.

3,303,103
PLURAL SHIELDED ATOMIZING NOZZLES IN THERMAL CRACKING OF LIQUID HYDROCARBONS

Herbert Schmidt, Walter Jahnentz, and Alfred Schmidt, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany
Filed Jan. 6, 1964, Ser. No. 335,797
Claims priority, application Germany, Jan. 8, 1963, C 28,852
8 Claims. (Cl. 196—116)



1. A reactor for conversion of liquid hydrocarbons to unsaturated hydrocarbons by thermal decomposition under acetylene forming conditions by atomization with an amount of oxygen insufficient for complete combustion and quenching the cracking and combustion gases with the same liquid hydrocarbons atomized in excess, which comprises a reactor in the upper portion of which are mounted a plurality of binary atomizing nozzles whose orifices are shielded from each other by separating walls, the average distance of which from the said nozzles, expressed in millimeters, is 0.7 to 2.5 times the amount of oxygen released from the nozzle in Nm.^{3}/h., and the height of the said separating walls above the level of the nozzle orifices is 0.5 to 5 times its average distance from the surrounding walls.

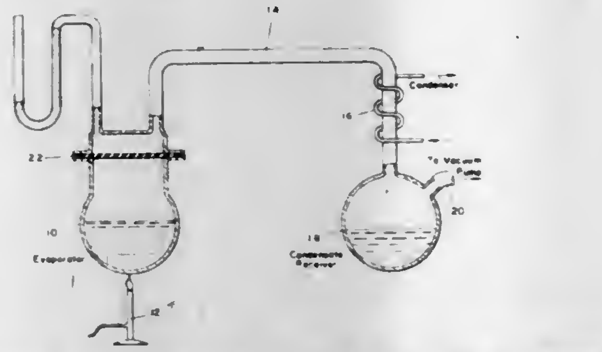
3,303,104
COMPOSITIONS CONTAINING DISCOLORATION INHIBITORS

Fred K. Rubin, Bronx, N.Y., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
No Drawing. Filed Dec. 12, 1963, Ser. No. 329,958
18 Claims. (Cl. 252—99)

1. A composition consisting essentially of a halogenating agent which normally discolors hard surfaces in the presence of manganese ions, said halogenating agent being selected from the group consisting of chlorinating agents and elemental bromine, and a discoloration inhibiting amount of a material selected from the group consisting of compounds furnishing gluconate ion in aqueous solution, combinations of compounds furnishing said gluconate ion with compounds furnishing cerium ion in aqueous solution and combinations of compounds furnishing said gluconate ion with a material selected from the group consisting of ammonium dipersulfate and sodium perborate, the composition being free of alkaline materials when ammonium dipersulfate is employed.

3,303,105
DIFFUSION OF WATER VAPOR THROUGH SILICONE RUBBER

John J. Konikoff, Laverock, Allen H. Okamoto, Ambler, and Luther Reynolds, Philadelphia, Pa., assignors to General Electric Company, a corporation of New York
Filed Mar. 25, 1963, Ser. No. 267,479
1 Claim. (Cl. 203—11)



The method of extracting potable water from water-containing natural biological wastes from the group consisting of urine, fecal matter, perspiration and respiration products, which comprises the steps of

heating the said wastes in a heating zone to vaporize the water and form water vapor,

diffusing the water vapor through a silicone rubber membrane and

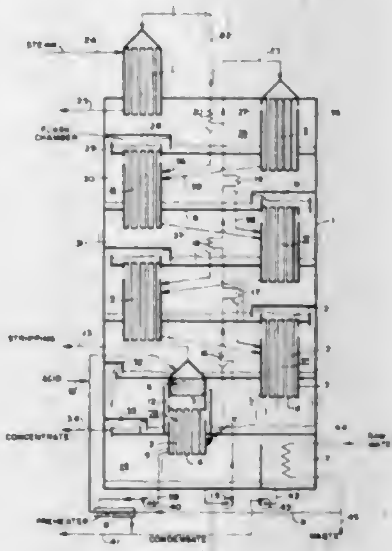
condensing the water vapor diffused through the membrane in a condensing zone while maintaining the pressure below atmospheric pressure in the heating and condensing zones.

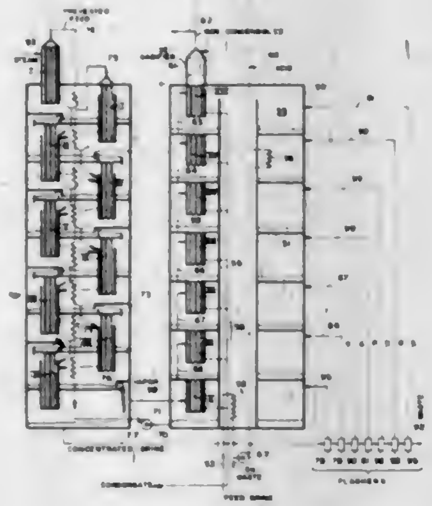
3,303,106
FALLING FILM EVAPORATOR

Ferris C. Standiford, Jr., Ann Arbor, Mich., assignor to W. L. Badger Associates, Inc., Ann Arbor, Mich., a corporation of Michigan
Filed Dec. 21, 1964, Ser. No. 420,489
10 Claims. (Cl. 203—27)

4. In an evaporation system comprising two adjacent descending liquid flow columns each composed of a tubular type falling internal film multiple effect evaporator, the tubular type heat transfer surfaces of which

are superposed one below the other with respect to liquid flow, the first column operating in counterflow with respect to vapor flow and the second column itself being subdivided into two vertical ranks of multiple effect forward flow evaporator effects, the method of evaporation comprising (1) passing feed solution to be evaporated through said first counterflow column to obtain a first concentrate, (2) dividing this concentrate into two parts, (3) further concentrating each of the two parts by passing each part through a respective one of the two subdivided vertical ranks of the second column, (4) passing the vapors generated in each effect in each rank to the next lower effect in the adjacent rank to act as heating medium in the latter, and (5) passing the vapor released in the lowest effect in the second column to the initial effect with respect vapor flow in the first column to act as heating medium in said initial effect.

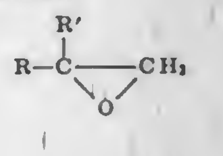




3,303,107
PURIFICATION OF VINYL CHLORIDE CONTAINING HCl AS AN IMPURITY BY DISTILLATION IN THE PRESENCE OF AN EPOXY COMPOUND

Frederic J. Locke, East Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed July 18, 1963, Ser. No. 296,075
4 Claims. (Cl. 203—38)

1. The process of purifying vinyl chloride containing minor amounts of HCl as an impurity which comprises distilling said vinyl chloride in the presence of an epoxy compound of the formula

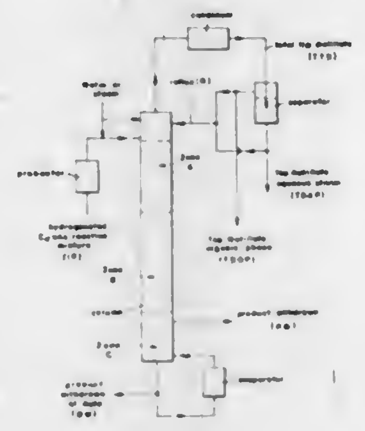


$$\mathrm{R}-\overset{\mathrm{R'}}{\overset{|}{\mathrm{C}}}\underset{\diagdown\mathrm{O}\diagup}{——}\mathrm{CH_2}$$

wherein R is chosen from the group consisting of the hydrogen atom and alkyl, haloalkyl, cycloalkyl, alkylene, cycloalkylene, aryl, aralkyl and alkaryl radicals and R′ is chosen from the group consisting of hydrogen and the methyl radical, and recovering vinyl chloride substantially free of HCl.

3,303,108
PURIFICATION OF ALKANOLS HAVING THREE TO FIVE CARBON ATOMS BY DISTILLATION OF THE ALKANOL FROM A CRUDE MIXTURE IN A SINGLE COLUMN IN THE PRESENCE OF WATER

Konrad Rauch, Limbergerhof, Pfalz, and Walter Scheidmeir, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Nov. 18, 1964, Ser. No. 412,255
Claims priority, application Germany, Nov. 22, 1963, B 74,353
10 Claims. (Cl. 203—96)

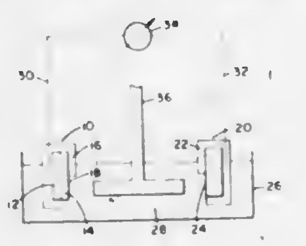


1. A process for the recovery of substantially pure alkanols having 3 to 5 carbon atoms from feed mixtures which have been formed by hydrogenation of oxo-reaction products obtained by reacting olefins having 2 to 4 carbon atoms with carbon monoxide and hydrogen, said mixtures containing hydrocarbons, ethers and ketones which are formed as byproducts in said oxo-reaction and which form azeotropes with said alkanols, by distillation in the presence of water and with simultaneous dehydration in a single column, which comprises

(a) feeding said feed mixture to said column, and introducing water in fluid form into said column,
(b) maintaining in said column below the point of supply of said feed mixtures a first zone having at least four theoretical trays in which the water content is from 8 to 25% by weight,
(c) maintaining in said column a second zone which is located above the point of withdrawal of said substantially pure alkanols and below said first zone, said second zone comprising at least seven theoretical trays and the water content in said zone decreasing downwardly so that said alkanols at the point of withdrawal are essentially anhydrous,
(d) withdrawing said essentially anhydrous alkanols below said second zone,
(e) withdrawing from the top of said column a top distillate and cooling said gaseous mixture to form a two phase condensate consisting of a lower aqueous phase and upper organic phase also containing water,
(f) withdrawing from said lower, aqueous phase of said two-phase condensate an amount equivalent to the amount of water introduced in said column and from the upper organic phase of said two-phase condensate at least 1.2 times the weight of said azeotrope-forming byproducts present in said feed mixture,
(g) maintaining said two zones by returning as a reflux to said column the remainder of said two-phase condensate, the said reflux having a composition different from the composition of the top distillate by a drop in percent water in the former as compared with the latter of at least 20% by weight, and
(h) maintaining the ratio by weight of said reflux to said essentially anhydrous alkanols withdrawn of at least 1:1.

3,303,109
PROCESS FOR THE DETERMINATION OF DIFFUSION PROFILES IN SEMICONDUCTOR BODIES

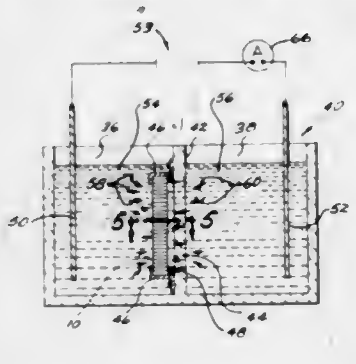
Dieter Just, Freiburg im Breisgau, Germany, assignor, by mesne assignments, to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed Apr. 11, 1963, Ser. No. 272,433
Claims priority, application Germany, Apr. 28, 1962, J 21,694
1 Claim. (Cl. 204—1)



A process for determining impurity diffusion profiles in semiconductor bodies selected from the group consisting of germanium and silicon having an n-conductive layer produced by diffusion of a suitable impurity, comprising the steps of: covering the surface of the semiconductor body to leave a small area of the n-conductive layer surface exposed; inserting the body as an electrode in a corrosion medium which effects removal of the exposed layer surface by corrosion; inserting a reference electrode comprising p-conductive semiconductor material in the corrosion medium which is not attacked by the corrosion medium; continuously measuring the potential difference between the electrodes during the corrosion process; and recording the potential difference as a function of time on a graph having a concentration scale correlated to corrosion potential and a scale representative of layer thickness removed correlated to corrosion time.

3,303,110
METHOD OF SEALING FIBER OPTIC PLATES

Frederick R. Hays, Woodstock, Conn., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts
Filed Nov. 13, 1963, Ser. No. 323,333
12 Claims. (Cl. 204—16)



1. The method of sealing a porous fiber optic plate which comprises the steps of positioning such plate as a partition between two electrolytic fluid mediums, said mediums being so preselected that certain respective ionic constituents thereof when joined will interact to form a precipitate, providing electric fields of opposite polarity one in each of said mediums to cause said constituents of respective opposing mediums to migrate toward each other into porosities in said fiber plate and precipitate therein and continuing such action until the resultant precipitate is formed in said porosities in sufficient quantity to seal said fiber plate.

3,303,111
ELECTRO-ELECTROLESS PLATING METHOD

Arthur L. Peach, P.O. Box 10515, St. Petersburg, Fla. 33733
Filed Aug. 12, 1963, Ser. No. 301,495
7 Claims. (Cl. 204—38)

7. A process of depositing a coating on a metal surface which comprises immersing said surface as a cathode in an electrolyte consisting of an aqueous solution of at least one metal salt from the class consisting of nickel sulphate, cobalt sulphate, nickel chloride and cobalt chloride, sodium citrate, and sodium hypophosphite, said metal salt, citrate and hypophosphite being in the approximate proportion of 2:2:1 by weight, immersing an anode in said electrolyte, and passing a current of from 0.7 to 3.0 amperes per square foot through said electrolyte and electrodes.

3,303,112
ACIDIC GOLD CYANIDE ELECTROPLATING BATH AND PROCESS

Eldridge K. Camp, Waterbury, George Dietz, Woodbury, and Newell W. Mitchell, Waterbury, Conn., assignors to American Chemical & Refining Co., Inc., Waterbury, Conn., a corporation of Connecticut
No Drawing. Filed Oct. 28, 1963, Ser. No. 319,541
5 Claims. (Cl. 204—46)

2. In the process of electrodepositing bright, hard pure gold on a conductive surface, the steps comprising dissolving in water potassium gold cyanide and sodium acid diorthophosphate to produce an electrolyte having a pH of about 0.03 to 3.0; producing in said electrolyte a sparingly soluble suspension of a finely divided gold-containing precipitate; and electroplating a layer of pure gold on the surface of a workpiece immersed in said precipitate-containing electrolyte.

3,303,113
CHROMIUM PLATING

Edward A. Romanowski, Troy, Mich., assignor to The Udylite Corporation, Detroit, Mich., a corporation of Delaware
No Drawing. Filed Oct. 18, 1963, Ser. No. 317,129
18 Claims. (Cl. 204—51)

1. A bath for the electrodeposition of chromium plate comprising an aqueous acidic hexavalent chromium solution containing a ratio of concentrations of CrO_3 to sulfate ion greater than about 100 to 1, and less than about 200 to 1, and containing at least one fluorine-containing thorium compound in a concentration of about 0.2 gram/liter to saturation concentrations.

3,303,114
CHROMIUM PLATING

Edward A. Romanowski, Troy, Mich., assignor to The Udylite Corporation, Warren, Mich., a corporation of Michigan
No Drawing. Filed Jan. 10, 1964, Ser. No. 336,868
22 Claims. (Cl. 204—51)

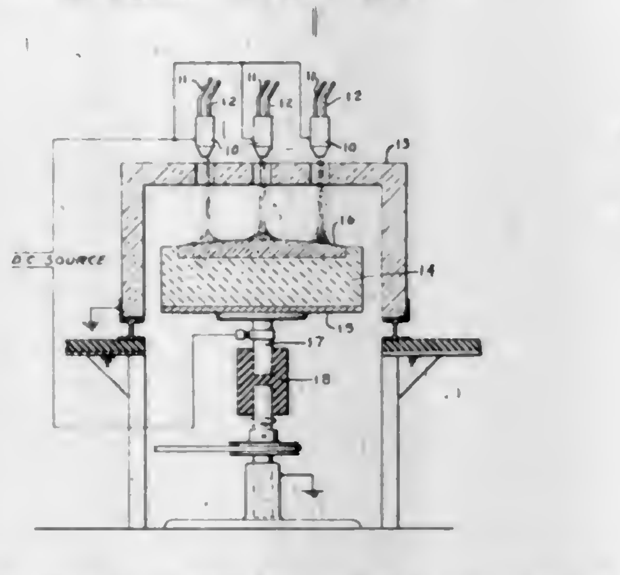
1. A bath for the electrode position of chromium plate comprising an aqueous acidic hexavalent chromium plating solution containing a ratio of concentrations of CrO_3 to sulfate ion greater than about 100 to 1, and less than about 300 to 1, and containing a fluorine containing tetravalent uranium compound in a concentration of about 0.2 grams/liter to saturation concentrations.

3,303,115

METHODS FOR FORMING MATERIALS OF HIGH PURITY BY FUSION

Joseph E. Nitsche, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed May 31, 1962, Ser. No. 198,820
11 Claims. (Cl. 204—130)



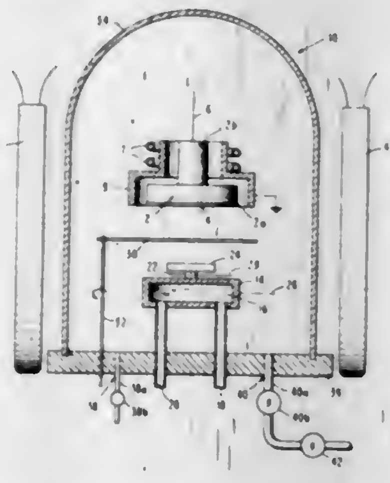
1. In the method of manufacturing a solid body of a material selected from the group consisting of silica and alumina and having therein ionic impurities capable of migration under the influence of an electric field, which comprises the steps of producing molten particles of said material and depositing said particles to form a single fused mass, the improvement which comprises maintaining a direct current electric field across said single mass during the deposition of said particles while maintaining said mass at an elevated temperature and thereby effecting movement of said ionic impurities therein toward a surface thereof.

3,303,116

PROCESS FOR CATHODICALLY SPUTTERING MAGNETIC THIN FILMS

Leon I. Maissel, Barry L. Flur, and Bruce I. Bertelsen, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Oct. 9, 1964, Ser. No. 402,800
6 Claims. (Cl. 204—192)



1. A process for cathodically sputtering a magnetic thin film comprising the steps of:

positioning a target of a ferromagnetic alloy on the face of an electrode;

impressing a potential between said electrode and another electrode in approximately spaced relationship to said first electrode such that said first electrode is at a negative potential with respect to said other electrode;

applying an electrical bias to the sputtered material which collects on a substrate, said bias maintaining said film at a negative potential with respect to said other electrode but at a positive potential with respect to said first electrode; and

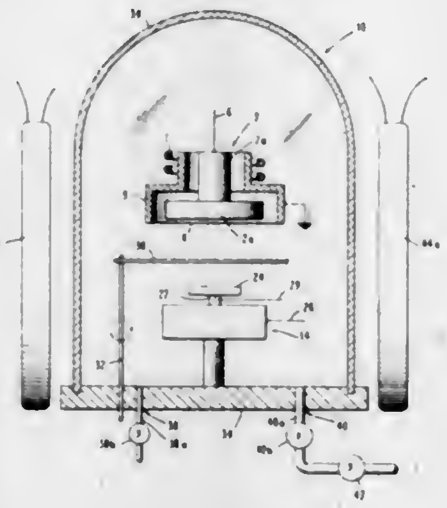
simultaneously inducing a magnetic field substantially parallel at the surface of said substrate and through said sputtered material.

3,303,117

PROCESS FOR CATHODICALLY SPUTTERING A FERROMAGNETIC THIN FILM OF A NICKEL-IRON-MOLYBDENUM ALLOY

Barry L. Flur, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 23, 1964, Ser. No. 420,754
3 Claims. (Cl. 204—192)



1. A process for cathodically sputtering a ferromagnetic thin film containing up to 6% by weight molybdenum and the balance being nickel and iron, with a nickel to iron ratio of approximately 4:1, comprising the steps of:

positioning a target of said ferromagnetic material on the face of an electrode;

impressing a potential between said electrode and a second electrode, said second electrode being in approximately spaced relation to said first electrode such that said first electrode is at a negative potential with respect to said second electrode;

applying an electrical bias to the sputtered film which sputtered film collects on a substrate, said bias maintaining said film at a negative potential with respect to said second electrode but at a positive potential with respect to said first electrode; and

simultaneously inducing a mangetic field substantially parallel at the surface of said substrate and through said sputtered material.

3,303,118

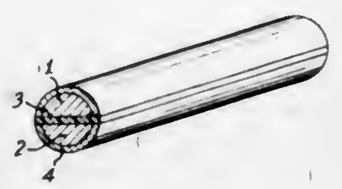
CATHODIC PROTECTION AND ANTI-MARINE FOULING ELECTRODE SYSTEM

Edward P. Anderson, Livingston, N.J., assignor to Engelhard Industries, Inc., Newark, N.J., a corporation of Delaware

Filed Apr. 8, 1963, Ser. No. 271,139
3 Claims. (Cl. 204—196)

1. A cathodic protection and anti-marine fouling system comprising a metal base in contact with an electrolyte, a composite electrode having first and second electrode components closely spaced from each other and bonded to each other with an insulation means therebetween insulating the electrode components from each other,

said composite electrode being spaced from said base and in contact with said electrolyte, first electrical conductor means connected to the first electrode component, second electrical conductor means connected to the second electrode component, a first electrical input circuit connected to the first electrical conductor means, a second electrical input circuit connected to the second electrical conductor means, external source means for providing one of said circuits with a higher potential than the other thereby providing a differential potential between the first and second electrode components, and means for electrically connecting said metal base to said electrode components, said metal base being cathodic to both said electrode components.

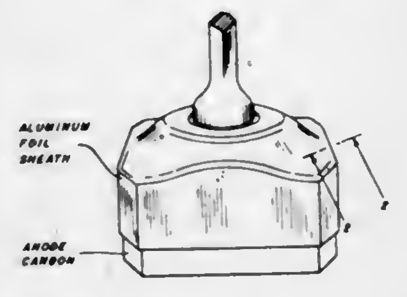


3,303,119

METAL SHEATHED CARBON ELECTRODE

Manuel Benjamin Dell, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 25, 1962, Ser. No. 210,284
5 Claims. (Cl. 204—290)



1. In a baked carbon anode adapted for use in an electrolytic cell for the production of aluminum from alumina dissolved in a molten electrolyte and having over its bonnet and upper side surfaces, a substantially airtight sheath comprised of aluminum foil 0.001 to 0.006 inch in thickness, bonded to the aforesaid surfaces by an adhesive, the improvement in said anode which consists in said aluminum foil sheath being tightly and intimately bonded to said baked carbon anode surfaces by a mastic composition consisting essentially of

about 40 to 50 percent by weight bituminous material having a softening point less than about 110° C. and selected from the group consisting of tar, pitch and mixtures thereof, and

about 60 to 50 percent by weight aggregate selected from the group consisting of low volatile coal, coke and mixtures thereof, the bulk of which passes a 100 mesh screen and substantially all of which passes a 28 mesh screen (Tyler scale),

said composition being present in an amount of about 0.3 to 1.0 gram per square inch of said sheathed surfaces,

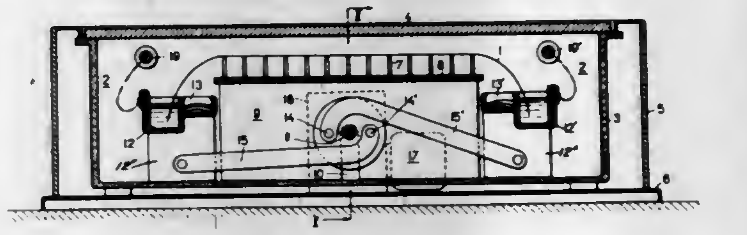
said anode being characterized in use by being so protected by said sheath against air burning as to obviate the need for the conventional alumina blanket over its upper side surfaces, without introduction into the cell of materials contaminating the aluminum produced.

3,303,120

APPARATUS FOR PAPER ELECTROPHORESIS

Jiří Hrdina, Prague, Czechoslovakia, assignor to Československá akademie věd, Prague, Czechoslovakia, a corporation of Czechoslovakia

Filed July 31, 1962, Ser. No. 213,736
Claims priority, application Czechoslovakia, Aug. 7, 1961, 4,849/61
8 Claims. (Cl. 204—300)



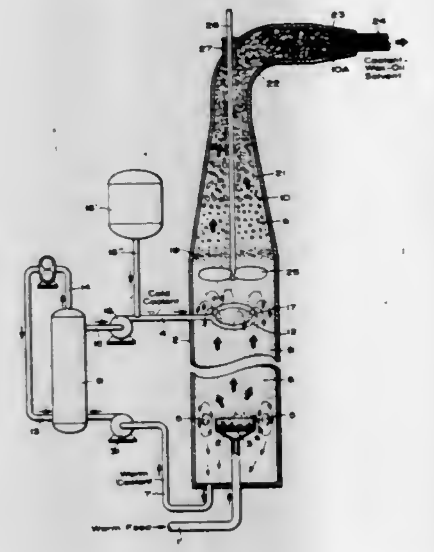
1. In a paper strip electrophoresis apparatus the improvement comprising in combination a casing having a removable top; within said casing supporting means for the paper strip holding the strip in suspended substantially horizontal position beneath of and distanced from said top; two electrode vessels each located laterally of opposing sides of said supporting means and each reciprocable perpendicularly to its longitudinal axis between an operative inner position and an inoperative outer position; and reciprocating means for said electrode vessels causing the same to move simultaneously away from and back to the supporting means between said inner operative position in which the ends of the paper strip dip into the electrode vessels and said inoperative outer position in which the ends of the paper strip avoid said electrode vessels to permit excessive liquid to drip off from the ends of the paper strip before the same is removed from the casing.

3,303,121

ADDITIVES FOR MAINTAINING A DENSE DISPERSION OF CRYSTALLIZABLE MATERIAL IN COUNTERCURRENT CONTACT WITH AN IMMISCIBLE COOLANT

Norman N. Li, Fords, and Leonard B. Torobin, Newark, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed July 1, 1964, Ser. No. 379,677
23 Claims. (Cl. 208—37)



21. In a process for separating a crystallizable component from a solution comprising crystallizing said component from said solution by countercurrently contacting said solution in a tower zone with an immiscible

coolant, said coolant being introduced at a temperature below the crystallization temperature of said coolant in said feed, said feed being introduced into said tower zone above its component crystallization temperature in the form of a dense dispersion of essentially uniform diameter droplets which move in the tower zone countercurrently to the continuous phase coolant, the dispersed phase gradually being cooled from its said temperature to its component crystallization temperature by direct contact with the coolant thereby growing component crystals within each of said droplets separating the crystallized component mother liquor slurry from said coolant and separating the crystallized component from said crystallized component mother liquor slurry, the improvement which comprises adding an additive comprising a surfactant, a macromolecule and a protein to the said tower zone whereby heat transfer within the tower is maximized.

3,303,122

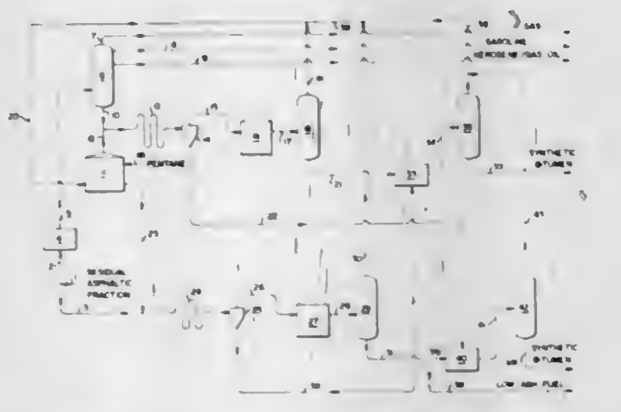
INTEGRATED PROCESS FOR THE PREPARATION OF SYNTHETIC BITUMENS

Jan Doelman, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Feb. 3, 1965, Ser. No. 430,018

Claims priority, application Netherlands, Feb. 24, 1964, 64/01698

8 Claims. (Cl. 208—45)



2. A process for the preparation of synthetic bitumens from straight-run asphaltic residue comprising the steps:
- (a) dividing the straight-run asphaltic residue into two streams;
- (b) subjecting one of the two streams to a thermal cracking treatment at a temperature of 450–500° C. and with a residence time sufficiently short to avoid the formation of substantial quantities of benzene-insoluble products;
- (c) fractionating the thermally cracked stream to recover an asphaltenes-containing cracked residual oil;
- (d) treating the asphaltenes-containing thermally cracked residual oil with an asphaltenes precipitant to recover (1) a deasphaltenized cracked residual oil fraction and (2) a concentrated cracked asphaltenes fraction;
- (e) treating the uncracked second stream of straight-run asphaltic residue with an asphaltenes precipitant to recover (3) a deasphaltenized straight-run residual oil fraction and (4) a concentrated straight-run asphaltenes fraction;
- (f) blending the deasphaltenized cracked residual oil fraction (1) with the concentrated straight-run asphaltenes fraction (4) to form a synthetic bitumen of reduced penetration index; and
- (g) blending the deasphaltenized straight-run residual oil fraction (3) with the concentrated cracked asphaltenes fraction (2) to form a synthetic bitumen of raised penetration index.

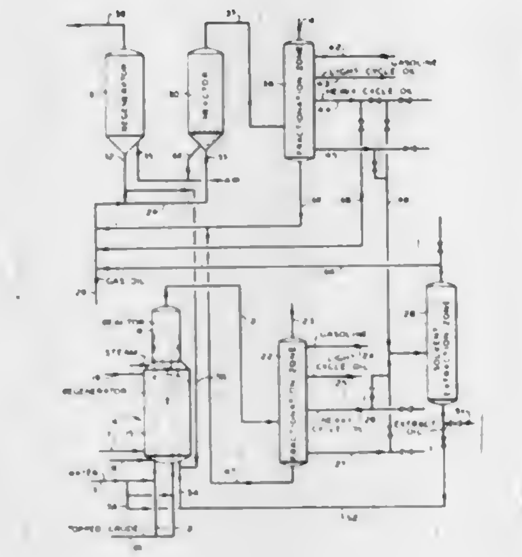
3,303,123

CATALYTIC CRACKING OF RESIDUUM OILS CONTAINING METAL CONTAMINANTS IN SEVERAL STAGES

Edwin M. Payton, Borger, and James W. Slover, Phillips, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Oct. 16, 1964, Ser. No. 404,335

6 Claims. (Cl. 208—76)



1. In the catalytic cracking of hydrocarbon wherein residuum containing a relatively large amount of metal contaminants is charged to a first catalytic cracking zone admixed with hot, regenerated, dirty catalyst at a catalyst-to-oil ratio sufficient to raise the temperature of the residuum charge to about 870 to 940° F., distillate oils containing a relatively small amount of metal contaminants are charged to a second catalytic cracking zone admixed with hot, regenerated, clean catalyst at a catalyst-to-oil ratio sufficient to raise the temperature of the distillate oils to about 890 to 980° F., cycle oils are solvent extracted, and the raffinate from the solvent extraction step are charged to the second catalytic cracking zone as a portion of the distillate oil charge, the improvement comprising charging extract from said solvent extraction step to said first catalytic cracking zone in a separate zone within said first zone admixed with hot, regenerated catalyst at a catalyst-to-oil ratio sufficient to raise the temperature of the extract charge to about 950 to 1050° F.

3,303,124

CATALYTIC HYDROCRACKING OF NAPHTHAS WITH THE USE OF A CATALYST COMPOSITE COMPRISING COPPER ON A SILICEOUS SUPPORT

Clarence W. Bittner, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 24, 1964, Ser. No. 421,094

6 Claims. (Cl. 208—111)

1. A process for converting a paraffinic naphtha having at least 60% by volume paraffins and boiling in the range from about 200° to 450° F. into light gasoline boiling below about 200° F. which comprises contacting said naphtha at a temperature in the range from about 450° to 850° F., a pressure in the range from about 500 to 3000 pounds per square inch and a hydrogen to oil mole ratio in the range from about 5:1 to 25:1; with a catalyst comprising copper intimately associated with an acid-acting siliceous refractory oxide cracking catalyst, said catalyst having been formed by incorporating the copper into a hydrogel of the refractory oxide.

3,303,125

PREPARATION OF OILS OF HIGH SOLVENT CHARACTER

André Marter, Notre-Dame-de-Gravenchon, and Jean Taillardat, Mont-Saint-Aignan, France, assignors to Esso Standard Societe Anonyme Francaise, Paris, France, a corporation of France

No Drawing. Filed Dec. 9, 1964, Ser. No. 417,208

Claims priority, application France, Dec. 12, 1963, 957,018

6 Claims. (Cl. 208—264)

1. A process for preparing a lubricating oil fraction of increased aromatic hydrocarbon content which comprises:
- (a) extracting a petroleum distillate having an aromatic hydrocarbon content of up to 40% in C_A weight percent and a viscosity at 100° F. within the range of 75 to 100 SUS with a selective solvent to obtain a raffinate having a viscosity-bravity constant within the range of 0.815 to 0.830, and a solvent extract;
- (b) blending said extract with an unextracted portion of said distillate in proportions containing from 20 to 80 weight percent of extract and 80 to 20 weight percent of distillate;
- (c) hydrofining the said mixture at a temperature in the range of 400° to 700° F. and 10 to 100 atmospheres pressure at a feed rate in the range of from 0.3 to 5 volumes of oil per volume of catalyst per hour using from 50 to 1000 volumes of hydrogen (at NTP) per volume of oil.

3,303,126

NON-CATALYTIC CRUDE OIL HYDROREFINING PROCESS

William K. T. Gleim, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed June 17, 1964, Ser. No. 375,964

6 Claims. (Cl. 208—251)

1. A process for hydrorefining a hydrocarbon charge stock containing asphaltenes and organo-metallic contaminants which comprises reacting said charge stock, in the absence of a catalytic composite, with a gaseous mixture of hydrogen and hydrogen sulfide at a temperature above about 200° C. and under a pressure greater than about 500 p.s.i.g. to remove a substantial portion, at least, of said asphaltenes and organo-metallic contaminants from the charge stock.

3,303,127

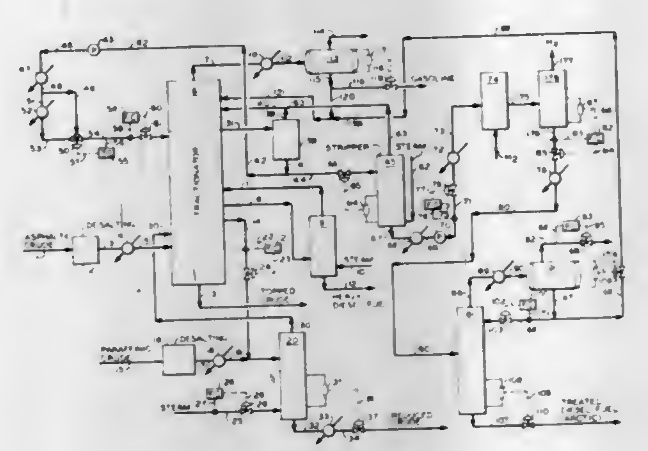
SIMULTANEOUS FRACTIONATION OF TWO CRUDE OILS

Mack F. Potts and Frank E. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 4, 1964, Ser. No. 415,978

9 Claims. (Cl. 208—355)

1. A method of combined fractionation of at least two crude petroleum materials without mixing the heavy components of the two materials, the heavy components of each of the two materials being such that they cannot be combined without deleteriously affecting the valuable properties of the heavy components of at least one of said materials which comprises fractionating at least one of said crude materials in a single fractionation zone to produce a gasoline fraction, at least one diesel fuel fraction, a heavy gas oil fraction and a topped crude fraction, flashing at least one of said materials in a single flashing zone to produce a light gas oil and lighter fraction and a reduced crude fraction, passing said light gas, oil and lighter fraction into a lower portion of said fractionation zone, passing said heavy gas oil fraction from said fractionation zone into said flashing zone, separately recovering from said fractionation zone a topped crude product substantially free of heavy components present in said materials charged to said flashing zone and diesel and lighter fuel fractions which contain components from all of said materials charged to said flashing zone and said fractionation zone, and separately recovering from said flashing zone a reduced crude product substantially free of heavy components present in said crude materials charged to said fractionation zone.



3,303,128

PRODUCTION OF FUEL OILS

David Hallam Peel and James O'Donnell, Sunbury-on-Thames, England, assignors to The British Petroleum Company Limited, London, England, a corporation of England

No Drawing. Filed June 18, 1964, Ser. No. 376,221

Claims priority, application Great Britain, July 16, 1963, 28,104/63

2 Claims. (Cl. 208—366)

1. A process for the production of a fuel oil having a viscosity within the range 40 to 90 cs. at 75° C. and a pour point below 70° F. from a waxy crude, such crude containing wax in an amount that, when conventionally distilled in refinery distillation units to an equivalent cut point of less than 550° C. corrected to 760 mm. Hg, it gives a vacuum residue having so high a wax content that it cannot be blended with gas-oil to give a blend having a viscosity above 40 cs. at 75° C., 1000 Redwood 1 seconds at 100° F., as well as a pour point below 70° F., comprising vacuum distilling the waxy crude to obtain a final vacuum residue boiling above 550° C. at a pressure corrected to 760 mm. Hg, and blending this heavy residue with gas-oil in an amount sufficient to give both the required viscosity within the range 40 to 90 cs. at 75° C. and a pour point below 70° F.

3,303,129

METHOD FOR BREAKING IN ALUMINUM CYLINDERS OF AN INTERNAL COMBUSTION ENGINE

James W. Johnson, Broomall, Pa., and James W. Savin, Wenonah, N.J., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed July 26, 1965, Ser. No. 474,975

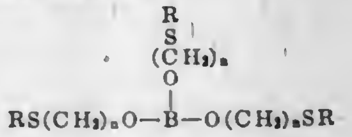
8 Claims. (Cl. 252—37.2)

1. A process for breaking in the piston rings and aluminum cylinder bores of an internal combustion engine with a break-in lubricating oil composition which comprises operating the engine under break-in conditions as the piston rings and cylinder bores are lubricated with a break-in lubricating oil composition comprised of a major amount of a mineral lubricating oil and minor amounts of sulfurized sperm oil and lead naphthenate.

3,303,130
LUBRICANT COMPOSITIONS CONTAINING ORGANO MERCAPTOALKYL BORATES

Frederick E. Scypinski, Monroeville, and Harold O. Strange, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Nov. 2, 1965, Ser. No. 506,127
9 Claims. (Cl. 252—46.3)

1. A lubricating composition comprising a major amount of a lubricating oil and a small amount, sufficient to improve the antiwear and load-carrying characteristics of the oil, of an organo mercaptoalkyl borate having the general formula



$$\begin{array}{c} R \\ S \\ (CH_2)_n \\ O \\ | \\ RS(CH_2)_nO-B-O(CH_2)_nSR \end{array}$$

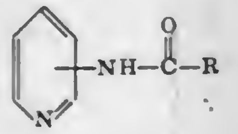
wherein R is selected from the group consisting of hydrogen, alkyl, aryl, alkaryl, aralkyl and cycloalkyl radicals containing 1 to 16 carbon atoms and n is an integer of 2 to 16.

3,303,131
LUBRICANT COMPOSITIONS

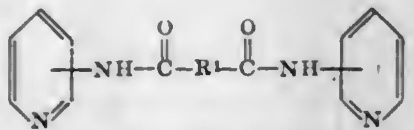
Hans Low, Bonn, Germany, and Russell L. Booher, Edwardsville, and John E. Lauck, Godfrey, Ill., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 11, 1964, Ser. No. 417,811
17 Claims. (Cl. 252—47.5)

1. A lubricating composition comprising a major amount of a synthetic ester base oil and

(1) 0.05 to 5% by weight of an amide selected from the group consisting of



and



wherein R is selected from alkyl and aryl having from 1 to about 20 carbons, and R′ is selected from alkylene and arylene having from 2 to about 20 carbons, and

(2) 0.05 to 5% by weight of an amine selected from the group consisting of arylamines, diarylamines, heterocyclicamines and thiodiarylamines having from 4 to 12 carbon atoms.

3,303,132
HIGH TEMPERATURE LUBRICATING COMPOSITIONS

Samuel J. Leonardi, Pitman, and Edward A. Oberright, Woodbury, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Mar. 19, 1964, Ser. No. 353,229
14 Claims. (Cl. 252—49.7)

1. A lubricating composition containing a major proportion of a synthetic lubricating oil selected from the group consisting of a hydrogenated polyolefin lubricating oil and a trimethylolpropane ester lubricating oil and a minor proportion, sufficient to improve the autogenous ignition temperature thereof, of an organo-metallic compound of the formula

$$R_mMX_n$$

where R represents a hydrocarbon group; X is a member selected from the class consisting of halogen, hydroxy and carbonyl groups; M represents a metal selected from the class consisting of lead and manganese; m has a value in the range from 1 to the maximum valence state of M; n has a value in the range from 0 to the maximum valence state of M minus the value of m; the sum of $m+n$ being equal to the number of substituents attached to M wherein said composition is normally used under temperature approximately in the region of the autogenous ignition temperature of said lubricating oil.

3,303,133
PROCESS FOR PRODUCING DENSE CERAMIC OF LEAD ZIRCONATE-TITANATE

William R. Bratschun, Hopkins, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Feb. 6, 1964, Ser. No. 342,890
5 Claims. (Cl. 252—62.9)

1. The method of producing a dense ceramic of lead zirconate-lead titanate which comprises preparing a mixture of lead zirconate-lead titanate wherein the atomic ratio of Zr to Ti is from 90:10 to 40:60, forming the mixture into the desired shape, placing the mixture into a chamber, introducing a quantity of cadmium oxide separate from said shaped mixture into said chamber, and heating the chamber to a temperature in excess of 980° C.

ERRATUM

For Class 252—99 see:
Patent No. 3,303,104

3,303,134
DETERGENT PROCESSES AND COMPOSITIONS THEREFOR

Chung Yu Shen, Olivette, and Joe S. Metcalf, Webster Groves, Mo., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed Sept. 5, 1961, Ser. No. 135,718
14 Claims. (Cl. 252—135)

1. A process for manufacturing a heat-dried composition containing hydrated penta alkali metal tripolyphosphate, which process comprises the steps of preparing an aqueous slurry containing at least about 10 weight percent, based on the total weight of said slurry, of water, at least about 5 weight percent based on the total weight of said slurry of an alkali metal trimetaphosphate, and an alkali metal base, said alkali metal base being one which provides at 1 weight percent concentration in distilled water a solution pH measured at 25° C. of at least about 10.2 and said alkali metal base being present in said aqueous slurry in an amount at least sufficient to convert at least about one third of said alkali metal trimetaphosphate to said hydrated penta alkali metal tripolyphosphate, and thereafter heat-drying said aqueous slurry.

3,303,135
METHOD OF PREPARING CLEANSING COMPOSITIONS

Seymore Goldwasser, Teaneck, N.J., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
No Drawing. Filed Jan. 25, 1965, Ser. No. 427,971
9 Claims. (Cl. 252—137)

1. In the preparation of a heat-dried nonionic detergent composition consisting essentially of (a) at least one nonionic surface active agent having detergent properties, (b) a phosphate builder selected from the group consisting of alkali metal pyrophosphates and alkali metal tripolyphosphates in an amount sufficient to improve the detergency of said surface active agent, (c) sodium carboxymethylcellulose in an amount effective to impart soil suspending properties to said composition, and (d) sodium silicate in an amount effective to inhibit corrosion, said composition being prepared by blending the

aforesaid ingredients with water to prepare a slurry, and heat-drying the resultant slurry; the improvement comprising combining said carboxymethylcellulose, water and sodium silicate with alpha:beta-di-[5-methyl-benzoxazolyl-(2)]-ethylene as a brightening agent, and agitating said mixture for at least three minutes to affix said brightening agent to said carboxymethylcellulose, the amount of said carboxymethylcellulose relative to said brightening agent being sufficient to adsorb said dye and to maintain it in an active state, and subsequently blending therewith said nonionic surface active agent and said phosphate and heat-drying the resulting slurry.

3,303,136
DETERGENT COMPOSITIONS

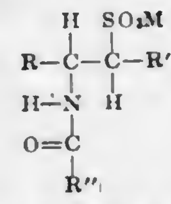
Willard M. Bright, Ridgewood, N.J., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
No Drawing. Filed Feb. 26, 1963, Ser. No. 261,193
6 Claims. (Cl. 252—138)

1. A composition consisting essentially of about 40% to about 85% of a water-soluble condensed, inorganic polyphosphate and from about 15% to about 60% of a water-soluble aryl sulfonate selected from the group consisting of benzenesulfonate, ortho-xylenesulfonate, metaxylenesulfonate, para-xylenesulfonate, toluenesulfonate, ethylbenzenesulfonate, n-propylbenzenesulfonate, isopropylbenzenesulfonate and mixtures thereof, the proportions being based on the weight of the dry ingredients, said composition providing an alkaline reaction in aqueous solution.

3,303,137
SURFACTANT MIXTURES

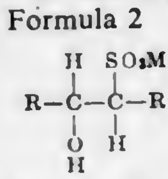
George L. Broussalian, Overland, Mo., assignor to Monsanto Company, a corporation of Delaware
No Drawing. Filed Oct. 8, 1963, Ser. No. 314,648
9 Claims. (Cl. 252—152)

1. A detergent composition comprising a mixture of (a) from about 40 to about 98 weight percent, based on the weight of said mixture, a vicinal acylamido sulfonate having the Formula 1



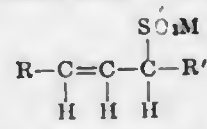
$$\begin{array}{ccccc} & H & & SO_3M & \\ & | & & | & \\ R- & C & - & C & -R' \\ & | & & | & \\ H- & N & & H & \\ & | & & & \\ O= & C & & & \\ & | & & & \\ & R'' & & & \end{array}$$

wherein R and R′ are selected from the group consisting of alkyl radicals and hydrogen; the total number of carbon atoms in R plus R′ being from about 8 and about 22; M is a cation selected from the group consisting of alkali metal, alkaline earth metal, and ammonium cations, and R″ is an alkyl radical containing from 1 to 6 carbon atoms; (b) from about 1 to about 30 weight percent, based on the weight of said mixture, a beta-hydroxy sulfonate having the Formula 2



$$\begin{array}{ccccc} & H & & SO_3M & \\ & | & & | & \\ R- & C & - & C & -R' \\ & | & & | & \\ & O & & H & \\ & H & & & \end{array}$$

wherein R, R′ and M have the same meaning as in said Formula 1; and (c) from about 0.5 to about 30 weight percent, based on the weight of said mixture, of a beta-ethylenically unsaturated sulfonate having the Formula 3



$$\begin{array}{ccccccc} & & & & SO_3M & & \\ & & & & | & & \\ R- & C & = & C- & C & -R' \\ & | & & | & | & \\ & H & & H & H & \end{array}$$

wherein M has the same meaning as in said Formula 1, and R and R′ are selected from the group consisting of alkyl radicals and hydrogen, the total number of carbon atoms in R+R′ from about 7 to about 21.

3,303,138
TRIETHANOLAMINE STRAIGHT CHAIN SECONDARY ALKYLBENZENE SULFONATE LIQUID DETERGENT COMPOSITIONS CONTAINING DEGELLING AGENTS

William J. De Witt, Willingboro, N.J., and Robert C. Taylor, King of Prussia, Pa., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Mar. 5, 1965, Ser. No. 437,577
26 Claims. (Cl. 252—152)

1. A non-gelling aqueous solution consisting essentially of an amount in excess of about 40 weight percent and ranging up to about 70 weight percent of triethanolamine straight chain secondary alkylbenzene sulfonates, said sulfonates having a straight alkyl side chain length of 9 to 15 carbon atoms, and an organic degelling compound in amounts at least sufficient to prevent the gelling in aqueous solution of said sulfonates, said compound being selected from the group consisting of glycols, polyglycols, hydroxy diamines, N-alkyl substituted beta-amino propionic acids and salts thereof and derivatives of cycloimidine, wherein:

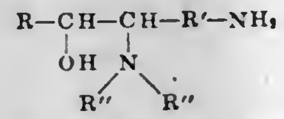
(a) said glycols are highly water soluble glycols characterized by the formula $C_nH_{2n}(OH)_2$ wherein n ranges from 2 to 7, and wherein,

(b) said polyglycols are highly water soluble polyglycols characterized by the formula

$$H—(OR)_n—OH$$

wherein R is an alkylene radical having from 2 to 3 carbon atoms and n is an integer ranging from 2 to about 135 when R contains 2 carbon atoms and wherein n ranges from about 2 to about 9 when R contains 3 carbon atoms and wherein,

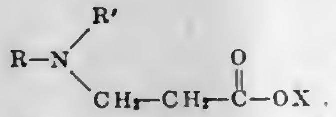
(c) said hydroxy diamines are characterized by the formula



$$\begin{array}{l} R-CH-CH-R'-NH_2 \\ \quad\;\; | \qquad | \\ \quad\; OH \quad N \\ \qquad\quad / \quad \backslash \\ \qquad R'' \quad R'' \end{array}$$

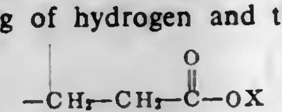
wherein R is an alkyl radical containing from 2 to 10 carbon atoms, R′ is an alkylene radical containing from 2 to 10 carbon atoms, and wherein the sum of the carbon atoms in the R and R′ groups ranges from 8 to about 18, and R″ is selected from the group consisting of hydrogen and an alkyl radical containing from 1 to about 5 carbon atoms, and wherein,

(d) the alkyl substituted beta-amino propionic acids and salts thereof are characterized by the general formula:



$$R-N\begin{array}{l} \diagup R' \\ \diagdown CH_2-CH_2-\overset{\overset{O}{\|}}{C}-OX \end{array}$$

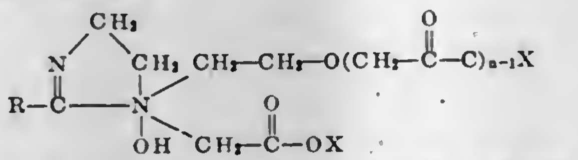
wherein R is an alkyl radical containing from 8 to about 18 carbon atoms, R′ is selected from the group consisting of hydrogen and the radical



$$-CH_2-CH_2-\overset{\overset{O}{\|}}{C}-OX$$

and X is selected from the group consisting of hydrogen and an alkali metal and wherein,

(e) the derivatives of cycloimidine are characterized by the formula:



wherein R is an alkyl radical containing 4 to about 18 carbon atoms, X is an alkali metal, and n is an integer selected from the group consisting of 1 and 2.

3,303,139

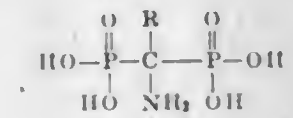
AMINOPHOSPHONIC ACIDS AND THEIR DERIVATIVES AS COMPLEX FORMERS FOR METAL IONS

Bruno Blaser, Dusseldorf-Urdenbach, Hans-Günther Germscheid, Hosel, and Karl-Heinz Worms, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie, G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Filed June 2, 1965, Ser. No. 460,809

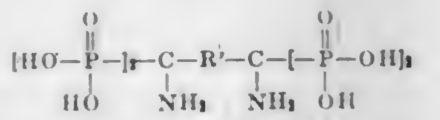
2 Claims. (Cl. 252—180)

1. A process for forming metal complexes which comprises adding to aqueous solutions of bi- and trivalent complex-forming metal ions 0.015 to 3 mols per mol metal ion of a substance selected from the group consisting of



$$\mathrm{HO-\overset{\overset{O}{\|}}{\underset{\underset{HO}{|}}{P}}-\overset{\overset{R}{|}}{\underset{\underset{NH_2}{|}}{C}}-\overset{\overset{O}{\|}}{\underset{\underset{OH}{|}}{P}}-OH}$$

and



$$\mathrm{[HO-\overset{\overset{O}{\|}}{\underset{\underset{HO}{|}}{P}}-]_2-\underset{\underset{NH_2}{|}}{C}-R'-\underset{\underset{NH_2}{|}}{C}-[-\overset{\overset{O}{\|}}{\underset{\underset{OH}{|}}{P}}-OH]_2}$$

their methyl-, ethyl-, propyl-, butyl- and amyl-semiesters; and their lithium-, sodium-, potassium-, ammonium-, mono-, di- and triethanolamine, guanidine- and urea-salts; wherein R is selected from the group consisting of an alkyl having 1 to 10 C-atoms, phenyl and benzyl; and R' is an alkyl having 1 to 10 C-atoms.

3,303,140

RADIOACTIVE MATERIALS OF LOW SURFACE AREA

Heinz Heinemann, Princeton, John W. Kraus, Wayne, and Marshall L. Spector, Livingston, N.J., assignors to Pullman Incorporated, a corporation of Delaware

No Drawing. Filed Dec. 5, 1961, Ser. No. 157,244

13 Claims. (Cl. 252—301.1)

1. The process which comprises: forming a mixture of iron oxide and an element in its elemental state selected from the group consisting of silicon and aluminum and mixtures thereof wherein the iron oxide is in at least a 2.5:1 weight ratio with the elemental portion of the mixture; preheating the mixture to a temperature below ignition and reacting a radioactive element with the heated mixture by igniting the mixture in the presence of said radioactive element to produce a crystalline mass having a surface area less than 0.01 square meter per gram wherein the radioactive element is chemically combined within the mixture.

3,303,141

PROCESSING OF ELECTROLUMINESCENT PHOSPHORS

Philip M. Jaffe, Nutley, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 3, 1963, Ser. No. 313,419

8 Claims. (Cl. 252—301.6)

1. The method of improving the maintenance of light emission obtainable from an electroluminescent device incorporating electroluminescent phosphor having a matrix at least principally comprising zinc sulfide and including copper as activator, which phosphor has initially been prepared by firing the phosphor raw-mix constituents in a sulfurizing atmosphere at a predetermined temperature for a predetermined period of time, which method comprises: after initial preparation but before the phosphor is incorporated into an electroluminescent device, baking the phosphor in an atmosphere of ammonia or sulfur dioxide at a temperature of from 450° C. to 700° C. for a period of at least about one hour.

3,303,142

CATALYST FOR REMOVAL OF MERCAPTANS FROM HYDROCARBON OILS

Herve Maze, Jacques Mauborgne, and René Reinbold, Paris, France, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Original application July 18, 1962, Ser. No. 210,825, now Patent No. 3,192,152, dated June 29, 1965. Divided and this application Dec. 3, 1964, Ser. No. 422,879

2 Claims. (Cl. 252—428)

1. A method of preparing a catalyst which comprises impregnating active carbon with copper by contacting the carbon with an aqueous solution of at least one cupric salt, drying the impregnated carbon, contacting the impregnated carbon with an aqueous solution comprising 0.5–10% by weight each of ammonium phosphate and a complexing agent selected from alkyl amines, alkanol amines, alkanoic acids, and amino acids, and drying at a temperature of about 110–120° C. to a water content of 5–7%, by weight.

3,303,143

ELECTROLYTE FOR ELECTROLYTIC CAPACITOR

Harold D. Shepherd, Indianapolis, Ind., and James A. Carter, Huntsville, Ala., assignors to P. R. Mallory Co., Inc., Indianapolis, Ind., a corporation of Delaware

Filed Apr. 9, 1965, Ser. No. 446,872

5 Claims. (Cl. 252—62.2)

1. An electrolytic capacitor electrolyte consisting of from about 1.89% to 21.97% by weight of ammonium picrate, from about .2% to 2.27% by weight of water, and from about 97.91% to 75.76% by weight of a glycol ether.

3,303,144

RESINOUS REACTION PRODUCT OF A DIGLYCIDYL ETHER AND AN AZIRIDINE COMPOUND

Greene W. Strother, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 9, 1963, Ser. No. 307,301

13 Claims. (Cl. 260—2)

1. A thermoset resin produced by the reaction of a diglycidyl ether with an N-(2-hydroxy alkyl) aziridine wherein the alkyl group of said aziridine contains from 2 to 4 carbon atoms.

3,303,145

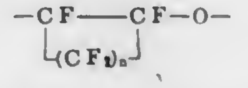
FLUOROCARBON POLYETHERS

Dana Peter Carlson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

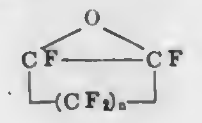
No Drawing. Filed Jan. 11, 1963, Ser. No. 250,750

3 Claims. (Cl. 260—2)

1. A linear polyether containing structural units having the formula:



where *n* is an integer from 2 to 4 inclusive said polyethers being obtained by the polymerization of an epoxide having the general formula:



and mixtures of the said epoxide with hexafluoropropylene epoxide.

3,303,146

LIQUID-FILLED POROUS PLASTIC STRUCTURES AND METHODS FOR MAKING THEM

Paul Chebiniak, Binghamton, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 30, 1963, Ser. No. 334,562

6 Claims. (Cl. 260—2.5)

1. A method for producing ink-filled porous plastic printing structures comprising:

(a) mixing an aqueous thermoplastic polymer latex and a secondary plasticizer containing a coloring agent,

(b) coagulating said latex and secondary plasticizer containing said coloring agent,

(c) removing the water from said coagulated material by first centrifuging and then drying the centrifuged product, and finally,

(d) heating for only a time sufficient to fuse the thermoplastic polymer to form a porous structure having at least some of said secondary plasticizer containing the coloring agent in the pores capable of being exuded in response to pressure.

3,303,147

DRY POWDER FOR WALLBOARD JOINT TREATMENT

Howard S. Elden, Clarence Center, N.Y., assignor to National Gypsum Company, Buffalo, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 15, 1963, Ser. No. 251,483

8 Claims. (Cl. 260—8)

1. A dry powder composition suitable on admixture of water for application over and concealing of gypsum wallboard joint areas, comprising essentially as the active binding ingredients from about 40% to 65% by weight of 100% minus 100 mesh calcined gypsum, and about 4% to 10% by weight of the combination of polyvinyl acetate emulsifiable powder and polyvinyl alcohol powder, which said polyvinyl alcohol powder is at least 85% hydrolyzed, and from about 23% to 54% by weight inert filler powders, wherein the ratio of said polyvinyl acetate powder to said polyvinyl alcohol powder is from about 3:1 to 10:1.

3,303,148

HIGH-DENSITY POLYPROPYLENE BLEND WITH A CELLULOSE ETHER OR ESTER

Frederick B. Joyner and Harry W. Coover, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Original application Mar. 28, 1960, Ser. No. 17,776. Divided and this application July 15, 1965, Ser. No. 484,148

7 Claims. (Cl. 260—17)

1. A polypropylene composition comprising high-density polypropylene and about 2 to about 50 percent, by weight, of a polymeric modifier selected from the group consisting of cellulose ester of carboxylic acid and cellulose ether, said polymeric modifier being capable of increasing the impact strength of the polypropylene.

3,303,149

ASPHALT COPOLYMER COMPOSITIONS

Dale F. Fink, Lafayette, and Charles C. Evans, Concord, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 19, 1962, Ser. No. 188,845

6 Claims. (Cl. 260—28.5)

6. An asphalt composition comprising a major amount of an asphalt, a minor amount of a hydrocarbon wax, said wax being present in an amount between about 1% and 20% by weight of the combined asphalt and wax, and between about 0.01% and 2.5% by weight of a copolymer of ethylene with an ester of a C_{2-6} aliphatic alcohol and a C_{2-6} aliphatic monocarboxylic acid, said ester containing one carbon-to-carbon double bond, said monocarboxylic acid being a C_{3-6} acrylic acid when the carbon-to-carbon double bond is contained in the acid portion of said ester, said aliphatic alcohol being vinyl alcohol when the carbon-to-carbon double bond is contained in the alcohol portion of said ester, said copolymer having an ester content of from 5 to 30% by weight when the double bond is in the acid portion of said ester and an ester content of from 15–40% by weight when the double bond is in the alcohol portion of said ester, said copolymer having an average molecular weight of 1×10^4 to 1×10^6.

3,303,150

WAX POLYMER COMPOSITIONS COMPRISING PETROLEUM WAX, POLYETHYLENE AND A COPOLYMER OF ETHYLENE AND AT LEAST ONE C_3–C_8 OLEFIN

Cyril B. Coenen and Harry F. Richards, Concord, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 17, 1962, Ser. No. 188,254

3 Claims. (Cl. 260—28.5)

1. A composition of matter comprising 50–85% by weight of a petroleum hydrocarbon wax, and 15–50% by weight of a mixture of polyethylene (A) and a hydrocarbon copolymerization product (B) of ethylene and at least one 3–8 olefin, the copolymeric product comprising 80–95 mol percent of ethylene units and having an intrinsic viscosity of 0.3–6.0, the weight ratio of A:B being between about 2:1 and about 1:5.

3,303,151

POLYMERIZATION PROCESS

Edwin F. Peters, Lansing, and Omar O. Juveland, South Holland, Ill., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Dec. 23, 1963, Ser. No. 332,904

5 Claims. (Cl. 260—28.5)

1. A polymerization process which comprises contacting (1) a polymerizable vinyl compound with (2) an asphaltic material containing a transition metal selected from Groups IV, V, VI and VIII in the presence of (3) a metallic reducing agent selected from the group consisting of the hydrides, alkyls, aryls and sesquihalides of Group I, II, III and IV metals, under polymerizing conditions of temperatures and pressure.

3,303,152

POLYETHYLENE OF IMPROVED ENVIRONMENTAL STRESS CRACKING RESISTANCE

Wildon T. Harvey, Hockessin, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed July 31, 1964, Ser. No. 386,740

6 Claims. (Cl. 260—28.5)

1. A polyethylene composition of improved environmental stress cracking resistance, said composition comprising a major amount of polyethylene and a minor amount, at least 13% and sufficient to improve the environmental stress cracking resistance of said polyethylene, of a paraffin wax having a melting point of 122°–130° F., a penetration at 77° F. of 9–35 dmm., a viscosity at 210° F. of 36–45 S.U.S., and an oil content of less than 0.5%.

3,303,153

POLYMERIZATION INHIBITING MIXTURE OF PHENOL AND CHLORINE COMPOUND

Werner L. Jablonski, Midland, and Charles E. Colby, Freeland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 18, 1963, Ser. No. 309,598

4 Claims. (Cl. 260—29.6)

1. A process for extending the useful film-forming life of an emulsion polymerizate composed predominantly of a normally crystalline vinylidene chloride polymer which emulsion polymerizate normally is capable of depositing continuous, coherent films when fresh and loses that ability on aging, which comprises (1) preparing an aqueous latex by emulsion polymerization of a monomeric mixture of vinylidene chloride and a polymerizable comonomer, and (2) terminating the polymerization between about 55 and 90 percent conversion of monomer to polymer, by adding to the emulsion polymerizate less than about 1 weight percent based on the polymer solids of said emulsion polymerizate of a polymerization inhibiting agent consisting essentially of an admixture of (a) between about 0.001 and about 0.015 weight percent of at least one compound selected from the group consisting of chlorine dioxide and alkali metal chlorites, and (b) at least about 0.02 weight percent of at least one phenolic compound selected from the group consisting of phenol, paramethoxyphenol and hydroquinone.

3,303,154

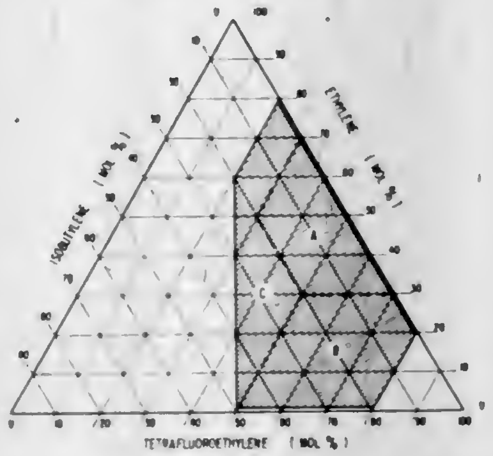
COATING COMPOSITIONS

Keisuke Hirose and Masao Hasegawa, Yokohama, and Shinichi Fujimaki, Ashiya-shi, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

Filed Oct. 14, 1963, Ser. No. 315,898

Claims priority, application Japan, Oct. 18, 1962, 37/45,179

7 Claims. (Cl. 260—29.6)



5. A process of producing a copolymer dispersoid composition of tetrafluoroethylene, ethylene and isobutylene by emulsion polymerization in an aqueous medium comprising reacting at a pressure of at least 30 atms. and at a temperature of 70–75° C. in the presence of water a gaseous mixture of 20–80 mol percent tetrafluoroethylene, 20–80 mol percent ethylene and 1–49 mol percent isobutylene for a period of several hours until the reaction is complete and recovering said copolymer from the reaction vessel.

3,303,155

TWO-STAGE HEATING METHOD FOR PREPARING BUTADIENE-STYRENE LATEX

William R. Peterson, Houston, and Donald A. Walker, Baytown, Tex., assignors, by mesne assignments, to Ashland Oil & Refining Company, Ashland, Ky., a corporation of Kentucky

No Drawing. Filed Dec. 28, 1962, Ser. No. 247,830

2 Claims. (Cl. 260—29.7)

1. A method of preparing a styrene-butadiene resin latex by the emulsion polymerization of a monomer containing by weight about 50–65% of styrene and about 50–35% of butadiene, which comprises initially conducting the polymerization at a temperature of about 115–130° F. for a time sufficient to obtain about 15–30% monomer conversion, and thereafter continuing the polymerization at a temperature of about 145–155° F. until the desired degree of monomer conversion has been obtained.

3,303,156

PROCESS FOR THE STEREOSPECIFIC POLYMERIZATION OF BUTADIENE IN AN AQUEOUS EMULSION

Robert Dauby, Asnieres, and Philippe Teyssie, Colombes, France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

No Drawing. Filed Mar. 26, 1964, Ser. No. 356,005

21 Claims. (Cl. 260—29.7)

1. In a process for the polymerization of 1,3-butadiene to 1,4-trans-polybutadiene in the presence of a stereospecific catalyst, the improvement which comprises adding a small quantity of 1,3-cyclohexadiene to the reaction mixture.

3,303,157

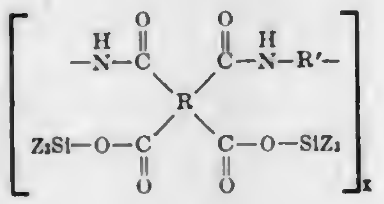
SILYLATED POLYAMIDE-ACIDS AND COMPOSITIONS THEREOF

Edith M. Boldebuck and Johann F. Klebe, both of Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed Apr. 15, 1964, Ser. No. 359,928

15 Claims. (Cl. 260—30.4)

1. A composition of matter composed of recurring units of the formula



where Z is a monovalent hydrocarbon radical, R is a tetravalent radical containing at least 6 carbon atoms in a ring having benzenoid unsaturation, the four carbonyl groups being attached to separate carbon atoms of said tetravalent radical in the ring, and each pair of carbonyl groups being attached to adjacent carbon atoms in the R radical at most one carbon atom removed from each other, R′ is a divalent aromatic radical of at least 6 carbon atoms, and *x* is a whole number in excess of at least 10.

3,303,158

FILM-FORMING NOVOLAK-POLYAZIRIDINE RESIN

Greene W. Strother, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 24, 1964, Ser. No. 347,018

10 Claims. (Cl. 260—33.4)

1. A film-forming thermosettable mixture consisting essentially of a novolak resin having an average molecular weight between about 370 and 850, a polyaziridine compound selected from the group consisting of bis- and tris(aziridinyl)phosphine oxides and sulfides, the diesters of bis-(1-aziridinyl)phosphinic acid and a polyhydric alcohol, and the bis- and tris-(1-aziridinyl)triazines and a volatile solvent for said novolak resin and polyaziridine compound, the quantity of said polyaziridine compound being from about 25 to about 125 percent of the stoichiometric amount which will react with said novolak resin.

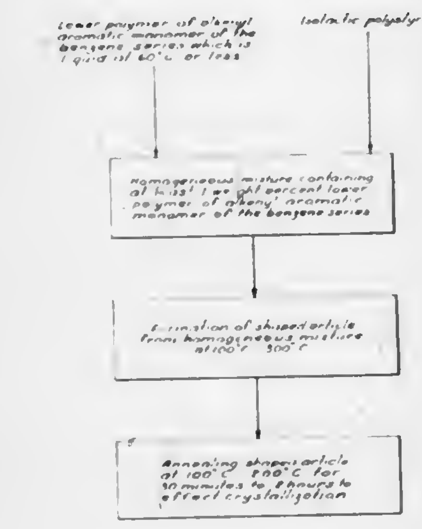
3,303,159

METHOD OF MAKING ARTICLES OF CRYSTALLINE POLYSTYRENE CONTAINING LOWER POLYMERS OF ALKENYL AROMATIC MONOMERS

Frank L. Saunders, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Jan. 11, 1962, Ser. No. 165,649

7 Claims. (Cl. 260—33.6)


Lower polymer of alkenyl aromatic monomer of the benzene series which is liquid at 60° C. or less
Isotactic polystyrene
Homogeneous mixture containing at least 1 weight percent lower polymer of alkenyl aromatic monomer of the benzene series
Formation of shaped article from homogeneous mixture at 100° C.–300° C.
Annealing shaped article at 100° C.–200° C. for 30 minutes to 2 hours to effect crystallization

1. Method of making articles of isotactic polystyrene having enhanced crystallization rates which comprises (I) preparing a homogeneous mixture of isotactic polystyrene and at least 1 weight percent based on the weight of said isotactic polystyrene of a lower polymer of an alkenyl aromatic monomer of the benzene series, said lower polymer being liquid at temperatures of about 60° C. or less; (II) forming said homogeneous mixture into a shaped article at a temperature between about 100° C. and 300° C.; and (III) thereafter annealing said shaped article at a temperature between about 100° C. and 200° C. for a period between about 30 minutes to 2 hours to effect crystallization thereof.

6. A crystalline article prepared from a homogeneous mixture comprised of isotactic polystyrene and at least 1 weight percent based on the weight of said isotactic polystyrene of a lower polymer of an alkenyl aromatic monomer of the benzene series, said lower polymer being a liquid at a temperature of about 60° C. less.

3,303,160

INK FROM NYLON, CRESYLIC ACID, AND PIGMENT

Robert K. Remer, Evanston, Ill., assignor to Inca Inks, Inc., Evanston, Ill., a corporation of Illinois

No Drawing. Filed July 17, 1961, Ser. No. 124,329

1 Claim. (Cl. 260—33.4)

An ink composition having substantially the following composition:

	Parts by weight
Nylon scrap	70
Cresylic acid	30
Pigment	10

3,303,161

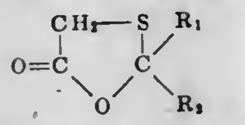
OXATHIOLANES AS STABILIZERS FOR CHLORINE CONTAINING POLYMERS

Edith H. Miller, New Brighton, Minn., and Ingenuin Hechenbleikner, Cincinnati, and Otto A. Homberg, Woodlawn, Ohio, assignors to Carlisle Chemical Works, Inc., Reading, Ohio, a corporation of Ohio

No Drawing. Original application Apr. 2, 1963, Ser. No. 269,864, now Patent No. 3,209,012, dated Sept. 28, 1965. Divided and this application May 11, 1964, Ser. No. 380,724

11 Claims. (Cl. 260—45.75)

1. A chlorine containing polymer selected from the group consisting of vinyl and vinylidene resins in which the halogen is directly attached to a carbon atom stabilized with a mixture of a compound having the formula



when R_1 and R_2 individually are selected from the group consisting of hydrogen, alkyl, alkenyl, aralkyl and aryl and together an alkylene radical having a chain of 4 to 5 carbon atoms and a member of the group consisting of dialkyltin acylates and dialkyltin oxides.

3,303,162

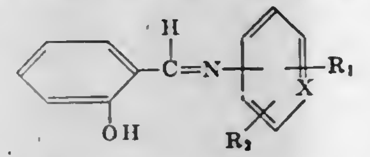
LIGHT-STABILIZED POLYOLEFIN COMPOSITIONS CONTAINING A NICKEL SALT OF A SCHIFF BASE AND A TEREPHTHALATE ESTER

Charles H. Fuchsman, Cleveland Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 31, 1964, Ser. No. 422,575

9 Claims. (Cl. 260—45.75)

5. A polyolefin containing in intimate admixture therewith (a) from about 0.2 to 0.5 percent by weight of a nickel salt of a Schiff base having the general formula:



wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, alkoxy, and carboalkoxy, and X is selected from the group consisting of CH and N; and (b) from about 0.2 to 1.0 percent by weight of bis(alkylphenyl)terephthalate the total percent by weight of said nickel salt of a Schiff base, and the total percent by weight of said bis(alkylphenyl)terephthalate constituting, together, at least 0.6 percent by weight; and (c) from about 0.1 to 0.5 percent by weight of a non-aromatic organophosphorus ester.

3,303,163

ROOM TEMPERATURE VULCANIZING SILICONE COMPOSITIONS

John C. Goossens, Scotia, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Dec. 20, 1963, Ser. No. 332,271

8 Claims. (Cl. 260—46.5)

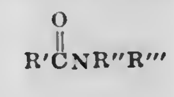
6. A cured elastic composition obtained from a mixture of ingredients comprising, by weight, 100 parts of a liquid silanol chain-stopped polydiorganosiloxane having the formula:

$$HO[(R)_2SiO]_nH$$

from 0.1 to 0.5 part of an amine having an ionization constant of 10^{-12} to 10^{-5}, from 1.0 to 5.0 parts of an organotrichlorosilane having the formula:

$$RSiCl_3$$

and from 0.5 to 3.0 parts of an amide having the formula:



$$R'\overset{\overset{O}{\|}}{C}NR''R'''$$

where R is a member selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and cyanoalkyl radicals, R′ and R″ are members selected from the class consisting of hydrogen, monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and cyanoalkyl radicals, R‴ is an alkyl radical and further members where R″ and R‴ taken together represent a divalent alkylene radical, and *n* has a value of at least 10.

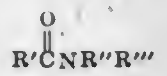
8. The method of preparing a silicone elastomer which comprises (A) forming a curable composition by adding, by weight, from 0.1 to 0.5 part of an amine having an ionization constant of from 10^{-12} to 10^{-5} to 100 parts of a silanol chain-stopped polydiorganosiloxane having the formula:

$$HO[(R)_2SiO]_nH$$

and thereafter adding to the resulting mixture from 1 to 5 parts of an organotrichlorosilane having the formula:

$$RSiCl_3$$

and (B) curing such curable composition by adding thereto from 0.5 to 3 parts of an amide having the formula:



$$R'\overset{\substack{O\\ \|}}{C}NR''R'''$$

and thereafter allowing the resulting mixture to cure, where R is a member selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and cyanoalkyl radicals, R′ and R″ are members selected from the class consisting of hydrogen, monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and cyanoalkyl radicals, R‴ is an alkyl radical, and further members wherein R″ and R‴ taken together form a divalent alkylene radical and *n* has a value of at least 10.

3,303,164
SYNTHETIC RESINS FROM TRI(ALKYLIDENE) HEXITOLS AND PHENOLS

Daniel Shew, Metuchen, and Henry B. Lange, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Nov. 23, 1960, Ser. No. 71,161
3 Claims. (Cl. 260—47)

1. A resin constituting of the co-polymerization product of trimethylene sorbitol or trimethylene mannitol with phenol or p-cresol, the mole ratio of the sorbitol or the mannitol to the phenol or p-cresol being between about 1:1 and 1:3, the product being produced at a temperature of above 90° C.

3,303,165
DIAMINE CURING AGENT FOR EPOXY RESINS

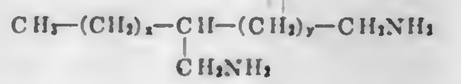
Martin Wallis, Berlin-Tegel, and Eugen Griebsch, Berlin-Britz, Germany, assignors to General Mills, Inc., a corporation of Delaware
No Drawing. Filed Nov. 14, 1961, Ser. No. 152,156
2 Claims. (Cl. 260—47)

1. A solventless coating composition comprising a liquid epoxy resin having terminal 1,2-epoxide groups and a mixture of diamines having the formulae

(a) $H_2N—CH_2—(CH_2)_{17}—CH_2—NH_2$

and

(b)



$$CH_3—(CH_2)_x—\underset{\substack{|\\ CH_2NH_2}}{CH}—(CH_2)_y—CH_2NH_2$$

where *x* is an integer of from 9–15, *y* is an integer of from 0–6 and the sum of *x* and *y* is 15 and in which mixture the diamine (a) is present in an amount of about 10% by weight based on the diamine mixture present.

3,303,166
POLYTHIOFORMALDEHYDES AND METHOD OF PRODUCING THEM

Pierre Bapseres, Pau, and Jean Signouret, Billiere, Basses-Pyrenees, France, assignors to Societe Nationale des Petroles d'Aquitaine, Paris, France, a corporation of France
No Drawing. Filed May 14, 1963, Ser. No. 280,454
Claims priority, application France, May 15, 1962, 897,600
5 Claims. (Cl. 260—67)

1. A process for producing polythioformaldehydes by reacting formaldehyde with hydrogen sulfide, which comprises the steps of:

adding formaldehyde with at least one organic liquid capable of forming azeotropic mixture with water, the said liquid being selected from the group consisting of benzene, toluene, xylene, dioxane, and dimethylmethadioxane, the liquid being present in an amount greater than twice that of formaldehyde, saturating the formaldehyde-containing medium with hydrogen sulfide at a temperature in the range from 50° C. to the boiling point of said azeotropic mixture, removing water by distilling said azeotropic mixture, and separating the remaining liquid by distilling it from the solid polythioformaldehyde formed.

3,303,167
AROMATIC HYDROCARBON-FORMALDEHYDE RESINOUS CONDENSATION PRODUCTS AND PROCESS FOR PRODUCING THE SAME

Hiroshi Kakiuchi, Yokohama, and Hideo Sato, Tokyo, Japan, assignors to Sumitomo Bakelite Company Limited, Tokyo, Japan, a corporation of Japan
No Drawing. Filed Dec. 30, 1964, Ser. No. 422,410
Claims priority, application Japan, May 27, 1960, 35/25,401
13 Claims. (Cl. 260—67)

1. A process for producing condensation products containing 7 to 20% of oxygen by weight, which comprises condensing at least one aromatic hydrocarbon selected from the group consisting of benzene and toluene with a polymeric formaldehyde having a polymerization degree of between 10 and 3,000, said polymeric formaldehyde being present in an amount from 1 to 5 moles, expressed in formaldehyde monomer unit, per mole of said aromatic hydrocarbon, in the presence of sulfuric acid in an amount of 0.1 to 1.0 mole per mole of said aromatic hydrocarbon, or perchloric acid in an amount of 0.06 to 0.2 mole per mole of said aromatic hydrocarbon as the catalysts, and also in the presence of water in an amount of 3 to 15% by weight at the beginning of the reaction at 70° to 120° C. for 2 to 10 hours, under non-azeotropic conditions, whereby a polymeric condensation product of said aromatic hydrocarbon and said formaldehyde is formed having between 7 and 20% of oxygen, and recovering said polymeric product.

10. The aromatic hydrocarbon-formaldehyde resin, which is obtained by the process according to claim **1** and possesses an oxygen content of 7 to 20% by weight, a molecular weight of 250 to 700, a viscosity of 200 to 80,000 centipoises (30° C.) and a specific gravity of 1.06 to 1.14 (30° C.).

3,303,168
THERMOPLASTIC RESIN OF A CYCLIC-s-TRIAZINE, AN ALDEHYDE AND AN ARALKYL MONOSULFONAMIDE

Zenon Kazenas, Euclid, Ohio, assignor to Switzer Brothers, Inc., Cleveland, Ohio, a corporation of Ohio
No Drawing. Original application May 26, 1961, Ser. No. 112,785, now Patent No. 3,198,741, dated Aug. 3, 1965. Divided and this application July 16, 1963, Ser. No. 295,536
12 Claims. (Cl. 260—67.6)

1. A completely condensed, thermoplastic resin consisting essentially of the condensation product of at least one aldehyde entirely selected from the class consisting of formaldehyde and paraformaldehyde, at least one aralkyl monosulfonamide having two reactive amide hydrogens, the alkyl portion of the aralkyl group of said monosulfonamide containing about 1 to 3 carbon atoms and being attached directly to the sulfur atom of the sulfonamide group, and at least one aminotriazine having at least two amino groups, the amount of said aminotriazine being sufficient to render said resin substantially insoluble in aromatic hydrocarbon solvents but insufficient to render it thermosetting.

3,303,169
HIGH-MODULUS, HIGH-TENACITY, LOW-SHRINKAGE POLYAMIDE YARN

Gilbert Pitzl, Chattanooga, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 18, 1962, Ser. No. 167,083
2 Claims. (Cl. 260—78)

1. A drawn oriented filament consisting essentially of polyhexamethylene adipamide, said filament being characterized by high modulus retention after boil-off, low retraction, a break elongation of at least 25%, an initial modulus of at least 38 grams/denier, a boil-off shrinkage of less than about 6.5% and also by crystalline portions having transverse cross-sectional areas of at least about 1250 square Angstroms and an average orientation angle of less than 14°, said filament being at least 35% crystalline.

3,303,170
TRIAZINE MODIFIED POLYPHENYLENE SULFIDE RESINS

Roscoe A. Pike, Holden, Mass., assignor to Norton Company, Worcester, Mass., a corporation of Massachusetts
No Drawing. Filed Nov. 8, 1963, Ser. No. 322,507
2 Claims. (Cl. 260—79)

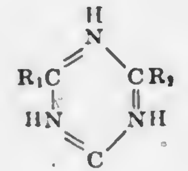
1. A method of making a polysulfide polymer comprising reacting together in a sealed container sulfur, a compound selected from the group consisting of alkali metal and alkaline earth metal carbonates, sulfides, and oxides, at least one nuclearly halogen disubstituted aromatic compound, and a triphenyl triazine in which at least one phenyl group has a nuclearly substituted bromine, chlorine, or iodine, and in which the reactant mixture is heated to from 270° C. to 360° C. for at least 5 hours to complete the reaction.

2. The polymeric reaction product resulting from the method defined in claim **1**.

3,303,171
CURE SYSTEM FOR ETHYLENE-VINYL CHLORIDE POLYMERS

Ann M. Schreiber, Parma Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
No Drawing. Filed June 1, 1965, Ser. No. 460,547
4 Claims. (Cl. 260—79.5)

1. A vulcanizable ethylene-vinyl chloride copolymer composition comprising 100 parts of an unvulcanized ethylenevinyl chloride copolymer, about 1 to 3 parts of sulfur, and from about 4 to about 8 parts of an alkyl substituted 2,4,6-hexahydro-S-triazine of the formula

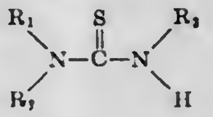


wherein R_1, R_2, and R_3 are alkyl groups containing from 1 to 4 carbon atoms, the ratio of said parts of triazine to said parts of sulfur being between 2:1 and 4:1.

3,303,172
CURE SYSTEM FOR ETHYLENE-VINYL CHLORIDE POLYMERS

Ann M. Schreiber, Parma Heights, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
No Drawing. Filed June 1, 1965, Ser. No. 460,555
6 Claims. (Cl. 260—79.5)

1. A vulcanizable ethylene-vinyl chloride copolymer composition comprising 100 parts of an unvulcanized ethylene-vinyl chloride copolymer, from 1 to 3 parts of sulfur, and from about 1 part to 10 parts of an alkylthiourea selected from the group having the general formula



where R_1 is selected from the class consisting of hydrogen and alkyl radicals having from 1 to 6 carbon atoms and R_2 and R_3 are alkyl radicals having from 1 to 6 carbon atoms.

3,303,173
DENTAL MATERIAL

Rolf Wandeler, Oestgeest, Netherlands, and Heinrich Hopff, Zurich, and André Schröder, Bern-Gumlingen, Switzerland, assignors to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
No Drawing. Filed Aug. 9, 1963, Ser. No. 301,170
Claims priority, application Germany, Aug. 14, 1962, G 35,714
8 Claims. (Cl. 260—79.7)

1. A process of preparing a dental material which comprises melting di-(4-epoxyethyl-phenyl) sulfide with an epoxy resin curing agent in a molar ratio of 2:1 to 1:2, said epoxy resin curing agent being a member of the group consisting of carboxylic acid anhydrides, polyamines and amine salts and allowing the mixture to harden.

3,303,174
RADIATION POLYMERIZATION PROCESS AND PRODUCTS THEREOF

Raymond Lanthier, Shawinigan, Quebec, Canada, assignor to Shawinigan Chemicals Limited, Montreal, Quebec, Canada, a corporation of Canada
No Drawing. Filed Aug. 4, 1960, Ser. No. 47,393
11 Claims. (Cl. 260—89.1)

1. A process for preparing high molecular weight polyvinyl acetate, said process comprising (A) emulsifying by agitation a mixture consisting of vinyl acetate, water, and an emulsifying agent stable to ionizing radiation, (B) irradiating said emulsified vinyl acetate in absence of oxygen with ionizing radiation to a total radiation dose equivalent to irradiation of 120 grams of emulsified vinyl acetate with from 1.20×10^4 roentgens to 2.32×10^4 roentgens, at a temperature of from 50° C. to −15° C. while continuing said agitation, and (C) recovering the resulting high molecular weight polyvinyl acetate.

3,303,175
PROCESS FOR THE COPOLYMERIZATION OF ALPHA-OLEFINS IN THE PRESENCE OF A COORDINATION CATALYST AND AN ORGANIC SULFUR COMPOUND

Marco Antonio Achon, Chester, Pa., assignor to Avisun Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Jan. 21, 1963, Ser. No. 252,566
20 Claims. (Cl. 260—88.2)

1. A process for the copolymerization of olefins which

comprises contacting a mixture of ethylene and at least one other hydrocarbon containing olefinic unsaturation selected from the group consisting of propylene, butene-1, and unconjugated diolefins, in an inert solvent, with a catalyst consisting essentially of the product obtained by mixing an aluminum alkyl dihalide, a vanadium compound selected from the group consisting of vanadium oxytrichloride and vanadium oxytribromide, and an organic sulfur compound containing at least one phenyl radical selected from the group consisting of sulfones, sulfides, disulfides, sulfoxides, and sulfonamides, wherein the mol ratio of the aluminum compound to the vanadium compound is from 1:1 to 10:1, and the mol ratio of the aluminum compounds to the sulfur compound is from 12:1 to 2:1.

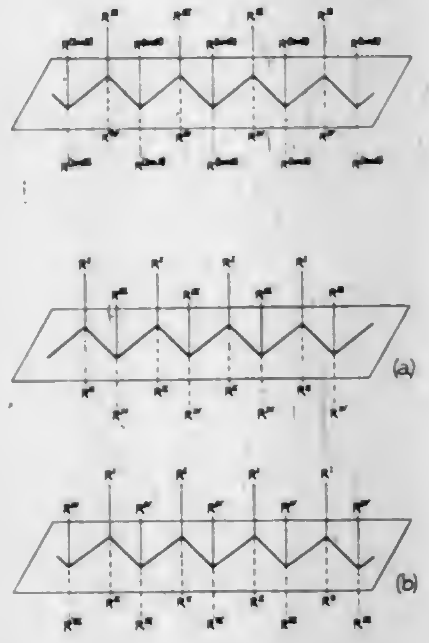
3,303,176
PENTAMETHYLSTYRENE, HOMOPOLYMER THEREOF, AND ITS PREPARATION

Eugene C. Capaldi, Glenolden, Pa., Nathan D. Field, Wilmington, Del., and Leonard N. Leum, Media, Pa., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed July 31, 1964, Ser. No. 386,788
3 Claims. (Cl. 260—93.5)

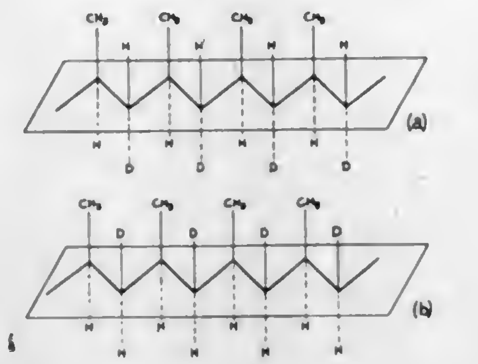
2. A process for polymerizing 2,3,4,5,6-pentamethylstyrene comprising contacting the monomer with boron trifluoride at low temperatures of about −78° C. to produce a homopolymer of 2,3,4,5,6-pentamethylstryene having a softening point in the range from about 250° to 260° C. and an inherent viscosity measured at a 0.5 percent concentration in chloroform at 30° C., greater than 0.6 and ranging up to 0.96.

3,303,177
SUBSTANTIALLY LINEAR, REGULARLY HEAD-TO-TAIL POLYMERS OF DEUTERATED AND TRITIATED MONOMERS AND PROCESS FOR PRODUCING THE SAME

Giulio Natta, Mario Peraldo, and Mario Farina, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
Filed Dec. 11, 1959, Ser. No. 859,041
Claims priority, application Italy, Dec. 12, 1958, 18,481/58; Mar. 21, 1959, 4,828/59
5 Claims. (Cl. 260—93.7)



1. Normally solid, normally crystalline poly(alpha-deutero-beta-methyl-ethylenes), said polymers consisting prevailingly of macromolecules in which both of the two asymmetric carbon atoms of each successive monomeric unit making up the chain show isotactic stereoregularity, at least for long portions of the chain.



3,303,178
POLYMERIZATION OF 4-METHYL PENTENE-1 IN THE PRESENCE OF AN AGED CATALYST CONSISTING OF AA-$TiCl_3$ AND DIETHYL ALUMINUM CHLORIDE

Gobichettipalayam S. Krishnamurthy, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
No Drawing. Filed Oct. 23, 1962, Ser. No. 232,587
2 Claims. (Cl. 260—93.7)

1. The method of polymerizing 4-methylpentene-1 monomer comprising
- (1) forming a catalyst by reacting a ground aluminum activated $TiCl_3$ catalyst component with diethyl aluminum chloride in an inert hydrocarbon solvent, said $TiCl_3$ component being an intimate dispersion of $AlCl_3$ in $TiCl_3$ in a $TiCl_3$:$AlCl_3$ mole ratio of about 3:1;
- (2) aging the catalyst formed in (1) at a temperature in the range of 25°–60° C. for about 1 hour;
- (3) injecting the aged catalyst formed in (2) into 4-methylpentene-1 monomer in a polymerization reactor;
- (4) heating the mixture of monomer and catalyst for a time sufficient to polymerize the monomer;
- (5) and recovering poly-4-methylpentene-1 having substantially improved crystallinity as compared to that prepared with un-aged catalyst.

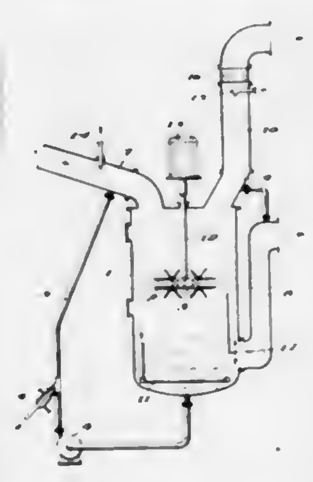
3,303,179
ALPHA-OLEFIN POLYMERIZATION IN THE PRESENCE OF ALKYL ALUMINUM DIHALIDE, $TiCl_3$, AND TRIETHYLAMINE DIAMINE

James L. Jezl, Swarthmore, and Habet M. Khelghatian, Springfield, Pa., and Louise D. Hague, Wilmington, Del., assignors to Avisun Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed June 4, 1963, Ser. No. 285,241
The portion of the term of the patent subsequent to July 30, 1980, has been disclaimed
8 Claims. (Cl. 260—93.7)

1. A process for the polymerization of alpha olefins having no branching at the 2 position which comprises contacting the olefin, in an inert hydrocarbon solvent, with at least a catalytic amount of a catalyst system formed by admixing the following materials:
- (A) an alkyl aluminum dihalide
- (B) triethylene diamine, and
- (C) a titanium chloride selected from the group consisting of AA titanium trichloride, ER titanium trichloride, and ERA titanium trichloride, as hereinbefore defined, the mol ratio of (A) to (B) being from about 1.5:1 to 10:1, and the mol ratio of (A) to (C) being from about 0.5:1 to 10:1.

3,303,180
METHOD AND APPARATUS FOR THE MANUFACTURE OF CRUMB RUBBER FROM RUBBER SOLUTIONS

Gunter Beckmann, Marl, Paul Bernemann, Haltern, and Wilhelm Schanzer and Hans Westermann, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany, a corporation, of Germany
Filed Apr. 24, 1963, Ser. No. 275,398
Claims priority, application Germany, Sept. 15, 1962, C 27,946
1 Claim. (Cl. 260—94.7)



Method for the preparation of crumb rubber from solutions of rubber in organic solvents which comprises introducing a solution of rubber into a body of water maintained at substantially the boiling temperature of the resulting water-solvent mixture in a vessel of horizontal, circular cross section, agitating the resulting mixture by means of flat, knife-like blades having no pitch relative to their planes of rotation and rotating at a peripheral speed of at least 20 m./sec. whereby said mixture forms a vortex in said container and only the tips of said blades penetrate only the parabolic surface thereof.

3,303,181
POLYMERIZATION OF OLEFINS IN THE PRESENCE OF A CATALYST MODIFIED WITH AN ORGANIC ANHYDRIDE

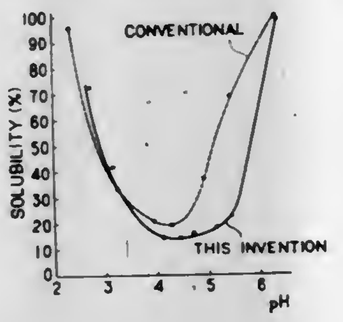
Felix Bloyaert and Henri Toussaint, Brussels, Belgium, assignors to Solvay & Cie., Societe en commandite, a simple of the Kingdom of Belgium
No Drawing. Filed July 1, 1963, Ser. No. 292,129
Claims priority, application Belgium, July 11, 1962, 620,081
12 Claims. (Cl. 260—94.9)

1. In a process for polymerizing at least one 1-olefin to solid polymer in the presence of a catalyst which forms on mixing
- (a) a material selected from the group consisting of the metals, the hydrides, and the tetraalkyl and tetraaryl compounds having up to 40 carbon atoms per molecule of Ge, Sn, Pb,
- (b) a halide of a metal selected from the group consisting of IV–B, V–B, and VI–B metals wherein all valences of the metal are satisfied by halide, and
- (c) a halide of a metal selected from the group consisting of B. Al, Ga, In, Tl, Sb, and Bi wherein all the valences of the metal are satisfied by halide;

the improvement which comprises supplying to the polymerization mixture a minor amount of a carboxylic acid anhydride having up to 20 carbon atoms per molecule selected from the group carboxylic aliphatic acid anhydrides, aromatic acid anhydrides, and cyclic anhydrides of dicarboxylic acids and thus modifying the molecular weight of the resulting polymer.

3,303,182
DENATURED SOYBEAN PROTEIN AND METHODS OF MAKING THE SAME BY TREATING AT TEMPERATURES BELOW 5° C.

Hiroshi Sakai, Fujisawa-shi, Kanagawa-ken, Haruki Hara, Musashino-shi, Tokyo, and Akihiko Akioka, Setagaya-ku, Tokyo, Japan, assignors to The Nisshin Oil Mills, Ltd., Tokyo, Japan, a corporation of Japan
Filed Mar. 23, 1964, Ser. No. 354,010
10 Claims. (Cl. 260—123.5)

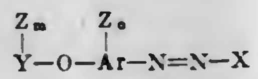


1. A process for preparing denatured soybean protein suitable for food uses which comprises
- (a) a protein dispersion extracted from 100 parts of high soluble proteinaceous soybean meal with more than 800 parts of water is heated at a temperature of from 80° C. to 150° C. for from a few seconds to 60 minutes to denature said protein,
- (b) said denatured protein is cooled rapidly to below 5° C.,
- (c) said denatured protein is then precipitated at its isoelectric point and recovered and dried.

3,303,183
DIHYDROXYPHENOXY-ARYL MONOAZO COMPOUNDS

Milton Green, Newton Center, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
No Drawing. Filed May 12, 1966, Ser. No. 549,486
3 Claims. (Cl. 260—162)

1. A compound of the formula:



$$\overset{Z_m}{\overset{|}{Y}}-O-\overset{Z_n}{\overset{|}{Ar}}-N=N-X$$

wherein Ar is an aryl nucleus selected from the group consisting of benzene and naphthalene nuclei; each Z is selected from the group consisting of chlorine and lower alkyl groups; *m* is in integer from 0 to 1, inclusive; *n* is an integer from 0 to 2, inclusive; Y is selected from the group consisting of ortho-dihydroxyphenyl and para-dihydroxyphenyl; and X is the radical of an azo dye coupler linked to said —N=N— group.

3,303,184
AMINOETHYL GUMS AND PROCESS FOR PREPARING SAME

Robert Nordgren, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware
No Drawing. Filed May 25, 1965, Ser. No. 458,777
15 Claims. (Cl. 260—209)

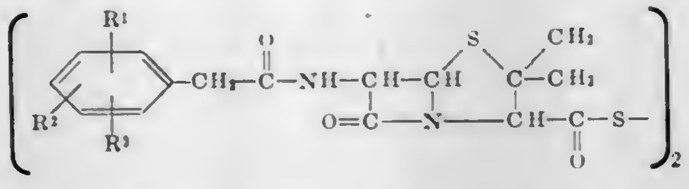
1. A process of preparing aminoethyl ethers of a gum selected from the group consisting of a polygalactomannan gum and tamarind gum comprising agitating a mixture of ethylenimine and a substantially dry gum for a time sufficient for said ethylenimine to react with said substantially dry gum.

12. The aminoethyl ether of a gum selected from the group consisting of polygalactomannan and tamarind gums.

3,303,185
BIS(6-ACYLPENICILLANYL)DISULFIDES

Robert R. Fraser, Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 16, 1963, Ser. No. 330,600
20 Claims. (Cl. 260—239.1)

2. Compounds having the formula



wherein R^1, R^2 and R^3 are each a member selected from the group consisting of hydrogen, chloro, bromo, fluoro, iodo, nitro, sulfamyl, trifluoromethyl, (lower)alkyl, (lower)alkoxy, (lower)alkylthio, di(lower)akylamino, (lower)alkanolylamino, (lower)-alkanoyl, (lower)alkylsulfonyl, cycloalkyl radicals having from 5 to 7 carbon atoms inclusive, cycloalkoxy radicals having from 5 to 7 carbon atoms inclusive, phenyl, phenoxy and benzyl.

3,303,186
RECOVERY OF HECOGENIN ACETATE

Martin Rubin, 3218 Pauline Drive,
Chevy Chase, Md. 20015
No Drawing. Filed Feb. 26, 1965, Ser. No. 435,697
6 Claims. (Cl. 260—239.55)

1. A procedure for the recovery of hecogenin acetate from steroidal plant sources which comprises contacting dried plant material with nitrobenzene to dissolve the steroid content; thereafter treating the extract solution with aqueous dilute caustic to remove therefrom fat and pigment impurities; then dehydrating the solution; subsequently treating the extract solution with acetic anhydride to acetylate the hecogenin content thereof, followed by steam distillation to decompose excess anhydride and remove the nitrobenzene, and recovering hecogenin acetate from the steam distillation residue in a relatively pure state.

3,303,187
RECOVERY OF TIGOGENIN ACETATE AND 5α-16-PREGNENE - 3β - OL - 20 - ONE FROM NATURAL PLANT SOURCES

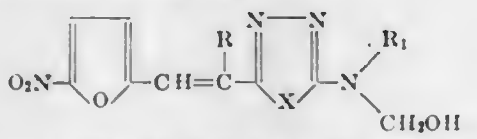
Martin Rubin, 3218 Pauline Drive,
Chevy Chase, Md. 20015
No Drawing. Filed Feb. 26, 1965, Ser. No. 435,698
7 Claims. (Cl. 260—239.55)

1. The procedure for recovering tigogenin acetate from natural plant sources which comprises the following steps:
(a) dissolving the steroid content of autolyzed and fermented dried plant residue in nitrobenzene;
(b) treating the nitrobenzene solution with hydrazine hydrate, then with caustic aqueous diethylene glycol, followed by heating under conditions which vaporizes the water content and any unreacted hydrazine, thereby removing any carbonyl groups from the dissolved steroid;
(c) treating the nitrobenzene solution with water and decanting off the caustic water layer, thereby removing fats and pigments from the nitrobenzene solution, thereafter dehydrating by vaporizing the water content;
(d) treating the anhydrous nitrobenzene solution with acetic anhydride at a temperature in the range of 100–120° C., then steam distilling the solution to remove thereby unreacted acetic anhydride, acetic acid and the nitrobenzene;
(e) recovering the tigogenin acetate from the steam distillation residue.

3,303,188
PROCESS FOR PREPARING NEW 5-NITROFURYL COMPOUNDS

Akira Takai, Isamu Saikawa, Yutaka Kodama, Yasumasa Matsubara, and Shiro Hiral, all of Toyama, Japan, assignors to Toyama Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Sept. 6, 1963, Ser. No. 307,021
Claims priority, application Japan, Sept. 11, 1962, 37/38,952
5 Claims. (Cl. 260—240)

1. A compound having the formula

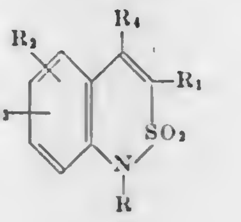


wherein R is a member selected from the group consisting of hydrogen, alkyl of from 1–5 carbon atoms and phenyl; R_1 is a member selected from the group consisting of lower alkyl and hydroxymethyl; and X is oxygen or sulfur.

3,303,189
2,1-BENZOTHIAZINE-2,2-DIOXIDES

Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Mar. 11, 1965, Ser. No. 439,098
12 Claims. (Cl. 260—243)

1. A compound of the structure:



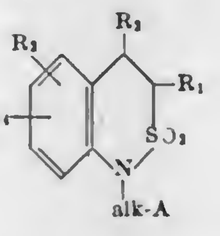
in which:

R is a member selected from the group consisting of hydrogen, lower alkyl, phenyl, lower alkanoyl and (dialkyl)aminoalkyl;
R_1 is a member selected from the group consisting of hydrogen, lower alkyl and phenyl;
R_2 and R_3 are members selected from the group consisting of hydrogen, halo, trifluoromethyl, lower alkyl, lower alkoxy, lower alkylthio, nitro, amino and sulfonamido; and
R_4 is a member selected from the group consisting of hydrogen, lower alkyl and hydroxy.

3,303,190
NOVEL DIHYDRO-2,1-BENZOTHIAZINE-2,2-DIOXIDE COMPOUNDS

Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Mar. 11, 1965, Ser. No. 439,099
9 Claims. (Cl. 260—243)

9. A compound selected from the group consisting of a free base, its nontoxic salts with pharmaceutically acceptable acids and its nontoxic quaternary ammonium salts, said base being of the structure:



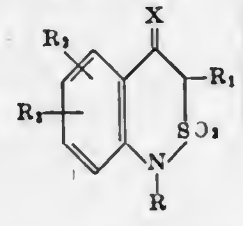
in which:

A is a member selected from the group consisting of amino, lower alkyl amino, dilower alkyl amino, N-piperazinyl, N,N-lower alkylpiperazinyl, N-piperidinyl, N-pyrrolidinyl, N-morpholinyl, N-thiomorpholinyl, C-N-methylpiperidinyl and C-N-methylpyrrolidinyl;
alk is an alkylene chain of from 2–6 carbon atoms;
R_1 and R_2 are members selected from the group consisting of hydrogen, lower alkyl and phenyl; and
R_3 and R_4 are members selected from the group consisting of hydrogen, halo, lower alkyl, lower alkoxy, trifluoromethyl, nitro, lower alkylthio, and, when taken together, methylenedioxy.

3,303,191
NOVEL 4-KETODIHYDRO-2,1-BENZOTHIAZINE-2,2-DIOXIDES

Bernard Loev, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Mar. 11, 1965, Ser. No. 439,101
9 Claims. (Cl. 260—243)

1. A compound of the structure:



in which:

R is a member selected from the group consisting of hydrogen, lower alkyl, phenyl, diloweralkylaminoalkyl and lower alkanoyl;
R_1 is a member selected from the group consisting of hydrogen, lower alkyl and phenyl;
R_2 and R_3 are members selected from the group consisting of hydrogen, halo, trifluoromethyl, amino, hydroxy, lower alkyl, lower alkylthio and lower alkoxy; and
X is a member selected from the group consisting of oxygen, sulfur, phenylhydrazono and tosylhydrazono.

3,303,192
1 - HALOPHENYL - 3 - ALKYL - 5 - (SUBSTITUTED-THIO) - 6 - AMINO - 1,2,3,4 - TETRAHYDROPYRIMIDINE - 2,4 - DIONES AND INTERMEDIATES THEREFOR

Elmer F. Schroeder, Chicago, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware
No Drawing. Filed July 19, 1965, Ser. No. 473,156
12 Claims. (Cl. 260—243)

2. 1 - (p - chlorophenyl) - 3 - methyl - 5 - carboxymethylthio - 6 - amino - 1,2,3,4 - tetrahydropyrimidine-2,4-dione.

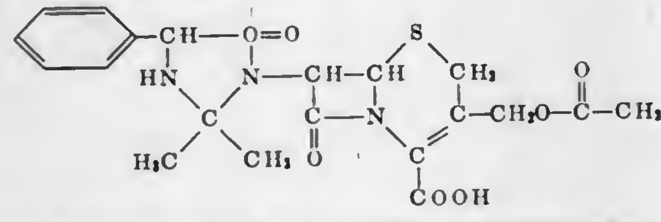
10. 1 - p - chlorophenyl - 3 - methyl - 5 - bromo - 6-amino - 1,2,3,4-tetrahydropyrimidine-2,4-dione.

12. 5 - p - chlorophenyl - 7 - methyl - 3,6,8 - triketopyrimido[5,4-b]1,4-thiazine.

3,303,193
DERIVATIVES OF CEPHALOSPORANIC ACID

John C. Godfrey, Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 24, 1965, Ser. No. 509,627
5 Claims. (Cl. 260—243)

1. The compound of the formula

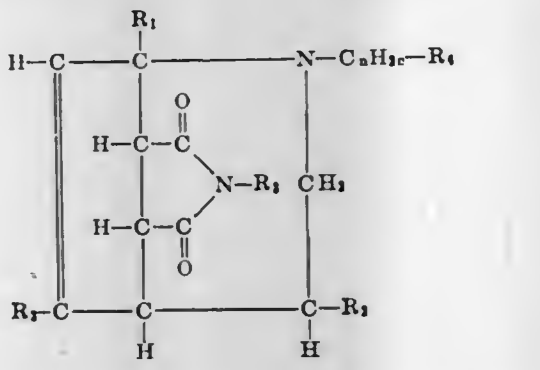


and its nontoxic, pharmaceutically acceptable salts.

3,303,194
2 - TERTIARY AMINOALKYL - 2 - AZABICYCLO [3.2.2]-6-NONENES AND PROCESSES FOR THEIR PREPARATION

Leo A. Paquette, Portage Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Original application July 24, 1963, Ser. No. 297,217, now Patent No. 3,268,553, dated Aug. 23, 1966. Divided and this application Feb. 3, 1966, Ser. No. 559,3~~44~~
7 Claims. (Cl. 260—247.2)

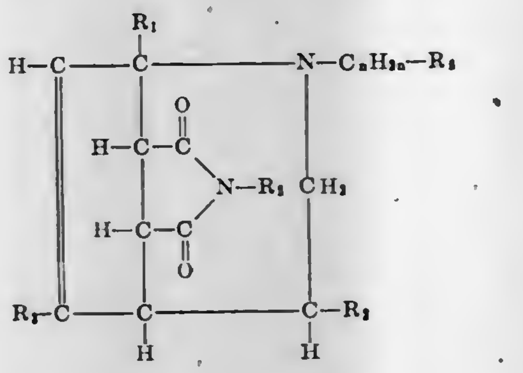
1. A compound selected from the group consisting of the free base form and acid addition salts of a compound of the formula:



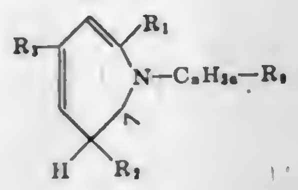
wherein R_1 and R_2 are alkyl of 1 to 4 carbon atoms, inclusive, wherein R_3 is selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms, inclusive, wherein R_5 is selected from the group consisting of lower alkyl, phenyl, lower-alkyl-phenyl, and di-lower-alkylphenyl, wherein R_6 is selected from the group consisting of di-lower-alkylamino and the heterocyclic moieties, aziridinyl, azetidinyl, pyrrolidinyl, piperidino, hexahydroazepinyl, heptamethylenimino, octamethylenimino, morpholino, and thiomorpholino, each of said heterocyclic moieties having attached as substituents on carbon atoms thereof zero to 3 lower alkyls, inclusive, wherein *n* is 2 to 6, inclusive, wherein N and R_6 are separated by a chain of at least 2 carbon atoms, and wherein the nitrogen atom of R_6 is attached to a carbon atom C_nH_{2n}.

4. 2 - (2 - morpholinoethyl)-1,4,6-trimethyl-N-phenyl-2-azabicyclo[3.2.2]non-6-ene-8,9-dicarboximide.

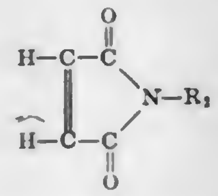
6. A process for producing a 2-azabicyclo[3.2.2]non-6-ene-8,9-dicarboximide of the formula:



wherein R_1 and R_2 are alkyl of 1 to 4 carbon atoms, inclusive, wherein R_3 is selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms, inclusive, wherein R_5 is selected from the group consisting of lower alkyl, phenyl, lower-alkylphenyl, and di-lower-alkylphenyl, wherein R_6 is selected from the group consisting of di-lower-alkylamino and the heterocyclic moieties, aziridinyl, azetidinyl, pyrrolidinyl, piperidino, hexahydroazepinyl, heptamethylenimino, octamethylenimino, morpholino, and thiomorpholino, each of said heterocyclic moieties having attached as substituents on carbon atoms thereof zero to 3 lower alkyls, inclusive, wherein *n* is 2 to 6, inclusive, wherein N and R_6 are separated by a chain of at least 2 carbon atoms, and wherein the nitrogen atom of R_6 is attached to a carbon atom of C_nH_{2n}, which comprises mixing a compound of the formula:



wherein R_1, R_2, R_3, R_4, and n are as given above, wherein N and R_6 are separated by a chain of at least 2 carbon atoms, and wherein the nitrogen atom of R_6 is attached to a carbon atom of C_nH_{2n}, with a maleimide of the formula:



wherein R_5 is as given above, to form said 2-azabicyclo [3.2.2]-non-6-ene-8,9-dicarboximide.

3,303,195
METHYLATED DESERPIDINE

Leon Velluz, Paris, and Georges Muller, Nogent-sur-Marne, France,, assignors to Roussel-UCLAF, Paris, France, a corporation of France

No Drawing. Filed Nov. 30, 1965, Ser. No. 510,660

Claims priority, application France, Oct. 31, 1957, 750,639

1 Claim. (Cl. 260—287)

12-methyl deserpidine, levorotatory in chloroform.

3,303,196
METHOD OF PREPARING CHLORINATED PYRIDINE DERIVATIVES

John Anthony Corran, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed May 11, 1964, Ser. No. 366,601

Claims priority, application Great Britain, May 23, 1963, 20,636/63; Jan. 8, 1964, 876/64

11 Claims. (Cl. 260—290)

1. A process for the manufacture of nuclear-chlorinated derivatives of pyridine which comprises forming a complex between a pyridine and a salt of a metal selected from the group consisting of nickel and cobalt and treating the said complex in a liquid phase with a chlorinating agent.

3,303,197
METHOD OF FLUORINATING PENTA-CHLOROPYRIDINE

Robert Neville Haszeldine, Windyridge, Lyme Road, Disley, England, and Ronald Eric Banks, Manchester 19, England

No Drawing. Filed Nov. 2, 1964, Ser. No. 408,316

Claims priority, application Great Britain, Mar. 17, 1964, 11,249/64

2 Claims. (Cl. 260—290)

1. A process for preparing fluoro derivatives of pentachloropyridine which comprises reacting pentachloropyridine with anhydrous potassium fluoride in the absence of a solvent in a closed vessel at a temperature within the range of from about 300° C. to about 550° C. at an autogenous pressure and recovering as the products a major proportion of pentafluoropyridine and minor proportions of 3-chlorotetrafluoropyridine and 3,5-dichlorotrifluoropyridine.

3,303,198
SUBSTITUTED BENZYL ESTERS OF NIPECOTIC ACID AND ISONIPECOTIC ACID AND METHODS OF PREPARING THE SAME

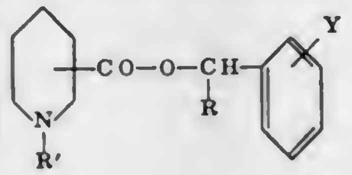
Hans Suter, Schaffhausen, Switzerland, Ernst Felder, Milan, Italy, and Hans Zutter, Schaffhausen, Switzerland, assignors to Eprova Limited, Schaffhausen, Switzerland, a corporation of Switzerland

No Drawing. Filed Apr. 15, 1964, Ser. No. 360,060

Claims priority, application Switzerland, May 3, 1963, 5,590/63

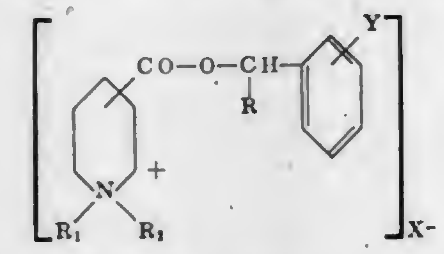
19 Claims. (Cl. 260—294.3)

1. A spasmolytic compound selected from the group consisting of substituted benzyl esters of nipecotic acid and isonipecotic acid having the formula



wherein R is a member of the group consisting of alkyl radicals having 2 to 8 carbon atoms and aralkyl radicals having 7 to 10 carbon atoms; R′ is a member of the group consisting of hydrogen and lower alkyl; and Y is a member of the group consisting of hydrogen, halogen, and lower alkyl; acid addition salts of said esters with physiologically tolerated acids; and therapeutically useful lower alkyl quaternary ammonium salts of said esters.

4. Quaternary piperidinium salts of substituted benzyl esters of nipecotic acid and isonipecotic acid having the formula



wherein R is a member of the group consisting of alkyl radicals having 2 to 8 carbon atoms and aralkyl radicals having 7 to 10 carbon atoms; R_1 and R_2 are lower alkyl; Y is a member of the group consisting of hydrogen, halogen, and lower alkyl; and X is the anion of a strong, physiologically tolerated acid.

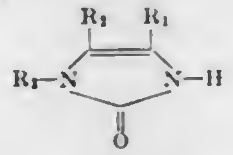
3,303,199
CERTAIN IMIDAZOLONE DERIVATIVES AND PROCESS FOR MAKING SAME

Karl J. Doebel, Ossining, N.Y., and Andre R. Gagneux, Basel, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 295,245, July 15, 1963. This application Oct. 19, 1965, Ser. No. 498,117

24 Claims. (Cl. 260—309.6)

1. A compound of the formula



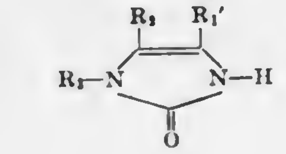
wherein

R_1 is hydrogen, lower alkyl, lower hydroxyalkyl, carboxy, lower carbalkoxy, carboxamido, lower alkanoyl or cyano;

R_2 is lower alkyl or phenyl;

R_3 is alkyl of up to 12 carbon atoms, lower alkenyl, cycloalkyl of between 5 and 7 carbon atoms, ω,ω-di(lower)-alkoxy(lower)alkylene, ω-amino(lower)alkyl, phenyl-(lower)alkyl or phenyl, biphenyl and naphthyl, said phenyl, biphenyl and naphthyl groups carrying from one to three substituents selected from halogen, trifluoromethyl, lower alkyl, lower alkenyl, lower alkoxy-(lower)alkyl, hydroxy, lower alkoxy, lower carbalkoxy, carboxy, lower alkanoyl, lower alkanoyloxy, cyano, nitro, amino, lower acylamido, lower dialkylamino, lower dialkylamino(lower)alkyl or lower alkylmercapto.

23. The method of preparing a compound of the formula



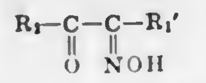
wherein

R_1' is lower alkyl, lower carbalkoxy, carboxamido, lower alkanoyl or cyano;

R_2 is lower alkyl or phenyl, and

R_3 is alkyl of up to 12 carbon atoms, lower alkenyl, cycloalkyl of between 5 and 7 carbon atoms, ω,ω-di(lower)-alkoxy(lower)alkylene, ω-amino(lower)alkyl, phenyl-(lower)alkyl or aryl, the phenyl and aryl groups carrying from one to three substituents selected from halogen, trifluoromethyl, lower alkyl, lower alkenyl, lower alkoxy(lower)alkyl, hydroxy, lower alkoxy, lower carbalkoxy, carboxy, lower alkanoyl, lower alkanoyloxy, cyano, nitro, amino, lower acylamido, lower dialkylamino, lower dialkylamino(lower)alkyl or lower alkylmercapto,

which comprises reacting in a polar solvent a formaldehyde, a primary amine of the formula R_3NH_2 and an α-isonitrosoketone of the formula



$$R_2-\underset{\underset{O}{\|}}{C}-\underset{\underset{NOH}{\|}}{C}-R_1'$$

wherein R_1', R_2 and R_3 are as defined hereinabove.

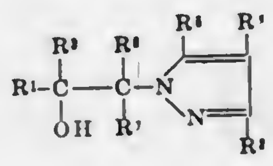
3,303,200
PYRAZOLE-1-ETHANOL DERIVATIVES

Milton Wolf, West Chester, and Donald J. Flanigan, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 5, 1963, Ser. No. 321,441

13 Claims. (Cl. 260—310)

1. A compound selected from the group consisting of (1) a compound of the formula:



wherein R^1 is selected from the group consisting of halo (lower)alkyl, lower alkoxy, phenyl, phenoxy(lower)alkyl, lower alkoxyphenoxy(lower)alkyl, lower alkylphenoxy (loweralkyl), halophenoxy(lower)alkyl, trifluoromethylphenoxy(lower)alkyl, lower alkoxy(lower)alkyl and hydroxy(loweralkyl); R^2, R^3, R^5, R^6 and R^7 are selected from the group consisting of hydrogen and lower alkyl; and R^4 is selected from the group consisting of hydrogen, lower alkyl, halogen, hydroxy, lower alkoxy, hydroxy (lower)alkyl, amino and cyano and (2) the therapeutically acceptable acid addition salts thereof.

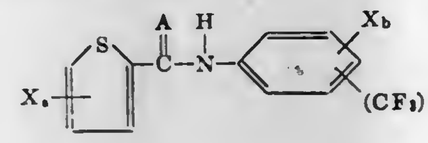
3,303,201
HALOGENATED ANILIDES OF THIOPHENE CARBOXYLIC ACIDS

Herbert C. Stecker, 1 Bridle Way, Ho-Ho-Kus, N.J. 07423

No Drawing. Filed Sept. 30, 1965, Ser. No. 491,901

3 Claims. (Cl. 260—332.2)

1. A compound having the general formula:



wherein:

X is chlorine, bromine or iodine,

A is oxygen or sulfur,

a is a numeral from 0 to 2,

b is a numeral from 1 to 3, and

c is a numeral from 1 to 3, provided that the sum of *b* and *c* does not exceed 3, and that there is at least one CF_3 group present in the molecule.

3,303,202
ANTIFUNGAL COMPOUNDS

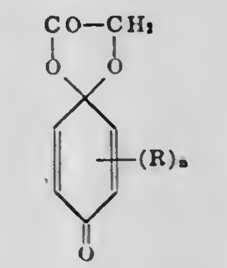
Gian Gualberto Gallo, Piero Sensi, and Carmine Renato Pasqualucci, Milan, Italy, assignors to Lepetit S.p.A., Milan, Italy

No Drawing. Filed July 2, 1963, Ser. No. 292,475

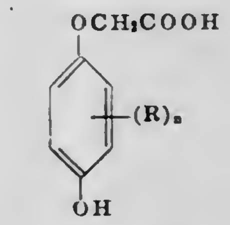
Claims priority, application Great Britain, July 17, 1962, 27,441/62

6 Claims. (Cl. 260—340.2)

1. A process for preparing 1,4-dioxaspiro-[4,5]-deca-6, 9-diene-2,8-diones of the formula

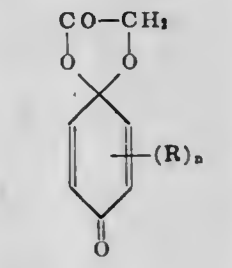


wherein R is chlorine or bromine, *n* is an integer from 2 to 4 inclusive, which comprises subjecting a 4-hydroxyphenoxyacetic acid of the formula



wherein R has the above significance, *n* is a whole number from 0 to 4, to the action of chlorine or bromine in the presence of a pyridine proton acceptor in dioxane or diethyl ether as inert organic solvent.

2. A compound of the formula



wherein R is a chlorine or bromine atom, *n* is an integer from 2 to 4 inclusive.

3,303,203

PURIFICATION OF CRUDE PHTHALIC ANHYDRIDE

Siegfried Meinstein, Oak Lawn, Ill., assignor to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed July 6, 1965, Ser. No. 469,856

8 Claims. (Cl. 260—346.7)

1. A method of purifying crude phthalic anhydride derived from the vapor phase oxidation of ortho-xylene and mixtures of ortho-xylene and naphthalene in which the ortho-xylene constitutes at least 25% by weight of the mixtures, which comprises providing a mixture thereof with a small proportion of at least one member selected from the group consisting of alkali metal hydrosulfites, alkaline earth metal hydrosulfites, and zinc hydrosulfite, heating said mixture at an elevated temperature for several hours, and then recovering purified phthalic anhydride by distillation.

3,303,204

16α-HALOMETHYL-17α-HYDROXY STEROIDS

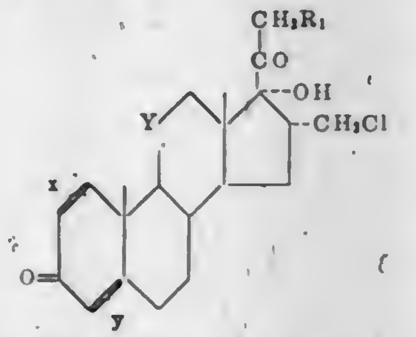
Ulrich Kerb, Berlin-Charlottenburg, Emanuel Kaspar, Berlin-Wilmersdorf, and Rudolf Wiechert, Berlin-Lichterfelde, Germany, assignors to Schering A.G., Berlin, Germany

No Drawing. Filed Sept. 29, 1960, Ser. No. 59,193

Claims priority, application Germany, Oct. 5, 1959, Sch 26,780; Oct. 10, 1959, Sch 26,807

16 Claims. (Cl. 260—397.4)

16. A compound of the formula:



wherein x is selected from the group consisting of a saturated bond and a double bond between C–1 and C–2; wherein y is a saturated bond between C–4 and C–5 when x is a saturated bond, and when x is a double bond then y is selected from the group consisting of a saturated bond and a double bond between C–4 and C–5; wherein when x and y are the same and R_1 is hydroxyl then Y is selected from the group consisting of —CH_2— and —CH(βOH)—, and when x and y are the same and R_1 is other than hydroxyl and when x and y are different then Y is —CH_2—; and wherein when at least one of the bonds x and y is unsaturated then R_1 is selected from the group consisting of hydroxyl and O-acyl wherein the acyl is derived from a lower aliphatic carboxylic acid, and when both x and y are saturated then R_1 is selected from the group consisting of hydrogen, hydroxyl and O-acyl wherein the acyl is derived from a lower aliphatic carboxylic acid.

3,303,205

PROCESS FOR INTRODUCTION OF A HYDROXYALKYL SUBSTITUENT AT THE 17 POSITION IN STEROID COMPOUNDS

Seemon H. Pines, Murray Hill, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 1, 1965, Ser. No. 444,799

13 Claims. (Cl. 260—397.5)

10. A process for preparing the compound 3-methoxy - 17α - (3′ - hydroxypropyl - estra - 1,3,5(10) - triene-17β-ol which comprises the steps of adding a solution in an organic solvent suitable for use in a Grignard reaction of 3-methoxy-estra-1,3,5(10)-triene-17-one to a solution in an organic solvent suitable for use in a Grignard reaction of gamma-lithium-propoxytrimethylsilane, and adding a hydrolyzing agent.

3,303,206

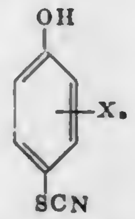
HALOGENATED THIOCYANATO PHENOLS

Walter Reifschneider, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Oct. 1, 1965, Ser. No. 492,332

9 Claims. (Cl. 260—454)

1. Compound of the formula



wherein X represents a member of the group consisting of fluoro, chloro, bromo, iodo, and cyano and n is an integer such that the molecular weight of the compound is at least 220, n being not greater than 4.

3,303,207

d-THREO-CHLORAMPHENICOL PHENYLDIOXABORAN DERIVATIVE

Jean-Louis Delarue and René Louis Fallard, Paris, France, assignors to Laboratoires Toraude, Paris, France, a French society

Filed Nov. 20, 1963, Ser. No. 325,527

Claims priority, application Great Britain, Nov. 21, 1962, 44,013/62

1 Claim. (Cl. 260—462)

2 - phenyl - 4 - para-nitrophenyl - 5 - dichloroacetamido-1,3-dioxaboran.

3,303,208

AMINO BORATE ESTERS

Chien-wei Liao, Beachwood, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Original application Oct. 18, 1961, Ser. No. 145,988, now Patent No. 3,202,492, dated Aug. 24, 1965. Divided and this application Dec. 31, 1964, Ser. No. 431,750

4 Claims. (Cl. 260—462)

1. A compound selected from the group consisting of compounds formed by:

(a) reacting metaboric acid or boric oxide with a saturated, aliphatic, monohydroxy alcohol of from 1 to 12 carbon atoms to form a metaborate ester;
(b) further reacting the metaborate ester in a 2:1 molar ratio with a member selected from the group consisting of a primary, aliphatic monoamine of from 8 to 30 carbon atoms, and mixtures of such amines; and,
(c) removing alcohol formed in the reaction.

3,303,209

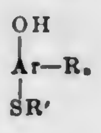
METHOD OF MAKING PHENOLIC THIOETHERS

Walter Reifschneider, Midland, and Jacqueline S. Kelyman, Auburn, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 18, 1966, Ser. No. 528,408

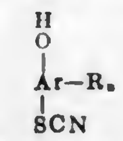
5 Claims. (Cl. 260—465)

1. Method of preparing phenolic thioethers of the general formula:



$$\overset{OH}{\underset{SR'}{Ar}}-R_n$$

which comprises contacting a compound of the formula:



$$\overset{OH}{\underset{SCN}{Ar}}-R_n$$

with a compound of the formula

$$X_mR'$$

for a period of reaction time in the presence of a base, wherein Ar is a 6- or 10-carbon aromatic hydrocarbon nucleus, R is loweralkyl, loweralkenyl, loweralkynyl, cycloalkyl of from 3 to 6, both inclusive, carbon atoms, ar-loweralkyl, phenyl, loweralkoxy, phenoxy, hydroxy, halo, nitro, cyano, amido, loweralkoxycarbonyl, or loweralkanoyloxy, benzoyloxy, or phenoxycarbonyl,

and wherein R′ is loweralkyl, loweralkenyl, loweralkynyl, cycloakyl of from 3 to 6, both inclusive, carbon atoms, haloloweralkyl, ar-loweralkyl or loweralkanoyl, n is an integer of from 0 to 4, both inclusive, and m is an integer 1 or 2.

3,303,210

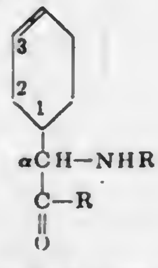
3-CYCLOHEXENE-1-GLYCINES AND 1-HYDROXYACETATES AND PRODUCTION THEREOF

Walter D. Celmer, New London, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

Filed July 5, 1963, Ser. No. 292,848

6 Claims. (Cl. 260—468)

1. A compound selected from the group consisting of those of the formula:



the compound wherein R is hydroxyl and R_1 is hydrogen having in its pure crystalline form a melting point, with decomposition, of above about 300° C. and a specific rotation of $[\alpha]_D$, $+110°(\pm 10°)$ (c. 1 in 2% aq. H_3PO_4), and exhibiting in a potassium bromide pellet characteristic absorption in the infrared region of the spectrum at the following frequencies expressed in microns: 2.90, 3.40 (cluster), 3.65, 3.80, 4.70, 6.30, 6.60, 7.05, 7.15, 7.25, 7.60, 7.95, 8.25, 8.65, 9.20, 9.30, 9.55, 9.80, 10.45, 10.65, 10.90, 11.30, 11.60, 12.00, 12.40, 12.95, 13.70, 14.10; derivatives thereof in which R is selected from the group consisting of hydroxyl, alkoxy containing up to ten carbon atoms, phenoxyl, alkyl-substituted phenoxyl containing up to ten carbon atoms, benzyloxyl, amino and monoalkylamino containing up to ten carbon atoms and R_1 is selected from the group consisting of hydrogen, alkanoyl containing up to ten carbon atoms, benzoyl, alkyl-substituted benzoyl containing up to ten carbon atoms and benzyloxycarbonyl; and alkali metal, alkaline earth metal and acid addition salts of said compounds.

3.303,211

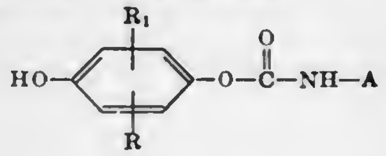
ALKYL-4-HYDROXYPHENYL CARBAMATES

Janet B. Peterson, Yonkers, and Martin Dexter, Briarcliff Manor, N.Y., assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 17, 1962, Ser. No. 224,604

7 Claims. (Cl. 260—471)

1. The compound of the formula:

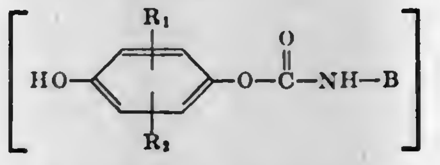


wherein

R_1 is an alkyl group having 3 to 8 carbon atoms,

R_2 is a member selected from the group consisting of hydrogen and an alkyl group having 1 to 8 carbon atoms,

A is a member selected from the group consisting of alkyl having 1 to 24 carbon atoms, lower alkylphenyl, and the radical of the formula

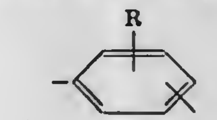


wherein

R_1 and R_2 are the same as above, and

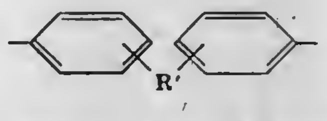
B is a member selected from the group consisting of

(a)



and

(b)



wherein

R is a member selected from the group consisting of lower alkyl and hydrogen, and

R′ is lower alkylene.

3,303,212

SYNTHESIS OF AROMATIC PLASTICIZERS FROM DITOLYLMETHANE

John L. Tveten, Baytown, Tex., assignor, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware

Filed June 10, 1964, Ser. No. 373,983

4 Claims. (Cl. 260—494)

1. In a process for producing a plasticizer oil in which toluene is reacted with formaldehyde in a first-stage reactor in the presence of an acid catalyst and under conditions chosen to optimize the production of ditolylmethane, the steps of

recovering a ditolylmethane product stream from said first-stage reactor,

reacting one molar part of said ditolylmethane in a second-stage reactor in admixture with from 0.5 to 1.5 molar parts of glacial acetic acid, 0.5 to 2.0 molar parts of formaldehyde, and 0.1 to 0.5 molar part of 40 to 70 weight percent sulfuric acid,

under reaction conditions including a temperature of 75° C. to 150° C. and a total reaction time of 1 to 4 hours,

to obtain a second-stage reaction product,

and distilling said reaction product to obtain a plasticizer oil boiling above 200° C. at 20 mm. pressure and having an ester-to-hydrocarbon ratio in excess of 3.5.

3,303,213

N-TERTIARY AMINOALKYL-N′-HYDROCARBON ASPARAGINE AMIDES

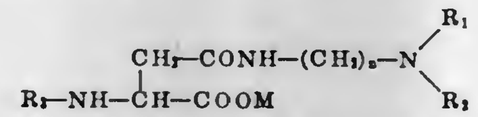
Gregoire Kalopissis and Andre Viout, Paris, France, assignors to L'Oreal, Paris, France

No Drawing. Filed Sept. 13, 1965, Ser. No. 487,084

Claims priority, application France, Feb. 15, 1962, 888,177

6 Claims. (Cl. 260—534)

1. A compound of the formula:



wherein R_1 and R_2 are alkyl of up to four carbon atoms or together with the nitrogen atom to which they are attached form morpholino or piperidino, *n* is an integer having a value between 2 and 5 inclusive, R_3 is a saturated aliphatic hydrocarbon having from 10 to 18 carbon atoms inclusive, and M is selected from the group consisting of sodium, hydrogen, potassium and ammonium.

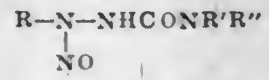
3,303,214
NITROSOSEMICARBAZIDES

Floyd E. Anderson, Boston, Mass., and Telfer L. Thomas, Pittsford, N.Y., assignors to Wallace & Tiernan Inc., Belleville, N.J., a corporation of Delaware

No Drawing. Filed May 13, 1964, Ser. No. 367,252

3 Claims. (Cl. 260—554)

1. A compound having the formula



$$\text{R}-\underset{\text{NO}}{\underset{|}{\text{N}}}-\text{NHCONR}'\text{R}''$$

where R is a member of the group consisting of bornyl and fenchyl, and R′ and R″ are members of the group consisting of hydrogen and lower alkyl.

3,303,215
SYNTHESIS OF UREA

Eiji Otsuka, Fujisawa, Kanagawa Prefecture, and Toyoyasu Saida, Omiya, Saitama Prefecture, Japan, assignors to Toyo Koatsu Industries, Incorporated, Tokyo, Japan, and Toyo Gas Chemical Industry, Ltd., Tokyo, Japan, both corporations of Japan

Filed Feb. 4, 1963, Ser. No. 256,035

Claims priority, application Japan, Mar. 9, 1962, 37/8,558

8 Claims. (Cl. 260—555)

8. A method of synthesizing urea comprising compressing a gas containing CO_2, N_2, H_2 and CO to a pressure of at least 150 kg./cm.^{2}, washing said gas with a mixture of ammonia and an aqueous solution containing ammonia and urea, to absorb in said mixture the CO_2 contained in said gas thereby forming an absorbate, reacting the CO_2 and NH_3 contained in said absorbate to form urea and water mixed with unreacted CO_2 and NH_3, recovering a portion of said urea and leaving the remaining urea dissolved in said water as an aqueous urea solution, recycling a portion of said aqueous urea solution to said washing step, dissolving said unreacted CO_2 and NH_3 in the remaining portion of said aqueous urea solution and adding the resulting solution containing said unreacted CO_2 and NH_3 and said remaining portion of said aqueous urea solution to said absorbate prior to said reacting step, removing CO from said gas after removal of said CO_2 by said washing step, thereafter reacting N_2 and H_2 contained in said gas to form ammonia, and recycling said formed ammonia to said washing step.

3,303,216
METHOD OF PRODUCING CYCLOALKANONE OXIMES

Helmut Nitsch, Heusenstamm, Germany, assignor, by mesne assignments, to Vickers-Zimmer Aktiengesellschaft, Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany, a corporation of Germany

Filed Sept. 17, 1963, Ser. No. 309,535

Claims priority, application Germany, Sept. 29, 1962, Z 9,692

9 Claims. (Cl. 260—566)

1. In a process of producing a substantially cycloalkanone-free cycloalkanone oxime selected from the group consisting of cyclohexanone oxime and cyclopentanone oxime, the steps which comprise introducing a cycloalkanone selected from the group consisting of cyclohexanone and cyclopentanone into the lower part of a vertically extended reaction zone, causing said cycloalkanone to flow upwardly through said reaction zone, introducing an aqueous solution of a mineral acid addition salt of hydroxylamine into the upper part of said vertically extended reaction zone, causing said hydroxylamine salt solution to flow downwardly through said reaction zone countercurrently to the upwardly flowing cycloalkanone solution so as to effect intimate mixing of the two reactants, introducing a mixture of ammonia and an inert gas at different levels into the reaction zone so as to continuously neutralize the mineral acid set free during reaction, thereby maintaining the reaction temperature in the reaction zone at a temperature above the melting point of the resulting cycloalkanone oxime and the pH-value of the reaction mixture at a pH between about 2.0 in the upper part of the reaction zone and about 7.0 in its lower part and gradually increasing from said pH of 2.0 to said pH of 7.0 within the reaction zone, recovering the resulting substantially cycloalkanone-free cycloalkanone oxime from a separating zone provided above the upper part of the reaction zone and the ammonium salt solution formed during reaction from a separating zone provided below the lower part of the reaction zone.

3,303,217
OXIMINO-1 CHLORO-2-CYCLODODECADIENE 5,9 AND SALTS AND PROCESS FOR THE PREPARATION THEREOF

Michailas Genas, Paris, and Claude Poulain, La Courneuve, France, assignors to Societe Organico S.A., Paris, France, a corporation of France

No Drawing. Filed Dec. 2, 1963, Ser. No. 327,522

Claims priority, application France, Dec. 5, 1962, 917,588

10 Claims. (Cl. 260—566)

1. A crystalline compound consisting of 1-oximino, 2-chloro-cyclododecadiene-5,9 melting at about 112° C. to 114° C., exhibiting I.R. absorption bands at 3315 cm.$^{-1}$ and 3525 cm.$^{-1}$ and failing to exhibit the characteristic nitroso band at 1180 cm.$^{-1}$.

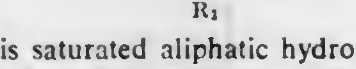
3,303,218
TERT ARALKYLTHIOALKYL AMINO ALCOHOLS

Robert J. Wineman, Concord, John C. James, Melrose, and Morton H. Gollis, Brookline, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 28, 1962, Ser. No. 176,411

6 Claims. (Cl. 260—570.5)

1. N-alkyl-N-(aralkylthioalkyl)aminoalkanols of the formula



$$\text{Aralk}-\text{S}-\text{R}_1-\underset{\text{R}_3}{\underset{|}{\text{N}}}-\text{R}_2(\text{OH})_x$$

where each R is saturated aliphatic hydrocarbon. Aralk is an aralkyl hydrocarbon radical consisting of saturated aliphatic hydrocarbon substituted by a benzenoid ring, each said hydrocarbon radical containing up to 12 carbon atoms, *x* is an integer of from 1 to 3, and each of the hydroxy groups is primary hydroxyl.

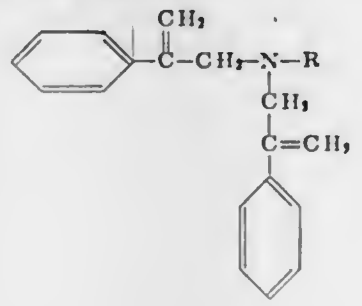
3,303,219
(2-PHENYL-ALLYL)-AMINES

Willis C. Keith, Lansing, and Robert P. Zmitrovis, Park Forest, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

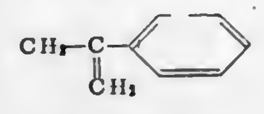
No Drawing. Filed Mar. 10, 1965, Ser. No. 438,785

5 Claims. (Cl. 260—570.5)

1. Amines of the formula:



wherein R is selected from the group consisting of hydrogen, phenyl, alkyl of 1 to 20 carbon atoms, 2-phenylallyl and substituted polyalkylene polyamine of the formula $[(CH_2)_xNR'']_yR''$ wherein *x* is 2 to 3, *y* is 1 to 10 and R″ is selected from the group consisting of hydrogen and



3,303,220
TRIPHENYLPHOSPHONIUM METHYLENE TRIPHENYLPHOSPHORANE COMPLEX GROUP III METAL HYDRIDES

Clifford N. Matthews, Winchester, and John S. Driscoll, Belmont, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Mar. 4, 1963, Ser. No. 262,372

4 Claims. (Cl. 260—606.5)

1. A triphenylphosphonium methylene triphenylphosphorane complex Group III element hydride wherein said triphenylphosphonium methylene triphenylphosphorane radical is of the formula $[(C_6H_5)_3PCHP(C_6H_5)_3]^+$.

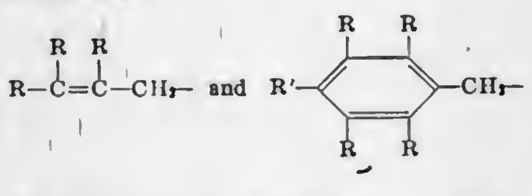
3,303,221
PROCESS FOR PREPARING HALOETHERS

Ronald E. Gilbert and Nicholas B. Lorette, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Nov. 3, 1961, Ser. No. 149,864

10 Claims. (Cl. 260—611)

1. A process for the preparation of haloethers having the formula $A—O—(CH_2)_4—X$, wherein X is a halogen selected from the group consisting of chlorine and bromine and wherein A is a radical selected from the group consisting of primary alkyl radicals having from one to six carbon atoms, and allyl and benzyl radicals having the respective formulae:



wherein R is a member selected from the group consisting of alkyl radicals having from one to three carbon atoms, bromine, chlorine and hydrogen atoms; and R′ is a member selected from the group consisting of alkyl radicals having from one to three carbon atoms and chlorine and bromine atoms; which comprises reacting by contacting tetrahydrofuran with an organic halide having the formula A—X, wherein A and X have the aforesaid significance, in the presence of a catalytic amount of an inorganic Friedel-Craft catalyst at a temperature of from about 25° to about 200° C.

3,303,222
PROCESS FOR THE THERMAL HYDRODEALKYLATION OF AN ALKYL HYDROXY AROMATIC COMPOUND IN THE PRESENCE OF AN ALKYL AROMATIC COMPOUND

William C. Offutt, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Nov. 4, 1963, Ser. No. 321,321

9 Claims. (Cl. 260—621)

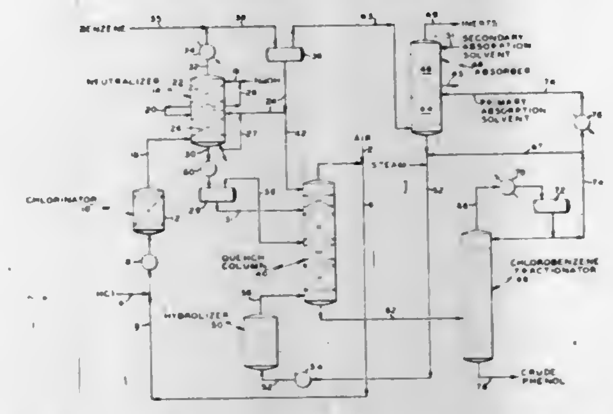
1. A process for converting a monoalkyl phenol wherein the alkyl substituent thereon has from one to three carbon atoms to a product that includes phenol which comprises reacting said alkyl phenol in the presence of an alkyl aromatic corresponding to said alkyl phenol with at least about one mol per mol thereof of hydrogen at a temperature of about 900° to about 1600° F.

3,303,223
PRODUCTION OF PHENOL FROM BENZENE VIA HALOBENZENE

Arthur W. Kelly, Palisades, N.Y., assignor to Pullman Incorporated, a corporation of Delaware

Filed Sept. 12, 1960, Ser. No. 55,214

20 Claims. (Cl. 260—629)



1. A process for producing phenol which comprises: chlorinating benzene with hydrogen chloride in the presence of oxygen in a chlorinating zone to produce a vaporous mixture containing a monochlorobenzene, benzene, inorganic oxides and hydrogen chloride; passing the vaporous chlorination effluent to a neutralization zone wherein hydrogen chloride is neutralized with a basic solution; partially condensing the chlorination vapors to separate a first liquid mixture containing monochlorobenzene and benzene from a first vaporous mixture containing the inorganic oxides, water and benzene; condensing benzene from the first vaporous mixture as a second liquid condensate; adding a controlled amount of fresh benzene to the second liquid condensate; passing a controlled amount of the benzene-enriched second liquid condensate to the top portion of a phenol condensation zone for vaporization therein; partially vaporizing by heating said first liquid mixture to separate a liquid fraction and a vapor fraction; passing the liquid fraction to the phenol condensation zone at a point below entry of said benzene-enriched liquid condensate, passing the vapor fraction to the phenol condensation zone at a point below entry of said liquid fraction; hydrolyzing monochlorobenzene with steam in a hydrolysis zone to produce a vaporous hydrolysis effluent containing phenol, water and hydrogen chloride; passing said vaporous hydrolysis effluent to said phenol condensation zone at a point below entry of said vapor fraction; maintaining said phenol condensation zone at a point below entry of said vapor fraction; maintaining said phenol condensation zone at a temperature above the dew point of the hydrogen chloride-water mixture in the hydrolysis effluent and under a pressure of from 20 p.s.i.g. to 100 p.s.i.g.; supplying benzene to the top of said phenol condensation zone in an amount in excess, but less than 25 percent excess, of the amount required for the formation of the benzene - monochlorobenzene - water-hydrogen chloride azeotrope by adjusting said controlled amount of fresh benzene added to the second liquid condensate and also by controlling said amount of benzene-enriched second liquid condensate introduced into the top portion of the phenol condensation zone; continuously removing a vaporous mixture of benzene-monochlorobenzene-water-hydrogen chloride from said phenol condensation zone and at all times preventing the condensation of a water-hydrogen chloride mixture by maintaining said excess of benzene in said phenol condensation zone; withdrawing a liquid phenol-monochlorobenzene liquid fraction from said phenol condensation zone; separating the monochlorobenzene from the phenol and passing said monochlorobenzenet to said hydrolysis zone as at least part of the feed thereto; and recovering phenol as a product of the process.

9. In a process for the production of phenol wherein benzene is catalytically reacted in the vapor phase in a halogenation zone with hydrogen halide in the presence of oxygen to produce a vaporous mixture containing monohalobenzene, benzene, inorganic inert materials and the hydrogen halide, the monohalobenzene is catalytically hydrolyzed with steam to produce a vaporous mixture of water, phenol and the hydrogen halide in a hydrolysis zone and the phenol is recovered from the hydrolyzed vaporous mixture, the improvement which comprises: passing the vaporous effluent from the halogenation zone to a neutralization zone where the vapors are simultaneously neutralized with a basic solution and the organic components are condensed and separated from a vaporous fraction containing benzene and the inorganic inert materials; passing the condensed organic components to a phenol condensation zone; separating benzene from the inorganic inert materials; passing the vaporous hydrolysis effluent to the phenol condensation zone; passing benzene to the top of the phenol condensation zone for vaporization therein in an amount in excess of that required for the formation of the corresponding monohalobenzene-benzene-water-hydrogen halide azeotrope; removing vapors from the phenol condensation zone while condensing phenol and monohalobenzene at a temperature above the dew point of the hydrogen halide-water mixture in the phenol condensation zone; maintaining a mixture of benzene, water the monohalobenzene and substantially all of the hydrogen halide in the vapors leaving the phenol condensation zone; recovering phenol from its mixture with monohalobenzene as the product of the process; and passing the monohalobenzene to the hydrolysis zone as feed thereto.

15. In the process for neutralizing the corrosive vaporous effluent obtained from a halogenation zone wherein a benzene is reacted with a hydrogen halide in the presence of oxygen to produce a vaporous mixture containing the unreacted benzene, the corresponding monohalobenzene, inorganic inert materials and the hydrogen halide, the improvement which comprises: passing the halogenation effluent into a lower zone of a multi-stage neutralizer; partially condensing and washing said effluent with a basic washing medium to condense the monohalobenzene and to neutralize said condensate; passing the remaining vaporous material to an upper zone of a multi-stage neutralizer; introducing a basic solution into said upper zone and neutralizing therein any acidic vapors from said lower zone; passing at least a portion of the resulting liquid basic solution from the upper zone to the lower zone as the washing medium therein; withdrawing a liquid mixture substantially free of inorganic inerts and containing substantially all of the monohalobenzene and the benzene from the lower zone of the neutralizer; and withdrawing from the upper zone of the neutralizer a vaporous mixture containing the benzene and concentrated in water and inorganic inert materials, said mixture being substantially free of corrosive hydrogen halide.

17. In a process for the production of phenol wherein benzene is catalytically reacted in the vapor phase in a halogenation zone with hydrogen halide in the presence of oxygen to produce a vaporous mixture containing monohalobenzene, benzene, inorganic inert materials and the hydrogen halide, the monohalobenzene is catalytically hydrolyzed with steam to produce a vaporous mixture of water, phenol and the hydrogen halide in a hydrolysis zone and the phenol is recovered from the hydrolyzed vaporous mixture, the improvement which comprises: passing the vaporous effluent from the halogenation zone to a neutralization zone where the vapors are simultaneously neutralized with a basic solution and the organic components are condensed and separated from a vaporous fraction containing benzene and the inorganic inert materials; passing the condensed organic components to a phenolic condensation zone; passing the vaporous hydrolysis effluent to the phenol condensation zone; passing benzene to the top of the phenol condensation zone for vaporization therein in an amount in excess of that required for the formation of the corresponding monohalobenzene-benzene-water-hydrogen halide azeotrope; separating benzene from the inorganic inert materials by absorbing benzene in a liquid organic solvent suitable for extracting benzene from its mixture with inorganic inert materials and lower boiling than said inert inorganic materials; withdrawing the unabsorbed vapors comprising the inert inorganic materials and chilling the vapors to at least the condensation temperature of the solvent and above the condensation temperature of the inert inorganic materials to condense any organic material entrained in the vapor; removing the remaining inert inorganic vaporous material from the process and passing the solvent containing benzene to the hydrolysis zone; removing vapors from the phenol condensation zone while condensing phenol and monohalobenzene at a temperature above the dew point of the hydrogen halide-water mixture in the phenol condensation zone; maintaining a mixture of benzene, water, the monohalobenzene and substantially all of the hydrogen halide in the vapors leaving the phenol condensation zone; recovering phenol from its mixture with monohalobenzene as the product of the process; and passing the monohalobenzene to the hydrolysis zone as feed thereto.

19. In a process for the production of phenol wherein a benzene is reacted with a halogen ion to produce a monohalobenzene and the monohalobenzene is hydrolyzed with steam to produce a vaporous mixture comprising phenol, water, and the corresponding hydrogen halide in a hydrolysis zone, the improvement which comprises: passing the vaporous hydrolysis effluent to a phenol condensation zone; removing vapors from the phenol condensation zone while condensing phenol and the monohalobenzene at a temperature above the dew point of the hydrogen halide-water mixture in the phenol condensation zone and supplying said benzene to the phenol condensation zone for vaporization therein in at least the amount required for the formation of the corresponding monohalobenzene-benzene-water-hydrogen halide azeotrope to maintain the hydrogen halide in the vapor phase at all times during the operation of the phenol condensation zone and to maintain a mixture of benzene, water, the monohalobenzene and the hydrogen halide in the vapors leaving the phenol condensation zone; passing the liquid phenol-monohalobenzene fraction from said phenol condensation zone to a fractionation zone wherein monohalobenzene is separated as a vapor from liquid phenol, withdrawing and condensing said monohalobenzene vapors from said fractionation zone; injecting steam which is required for hydrolysis into at least a major portion of said condensed monohalobenzene to lower the vaporization temperature thereof; vaporizing and passing the resulting steam-monohalobenzene mixture to said hydrolysis zone as feed thereto and recovering liquid phenol from said fractionation zone as a product of the process.

3.303,224

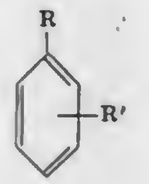
BROMINATION OF AROMATIC COMPOUNDS

John W. Crump, Albion, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Nov. 13, 1963, Ser. No. 323,209

4 Claims. (Cl. 260—650)

1. A process for ring brominating a substituted benzene of the formula



wherein R is selected from the group consisting of lower alkyl, lower alkoxy, aryloxy, and halogen and R′ is selected from the group consisting of R and hydrogen, which process comprises maintaining a reaction mixture consisting essentially of said substituted benzene and a member selected from the group consisting of

(a) aqueous bromic acid and

(b) aqueous bromic acid plus an acid selected from the group consisting of sulfuric acid, toluenesulfonic acid, nitric acid, and perchloric acid at a temperature between the freezing point of said mixture and about 100° C. for a length of time sufficient to obtain a substantial degree of bromination.

3,303,225

PRODUCTION OF POLYMETALLATED 1-ACETYLENES

Henry L. Hsieh and John A. Favre, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Dec. 26, 1962, Ser. No. 247,326

4 Claims. (Cl. 260—665)

1. A process for the production of polymetalated 1-acetylenes wherein the metal substituents replace acetylenic hydrogen atoms and hydrogen atoms attached to the carbon atom alpha to the acetylenic linkage which comprises contacting (a) a compound of the formula RM_x wherein R is a hydrocarbon radical selected from the group consisting of saturated aliphatic, saturated cycloaliphatic and aromatic radicals, *x* is an integer from 1 to 4, inclusive, and M is an alkali metal with (b) a 1-acetylene compound of the formula $R'C\equiv CH$, wherein R′ is $R''_2CH—$ radicals and wherein each R″ is selected from the group consisting of hydrogen and hydrocarbon radicals selected from saturated aliphatic, saturated cycloaliphatic, and aromatic radicals containing up to and including 12 carbon atoms, said contacting being effected in an inert liquid reaction medium at a temperature ranging from —75 to 150° C. under sufficient pressure to maintain liquid phase conditions with a mol ratio of (a) to (b) ranging from 2:1 to 10:1, and recovering the polymetalated acetylene thus formed as product.

3,303,226

ISOMER TRANS, TRANS, TRANS-CYCLODODECATRIENE-(1,5,9) PREPARATION

Sadao Yuguchi, Ohtsu-shi, Shiga-ken, and Tosikatu Yosida, Nara-shi, Nara-ken, Japan, assignors to Toyo Rayon Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Filed Mar. 27, 1964, Ser. No. 355,451

Claims priority, application Japan, Apr. 9, 1963, 38/18,764; June 20, 1963, 38/31,039; Jan. 16, 1964, 39/1,628

5 Claims. (Cl. 260—666)

1. Process for preparing the trans, trans, trans isomer of cyclododecatriene-(1,5,9) which comprises cyclopolymerising butadiene in a liquid phase in contact with a catalytic amount of a catalyst obtained from at least one dialkyl aluminium chloride and at least one preformed titanium compound of the formula:

$$Ti(NR_2)_nCl_{4-n}$$

wherein R is ethyl, and *n* is a whole number selected from 3 or 4.

3,303,227

PREPARATION OF PERHYDROPYRENES

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Oct. 7, 1964, Ser. No. 402,347

22 Claims. (Cl. 260—666)

1. Method of preparing hydrocarbons having perhydropyrene structure which comprises contacting a naphthene having four rings and 16–24 carbon atoms arranged in a non-perhydropyrene structure at a temperature in the range of —10° to 70° C. with a catalyst selected from the group consisting of aluminum halide catalyst and $HF-BF_3$ catalyst, said temperature being below 50° C. when an aluminum halide catalyst is used, and continuing such contact until at least a substantial proportion of said naphthene has been converted to hydrocarbon product having perhydropyrene structure.

3,303,228

PRODUCTION OF CYCLODODECENE

Kenneth E. Atkins, South Charleston, and Marion A. Eccles, Nitro, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Aug. 6, 1965, Ser. No. 477,939

4 Claims. (Cl. 260—666)

1. In a process for producing cyclododecene by the hydrogenation of 1,5,9-cyclododecatriene, the improvement of continuously feeding 1,5,9-cyclododecatriene containing at least 5 weight percent dicobalt octacarbonyl and hydrogen to an elongated reaction zone maintained at a temperature of 150° C. to 250° C. and a pressure of 1000 p.s.i.g to 5000 p.s.i.g., maintaining the reaction mixture in the reaction zone for a period of from 1 to 10 minutes but before the formation of elemental cobalt, and thereafter removing the reaction mixture from said reaction zone.

3,303,229

PREPARATION OF PHENYL ACETYLENE

Armand J. de Rosset, Clarendon Hills, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed May 15, 1964, Ser. No. 367,889

9 Claims. (Cl. 260—668)

2. A process for the preparation of phenyl acetylene which comprises contacting a phenyldihaloethane at a temperature in the range of from about 200° to about 650° C. and at a subatmospheric pressure with a catalyst comprising magnesia, and recovering the resultant product.

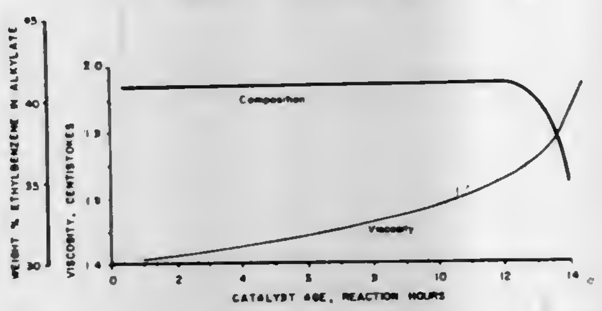
3,303,230

CONTROL OF ALKYLATION CATALYST ACTIVITY

Talmage D. McMinn, Jr., Texas City, Tex., assignor to Monsanto Company, a corporation of Delaware

Filed Dec. 20, 1963, Ser. No. 332,256

7 Claims. (Cl. 260—671)



1. In a process for the preparation of monoalkylated aromatic compounds in the presence of a liquid Friedel-Crafts organo-metal halide catalyst complex to produce both mono- and polyalkylated aromatic compounds and wherein said polyalkylated aromatic compounds are dealkylated in the presence of said catalyst complex, the steps which comprise determining the activity of said catalyst complex by measuring the viscosity of said catalyst complex and calculating the said activity therefrom and maintaining the activity of said catalyst complex at a high level by the addition of metal halide to said catalyst complex, said catalyst complex having been prepared by reacting metallic aluminum and hydrogen chloride in the presence of benzene, ethylbenzene and polyethylbenzenes.

3,303,231

MOLECULAR SIEVE SEPARATION PROCESSES

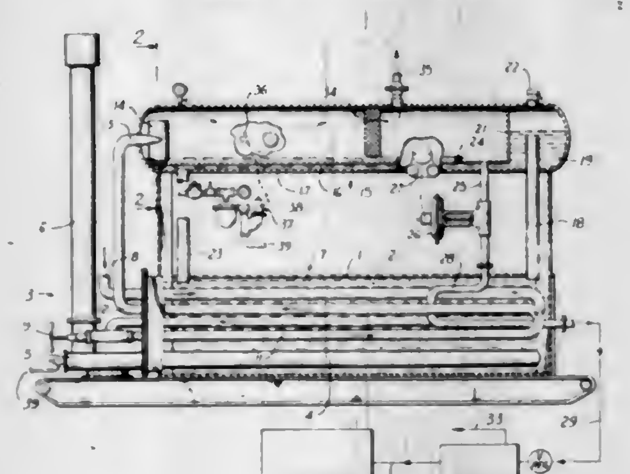
Clive Leonard Hicks and Robert Marshall Macnab, Sunbury-on-Thames, Middlesex, England, assignors to The British Petroleum Company Limited, London, England, a corporation of England
No Drawing. Filed Apr. 15, 1964, Ser. No. 360,075
Claims priority, application Great Britain, May 13, 1963, 18,840/63
6 Claims. (Cl. 260—676)

1. A process for the production of n-paraffin fractions having a purity of at least 99% by weight comprising contacting a petroleum fraction boiling in the C_{10}–C_{20} range with a 5 A. molecular sieve at a temperature in the range 300–450° C. and at a pressure of 0–300 p.s.i.g. to produce an intermediate product containing at least 95%, by weight, of n-paraffins, subjecting the intermediate product to a dearomatization operation, contacting the dearomatized intermediate product with a 5 A. molecular sieve at a temperature in the range 300–450° C. and at a pressure of 0–300 p.s.i.g. to produce a fraction containing less than 1.0% by weight of isoparaffins and naphthenes, and recovering a n-paraffin product therefrom having a purity of at least 99%.

3,303,232

PROCESS FOR SEPARATING CONDENSED HYDROCARBONS FROM NATURAL GAS AND REDUCING PRESSURE ON THE GAS

Charles R. Perry and Lawrence J. Sullivan, both of P.O. Box 1152, Odessa, Tex. 79760
Filed June 26, 1964, Ser. No. 378,106
7 Claims. (Cl. 260—676)



1. A process for separating a stream of natural gas containing entrained liquid into substantially gas-free liquid and liquid-free gas fractions and lowering pressure on the fractions from substantially well pressure to a pressure suitable for pipeline transportation comprising the steps of heating a body of heat exchange liquid in a first heating zone; passing a stream of natural gas containing entrained liquid at well pressure through the heated body of heat exchange liquid in indirect heat exchange relationship therewith; reducing pressure on the stream of natural gas during said passage in indirect heat exchange relationship; maintaining the temperature of the heat exchange liquid at a temperature below a temperature resulting in hydrate formation in the stream of gas downstream of a point of reduction in pressure; separating liquid and solid hydrates from the gas by centrifugal force of 25 to 500 G's; heating the separated liquid containing solid hydrates in a second heating zone in contact with separated gas to a temperature sufficiently high to drive off substantially all materials normally gaseous at atmospheric pressure from the liquid; heating the second heating zone by convection circulation of heat exchange liquid from said first heating zone; and withdrawing the resulting gas and liquid fractions.

3,303,233

BIODEGRADABLE SURFACTANTS

Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed June 10, 1964, Ser. No. 374,190
6 Claims. (Cl. 260—677)

1. A process for the preparation of an olefinic alkylating agent for use in the production of a biologically soft detergent product comprising an alkylaryl compound in which the aryl nucleus is monocyclic and the alkyl substituent contains from nine to about fifteen carbon atoms, which process comprises separating a straight chain paraffin from a paraffinic naphtha boiling in the range of from about 125° C. to about 250° C. and containing said straight chain paraffin in admixture with branched chain isomers thereof, and converting said straight chain paraffin thus separated from its branched chain isomers to a monoolefin derivative of straight chain structure by a sequence of steps comprising monohalogenating the separated straight chain paraffin at a temperature of from about 0° C. to about 400° C. and dehydrohalogenating the halogenated paraffin at a temperature of from about 50° C. to about 400° C.

3,303,234

UNSATURATED HYDROCARBONS BY OXIDATIVE DEHYDROGENATION OVER FERRITE CATALYST

Laimonis Bajars, Princeton, and Louis J. Croce, East Brunswick, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware
No Drawing. Filed Jan. 2, 1964, Ser. No. 335,343
8 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of hydrocarbons having at least four carbon atoms which comprises contacting in the vapor phase at a temperature of greater than 250° C. a mixture of the said hydrocarbon to be dehydrogenated, halogen and from 0.2 to 2.5 mols of oxygen per mol of the said hydrocarbon with a catalyst for the dehydrogenation comprising a ferrite selected from the group consisting of strontium ferrite and barium ferrite to produce a dehydrogenated hydrocarbon product having the same number of carbon atoms as the said hydrocarbon.

3,303,235

UNSATURATED HYDROCARBONS BY OXIDATIVE DEHYDROGENATION OVER A CATALYST COMPRISING ZINC AND IRON

Louis J. Croce, East Brunswick, Laimonis Bajars, Princeton, and Maigonis Gabliks, Highland Park, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware
No Drawing. Filed Jan. 2, 1964, Ser. No. 335,351
18 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of aliphatic hydrocarbons having at least four carbon atoms which comprises contacting in the vapor phase at a temperature of greater than 250° C. a mixture of the said hydrocarbon to be dehydrogenated and from 0.2 to 2.5 mols of oxygen per mol of the said hydrocarbon with a catalyst for the dehydrogenation comprising zinc ferrite to produce a dehydrogenated hydrocarbon product having the same number of carbon atoms as the said hydrocarbon.

3,303,236

UNSATURATED HYDROCARBONS BY OXIDATIVE DEHYDROGENATION OVER CATALYSTS COMPRISING NICKEL AND IRON

Louis J. Croce, East Brunswick, and Laimonis Bajars, Princeton, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware
No Drawing. Filed Jan. 2, 1964, Ser. No. 335,364
17 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of hydrocarbons having at least four carbon atoms which comprises contacting in the vapor phase at a temperature of greater than 250° C. a mixture of the said hydrocarbon to be dehydrogenated and from 0.2 to 2.5 mols of oxygen per mol of the said hydrocarbon with a catalyst for the dehydrogenation comprising nickel and iron wherein the atoms of iron are present in an amount of about 20 to 90 weight percent based on the total weight of the atoms of iron and nickel, to produce a dehydrogenated hydrocarbon product having the same number of carbon atoms as the said hydrocarbon.

3,303,237

UNSATURATED HYDROCARBONS BY OXIDATIVE DEHYDROGENATION OVER IRON-ALUMINA CATALYST

Louis J. Croce, East Brunswick, Laimonis Bajars, Princeton, and Maigonis Gabliks, Highland Park, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware
No Drawing. Filed Apr. 2, 1964, Ser. No. 356,941
5 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of hydrocarbons having at least four carbon atoms which comprises passing a gaseous mixture of from 2 to 10 mol percent of said hydrocarbon, from 40 to 95 mol percent steam, and from 0.3 to 2.0 mol of oxygen per mol of said hydrocarbon through a fixed bed catalyst having an average particle size of at least ⅛ inch at a temperature of at least 325° C. and at a contact time of the gaseous mixture with the said fixed bed catalyst of from 0.01 to 0.6 second, said catalyst comprising as a catalytic surface an intimate combination of iron and aluminum wherein the iron constitutes from 25 to 98 weight percent of the total weight of the atoms of iron and aluminum, said catalytic surface containing less than 0.5 weight percent of an element selected from the group consisting of sodium, potassium and mixtures thereof.

3,303,238

UNSATURATED HYDROCARBONS BY OXIDATIVE DEHYDROGENATION OVER SILICA-PROMOTED FERRITE CATALYST

Harold F. Christmann, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware
No Drawing. Filed June 22, 1964, Ser. No. 377,103
6 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of organic compounds having at least four carbon atoms which comprises contacting in the vapor phase at a temperature of greater than 250° C. a mixture of the said organic compound to be dehydrogenated and from 0.2 to 2.5 mols of oxygen per mol of the said organic compound with a catalyst for the dehydrogenation comprising iron, silicon and a metal selected from the group consisting of magnesium, zinc, cobalt, nickel and mixtures thereof wherein the silicon is present in an amount of from .003 to 0.30 atom of silicon per atom of iron and the atoms of magnesium, zinc, cobalt and nickel are present in a total amount of from .05 to 2 atoms per atom of iron.

3,303,239

OLEFIN POLYMERIZATION

James W. Cleary and Ray A. Wickliffe, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Dec. 23, 1963, Ser. No. 332,865
15 Claims. (Cl. 260—683.15)

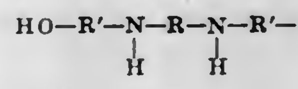
1. A method of forming liquid polymers comprising contacting monoolefins having 2 to 4 carbon atoms per molecule with a catalyst system which forms on mixing materials consisting essentially of (1) a transition metal halide of the general formula MX_a where M is a transition metal selected from the group IV–B of the periodic table, X is a halogen selected from the group consisting of chlorine, bromine, and iodine, and *a* is an integer equal to the valence of M; (2) an organoaluminum halide of the general formula R_bAlX_c where R is a 1 to 12 carbon organo radical, X is a halogen selected from the group consisting of chlorine, bromine and iodine, and *b* and *c* are integers of 1 and 2, the total of *b* and *c* being 3; and (3) triorganoboron of the general formula BR_3 where R is a 1 to 12 carbon organo radical; the mol ratio of components (1), (2) and (3) being in the range of 1:0.6:0.5 to 1:3:5, the concentration of component (1) (millimols) to olefin feed (mols) being in the range of 1:0.05 to 1:10.0, at a temperature in the range of 150 to 350° F., and at a pressure in the range of 100 to 1000 p.s.i.g.

3,303,240

NOVEL SELF-EXTINGUISHING POLYESTERS PREPARED FROM POLYOLS OF PERCHLORINATED DIAMINODIPHENYLS

Laszlo Szobel, Grenoble, and Ludovic Parvi, Pont-de-Claix, France, assignors to Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine, Paris, France, a corporation of France
No Drawing. Filed July 10, 1963, Ser. No. 294,171
Claims priority, application France, July 12, 1962, 903,825
19 Claims. (Cl. 260—869)

1. A polyester resulting from the esterification by dicarboxylic acids of polyols having the general formula



$$HO-R'-\underset{H}{N}-R-\underset{H}{N}-R'-OH$$

in which R represents the octochlorodiphenyl radical, and R′ is selected from the group consisting of alkyl radical having from 2 to 8 carbon atoms, hydroxy lower alkyl radical, allyl, benzyl,

$$-(CH_2)_n-[NH-(CH_2)_n]_m-NH_2$$

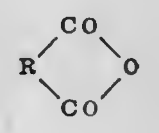
in which *n* is between 2 and 6 and *m* is between 0 and 3.

3,303,241

POLYVINYL CHLORIDE ADHESIVES CONTAINING POLYALLYL ESTER PLASTICIZERS

Thomas Courtney Moorshead, London, and Peter Paul Hopf, Orpington, England, assignors to A. Boake, Roberts and Company Limited, Stratford, London, England, a corporation of England
No Drawing. Filed June 2, 1964, Ser. No. 372,074
Claims priority, application Great Britain, June 11, 1963, 23,283/63
10 Claims. (Cl. 260—884)

1. A method of obtaining a polymer-coated substrate, which method comprises: preparing a mixture consisting essentially of a vinyl chloride polymer and a poly-allyl ester of a mono-glycol bis-(polycarboxylate) ester acid of the general formula $HO_2CRCO \cdot OZO \cdot OCRCO_2H$ wherein R is the residue of an anhydride of the formula



selected from the group consisting of saturated aliphatic dicarboxylic, saturated aliphatic tricarboxylic, monobenzenoid dicarboxylic, and monobenzenoid tricarboxylic anhydrides, and Z is the residue of a glycol of the general formula HOZOH wherein a chain having from 2 to 6 atoms separates the hydroxyl groups, said poly-allyl ester being present in an amount of from 5 to 70 parts by weight per 100 parts of the vinyl chloride polymer; applying the mixture to a substrate and curing said mixture thereon.

3,303,242

POLYMETHYL-METHACRYLATE-MODIFIED MIXTURES OF A STYRENE-ACRYLONITRILE COPOLYMER AND BUNA N RUBBERS

Giuseppe Guzzetta, Milan, and Enrico Orsatti, Busto Arsizio, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Sept. 15, 1964, Ser. No. 396,731

Claims priority, application Italy, Apr. 6, 1961, 6,304/61

4 Claims. (Cl. 260—887)

1. A thermoplastic composition comprising 10 to 30% of a butadiene-acrylonitrile copolymer in a butadiene/acrylonitrile ratio of 60 to 80%/40 to 20%, 17 to 72% of a styrene-acrylonitrile copolymer in a styrene/acrylonitrile ratio of 72.5%/27.5%, and 14 to 72% of polymethylmethacrylate having toughness, rigidity, hardness and heat resistant properties.

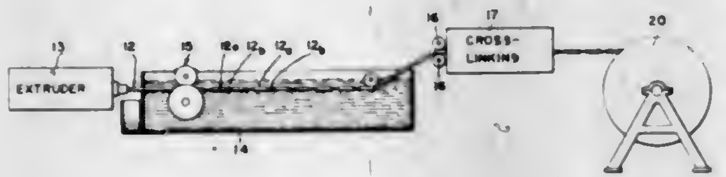
3,303,243

PROCESS FOR PRODUCING HEAT-RECOVERABLE ARTICLES

John R. Hughes, Palo Alto, and Richard W. Muchmore, Redwood City, Calif., assignors to Raychem Corporation, Redwood City, Calif., a corporation of California

Filed Feb. 18, 1963, Ser. No. 259,018

17 Claims. (Cl. 264—22)



1. In a process for the production of heat-shrinkable end caps, the steps of forming a tube of a thermoplastic polymeric material, heat-sealing spaced wall portions of the tube to form a plurality of isolated tubular portions having an initial diameter, cross-linking the polymeric material of said tubular portions, heating the tubular portions to a temperature above the crystalline melting point, expanding by the creation of a differential pressure between the inside and outside of the tubing, and cooling said tubular portions while holding them in the expanded condition to produce heat-shrinkable tubular portions having a final diameter greater than said initial diameter.

3,303,244

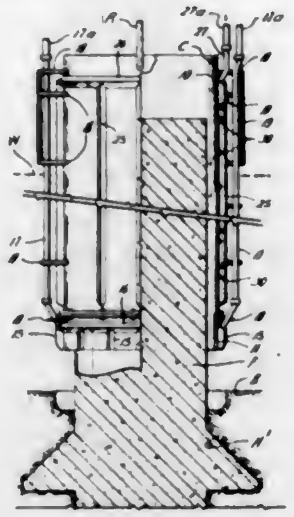
METHOD FOR FORMING FOUNDATION MEMBERS

Dolen O. Talley and Myles H. Schutte, both of 4655 Telephone Road, Houston, Tex. 77012

Original application Sept. 23, 1960, Ser. No. 58,050, now Patent No. 3,164,963. Divided and this application Aug. 20, 1964, Ser. No. 390,967

4 Claims. (Cl. 264—32)

1. A method of forming foundation members from concrete, comprising the steps of, positioning an outer casing and an inner casing in upright positions with an annular space therebetween and with the lower end of the outer casing extending into the bottom to provide a seal therewith, providing sand in the annular space, thereafter pouring concrete into the inner casing, removing the inner casing while the concrete is soft, and when the concrete has hardened simultaneously lifting the outer casing and washing the sand away from the concrete to free the outer casing.



3,303,245

PROCESS FOR PRODUCTION OF TILE PRODUCTS

Yvon Trudeau, Louiseville, Quebec, Canada, assignor to Terraz Epoxy Inc., Louiseville, Quebec, Canada

Filed Sept. 9, 1963, Ser. No. 307,539

4 Claims. (Cl. 264—70)

1. A continuous process for manufacturing self-supporting sheet tile, comprising, continuously forming an intimately mixed resinous composition composed of (A) from about 0 to about 90% by weight, based on the total weight of the aggregates in the mixture, of fine aggregate having as ASTM size of from about 40 to about 200, and from about 10% to about 90% by weight, based on the total weight of the aggregates in the mixture, of large aggregate having a size of from about ⅛" to about 3", and (B) from about 2½% to about 12½% by weight, based on the weight of the aggregates, of an epoxy resin including a catalyst therefor, continuously spreading said composition to a desired depth on a series of mould sections arranged for movement in a line upon a generally horizontal support, the mould sections having side rims arranged in alignment and having rimless juxtaposed transverse edges, the mould sections being covered by a continuous layer of mould release agent, moving the continuous ribbon of resinous composition so formed sequentially through a heating station, a vibrating station, a mould separating station, and a polishing station, continuously vibrating said supporting surface as said mixture is spread thereon first in a horizontal direction and subsequently in a vertical direction as it passes through said vibrating station, where the composition is in a heated condition, to free any gas contained in said mixture and produce a composition free from gaseous occlusions, maintaining the mixture in a heated condition after passing through said heating station for sufficient time to cure and set the epoxy resin, continuously separting the incompletely hardened self-supporting ribbon of solidified mixture from the mould sections as it passes through said mould separating station, and polishing at least one surface of the solidified ribbon to obtain a sheet tile product having a three-dimensional decorative effect.

3,303,246

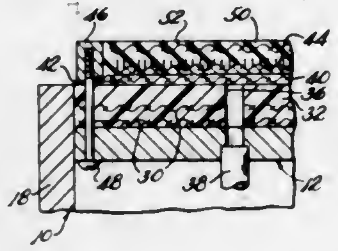
METHOD OF MAKING LEVEL TABLE AND RUBBER MOLD

Norman Forrest, 216 Byram Road, Byram, Conn. 10573

Filed Sept. 21, 1964, Ser. No. 397,848

8 Claims. (Cl. 264—90)

1. That method of making a flexible rubber-like mold which includes the steps of joining a series of flat-top tables together end to end, applying a rail around the assembled tables, covering the tables and rail with a watertight sheet of plastic, placing a similar flat metal bar on each table having a vertical height slightly less than the height of the rail above the tables, pouring liquid on the table tops to substantially the vertical height of each bar, adjusting the vertical height of each corner of each table to bring the top of each bar to the level of the liquid, removing the bars, liquid, and plastic sheet, placing fiber glass fabric on the top of the assembled tables inside the rail, pouring a free-flowing, time-setting plastic over the fabric to a depth slightly under the vertical height of the rail, allowing the plastic to seek its level, effecting the setting of the plastic, grinding down the rail to the height of the plastic, boring vertical holes through the plastic at selected areas, connecting the holes to vacuum producing conduits under the tables, applying an air-pervious cloth over the tables and securing it at its edges to the plastic inside the rail, applying a fence to the top of the table inside the rail, positioning a sheet of textile inside the fence, applying a vacuum to the conduits to hold the textile flat, applying silicone rubber to a selected depth inside the fence to the textile, reenforcing the rubber with fabric, curing the rubber with heat, and stripping the rubber from the textile to provide a mold.



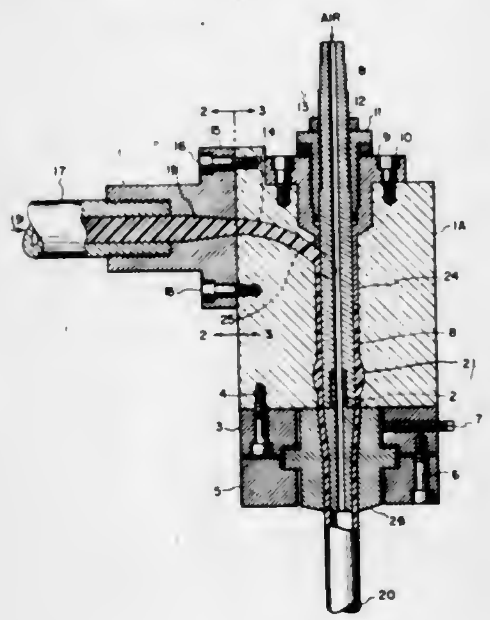
3,303,247

EXTRUSION HEAD FOR PLASTIC TUBING

Charles E. Carter, Easthampton, and Stanley C. Wells, Jr., Southampton, Mass., assignors to United Plastic Corporation, Easthampton, Mass., a corporation of Massachusetts

Filed Sept. 21, 1964, Ser. No. 397,900

10 Claims. (Cl. 264—95)



1. In an extrusion head for the extrusion of plastic tubing which is provided with a mandrel, a die, means for introducing plastic into the annular space between the mandrel and the extrusion head and die, the improvement which comprises;

(a) means for introducing the material to be extruded in the form of tubing in the shape of a ribbon, means in the extrusion head to divide and turn the ribbon into the annular space between mandrel and head, said means being positioned so that the turn of the ribbon is about the short axis of the ribbon which is along the long dimension of a cross section thereof, whereby the plastic is introduced into the annular space without forming nonuniformities on one side of the tube.

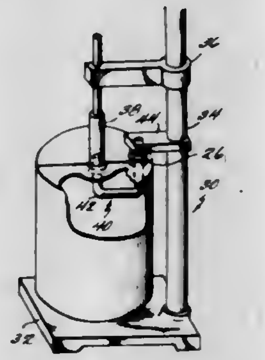
3,303,248

PROCESS OF HEAT SEALING A NECK FOR BLOW MOLDED DRUM LINER

Marvin F. Davis, Wilmington, Del., assignor, by mesne assignments, to The Greif Bros. Cooperage Corporation, Delaware, Ohio

Filed Oct. 7, 1963, Ser. No. 314,104

3 Claims. (Cl. 264—98)



1. A method of producing a thermoplastic container serving as a liner for a drum comprising: blow molding a plastic material to desired configuration, said container being tubular and substantially flat end walls, said plastic container having a compressed air-nozzle inlet centrally disposed at an end wall of said container for admission therethrough of an air nozzle during said blow molding operation, said inlet comprising an aperture in the plane of said container end wall in communication with a vertical neck wall sealingly engageable with said air nozzle, providing an outlet integral with said container end wall disposed offset from said air nozzle inlet; removing said air nozzle; applying heat to soften the thermoplastic material of said vertical wall and fusing it to form a seal closing the aperture by sealing said neck in said aperture in a substantially tight and homogeneous manner; and prior to heat sealing, supporting the container end adjacent said inlet during sealing of the aperture by providing a sealing support through said outlet to close said inlet and thereafter heat sealing said vertical wall to fuse the thermoplastic material of said vertical wall and fuse it to form a seal.

3,303,249

MANUFACTURING PLASTIC ARTICLES

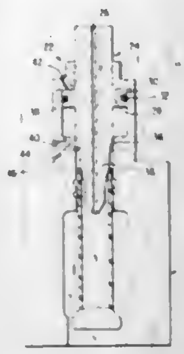
Robert G. Strauss, West Hartford, Conn., assignor to Monsanto Company, a corporation of Delaware

Filed Dec. 3, 1963, Ser. No. 327,789

13 Claims. (Cl. 264—98)

1. The method of forming a hollow article having neck and body portions comprising extruding a parison from an extrusion nozzle, positioning the parison in a mold having neck and body forming cavities, gripping the parison in the mold at a closed end of the body forming cavity, peripherally gripping the parison in a limited area of the neck forming cavity to indent the parison in a single annular zone with the remainder of the parison

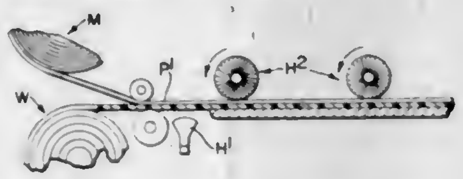
in said neck forming cavity being ungripped, press molding the portion of the parison in the neck forming cavity



by the introduction of axially advancing mandrel means into the neck forming cavity, and blow molding the portion of the parison in the body forming cavity.

3,303,250
METHOD OF MAKING OUTER SOLES FOR FOOTWEAR

George H. Bingham, Jr., Westminster, Md., assignor to Cambridge Rubber Company, Taneytown, Md., a corporation of Maryland
Original application June 12, 1962, Ser. No. 201,950, now Patent No. 3,138,881, dated June 30, 1964. Divided and this application Feb. 26, 1964, Ser. No. 347,584
2 Claims. (Cl. 264—145)

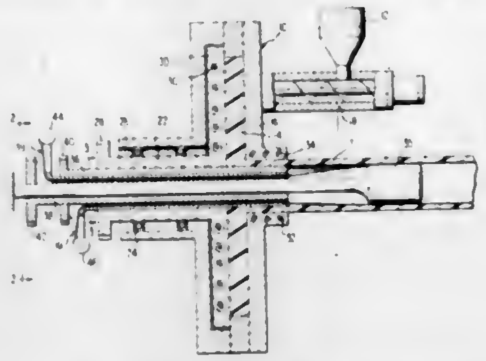


1. That method of preparing an outer sole of elastomeric material which comprises as a preliminary step: warming a slab of uncured thermoplastic elastomeric material of a thickness appropriate to form an outer sole blank; bringing into adhearing contact with said slab a textureless fibrous sheet of bibulous, cellulosic material whose weight per square foot is of the order of 0.055 ounce; applying pressure to the parts such as permanently to bond the sheet material to the slab; cutting a composite sole blank from said slab; placing the composite blank within a sole mold so that the sheet material contacts a surface of the sole mold; and applying heat and pressure such as to infuse said sheet material with the elastomeric material of the blank whereby the sheet material loses its identity as an independent element.

3,303,251
METHOD AND APPARATUS FOR EXTRUDING TUBING WITH CONTINUOUS INTERNAL REENFORCEMENT MEMBERS

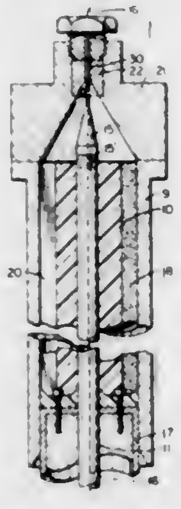
James E. Heider, Toledo, and Thomas R. Santelli, Sylvania, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio
Continuation of application Ser. No. 422,917, Jan. 4, 1965. This application May 13, 1966, Ser. No. 560,354
16 Claims. (Cl. 264—173)

1. An apparatus for manufacturing plastic tubing which is fiber-reenforced on its inner surface comprising a centripetal extruder having a die member with an opening therein, a rotary member having a central axis for effecting extrusion of hot plastic tubing from said die member opening, a stationary mandrel extending from said die member opening and positioned within the tubing so as to size said tubing, a first means located along the central axis of said rotary member for guiding at least one fiber longitudinally onto said mandrel from a source of fibers of continuous length, a second means located near the central axis of said rotary member and concentric to said first means for guiding at least one fiber longitudinally onto said mandrel as the tubing is passed over said mandrel, and means for cooling the thus formed plastic tubing having fibers embedded on the internal surface thereof so as to set the tubing into a rigid and non-collapsible form.



3,303,252
METHOD OF FORMING PRODUCTS EXTRUDED FROM PLASTIC MATERIAL

Gerson George Rogers, Riverton, N.J., assignor to Philadelphia Insulated Wire Company, Moorestown, N.J.
Filed Mar. 19, 1963, Ser. No. 266,295
7 Claims. (Cl. 264—174)



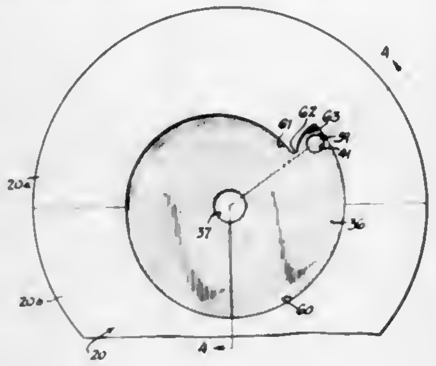
1. The method of forming products extruded from plastic material such as polytetrafluoroethylene, which comprises the steps of molding under pressure an elongated body of such material to be used as an extrusion preform, placing said elongated body into an extrusion cylinder, the preform being made with a cross-sectional area which is less than that of the interior of the extrusion cylinder so as to provide a free space extending from end to end of the preform, introducing into said space a loose material having characteristics differing from those of the material of the preform, and thereafter operating the extrusion cylinder to form an extruded product comprised of a composite of the pressure-molded body and the plastic material introduced into said space.

3,303,253
METHOD AND APPARATUS FOR EXTRUDING THERMOPLASTIC MATERIAL

James E. Henry, Bound Brook, N.J., assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Mar. 23, 1964, Ser. No. 353,855
8 Claims. (Cl. 264—176)

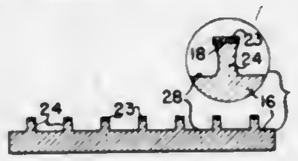
1. In an elastic melt extruder of the type wherein a pair of relatively rotatable plates define therebetween the opposing radial faces of a melt chamber in which particulate thermoplastic material is advanced centripetally

to a central outlet orifice to be issued therethrough in a plasticized state, and including a feed mechanism of the positive displacement type for introducing particulate material into said melt chamber through a feed opening in one of said plates opening directly onto said chamber, the improvements of a chamber plate fixed to said one of said pair of plates and axially interposed between said pair of faces, said chamber plate having a central aperture therein freely communicating with said opposing radial faces, the peripheral wall of said aperture circumscribing the melt chamber, the aperture being of a radial extent sufficient to encompass said feed opening, and an interior wall carried by said plate radially inwardly of said feed opening to subdivide the melt chamber into an outer feed area and an inner area free of radially confining walls at which at least partially plasticized material is subjected to the "Weisenberg Effect."



3,303,254
METHOD FOR PREPARING A MEMBRANE

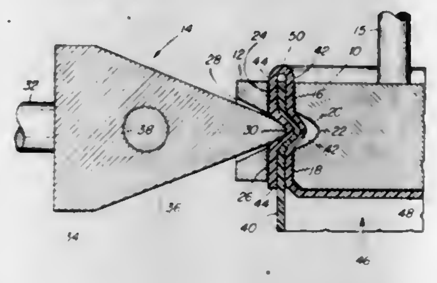
Sanford L. Simons, Box 78, Star Route, Morrison, Colo. 06763, assignor of one-half to C. B. Messenger, Jefferson County, Colo.
Filed June 27, 1963, Ser. No. 295,582
6 Claims. (Cl. 264—219)



1. The method for making a membrane having discrete openings of defined size and shape and selective placement therethrough which comprises selectively exposing a photo lithographic plate to light in patterned disposition to create hardened spots on said plate in positions corresponding to points of light impingement, chemically etching said plate to remove plate materials from non-hardened surfaces thereof whereby hardened posts thereof will be disposed in bas relief above the plane of surrounding depressions, depositing a film of resin plastic moldable material on the etched face of said plate to fill said depressions to a depth less than the height of said posts, curing said resin material, and separating said plate and resin material whereby a filter membrane is obtained having spaced openings therethrough in positions corresponding to the position of the posts on the face of said photo lithographic plate mold.

3,303,255
PROCESS FOR BONDING THERMOPLASTIC MATERIALS

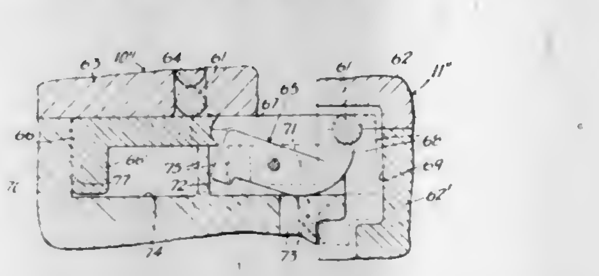
Frederick J. Bracey, Jr., Somers, Conn., assignor to Mobil Oil Company, a corporation of New York
Filed Jan. 11, 1965, Ser. No. 424,763
9 Claims. (Cl. 264—248)



1. A heat sealing process which comprises firmly clamping a plurality of flexible layers of weldable thermoplastic material in superimposed relationship along two spaced areas separated by an unclamped elongated strip of said superimposed layers, pressing an elongated heated member against said elongated strip with sufficient pressure to flex and stretch said plurality of layers therein sufficiently to bring the flexed area of each of said layers into substantially full contact with each adjoining flexed layer and maintaining said pressure until the heat of said member bonds at least two of said layers together along substantially the entire flexed length of said elongated strip.

3,303,256
METHOD OF ORIENTING AND FEEDING TRAVELER INSERTS TO MOLDING MACHINES

Louis H. Morin, Bronx, N.Y., assignor to Coats & Clark Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 5, 1963, Ser. No. 306,859
1 Claim. (Cl. 264—275)



The method of producing molded plastic products having inserts, which consists in orienting a group of separate inserts at a delivery and pickup station, depositing an insert in a slidable pickup device between a slidable element and a pivoted element on said device to hold said insert therebetween, moving said device with said insert between said elements from said pickup station to a pair of recessed separable die members, closing said die members to grip said insert therebetween in molding position without gripping said pickup device, withdrawing said pickup device from said dies, successively moving said slidable element and then said pivoted element around its pivot to release said insert during said withdrawal of said device, pressure injecting plastic material into said dies to form one of said molded products with said insert molded therein, and moving said pickup device back toward said pickup station to there engage between said elements the next insert preparatory to moving it to the dies for the molding of the next product.

ELECTRICAL

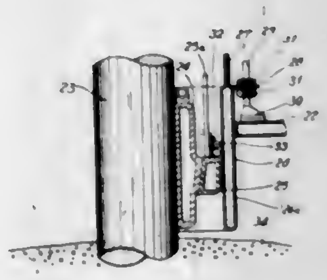
3,303,257
APPARATUS FOR UTILIZING WASTE HEAT OF GAS GENERATED FROM AN ELECTRIC SMELTING FURNACE

Yoshiyuki Fujiwara and Hachiro Fujiki, Tokyo, Chikato Ando and Zenjiro Nitta, Niigata-ken, and Toshio Miyake and Ken Shigenari, Kyoto-fu, Japan, assignors to Tanabe Kakoki Co., Ltd., Niigata-ken, Japan, and Awamura Mining Co., Ltd., Osaka-shi, Japan, both corporations of Japan

Filed Dec. 18, 1963, Ser. No. 331,515

Claims priority, application Japan, Feb. 6, 1963, 38/4,678; Feb. 8, 1963, 38/5,497; Mar. 29, 1963, 38/14,097; Aug. 24, 1963, 38/44,833, 38/44,834

4 Claims. (Cl. 13—9)



1. In an electric furnace for converting a raw manganese ore into a ferro-manganese product, as well as to produce ferrosilicon ferrochrom, pig iron, carbide and other ferro materials, with an inner wall at least partly cylindrical, including a lid and elongated cylindrical electrodes for heating the raw ore into slag, the improvement therein comprising,

an electrode holder below said lid for holding said electrode, split into several radial hollow sections for circulating cooling water around the electrode;

a hollow protective cylinder around said electrode holder and electrode, said hollow protective cylinder extending from above the lid to below the lid, with means above said lid through which air is fed, which air is then directed to the inner wall of the furnace through a number of small perforations at the lower end of said protective cylinder; and,

a ring below said lid including a hollow passage for passing cooling fluid around said electrode with a hanging rod connected to said ring from above said lid to clamp the ring to the electrode and adjust its relative position in the slag.

3,303,258
VACUUM INDUCTION FURNACE

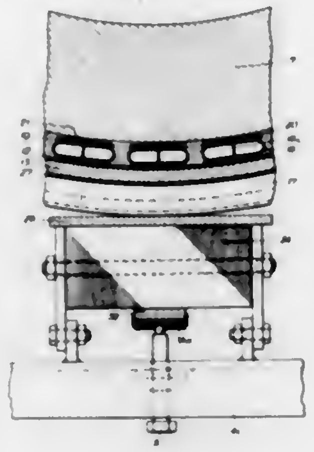
Otto Junker, 5101 Lammersdorf uber Aachen, Germany

Filed June 15, 1964, Ser. No. 375,164

Claims priority, application Germany, June 20, 1963, J 23,904

8 Claims. (Cl. 13—27)

1. In a coreless induction furnace for large capacity charges, the combination of, a crucible, a primary induction coil adapted to be fed from an electric source surrounding said crucible, vacuum sealing means comprising a furnace housing, a sleeve including gas impermeable material having low electric and magnetic conductivity characteristics disposed between said coil and said crucible, and gastight upper and lower closure means operable for airtightly closing the upper and, respectively, the lower ends of said vacuum sealing means and defining a vacuum chamber housing said crucible, and cooling means for said sleeve disposed adjacent the inner surface of at least a portion of said sleeve, said cooling means comprising a series of hair pin tubes, each tube being bent back upon itself and extending axially of the crucible adjacent the inner surface of said sleeve, each tube being flattened in the radial direction of the crucible and being reinforced to take up pressures exerted radially outwardly by the crucible.



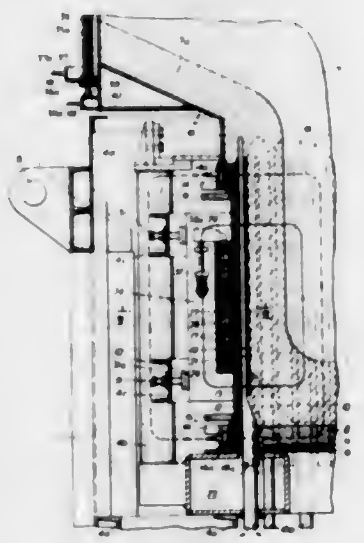
3,303,259
VACUUM INDUCTION FURNACE

Otto Junker, 5101 Lammersdorf uber Aachen, Germany

Filed June 15, 1964, Ser. No. 375,163

Claims priority, application Germany, June 20, 1963, J 23,902

7 Claims. (Cl. 13—27)



1. In a coreless induction furnace for large capacity charges, the combination of, an upright crucible including a bottom section, a primary induction coil adapted to be fed from an electric source surrounding said crucible, vacuum sealing means comprising a sleeve including gas impermeable material having low electric and magnetic conductivity characteristics disposed between said coil and said crucible and gastight upper and lower closure means operable for airtightly closing the upper and, respectively, the lower ends of said vacuum sealing means and defining a vacuum chamber housing said crucible, and cooling means for said sleeve disposed adjacent the inner surface of at least a portion of said sleeve, said lower closure means comprising a metallic bottom plate, and shielding means operable for restraining the occurrence of electric energy, generated by stray fields of the induction coil, within said bottom plate.

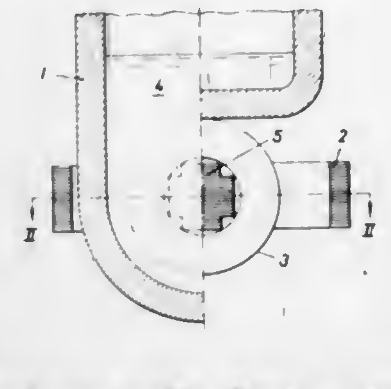
3,303,260
INDUCTION MELTING FURNACE

Odd Ragnvald Todnem, Trondheim, Norway, assignor to Sintef, Trondheim, Norway

Filed Mar. 19, 1964, Ser. No. 353,183

Claims priority, application Norway, Mar. 27, 1963, 148,056

7 Claims. (Cl. 13—29)



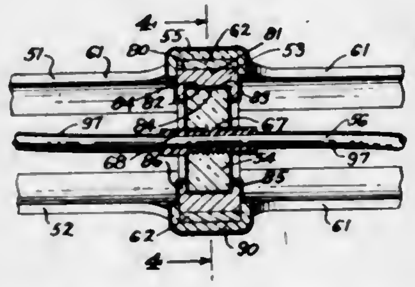
1. An induction melting furnace, comprising a crucible having a main furnace hearth and a tongue-shaped heat development chamber leading from the lower part thereof, an iron core having at least two projecting pole pieces, each directed towards a respective side wall of the heat development chamber, and a disc shaped induction coil on each of the pole pieces formed and arranged substantially parallel with the pertaining side wall.

3,303,261
FIRE DETECTOR ASSEMBLY

Richard G. Patterson, Walnut Creek, Calif.; John E. Lindberg, 1211 Upper Happy Valley Road, Lafayette, Calif. 94549; and Darrel V. McCoy, Oakland, Calif., said McCoy and said Patterson assignors to said Lindberg

Filed Nov. 12, 1964, Ser. No. 410,635

18 Claims. (Cl. 174—1)



1. A filament protecting assembly, including in combination:

a pair of perforate metal strips, each shaped to provide a generally arcuate shape in cross section smaller than a semi-circle, said strips being disposed opposite each other and spaced apart by lengthwise-extending gaps to provide a generally circular cross section, each said strip having a plurality of lengthwise-extending slots, said gaps and slots being large to provide gross free-flow of air therethrough,

a series of disc-shaped insulators, each having a central opening,

a series of metal annuli for containing each insulator loosely in one said annulus, so that radially inward forces are resolved by said annulus without direct transmission to said insulator, said annuli being distributed along said strips inside them and between them,

a series of metal locking members surrounding said strips and said annuli and holding them together, and

a filament inside the area enclosed by said strips, passing through the openings through said insulators and supported by and insulated by said insulators.

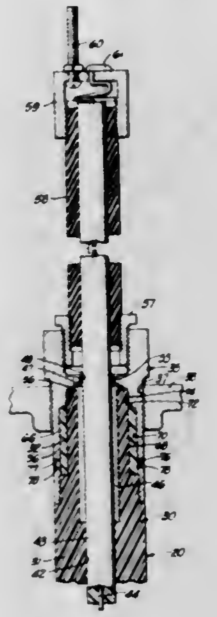
3

3,303,262
HIGH-VOLTAGE INSULATOR STRUCTURE WITH SEALED COMPONENTS, AND METHOD OF MAKING SAME

Delber W. Turner, Houston, Tex., assignor to Petrolite Corporation, Wilmington, Del., a corporation of Delaware

Filed May 26, 1964, Ser. No. 370,256

19 Claims. (Cl. 174—18)



12. A high-voltage inlet bushing adapted to receive a high-voltage conductor, said inlet bushing including:

a relatively thick tubular member formed of high-resistance plastic material, said tubular member having a conductor-receiving passage therethrough, said tubular member having a body portion and an end portion, said end portion having an outwardly-facing mold surface with first and second outwardly-facing seal surfaces respectively beyond the opposite ends of said mold surface;

a metal cap member having a side wall surrounding said end portion, said side wall having an inwardly-facing mold surface opposite said outwardly-facing mold surface of said tubular member spaced therefrom and forming a mold space therebetween, said side wall having first and second inwardly-facing seal surfaces respectively beyond the opposite ends of its inwardly-facing mold surface respectively embracing said outwardly-facing seal surfaces and forming therebetween minute leakage spaces with their inner ends opening on said mold space, said first seal surfaces being threaded and embracing in threaded engagement, said second seal surfaces being substantially parallel to the axis of said tubular member and embracing in sliding engagement; and

a polymerized sealing element in said mold space filling same to said inner ends of said minute leakage spaces and bonded permanently to said mold surfaces.

18. A method of making a high-voltage entrance bushing, which method includes the steps of:

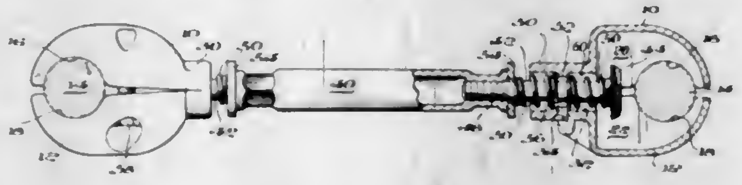
forming a tubular member of high-resistance plastic material with an end portion having two wall zones at opposite ends of an outwardly-facing surface;

forming a cap member with a side wall having two wall zones sized respectively to surround and embrace said wall zones of said end portion of said plastic-material member and with an inwardly-facing surface facing but spaced outwardly a substantial distance from said outwardly-facing surface to form a mold space therebetween closed at its ends by the embracement of said wall zones;

disposing a rod in said tubular member closely fitting the interior thereof to reinforce said tubular member against collapse when a high pressure is present in said mold space;
injecting into said mold space under high temperature and pressure a polymer capable of bonding permanently to said surfaces;
polymerizing said polymer in said mold space under high pressure and temperature to form a sealing member bonded permanently to said surfaces; and
withdrawing said rod from said tubular member.

3,303,263
BUNDLE SPACER DEVICES

Robert R. Myers, McKeesport, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 9, 1965, Ser. No. 470,703
14 Claims. (Cl. 174—42)

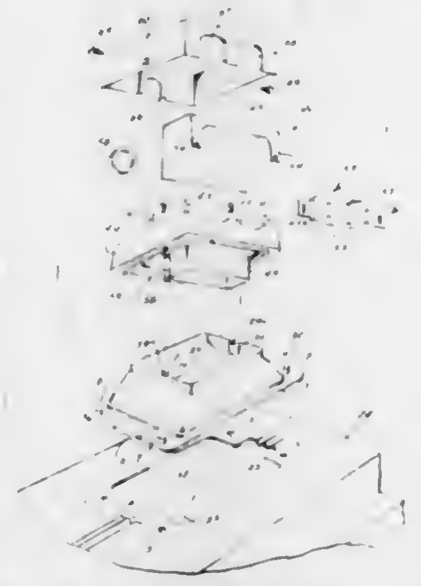


1. In a spacer device for maintaining separation between parallel suspended elongate members subject to relative movement in a bundle thereof, said device comprising cooperatively paired separable clamping elements for securement thereof on each elongate member in the bundle, a rigid strut in opposite terminal end articulated connection to one clamping element in each separate cooperative pair thereof adjacent each opposite terminal end of the strut, each said articulated connection including a rigid pin connector element rigidly supported by and extending from one of the named adjacent elements comprising the strut and clamping element adjacent each opposite end of the strut, said pin connector element extending through an apertured abutment rigidly carried by the other named adjacent element, separate resilient means in coaxial surrounding disposition on said pin connector element, one each resilient means being disposed on opposite faces of said apertured abutment and extending away therefrom respectively towards the strut and clamping element, said coaxial resilient means being initially confined and pre-loaded in resiliently biasing relationship in interconnection of each opposite end of the strut and the clamping element adjacent thereto, and each said resiliently biasing interconnection permitting resiliently restrained relative universal movement between said strut and clamping element adjacent the opposite terminal ends thereof.

3,303,264
DUAL SERVICE CONDUIT AND OUTLET SYSTEM

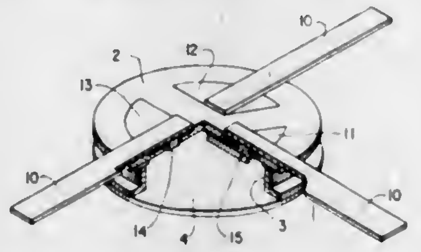
John F. Saul, St. Louis, Mo., Richard A. Klinkman, New Baden, Ill., and Junior William Reuscher, Northwoods, Miley Randolph Parrish, Florissant, and Robert E. Lee, Olivette, Mo., assignors to Granite City Steel Company, Granite City, Ill., a corporation of Delaware
Filed June 29, 1964, Ser. No. 378,738
2 Claims. (Cl. 174—48)

2. In a dual electrical high voltage and low voltage under-floor service conduit and outlet system the improvement of: an elongated under-floor conduit member providing exterior walls and a continuous interior wall which separates the interior into adjacent elongated cellular spaces enclosed by said exterior walls by extending between two spaced opposed exterior walls, one of said two exterior walls of said conduit member being formed with an elongated wrinkle which is engaged with said interior wall to form a seal between the adjacent cellular spaces and having an outwardly opening access aperture that exposes said adjacent cellular spaces within said conduit member, and said interior wall being integral with the other of said exterior walls; an access box mounted on said conduit member over said aperture, said access box being opened at opposite ends for access to said cellular spaces and having a divider wall therein to define two adjacent passages corresponding with and open to said elongated cellular spaces, said divider wall aligning with said interior wall to preserve the separation of the access to said cellular spaces; an outlet box mounted on an open end of said access box, said outlet box having a first portion with through openings, a sleeve portion which forms a continuation of one of said through openings and projects into one of said access box passages and the other adjacent opening communicating with the other of said access box passages; means to secure said outlet box to and to prevent turning of said outlet box relative to said access box; shielding means carried by said outlet box and projecting over one of said through openings to isolate the electrical services in said outlet box; and a removable cover on said outlet box to enclose said shielding means.



3,303,265
MINIATURE SEMICONDUCTOR ENCLOSURE

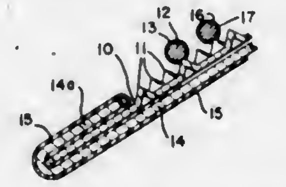
Saul Noren, Richardson, and Robert C. Robinson, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Continuation of application Ser. No. 195,450, May 17, 1962. This application June 21, 1965, Ser. No. 465,508
5 Claims. (Cl. 174—52)



3. A mounting base for a semiconductor device comprising: a ceramic disc having two major sides and holes therethrough, a metallic film deposited on each side of said disc in distinct regions and filling said holes, said film filling each hole with metal electrically connecting a portion of the film on one side of the disc with a portion of the film on the other side of the disc, said film covering an area greater than said holes, and flat ribbon-like leads disposed in substantially a coplanar array on said disc, each of said leads being conductively attached to a different part of said metallic film, and electrically insulated from each other and extending beyond the periphery of said ceramic disc.

3,303,266
ELECTRICAL CONNECTOR FOR SMALL INSULATED WIRES

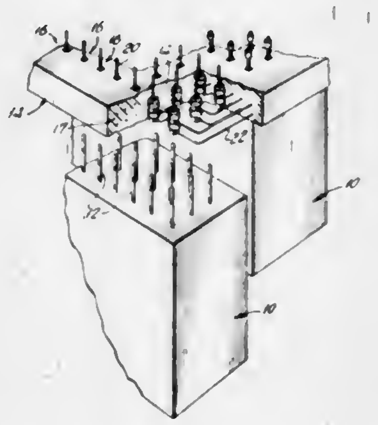
William A. Thompson, 5264 Dent,
San Jose, Calif. 95118
Filed Oct. 23, 1964, Ser. No. 406,062
2 Claims. (Cl. 174—84)



1. An electrical connector for connecting small insulated wires together without stripping insulation therefrom comprising a thin metallic member of electrically conducting material bent upon itself to provide opposing surfaces thereto which are adapted to be further bent toward each other to clamp small insulated electrical conducting wires therebetween, said opposing surfaces having sharp points facing each other pressed therefrom in staggered rows, said sharp points being spaced apart by distances not exceeding the diameter of the small insulated wire clamped between said surfaces so that said small wire cannot be clamped between said surfaces without at least several of said staggered points penetrating the insulation thereof to make contact with the wire, insulating material positioned on the outside of said thin metallic member to cover said member when said member is clamped on said wires, said insulating material extending beyond the sides of said thin metallic member to prevent adjacent ones of said members from contacting each other when a plurality of such members is employed in side by side relation in a cable joint, and a reinforcing member clamped around said thin metallic member, said reinforcing member being substantially coextensive with said thin metallic member and side portions of said reinforcing member being folded over edge portions of said thin metallic member.

3,303,267
ELECTRICAL CONNECTOR FOR CLOSELY SPACED TERMINALS

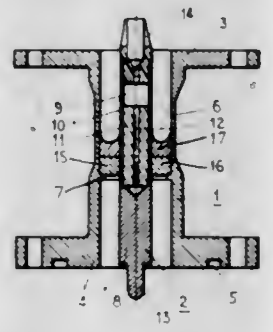
Alfred J. Coutu, New Bedford, and Thomas R. Egan, South Dartmouth, Mass., assignors to Francis Associates, Marion, Mass., a partnership
Filed June 5, 1964, Ser. No. 372,751
5 Claims. (Cl. 174—88)



1. An electrical connector for equipment having a plurality of substantially parallel terminal elements, comprising a body portion having an outer surface, a plurality of hollow terminal means each having an end portion extending outwardly from said surface of said body portion for substantial parallel alignment with respective ones of the terminal elements to be connected, each of said hollow terminal means having at least two longitudinal surfaces which meet at a sharp edge, connecting means including a plurality of electrically insulated conductor wires for selectively interconnecting said terminal means, each said wire having a plurality of turns wrapped in tension around one of said terminal means with the sharp edge of said terminal means penetrating the insulation of said insulated conductor wire producing a rupture of said insulation at the point of contact with said sharp edge thereby causing said terminal means to make electrical contact with the conductor wire, said hollow terminal means being adapted to receive respectively in the hollow portions thereof said terminal elements for electrical connection of said terminal elements respectively to said hollow terminal means, said body portion including insulating material encapsulating said conductor wires and leaving said end portions of said terminal means exposed for said electrical connection respectively to said terminal elements.

3,303,268
SEALED COAXIAL CONNECTOR

Andre Darnois, Savigny-sur-Orge, Seine-et-Oise, France, assignor to Societe Generale du Vide—SOGEV, Choisy-le-Roi, France, a corporation of France
Filed July 2, 1964, Ser. No. 379,917
Claims priority, application France, July 5, 1963, 94,506
11 Claims. (Cl. 174—88)



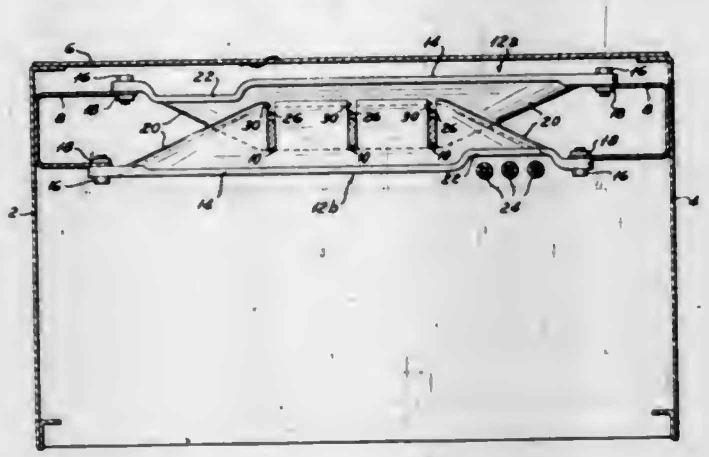
1. A hermetically sealed coaxial connector comprising an external tubular conductor and at least one coaxially arranged inner conductor, the inner conductor being hollow at least in the region of the hermetic seal, each of said conductors being formed with a thin walled tubular portion at least in the region of the hermetic seal; a metal member arranged and snugly fitting within the tubular portion of the innermost conductor in the region of the hermetic seal; a refractory member formed of at least two parts located between adjacent conductors in the region of the hermetic seal to hold said conductors in spaced relationship; and heat-formed hermetic seal substance located over an exposed surface of said refractory member and fused and bonded to the conductors; said metal member being of a material having a coefficient of expansion similar to that of the heat-formed hermetic seal substance.

3,303,269
INSULATING SUPPORT MEANS FOR BUS BARS

Philip W. Emley, Milwaukee, Wis., and Roger B. Knowles, Amsterdam, N.Y., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed July 21, 1965, Ser. No. 473,742
10 Claims. (Cl. 174—99)

1. An insulating support member providing lateral support for a plurality of bus bars, said support comprising:
a pair of angled surfaces extending transversely of said bus bars, said surfaces being joined together

along one edge thereof to have a V-shaped cross section and having the ends thereof enclosed by outwardly extending oblique conical portions, the apexes of said conical portions being joined to the apex of said angled surfaces and the surfaces of said



conical portions formed tangential to said angled surfaces, said apexes being rounded to blend together smoothly, and

a plurality of slots laterally spaced along said V-shaped angled surfaces, said slots being open to the apex side thereof to receive said bus bars therein.

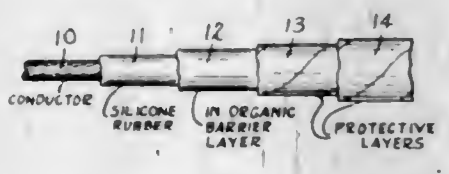
3,303,270

INSULATED CONDUCTOR

Charles F. Shelton, Jr., Branford, Conn., assignor to Cerro Corporation, New York, N.Y., a corporation of New York

Filed June 14, 1965, Ser. No. 463,676

3 Claims. (Cl. 174—121)



1. An electrical insulated conductor for conducting electricity without electrical insulation breakdown in a flame while simultaneously undergoing vibration, including a metallic conductor, a silicone rubber layer on said conductor, a supporting material layer on said silicone rubber layer, said supporting material layer selected from a class consisting of glass, mica, quartz, asbestos, silicone resin-saturated asbestos, or any combination of the above, and a double protective covering on the supporting layer selected from the class consisting of nylon, polytetrafluoroethylene, cotton, glass and any combination thereof.

3,303,271

ROTARY SHUTTER ARRANGEMENT PROVIDING A PLURALITY OF FRAME RATES

Klaus J. Hecker, Riverside, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 21, 1964, Ser. No. 369,333

7 Claims. (Cl. 178—5)

1. An optical shutter arrangement for providing a dual frame rate comprising:

(a) a pair of shuttering discs centrally mounted on a shaft means for rotation together at the same speed,

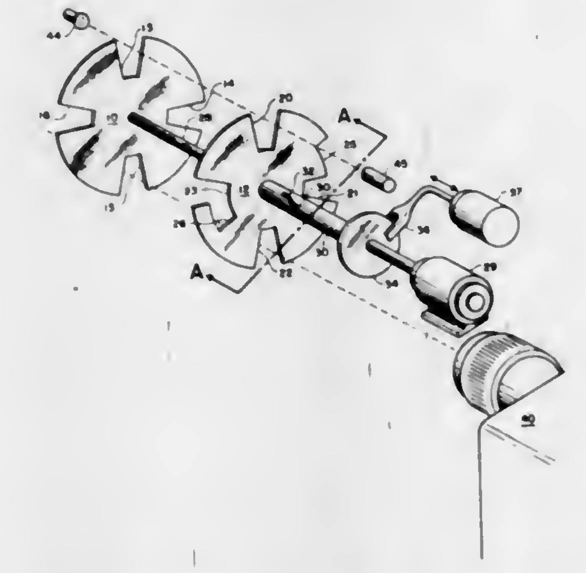
(b) means for driving said shaft and discs at a desired speed,

(c) both of said discs having an equal plurality of slots positioned circumferentially thereabout,

(d) one of said discs, in addition, having a single one of said slots wider than the others,

(e) actuatable means for rotatably moving said one disc about said shaft in relation to said other disc by an amount equal to the width of one of said plurality of slots,

(f) where in a first position the slots in both discs being coincident with the exception of the wider portion of said one wider slot thus providing the same number of apertures for exposures upon each revolution as there are slots per disc,



(g) where said discs are moved in relation to each other to a second position by actuation of said actuatable means only the wider portion of the wider slot of said one disc being coincident with one slot in said other disc thus providing only one exposure aperture.

3,303,272

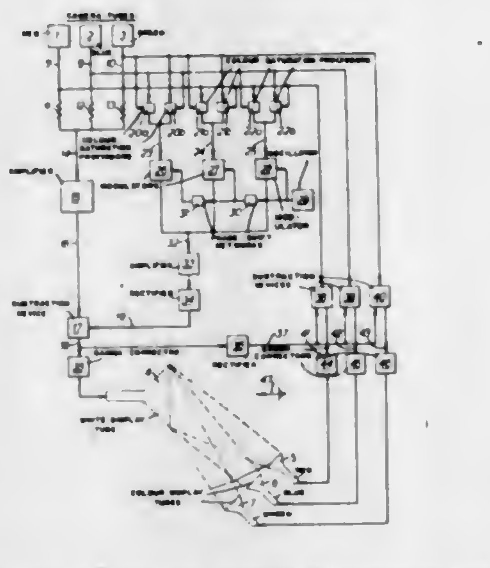
COLOUR TELEVISION SYSTEMS

Eric John Gargini, West Drayton, Middlesex, England, assignor to Communications Patents Limited

Filed Feb. 19, 1964, Ser. No. 346,013

Claims priority, application Great Britain, Feb. 20, 1963, 6,781/63

14 Claims. (Cl. 178—5.2)



1. In a colour television system wherein a low definition signal in respect of color is used in conjunction with a comparatively high definition signal in respect of detail to establish a composite display depicting a televised scene, the provision of a colour television picture signal source for providing high definition colour signals in respect of each of a plurality of analyzing primary colours, combining means for combining said colour signals to form an equal energy signal, correcting signal generating means responsive to said colour signals for generating a correcting signal which for a saturated primary and a saturated complementary colour has an amplitude corresponding to that of said equal energy signal, and signal subtracting means for subtracting said correcting signal from the equal energy signal to form a high definition signal which is representative of the white light content of said televised scene.

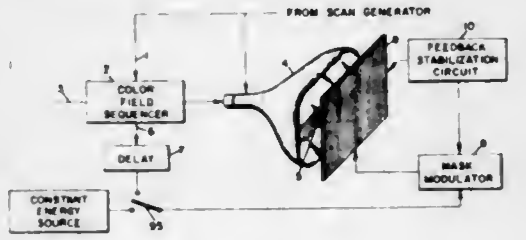
3,303,273

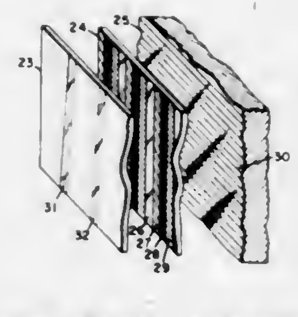
COLOR TELEVISION DISPLAY DEVICE

Richard E. Williams, Fairfax, and Joseph A. Hohos, Falls Church, Va., assignors to Scope Incorporated, Falls Church, Va., a corporation of New Hampshire

Filed May 23, 1963, Ser. No. 282,745

20 Claims. (Cl. 178—5.4)





1. Color television display apparatus comprising a cathode-ray tube having a target area, scanning means associated with said tube to scan said target area successively and cyclicly, a color mask interposed in a light path which includes the target area of said tube, a first rigid member of said mask having a plurality of color filter striae arranged in consistent succession, a second flexible member at least co-extensive with said first member and having alternate opaque and light-transmitting striae, a third rigid light-transmitting member fixedly positioned relative to said first member and approximately co-extensive therewith, means to maintain a constant angular relation between striae on said first member and said second member, and driving means to cause movement of said second member in the space between said first member and said third member for bringing the color filter striae of said first member successively in register with the light-transmitting striae of said second-named member, the spacing between said flexible member and said rigid members being such as to provide frictionless captivation of said flexible member by said rigid members over at least the major portion of its area.

3,303,274

COLOUR TELEVISION TRANSMITTERS FOR SYSTEMS USING AT LEAST ONE FREQUENCY-MODULATED COLOUR-SUBCARRIER

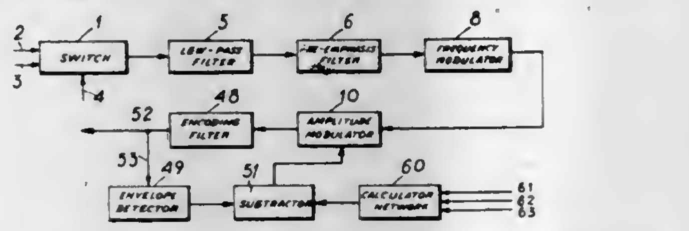
Henri de France, Levallois-Perret, France, assignor to Compagnie Francaise de Television, a corporation of France

Filed June 18, 1963, Ser. No. 293,556

Claims priority, application France, June 18, 1962, 901,090; June 10, 1963, 937,522

3 Claims. (Cl. 178—5.4)

1. A colour channel circuit for a colour television transmitter, wherein the colour information is transmitted by means of a subcarrier which is frequency-modulated by a colour information signal which is alternately one or the other of two permanently generated colour signals, the alternation taking place at the line frequency, said colour channel circuit comprising: an amplitude modulator having a first input for receiving said subcarrier frequency-modulated by said colour information signal, a second input and an output; a filter modifying the relative amplitude of the frequency components of the signals applied thereto, said filter having an input coupled to the output of said amplitude modulator and an output; a feedback path coupling the output of said filter to said second input of said amplitude modulator, said feedback path comprising: an envelope detector having an input coupled to the output of said filter and an output, a subtractor having a first input coupled to the output of said envelope detector, a second input, and an output coupled to said second input of said amplitude modulator; means for generating an additional signal whose magnitude depends only upon the magnitudes of both said colour signals; and means for applying said additional signal to said second input of said subtractor for amplitude modulating by said additional signal the subcarrier delivered by said encoding filter.



3,303,275

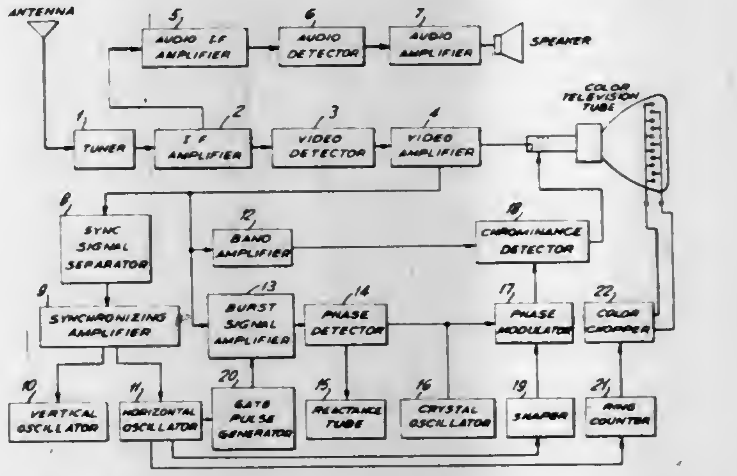
VIDEO SIGNAL REPRODUCING SYSTEM FOR COLOR TELEVISION RECEIVER

Yasumasa Sugihara, Tokyo, Japan, assignor to Yaou Electric Company, Limited, Kanagawa-ken, Japan

Filed Jan. 3, 1964, Ser. No. 335,566

Claims priority, application Japan, Jan. 25, 1963, 38/2,637, 38/2,638, 38/2,639

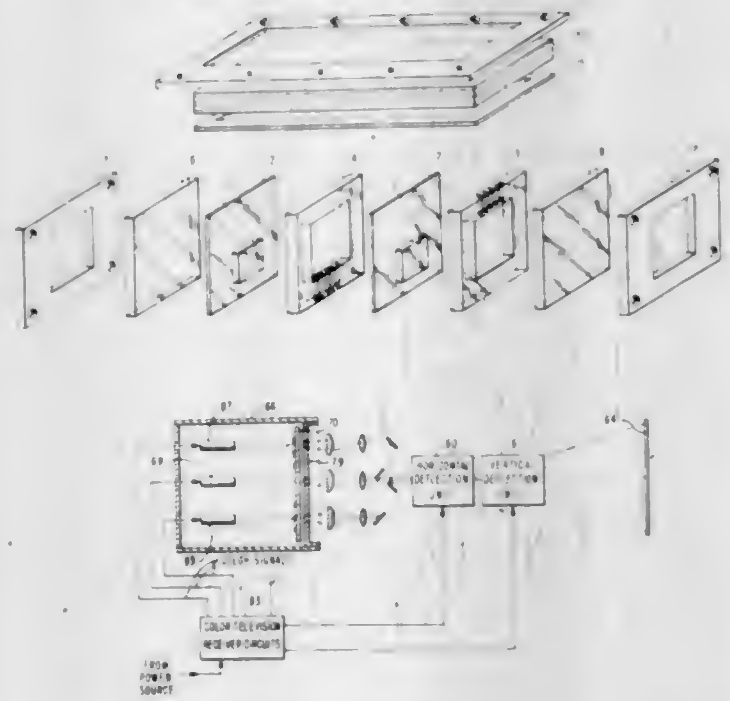
5 Claims. (Cl. 178—5.4)



1. In a color television receiver utilizing composite video signals of the color sub-carrier type including a luminance component and two chrominance components, the combination comprising: a color picture tube including a single electron gun, a screen in the path of electron beams from said gun and a color switching grid operable to switch the sequence of impingement of electron beams upon said screen; means operable to apply, to said color switching grid, a color switching voltage having a cycle equal to three horizontal scanning cycles; means generating a frequency differing from the sub-carrier frequency by ⅓ of the horizontal scanning frequency; means deriving color burst signals from the composite video frequency; means applying said color burst signals to said generated frequency to phase the latter; means generating a sawtooth wave form having a

cycle equal to the horizontal scanning cycle; means phase-modulating said phased generated frequency with said sawtooth wave form; a demodulator connected to said color picture tube; means applying said chrominance components to said demodulator; and means applying the phase-modulated generated frequency to said demodulator to demodulate said chrominance components to obtain color signal information of the line-sequential type.

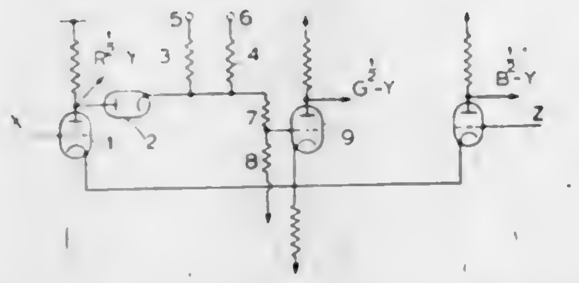
3,303,276
LIGHT BEAM DEFLECTOR AND RELATED SYSTEMS
Andrew V. Haeff, 11134 Belliagio Road, Los Angeles, Calif. 90049
Filed Feb. 26, 1964, Ser. No. 347,586
20 Claims. (Cl. 178—5.4)



1. A light beam deflection unit comprising: a plurality of prisms disposed along a selected beam path and consisting of a series of refractive interfaces defining the separations between adjacent volumes of transparent materials having different indices of refraction, ajacent interfaces forming prism angles which vary in response to an applied pressure; transducer means responsive to applied deflection signals for producing a volume displacement in proportion to an applied signal; and a substantially constant volume of liquid defining a fluid pressure path between said transducer means and said prisms, so that the volume displacements produced by the applied deflection signals are transmitted as pressure changes to said prisms to change the prism angle formed by adjacent interfaces, thereby deflecting a light beam from the selected beam path by an amount corresponding to the amplitude of the applied deflection signal.

16. A color television device comprising: a viewing screen; color television receiver circuits for providing three primary color signals and vertical and horizontal deflection signals; means responsive to the color signals for providing three primary colored light beams modulated in intensity by the corresponding color signal and directed in substantially parallel paths in close proximity to one another for scanning a viewing surface; horizontal and vertical light beam deflection units, each of said light beam deflection units including two liquids having dissimilar indices of refraction confined in separate substantially constant volumes, flexible means defining successive interfaces along the path of said light beams between alternate prism shaped volumes of the two liquids, and transducer means responsive to the applied deflection signal for producing a pressure differential in the two liquid volumes across said flexible interface defining means to vary the angular relationship between adjacent interfaces to thereby change the prism angle of the prism shaped volumes of liquid and thus deflect the light beam from a selected beam path through an angle proportional to the amplitude of the applied deflection signal, said first light beam deflection unit being responsive to the horizontal deflection voltages from the colored television receiver circuit and said second light beam deflection unit being responsive to the vertical deflection voltages, whereby said light beams are deflected to scan the viewing surface in a regular pattern in response to the vertical and horizontal deflection voltages, thus presenting a color television program in accordance with the color signals from the color television receiver circuits.

3,303,277
COLOUR TELEVISION RECEIVER INCLUDING CLIPPER CORRECTION MEANS
Ivanhoe John Penfound James and John Edward Best, London, England, assignors to Electric & Musical Industries Limited, Hayes, England, a British company
Filed Mar. 24, 1964, Ser. No. 354,285
Claims priority, application Great Britain, Apr. 4, 1963, 13,462/63; May 18, 1963, 19,856/63
8 Claims. (Cl. 178—5.4)

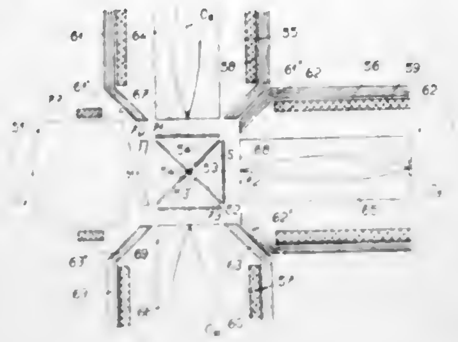


1. Colour television apparatus for providing electrical signals capable of reproducing a colour picture, comprising
(a) a circuit in which are provided signals dependent on Y, R, G and B where Y is a signal representing the luminance and R, G, and B are signals representting the red, green, and blue components respectively,
(b) means providing a further signal representing the difference between two of said signals Y, R, G and B,
(c) means for clipping said further signal to provide a correcting signal,
(d) means for adding said correcting signal to one of the signals R, G, and B to alter the colour balance of a picture reproduced from said first-mentioned signals.

3,303,278
TELEVISION PICK-UP CAMERA FOR THREE COLOR PICK-UP OF TELEVISION IMAGES
Miroslav Beňo, Antonín Edelmann, Jan Eigl, and Jaroslav Pechar, Prague, Czechoslovakia, assignors to Tesla, národní podnik, Prague, Czechoslovakia
Filed May 13, 1964, Ser. No. 367,072
8 Claims. (Cl. 178—5.4)

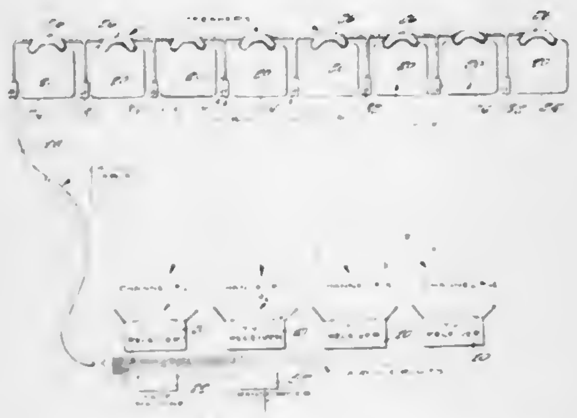
1. A color television camera comprising, in combination:
(a) objective lens means having an optical axis;
(b) beam dividing means for dividing a light beam axially transmitted by said lens means into three partial light beams having respective axes angularly offset from each other;
(c) three television pick-up tubes having respective light sensitive surfaces respectively intersecting the axes of said partial light beams;
(d) a magnetic coil extending about the axis of each partial beam and substantially enveloping the associated tube; and

(e) a tubular casing of magnetic material associated with each coil and extending about said axis, each casing having an axial end portion near said beam dividing means, opposite walls of said end portion



converging in an axial direction toward said beam dividing means, at least one of said walls of each casing being contiguously adjacent a corresponding wall of another casing.

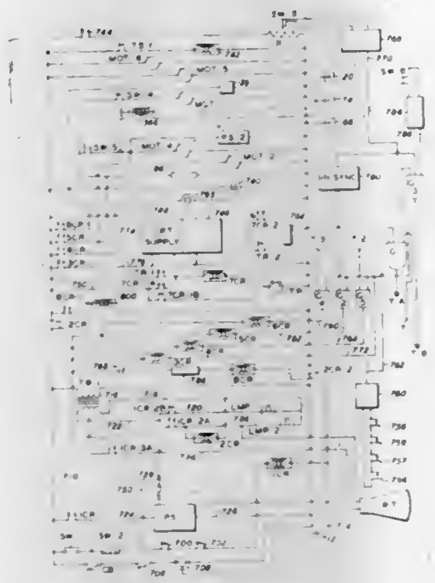
3,303,279
PREPAID ENTERTAINMENT DISTRIBUTION SYSTEM
Frost L. Tinklepaugh, 93 Woodbury Road, Box 619, Huntington, N.Y. 11743
Filed Aug. 20, 1962, Ser. No. 217,904
7 Claims. (Cl. 178—5.8)



1. A prepaid entertainment distribution system comprising a plurality of television receivers arranged side by side, each receiver having a cathode ray tube, and adapted to display a video portion of a different television channel, all of said tubes extending in the same direction, the images produced by said tubes, being displayed side by side; means to conduct the audio portions of each of said channels from the appropriate receiver to a remote location; and a plurality of sound receiving stations which when energized, will receive selectively any one of said audio portions.

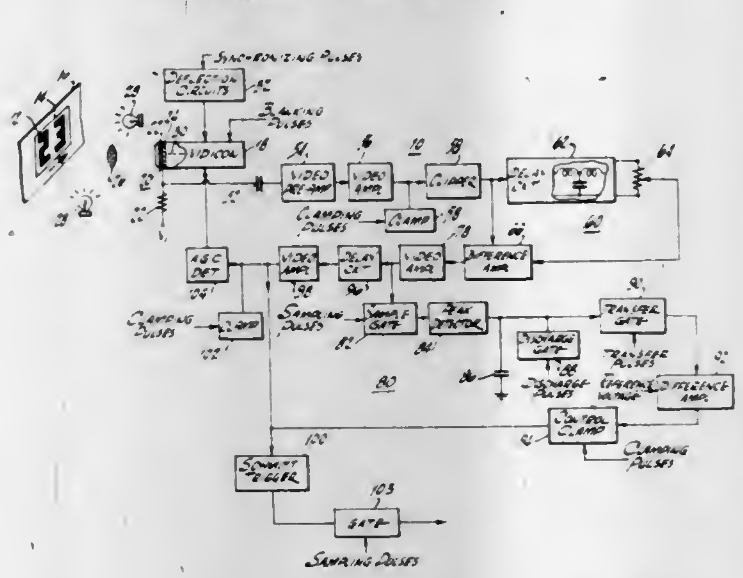
3,303,280
SUPERVISORY CONTROL SYSTEM FOR XEROGRAPHIC FACSIMILE RECEIVER
Richard S. Fox and Eugene W. Yurgealitis, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Sept. 3, 1963, Ser. No. 306,030
3 Claims. (Cl. 178—6.6)

1. A xerographic recording apparatus for producing facsimile copies of an original document from electrical signals received from a remote location including:
a photoconductive plate;
means to place a uniform electrostatic charge on the photoconductive plate;
means to discharge the electrostatic charge on the photoconductive plate according to electrical signals received from the remote location thereby creating an electrostatic charge pattern in an image configuration;
means to develop a powder image on the photoconductive plate according to the electrostatic charge pattern;
means for conditioning the apparatus to be operated in accordance with electrical signals received from the remote location;



means to determine if the apparatus is in condition for operation;
means to indicate to the remote location when the apparatus is in condition for operation; and
means to initiate operation of said apparatus whereby electrical signals received from the remote location can be translated into facsimile reproductions.

3,303,281
SCANNING SYSTEM FOR USE IN CHARACTER READING WITH CIRCUIT MEANS TO COMPENSATE FOR LAG IN THE PHOTOCONDUCTIVE PICKUP DEVICE
Thomas W. Ritchey, Jr., Cherry Hill, and Lucas J. Bazin, Stratford, N.J., assignors to Radio Corporation of America, a corporation of Delaware
Filed Oct. 11, 1963, Ser. No. 315,628
5 Claims. (Cl. 178—7.2)



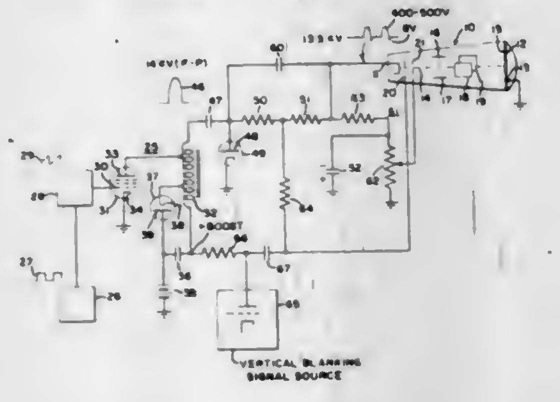
1. In an optical character reader for reading symbols printed on a document, the combination comprising,
a photoconductive pickup device for scanning one scanline repeatedly at a predetermined line scan repetition rate,
means for transporting a document past said photoconductive pickup device so that symbols on said document are scanned by a plurality of scanlines to gen-

erate video signals that electrically represent said symbols,
said pickup device exhibiting an inherent lag,
means coupled to said pickup device for introducing into said generated video signals of said predetermined repetition rate a time delay of one period of said predetermined repetition rate to derive delayed video signals with each scan line delayed one scan time, and
means for subtracting a fraction of the amplitude of said delayed video signals from said generated video signals so that a fraction of the video signals in each scan is substracted from the video signals in each succeeding scan to derive lag corrected video signals.

3,303,282

BLANKING CIRCUIT ARRANGEMENT FOR A TELEVISION SYSTEM UTILIZING PULSES DERIVED FROM THE HIGH VOLTAGE POWER SUPPLY CIRCUIT

John G. Humphrey, Syracuse, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 1, 1963, Ser. No. 320,761
1 Claim. (Cl. 178—7.5)

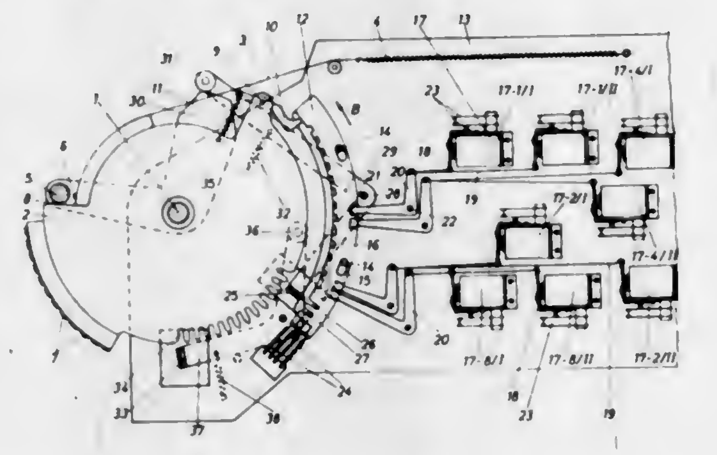


In a projection television system the combination comprising:
(a) a projection tube having at least a cathode electrode, a control electrode, a target electrode and a deformable medium adjacent said target electrode,
(b) a source of high voltage unidirectional pulses of a predetermined magnitude occurring at a horizontal line frequency rate,
(c) rectifier means connected to said source of unidirectional pulses for rectifying said pulses to provide a high D.C. operating potential across said cathode and target electrodes, said operating potential being of a magnitude less than the predetermined magnitude of said unidirectional pulses, and
(d) an impedance network connecting said cathode electrode to said source of unidirectional pulses for coupling a portion of said unidirectional pulses to said cathode electrode to provide horizontal blanking pulses, said horizontal blanking pulses occurring at said horizontal line frequency rate for blanking said projection tube during the horizontal retrace period, said impedance network comprising a first and second resistive impedance element serially connected, a capacitor connected across said first and second resistive impedance elements, the junction of said first resistive impedance element and said capacitor being connected to said source of unidirectional pulses, the junction of said resistive impedance element and said capacitor being connected to said cathode electrode, and a third resistive impedance element connecting the junction of said first and second resistive impedance elements to said control electrode for attenuating the horizontal blanking pulses appearing at said junction of said first and second resistive impedance elements.

3,303,283

APPARATUS FOR POSITIONING AN INDICATING ELEMENT IN ACCORDANCE WITH A DIGITAL CODE

Kurt Scheffel, Aulendorf, Wurttemberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 21, 1963, Ser. No. 267,049
Claims priority, application Germany, Mar. 22, 1962, ST 18,933
4 Claims. (Cl. 178—34)



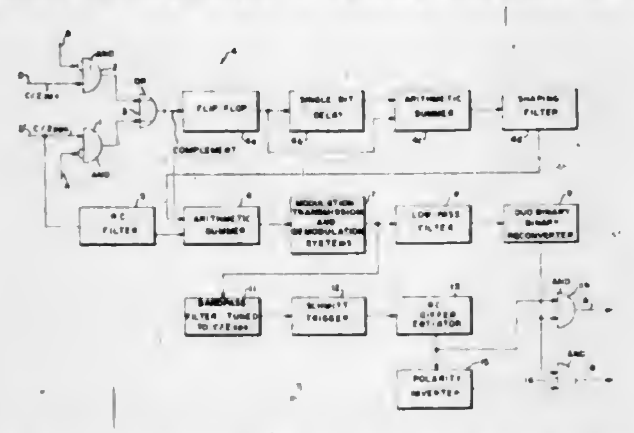
1. Apparatus for positioning each of a plurality of closely spaced indicating elements in accordance with a digital code comprising:
a plurality of indicating elements arranged side-by-side in a compact grouping and individually operable through respective ranges of discrete indicating positions;
a plurality of sets of selector elements corresponding to said indicating elements, each said set including a plurality of thin selector elements arranged in a space having a width comparable to that of the corresponding indicating element, the selector elements of each said set being individually operable in accordance with a digital code to form an intercepting structure at one of a plurality of discrete positions corresponding to one of said discrete indicating positions of the corresponding indicating element;
means carried on each said indicating element and operative in response to said intercepting structure when said indicating element is moved through said respective range of indicating positions, to latch said indicating element in the said corresponding one of said discrete indicating positions, said latching means occupying a space having a width comparable to the width of said corresponding set of selector elements; and
means operative relative to all of said sets of selector elements for simultaneously securing all of said selector elements to a main support structure of said apparatus prior to each operation of said indicating elements through said respective ranges.

3,303,284

FRAMING METHOD AND APPARATUS FOR DUOBINARY DATA TRANSMISSION

Adam Lender, Palo Alto, Calif., assignor, by mesne assignments, to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Aug. 30, 1963, Ser. No. 305,590
9 Claims. (Cl. 178—68)

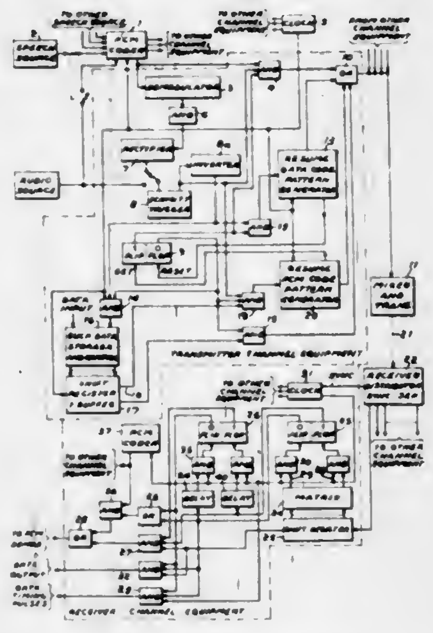
1. Apparatus for framing binary pulses which have been converted to duobinary pulses for transmission, said binary pulses being comprised of alternate pulses from two independent series of pulses, where said duobinary pulses are to be transmitted and then reconverted to binary pulses in a receiver having a post-demodulation filter, which apparatus comprises:
means for introducing into the converted duobinary pulses to be transmitted a sine wave of identical frequency to and in phase with one of said two series of binary pulses;
means for converting said sine wave at said receiver before it enters said post-demodulation filter into a series of clock pulses of identical frequency to and in phase with said one of said two series of binary pulses; and
means for separating the binary output pulses from said receiver into a first chain of binary pulses in phase with said series of clock pulses, said first chain being said one of said independent series of binary pulses transmitted, and a second chain of binary pulses out-of-phase with said clock pulses, said second chain being the other independent series of binary pulses transmitted.



3,303,285

COMMUNICATION SYSTEM FOR THE SELECTIVE TRANSMISSION OF SPEECH AND DATA

Warren G. Brown, River Vale, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Maryland
Filed May 29, 1963, Ser. No. 284,163
17 Claims. (Cl. 179—15)

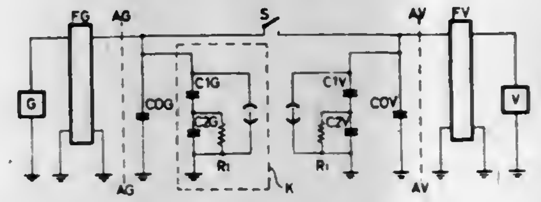


1. A communication system comprising:
a communication channel for transmitting a first type of intelligence in the form of digital code groups;
a source of code characters representing a second type of intelligence;
means coupled to said channel to detect idle intervals in said first type of intelligence;
means coupled to said source of code characters, said channel and said means to detect responsive to the output of said means to detect to couple said code characters to said channel during said idle intervals; and
means coupled to said channel responsive to said code characters to control the coupling of said code groups and said code characters to appropriate utilization devices;
said source of code characters including
  a source of message characters,
  a first generator to produce a first predetermined code pattern to identify the beginning of said idle interval, and
  a second generator to produce a second predetermined code pattern to identify the end of said idle interval.

3,303,286

CIRCUIT ARRANGEMENT FOR PULSE ENERGY TRANSMISSION

Max Schlichte, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Munich, Germany
Filed Dec. 14, 1964, Ser. No. 417,970
Claims priority, application Germany, Dec. 20, 1963, S 88,828
19 Claims. (Cl. 179—15)

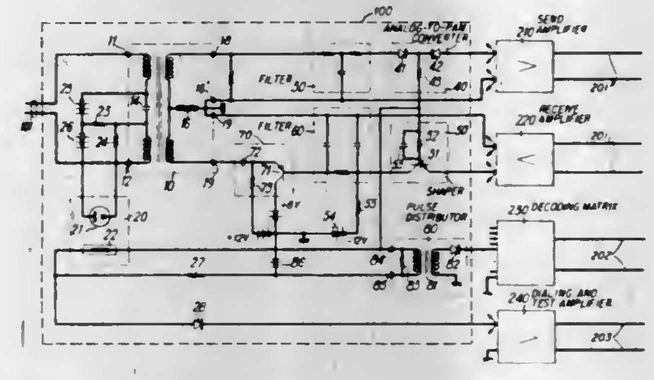


1. A circuit arrangement for pulse energy transmission including a pair of cross condensers between which the energy is transmitted, means for charging at least one of said cross condensers during the intervals between pulse transmissions, and pulse-operated switch means for connecting the cross condensers to each other,
the improvement comprising a supplemental condenser connected across at least one of said cross condensers,
and amplifier means connected to said one cross condenser and operative during intervals between pulse operation of said switch means to supply the supplemental condenser with a charge corresponding to that on the cross condenser.

3,303,287

SUBSCRIBER'S LINE EQUIPMENT FOR TIME-DIVISION TELEPHONE CONCENTRATOR

Robert R. Mauduech, 37 Rue de Marseille, Epinay, France; Raymond P. Gouttebel, 243 Ave. Jean Jaures, Clamart, France; Louis A. Proutiere, 98 Blvd. Auguste Blanqui, Paris, France; and Emile L. Communal, 65 Rue Anatole le Braz, Perros-Guirrec, France
Filed Jan. 22, 1963, Ser. No. 253,212
Claims priority, application France, Jan. 26, 1962, 886,055; Nov. 20, 1962, 916,006
4 Claims. (Cl. 179—18)

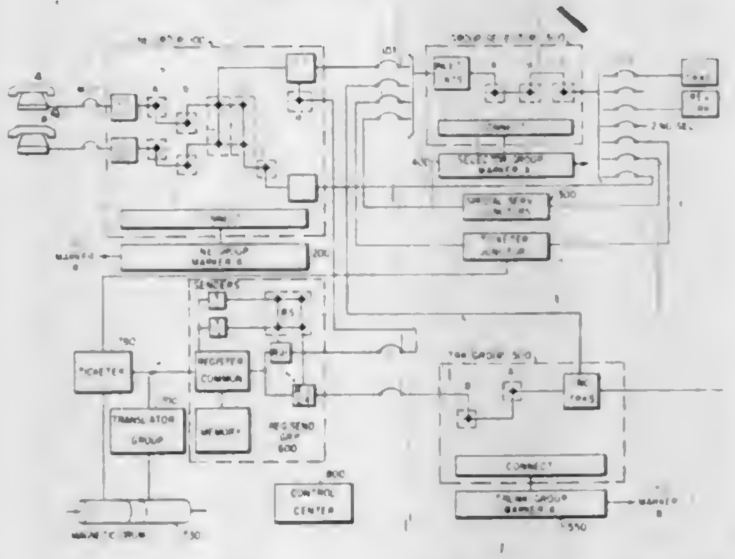


1. In a time-division telephone switching system, a subscriber's line equipment which is adapted to convert analog speech signals from a subscriber to outgoing PAM

(pulse-amplitude-modulation) signals, to convert incoming PAM signals to analog speech signals to said subscriber and to test the condition of the two-wire subscriber's line comprising in combination a duplexer means connecting said two-wire subscriber's line to a send-channel and to a receive-channel, an analog-to-PAM converter inserted in said send-channel, a PAM-to-analog converter inserted in said receive-channel, a light source inserted in said subscriber's line and illuminated when the subscriber's line is looped, an auxiliary signalling circuit associated with the subscriber's line, a photoconductive cell inserted in said auxiliary signalling circuit and cooperating with said light source and a sampling and test pulse generator simultaneously feeding with sampling pulses the analog-to-PAM converter and the PAM-to-analog converter and with test pulses the auxiliary signalling circuit, whereby the amplitude of the pulses developed across the photoconductive cell in response to said test pulses selectively depends upon the condition of the subscriber's line.

3,303,288
REGISTER-SENDER ARRANGEMENT

Howard L. Wirsing, Chicago, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Nov. 26, 1963, Ser. No. 325,870
12 Claims. (Cl. 179—18)



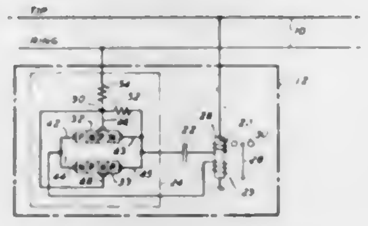
1. A sender control arrangement for a communication switching system which comprises switching units which include switching control apparatus for extending connections between calling and called lines, some of said lines being outgoing trunk lines, register apparatus comprising a plurality of registers, a plurality of senders less in number than the number of said registers, directory number translating apparatus common to said registers, means accessible over some of said switching units and operated upon the receipt of a call request for seizing one of said registers and transmitting the called party directory number digits thereto for storage therein, a data transmission arrangement for connecting said translating apparatus to said register apparatus to enable said translating apparatus to receive at least part of said called line directory number digits from said seized register and return routing digits and control information to the register for storage, means to then individually assign one of said senders to the seized register and to provide a connection between said register and said sender for supplying digits from the register to the sender; a two-way sending data transmission arrangement connecting the sender to further switching units for sending of routing digits and the return of processing digits, wherein responsive to routing digits designating an outgoing call the switching unit selects an outgoing trunk line and extends a connection thereto from the sender, the trunk line being selected from a plurality of sets including a primary route set and at least one alternate route set;

said sender control arrangement comprising means including sender control apparatus to select from the routing digits and directory number digits stored in the register said digits which are supplied via said register-to-sender connection to the sender and also to supply control signals to the sender in accordance with the control information stored in the register, means to forward certain of said processing digits via the register-to-sender connection and to store them in the register, one of the processing digits being an alternate route digit when required,

and means in the register apparatus responsive to the storage of an alternate route digit to modify said control information stored in the register in accordance with the value of the alternate route digit, so that the selection of digits and the supply of control signals from the register via the sender control apparatus to the sender corresponds to that required for the route via the selected outgoing trunk line.

3,303,289
TELEPHONE STATION APPARATUS

Melville S. Hawley, Indianapolis, Ind., and Donald W. McLellan, Laurence Harbor, N.J., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J., a corporation of New York
Filed July 25, 1966, Ser. No. 567,688
5 Claims. (Cl. 179—86)

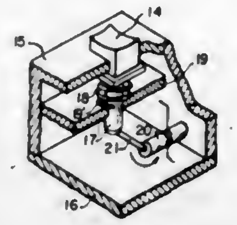


1. Telephone station apparatus comprising a coil; a capacitor; a switching network comprising a first and a second switching element, each of which comprises two layers of P-type semiconductor material arranged alternately with two layers of N-type semiconductor material, each switching element having a first terminal electrode making electrical contact with the outer P layer thereof and a second terminal electrode making electrical contact with the outer N layer thereof, and one of the switching elements having a base electrode making electrical contact with an intermediate layer thereof, circuit means for connecting the first terminal electrode of the first switching element with the second terminal electrode of the second switching element and the second terminal electrode of the first switching element with the first terminal electrode of the second switching element; a series path comprising the coil, the capacitor, and the circuit means and switching elements of the switching network, one end of the series path being connected to one conductor of a telephone line, the other end of the series path being connected to ground, and the base electrode being connected to the second conductor of the telephone line.

3,303,290
SIGNALING ARRANGEMENTS EMPLOYING PIEZOELECTRIC DEVICES

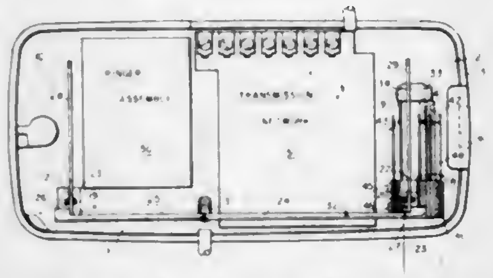
Naomi S. Suloway, Chicago, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Jan. 2, 1964, Ser. No. 335,017
5 Claims. (Cl. 179—90)

4. A telephone subset comprising: a housing; a plurality of piezoelectric transducers; means for mounting said transducers in said housing; a plurality of pushbuttons, each of said pushbuttons mounted adjacent to and normally bearing on a separate transducer and effective upon the receipt of a striking force to transmit a mechanical shock to the associated transducer, the associated transducer operable to generate a unique electrical tone signal in response to the mechanical shock; and electrical output connections for each said transducer.



3,303,291
MINIATURE TELEPHONE SUBSET

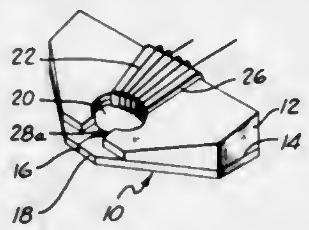
Jerry L. Schoemann, Glen Ellyn, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Mar. 4, 1964, Ser. No. 349,412
9 Claims. (Cl. 179—100)



1. A telephone subset having a base plate, a housing, a handset mountable on said housing, hookswitch contact means, a hookswitch assembly controlling said contact means and comprising a frame having a main portion and at least one arm extending substantially perpendicular to said main portion, hookswitch contact actuating means attached to said arm, means pivotally supporting said frame on said base plate, said contact means being supported on said base plate at a point adjacent the pivotal axis of said frame and extending substantially parallel to said arm, arm actuating means engageable by said handset, and biasing means connected to said frame for urging said arm actuating means into engagement with said handset when said handset is replaced on said housing.

3,303,292
MAGNETIC HEAD ASSEMBLY

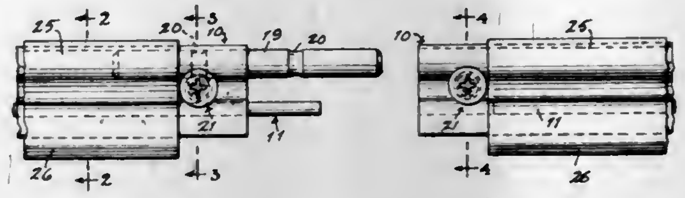
Edwin A. Bedell, Jr., Redwood City, and Burnet M. Poole, Los Altos, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Feb. 25, 1963, Ser. No. 260,465
11 Claims. (Cl. 179—100.2)



1. A magnetic head assembly comprising:
a metallic magnetic core;
a nonmetallic magnetic body joined to and against one side of said core, said joined body and core having an aperture formed through both the body and core; and
coil means disposed through said aperture for coupling an electrical signal to said core and said body.

3,303,293
CONDUCTOR BAR

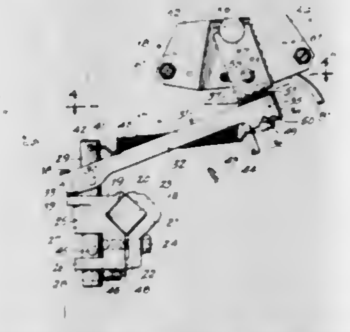
Alleyne C. Howell, Jr., 645 Mine Hill Road, Fairfield, Conn. 06430
Filed Aug. 25, 1964, Ser. No. 391,968
16 Claims. (Cl. 191—23)



1. A conductor bar comprising a shell of substantially inverted U-shape in cross-section including an upper end portion and side walls extending downwardly from said upper end portion with their lower edges transversely aligned, said shell having inherent resiliency whereby said side walls may be sprung outwardly from a normal position, said side walls having transversely opposed longitudinally extending recess formations at their inner sides in upwardly spaced parallel relation to their lower edges, and a current-conducting contact bar within said shell in spanning relation between said side walls having longitudinal side edges disposed and retained within said recess formations in said normal position of said side walls and being separable therefrom through outward springing of said side walls.

3,303,294
COLLECTOR FOR USE IN ELECTRIFIED TROLLEY BUS WAY SYSTEMS

Alleyne C. Howell, Jr., 645 Mine Hill Road, Fairfield, Conn. 06430
Filed Nov. 2, 1964, Ser. No. 408,203
10 Claims. (Cl. 191—64)



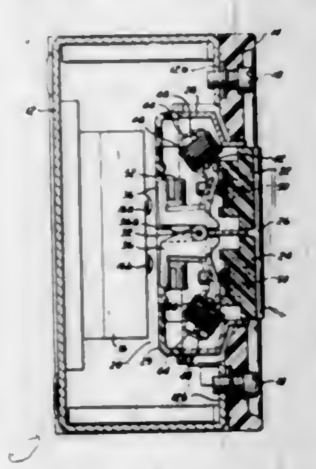
1. In a collector for use in an electrified trolley bus way system including a conductor bar and a track supported movable part having a collector mounting bar, spring-loaded linkage for mounting on said bar, a yoke carried by said linkage, and a collector head pivotally supported by said yoke for sliding engagement with said conductor bar, said head comprising a pair of complementary casing half parts, bolt means securing said half parts together to form a casing, each of said half parts having means defining a collector shoe receiving space between them, longitudinally spaced seat means formed upon the inner sides of said half parts, a current-conducting base member engaged at its end portions upon said seat means and spanning the space therebetween, longitudinal channel means at the upper side of said base member, a cable connector secured to the lower side of said base member, passage forming means in said half parts providing a passage for a current-conducting cable into said casing to said connector, and a collector shoe inserted into said channel of said base member having an upper contact edge for engagement with said conductor bar.

6. In a collector for use in an electrified trolley bus way system including a conductor bar and a track supported movable part having a collector mounting bar,

spring-loaded linkage for mounting on said bar, a yoke carried by said linkage, and a collector head pivotally supported by said yoke for sliding engagement with said conductor bar, and said linkage comprising a clamp body, clamp means cooperating with said body for clamping upon said mounting bar, upper and lower vertically spaced bearing means carried by said clamp body having axially aligned vertical cylindrical passages, a cylindrical post engaging in said passages for vertical sliding and rotary movement and including upper and lower end portions extending above and below said respective upper and lower bearing means, an elongated lever arm pivotally supported adjacent its inner end upon said post above said upper bearing means for swinging movement about a transverse axis, the outer end of said lever arm having said yoke mounted thereon, a helical compression spring connected at its inner end to said post in upwardly spaced relation to said transverse swinging axis of said lever arm, and connected at its other end to the outer end of said lever arm to impart upward movement thereto to press said collector head against said conductor bar, a first stop means carried by said post in the space between said upper and lower bearing means for engagement with the upper side of said lower bearing means through downward movement of said post, a second stop means carried by said post for engagement with the lower side of said clamp body through upward movement of said post, the inner end of said lever arm at the opposite side of its axis from said yoke adapted in a position of said collector head out of engagement with said conductor bar to bear upon the upper side of said clamp body to move said post upwardly to engage said second stop means and disengage said first stop means, and said spring adapted in an engaged position of said collector head with said conductor bar to move said post downwardly to engage said first stop means and disengage said second stop means.

3,303,295
PUSHBUTTON SELECTOR SWITCHES

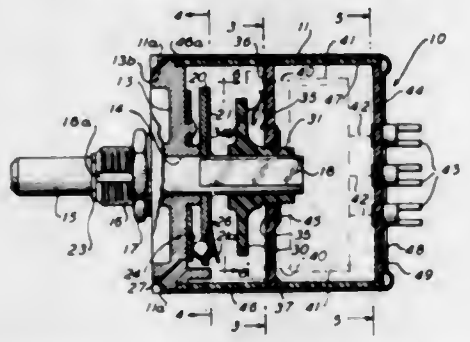
Charles C. Davis, Brookfield, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Aug. 11, 1965, Ser. No. 478,843
4 Claims. (Cl. 200—5)



1. In a selector operating mechanism for switches, in combination, a pair of like, overcenter spring toggle mechanisms each having a pushbutton depressible from an extended position to cause operation of its toggle mechanism from a first to a second stable position and each having a switch operating lever connected to said toggle mechanism for pivotal movement from a switch released to switch operating maintained position, said switch operating levers having and being mounted on a common pivot pin for pivotal movements in mutually opposed directions and having opposed complementally formed portions so that when either lever is pivoted to its switch operating position it will not engage the other lever if the latter is in its switch release position but will engage said other lever if the latter is in its switch operating position and pivot it to its switch release position and effect consequent return of the toggle mechanism and pushbutton operatively connected to said other lever to their respective first stable and extended positions.

3,303,296
ATTENUATOR WITH IMPROVED HOUSING STRUCTURE

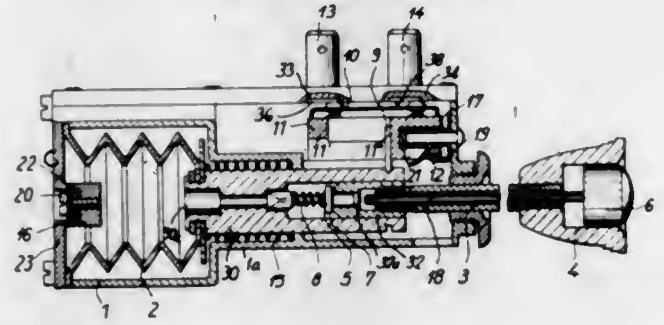
Chester F. Scott, West Caldwell, N.J., assignor to McGraw-Edison Company, Elgin, Ill.
Filed Dec. 8, 1964, Ser. No. 416,687
5 Claims. (Cl. 200—11)



1. An attenuator of a cylindrical construction comprising an assembly of a front panel member, an intermediate contact panel member and a rear terminal board, intervening tubular casings respectively between said panel members and between said contact panel member and said terminal board, said casings having interlocking groove and tongue engagement with said panel members and terminal board to locate said panel members and terminal board into an aligned relationship, said front panel member having a central bearing, a rotor in the chamber between said two panel members having a shaft journaled in said bearing, said panel member having a series of electrical contacts mounted thereon and said rotor having wiper contacts thereon for selectively engaging said electrical contacts as said rotor is turned, a group of resistors in the chamber between said contact panel member and said terminal board having terminal wires connected to respective contacts of said contact panel, lead wires connecting said resistors to terminals of said terminal board, and a surrounding cylindrical case for holding said assembly into a unitary structure.

3,303,297
TIME DELAY SWITCH HAVING PNEUMATICALLY DELAYED DISCONNECTION MEANS

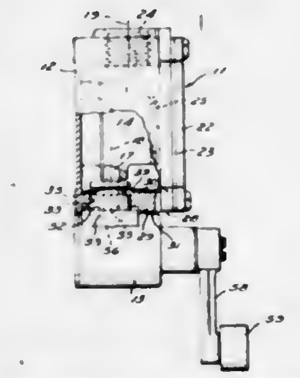
Rolf Anschütz, Ludwigsburg, Germany, assignor to SWF-Spezialfabrik fuer Autozubehoer Gustav Rau G.m.b.H., Bietigheim, Germany
Filed Nov. 30, 1964, Ser. No. 414,807
Claims priority, application Germany, Jan. 23, 1964, S 89,193
9 Claims. (Cl. 200—34)



1. A time switch comprising a member defining a fluid pressure chamber which is expandable and contractible in accordance with the fluid pressure therein, valve means associateed with said fluid pressure chamber for permitting the escape of fluid from said pressure chamber, a slide control member connected to said member and movable in one direction upon expansion of said member and in another direction upon contraction of said member, first and second fixed spaced contacts adjacent said slide control member, a sliding contact bridge adjacent said control member and said fixed spaced contacts and having contact portions engageable with respect to said first and second contacts and having a side with a recess adjacent said control member, means located adjacent said bridge to bias said bridge in a direction out of contact engagement located adjacent said bridge when said bridge is in a contact-making engaged position, means to latch said bridge in a contact-making engaged position against the force of said biasing means to position the contact portions of said bridge in engagement with said first and second fixed contacts, said slide control having a carrier portion extending into the recess of said bridge, said carrier portion being movable along the recess of said bridge and being engageable with said bridge adjacent one edge of said recess to move said bridge into an operative position and into latching engagement with said latching means, said bellows being contractible upon escape of fluid from said pressure chamber to move said carrier first along the recess of said bridge member without contacting said bridge member and thereafter into contact with the bridge member adjacent the opposite edge of said recess to move said bridge member out of engagement with said latching means, said biasing means being thereafter effective to rapidly move said bridge member to a position bringing said contact portions out of engagement with said first and second fixed contacts.

3,303,298
INDEXABLE HEAD SWITCH

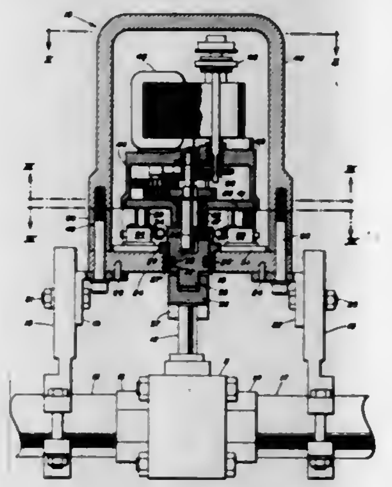
Michael J. Dobes, Cleveland Heights, Ohio, assignor to The National Acme Company, a corporation of Ohio
Filed June 4, 1965, Ser. No. 461,389
17 Claims. (Cl. 200—47)



1. A switch mechanism comprising, in combination:
a housing;
switch means mounted in said housing;
an actuator on said switch means disposed for movement generally along an axis;
an indexable head;
a first wall on one of said housing and said head;
a second mating wall on the other of said housing and said head;
means to rotatively lock said head to said housing with said first and second walls in engagement;
an extension on one of said walls extending through a coaxial aperture on the other of said walls,
aperture means in said extension coaxial therewith;
an actuator link in said head disposed in said aperture means in said extension to actuate said switch actuator;
said rotative lock means including a plurality of recess walls symmetrical relative to said axis and defining recess means on one of said housing and said head, boss means on the other of said housing and said head entering said recess means to rotatively interlock therewith,
and spring means urging said boss means into engagement with said recess means;
whereby said head may be moved axially to stress said spring means and to cause said boss means to be removed from said recess means to permit indexing of said head into any one of plural positions.

3,303,299
VALVE ACTUATOR AND SWITCH MECHANISM

Frank J. Raymond, Jr., Barrington Hills, Ill., assignor to Ramcon Corporation, Worcester, Mass., a corporation of Massachusetts
Continuation of application Ser. No. 229,458, Oct. 9, 1962. This application Jan. 28, 1966, Ser. No. 545,515
1 Claim. (Cl. 200—47)



For use in opening and closing a valve, an electrically powered valve actuator adapted to be mounted in coacting relation to a valve having conduits extending from opposite sides thereof; said actuator comprising a self-contained, geared electrical power drive unit having a rotary output shaft that rotates in only one direction; a housing encasing said power drive unit and comprising a base and a deep cover secured together, said cover being formed in part by an annular spacer element engaging said base and forming support means spaced from said base and supporting said drive unit independently of said base and in spaced relation to said base, said base having a bearing therein, a valve rotating member journalled in said bearing and having an inner end continuously connected to said output shaft for rotation by the latter in only said one direction; said valve rotating member having thereon a double lobed, switch operating cam disposed within said housing between said base and said drive unit; said cam being shaped to define on the lobes thereof four sharp cam corners spaced at predetermined radial angles from each other about the axis of rotation of the cam, connector means on the outer end of said valve rotating member for connecting the valve rotating member to a rotatable valve control element, a rotatable switch support plate supported on the inner face of said base in encircling relation to said bearing and having arcuate slots therein, bolt means on said base extending through said slots and releasably engaging said switch support plate to hold the latter in various positions of rotary adjustment on said base, two control switches mounted on said switch support plate, said control switches having actuators positioned for actuation by said cam corners when said valve rotating member turns into each of four successive valve positions rotatably adjustable in unison by rotary adjustment of said switch support plate on said base, said cam corners being positioned on said cam and said switch actuators being positioned on said switch support plate to locate said valve positions of said valve rotating member accurately one-quarter revolution from each other for all rotary positions of adjustment of said switch support plate, two mounting supports secured to said housing and extending therefrom in straddling relation to the outer end of said valve rotating member, and each of said supports comprising conduit clamping means spaced from said housing and adjusting means for adjusting the position of the conduit clamping means in relation to the housing.

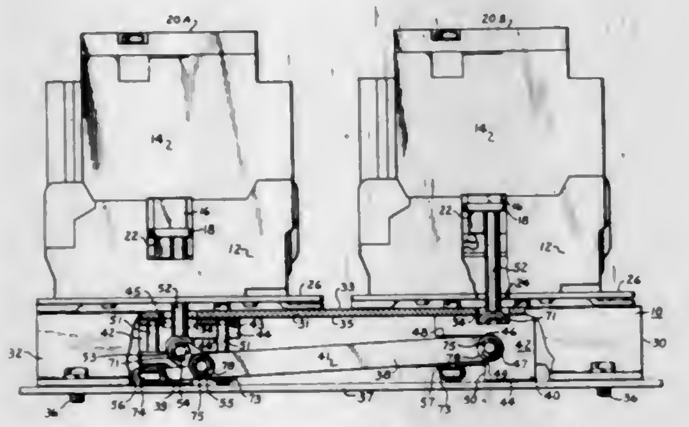
3,303,300

INTERLOCK MECHANISM FOR PREVENTION OF SIMULTANEOUS OPERATION OF TWO SWITCH DEVICES

Merlin Y. Turnbull, Brookfield, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed July 20, 1965, Ser. No. 473,311

8 Claims. (Cl. 200—50)



1. An interlock for preventing simultaneous operation of a pair of independently operable switches comprising: a channel-like mounting member having a pair of spaced openings in an upper surface of the member for mounting the pair of switches side by side in spaced relation to a mounting panel so an element of each of the switches which is movable along an axis normal to the surface is aligned with one of the openings when the switch providing the element is energized, a pair of plungers each having a base portion and a stem portion, resilient means mounting each of said plungers so the base portions of each of said plungers is carried in a space between a bottom surface of the member and the panel and the stem portions of each of the plungers extends through one of the openings into engagement with the element of one of the switches, said resilient means being arranged so each of the plungers is bodily movable along the axis of movement of the element which it engages, a pair of arms each having an end pivotally mounted on the body portion of one of the plungers and a free end extending from the body portion, a roller rotatably mounted on a pivot carried on the free end of each of the arms, a link pivotally mounted on the pivots of the arms for interconnecting the arms and causing the arms to be inclined toward one another, and a pair of members each having a notch portion wherein one of the rollers is positioned, each of said notch portions having an edge extending generally parallel to the axis for limiting movement of the roller along an axis parallel to the surface in one direction when one of the switches is energized and a semicircular portion for receiving the roller and limiting movement of the roller in a direction opposite said one direction when the other of said switches is energized.

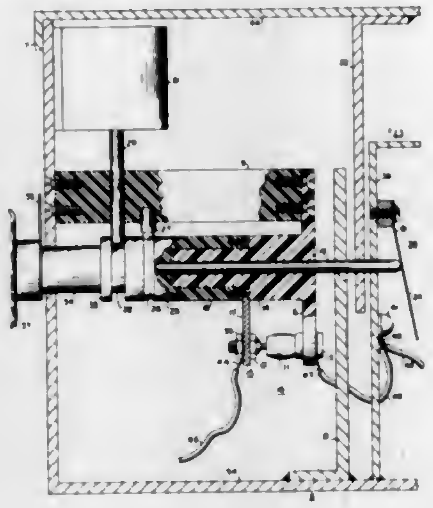
3,303,301

ROTATABLY SELECTABLE HIGH VOLTAGE SWITCH

Lewis Scott, Deale, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Sept. 30, 1964, Ser. No. 400,614

7 Claims. (Cl. 200—51.1)



1. A switch comprising:
a male section having a plate with a plurality of conductive plugs mounted thereon,
a female section comprising a stationary circular disc having a plurality of conductive receptacles mounted thereon and aligned for receiving said plugs,
a circular support rod attached to the center of said disc and perpendicular thereto,
a first rod having one end attached to said male section to enable said male section to be rotated and reciprocated into electrical contact with said female section,
said first rod being hollow at the end to which said plate is attached so that said circular support rod fits into said hollow end of said first rod to guide said first rod into a plug and receptacle engaged position, and
means coupled to said disc and said male section for electrically shorting said conductive receptacles when said plugs and receptacles are disengaged.

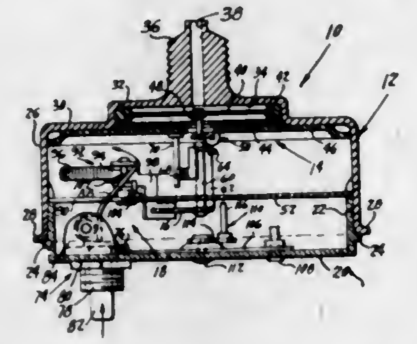
3,303,302

RESETTABLE SAFETY SWITCH GAUGE

Frank W. Murphy, Jr., and Finis W. Jackson, Tulsa, Okla., assignors to Frank W. Murphy Manufacturer, Inc.

Filed Oct. 12, 1965, Ser. No. 495,126

7 Claims. (Cl. 200—56)



1. A gauge comprising a housing having a transparent cover, means cooperating with said cover forming an enclosure and conduit and condition sensing means communicating through said housing into said enclosure, condition responsive means within said enclosure in communication with said condition sensing means for measuring fluid conditions including a pointer movably mounted through a predetermined range adjacent said cover, said pointer carrying contact means constituting one side of a grounding switch, a fixed contact carried by said housing engageable with said contact means when said pointer indicates a low predetermined reading, said fixed contact constituting another side of said grounding switch, and operating means interior of said housing including a reciprocably movable push button extending through said cover, a pivotally mounted arm within said enclosure for engagement with said button and a lever pivotally mounted within said enclosure having a first leg positioned in the path of said pivotally mounted arm and a second leg positioned to engage said pointer for selectively positioning said pointer away from said low predetermined reading separating said fixed contact and said contact means.

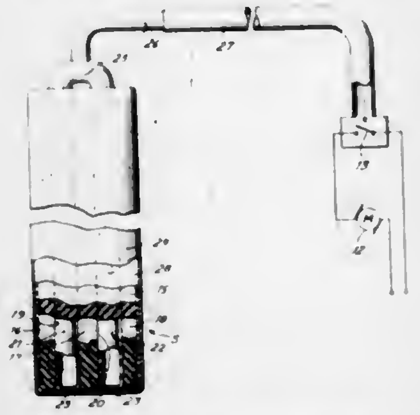
3,303,303

PNEUMATIC SAFETY EDGE FOR POWER OPERATED DOOR

Norman K. Miller, Havertown, Pa., assignor to Miller Brothers, Upper Darby, Pa., a partnership

Filed Oct. 2, 1964, Ser. No. 401,141

5 Claims. (Cl. 200—61.43)



1. In combination, a door, an electric motor for operating the door, a pneumatically controlled switch remote from the door and electrically connected to the motor, an elongate foam-rubber structure extending along and projecting from the closing edge of the door, said structure having a longitudinally extending internal chamber substantially coextensive therewith, a first tube of air-impervious flexible material having one end closed and disposed longitudinally within said chamber substantially coextensive therewith, said tube being configured for snug conforming engagement in said chamber and held by the walls thereof against displacement in said chamber while being deformable under pressure deforming said structure, a second tube of air-impervious material connected in fluid communication between the other end of said first tube and said switch to transmit a fluid-pressure impulse therebetween and operate said switch.

3,303,304

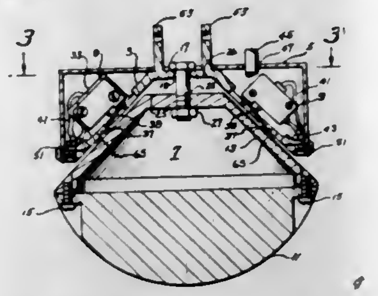
DISCRETE LOCAL ALTITUDE SENSING DEVICE

Carlisle C. Campbell, Jr., 212 Confederate Way, Seabrook, Tex. 77586; Joseph A. Chandler, 3030 Longwood, Dickinson, Tex. 77539; and Thomas M. Grubbs, 9905 Tiltree, Houston, Tex. 77034

Filed Dec. 23, 1965, Ser. No. 516,159

3 Claims. (Cl. 200—61.45)

1. An altitude sensing device for energizing a braking system on a descending vehicle at a discrete local altitude above an impact surface, said device comprising:
a frame member having electrical switch means affixed thereto in normally open condition but in operative association with the braking system and with a bumper element;
a bumper element for closing said normally open switch means upon contact of said element with the impact surface; and
means movably affixing said bumper element to said frame member in adjacent relation to said switch means so that impact force on said bumper element causes it to close said switch means thereby actuating the braking system,
said switch means having an extended actuator arm affixed thereto;



an aperture in said frame member for receiving the actuator arm of said switch means therethrough; and
said bumper element disposed on the side of the apertured frame member through which said actuator arm extends and in adjacent relationship to said extending arm so that impact force on said bumper element moves it against said actuator arm, thereby closing the switch.

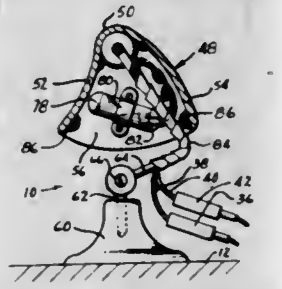
3,303,305

FLOW-RESPONSIVE SWITCH WITH AIR FOIL SHAPE

Floyd L. Lemmons, 148 Dutoit St., Dayton, Ohio 45402

Filed Feb. 15, 1965, Ser. No. 432,726

7 Claims. (Cl. 200—81.9)



1. An air operated switch assembly responsive to flow of air relative thereto comprising: support means including a support member; a wind vane including a generally U-shaped strip inverted upon said support member and mounted for pivotal movement thereon about an axis passing between the legs of said U-shaped strip adjacent the bight end thereof whereby pivotal movement of said wind vane about said axis is limited by engagement of said legs with said support member, one of said legs being adapted to be positioned with the path of air flowing relatively theretoward, the other of said legs extending convexly outwardly and downwardly from said bight end to provide an air foil effect when the flow of air advancing relatively toward said one of said legs causes said one of said legs to engage said support member; and a switch member supported by said support means, said switch member having switch contacts which are open circuited and close circuited in response to pivotal movement of said wind vane.

3,303,306

MEMBRANE SWITCH WITH FIRST AND SECOND INDEPENDENTLY MOVABLE PORTIONS

Max Fischer, Goppingen, and Gerhard Brink, Zuffenhausen, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

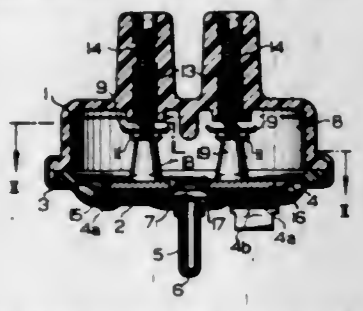
Filed July 27, 1964, Ser. No. 385,186

Claims priority, application Germany, July 25, 1963, B 72,838

18 Claims. (Cl. 200—83)

18. A membrane switch comprising, in combination, a support; membrane means mounted on said support and

including a first movable membrane portion, a second movable membrane portion, and means intermediate said first and second movable membrane portions and including a portion of said membrane means and permitting said movable membrane portions to move substantially independently of each other; a plurality of contact means mounted on said support; a plurality of actuating means connecting said contact means with said movable membrane portions, respectively, so that movement of the latter causes actuation of said contact means, respectively; a plurality of biasing means for applying different forces to one side of said membrane portions; and means for applying fluid pressure to the other side of said membrane portions so that said contact means are individually actuated when different fluid pressures act on and displace said membrane portions.

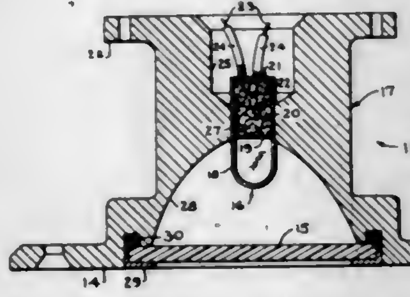


3,303,307
ELECTRICALLY OPERATED VISUAL INDICATOR AND FUSE FOR FUEL TANK PROTECTION SYSTEMS AND THE LIKE

Milton J. Morrisette, Ashland, Mass., assignor to Fenwal, Incorporated, Ashland, Mass., a corporation of Massachusetts

Filed Apr. 5, 1966, Ser. No. 540,284

2 Claims. (Cl. 200—121)



1. An indicator, comprising a parabolic reflector, having an optical axis along which the focal point of the reflector is located, a transparent hollow capsule extending from a base portion into said reflector along said axis in a region enclosing said focal point, a slug of colored powder adherent to the inside of said capsule and enclosed in said base portion, an opaque coating over said slug on the side adjacent said reflector, a charge of explosives in said capsule adjacent to the side of said slug away from said reflector, a current-interrupted bridge wire passing through said charge and having terminals extending out of said capsule to respond to current applied to said terminals to detonate said charge and thereby propel said powder into adherent contact with the inside of said capsule to produce a colored coating thereon, and a transparent cover plate over said reflector, whereby said cover plate appears as a plain or a colored disk according as actuating current has or has not been supplied to said terminals.

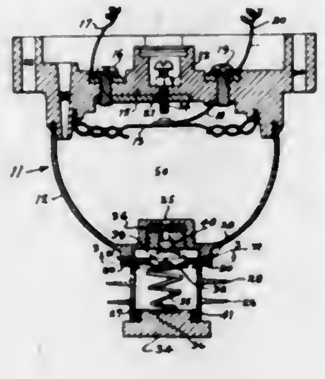
3,303,308
FIRE DETECTION THERMOSTAT

Philip J. Koopman, New York, N.Y., assignor, by mesne assignments, to Gilbert Levy, Closter, N.J.

Filed Jan. 20, 1964, Ser. No. 338,862

5 Claims. (Cl. 200—142)

1. A thermostat for detecting a predetermined temperature rise comprising a hollow container having air therewithin, a normally open vent within said container, a channel adjacent said vent, a pair of normally open contacts within said container, said contacts being closeable by expansion of said air when said vent is closed, a stopper normally clear of and spaced from said vent, a normally U-shaped actuator secured to said stopper, a cap, a fusible metal link holding said cap, said link located within said channel, a deformed spring intervening said cap and said actuator, said spring normally forcing said actuator into U-shape, wherein attainment of a predetermined temperature rise will release said spring and thus will cause said stopper to enter said vent and to close the same.



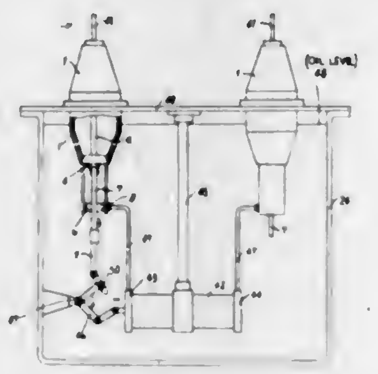
3,303,309
SERIES CONNECTED SWITCHES OF DIFFERENT TYPES

Cedric Harald Flurscheim, Hale, and Albert Roxburgh, Stanmore, Middlesex, England, assignors to Associated Electrical Industries Limited, London, England, a British company

Filed May 11, 1964, Ser. No. 366,325

Claims priority, application Great Britain, May 14, 1963, 19,111/63

1 Claim. (Cl. 200—144)



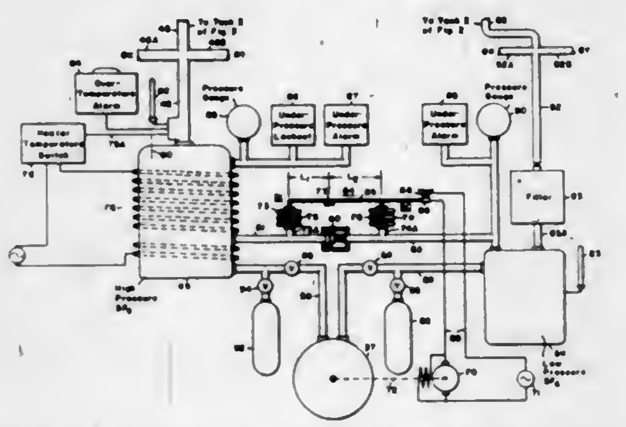
An electric switch gear for high voltage power circuits comprising an outer container, a pair of insulating bushings extending into said container, a terminal in each bushing extending into the container, a vacuum circuit breaker within said container, a fluid insulant surrounding said vacuum circuit breaker and within the space of said outer container, first and second isolator circuit breakers within said outer container with one contact of each of said isolator breakers electrically connected to a respective terminal, said isolator breakers and vacuum switch being in series with each other and the vacuum switch being electrically positioned between the two isolator breakers and a common operating mechanism which opens the vacuum switch prior to opening of the isolator breakers and closes the vacuum switch after closing the isolator breakers.

3,303,310
DUAL-PRESSURE CIRCUIT INTERRUPTER CONTROL DEVICE

Daniel H. McKeough, Pasadena, Calif., and Benjamin P. Baker, deceased, late of Monroeville, Pa., by The Mellon National Bank and Trust Company, executor, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Continuation of abandoned application Ser. No. 797,061, Mar. 4, 1959. This application Jan. 21, 1963, Ser. No. 254,542

5 Claims. (Cl. 200—148)



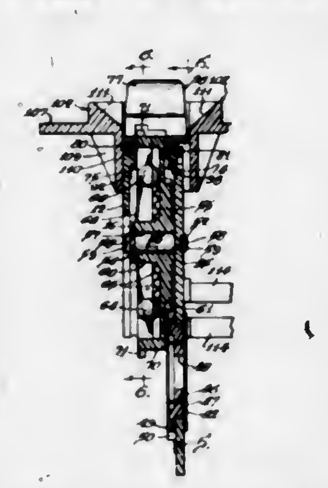
1. A dual-pressure type of gas-blast circuit interrupter including means defining a first gas space at one pressure and a second gas space at a higher pressure, separable contact means, blast-valve means for controlling a blast of gas out of said second gas space through the arc established at said separable contact means to exhaust into the first gas space, a gas compressor for recompressing the gas from the first gas space and forcing it under pressure into the second gas space, and a density-ratio switch to regulate the ratio of gas densities in the two gas spaces for electrically controlling operation of the gas compressor.

3,303,311
PUSH BUTTON ROTARY SWITCH

Wilhelm August Streuer, Mount Prospect, Ill., assignor to Oak Electro/Netics Corp., a corporation of Delaware

Filed Nov. 17, 1964, Ser. No. 411,823

17 Claims. (Cl. 200—156)



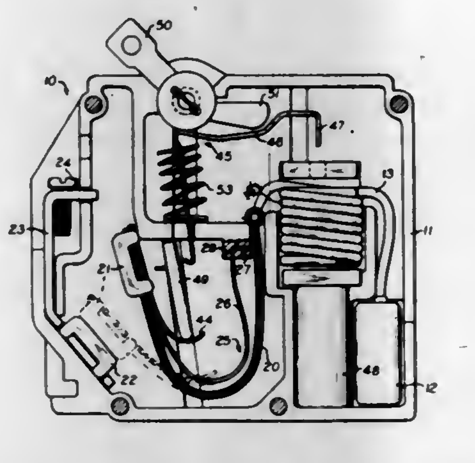
5. In a push button rotary switch, a switch section comprising: a first frame member, second and third frame members nested within said first frame member, means on said third frame member defining a switch stator, a rotor rotatably mounted in said stator, means on said first and third frame members defining a first axis, push button means pivotally mounted on said first axis, means on said first and second frame members defining a second axis, and drive means rotatably mounted on said second axis for rotating said rotor in opposite directions upon pivotal movement of said push button means in opposite directions.

3,303,312
CIRCUIT BREAKER SPRING SWITCH ARM

Albert B. Rypinski, 233 E. 69th St., New York, N.Y. 10021

Filed Aug. 12, 1964, Ser. No. 389,158

10 Claims. (Cl. 200—166)



1. A switch arm comprising: a conducting element electrically coupled into a circuit; a contact button on said conducting element; and a spring element coupled to said contact button arranged adjacent said conducting element in biasing relationship to said contact button to displace said conducting element from a circuit making condition.

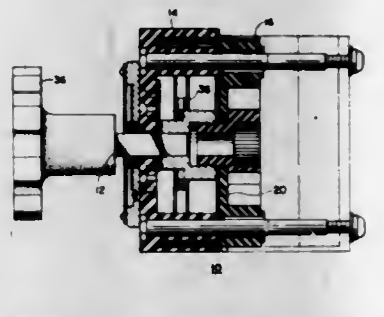
3,303,313
ROTARY SWITCH HAVING SELECTIVE ANGULAR CONTROLLING LIMITS MEANS

Kiyoshi Okamoto, Itoshima-gun, Fukuoka, Japan, assignor to Kabushiki Kaisha Seiko Denki Seisakusho, Kogamachi, Kasuya-gun, Fukuoka Prefecture, Japan

Filed Nov. 29, 1965, Ser. No. 510,296

Claims priority, application Japan, Dec. 8, 1964, 39/95,506

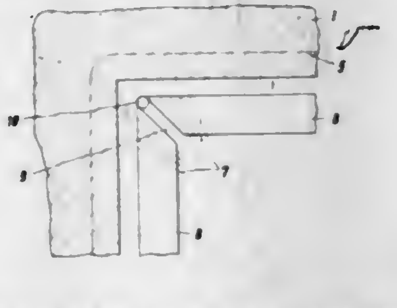
1 Claim. (Cl. 200—166)



In a rotary switch comprising a switch box having a front wall and an operating shaft rotatably extending through a central hole on the front wall into the switch box, a mechanism for selectively limiting an angular region over which the operating shaft can be rotated stepwise in either of the forward and reverse directions, including a set of bores disposed at substantially equal angular intervals equal to 45 degrees on a circle having its center on the axis of said operating shaft on said front wall, a set of bores disposed at substantially equal angular intervals equal to 30 degrees on a circle concentric to and larger in radius to the first mentioned circle on the front wall, said two sets of bores having a common reference line from which the respective angular intervals are measured, a movement limiter member rigidly secured on said operating shaft adjacent the front wall within the switch box and having a root portion and a free end portion capable of stepping along said two sets of bores as the operating shaft effects stepped rotational movement, said root portion having a width substantially equal to an angular distance between any pair of adjacent inner bores minus twice the radius thereof and said free end portion having a width substantially equal to an angular distance between any pair of adjacent outer bores minus twice the radius thereof, and one stud detachably engaging a selected one of each set of bores and when engaged projecting beyond the associated bore into the interior of the switch box to be engageable by said movement limiter member.

3,303,314
INDUCTOR

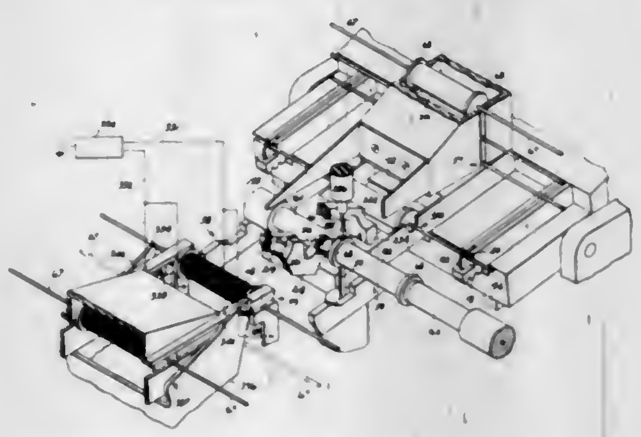
Hermann Kuhlbars, Wuppertal-Elberfeld, Germany, assignor to Deutsche Edelstahlwerke Aktiengesellschaft, Krefeld, and Allgemeine Elektricitats-Gesellschaft, Berlin-Grunewald, Germany
Filed June 23, 1964, Ser. No. 377,183
Claims priority, application Germany, July 27, 1963, D 42,121
2 Claims. (Cl. 219—10.43)



1. An inductor for heat treating an angular workpiece comprising angularly arranged conductor portions having opposed end mitre faces electrically connected only in the region of the outer vertex of the mitre angle and comprising a wire forming the said electrical connection and being welded across the said end mitre faces and insulating material filling the said gap between the said faces.

3,303,315
COIL WINDING APPARATUS

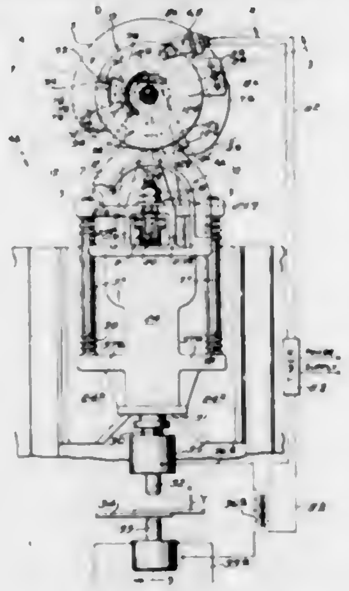
Norman F. Smith, Methuen, and Edward T. Stocker, Groveland, Mass., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Apr. 25, 1963, Ser. No. 275,729
26 Claims. (Cl. 219—79)



1. An apparatus for winding coils of wire on coil forms having terminals at opposing ends thereof comprising:
- a supply station for the coil forms,
- means to move coil forms successively to the supply station,
- a winding station spaced from the supply station,
- means to transfer the coil forms singly from the supply station to the winding station,
- means to convey wire to be wound on said coil forms to said winding station,
- means to weld a leading portion of a wire to one of the terminals of a coil form at the winding station,
- means operable to rotate the coil form at the winding station to cause winding of a coil of the wire on the coil form,
- means to weld the end portion of the wound coil remote from the leading portion to the other terminal, and
- means operated in advance of said portions of the wire reaching the terminals of a coil form at the winding station to burn insulation off said portions to facilitate welding of said portions to the terminals.

3,303,316
METHOD AND MEANS FOR ELECTRIC WELDING

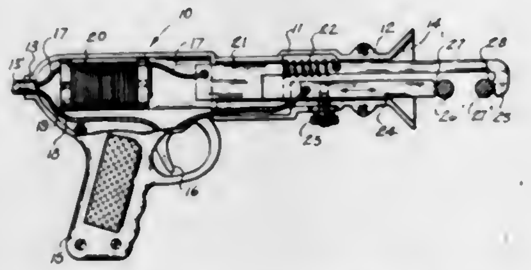
Arda Bogosian, Cambridge, Mass. (P.O. Box 115, North Postal Annex, Boston, Mass. 02114)
Filed Feb. 19, 1964, Ser. No. 345,895
28 Claims. (Cl. 219—80)



1. An electric spot welding apparatus having in combination, rotatable means having a cam and a welding current initiating member rotatable together with said rotatable means, means operated by rotation of said cam with said rotatable means a single revolution to apply a yieldable static pressure to an electrode and to subsequently apply in timed sequence a mechanical impact blow to said electrode followed by an increase in yieldable static pressure applied to the electrode for a predetermined time after impact, means operated by rotation of said current initiating member to initiate welding current, said current initiating member and said cam being angularly located with respect to each other so that said current is initiated in timed sequence with the application of said static pressure and said impact occurs in timed sequence with initiation of said current.

3,303,317
SPOT WELDING GUN

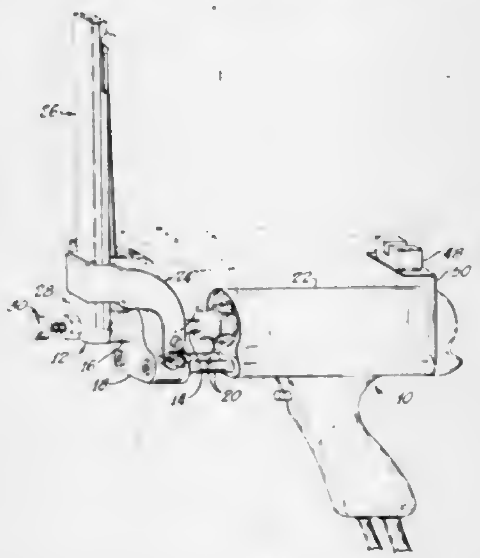
Robert R. Blackburn, Olmstedville, N.Y. 12857
Filed Apr. 7, 1966, Ser. No. 540,871
5 Claims. (Cl. 219—90)



1. A spot welding gun comprising, in combination, a gun casing including a hollow, elongated member, a handle and a trigger member, one end of said member provided with an opening therein, a current and a ground wire admitted into said casing therethrough, a magnetic core secured within said member, a magnetic coil wound around said core and being secured between the inner ends of said current wire, a movable elongated rod secured to said current wire which, in conjunction with said core and said magnetic coil, is capable of longitudinally moving said rod into an inward direction, a return spring affixed between said casing and said rod for retracting said rod to its original position, said ground wire adapted to communicate with said trigger member, an adjustable second rod adapted to electrically communicate with said trigger member by means of said ground wire, so that when said trigger member is depressed the end portion of said movable rod moves toward said second rod thereby closing the electrical circuit within said casing in such a manner that the end portion of said adjustable rod communicates with the end portion of said movable rod by means of reinforcement rods positioned therebetween, and said reinforcement rods become welded to each other by means of the surge of the electric current.

3,303,318
WELDING TOOL AND STUD LOADER

Steve Spisak, Elyria, Ohio, assignor to Gregory Industries, Inc., Lorain. Ohio, a corporation of Michigan
Filed Sept. 3, 1963, Ser. No. 306,132
8 Claims. (Cl. 219—98)

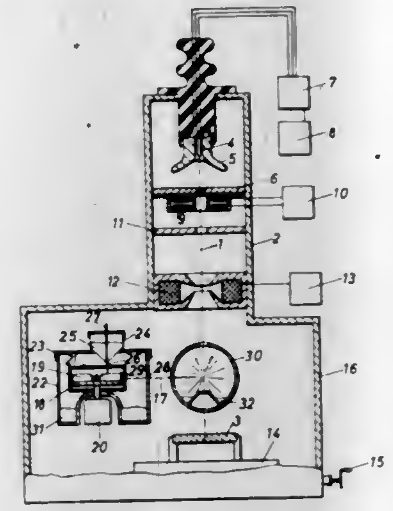


2. A hand-operated welding device comprising a chuck for holding a stud, means for retracting said chuck, means for moving said chuck rapidly in the opposite direction to plunge a stud carried by said chuck against a workpiece, means for supplying power to said chuck, control means for controlling said power supply means, a guide head, a magazine movable with said guide head, means movably connecting said magazine and said guide head to said tool for movement between a first position in which a stud carried by said guide head is aligned with said chuck and a second position in which said magazine and said guide head are out of the way of said chuck, and means carried by said guide head and movable independently thereof for moving a stud carried by said guide head axially toward said chuck.

3,303,319
METHOD AND APPARATUS FOR THE WORKING OF MATERIAL BY RADIANT ENERGY

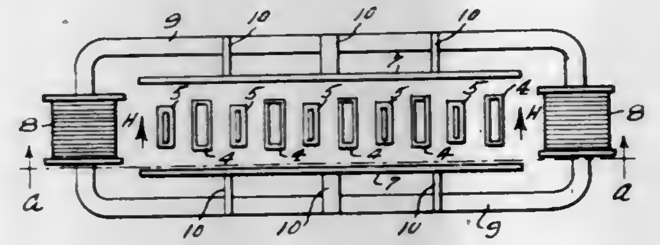
Karl Heinz Steigerwald, Schubertstrasse 8, Heidenheim (Brenz), Germany
Filed Dec. 1, 1964, Ser. No. 414,986
Claims priority, application Germany, Dec. 2, 1963, St 21,397
18 Claims. (Cl. 219—121)

1. The method of thermal machining of material which comprises directing a composite beam on said material at the desired position of machining, said beam comprising a first component to supply substantially all of the thermal energy necessary for machining and a second corpuscular beam component impinging upon the workpiece material to modify the physical properties of said material simultaneously with machining thereof.



3,303,320
VAPOR-COATING APPARATUS

Paul Muller, Hanau am Main, Germany, assignor to W. C. Heraeus Gesellschaft mit beschrankter Haftung, Hanau am Main, Germany, a corporation of Germany
Continuation of application Ser. No. 307,954, Sept. 10, 1963. This application June 21, 1966, Ser. No. 562,066
Claims priority, application Germany, Sept. 25, 1962, H 46,998
8 Claims. (Cl. 219—121)

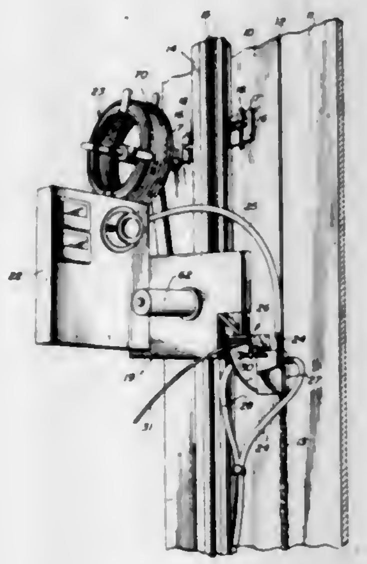


1. An apparatus for coating wide bands of materials by vapor deposition in a vacuum comprising a plurality of elongated transversely disposed electron guns and a like number of transversely disposed elongated crucibles, each of which is adapted to contain a certain material to be vaporized, said electron guns and said crucibles being alternately arranged in spaced relation to each other in a longitudinally extending row, means for producing a magnetic field comprising a pair of magnetic yoke means and a pair of elongated plates forming pole pieces, said plates being disposed in spaced opposed relation to each other one on each side of said longitudinally extending row and extending from end to end of said row, connecting means by which said plates are connected to said yokes, said plates and said connecting means being effective to produce a substantially uniform magnetic field between said plates throughout the length thereof, each of said electron guns being adapted to shoot a ribbon-like electron beam into one of said crucibles to heat and vaporize the material therein, the velocity of said electron beams, and the strength of said magnetic field being coordinated in such a manner that the electron beam of each gun is deflected so as to be directed into the next succeeding adjacent crucible in said longitudinally extending row of electron guns and crucibles.

3,303,321
POSITION CONTROL DEVICE FOR WELDING APPARATUS

Carl Herman Harmsen, Streamwood, and Karlton Alvin Krasin, Chicago, Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill., a corporation of Illinois

Filed Apr. 8, 1965, Ser. No. 446,541
8 Claims. (Cl. 219—126)



1. Apparatus for welding automatically which comprises:

an electric arc welding head having a torch electrode for depositing molten weld metal in a vertical joint to be welded;

transporting means for moving the welding head upwardly along a vertical joint to be welded as molten weld metal is deposited in the joint;

power means for propelling the transporting means;

a photo-electric cell positioned to receive, and be activated by, light of a predetermined intensity from the torch electrode and molten pool of metal as a vertical joint is being welded;

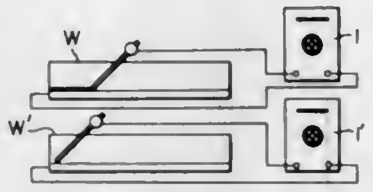
means carried by said transport means and operative to reduce the amount of light sensed by said photo-electric cell when the intensity of the light reaching the photo-electric cell from the torch electrode and molten pool at least increases to said predetermined value, said means being between the photo-electric cell and the torch electrode and molten pool of metal and admitting light of said predetermined intensity to the photo-electric cell when the torch electrode and molten pool of metal are at a first relative position in the joint and reducing the light admitted to the photo-electric cell when the torch electrode and molten pool of metal are at a second relative position; and

electric circuit means from the photo-electric cell to the power means (a) to supply activating electric power to the power means upon reception by the photo-electric cell of said light of a predetermined intensity received from the torch electrode and molten pool of metal when at said first relative position and (b) to curtail supplying electric power to the power means when the light reaching the photo-electric cell when the torch electrode and the molten pool are at the said second relative position is lowered to a predetermined reduced level of intensity, thereby providing controlled vertical movement of the welding head while welding continues without stopping.

3,303,322
HIGH-EFFICIENCY SEMI-AUTOMATIC CONTINUOUS ELECTRIC ARC WELDING

Yoshio Kimura and Yutaka Kasamatsu, Fujisawa, and Noriaki Kagawa, Kamakura, Japan, assignors to Kobe Steel Works, Ltd., Kobe, Japan

Filed Mar. 30, 1965, Ser. No. 443,885
Claims priority, application Japan, Apr. 2, 1964, 39/18,448
3 Claims. (Cl. 219—137)



1. A method of arc welding by means of a single generator having two terminals and a no-load voltage between said terminals substantially higher than the normal welding voltage thereof, which comprises:

(a) conductively connecting a plurality of conductive welding electrodes to one of said terminals;

(b) conductively connecting a plurality of conductive work pieces to the other terminal;

(c) contiguously interposing a body of arc-delay material between one of said electrodes and a corresponding work piece,

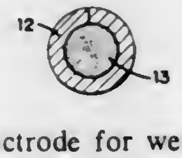
  (1) the breakdown voltage of said body being lower than said no-load voltage and higher than said normal welding voltage; and

(d) starting an electric arc between another one of said electrodes and an associated work piece, whereby welding current flows between said other electrode and said associated work piece.

3,303,323
WELDING ELECTRODES

Gerard E. Claussen, Troy, Ohio, assignor to Hobart Brothers Company, Troy, Ohio, a corporation of Ohio

Filed Aug. 26, 1965, Ser. No. 486,264
8 Claims. (Cl. 219—137)



1. A bare cored electrode for welding a 2.25% chromium-1% molybdenum alloy steel;

the electrode comprising a sheath formed from a strip of low carbon steel folded substantially in the shape of a tube and comprising approximately 81% of the total weight of the electrode;

and a core contained within said sheath, said core containing alloying and deoxidizing agents in the amounts corresponding to the following percentages by weight of the core:

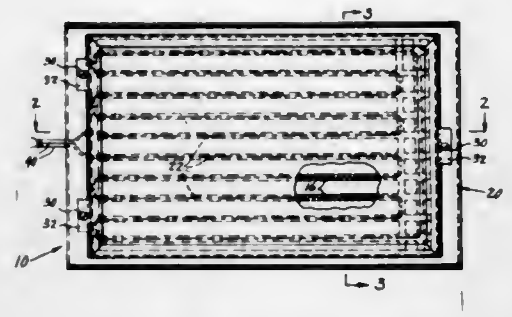
	Percent
Low carbon ferrochromium	10 to 45
Ferromolybdenum	5 to 17
Manganese	0 to 16
Ferrosilicon	0 to 23
Iron powder	0 to 85

3,303,324
HEATING UNIT

Leon Appleman, 225 E. 57th St., New York, N.Y. 10021

Filed Aug. 21, 1964, Ser. No. 391,231
8 Claims. (Cl. 219—345)

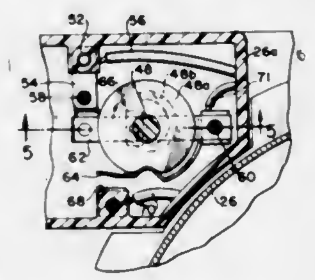
1. A heater unit comprising a quartz plate element, a backing member having two surfaces, one of said surfaces being in abutting relationship with said quartz plate element, continuous groove means defined in said one surface of said backing member in facing relationship to said quartz plate element, a coiled resistance wire having two ends disposed in said groove means closely pressed against said quartz plate element, the depth of said groove means being less than the diameter of the coils of said resistance wire and of a configuration providing space for limited transverse expansion of said coil whereby said coils are compressed by said quartz plate element, and a source of electrical power conductively connected to said ends of said resistance wire.



3,303,325
ELECTRIC HAIR DRYER HAVING COMBINED MOTOR SWITCH AND THERMOSTATIC HEATER SWITCH CONTROL MEANS

Frederick M. Hubrich, Farmington, Conn., assignor, by mesne assignments, to General Electric Company, Bridgeport, Conn., a corporation of New York

Filed Feb. 17, 1964, Ser. No. 345,192
2 Claims. (Cl. 219—364)



1. An electrically-powered blower for a hair dryer comprising:

(a) a casing defining a centrifugal blower chamber and having air inlets and an air discharge port;

(b) a rotatable blower wheel within said blower chamber;

(c) an electric drive motor within said casing connected to rotate said blower wheel;

(d) an electric heater positioned within said casing and adjacent said discharge port;

(e) a motor switch comprising a first stationary contact and a movable spring arm including a contact thereon;

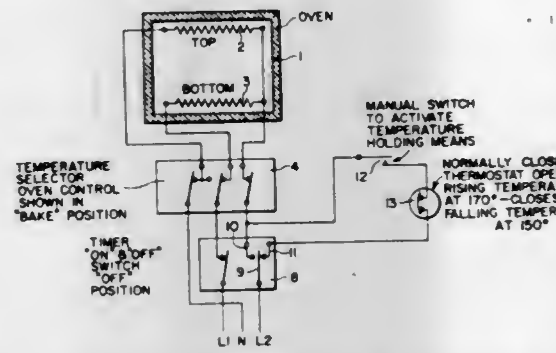
(f) a thermostatic heater switch adjacent said heater comprising a second stationary contact and a flexible bimetal arm including a contact thereon; and

(g) combined motor switch and thermostatic heater switch control means comprising a rotatable member including at one end thereof a disc portion having a spiral cam groove therein and having an outer peripheral cam surface engaging said spring arm, and an abutment member slidably mounted on said bimetal arm and including a portion received in said cam groove, such that selective rotation of said rotatable member moves said spring arm contact into and out of engagement with said first stationary contact and positions said abutment along said bimetal arm.

3,303,326
OVEN TEMPERATURE CONTROL

Calvin J. Holtkamp, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 20, 1964, Ser. No. 361,133
2 Claims. (Cl. 219—494)


OVEN
TOP
2
1
BOTTOM
3
MANUAL SWITCH TO ACTIVATE TEMPERATURE HOLDING MEANS
TEMPERATURE SELECTOR OVEN CONTROL SHOWN IN "BAKE" POSITION
4
12
NORMALLY CLOSED THERMOSTAT OPENS ON RISING TEMPERATURE AT 170°—CLOSES ON FALLING TEMPERATURE AT 150°
13
10
TIMER "ON & OFF" SWITCH "OFF" POSITION
11
9
8
L1 N L2

1. An oven temperature control arrangement for controlling the energization of a pair of electrical heating elements fed by a three-wire power source and adapted to control oven temperature in a high temperature, normal cooking operation range, and a lower temperature, holding operation range, comprising:

timer operated switch means including a first switch element having a cooking operation range position closing a first circuit from one side of said three-wire source to one side of both of said pair of heating elements, and a holding operation range position connecting said one side of said three-wire source to a holding circuit in turn connected to said one side of both of said pair of heating elements, a second switch element closing a second circuit to the other side of said three-wire power source from one of said pair of said heating elements in a cooking operation range position, and opening said second circuit in a holding operation range position,

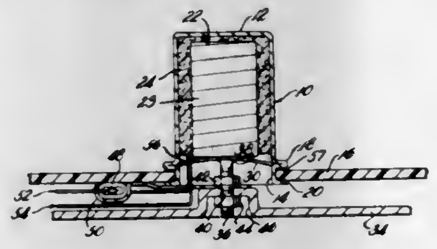
a third circuit including a normal cooking temperature control switch having a normally closed position at temperatures in said holding operation range, said third circuit switch connecting the other side of the other of said pair of heating elements to the neutral conductor of said three-wire power source,

said holding circuit including a normally closed thermostat arranged to open said holding circuit at any temperature above said holding temperature, said holding circuit further including a manual control switch for putting said holding circuit into and out of service.

3,303,327
ELECTRICAL HEATER HAVING A SNAP-IN BASE PLATE

Rudolph Himelsbaugh, North Royalty, Ohio, assignor to Thermal Engineering & Design Company, Akron, Ohio, a corporation of Ohio

Filed Apr. 10, 1964, Ser. No. 358,821
2 Claims. (Cl. 219—544)



1. In an electric heater, the combination of

a cylindrically shaped case having one closed end and an inner circumferentially extending groove formed in the case parallel to and adjacent but spaced from an open end of the case, a heating element including a carrier core positioned inside said case,

insulation means surrounding said heating element and its carrier core and holding them is proper relation to the case, and

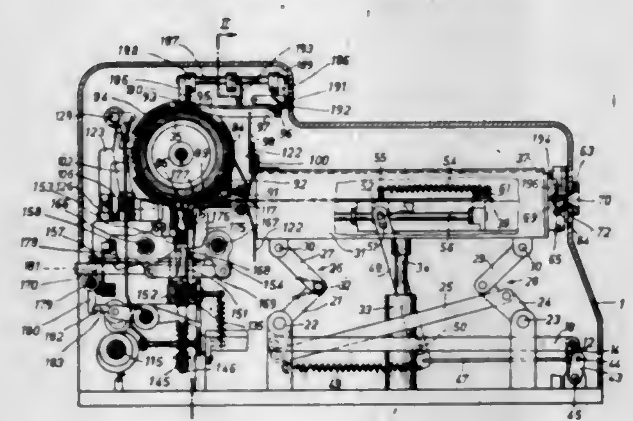
a resilient spring metal plate positioned inside said case with its outside circumferential and peripheral edge continuously engaged with said groove, said metal plate having a greater diameter than the minimum diameter of said groove and being of a convex shape on its inner surface and a concave shape on its outer surface, said metal plate being permanently positioned within said case and being positioned with respect to said heating element and said carrier core so that the metal plate cannot be forced inwardly in an amount sufficient to release the peripheral edges of the metal plate from the groove.

3,303,328
PUNCHED CARD RETRIEVAL AND SCANNING APPARATUS

Herbert Wenz, Kaiserslautern, Pfalz, Germany, assignor to G. M. Pfaff AG., Kaiserslautern, Pfalz, Germany, a corporation of Germany

Filed Nov. 16, 1962, Ser. No. 238,131

10 Claims. (Cl. 235—61.11)



1. Punched card retrieval and scanning apparatus comprising scanning mechanism, a magazine including multiple supporting means for storing therein a number of cards in spaced superposed relation for selective individual retrieval and delivery to said scanning mechanism along a fixed horizontal feeding plane parallel to the cards stored within said magazine, operating means to displace said magazine at right angle to said plane, to operate a selected card into a position coincident with said plane, for removal and delivery to said scanning mechanism, stationary ejecting means coincident with said plane for ejecting and feeding a selected card to said mechanism, automatic return means operably associated with said scanning mechanism, to return the cards after scanning to their respective storage positions within said magazine, supporting means for said magazine, a multiple-key operated profiled selector bar mechanism, each of the keys of said mechanism being coordinated with one of the cards stored in said magazine, and linkage means connecting said mechanism with said supporting means, said selector bar designed to selectively operate said magazine by said keys to a position of coincidence of the respective cards with said plane.

3,303,329
MARK SENSING SYSTEM

Rudolph J. Fritz, Binghamton, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 3, 1962, Ser. No. 241,820

14 Claims. (Cl. 235—61.11)

1. A mark sensing system for sensing preprinted timing marks and marks recorded in predesignated marking areas on a document and providing output indications corresponding to the presence and absence of said recorded marks in said predesignated marking areas comprising:

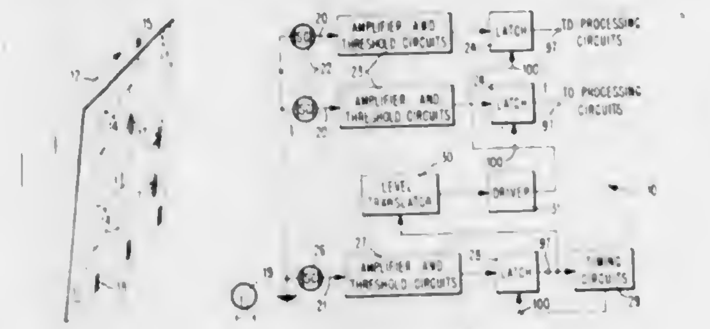
a timing channel and at least one reading channel;

said timing channel comprising a transducer means for sensing a preprinted timing mark and providing an electrical signal in response thereto;

means to differentiate said electrical signal to produce a first pulse of one polarity followed by a second pulse of the opposite polarity;

a first device settable by electrical signals to at least two stable states and providing output signals corresponding thereto;

means responsive to the total absolute magnitude of said first and second pulses for actuating said first device;



said reading channel comprising a transducer means for sensing a mark recorded in a predesignated marking area and providing an electrical signal in response thereto;

means to differentiate said electrical signal from said transducer means of said reading channel and providing a third pulse of one polarity followed by a fourth pulse of the opposite polarity;

a second device settable in response to electrical signals to at least two stable states and providing output signals corresponding thereto;

conditioning means associated with and conditioning said second device for actuating in response to actuation of said first device; and

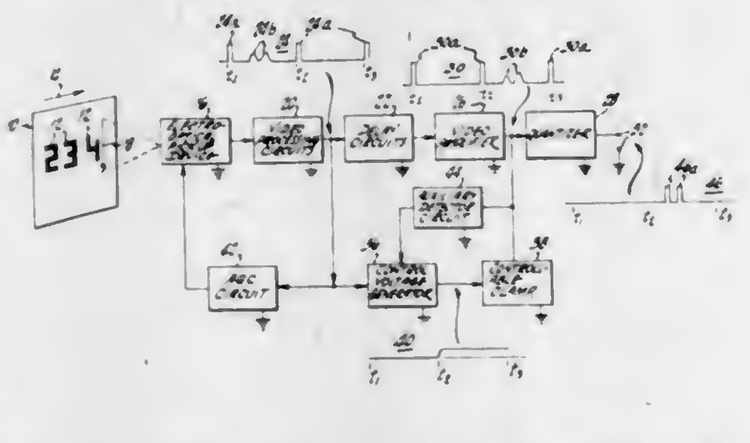
means responsive to said third pulse or said fourth pulse for actuating said second device when said second device is conditioned.

3,303,330
OPTICAL SCANNING SYSTEM FOR CHARACTER READER

Seymour Klein, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Filed Nov. 15, 1962, Ser. No. 237,949

14 Claims. (Cl. 235—61.11)



1. A system for generating a series of uniform amplitude pulse signals representing printed alpha-numeric characters on a document, comprising, in combination:

a source of first image signals in a series of scan lines representative of successive scans of the characters on said document, said signals being subject to variations in amplitude from scan line to scan line;

means for delaying said first image signals for a period equal to the period of said scan lines to generate delayed image signals;

control voltage generating means for generating a control voltage responsive to the maximum amplitude of said first image signals during a scan line;

circuit means responsive to said delayed image signals for generating uniform amplitude square pulses corresponding to said delayed image signals applied thereto and having a time duration equal to the time duration of said delayed image signals that exceed a triggering level on said signals; and

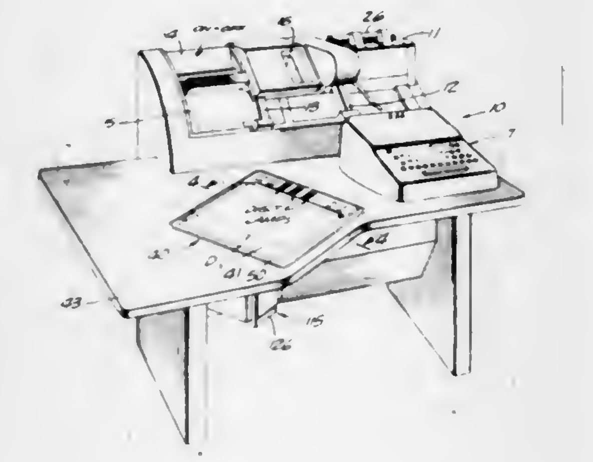
means responsive to said control voltage for varying said triggering level on said delayed image signals so that the uniform amplitude pulse signals generated by said circuit means have a duration equal to the duration of said delayed image signals at a fixed fraction of their maximum amplitude during each scan line despite variations in the maximum amplitude of said delayed image signals from scan line to scan line.

3,303,331
DATA SCANNING AND INDICATING APPARATUS

Donald R. Biegel, Granada Hills, and John W. Willis, Northridge, Calif., assignors to Tab Products Co., San Francisco, Calif., a corporation of California

Filed Sept. 11, 1962, Ser. No. 222,842

15 Claims. (Cl. 235—61.11)



1. Apparatus for scanning a document and visually indicating the location of data on such document distributed among a plurality of field locations on the document, each field location having a first co-ordinate corresponding to the distance of such field from one edge of the document and a second co-ordinate corresponding to the distance of such field from an adjacent edge of the document, said apparatus comprising:

a viewing station for supporting a document conveniently for viewing by an operator while operating a data recording machine and for holding such document in a predetermined position in relation to a coordinate system;

a movable lighting assembly movable relatively to said co-ordinate system to illuminate any field location of said document; and

control means for so moving said lighting assembly to illuminate a plurality of field locations in a predetermined sequence.

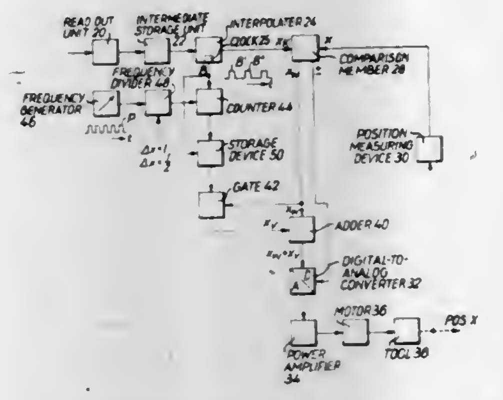
3,303,332
PROGRAM CONTROL SYSTEM

Elmar Götz, Frankfurt am Main-Gravenbruch, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

Filed Apr. 5, 1963, Ser. No. 270,953

Claims priority, application Germany, Apr. 5, 1962, L 41,662

10 Claims. (Cl. 235—151.11)



1. In an arrangement for controlling the position which a movable part occupies relative to a stationary part, the combination which comprises:

(a) means for supplying data representing nominal positions of said movable part;

(b) an interpolater connected to the output of said means (a) for calculating intermediate values;

(c) a clock associated with said interpolater for generating a train of clock pulses thereby to operate said interpolater;

(d) means for measuring the actual position of said movable part;

(e) comparison means connected to the output of said interpolater and to the output of said measuring means for producting a value representing the difference between the actual and nominal positions of said movable part;

(f) a counter connected to said clock and being controlled by the train of clock pulses produced thereby for counting down from a maximum value;

(g) means for obtaining the lowest value to which said counter counts down during the time interval between successive clock pulses;

(h) means for adding the output obtained from said comparison means and the output of said means recited in paragraph (g); and

(i) moving means connected and responsive to the output of said adding means for moving said movable part.

3,303,333
ERROR DETECTION AND CORRECTION SYSTEM FOR CONVOLUTIONAL CODES

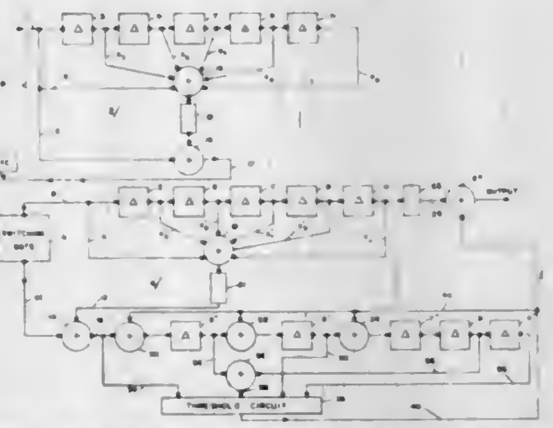
James Lee Massey, Watertown, Mass., assignor to Codex Corporation, Cambridge, Mass., a corporation of Delaware

Filed July 25, 1962, Ser. No. 212,312

23 Claims. (Cl. 235—153)

1. An apparatus for decoding an information signal from an encoded digital binary message, the message having been exposed to error conditions so that each signal in the message comprises in effect the modulo 2 sum of a message component, and an error component that is "0" when no error occurs and "1" when an error occurs, the message having been encoded by a binary convolutional code so that the message comprises information signals and related redundancy signals, the message component of each information signal comprising an information component, the message component of each redundancy signal comprising a redundancy component formed as the modulo 2 sum of selected information components, each information component being a term in a

multiplicity of such redundancy components, the apparatus comprising a modulo 2 adder subsolution means for forming by modulo 2 addition, a set of orthogonal subsolution signals for the information signal to be decoded, said set of orthogonal subsolution signals comprising more than two distinct binary signals in which each signal has as a term the same one of the components of said information signal being decoded, whereby each subsolution signal can indicate a solution for the value of said component, no more than one signal of said set having as a term the other component of said information signal being decoded, no more than one signal of said set having as a term the error component of any other message signal, and none of the signals of said set having as a term the message component of any other message signal; a threshold device, means to apply to said threshold device a multiplicity of threshold inputs each controlled by the value of one of said more than two subsolution signals, said threshold device comprising means to sum by ordinary addition said threshold inputs and to compare said sum of threshold inputs to a threshold value and means to generate a threshold output signal indicating the relationship of said sum of threshold inputs to said threshold value, said threshold value sized to be exceeded for at least one case when one of said more than two subsolution signals is different from the others.

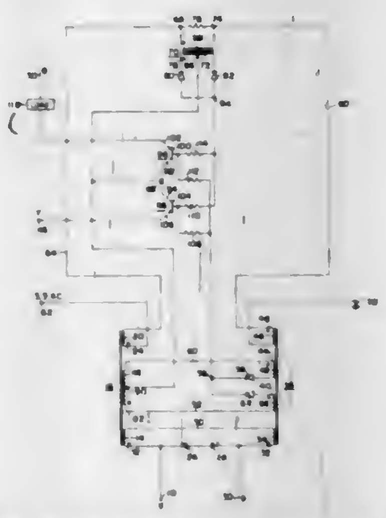


3,303,334
BIASING CONTROL USING SATURABLE MAGNETIC CORES

Gerald K. Bensing, New Brighton, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed Sept. 27, 1963, Ser. No. 312,031

10 Claims. (Cl. 235—156)



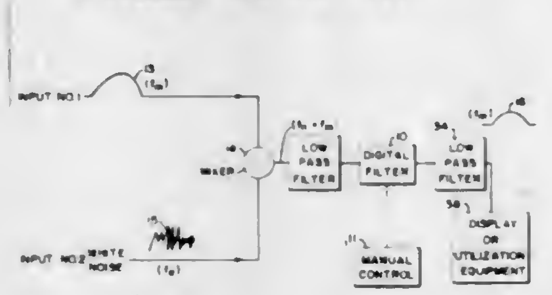
1. Multiplying apparatus comprising, in combination:
first and second saturable magnetic core means, each of said core means including a plurality of windings;
transformer means including primary and secondary winding means;
means connecting the ends of said primary winding of said transformer means between one end of a first winding on said first core means and one end of a first winding on said second core means;
means for supplying a high frequency power signal between the other ends of each of said first windings of said first and second core means;
first and second transistor means including base, emitter and collector means;
first rectifying means connected to said secondary winding means of said transformer means and connected to said first and second transistor means for supplying a unidirectional signal to turn said transistor means ON when saturation of said first and second core means occurs;
load means connected to said emitter means of said first transistor means for receiving a product signal therefrom;
multiplier signal supplying means connected to said emitter means of said second transistor means, the signal from said multiplier signal supplying means controlling the amplitude of the product signal being applied to said load means;
means for supplying a multiplicand signal connected to a second winding means of each of said first and second core means, the multiplicand signal altering the saturation characteristics of said first and second core means as a function of amplitude of said multiplicand signal; and
second rectifying means including winding means on at least one of said core means, said second rectifying means being connected to said first and second transistor means, and the second rectifying means biasing said first and second transistor means OFF until the occurrence of saturation of said first and second core means.

3,303,335
DIGITAL CORRELATION SYSTEM HAVING AN ADJUSTABLE IMPULSE GENERATOR

Cabell N. Pryor, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Apr. 25, 1963, Ser. No. 276,141

2 Claims. (Cl. 235—181)



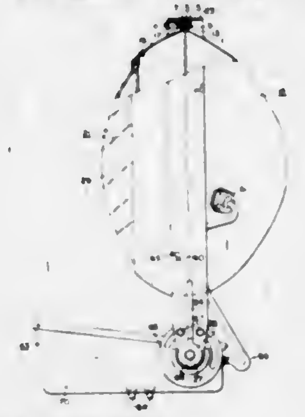
1. A digital filter having an adjustable impulse response for filtering an analog input signal supplied to said filter comprising:
conversion means for providing digital values of the analog input signal,
sampling means connected to said conversion means for sequentially enabling said conversion means at predetermined times,
digital storage means connected to said conversion means for receiving digital values of said input signal,
said digital storage means regeneratively shifting said digital values within said storage means at a predetermined time interval,
clock pulse generating means connected to said sampling means and said digital storage means for enabling said sampling means at a first predetermined time interval and said digital storage means at a second predetermined time interval,
digital impulse generator means for providing digital impulse response signals in a predetermined sequence, said generator means comprising adjustable digital switches for presetting the impulse response of said filter, commutating means connected to said digital switches for sequentially interrogating said digital switches, and pulse generating means connected to said commutating means for enabling said commutating means at said second predetermined interval,
multiplier means connected to said digital impulse generator means and said digital storage means for providing the products of said digitally stored and digitally generated signals,
converting means connected to said multiplier means for providing an analog signal from said products,
whereby said digital filter produces an output signal corresponding to the convolution integral of said analog input signal and said impulse response signal.

3,303,336
FLOODLIGHTING LUMINAIRE

Donald E. Husby, Fairview Park, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 21, 1964, Ser. No. 405,342

4 Claims. (Cl. 240—3)



1. A luminaire comprising:
(a) a band shaped member;
(b) a flange projecting around the inside surface of said band shaped member, said flange having a first surface and a second surface each generally radially disposed with respect to said member, and said first and second surfaces generally facing in opposite directions;
(c) a back closure means having a periphery and a concave reflecting surface, said back closure means attached to said band shaped member by a first hinging means proximate said back closure means periphery, said back closure means periphery engaging said first surface of said band shaped member when said back closure means is in the engaging position with respect to said band shaped member;
(d) a first latching means proximate the engagement between said back closure means periphery and said first surface of said band shaped member, and said first latching means urging contact therebetween;
(e) a front closure means having a periphery at least partially comprising a light transmitting substance, said front closure means attached proximate to said band shaped member by a second hinging means proximate said front closure means periphery, said front closure means periphery engaging said second surface of said band shaped member when said front closure means is in the engaging position with respect to said band shaped member;
(f) a second latching means proximate the engagement between said front closure means periphery and said second surface of said band shaped member, and said second latching means urging contact therebetween, said back closure means and said front closure means being interchangeable;
(g) a light source enclosing structure formed when said back closure means and said front closure means are in said engaging position with respect to said band shaped member, both said hinging means being operable independently of one another thereby providing access to the interior of said enclosing structure from the back and from the front independently; and
(h) a base means attached to said band shaped member for supporting said enclosing structure.

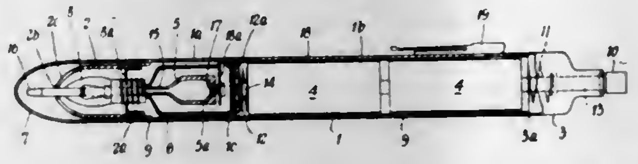
3,303,337
ILLUMINATED WRITING INSTRUMENTS

Kan Cheung Lo, 454 Portland St., 3rd Floor, Kowloon, Hong Kong

Filed June 8, 1964, Ser. No. 373,362

Claims priority, application Great Britain, July 2, 1963, 26,175/63

1 Claim. (Cl. 240—6.46)



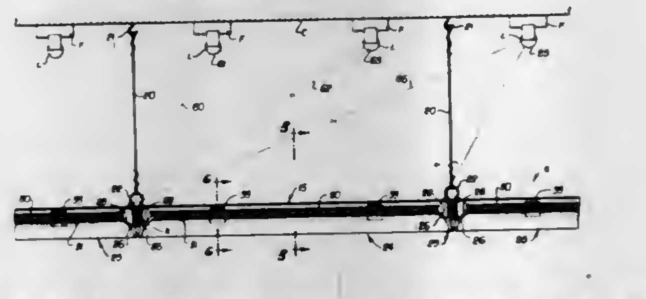
A combination writing implement and electric hand torch which includes a hollow cylindrical body adapted to receive an electrical power source and an ink reservoir; a nose cone removably attached to one end of said body, said nose cone defining a projection hole at the apex thereof; a centre hole electric light bulb located in and enclosed by said nose cone, the center hole of said bulb being in axial alignment with said projection hole; means electrically connecting said bulb with said power source through a switch device; an ink flow tube located within and slidable through the center hole in said bulb and slidable through said projection hole, said tube communicating between at one end, said ink reservoir and the end remote therefrom, a writing tip whereby ink can flow from said reservoir to said tip; control means operatively associated with said ink flow tube to slidably move said tube through said bulb to a position at which said tube projects through said projection hole and said tip is located externally of said nose cone, said tube being supported by said nose cone, and to slidably move said tube through said bulb from said projection position to a position in which said writing tip is located inside said nose cone at a position remote from said projection hole, said control means including an axially extending slidable lever located in said body, one end of said lever connecting said ink reservoir and the other end of said lever connecting through an axially extending elongated slot defined in a side of said body with a hand control knob, said hand control knob being slidably located on the exterior of said cylindrical body.

3,303,338
LIGHT DIFFUSER SYSTEM

William A. Lyon. Venice, Calif., assignor to Integrated Ceilings Inc., Los Angeles, Calif., a corporation of California

Filed Oct. 20, 1964, Ser. No. 405,218

7 Claims. (Cl. 240—9)

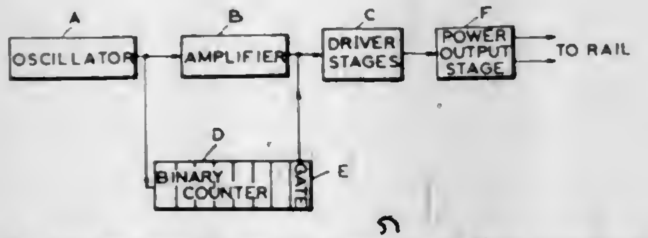


1. In a light diffuser system: a horizontal supporting frame adapted to be carried by and disposed below a ceiling structure on which a light source is mounted, said frame also being disposed below the light source, said

frame comprising longitudinal members and cross-members extending between said longitudinal members and defining openings therewith, each member including a vertical flange and a horizontal flange solely at the upper end of said vertical flange; light diffusing devices for said openings, each device including a diffuser; and means mounting said devices on said members with said diffusers lying in a horizontal plane substantially above the lower half of said vertical flanges and adjacent to the horizontal plane of said horizontal flanges, said frame being of such shape and form that substantially no shadow of the horizontal supporting frame is cast on the diffuser members by the light source.

3,303,339
AUTOMATIC ELECTRIC TRAIN CONTROL SYSTEM AND APPARATUS

Robert Dell, Sudbury, England, assignor to Westinghouse Brake and Signal Company Limited, London, England
Filed Apr. 17, 1964, Ser. No. 360,726
15 Claims. (Cl. 246—63)

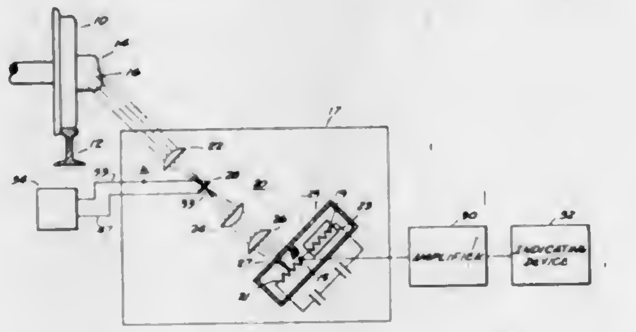


1. An automatic electric train operation system wherein command current signals are provided for the control of the running and breaking of trains, the signals each having a frequency determined by a control function to be performed thereby and being selectively applied to lengths of rail at predetermined points along the track, coil means carried by the train and responsive to signals applied to the track, a multi-stage track signal counter arranged to count a predetermined number of the signals picked up by said coil means, a multi-stage train speed counter arranged to be supplied with and to count signals having a frequency proportional to the speed of the train, the counts in the track signal counter and the train speed counter being initiated in response to the receipt of a command signal from the track, and terminated when the track signal counter receives said predetermined number of signals from the track, and means for producing a signal indicative of the content of the train speed counter and thus of the speed of the train such that a brake application or release may be made according to whether the speed of the train is in excess of or below a predetermined allowable value.

3,303,340
OPTICAL ARRANGEMENT IN HOT BOX DETECTION APPARATUS

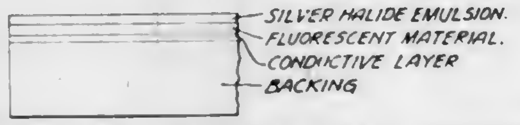
Major W. Hewett, Charlotte, N.C., and Lawrence L. Meyer, Houston, Tex., assignors to General Electric Company, a corporation of New York
Filed Oct. 25, 1963, Ser. No. 319.006
3 Claims. (Cl. 246—169)

3. Improved overheated railroad journal box detection apparatus of the type having an infrared sensitive element mounted near the ground adjacent a railroad track and aimed to receive radiation from journal boxes passing above, said apparatus comprising an optical arrangement disposed such that its optical axis intercepts the journal boxes on a moving railroad vehicle for focusing said radiation onto said infrared sensitive element, said optical arrangement including a plurality of lenses substantially transparent to infrared radiation and opaque to other radiation and a high speed shutter, said shutter being disposed at the focal point of the first of said lenses so that shutter travel between a first position, wherein the radiation from a journal box is permitted to be focused on said infrared sensitive element by said optical arrangement, and a second position, wherein all radiation except that emanating from said shutter is prevented from reaching said infrared sensitive element, is a minimum, said optical arrangement including said first lens to receive the substantially parallel rays emitted from a journal box and to focus them at its focal point, a second lens to receive the diverging radiation from said focal point and to convert it back to parallel rays, and a third lens to receive the rays from said second lens and to focus them on said infrared sensitive element, said second and third lenses forming a parallel array between said shutter and said infrared sensitive element to physically and therefore thermally remove said shutter from said infrared sensitive element, the arrangement of said lenses insuring that the attenuation of the radiation from a journal box caused by the lenses exceeds the attenuation of the radiation from said shutter by the amount of the attenuation attributed to said first lens.



3,303,341
METHOD AND CONSTRUCTION FOR RECORDING AND RETRIEVING INFORMATION WITH AN ELECTRON BEAM

Paul Fram, Lincoln Township, Washington County, and Edward W. Reed, Jr., St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed May 25, 1964, Ser. No. 369,906
15 Claims. (Cl. 250—65)



15. A process for information storage comprising the steps of:

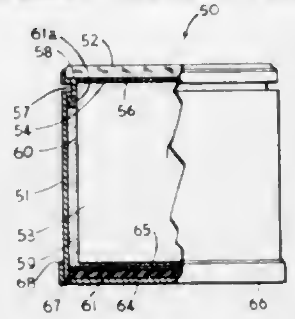
(a) differentially irradiating a surface of a sheet-like storage medium initially capable of emitting photons uniformly from a surface thereof in response to uniform electron excitation of a surface thereof, and initially capable of chemically and internally altering its ability to radiate photon energy from one surface thereof upon exposure of that surface to said differential irradiation, thereby creating a latent image-wise pattern in said irradiated surface, said medium comprising a discrete undeveloped silver halide layer of a multi-layer construction including in addition a fluorescent layer and a conductive layer;

(b) subjecting the so-irradiated surface to development so as to create an image-wise pattern of silver deposits within said medium adjacent the so-irradiated surface thereof; and

(c) subsequently exposing a surface of the resulting storage medium to uniform electron excitation so as to cause one surface of the so-developed storage medium to produce photon emission differentially in a manner representative of said initial differential irradiation.

3,303,342
CALCIUM IODIDE PHOSPHORS

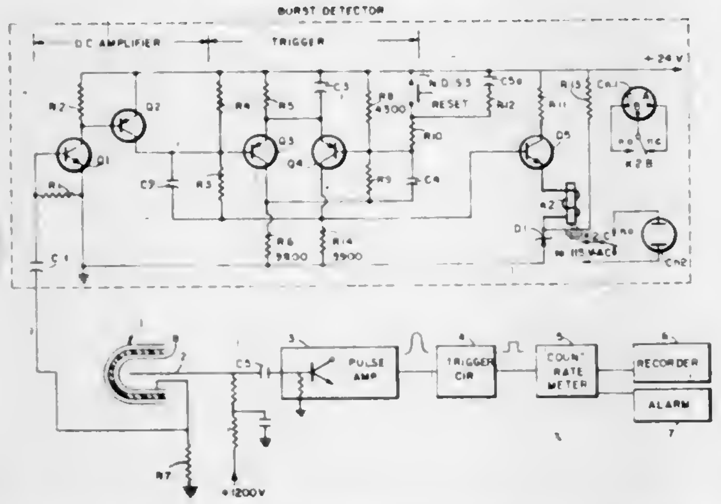
Earl Wayne O'Dell, Cleveland Heights, Ohio, Gunther H. Dierssen, White Bear Lake, Minn., and Robert Hofstadter, Stanford, Calif., assignors to The Harshaw Chemical Company, Cleveland, Ohio, a corporation of Ohio
Filed Oct. 16, 1963, Ser. No. 316,665
4 Claims. (Cl. 250—71.5)



3. In combination, a sealed container providing a substantially anhydrous zone and a scintillator in said zone, said scintillator comprising a transparent optically integral crystalline material consisting of substantially pure calcium iodide free from added activators.

3,303,343
NEUTRON MONITOR AND BURST DETECTOR

Floyd M. Glass, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 28, 1964, Ser. No. 385,812
2 Claims. (Cl. 250—83.1)

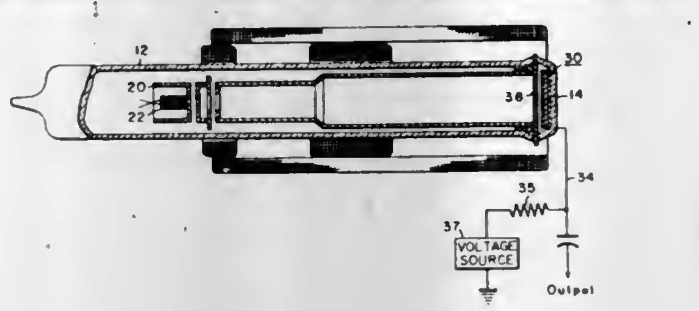


1. A system for detecting neutron flux comprising a proportional counter responsive to neutrons for producing signals, a circuit directly coupled to the anode of said counter responsive to neutron flux to record dose rate and slow changes therein, a second circuit responsive to neutron burst and signals having a fast rise time, and means for coupling said last named circuit to the cathode of said counter, said coupling means including a differentiating network with a differentiating time constant in the range 200 to 280 μsec., coupled to the cathode of the counter to act as a high pass filter and pass only signals with a fast rise time to said second circuit.

3,303,344
PHOTOCONDUCTIVE TARGET ELECTRODE FOR A PICKUP TUBE AND ITS METHOD OF FABRICATION

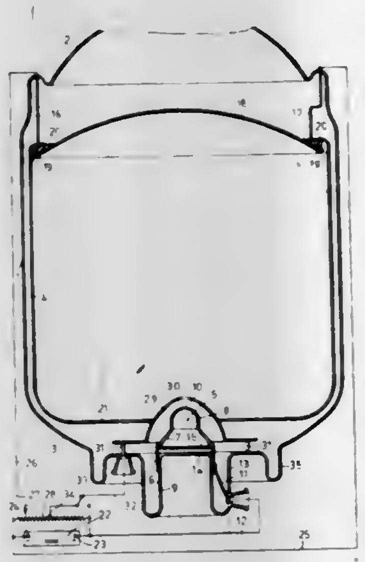
Robert A. Simms, Stamford, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 16, 1963, Ser. No. 295,450
5 Claims. (Cl. 250—211)

1. A photoconductive target electrode for a pickup tube, said target electrode comprising a transparent electrically conductive film, a thin film of amorphous selenium doped with .01 to 1 percent by weight of antimony deposited on one surface of said conductive film and an antimony trisulfide coating on said film of amorphous selenium.



3,303,345
IMAGE AMPLIFIER WITH MAGNIFICATION GRID

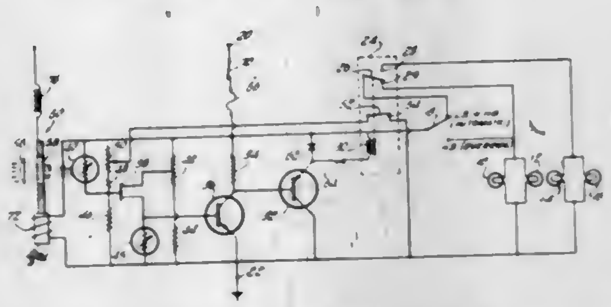
Christiaan Jacobus Gerardus Hubertus Wulms, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 21, 1963, Ser. No. 325,297
Claims priority, application Netherlands, Dec. 20, 1962, 286,999
3 Claims. (Cl. 250—213)



1. An electron-optical image amplifier comprising an envelope, a concave spherical photocathode for producing an electron image corresponding to an optical image, a thimble-shaped anode within said envelope spaced from said photocathode, said thimble-shaped anode having an aperture therein for the passage of electrons emanating from the photocathode resulting from light incident thereon, a fluorescent screen positioned to receive electrons passing through the aperture in the anode for converting the electron image into a visible image, a conductive wall surrounding the space between the photocathode and the anode, means to apply potentials to said photocathode, anode and conductive wall whereby electrons produced by the photocathode are focussed at the fluorescent screen, an electrostatic screen positioned between and closer to the anode than the photocathode, said electrostatic screen having an aperture therein the center of which lies on an optical axis extending between said photocathode and said fluorescent screen, said electrostatic screen being coincident with an equipotential plane determined by the potential distribution between the photocathode and the anode, said screen having a shape corresponding to that of said equipotential plane, and means to apply a potential to said electrostatic screen equal to the anode potential whereby a magnified image is produced on the fluorescent screen in which each portion corresponds to a portion of the image on the photocathode.

3,303,346
HEADLIGHT DIMMER USING FIELD EFFECT TRANSISTOR

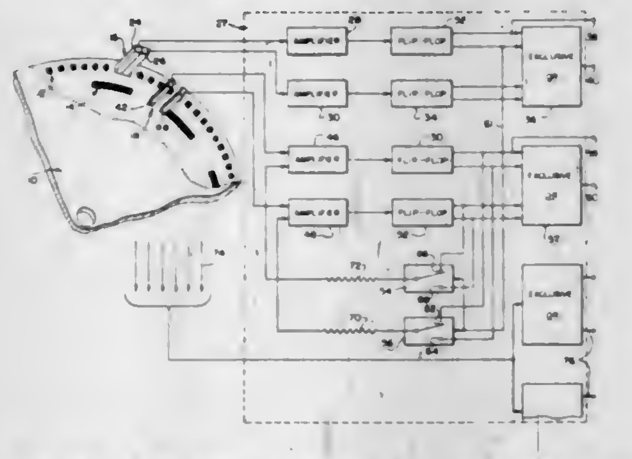
Carl E. Atkins, Montclair, and Robert L. Ziolkowski, South Plainfield, N.J., assignors to Tung-Sol Electric Inc., a corporation of Delaware
Filed Feb. 21, 1964, Ser. No. 346,527
5 Claims. (Cl. 250—214)



1. A control circuit for the headlamps of an automobile powered directly from the car carried battery and which will automatically dim the high beams at the approach of oncoming motor vehicles and will automatically return the high beams when oncoming motor vehicles pass comprising a photosensitive resistive element positioned in the automobile so that light from the headlamps of oncoming motor vehicles will strike the photosensitive resistive element and decrease its resistance, an amplifying means having an input stage with a field effect transistor and an output terminal at which the magnitude of current flow will vary with changes in the magnitude of current flow through the field effect transistor, biasing means including said photosensitive resistive element connected to the field effect transistor so as to vary the magnitude of current flow at the output terminals of the amplifying means as motor vehicles approach and pass, and an electromagnetic relay having armature means connected to the battery of the automobile, first contact means connected to the low beam filaments of the headlamps of the automobile, second contact means connected to the high beam filaments of the headlamps of the automobile and an electromagnetic coil connected to the output terminals of the amplifying means so that the relay can be energized and deenergized by the changes in current flow at the output terminals of said amplifying means to position the armature means either against the first contact means or against the second contact means.

3,303,347
PLURAL TRACK SHAFT ANGLE ENCODING SYSTEM USING EXCLUSIVE OR LOGIC

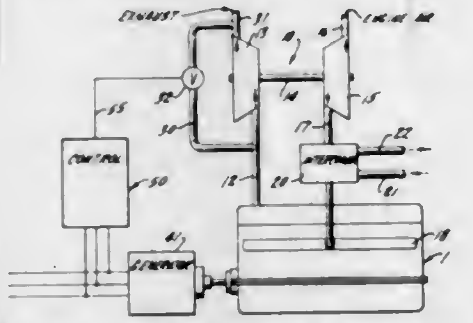
Sidney A. Wingate, Concord, Mass., assignor to Wayne-George Corporation, Newton, Mass., a corporation of Massachusetts
Filed Oct. 30, 1963, Ser. No. 320,215
12 Claims. (Cl. 250—220)



1. An encoding system comprising code means in the form of an array including first track means and second track means, sensing means in the form of an array including first photocell means and second photocell means, said code means and said sensing means being constrained for relative movement with said first track means and said first photocell means in registration and said second track means and said second photocell means in registration, illumination means for directing radiation to said track means, each of said track means having first regions and second regions for differently associating said radiation with said photocell means registered therewith, said first photocell means generating a first plurality of predeterminedly different signals representing relative positions of said code means and said sensing means, said second photocell means generating a second plurality of predeterminedly different signals representing relative positions of said code means and said sensing means, first logic means for representing said first plurality of predeterminedly different signals as a first plurality of digits, second logic means for representing said second plurality of predeterminedly different signals as a second plurality of digits, and carry-over means for controlling said second plurality of signals in response to said first plurality of signals, said logic means performing Exclusive-OR operations.

3,303,348
ENGINE AIR-FUEL RATIO CONTROL IN RESPONSE TO GENERATOR OUTPUT

Charles G. Cox, Piedmont, Calif., and Sandor Vargyai, Milwaukee, Wis., assignors to Nordberg Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 11, 1964, Ser. No. 388,787
6 Claims. (Cl. 290—40)

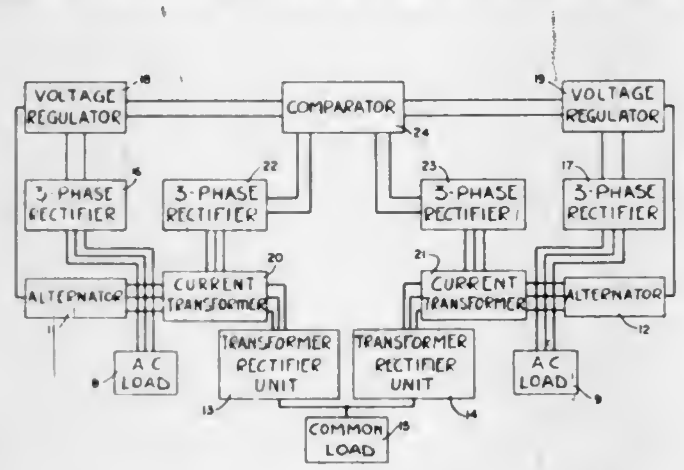


1. In a combustion engine driving a generator, a supercharger connected to supply inlet air to the engine, means for sensing the actual density of the air supplied to the engine, means for measuring the kilowatt output from the generator to thereby indicate the actual load on the engine, means for generating a signal from the generator output so that the resulting signal is indicative of the desired inlet air density at each and every load in accordance with the previously established most efficient operation of the engine at each and every load, means for comparing the thus sensed actual air density to the thus sensed desired air density, and means for altering the operation of the supercharger to change the actual inlet air density to the desired inlet air density if the actual air density differs from the desired air density to thereby provide an air-fuel ratio mixture at each and every load on the engine which is matched to the previous determined most efficient operation of the engine.

3,303,349
CIRCUITS EMPLOYING ALTERNATORS

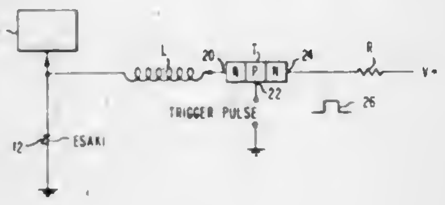
Walter Sinclair, Hemel Hempstead, and Walter Philipp, Ealing, London, England, assignors to Rotax Limited, London, England
Filed Mar. 20, 1963, Ser. No. 266,655
Claims priority, application Great Britain, Mar. 20, 1962, 10,587/62
2 Claims. (Cl. 307—58)

1. An alternating current system comprising in combination a first alternator having a field coil, a first alternating current load connected to said alternator, a voltage regulator connected to said alternator, said voltage regulator being sensitive to the output voltage of said alternator and varying the current flowing in the field coil of said alternator in a manner to maintain the output voltage of said alternator substantially constant, a second alternator having a field coil, a second alternating current load connected to said second alternator, a second voltage regulator connected to said second alternator, said second voltage regulator being sensitive to the output voltage of said second alternator and varying the current flow to the field coil of said second alternator so as to maintain the output voltage of said second alternator substantially constant, first and second transformer-rectifier units connected to said first and second alternators respectively, a common direct current load fed by said first and second transformer-rectifier units, means detecting the input currents to said first and second transformer-rectifier units thereby enabling the supplying of said alternating current loads and said common direct current load, a comparison circuit connected between said means and said voltage regulators, said comparison circuit detecting any difference between the input currents to said transformer-rectifier units and varying the setting of one of said voltage regulators in a manner to decrease said difference, and means in said comparison circuit limiting the amount by which the setting of said one voltage regulator can be varied



3,303,350
SEMICONDUCTOR SWITCHING CIRCUITS

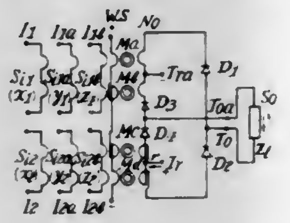
Gordon W. Neff, Mahopac, and Hannon S. Yourke, Peekskill, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 21, 1959, Ser. No. 860,947
17 Claims. (Cl. 307—88.5)



1. A circuit comprising, a tunnel diode exhibiting a current driven negative resistance current-potential characteristic, an inductor element, a semiconductor element exhibiting a non-linear impedance characteristic having an emitter, base and collector electrodes, means connecting said elements in parallel with said diode, and means for energizing the base electrode of said semiconductor to controllably alter the impedance of said semiconductor.

3,303,351
LOGICAL CIRCUIT USING MAGNETIC CORES

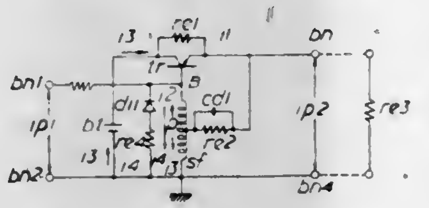
Shintaro Oshima, Musashino-shi, Tokyo-to, Hajime Enomoto, Sugano-machi, Ichikawa-shi, Chiba-ken, Seiichi Inoue, Musashino-shi, Tokyo-to, and Yasuo Koseki, Chofu-shi, Tokyo-to, Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan, a joint-stock company of Japan
Filed Aug. 1, 1961, Ser. No. 128,530
Claims priority, application Japan, Aug. 3, 1960, 35/33,460, 35/33,462, 35/33,464
4 Claims. (Cl. 307—88)



1. A logical element comprising, four magnetic cores each having a substantially rectangular hysteresis characteristic, exciting means comprising at least one winding having four series-connected exciting coils wound on said cores for applying thereto a resetting pulse current and a writing-bias current in opposite directions with respect to each of the cores, input means comprising four separate windings each having one coil wound separately on a respective one of said four cores for applying respectively independently four input signals to said cores, an output bridge circuit comprising four arms each of which is composed of an output coil wound on respective ones of the cores and a rectifying element which is connected in series therewith, reading-out terminal means provided at one pair of opposite corners of said bridge circuit for applying a reading-out pulse current to said cores, the exciting coils and the output coils coupling the cores paired in groups and coupling one of the cores of a pair in one sense and the other core of a pair in another in an opposite sense, whereby a pulse current having an odd number of possible states is derived as an output from said reading-out terminal means at opposite corners of said output bridge circuit other than the first mentioned opposite corners.

3,303,352
BLOCKING OSCILLATOR WITH TURN-OFF EFFECTED BY MAGNETIZING CURRENT IN A SELF-INDUCTANCE COIL

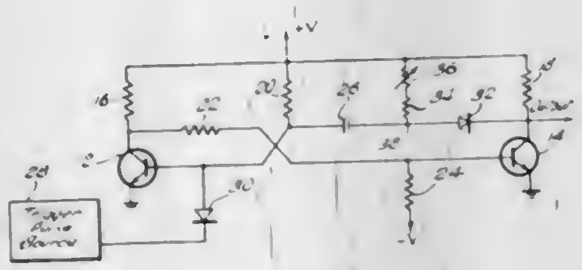
André Mingaud, Ivry, France, assignor to International Standard Electric, New York, N.Y., a corporation of Delaware
Filed Feb. 8, 1963, Ser. No. 257,163
Claims priority, application France, Feb. 23, 1962, 888,966
5 Claims. (Cl. 307—88.5)



1. A blocking oscillator of the triggered type for generating an impulse of a predetermined amplitude and duration upon actuation by a starting impulse including:
a transistor;
means to block said transistor including a voltage divider comprising a first resistor coupled between the collector and emitter of said transistor and a second resistor coupled between said emitter and the base circuit of said transistor;
input circuit means for applying a starting impulse to

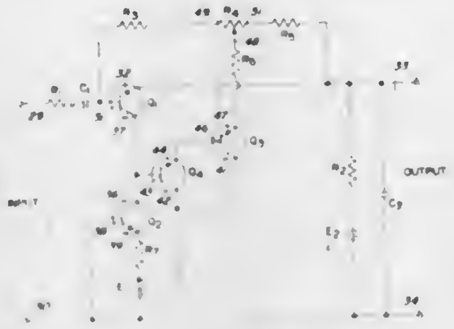
said base of said transistor to unblock said transistor;
a positive feed-back circuit coupling the emitter output current of said transistor to said base to rapidly effect saturation current flow in said transistor including said second resistor;
a self-inductance winding; and
means coupling said winding to said input and at least part of said winding to said feed-back circuit, to generate in said winding linearly increasing current upon the commencement of said saturation current flow, and opposed to said fed-back emitter output current to cause said transistor to become blocked again upon the resultant of said fed-back emitter output current and said linearly increasing current in said part of said winding falling below a predetermined threshold.

3,303,353
MONOSTABLE MULTIVIBRATOR HAVING FAST RECOVERY
Robert James Sacha, Williamsville, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 14, 1963, Ser. No. 265,298
1 Claim. (Cl. 307—88.5)



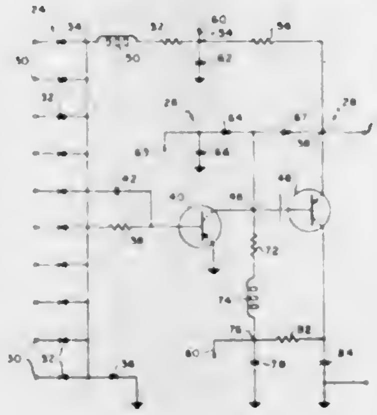
A monostable multivibrator consisting of:
a pair of transistors having their emitters connected in common for connection to the negative terminal of a direct current source of collector-emitter voltage,
a pair of collector resistors connected in common at one of their ends for connection to the positive terminal of the source of collector-emitter voltage, and to the respective collectors at their other ends,
a base resistor connected at one end to the base of one transistor and at the other end to the common connection of the pair of collector resistors,
a resistor connected between the collector of said one transistor and the base of the other transistor,
a diode connected at its cathode end to the collector of the other transistor,
a variable resistance connected between the anode of the diode and the common connection of the collector resistors,
a capacitor connected between the anode of said diode and the base of said one transistor,
a bias resistor connected at one end to the base of the other transistor, for connection at its other end to a source of negative bias to normally cut off said other transistor, and
a diode connected at its anode end to the base of said one transistor and for connection at its cathode end to a source of negative trigger pulses for cutting off said one resistor,
whereby a pluse having a sharp trailing edge and having its leading edge coincident with the leading edge of the corresponding negative trigger pulse is provided at the collector of said other transistor.

3,303,354
TEMPERATURE STABLE LOW FREQUENCY FILTER WITHOUT INDUCTANCE
Richard Walter Carroll, Marion, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Dec. 16, 1963, Ser. No. 330,802
7 Claims. (Cl. 307—88.5)



1. A filter network for use with a two line system comprising: a first and a second passive resistive capacitive filter, a negative impedance converter connected between said first and second resistive capacitive filters, said negative impedance converter comprising a first amplifier means connected in one of said lines; a second amplifier means connected between the other of said lines and said first amplifier means at a junction point, and a third amplifier means connected between said junction point and said other line.

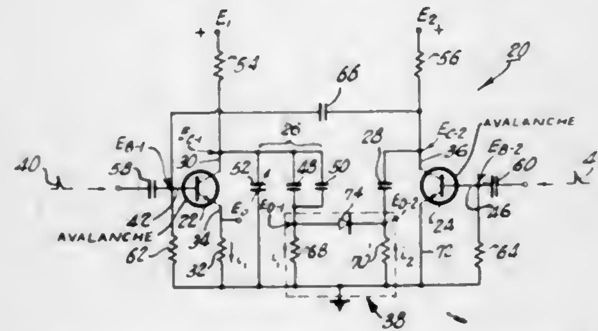
3,303,355
OR-INVERTER
John A. Kolling, St. Paul, Minn., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed June 27, 1963, Ser. No. 291,213
13 Claims. (Cl. 307—88.5)



1. A high speed saturating OR-inverter circuit comprising:
an OR-gate network;
an inverter network connected to said OR-gate network; and
an output network connected to said inverter network;
said OR-gate network comprising:
a plurality of switching devices each having a first and a second terminal;
said first terminals being connected to transmission lines carrying logic voltage pulses;
said switching devices being connected in common at their respective second terminals at a junction point;
said inverter network comprising:
a switching device having first, second and third electrodes;
said first electrode being connected to said junction point through a first energy-storing network;
said third electrode being connected thru a two terminal switching device to a source of voltage potential;

said output network comprising:
an amplifying device having first, second and third electrodes;
said third electrode of said switching device being connected to said first electrode of said amplifying device;
a second energy-storing network connected between said junction point and a source of voltage potential; the second electrode of said amplifying device being connected to said voltage potential source; and
an output taken from the second and third electrodes of said amplifying device.

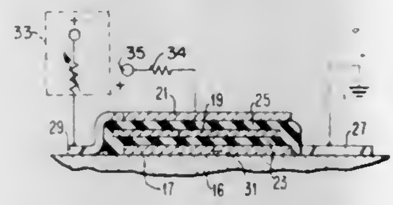
3,303,356
SHARP RISE AND FALL TIME PULSE GENERATOR EMPLOYING TWO SEQUENTIALLY GATED AVALANCHE TRANSISTORS
Brian H. Bell, Bethel, Conn., assignor to National Semiconductor Corporation, Danbury, Conn.
Filed Jan. 17, 1964, Ser. No. 338,498
7 Claims. (Cl. 307—88.5)



1. In a generator for developing a pulsating electrical output signal, first semiconductor circuit means including at least one S-negative resistance semiconductor circuit element for initiating each pulse of said pulsating output signal, and second semiconductor circuit means connected to said first semiconductor circuit means and including at least one other S-negative resistance semiconductor circuit element for terminating a pulse of said pulsating output signal, each of said S-negative semiconductor circuit elements being capable of being switched into conduction by means of an electrical gating pulse, each of said initiating and terminating circuit means including an electrical charge storage device and an impedance element, said storage device being connected so as to discharge through said S-negative circuit element and said impedance element when said S-negative element is switched into conduction, and means for interconnecting said initiating and terminating circuit means, developing an electrical signal in response to the switching into conduction of said other S-negative circuit element in said terminating circuit means, and applying said developed signal to said initiating circuit means so as to switch said one S-negative circuit element into a non-conducting state and substantially terminate a pulse of said output signal, the discharge time-constant of the electrical charge storage device and impedance element forming a part of said second semiconductor circuit means being substantially lower than the discharged time-constant of the electrical charge storage device and impedance element forming a part of said first semiconductor circuit means.

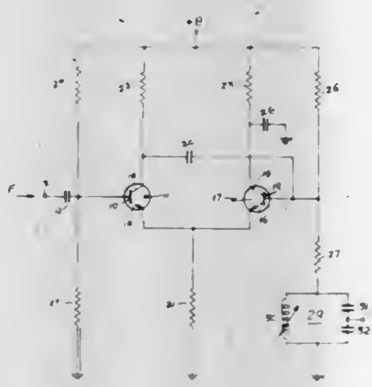
3,303,357
POLYMERIC FILM FIELD-SENSITIVE DEVICES
Peter White, Harlow, Essex, England, assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Jan. 24, 1964, Ser. No. 340,067
10 Claims. (Cl. 307—88.5)

1. An electrical circuit component comprising first and second planar metallic electrodes, a thin polymeric film prepared from ethylenically unsaturated monomers formed over said first metallic electrode and sandwiched between said first and second electrodes, said thin polymeric film exhibiting a total potential energy barrier to preclude substantial electron conduction therethrough and between said first and said second electrodes in the absence of electrical fields in excess of a critical magnitude in response to which electron conduction increases substantially exponentially, first means for applying a first potential across said first and said second electrodes such as to subject said thin polymeric film to electrical fields



of at least said critical magnitude, and a third planar metallic electrode formed over said thin polymeric film in the plane of said second electrode and insulated from said first and said second metallic electrodes and in electrical field-applying relationship with said thin polymeric film, second means for applying a varying potential across said first and said third electrodes, electrical fields generated by said second means being superimposed on said electrical fields of at least said critical magnitude so as to modulate electron conduction through said thin polymeric film and between said first and second electrodes.

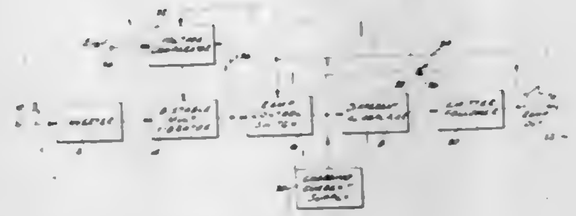
3,303,358
TRANSISTOR LOCKED FREQUENCY DIVIDER CIRCUIT
Robert Krausz, Stamford, Conn., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 12, 1964, Ser. No. 351,572
1 Claim. (Cl. 307—88.5)



In a transistor frequency divider responsive to an input synchronizing signal of a particular frequency for generating an output signal of a subharmonic frequency thereof and having a dual transistor, emitter coupled multivibrator wherein the output thereof is derived across a resistor disposed between the base of one transistor and ground, that improvement which comprises:
(a) a filter having an inductance in parallel with a pair of capacitors and said output derived across one of said capacitors, said filter being interposed between said resistor and said ground,
(b) said filter including means to tune to said subharmonic of said particular frequency and having a Q approximately equal to the ratio of said particular and said subharmonic frequency.

3,303,359
LINEAR RAMP GENERATOR

George S. Des Brisay, Jr., Manhattan Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed July 31, 1964, Ser. No. 386,515
12 Claims. (Cl. 307—88.5)



1. A ramp generator comprising:

differential amplifier means having an input terminal and an output terminal;

signal processing means having a voltage gain of essentially unity and having an input terminal and an output terminal, the input terminal of said signal processing means being coupled to the output terminal of said differential amplifier means;

a capacitor having a first electrode coupled to the input terminal of said differential amplifier means and having a second electrode coupled to the output terminal of said signal processing means;

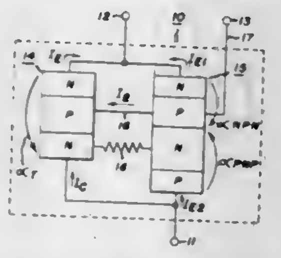
current supply means coupled to said first electrode of said capacitor for providing an essentially constant current;

switching means coupled to said first and said second electrodes of said capacitor for maintaining an essentially constant charge on said capacitor in the absence of a control signal, and in response to a control signal for allowing said current supply means to charge said capacitor linearly at a predetermined rate whereby a ramp voltage is provided at the output terminal of said signal processing means, and upon termination of said control signal for discharging said capacitor at a rate substantially faster than said predetermined rate whereby said ramp voltage is terminated; and

means for generating said control signal and applying it to said switching means.

3,303,360
SEMICONDUCTOR SWITCH

Finis E. Gentry, Skaneateles, N.Y., assignor to General Electric Company, a corporation of New York
Original application Sept. 3, 1963, Ser. No. 306,147, now Patent No. 3,265,909. Divided and this application Jan. 21, 1966, Ser. No. 522,141
3 Claims. (Cl. 307—88.5)

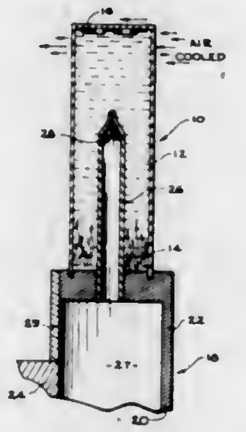


1. A semiconductor switching device adapted to be connected in a main current conducting path and switched between high and low impedance modes including in combination

- (A) three terminals including
  - (a) a pair of main terminals adapted to be connected in a main current carrying path
  - (b) a gating terminal for switching the semiconductor switching device between its high and low impedance states,
- (B) monocrystalline semiconductor switching means including
  - (a) a pair of semiconductor pellets
    - (1) one of said semiconductor pellets having three layers with alternate layers of opposite conductivity type thereby forming a transistor with two outer layers of one conductivity type separated by a base region of opposite conductivity type, and
    - (2) the other one of said semiconductor pellets consisting of four layers with alternate layers of opposite conductivity type forming a four layer semiconductor switch of the gate turn off type,
    - (3) said transistor having its two outer layers electrically connected between said pair of main terminals so that its three layers are in the main current conducting path of the switching device and
    - (4) each of its three layers is electrically connected to three consecutive layers of said gate turn off device in such a manner that connected layers are of like conductivity whereby current to the base of said transistor is supplied by said gate turn off device
    - (5) the layer of said gate turn off device which is electrically connected to the base layer of said transistor being electrically connected to said gating terminal whereby said gate turn off device can be rendered selectively conductive and non-conductive respectively in response to signals at said gate thereby to render said transistor selectively conductive and non-conductive respectively and thus cause the switching device selectively to present a low and high impedance respectively in the main current conducting path.

3,303,361
CRITICAL POINT TEMPERATURE CONTROL METHOD AND DEVICE FOR A THERMIONIC GENERATOR

William R. Martini, Northridge, Calif., assignor to North American Aviation, Inc.
Filed Dec. 4, 1964, Ser. No. 416,032
7 Claims. (Cl. 310—4)



1. A temperature control device for maintaining the central portion of a container at a substantially uniform temperature which is the critical temperature of a preselected fluid heat transfer medium, said device comprising:

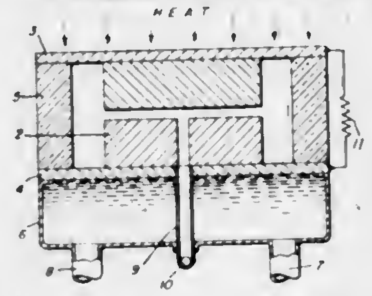
a container, one end of said container being in heat-exchanging relation with a source of heat, the other end of said container being in heat-exchanging relation with a cooling source;

a sealed volume to be temperature controlled, the central portion of said container being located in heat-exchanging relation therewith;

and a fluid heat transfer medium in a preselected amount by weight, said sealed volume being partially filled with said fluid heat transfer medium, the ratio of the weight of said fluid to said sealed volume being substantially equal to the critical density of said fluid at the critical temperature thereof at which temperature said volume is to be maintained.

3,303,362
THERMIONIC CONVERTER HAVING A CRYSTALLOGRAPHIC ORIENTATED EMITTER

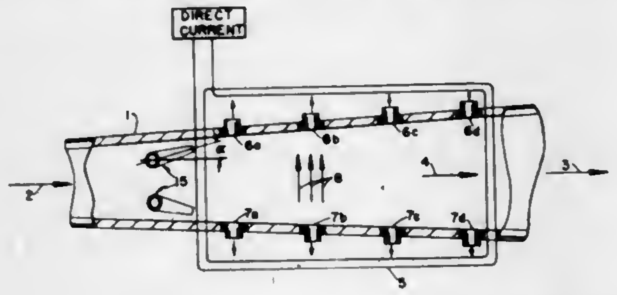
Harold F. Webster, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 25, 1964, Ser. No. 415,566
5 Claims. (Cl. 310—4)



1. An energy converter comprising a collector electrode, a metallic emitter electrode with exposed face portions in spaced opposed relation to said collector electrode which have predominantly a crystallographic orientation which is atomically the most closely packed of any crystallographic orientation of the crystal lattice of the metallic emitter, said collector electrode located in spaced relation and opposite said face portions to receive emission therefrom, means providing a temperature differential between said electrodes wherein said emitter temperature is at least 1000° C. to cause thermionic emission of electrons from said emitter electrode to said collector electrode, and an alkali metal atmosphere disposed between said electrodes in at least a partially ionized state acting to neutralize the electron space charge between said electrodes, said alkali metal adhering to said face portions of said emitter electrode to lower the work function of said emitter electrode and cause increased emission density for a given temperature differential and pressure of said gaseous atmosphere, said face portions being characterized by a high work function and low emission compared with other crystallographic orientations in the absence of said gaseous atmosphere, which work function is also high relative to the ionization potential of said alkali metal atmosphere.

3,303,363
MEANS FOR IMPROVING THE PERFORMANCE OF ELECTRODES IN MAGNETOHYDRODYNAMIC DEVICES

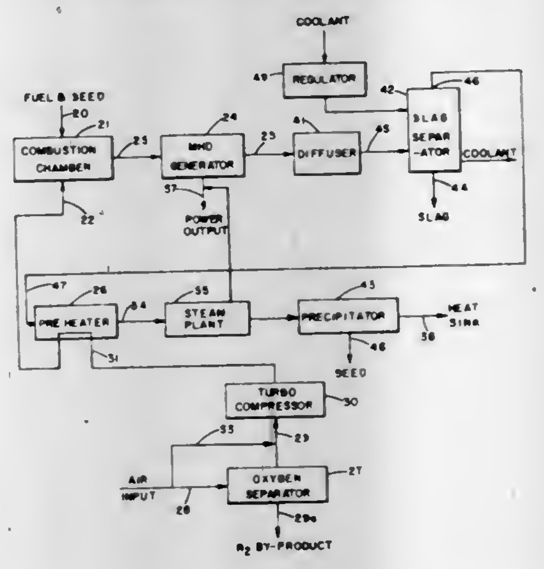
Jean F. Louis, Brookline, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Nov. 23, 1962, Ser. No. 239,584
9 Claims. (Cl. 310—11)



1. In combination with an MHD device employing a duct for conveying a moving stream of hot electrically conductive fluid between opposed electrodes carried by opposed walls of said duct and through magnetic flux at said electrodes substantially normal to the plane of said electrodes and the direction of flow of said fluid, means for inducing a double vortex flow of said fluid substantially only adjacent at least some of said electrodes.

3,303,364
MEANS FOR AND METHOD OF RECOVERING ALKALIS FROM PRODUCTS OF COMBUSTION

Finn A. Hals, Cambridge, Mass., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Oct. 14, 1963, Ser. No. 315,846
8 Claims. (Cl. 310—11)



1. The method of recovering alkali from a gas at initially a temperature of about 5000° F. comprising alkali and the products of combustion of coal, said alkali having been introduced into said gas to increase its electrical conductivity, comprising the steps of:

- (a) supplying said gas to a separator at a temperature greater than 3000° F.;
- (b) passing said gas through said separator to remove condensed noncombustible matter in said gas;
- (c) regulating the temperature of said gas to maintain the temperature thereof at the gas outlet of said separator at a value less than the condensation temperature of substantially all of the noncombustible matter other than said alkali in said gas and greater than about 3000° F. whereby substantially all of said alkali in said separator does not react with the other noncombustible matter in said separator to form chemical compounds;
- (d) cooling said gas downstream of said separator to a temperature sufficient to condense said alkali in said gas; and
- (e) removing said condensed alkali from said gas.

3,303,365
MOTOR HOUSING WITH AN OUTPUT SHAFT MOUNTED IN A ROTATABLE BELL HOUSING

Timothy W. Hennessey, Springfield, Ohio, assignor to Robbins & Myers, Inc., Springfield, Ohio, a corporation of Ohio
Filed May 4, 1964, Ser. No. 364,490
9 Claims. (Cl. 310—83)

4. A motor assembly comprising:

a housing,

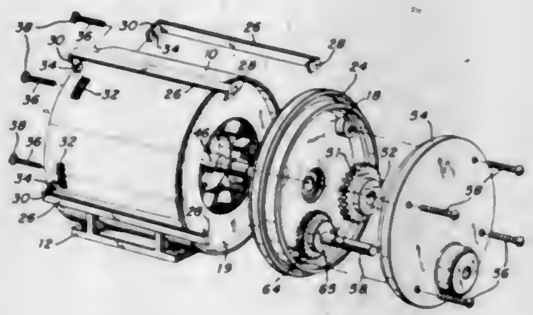
rotary motor means within the housing, the rotary motor means having a rotary drive shaft,

a gear member attached to the drive shaft and rotatable therewith,

an end member carried by the housing adjacent the gear member, the end member being rotatable with respect to the housing about an axis which is coaxial with the axis of the rotary drive shaft.

a driven gear carried by the end member and in meshed relationship with the gear member,

an output shaft connected to the driven gear for rotation therewith,



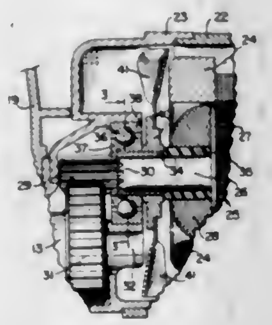
a strap member engaging the end member, the strap member having a connection portion,

adjustable connection means connected to the connection portion of the strap member and in engagement with the housing and securing the strap member with respect to the housing and thus securing the position of the end member with respect to the housing.

3,303,366
BEARING MOUNT FOR ARMATURE SHAFT SUBASSEMBLY HAVING A PINION CUTTER RUN-OUT

Donald E. Elson, Baltimore, and Harry J. Foell, Jr., Lutherville, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland

Filed May 20, 1964, Ser. No. 368,858
4 Claims. (Cl. 310—83)



1. In an armature shaft subassembly for an electric motor-driven device of the type which comprises a shaft, a pinion formed on the end of the shaft, the pinion being formed in such manner as to produce a pinion cutter run-out on the shaft rearwardly of the pinion, and a gear in meshing engagement with the pinion, the improvement which comprises:

(A) the shaft having a portion rearwardly of the pinion which is reduced slightly in diameter, thereby forming a shoulder on the shaft substantially between the pinion and the pinion cutter run-out;

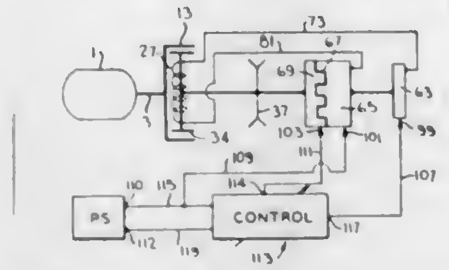
(B) a sleeve abutting against said shoulder and disposed on the shaft rearwardly of the shoulder; and

(C) a bearing mounted over said sleeve, whereby said sleeve supports said bearing over the pinion cutter run-out, and whereby the gear may be mounted in closer axial proximity to said bearing, thereby minimizing the structural loads on the pinion portion of the shaft which is cantilevered forwardly of said bearing.

3,303,367
ELECTRIC DRIVES

Ralph L. Jaeschke and William H. Moyer, Kenosha, Wis., assignors to Eaton, Yale & Towne, Inc., a corporation of Ohio

Filed Mar. 5, 1964, Ser. No. 349,689
12 Claims. (Cl. 310—95)

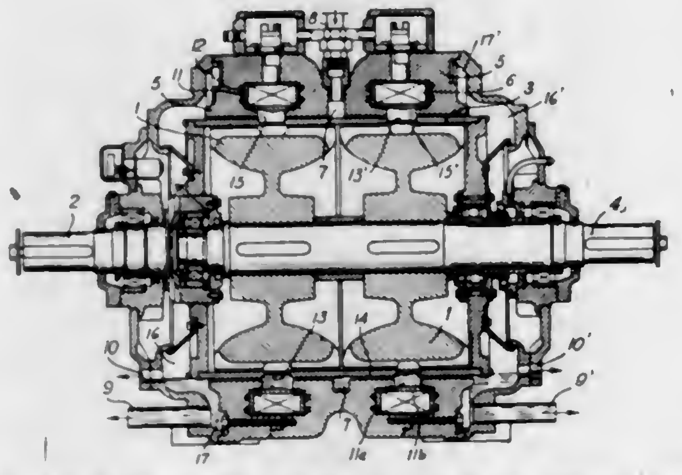


3. An electric drive comprising a motor having a stub shaft, an electric slip coupling having a driving inductor member carried on a sleeve fitted to said stub shaft and having a driven polar field member carried on and surrounding said sleeve, a field coil in the field member, an electrical support on the motor for axially directed first, second and third brushes, an electrical speed control for variably energizing said coil, a source of electrical power having first and second terminals, first and second radially flat conductive slip rings carried by said field member to engage said axially directed brushes and respectively electrically connected across said field coil, each of said slip rings having a continuous peripheral portion, said second slip ring also having radially directed marginal interrupting means formed by spaced marginal teeth, said first and second stationary brushes contacting the continuous peripheral portions of said first and second slip rings, said second brush connected with said first terminal, and said third stationary brush connected to an input of said speed control and contacting said circuit interrupting means intermittently to electrically interconnect said second slip ring and said third brush to supply an intermittent control signal to said speed control input, said second power supply terminal being interconnected to said speed control, said speed control having an output connected to said first brush whereby the field coil is variably energized by said control to maintain a substantially constant angular velocity of said driven member.

3,303,368
ELECTROMAGNETIC EDDY-CURRENT COUPLING OR BRAKING DEVICES

Elie Cohen, 89 bis Rue Bobillot, and Szymon Roth, 18 Blvd. Barbes, both of Paris, France

Filed June 26, 1963, Ser. No. 290,858
Claims priority, application France, June 28, 1962, 902,323, Patent 1,335,045
3 Claims. (Cl. 310—105)



1. An eddy-current coupling or braking device, comprising:

an axially extending inner rotor having a plurality of axially spaced sets of salient poles forming respective annular arrays;

a cylindrical outer rotor axially extending along and enclosing said arrays while coaxially surrounding same and having a generally smooth outer surface;

a stator coaxially surrounding said outer rotor and defining therewith a narrow clearance around said surface, said stator having a plurality of annular recesses disposed about said outer rotor in radial alignment with the respective arrays of poles;

a set of exciter coils each received in a respective one of said recesses for electromagnetically co-operating with the respective array of poles;

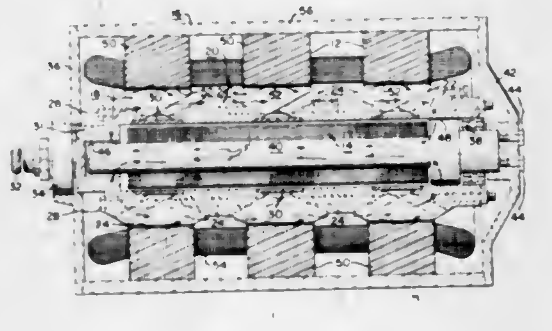
inlet means for admitting a liquid coolant to said clearance between said coils and including at least one annular channel formed in said stator between said coils and opening into said clearance in the direction of said surface, said stator having respective annular grooves communicating with said recesses and opening into said clearance, said surface being formed with a plurality of axially spaced annular depressions respectively aligned with said grooves and opening in the direction of said stator, said stator being formed with a pair of lateral annular passages on opposite sides of said coils and with radii greater than those of said coils, said stator further having end walls axially spaced from confronting wall surfaces of said outer rotor and defining therewith a pair of annular compartments communicating with said annular passages, respectively, and with said clearance; and

outlet means including a pair of outlet ports at opposite axial ends of said stator respectively communicating with said annular passages substantially at the lowest point thereof for discharging the liquid coolant therefrom.

3,303,369
DYNAMOELECTRIC MACHINES

John W. Erickson, Long Beach, Calif., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 18, 1963, Ser. No. 331,436
5 Claims. (Cl. 310—168)

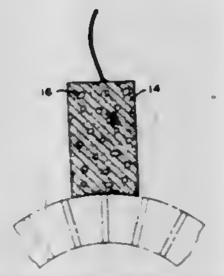


1. A dynamoelectric machine comprising a hollow rotor disposed within a stator and having a plurality of axially spaced interdigitated sets of axially extending and circumferentially spaced magnetic poles, said stator including a plurality of stator cores supported non-magnetically and axially spaced so as to be associated respectively with said rotor pole sets, and means for exciting said magnetic poles with polarizing flux in a serial magnetic path which alternately includes said rotor pole sets and said stator cores progressively in the axial direction, said excitation means comprising a coil mounted within said rotor upon a fixed magnetic core extending axially of the rotor.

3,303,370
ELECTRICALLY CONDUCTIVE SOLID LUBRICANT MEMBERS AND PROCESS AND APPARATUS EMPLOYING THEM

David J. Boes, Monroeville, and W Dwight Johnston and Lawrence E. Moberly, Penn Hills, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 4, 1963, Ser. No. 321,312
5 Claims. (Cl. 310—228)

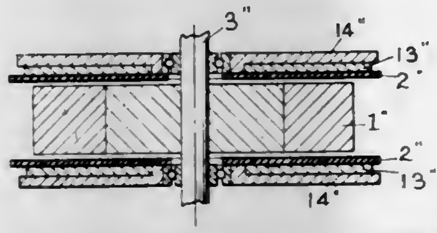


2. In a dynamoelectric machine, a metallic current collector, a carbon brush disposed in sliding contact with the metallic current collector the carbon brush comprising an effective quantity of at least ½% by weight of niobium diselenide incorporated therein.

3,303,371
AXIAL AIR-GAP ELECTRICAL MACHINE

Georges Moressée, Neuilly-sur-Seine, and Robert Déchet, Boulogne-sur-Seine, France, assignors to Compagnie Electro Mecanique, a corporation of France

Filed Mar. 21, 1960, Ser. No. 16,326
Claims priority, application France, Mar. 26, 1959, 790,697
1 Claim. (Cl. 310—268)



A rotary direct current electrical machine of the type having a smooth axially extending air gap between the rotor and stator members thereof, one of said members being constituted by an annular magnetic member formed from a ferromagnetic material such as ferrite having a high remanence and high coercivity and which is magnetized in the axial direction of the machine to establish a plurality of permanently magnetized non-continuous poles which alternate in polarity at each face thereof, and the other of said members being constituted by a pair of thin disks of non-magnetic material, each of said disks being provided with a flat winding on both faces thereof, and said disks being located respectively in parallel spaced and confronting relation to the opposite faces of said annular polarized magnetic member to establish dual, axial air gaps therebetween, the configuration of the faces of the poles of said magnetic member confronting said disks corresponding with the geometrical characteristics of the respective flat windings thereon such that a maximum area of each winding is constantly covered by said pole faces thereby to obtain an optimum inductor effect therebetween.

3,303,372
X-RAY GENERATOR WITH A KNIFE EDGED COLD CATHODE EMITTER

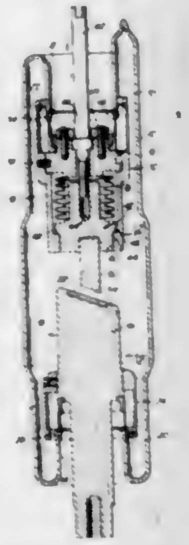
Robert M. Gager, Elmhurst, Ill., assignor to Dunlee Corporation, Bellwood, Ill., a corporation of Illinois

Filed Aug. 20, 1964, Ser. No. 390,828
2 Claims. (Cl. 313—60)

1. An X-ray generator comprising

an elongated tubular envelope,

an anode means mounted in one end of said envelope,
a cathode means mounted in the opposite end of said envelope,
said cathode means including a mounting block rigidly sealed to said envelope and having a rigid tubular extension extending coaxially of said envelope toward said anode, the end of said extension toward said anode defining a tubular bearing surface,
a cylindrical member mounted in said extension for movement axially of said envelope and including a portion slidably engaging said bearing surface,
a bellows sealed at one end thereof to said cylindrical member and at the other end thereof to said mounting block,

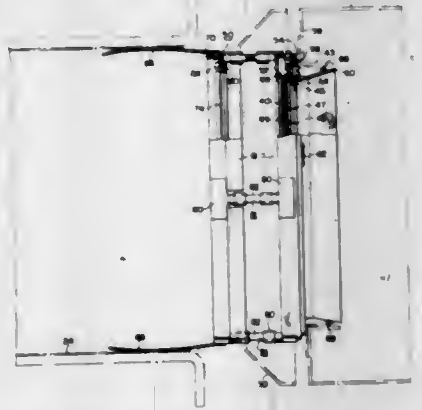


a shaft threadedly engaging said cylindrical member and extending outwardly of said envelope coaxially of said bellows,
means on said shaft and said mounting block operatively engaging one another to prevent axial movement of said shaft whereby rotation of said shaft effects axial movement of said cylindrical member,
said anode means comprising a plane faced target element disposed at an acute angle with respect to a plane normal to the axis of said envelope,
and an emitter element mounted on said cylindrical member and extending toward said target element,
said emitter element comprising a thin, blade-like member having converging side surfaces defining an elongated knife edge extending parallel to said target element.

3,303,373

TARGET ASSEMBLY COMPRISING INSULATING TARGET, FIELD AND COLLECTOR MESHES

Hemmo R. Alting-Mees, Horseheads, N.Y., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 27, 1964, Ser. No. 340,279
12 Claims. (Cl. 313—65)

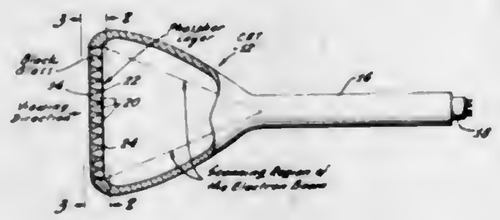


2. A pickup tube comprising an envelope and having therein an electron beam source for forming and directing a beam of electrons along an axial path, a photocathode sensitive to an input radiation positioned at the opposite end of said envelope with respect to said electron beam source, annular electrode members positioned between said photocathode and said electron source, a target electrode assembly of smaller diameter than said annular electrode members positioned between said photocathode and said electron source including an insulating target, a collector electrode positioned on the side of said target facing said photocathode and a field terminating electrode positioned on the side of said target facing said electron source, said target including an insulating film and an annular support ring, said collector electrode including a mesh and an annular support ring, an annular clamping means for retaining said target and said collector electrode and securing said target and said collector electrode to an inner portion of one of said annular electrodes, said field terminating electrode including a mesh and an annular support ring and means for mounting said field terminating electrode to said clamping means.

3,303,374

CATHODE RAY TUBE INCLUDING FACE PLATE COMPRISING TAPERED FIBER OPTICAL ELEMENTS MOUNTED IN AN OPAQUE MOSAIC

Norman Francis Fyler, Menlo Park, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif., a corporation of Delaware
Original application Jan. 17, 1961, Ser. No. 83,330. Divided and this application Mar. 15, 1965, Ser. No. 444,902
4 Claims. (Cl. 313—92)



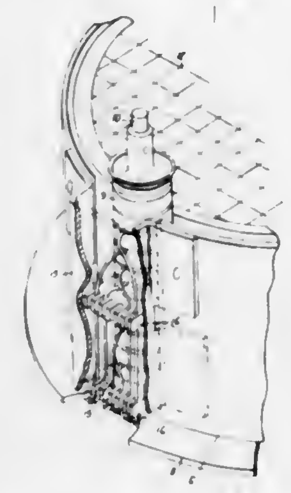
1. In combination, a vacuum tube of the cathode ray type comprising an extended faceplate, an array of truncated cone-like translucent elements extending through said faceplate with the broader area of said cone-like elements facing the inside of said tube, said faceplate being otherwise opaque, phosphor material mounted on the inner ends of said elements, and means for selectively directing an electron beam onto said phosphor material.

3,303,375

CHARACTER DISPLAY TUBES

George F. Klepp, Olaf H. Dalton, and Gaston Pakenham de Mengel, London, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 16, 1963, Ser. No. 295,333
Claims priority, application Great Britain, July 26, 1962, 28,770/62
1 Claim. (Cl. 313—109.5)

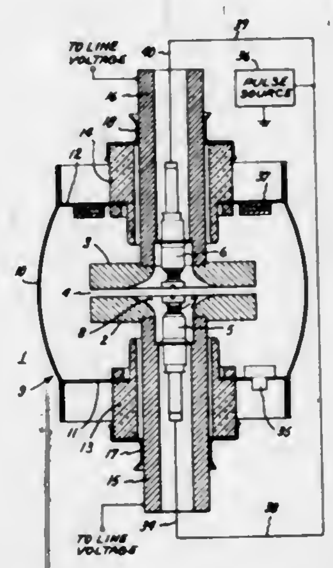
An indicator glow discharge tube having a glass envelope with a base at one end, and a transparent part at the top end to permit viewing of glow discharge display within the tube, the base having lead pins sealed therethrough, and an electrode assembly supported by the lead pins, the electrode assembly including a metal cup with its base adjacent the base of the envelope and with longitudinal side walls along the length of the envelope, a plurality of spaced apart longitudinal stacks of insulating collars within the cup extending adjacent the cup side walls, a set of cathodes having a plurality of differnt shapes, each cathode being supported on said stacks across said tube and mounted between respective pairs of the collars so that the cathodes lie in respective superimposed planes, and an anode member extending across said envelope over the set of cathodes, a plurality of electrical lead connections between respective said lead pins and the metal cup and anode member and each cathode, the metal cup having longitudinal channels in the side walls extending outwardly from and adjacent each stack of collars, each said cathode lead connection being disposed within said channels between the adjacent stack of collars and the cup side wall, said stack of collars including a collar having an extension piece extending into said channel portion, said extension piece having slots for reception of said lead connections along the side of said stack.



3,303,376

TRIGGERED VACUUM GAP DEVICE EMPLOYING GAS EVOLVING ELECTRODES

James M. Lafferty, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 30, 1965, Ser. No. 510,562
5 Claims. (Cl. 313—148)

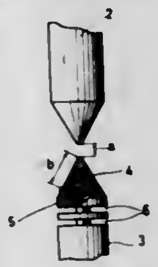


1. Triggerable vacuum gap apparatus comprising an envelope evacuated to a pressure of 10^{-5} mm. Hg or less; a pair of arc-electrodes disposed within said envelope in electrically insulated relationship and defining therebetween a primary discharge gap; a trigger assembly associated with each of said arc-electrodes and containing means for storing an ionizable gas and spark gap means adjacent said first named means for releasing said ionizable gas by the initiation of a spark discharge upon receipt of a suitable trigger pulse; means applying electrical potentials to each of said arc-electrodes, each of said potentials having a predetermined relationship to ground potential; and pulse source means associated with said trigger assemblies for applying a triggering pulse which is independent of the potentials applied to said arc-electrodes and positive with respect to ground potential to said trigger assemblies to cause only one of said trigger assemblies to be activated at any given time to cause the breakdown of said primary gap with the arc-electrode associated with the activated trigger assembly as cathode.

3,303,377

HIGH PRESSURE ELECTRIC DISCHARGE TUBE

Johannes Adrianus Cornelis Jansen and Tjepke Hendrik Ekkelboom, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed July 30, 1963, Ser. No. 298,651
Claims priority, application Netherlands, Aug. 17, 1962, 282,235
1 Claim. (Cl. 313—184)

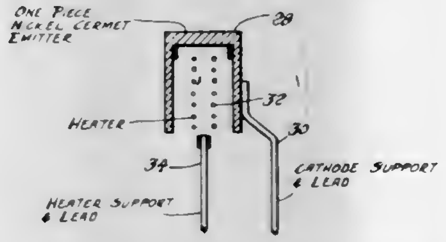


A high pressure electric discharge tube comprising a light-transmissible envelope, a gas filling said envelope at a pressure of several atmospheres, a pair of axially aligned spaced conical tungsten electrodes within said envelope, the spacing of the electrodes being small compared with the diameter of the envelope, and at least one of said electrodes having a bore therein spaced from the apex of the electrode a distance which is smaller than four times and larger than twice the distance between the electrodes, and a thoriated tungsten wire filling said bore, said wire projecting from the surface of said electrode a distance not exceeding $\frac{1}{20}$ of the maximum diameter of said conical electrode.

3,303,378

MONOLITHIC CATHODE STRUCTURE

Paul Chorney, Norwood, and John Valun, Framingham, Mass., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed June 17, 1964, Ser. No. 375,986
1 Claim. (Cl. 313—346)



A hot-cathode, low-sputter, high-density plasma type discharge device comprising:
an elongated envelope,
a tubulation extending from the envelope for connection to a reservoir of low pressure ionizable gas,
a monolithic cup-shaped cathode made of a sintered compact mixture of nickel powder and a powder of a thermionic emissive material,
a rigid conductor lead secured to the outer surface of the monolithic cup-shaped cathode and extending longitudinally from the cathode through an end of the envelope to support the cathode with its outside end surface directed toward the other end of the envelope,
a heater coil within said cup-shaped cathode, one end of said heater coil being in physical engagement and

electrical contact with the cathode at an inner end portion thereof,

a rigid conductor lead secured to the other end of the heater coil, supporting the heater coil and extending therefrom through said end of said envelope, and

an anode supported within said envelope in line with said cathode.

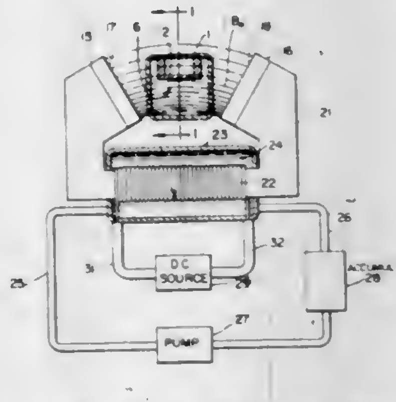
3,303,379

ELECTRON DISCHARGE DEVICES WITH MAGNETIC FIELD AND MAGNETIC FIELD GRADIENT, CROSSED, FOR COMPELLING ELECTRONS TO FOLLOW A CYCLOIDAL PATH

David L. Bobroff, Sudbury, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed June 11, 1963, Ser. No. 287,016

4 Claims. (Cl. 315—3.5)



1. An electron discharge device comprising:

means emitting electrons in a substantially cycloidal trajectory;

and means compelling said electrons to drift through an elongated interaction space free of tranverse steady electric fields including means producing a magnetic field directed transverse to said electron drift, said magnetic field varying linearly in a direction transverse to said electron drift and transverse to the direction of said magnetic field whereby the drift velocity of electrons through said space is a function of the cross product of the transverse magnetic field gradient and the average strength of the magnetic field.

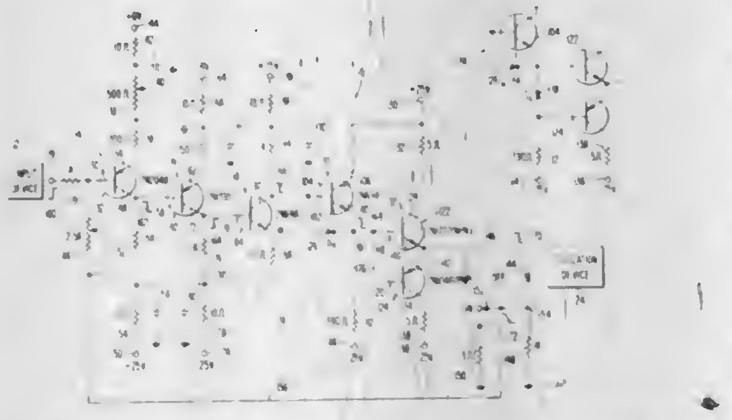
3,303,380

DIRECT COUPLED TRANSISTOR AMPLIFIER HAVING COMPLEMENTARY SYMMETRY OUTPUT AND SWITCHABLE FEEDBACK LOOP FOR DRIVING A DEFLECTION COIL

Joseph L. Kozikowski, Broomall, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Nov. 8, 1963, Ser. No. 322,448

5 Claims. (Cl. 315—27)



1. A multistage direct coupled transistor amplifier for supplying current to the deflection coil of a cathode ray tube comprising

(a) a transistor output stage including a pair of first and second transistors of opposite conductivity having their emitter electrodes interconnected and adapted to be connected to one end of said deflection coil,

(b) at least one transistor input stage coupled to the base electrodes of said first and second transistors, and

(c) a unidirectional circuit means connected between said base electrodes for applying a difference in potential between said base electrodes which is greater than the sum of the forward-biasing base-emitter voltages of said first and second transistors.

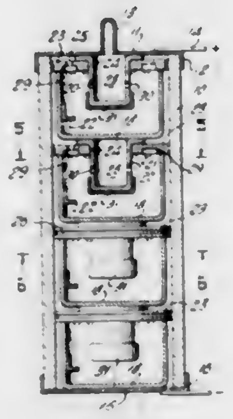
3,303,381

VOLTAGE REGULATOR TUBE WITH INTEGRAL PLURAL SERIES DISCHARGE DEVICES

Max Yarmovsky, Livingston, N.J., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 3, 1964, Ser. No. 341,906

7 Claims. (Cl. 315—36)



1. A voltage regulator discharge device comprising; a single cylindrical sealed envelope enclosing gas at reduced pressure and a plurality of discharge devices arranged in linear axial array; each of said discharge devices including a cup-shaped cathode, a cup-shaped anode positioned within the cathode in axial alignment therewith, and an insulating spacer in the form of a disc washer making contact with the edge of the cathode and supporting the anode within a central cavity; said cathode having an outside cylindrical surface positioned adjacent to the inside surface of the envelope, said insulating disc washer and said anode both having holes for the passage of gas.

3,303,382

CONTROL MEANS FOR VEHICLE HEAD LAMP TO ENERGIZE LOW BEAM WHEN HEAD LAMP SWITCH IS CLOSED

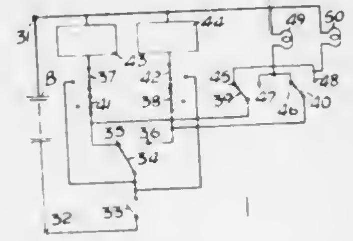
William Drummond Sutherland, Isleworth, Middlesex, Albert Victor Waters, Greenford, Middlesex, and Barry John Kendall, Hall Green, Birmingham, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

Filed May 19, 1964, Ser. No. 368,599

Claims priority, application Great Britain, Mar. 31, 1964, 13,307/64, 13,308/64

3 Claims. (Cl. 315—83)

1. A vehicle head lamp lighting system comprising first and second terminals which in use are connected to a source of voltage, main and secondary filaments which when energized produce the main and dipped beams respectively, the main and dipped filaments each having one end connected to the first terminal and their other ends connected to third and fourth terminals respectively, a dip switch having a contact movable between a pair of alternative positions, a head lamp switch through which the movable contact of the dip switch is connected to the second terminal, a resistor, and a relay having first and second coils, a normally open contact and a normally closed contact, the second coil being capable of maintaining the relay energized but incapable of energizing the relay itself, the first coil having one end connected to the second terminal through the head lamp switch and its other end connected to the third terminal through the normally open contact and the resistor in parallel, the normally closed contact being connected between the fourth and second terminals in series with the head lamp switch, and the second coil being connected between the first and second terminals in series with the head lamp switch, the dip switch serving in its alternative positions to short-circuit the first coil and the normally closed contact respectively, and the resistances of the first coil and resistor being such that the main filament is only energized when it is energized through the dip switch and normally open contact in series.



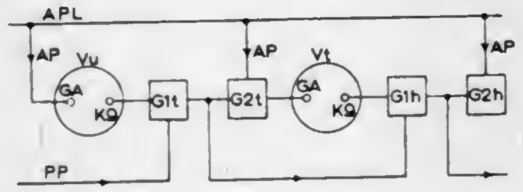
3,303,383

STEPPING-TUBE COUNTING-CIRCUIT UTILIZING A CONTROL SIGNAL TO PRE-CONDITION INTERSTAGE GATES TO AVOID SIGNAL TIME DELAY

Gerald Offley Crowther and Graham Frank Jeynes, Cheam, Surrey, England, assignors to North American Philips Company, Inc., New York, N.Y.

Filed Dec. 19, 1963, Ser. No. 331,676

5 Claims. (Cl. 315—84.5)



1. A cold cathode stepping tube counting chain comprising, a plurality of gaseous discharge tubes arranged in a cascade of successively higher order stages, each of said tubes having a plurality of successively higher order representation cathodes and at least one cycling terminal for successively switching the said discharge along the respective order cathodes in ascending order, means applying a cycling pulse to the cycling terminal of the first of said stages, gating means interconnecting the cycling terminal of each subsequently higher order stage with the highest order cathode terminal of each preceding stage, each of said gating means including first and second coincident input gating stages, means applying a control pulse to an input of the first gating stage of the lowest order stage gating means, means connecting the output of each of the first gating stage portions of each of said gating means to an input of the next higher order first gating stage portion of each of said gating means, and means connecting said means applying a cycling pulse to an input of each of the second stage portions of each of said gating means.

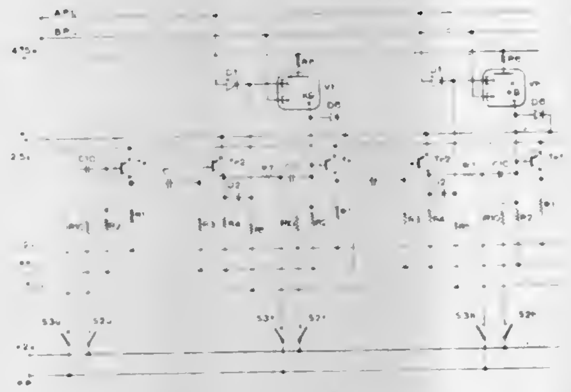
3,303,384

STEPPING-TUBE READ-IN CIRCUIT EMPLOYING GATES TO SELECTIVELY INHIBIT LOWER ORDER COUNTERS TO EFFECT MORE EFFICIENT READ-IN OF ADDITIONAL NUMBERS

Gerald Offley Crowther and Graham Frank Jeynes, Cheam, Surrey, England, assignors to North American Philips Company, Inc., New York, N.Y.

Filed Dec. 19, 1963, Ser. No. 331,677

4 Claims. (Cl. 315—84.5)



1. A cold cathode stepping tube counting circuit comprising a chain of cold cathode stepping tubes arranged in cascaded stages, means applying a first series of counting pulses to each of said stages of said counter for storing a first number therein, a gating circuit connected between each pair of successive stepping tube stages for providing a carry from a lower tube to the next successive tube in ascending order, means for applying a second series of counting pulses to each of said stages, said second series representative of a plurality of digits of a multidigit-multiorder number, and inhibiting means connected to said gating means for inhibiting the passage of said second series of pulses to those counting stages of an order lower than the order of the applied digit in said multidigit-multiorder number.

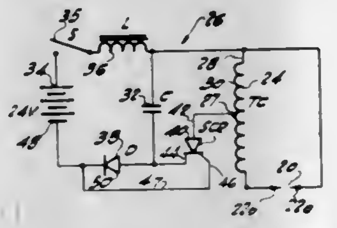
3,303,385

IGNITION UNIT

Kurt Staiger, Indianapolis, Ind., assignor to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia

Filed Feb. 11, 1964, Ser. No. 344,003

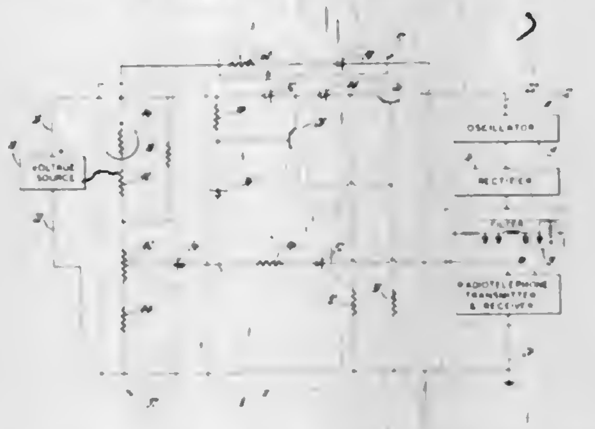
9 Claims. (Cl. 315—206)



1. An ignition system for a combustion heater or the like comprising a pair of electrodes forming a spark gap, an autotransformer having a high voltage winding in connection with said gap to provide high voltage pulses thereacross, a silicon controlled rectifier having an anode, a cathode and a gate, a tap on said winding connected to said anode, a D.C. power source having a negative terminal in connection with said gate, an inductance in connection at one end with the positive terminal of said D.C. power source and at its other end with said winding, a capacitor in connection between the other end of said inductance and said cathode, and a diode in forward connection between said cathode and the negative terminal of said power source.

3,303,386
TRANSIENT OVERVOLTAGE AND OVERLOAD PROTECTION CIRCUIT

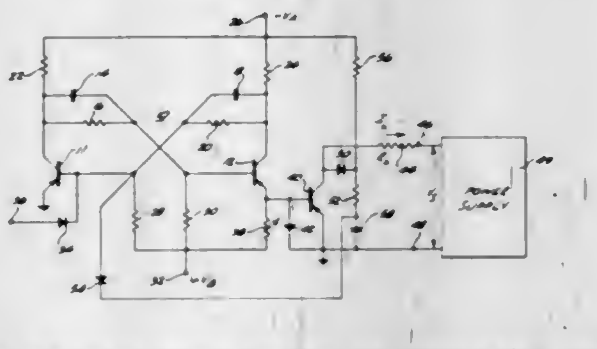
Joseph E. Murphy, Cudahy, Wis., assignor to General Motors Corporation, a corporation of Delaware
Filed May 7, 1963, Ser. No. 278,573
7 Claims. (Cl. 317—31)



1. A circuit providing both overvoltage and overload protection, said circuit comprising a pair of input terminals for connection to a voltage source and a pair of output terminals for connection to a load, switching means connected between one input terminal and one output terminal, switch operating means including a voltage reference device connected across said input terminals, series means connecting said voltage reference device with said load, said voltage reference device adapted to become conductive upon either a predetermined overvoltage or a predetermined overload to render said switch operating means operative to change the state of said switching means and disconnect said source from said load.

3,303,387
ELECTRONIC CIRCUIT BREAKER FOR INTERRUPTING LOAD CURRENT WHEN BREAKER TRANSISTOR IS DRIVEN OUT OF SATURATION

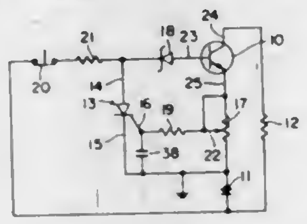
Karl E. Springer, Inglewood, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed July 19, 1963, Ser. No. 296,257
7 Claims. (Cl. 317—31)



1. An electrical circuit breaker for interrupting current flow in a current path when the current therethrough exceeds a predetermined value comprising: a semiconductor device having a current path and a control electrode, means for supplying current to said current path, a bistable device having an input circuit and an output circuit, means intercoupling said output circuit with said control electrode for biasing said semiconductor device to provide saturated current flow through said current path as long as the current therethrough does not exceed a predetermined value while allowing said current path to become unsaturated when the current therethrough exceeds said predetermined value when said bistable device is in a first stable state and for biasing said semiconductor device to render said current path nonconductive when said bistable device is in a second stable state, and means coupled between said current path and said input circuit for triggering said bistable device to said second stable state when the current through said current path exceeds said predetermined value and said current path thereby becomes unsaturated.

3,303,388
SOLID STATE CIRCUIT BREAKER

James A. Means, Camarillo, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 27, 1964, Ser. No. 385,522
1 Claim. (Cl. 317—33)



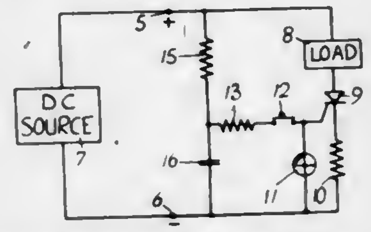
An overcurrent protection device responsive to load current comprising:
- a transistor having a base electrode, an emitter electrode and a collector electrode;
- a current source for providing base current to the base electrode of the transistor when the local current flowing through the collector electrode and the emitter electrode is within allowable values;
- a variable potentiometer connected in series with the emitter electrode of the transistor for sensing the magnitude of the load current flowing therethrough;
- a silicon controlled rectifier connected in series with the current source and the base electrode of the transistor, with its anode electrode coupled with the base electrode of the transistor to divert current therefrom when an excessive current flows through the potentiometer with its cathode electrode coupled with the current source and with its gate electrode coupled with the variable potentiometer to render the silicon controlled rectifier current conducting upon the occurrence of an overcurrent condition;
- a Zener diode connected in series with the base electrode of the transistor and the anode electrode of the silicon controlled rectifier for substantially eliminating current flow through the base electrode of the transistor when the silicon controlled rectifier is conducting current;
- a capacitor coupling the gate and the cathode electrodes of the silicon controlled rectifier to permit short term overcurrents to flow; and
- an open switch connected in parallel across the silicon controlled rectifier for diverting current from the base electrode of the transistor and the silicon controlled rectifier to permit reset of the circuit of the device;

whereby excessive current flow through the collector and emitter electrodes of the transistor cause the gate electrode of the silicon controlled rectifier to render the rectifier current conducting and render the transistor nonconducting to thus stop the flow of load current.

3,303,389
OVERLOAD PROTECTION CIRCUIT

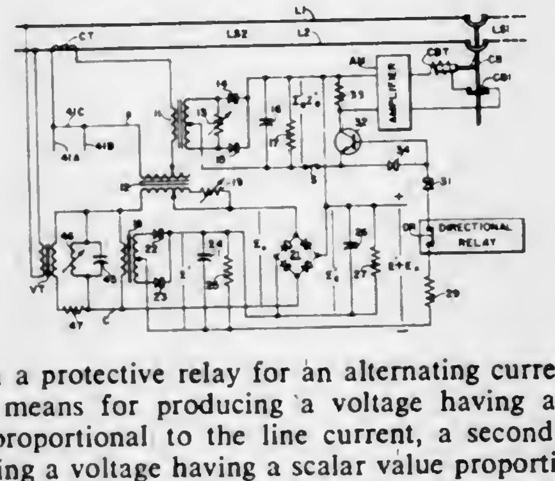
Peter David Jones and Maurice James Wright, Birmingham, England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Jan. 24, 1963, Ser. No. 253,729
Claims priority, application Great Britain, Feb. 5, 1962, 4,271/62
1 Claim. (Cl. 317—33)

A D.C. overload protection circuit comprising in combination a D.C. source, first and second terminals connected to the D.C. source so as to be of positive and negative polarity respectively, a switchable rectifier having its anode connected to the first terminal, a first resistor through which the cathode of the switchable rectifier is connected to the second terminal, a device adapted to break down when the voltage across it exceeds a predetermined value. said device being connected between the gate of the switchable rectifier and the second terminal, a normally open switch connected in series with second and third resistors between the gate of the switchable rectifier and the first terminal, and a capacitor connected between the second terminal and a point intermediate the second and third resistors, closing of said switch causing switching on of the switchable rectifier, said device breaking down when the voltage across the first resistor exceeds a predetermined value to cause switching off of the switchable rectifier, and said capacitor preventing over-rapid switching on and off of the switchable rectifier.



3,303,390
DISTANCE RELAYING

William K. Sonnemann, Roselle Park, N.J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 7, 1963, Ser. No. 286,390
15 Claims. (Cl. 317—36)

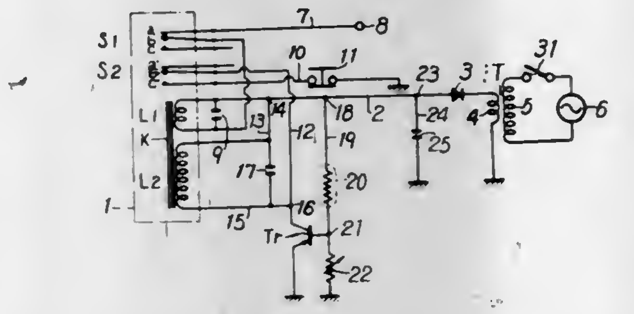


1. In a protective relay for an alternating current line, a first means for producing a voltage having a scalar value proportional to the line current, a second means producing a voltage having a scalar value proportional to the line voltage at said relay, and a third means producing a voltage proportional to the scalar value of the vector quantity $\dot{E}-\dot{Z}_c\dot{I}$ where $\dot{E}$ is the vector quantity proportional to line voltage, $\dot{I}$ a vector quantity proportional to line current, and $\dot{Z}_c$ is a vector quantity having a phase angle equal to the phase angle of the natural impedance of that portion of the line which is to be protected, and a signal-output circuit energized whenever the voltage produced by said first means exceeds the sum of the voltage produced by said second means plus the voltage of said third means.

3,303,391
OVERHEAT-PROTECTING DEVICE

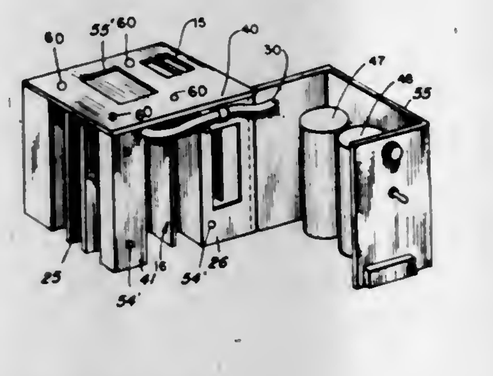
Moriaki Kitami, % Akai Electric Co., Ltd., 883 3-chome, Kohjiya-cho, Ota-ku, Tokyo, Japan
Filed Aug. 20, 1963, Ser. No. 303,223
4 Claims. (Cl. 317—41)

1. A temperature responsive control device for protection of a load against overheat conditions comprising, a power source, a reset switch, a single core, two-coil relay having two sets of contact assemblies with each of said sets having two positions, the first of said contact assemblies in a first position being electrically connectable to a load to be protected and being electrically connected to the first of said coils, the second of said contact assemblies in a first position being electrically disconnected from said reset switch and being connected to the second of said coils, a transistor amplifier electrically connected to said second coil and to a heat sensitive current-conductive element the resistance of which decreases with increase in temperature, said transistor amplifier in response to overheat condition sensed by said heat sensitive current-conductive element amplifying current from the power source to said second coil to energize said coil and thereby switch both of said contact assemblies to second positions in which said first contact assembly electrically disconnects from said load and said second contact assembly electrically connects to said reset switch while maintaining electrical connection to said second coil, whereby said contact assemblies are maintained in their second positions and the device cannot be reset by operation of the reset switch until the overheat condition terminates.



3,303,392
COOLING ARRANGEMENT FOR ELECTRONIC DEVICES

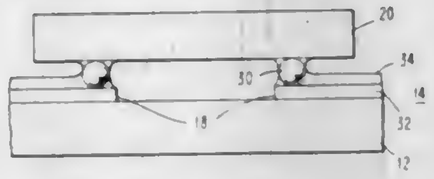
William B. Zelina, Erie, Pa., assignor to General Systems, Inc., Erie, Pa., a corporation of Pennsylvania
Filed Sept. 10, 1963, Ser. No. 307,884
9 Claims. (Cl. 317—100)



3. A heat sink comprising
- a main section,
- said main section comprising a part of an enclosure,
- a support section,
- said main section being made of metallic material and having heat transfer means on the outside thereof,
- said support section having a substantially large area disposed in close proximity to a substantially large area of said main section with an electrical insulation material therebetween fixing said support section to said main section,
- means on said support section to attach electronic components thereto, said components being inside said enclosure,
- and dust cover closure means forming a part of said enclosure for enclosing said support section.

3,303,393
TERMINALS FOR MICROMINIATURIZED DEVICES AND METHODS OF CONNECTING SAME TO CIRCUIT PANELS

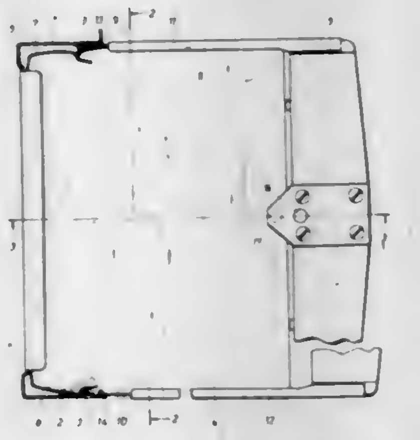
Irwin M. Hymes, Wappingers Falls, and Raeman P. Sopher and Paul A. Totta, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 27, 1963, Ser. No. 333,863
8 Claims. (Cl. 317—101)



1. A terminal assembly comprising
a circuit element, at least one laminated metal pad joined to said circuit element, and
one or more conductive terminal members, a terminal member immersed in the outer layer of each metal pad, each terminal member being substantially nondeformable in the presence of a relatively high temperature.

3,303,394
MOUNTING PLATE AND PULL-OUT DEVICE

Hans-Jurgen Peter, Esslingen, Pfalz, and Arno Mohra, Landau, Pfalz, Germany, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 27, 1964, Ser. No. 385,180
Claims priority, application Germany, Aug. 3, 1963, St 20,943
5 Claims. (Cl. 317—101)

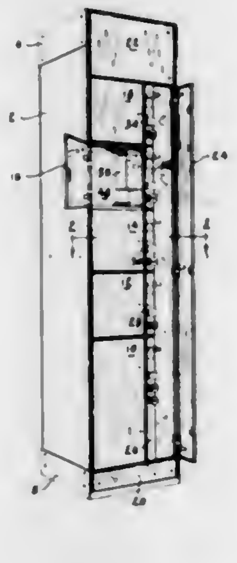


1. A slide-in frame and mounting plate arrangement wherein said slide-in frame comprises first and second guide rails, said guide rails having members for supporting and engaging a mounting plate insertable therein, said mounting plate comprising cooperating members receivable in and engaging said supporting members; and means on said mounting plate to receive and engage a pull-out device, said pull-out device being detachable from said mounting plate and slide-in frame and including first spring means on said pull-out device to release said mounting plate from engagement with said slide-in frame and second spring means on said pull-out device to engage said mounting plate for pulling said plate out of said frame.

3,303,395
CONTROL CENTER SECTION

Robert N. Eck, Whitefish Bay, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed May 25, 1966, Ser. No. 552,826
10 Claims. (Cl. 317—119)

1. In a modular control center section having an enclosure for housing electrical control apparatus and being adapted for use alone or in combination with one or more similar sections adapted to be electrically connected thereto and preferably situated at a central location for controlling remote equipment or machines, the combination comprising:
mounting means in said control center section providing spaces adapted to receive a plurality of respective control units;
a plurality of removable control units supported in said spaces by said mounting means generally along one side of said control center section leaving a wiring space along the opposite side therewithin;
each said control unit being adapted for supporting electrical control apparatus adapted to be connected to power busses and control conductors;

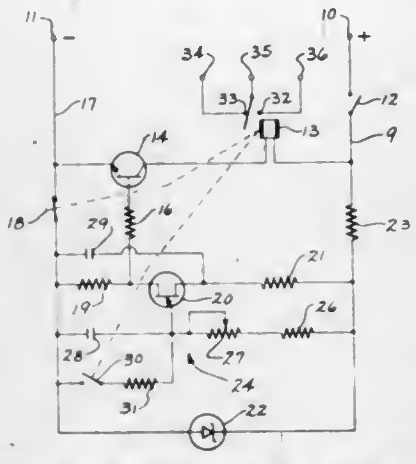


each said control unit being provided with a control panel forming a portion of the exterior wall of the control center section when said control unit is inserted in its operative position;
a door for each said control unit hinged to the control center section and adapted to close onto one edge of the control panel of the associated control unit;
a common door for the wiring spaces of all control units in the control center section hinged to the latter and adapted to close onto the other edges of the control panels of the control units;
and manual operating means extending through the control panels of the control units for operating the enclosed apparatus from the exterior of the control center section.

3,303,396
DELAYED PULL IN TIME DELAY RELAY

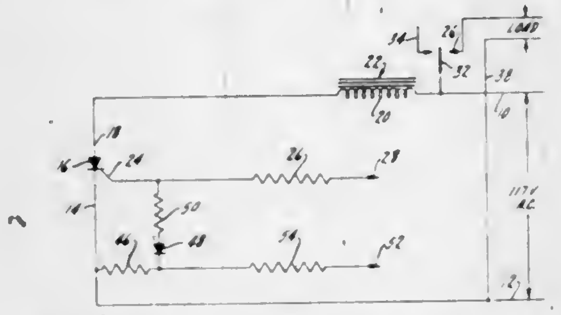
George T. Culbertson, Inglewood, Calif., assignor, by mesne assignments, to Master Specialties Company, Gardena, Calif., a corporation of California
Filed Jan. 22, 1964, Ser. No. 339,487
2 Claims. (Cl. 317—142)

1. A time delay relay circuit, comprising, in combination, a pair of terminals for connection to a source of direct current, a first transistor having emitter, collector and base electrodes with the emitter-collector circuit connected in series with a relay across said terminals, a time delay device having an initial condition of non-conduction and including a capacitor and a unijunction transistor operably connected to said terminals to conduct a predetermined time after application of said source of direct current thereto, said time delay device operatively connected to said base of said first transistor whereby delayed conduction by said time delay device will turn on said first transistor and whereby current through the emitter-collector circuit of said first transistor will actuate said relay, a first means responsive to actuation of said relay to divert additional current from said terminals to said base of said first transistor to hold said transistor on said first means comprising a normally closed switch connected in parallel with the emitter base circuit of said transistor which, when opened by said relay, causes additional current to flow to said base to hold said first transistor on, and a second means responsive to actuation of said relay to return said time delay device to its initial condition.



3,303,397
RELAY SWITCHING CIRCUIT

Thomas E. Myers, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware
Filed July 13, 1964, Ser. No. 382,332
4 Claims. (Cl. 317—148.5)

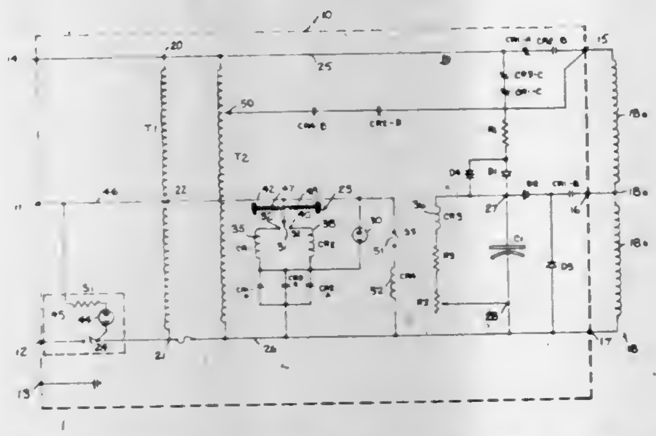


3. In a control circuit for connection to an A.C. source of power, a control member having contacts for performing a control function and a coil, a silicon controlled rectifier having an anode and cathode connected directly in series with said coil, one side of said rectifier being connected directly to the A.C. source and one side of said coil being directly connected to the other side of the A.C. source, an antenna arranged for human contact and a high resistance connection between said antenna and the gate of said rectifier, a biasing resistor connected between the gate and cathode of said rectifier for biasing said rectifier below cut-off, a second antenna arranged for human contact and a high resistance connection between said second antenna and said cathode, human contact with both antennas being effective to apply an operating potential from the A.C. source to the gate to operate the rectifier, with said rectifier reverting to a cut-off condition on the next half cycle of the A.C. source.

3,303,398
MAGNETIZER-DEMAGNETIZER

Gerald T. Barta, John R. Miskell, Phillip M. Jonas, and Thomas O. Quinn, Valparaiso, Ind., assignors to Indiana General Corporation, Valparaiso, Ind., a corporation of Indiana
Filed Aug. 1, 1963, Ser. No. 299,420
13 Claims. (Cl. 317—157.5)

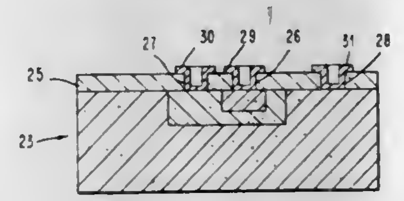
1. A magnetizer-demagnetizer system comprising capacitance means having a capacitance discharge circuit for connection to a magnetizing winding, a capacitance charging circuit for supplying unidirectional current to said capacitance means, a demagnetizing circuit for supplying a demagnetizing current to a demagnetizing winding, a magnetizing relay having normally open contacts in series in said capacitance discharge circuit, demagnetizing relay having normally open contacts in series in said demagnetizing circuit, said magnetizing and demagnetizing relays having respective magnetizing and demagnetizing relay energizing circuits for energization of the respective relays to shift the normally open contacts thereof to closed condition, at least said magnetizing relay energizing circuit being in series with a normally open contact of a control relay connected across said capacitance means, said control relay requiring a predetermined voltage across said capacitor means before being energized to shift its normally open contact to a closed condition, selector switch means having contacts in said magnetizing and demagnetizing relay energizing circuits and



in a first condition having its contacts open to interrupt both the magnetizing and demagnetizing relay energizaing circuits, in a second condition closing its contacts in the magnetizing relay energizing circuit to close the capacitance discharge circuit provided said control relay is energized to supply a magnetizing pulse from the capacitance means to the magnetizing winding and in a third condition closing its contacts in the demagnetizing relay energizing circuit to close the demagnetizing circuit for delivery of demagnetizing current to said demagnetizing winding, and means controlling electrical continuity of said capacitance charging circuit and responsive to the first condition of said selector switch means to complete electrical continuity of said capacitance charging circuit to charge said capacitance means.

3,303,399
GLASSES FOR ENCAPSULATING SEMICONDUCTOR DEVICES AND RESULTANT DEVICES

Helen M. Hoogendoorn, Poughkeepsie, and Seymour Merrin, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Jan. 30, 1964, Ser. No. 341,212
4 Claims. (Cl. 317—234)



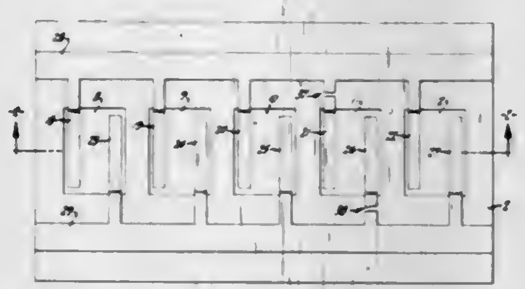
1. An encapsulated silicon semiconductor device comprising a silicon semiconductor member having at least one PN junction therein; at least one aluminum ohmic contact; and a layer of glass encapsulating a surface of said semiconductor member having an application temper-

ature below 570° C., said glass consisting essentially of in mol percent:

Lead oxide (PbO)	23–50
Aluminum trioxide (Al_2O_3)	0–19
Boron trioxide (B_2O_3)	6–18
Silicon dioxide (SiO_2)	33–65

and 0.1 to 1.0 mol percent of an oxide from the group consisting of niobium pentoxide (Nb_2O_5), zirconium dioxide (ZrO_2), titanium dioxide (TiO_2), and tantalum pentoxide (Ta_2O_5).

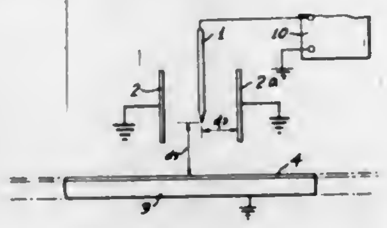
3,303,400
SEMICONDUCTOR DEVICE COMPLEX
David F. Allison, Palo Alto, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware
Filed July 25, 1961, Ser. No. 126,600
3 Claims. (Cl. 317—235)



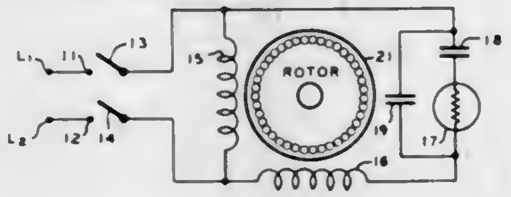
1. A transistor complex containing a plurality of transistors fabricated in a single body of semiconductor material, at least one of which transistors being defective, which comprises a body of semiconductor material, the bulk of said body being a collector of one conductivity type, said body containing a plurality of base layers of the opposite conductivity type with a surface of each exposed at a first surface of said body, said base layers being contiguous to said collector, said body also containing a plurality of emitter layers of the same conductivity type as said collector with a surface of each exposed at the said surface of the body, each of said emitter layers being contiguous to one of said base layers and separate from one another, and at least one of said transistors being defective, an insulative layer intimately overlying the surface of said body with openings therein exposing the respective surface of said emitter and base layers, a pair of conductors intimately overlying said insulative layer and each having respective discrete leads connected to said emitter and base layers through said openings, with the lead connection to at least one of the emitter and base layers of said defective transistor being broken for isolating said defective transistor from said non-defective transistors.

3,303,401
METHOD AND APPARATUS FOR IMPARTING AN ELECTROSTATIC CHARGE TO A LAYER OF INSULATING MATERIAL
Gerhard Naumann and Fritz Endermann, Wiesbaden, Germany, assignors, by mesne assignments, to Azoplate Corporation, Murray Hill, N.J.
Filed July 17, 1963, Ser. No. 295,765
Claims priority, application Germany, July 20, 1962, K 47,280
8 Claims. (Cl. 317—262)

1. An apparatus for electrostatically charging a photoconductive layer comprising at least one discharge electrode formed by a plurality of electrically connected spaced needles mounted substantially perpendicularly to and extending across a path traversed by the layer, at least one auxiliary electrode adjacent to and spaced laterally from the discharge electrode, at least one counter-electrode positioned on the other side of the path, the distance between the discharge electrode and the path being greater than the distance between the discharge electrode and the auxiliary electrode and the latter distance being greater than the distance between adjacent needles, means connecting the discharge electrode with one pole of a source of D.C. voltage, and means connecting the other pole of the source to the auxiliary electrode and the counter-electrode.

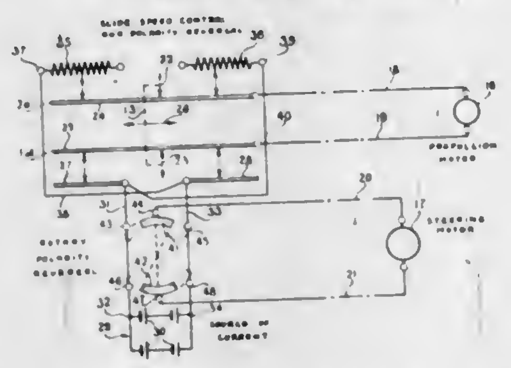


3,303,402
SINGLE PHASE INDUCTION MOTOR
Robert L. Martin, Roseville, Minn., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,775
8 Claims. (Cl. 318—221)



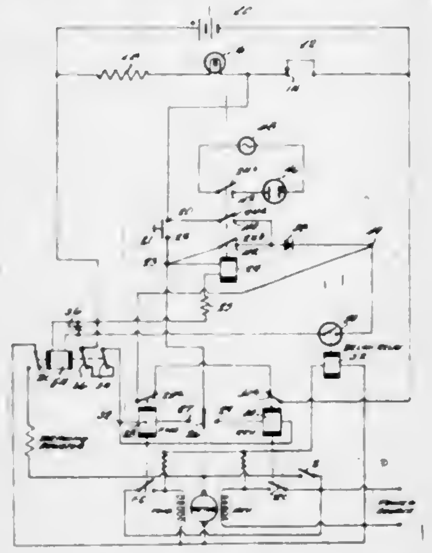
1. Apparatus comprising a single phase motor having a squirrel-cage rotor, a main winding, an auxiliary winding, and first and second power input terminals; means for connecting said main winding between said first and second power input terminals; first and second capacitors; a positive temperature coefficient resistor; means for connecting said auxiliary winding, said first capacitor and said positive temperature coefficient resistor in series between said first and second power input terminals; and means for connecting said second capacitor in parallel with the series combination of said first capacitor and said positive temperature coefficient resistor.

3,303,403
POWER CONTROLLING DEVICE FOR A REMOTE TOY EQUIPPED WITH A REVERSIBLE ELECTRIC MOTOR
Joseph L. Bonanno, South Orange, N.J., assignor to De Luxe Reading Corp., Elizabeth, N.J., a corporation of New Jersey
Filed Dec. 1, 1964, Ser. No. 415,051
7 Claims. (Cl. 318—257)



1. In a power controlling device for a remote toy equipped with two reversible electric motors: a housing having a slot; a control arm projecting from the interior of the housing through said slot and having a graspable outer end, the inner end of said arm being mounted within said housing for back-and-forth twisting movements and also for back-and-forth translational movements along said slot; a source of direct current located within said housing; flexible lead wires extending therefrom to said motors, there being a separate circuit for each motor; a first reversing switch means interposed in one circuit and governed by said translational movements of the control arm for regulating the direction of current flow to the first of said motors; a second reversing switch means interposed in the other circuit and governed by said twisting movements of the control arm for regulation the direction of current flow to the second of said motors, and a resistance-varying means in one of said circuits governed by the corresponding movements of said control arm for controlling the magnitude of current flow to its respective motor.

3,303,404
ARRANGEMENT FOR OVER-RIDING THE INADVERTENT ACTUATION OF A TRIP DEVICE IN A MOTOR CONTROL CIRCUIT
Edward L. Raub, Jr., New London, Conn., assignor to Wheeldex & Simpla Products, Inc., Peekskill, N.Y., a corporation of New York
Filed Dec. 18, 1963, Ser. No. 331,526
4 Claims. (Cl. 318—447)

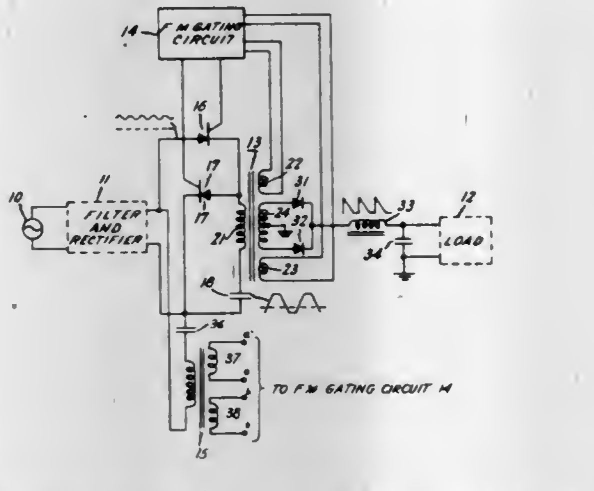


1. An improved control circuit for a motor driven apparatus comprising: a voltage source; a series circuit connected across said voltage source and including a trip device, a switch, and a safety relay; said trip device being closed under normal conditions to permit initial energization of said safety relay on actuation of said switch; at least two normally open, ganged contacts which close on energization of said safety relay to complete first and second holding circuits for said safety relay across the voltage source; said first holding circuit including said trip device, at least one of said ganged contacts, and said safety relay; said second holding circuit including additional contact means which are open during motor operation and closed when said motor is stopped, at least one of said ganged contacts, and said safety relay; said safety relay being de-energized after initial energization only when said trip device is opened during operation of said motor.

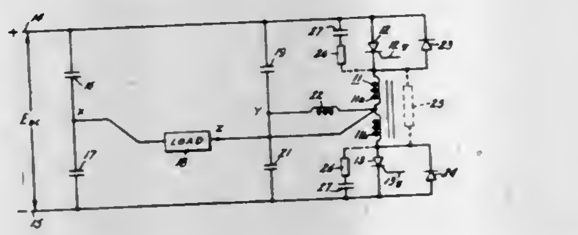
3,303,405
FREQUENCY MODULATED SELF-STABILIZING INVERTER
Francisc C. Schwarz, Ithaca, N.Y., assignor to General Electric Company, a corporation of New York
Filed Aug. 1, 1963, Ser. No. 299,423
1 Claim. (Cl. 321—2)

A self-stabilizing amplifier comprising:

(a) a power circuit including
  (1) a storage capacitor,
  (2) a first switching element coupling an input power source through said capacitor in series to a load,
  (3) a second switching element coupling said storage capacitor for discharge through said load,
  (4) said power circuit components being selected and interconnected in such a manner that, in response to out of phase switching signals turning said switching elements on to initiate alternate half cycles, the power circuit delivers self-terminating power pulses to the load; and
(b) a frequency modulating gate circuit including
  (1) a bistable multivibrator which applies turn on signals to said respective switching elements when switching between respective states,
  (2) integrator means, responsive to a control signal proportional to the signal applied to the load and reference signals, for determining the cycle duration by switching said bistable multivibrator between states,
  (3) saturable transformers serving as the integrator elements,
  (4) reference voltage sources for setting and resetting said integrator elements,
  (5) switching elements responsive to said bistable multivibrator for coupling said voltage sources to said integrators, and
  (6) said integrating means components being selected and interconnected in such a manner that variations in said control signal voltages produce cycle duration variations in accordance with the rms. voltage changes.



3,303,406
INVERTER CIRCUIT
Burnice D. Bedford, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 13, 1962, Ser. No. 237,065
23 Claims. (Cl. 321—44)



11. A new and improved inverter including in combination a pair of silicon controlled rectifiers, a commutating interval current limiting reactor comprised by a center tapped winding interconnecting the pair of silicon controlled rectifiers in series circuit relationship, a first pair of voltage dividing capacitors connected in series circuit relationship and adapted to be connected across

a direct current source of electric potential in parallel circuit relationship with the series circuit comprised by the center tapped winding and silicon controlled rectifiers, a pair of commutating capacitors connected in series circuit relationship in parallel with the series circuit comprised by said center tapped winding and silicon controlled rectifiers, and with the voltage dividing capacitors, a second inductance interconnected between the juncture of the commutating capacitors and the center tap on the center tapped winding with a load being adapted to be connected between the center tap on the center tapped winding, and the juncture of the voltage dividing capacitors, said second inductance being of a value to tune the series circuit comprised by the second inductance and either of the commutating capacitors to series resonance at a commutating frequency that is substantially higher than the operating frequency of the inverter, and a respective diode directly connected across each one of said silicon controlled rectifiers in parallel circuit relationship.

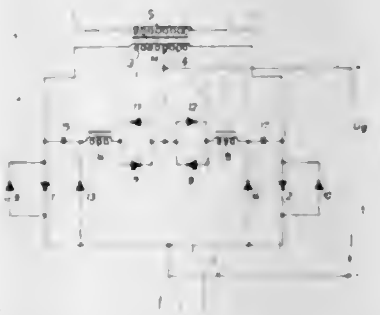
3,303,407
SELF-CONTROLLED INVERTER WITH A COMMUTATING OSCILLATORY CIRCUIT

Manfred Depenbrock and Hans Christoph Skudelny, Mannheim-Feudenheim, Germany, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company

Filed Nov. 13, 1963, Ser. No. 323,360

Claims priority, application Germany, Dec. 17, 1962, B 70,007

7 Claims. (Cl. 321—45)



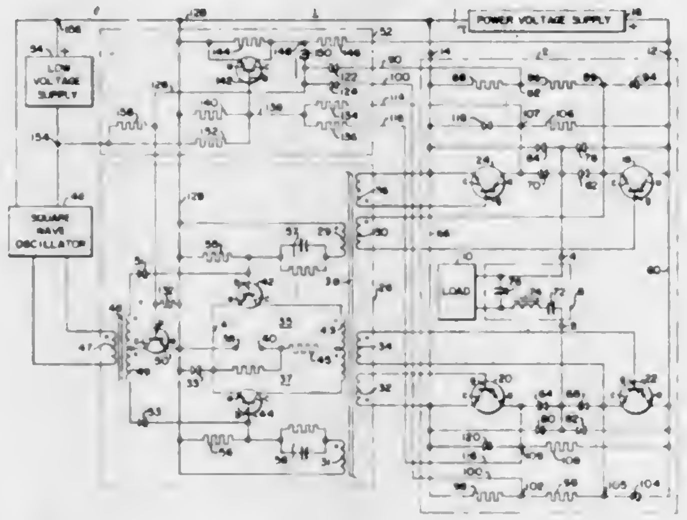
1. A self-controlled inverter for generating from a source of unidirectional voltage an alternating voltage having a rectangular wave form which is not affected by the load,, comprising a plurality of inverter branches connected to said source of unidirectional voltage, each said inverter branch including a controllable valve operating as the main valve and an uncontrollable valve connected in anti-parallel therewith, and an oscillatory circuit for commutating said main valve comprising a condenser and an inductance in series with a controllable commutating valve and a second uncontrollable valve connected in anti-parallel, each said main valve and its associated commutating valve together with said oscillatory circuit establishing a network extending between the poles of said source of unidirectional voltage and being controlled such that said main valve in each said branch is fired at the beginning of the related half wave of alternating voltage to be generated and the associated commutating valve is fired at an instant which precedes the end of said half-wave of alternating voltage by a time interval at least equal to one quarter of the period oscillation of said oscillatory circuit, and a third uncontrollable valve connected to said oscillatory circuit which carries current and effects recharging of said condenser in preparation for the following half-wave of alternating voltage during the time interval the other valves do not carry current.

3,303,408
RISE TIME CIRCUIT FOR SILICON CONTROLLED RECTIFIER

Frank J. Prines, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 25, 1963, Ser. No. 253,815

14 Claims. (Cl. 321—45)



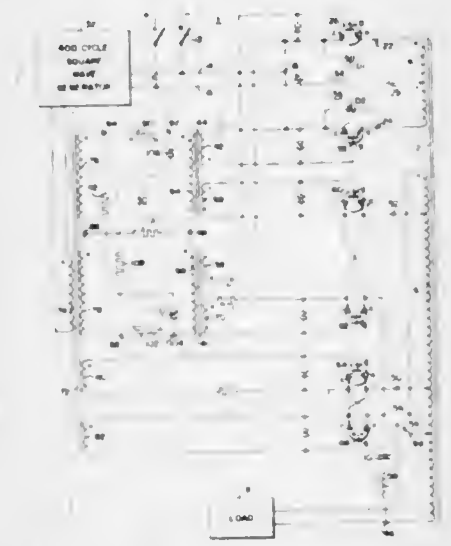
12. In a network of the character described, a first pair of input terminals, a pair of output terminals, a pair of switching devices, each said device having a power circuit and a control circuit actuable to initiate flow of current in said power circuit, a first current path interconnecting said pairs of terminals and including said power circuit of a first of said devices, a second current path interconnecting said pairs of terminals and including said power circuit of a second of said devices, a transformer having primary and secondary winding means and first and second tertiary windings and a core which is proportioned to saturate within the normal energization of said primary winding means, a second pair of input terminals, first and second valves, each said valve having a power circuit and a control circuit, a third current path connecting said second pair of input terminals to said primary winding means and including said power circuit of said first valve, a fourth current path connecting said second pair of input terminals to said primary winding means and including said power circuit of said second valve, said third and fourth paths being polarized relative to said primary winding means such that conduction of said third path causes flux to increase in a first direction and conduction of said fourth path causes flux to increase in a second direction, fifth circuit means connecting said first tertiary winding to said control circuit of said first valve and polarized such that an increase in said flux in said first direction causes said power circuit of said first valve to be conductive, sixth circuit means connecting said second tertiary winding to said control circuit of said second valve and polarized such that an increase in said flux in said second direction causes said power circuit of said second valve to be conductive, a second transformer having a primary winding and a secondary winding, said secondary winding having end terminals and an intermediate terminal, first and second asymmetric current conducting devices having a lower impedance to current flow in a forward direction and a higher impedance to current flow in a rearward direction, circuit means connecting said first tertiary winding between one of said end terminals and said intermediate terminal and including said first asymmetric device, said first asymmetric device being arranged such that its said forward current flows through said first tertiary winding in a direction to induce said flux in said core in said second direction, and circuit means connecting said second tertiary winding between the other of said end terminals and said intermediate terminal and including said second asymmetric device, said second asymmetric device being arranged such that its said forward current flows through said second tertiary winding in a direction to induce flux in said core in said first direction, and a source of pulsating potential connection to said primary winding.

3,303,409
CURRENT INTERRUPTING NETWORK FOR CONTROLLED RECTIFIERS

Theodore M. Heinrich, Auglaize Township, Allen County, and Andress Kernick, Lima, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Jan. 25, 1963, Ser. No. 253,808

13 Claims. (Cl. 321—45)



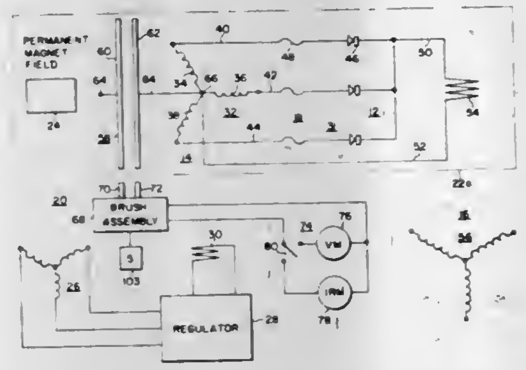
12. An inverter of the character described comprising, a pair of power input terminals, a transformer having winding means and a core, a plurality of discontinuous control type valves, each said valve having a power circuit and a control circuit operable to control the initiation of current through said power circuit, a first power path connecting said input terminals to said winding means and including said power circuit of a first of said valves, a second power path connecting said input terminals to said winding means and including said power circuit of a second of said valves, said winding means being arranged relative to said power paths so as to develop flux in said core in opposite directions in response to alternate conductions of said power paths, a second transformer having a core with a primary winding and a plurality of secondary windings, one of said secondary windings of said second transformer having end taps and an intermediate tap, a third and a fourth transformer each having a primary winding and a pair of secondary windings, a plurality of impedances, first and second saturating reactors, means connecting said primary windings of said third and fourth transformers in series to provide a pair of free end terminals and a common terminal, means connecting one of said free terminals to one of said end taps and including said first reactor, means connecting the other of said free terminals to the other of said end taps and including said second reactor, means connecting said common terminal to said intermediate tap and including a first of said impedances, first and second diodes, means connecting said one free terminal to said other end tap and including said first diode and a second of said impedances, means connecting said other free terminal to said one end tap and including said second diode and a third of said impedances, means connecting a first of said secondary windings of said third transformer across said control circuit of said first valve, means connecting a first of said secondary windings of said fourth transformer across said control circuit of said second valve, means energizing said primary winding of said second transformer with alternating potential power, first and second pairs of said valve devices, each said valve device having a power circuit and a control circuit, means connecting the second of said secondary windings of said third transformer across said control circuit of a first valve device of said first pair of said devices, means connecting the second of said secondary windings of said fourth transformer across said control circuit of the second valve device of said first pair of said devices, a capacitor, an inductance, means connecting said capacitor and said inductance in series across a first predetermined number of turns of said winding means and including said first pair of said valve devices, said valve devices of each of said pairs of devices being connected in anti-parallel, means connecting said capacitor and said inductance in series across a second predetermined number of turns of said winding means and including said second pair of said valve devices, said first predetermined number being a greater number greater than said second predetermined number, means connecting a number of said turns of said second transformer across a first of said valve devices of said second pair of said devices, and means connecting a number of said turns of said second transformer across a second of said valve devices of said second pair of said devices.

3,303,410
ROTATING RECTIFIER EXCITER GROUND DETECTION ARRANGEMENT

Dillon B. Hoover, Edgewood, and Bernard B. Winer, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Feb. 7, 1964, Ser. No. 343,320

6 Claims. (Cl. 322—99)



1. In a rotating rectifier exciter, a ground detection arrangement comprising at least one collector ring disposed in rigid and electrically insulative supporting relation on shaft means of said rectifier exciter, conductor means electrically connecting said ring to a predetermined circuit point in rotating excitation circuit means of said rectifier exciter, brush assembly means having a normally retracted brush actuable to contact said ring, means for contacting an electrically common ground in said rectifier exciter, and means for controlling the position of said brush and for electrically metering across said winding means circuit point and said ground point when said brush is advanced to contact said ring.

3,303,411
REGULATED POWER SUPPLY WITH CONSTANT VOLTAGE/CURRENT CROSS-OVER AND MODE INDICATOR

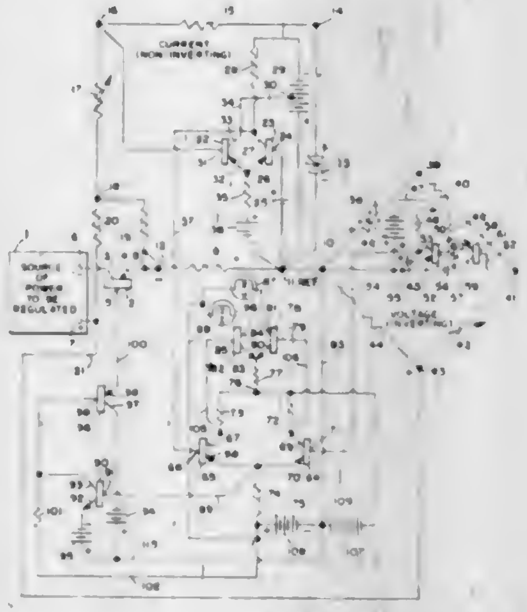
Joseph R. Gately, Woodside, N.Y., assignor to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Apr. 30, 1963, Ser. No. 276,954

4 Claims. (Cl. 323—4)

1. In a voltage/current regulated power supply, the combination of, a source of power to be regulated, out-

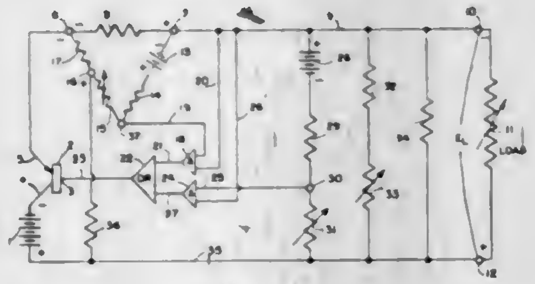
put means for the power supply, voltage/current regulating means connected between said source of power and said output means, means for generating a first signal in accordance with the output current of the power supply, means for generating a second signal in accordance with the output voltage of the power supply, a first pair of transistors each including at least a base, an emitter and a collector, means for applying said first signal to one of said bases, means for applying said second signal to the other of said bases, a resistor common to both of said emitters, a second pair of transistors each including at least a base, an emitter and a collector, means for coupling each of the bases of said second pair to one of said collectors of said first pair, a resistor common to said emitters of said second pair, and a first indicator lamp coupled to one of said collectors of said second pair and a second indicator lamp coupled to the other of said collectors of said second pair.



3,303,412
CURRENT REGULATED POWER SUPPLY WITH COMPENSATING MEANS FOR EXTRANEOUS SHUNTING CURRENT PATHS ACROSS THE LOAD

Joseph R. Gately, Woodside, N.Y., assignor to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Jan. 30, 1964, Ser. No. 341,286
4 Claims. (Cl. 323—4)

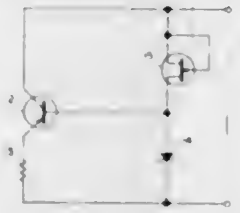


1. In a voltage/current regulated power supply, the combination of, a source of direct current, signal responsive control means connected in series with said source and a pair of output terminals, a four arm closed loop voltage control bridge including a source of reference voltage, a voltage bridge current control reference resistor, a variable voltage control resistor and said output terminals, a D.C. amplifier including input and output circuits, means coupling said input circuit to said voltage bridge for amplifying unbalance signals therefrom, an OR circuit coupled between said output circuit and said control means in signal controlling relationship thereto, a four arm closed loop current control bridge including at least a current sensing resistor connected between said current control means and one of said output terminals, a source of reference voltage, a current bridge current control reference resistor and a variable current control resistor, a second D.C. amplifier including input and output circuits, means coupling the last said input circuit to said current bridge for amplifying unbalance signals therefrom, means coupling the last said output circuit to said OR circuit, and means for compensating extraneous current path shunts across said output terminals including a resistor in series with said current control resistor of said current control bridge and means for passing current through said series resistor substantially proportional to the voltage across said output terminals, whereby to provide a voltage within said closed loop of said current control bridge at least partially compensating the current in said extraneous paths.

3,303,413
CURRENT REGULATOR

Raymond M. Warner, Jr., and Frank R. Carlson, Scottsdale, Ariz., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois

Filed Aug. 15, 1963, Ser. No. 302,410
6 Claims. (Cl. 323—4)

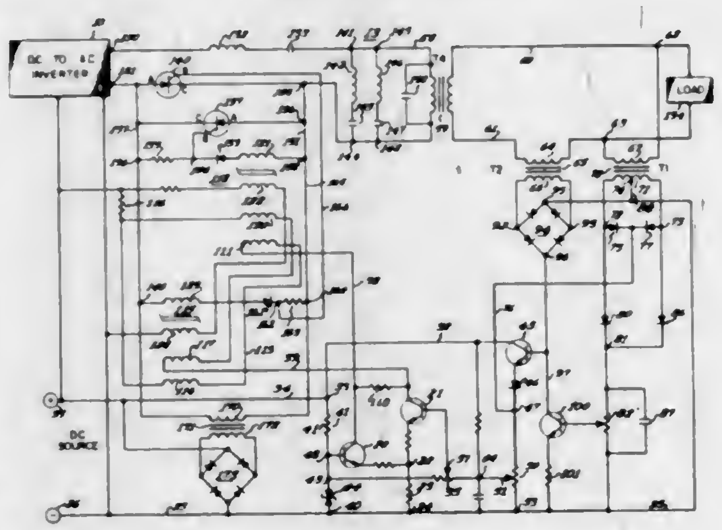


1. A current regulating circuit, including in combination a transistor, means having resistive impedance connected to the emitter of said transistor, a voltage regulator connected between said impedance means and the base of said transistor for providing a regulated voltage across said impedance means and the emitter-to-base portion of said transistor, and an active current regulating device including at least one field effect current limiter for providing in the operation of said circuit a regulated and increased current shunting the collector-base portion of said transistor to increase the current level at which said circuit will regulate current.

3,303,414
SEMICONDUCTOR APPARATUS

James Lee Jensen, St. Louis Park, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed May 15, 1963, Ser. No. 280,701
3 Claims. (Cl. 323—9)



1. Overload voltage and current regulating apparatus of the type in which under overload conditions the current regulator limits at a magnitude which is a function of output voltage comprising:

means for providing an alternating current potential to load apparatus;

voltage sensing means connected to sense the magnitude of said output alternating potential and having a direct current output signal indicative of said potential;

current sensing means connected to sense the magnitude of the alternating current to said load apparatus and having a direct current output substantially proportional to the magnitude of said alternating current;

normally conductive current comparator means having a bias circuit, an input circuit, and an output circuit;

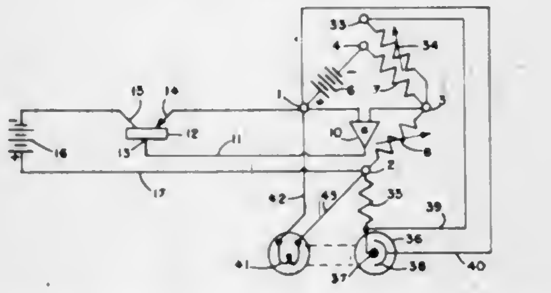
means connecting the output of said voltage sensing means to said bias circuit whereby said current comparator means is biased conductive with a signal substantially proportional to said output potential so that under normal conditions a maximum bias is applied to said bias circuit;

means connecting the output of said current sensing means to said comparator means input circuit, said comparator means being designed such that no output signal is obtained from said output circuit until a predetermined magnitude of current is sensed, however, under overload conditions wherein said output voltage is decreased the signal to said bias circuit is decreased substantially in proportion thereto whereby lower magnitude of signal to said input circuit is effective to provide an output signal from said comparator means.

3,303,415
BRIDGE CONTROLLED POWER SUPPLY

Alfred W. Barber, Oakland Gardens, N.Y., assignor to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Mar. 9, 1964, Ser. No. 350,159
7 Claims. (Cl. 323—9)

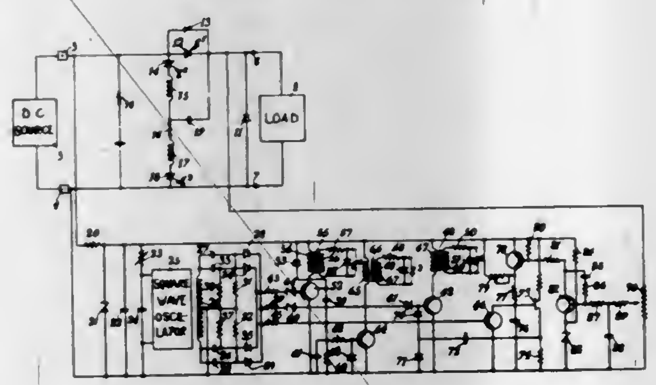


5. A regulated output voltage power supply comprising, in combination, a source of unregulated potential; a reference network including plural branches connected between first and second junction points; a pass transistor connected between one terminal of said source and said first junction point; a first load terminal connected to said first junction point; a balancing control amplifier having its input constituting one of said branches and having its output connected in bias controlling relation to said transistor; potential source means and resistor means connected in series in another of said branches and effective, upon unbalancing of the network, to provide a voltage drop between said junction points; resistance means connected between said second junction point and a third junction point connected to the other terminal of said source of unregulated potential and to the other load terminal; one of said means being adjustable to preset a fixed desired value of output voltage; said network, when the source of potential is at a preset value and the potential between said load terminals is at such fixed desired value of output voltage, being balanced to the extent that said first and second junction points are at the same relative potentials; said network, when the output voltage varies from its preset value due to variation in either the source potential or the load, becoming unbalanced so that there is an operationally effective potential difference, between said first and second junction points, of a relative polarity depending upon the direction of such variation from the respective preset value; said potential difference conditioning said control amplifier to vary the bias of said transistor in an output voltage correcting direction; and including light means connected to said load terminals, light responsive means for providing a potential responsive to light from said light means, and including an additional branch connected between said first and second junction points including at least of the potential from said potential responsive means and a current limiting resistor for modifying the output voltage required to balance said network in accordance with light from said light source.

3,303,416
VOLTAGE REGULATORS

Derek Albert Paice and Walter Sinclair, Hemel Hempstead, England, assignors to Rotax Limited, London, England

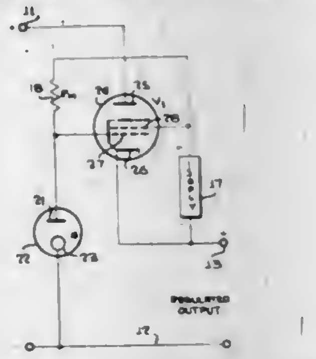
Filed Jan. 29, 1963, Ser. No. 254,802
Claims priority, application Great Britain, Feb. 6, 1962, 4,464/62
3 Claims. (Cl. 323—18)



1. A voltage regulator comprising in combination first and second terminals for connection to a D.C. supply to be regulated, third and fourth terminals for connection to a load, the second and fourth terminals being interconnected, a first controlled rectifier through the anode and cathode of which the first and third terminals are interconnected, a capacitor connected at one side to the cathode of the first controlled rectifier, a first inductor connected in series with a second controlled rectifier between the other side of the capacitor and the anode of the controlled rectifier, a second inductor connected in series with a third controlled rectifier between said other side of the capacitor and and the second terminal, a diode having its anode and cathode connected respectively to the cathode and anode of the first controlled rectifier, and a control circuit connected to the gates of the controlled rectifiers, the control circuit including first pulse-producing means for switching the first controlled rectifier on at predetermined equal intervals of time, second pulse-producing means operable at fixed intervals after switching on of the first controlled rectifier for switching the third controlled rectifier on, switching on of the third controlled rectifier resulting in charging of the capacitor until the third controlled rectifier is automatically switched off by the back bias across it, third pulse-producing means for switching on the second controlled rectifier at a variable instant after switching on of the third controlled rectifier, and fourth pulse-producing means for switching on the second controlled rectifier at the same time as the first controlled rectifier is rendered conductive, switching on of the second controlled rectifier permitting discharge of the capacitor through the diode and consequential switching off

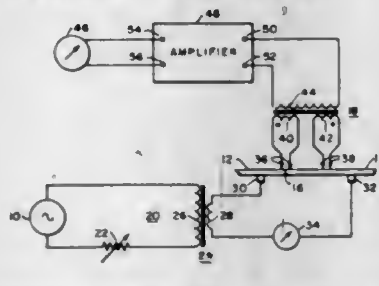
of the first controlled rectifier, said variable instant being determined by the voltage across the third and fourth terminals so that the mean voltage across the third and fourth terminals is maintained substantially constant, and said first, second and fourth pulse-producing means being constituted by a square wave oscillator and associated delay and shaping circuits.

3,303,417
SERIES REGULATOR
John F. Walton, McLean, Va., assignor, by mesne assignments, to Halliburton Company, a corporation of Delaware
Filed Jan. 30, 1963, Ser. No. 254,898
20 Claims. (Cl. 323—22)



7. A regulator circuit for coupling an unregulated D.C. power source to a load, comprising a common connection for one side of said source and one side of said load, a variable impedance element having a first electrode for emitting charged carriers, a second electrode for receiving said charged carriers, and a third electrode for controlling the flow of said charged carriers between said first and second electrodes, said first and second electrodes being connected to the other sides of said load and said source, respectively, means for maintaining the potential applied to said third electrode substantially constant despite variations in the potential across said load, said means for maintaining including a current path connected across said load, said path including, an impedance element for deriving a substantially constant voltage only when the voltage across it is approximately equal to or exceeds the value of said constant voltage, one end of said element being connected to said common connection, a dropping impedance, and a source of potential connected in a series circuit between the other end of said element and said other side of said load, said element being connected across said load only via the series circuit including said source, said potential source being in series aiding relationship with the voltage across said load.

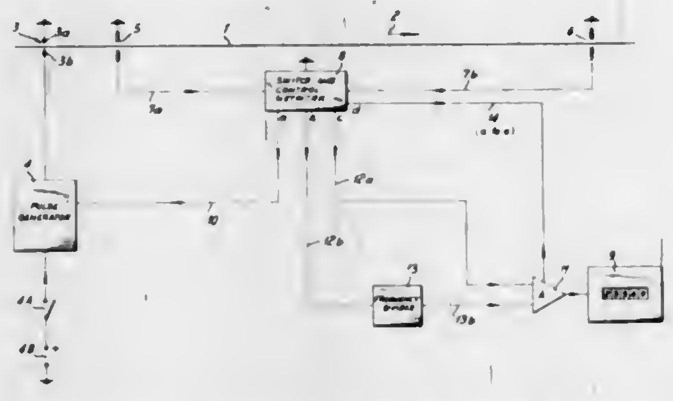
3,303,418
ELECTRICAL APPARATUS FOR TESTING JOINTS HAVING FOUR VOLTAGE PROBES
Merrill W. Rose, Masury, Ohio, assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 27, 1963, Ser. No. 283,199
2 Claims. (Cl. 324—64)



1. Test apparatus for testing the condition of a joint formed between a pair of electrical conductors, comprising,

a source of alternating potential,
means for adjusting the magnitude of said source of alternating potential,
said source of alternating potential being adapted for connection across the joint to be tested,
first and second pair of contact members, the contact members of each of said first and second pair being spaced a predetermined distance apart, one of said pair of contact members being adapted for connection to one of the pair of electrical conductors, the remaining pair of contact members being adapted for connection across the joint between the pair of electrical conductors,
a transformer having first and second input windings arranged in opposition, and an output winding,
said first and second pair of contact members being connected to said first and second input windings, respectively,
and indicating means connected to the output winding of said transformer,
said output winding applying a signal to said indicating means responsive to the difference between the signals applied to said first and second input windings by said first and second pair of contact members.

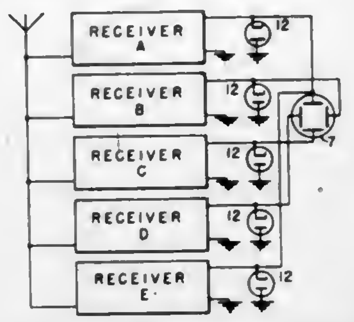
3,303,419
METHOD AND DEVICE FOR MEASURING THE LENGTH OF RUNNING TEXTILE THREADS
Walter Gith, Monchen-Gladbach, Germany, assignor to Walter Reiners, Monchen-Gladbach, Germany
Filed July 5, 1963, Ser. No. 293,004
Claims priority, application Germany, July 10, 1962, R 33,102
11 Claims. (Cl. 324—71)



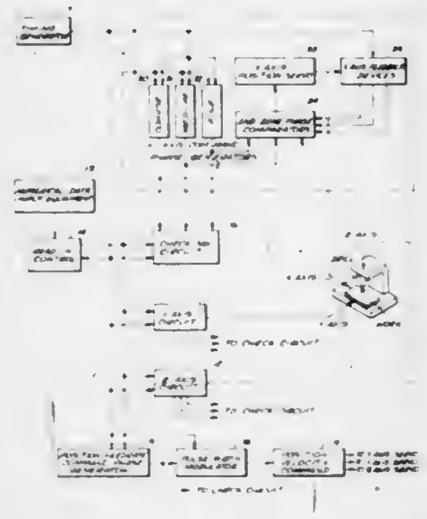
1. The method of measuring the length of textile thread material travelling on a given path, which comprises applying discrete fugitive and self-expiring markings at a distance from each other along the material by adding one of said markings at a given location of the path each time the preceding marking has travelled said distance, increasing and decreasing said distance in dependence upon increased and decreased running speeds respectively of the material, sensing and counting the number of applied markings passing by the end of said distance per unit time.

3,303,420
INSTANTANEOUS FREQUENCY RESOLVER
Frederick Harris, 6215 Hope Drive, Washington, D.C. 20031, and Mack J. Sheets, Alexandria, Va.
Filed Dec. 9, 1947, Ser. No. 790,584
1 Claim. (Cl. 324—77)

In a frequency analyzing system, a plurality of three or more similar band pass channels, each successive channel tuned to a respective one of successive center frequencies substantially one bandwidth apart, means for applying a signal in parallel to all of said band pass channels, an indicating device including a cathode ray tube having a pluraltiy of deflecting elements successively angularly disposed about the cathode ray beam, and means connecting the output from each of said band pass channels solely to one respective deflecting element of said indicating device, the successive band pass channels being connected to successive angularly adjacent deflecting elements.



3,303,421
DIGITAL PHASE COMPARISON CHECKING CIRCUIT
Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company, a corporation of New York
Filed Jan. 23, 1963, Ser. No. 253,310
3 Claims. (Cl. 324—83)

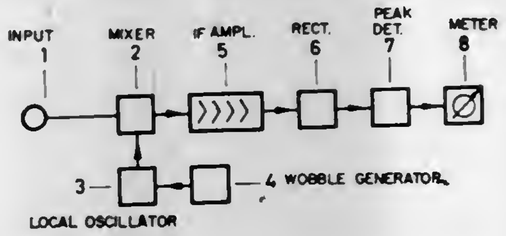


1. In a system wherein a command is represented by a plurality of binary coded command signals that vary in their binary characteristic at a time determined by said command, a circuit for checking said time of variations of said command signals comprising a first gating means for comparing the time of binary variation of a first command signal with the time of binary variation of the inversion of a second command signal, said first gating means producing a binary signal output only when there is a time difference in variation of said two signals, a second gating means for comparing the time of binary variation of the inversion of said first command signal with the time of binary variation of said second command signal, said second gating means producing a binary output only when there is a time difference in variation of said two signals, and means coupled to the outputs of said first and second gating means for producing a binary output signal whenever a binary output signal is produced at the output of either of said first and second gating means.

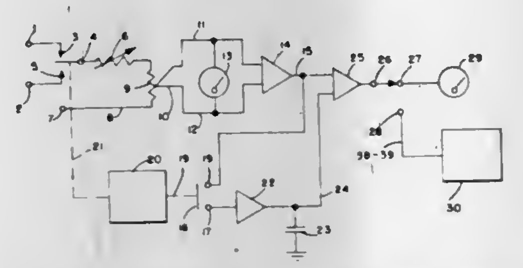
3,303,422
SIGNAL VOLTAGE PEAK AND FREQUENCY MEASURING APPARATUS USING HETERODYNE PRINCIPLE
Horst Lucius, Hohenschaftlarn, Germany, assignor to Rohde & Schwarz Offene Handelsgesellschaft, Munich, Germany
Filed Mar. 23, 1962, Ser. No. 182,038
Claims priority, application Germany, Mar. 27, 1961, R 29,980; May 5, 1961, R 30,271
2 Claims. (Cl. 324—103)

1. Apparatus for determining the peak signal within a spectrum of electrical signal voltages occurring as discrete signals, in a wide high-frequency band, comprising

means scanning the frequency band to produce voltages occurring in timed sequence one after another at its output, said scanning means including a local oscillator; a wobble generator connected to said local oscillator and producing output voltages of a frequency varying in time; a mixer circuit having said spectrum of electrical signal voltages applied thereto and further connected to said scanning means to heterodyne said signal voltages and the frequency-varying local oscillator voltages to obtain derived signals varying in time; a peak detector having the derived signal voltages obtained from said mixer circuit applied thereto; indicator means to indicate peak voltage values detected by said peak detector; means indicating the frequency within said spectrum being scanned by said scanning means; and means selectively and simultaneously actuating said frequency indicating means and said indicator means to indicate the peak signal value and its frequency position within said spectrum.



3,303,423
THERMOCOUPLE TYPE R.M.S. MEASURING SYSTEM HAVING STORAGE MEANS TO HOLD MEASURED SIGNAL FOR COMPARISON WITH REFERENCE
Leo Staschover, Syosset, and Charles I. Cimilluca, Bronx, N.Y., assignors to North Hills Electronics, Inc., Glen Cove, N.Y., a corporation of New York
Filed July 12, 1963, Ser. No. 294,597
6 Claims. (Cl. 324—106)

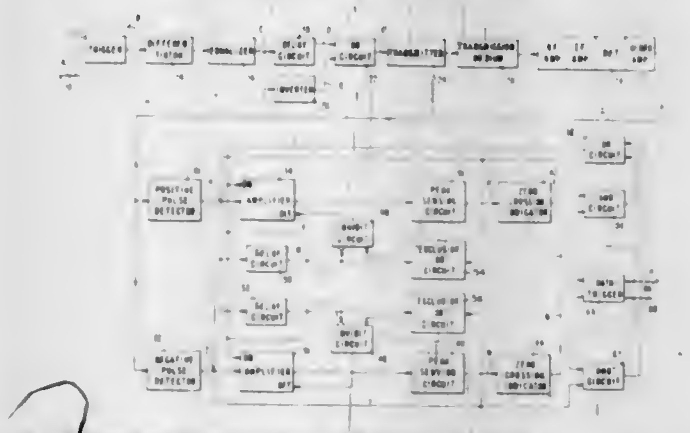


1. In a voltage comparison system, the combination of, a pair of input terminals to be connected to sources of voltage to be compared, a thermocouple including heater means and output means, a first amplifier including input means and output means, a second amplifier including input means and output means of inverted polarity with respect to said input, a third amplifier including a two sided differential input means and output means, current control means connected to said heater, a two position switch for switching said current control means selectively to each of said input terminals to selectively apply said source of voltage through said current control means to said heater, means connecting said thermocouple output means to the input of said first amplifier, a switch which when closed connects the output of said first amplifier to the input of said second amplifier, a capacitor to be charged by signals amplified by said second amplifier connected to its output, mechanical coupling means between said two switches to provide closing of said second switch corresponding with a predetermined position of said first switch so that said capacitor is charged

in response to one of said sources of voltage, means connecting one side of said third amplifier input means to the output of said first amplifier and the other side to said capacitor so that the output of said third amplifier is a function of the difference between said two sources of voltage.

3,303,424
ASYNCHRONOUS DATA SYSTEM TRANSMITTING BEFORE EACH DATA PULSE A PULSE OF OPPOSITE POLARITY

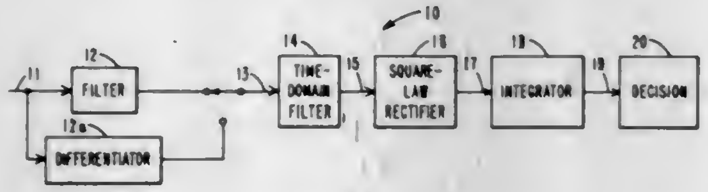
Emil Hopner, Los Gatos, Calif., and Dale H. Rumble, Saugerties, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 3, 1963, Ser. No. 292,646
12 Claims. (Cl. 325—44)



1. A data transmission system comprising:
a source of digital data signals, said digital data being manifested by seriately occurring alternate polarity data pulses,
means coupled to said source for delaying each of said data pulses a fixed time period,
means coupled to said source for inverting the polarities of each of said data pulses to form gating pulses,
means for combining said delayed data pulses and said gating pulses to form a composite signal wherein each of said data pulses are preceded at said fixed time period by an opposite polarity pulse,
means for receiving said composite signal including,
bistable means for producing an output signal which alternates between a first and second signal level in response to input pulses applied thereto,
and switching means disposed between said receiving means and said bistable means for selectively coupling said composite signal to said bistable means at predetermined times such that said bistable means changes output signal levels only in response to said data pulses.

3,303,425
BINARY DETECTION SYSTEM

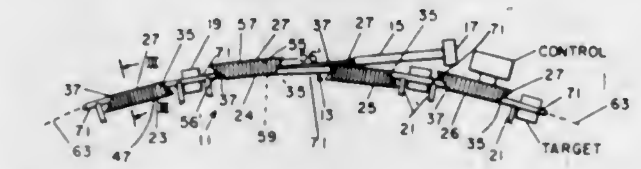
Thomas A. Pendleton, Adelphi, Md., assignor to Atlantic Research Corporation, a corporation of Virginia
Filed Apr. 9, 1963, Ser. No. 271,753
7 Claims. (Cl. 328—165)



1. Apparatus for the binary detection of the presence of signals in an input waveform containing Gaussian and non-Gaussian noise components comprising filter means for receiving said input waveform and passing to the remainder of the detection apparatus a transformed waveform in which the non-Gaussian components are distinguishable in amplitude from the signal and Gaussian components, adjustable means for reducing to at least a preset level those amplitudes which exceed the preset level, the excessive amplitudes being caused primarily by the non-Gaussian components, means responsive to the output of said adjustable means for measuring the remaining energy in said filtered waveform and means responsive to the output of said energy measuring means for indicating the presence of a signal.

3,303,426
STRONG FOCUSING OF HIGH ENERGY PARTICLES IN A SYNCHROTRON STORAGE RING

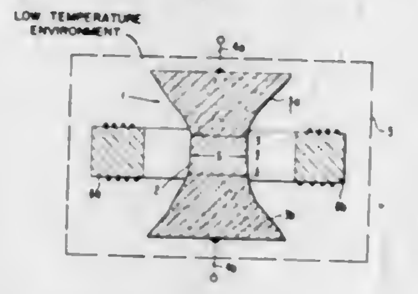
Richard A. Beth, Bonn, Germany, assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 11, 1964, Ser. No. 351,255
7 Claims. (Cl. 328—235)



7. Alternating gradient magnetic focusing and bending means for a high energy, high intensity beam of protons traveling with substantially the same momentum in a column having an axis in a first plane, comprising spaced magnetic pole means disposed symmetrically about said first plane to form a gap for receiving and transmitting said beam in said first plane, said magnetic pole means being trapezoidally shaped in cross-sectional planes parallel to said first plane and having first and second oppositely directed ends formed in second and third planes at right angles to said first plane and intersecting therewith in respective oppositely directed first and second lines, said second plane of said first ends being adapted to receive said beam with said beam axis intersecting on a bias obliquely with said first line in a steep gradient, and means producing a magnetic field in said gap having a magnetic flux acting on said particles through said pole means for bending said beam axis for transmitting said particles through said third plane with said beam axis intersecting on a bias obliquely with said second line in a steep gradient oppositely obliquely to the intersection of said axis and said first line so as to expose said beam particles to alternating gradient magnetic focusing with said oppositely directed first and second ends.

3,303,427
CRYOGENIC HALL-EFFECT SEMIMETAL ELECTRONIC ELEMENT

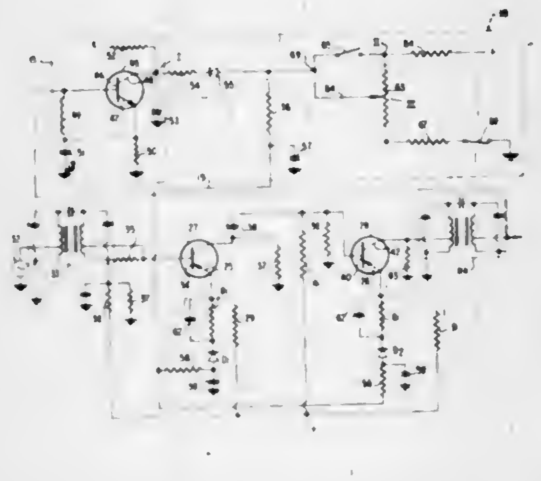
Leo Esaki, Briarcliff Manor, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Feb. 27, 1962, Ser. No. 176,018
9 Claims. (Cl. 329—200)



1. An electronic element comprising:
a semimetal crystalline body;
load means connected in electrical circuit arrangement with said crystalline body;
means for maintaining said crystalline body at a temperature whereat the magnetoresistance of said crystalline body is electric field dependent;
means for applying perpendicular electric and magnetic fields to said crystalline body of such value that said crystalline body exhibits a sharp change in its magnetoresistance from a relatively high value to a relatively low value when the magnitude of said electric field is increased above a critical value.

3,303,428
MANUAL OR AUTOMATIC TRANSISTOR R.F. GAIN CONTROL SYSTEM UTILIZING A VOLTAGE CONTROLLED VARIABLE RESISTANCE ELEMENT

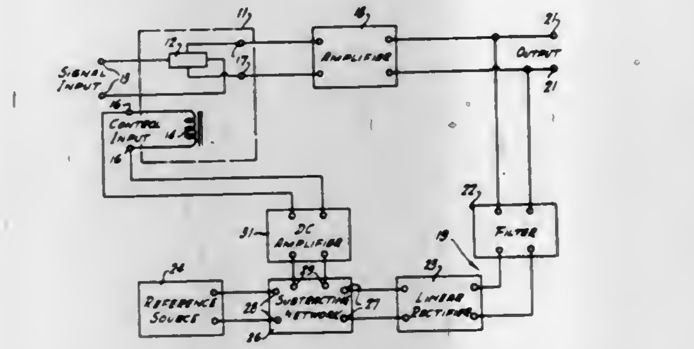
Karl Henry Zentmaier, Cranford, Richard Frank Post, Mountain Lakes, and Jaroslav A. Soukup, Nutley, N.J., assignors to Aircraft Radio Corporation, Boonton, N.J., a corporation of New Jersey
Filed Jan. 28, 1964, Ser. No. 340,687
5 Claims. (Cl. 330—29)



1. A gain control system for a transistor amplifier comprising
a transistor having base, collector and emitter electrodes
means for applying operating potentials to the electrodes of said transistor including
a fixed forward bias potential on the base thereof and the emitter circuit of said transistor being common to the input and output signal circuits of said transistor
a direct current voltage controlled diode in the emitter circuit of said transistor,
a pair of variable direct current voltage sources,
the voltage of one of said variable direct current sources being a function of signal strength of the signal output of the amplifier and the voltage of the other of said variable direct current voltage sources being manually variable,
a gain control bus commonly connecting said pair of variable direct current voltage sources to said direct current voltage controlled diode to vary the resistance thereof and the amount of signal degeneration thereat and direct current therethrough as a function of the voltage on said gain control bus
a control switch means for enabling said manually variable source to control said gain control bus so that said manually variable source controls the voltage on said gain control bus,
and a constant direct current source connected directly to the emitter electrode of said transistor,
said constant current source including a resistor of such large magnitude that it determines the direct current flowing through it to maintain a bias voltage on the emitter of said transistor to assure a gradual transition from "on" to "off" of said transistor.

3,303,429
GAIN REGULATION CIRCUIT EMPLOYING A HALL MULTIPLIER AS A VARIOLOSSER

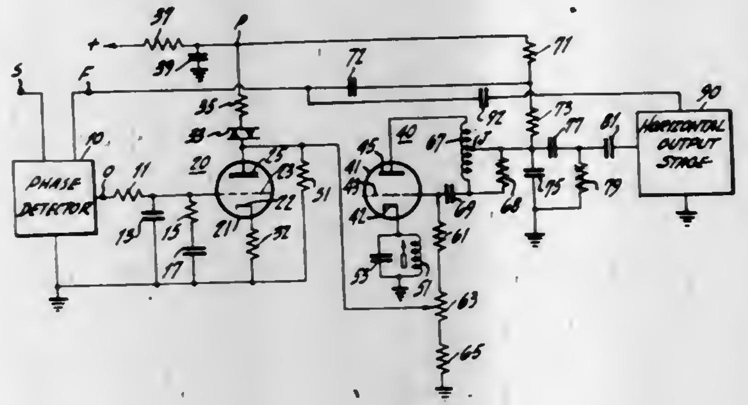
Neale A. Zellmer, Belmont, Calif., assignor, by mesne assignments, to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Sept. 3, 1963, Ser. No. 306,111
7 Claims. (Cl. 330—52)



1. A variolosser circuit using a Hall effect device comprising a crystal; input means for passing an input signal containing an A.-C. pilot signal through said crystal; a coil for applying a magnetic field to said crystal perpendicular to the path of the current of said input signal through said crystal, the strength of which field is proportional to the current through said coil; input means for passing a control current through said coil; means maintaining the amplitude of said control current proportional to changes in amplitude of said A.-C. pilot signal and of a polarity which causes the Hall output voltage of said crystal to change in the direction opposite from that of said change in amplitude of said A.-C. pilot signal; and output means for obtaining said Hall output voltage of said crystal, said output voltage being relatively constant because of the compensating effects between the changes in amplitude of said control current and the changes in amplitude of said A.-C. pilot signal.

3,303,430
OSCILLATOR SYNCHRONIZATION

John Norman Pratt, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware
Filed Oct. 8, 1965, Ser. No. 494,096
3 Claims. (Cl. 331—20)

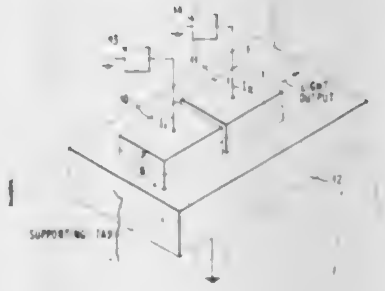


1. A deflection AFC arrangement including:
a deflection oscillator;
phase detector means for developing an error voltage output indicative of the magnitude and sense of the phase difference, if any, between an output of said deflection oscillator and a synchronizing waveform;
means for amplifying the error voltage output of said phase detector means;
means for applying the output of said amplifying means

to said oscillator to control the oscillator frequency;
a source of unidirectional operating potential subject to undesired variations;
said oscillator including a first signal translating device having a plurality of electrodes and deriving an operating potential from said source;
said amplifying means including a second signal translating device having an output electrode;
said output applying means comprising direct current conductive means connecting said output electrode to one of said plurality of electrodes of said first signal translating device;
and means for rendering the operating frequency of said oscillator substantialy insensitive to said undesired potential variations, said last-named means comprising a voltage-responsive impedance element coupled between said output electrode and said potential source.

3,303,431
COUPLED SEMICONDUCTOR INJECTION LASER DEVICES

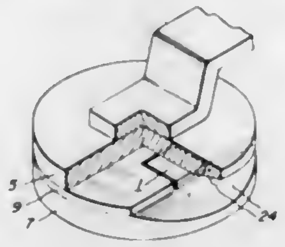
Alan B. Fowler, Yorktown Heights N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Feb. 10, 1964, Ser. No. 343,588
9 Claims. (Cl. 331—94.5)



1. A radiant energy device comprising:
(a) first and second separated semiconductor injection lasers each constituted of a crystalline body having a junction between adjacent regions of different conductivity characteristics and including a recombination radiation region for producing stimulated emission radiation when current above a threshold value is caused to flow across said junction;
(b) each of said injection lasers having first and second surfaces on opposite ends of the crystalline body which are reflective and form with the laser region an optical cavity in which said stimulated emission radiation is propagated;
(c) said laser regions of said first and second injection lasers being aligned in an essentially common plane to cause stimulated emission radiation produced in the laser region of one of said injection lasers to propagate along the laser region of the other of said injection lasers;
(d) and current supply means for supplying to said first laser a first current less than said individual threshold current for said first laser and for supplying to said second laser a second current less than said individual threshold current for said second laser;
(e) said first and second currents when individually applied being insufficient to produce stimulated emission radiation in either of said cavities and a coherent radiation output from said device but being effective when concurrently applied to produce stimulated emission radiation and provide a coherent radiant energy output from said device.

3,303,432
HIGH POWER SEMICONDUCTOR LASER DEVICES

Marvin Garfinkel, Schenectady, and William E. Engeler, Scotia, N.Y., assignors to General Electric Company, a corporation of New York
Filed Apr. 18, 1966, Ser. No. 543,305
17 Claims. (Cl. 331—94.5)

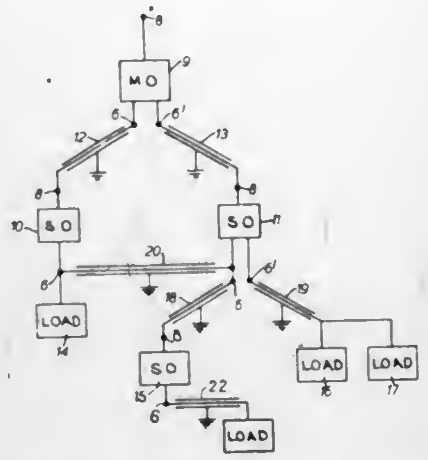


1. A semiconductor device for operation at very high power densities and comprising:
(a) a first monocrystalline wafer of semiconductor material the thickness dimension of which is very small as compared with the length and width dimensions thereof having a first P-type region and a second N-type region;
(b) a substantially planar P–N junction at the interface of said first and second regions and substantially perpendicular to the thickness dimension thereof;
(c) a pair of electrode members composed of a material which substantially matches the thermal coefficient of expansion of said first semiconductor wafer, and having good thermal conduction characteristics and good electrical conduction characteristics, at least at the surface thereof, bonded in low thermal and electrical resistive contact to opposite major surfaces of said first semiconductor wafer;
  (cc) the planar surface area of each of said electrodes being very much greater than the major surface area of said first semiconductor wafer;
(d) a second wafer of substantially intrinsic semiconductor, having a termal coefficient of expansion which substantially matches the coefficients of expansion of said first semiconductor wafer and said electrodes, bonded to and interposed between said electrodes and occupying substantially all the space between said electrodes not occupied by said first semiconductor wafer;
  (dd) said second wafer having a high electrical resistance as compared to the electrical resistance of said first wafer and having a low thermal resistance as compared to the thermal resistance of said first wafer.

3,303,433
ARRANGEMENT FOR DISTRIBUTING TIMING SIGNALS TO AVOID UNDESIRABLE REFLECTED SIGNAL TRIGGERING

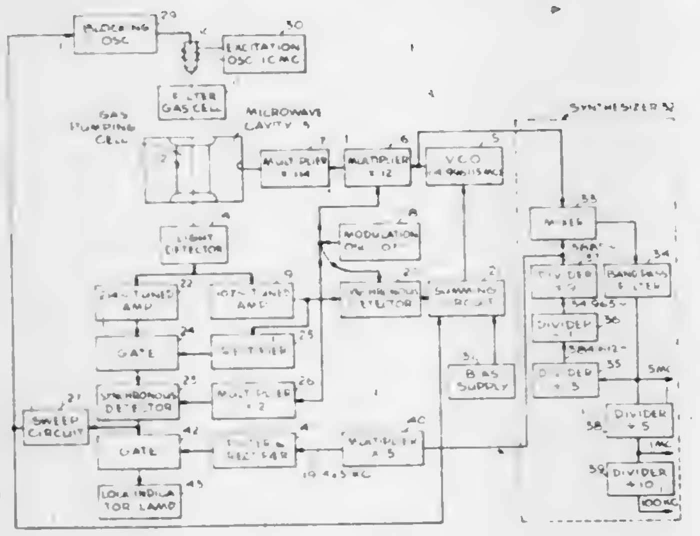
Roy William Mitchell, Bracknell, England, assignor to International Computers and Tabulators Limited, London, England, a British company
Filed Apr. 16, 1965, Ser. No. 448,616
Claims priority, application Great Britain, Apr. 29, 1964, 17,884/64
6 Claims. (Cl. 331—107)

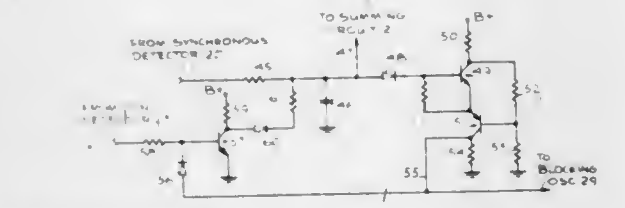
1. An arrangement for distributing timing signals including a first one-port generator operable to generate a succession of first timing signals at substantially equal time intervals; at least one second one-port signal generator operable in response to each first timing signal to generate a second timing signal delayed by a first time period with respect to said first timing signal; and a transmission line connecting said first signal generator to said second signal generator, each of said first timing signals taking a second time period to travel along the transmission line from the first to the second signal generator, said second time period being substantially equal to one half the difference between an integral number, including one, of said time intervals and said first time period.



3,303,434
SWEEP CIRCUIT FOR A FREQUENCY LOCKED CIRCUIT

Jacob M. Sacks, Palos Verdes Estates, Calif., assignor to TRW Inc., a corporation of Delaware
Filed Dec. 31, 1963, Ser. No. 334,885
6 Claims. (Cl. 331—111)

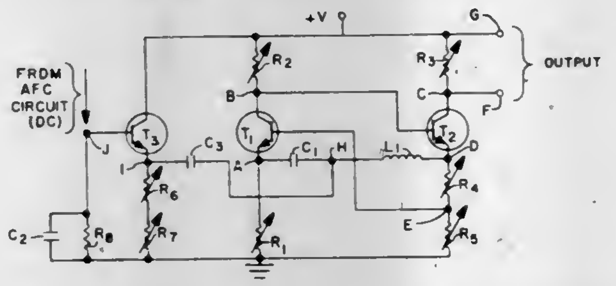




1. In combination,
a frequency controlling circuit comprising a charging capacitor whereby the capacitor voltage is adapted to control the frequency of a voltage controlled oscillator,
means operatively connecting said capacitor for applying a first control voltage to vary said capacitor voltage whereby the voltage controlled oscillator is fine frequency controlled,
a charging circuit including a switch operatively connecting said capacitor for charging said capacitor at a rapid rate whereby a sweeping voltage is generated across said capacitor resulting in a sweeping frequency voltage,
an additional switch means responsive to a substantially high voltage portion of said sweeping voltage for discharging said capacitor, thereby sweeping the frequency of the voltage controlled oscillator,
means operatively connecting said capacitor responsive to the discharging of said capacitor for applying a signal to said charging circuit to disable said charging circuit, thereby preventing said capacitor from charging again until the discharge is complete, and
means responsive to a lock indicator signal for energizing said charging circuit, to disable the charging of said capacitor and enabling the first control voltage to vary the voltage controlled oscillator.

3,303,435
SINEWAVE OSCILLATOR WITH AUTOMATIC FREQUENCY CONTROL

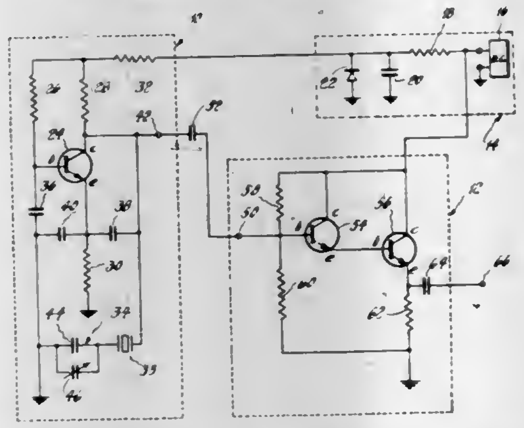
Richard W. Bradmiller and Harold P. Bruce, Orange County, Fla., assignors to Martin-Marietta Corporation, Middle River, Md., a corporation of Maryland
Filed June 26, 1964, Ser. No. 378,149
8 Claims. (Cl. 331—113)



1. An oscillator for generating a stable, low frequency, substantially sinusoidal wave comprising, in combination:
(a) first and second active means, each including electron emitting, collecting and control means;
(b) means for coupling the collecting means of said first active means to the control means of said second active means in a forward loop manner;
(c) means for coupling the emitting means of said second active means to the control means of said first active means in a degenerative manner;
(d) reactive means for coupling together said emitting means of said first and second active means in a regenerative manner, whereby said reactive means establishes the repetition rate of said oscillator;
(e) external control voltage; and
(f) third active means for coupling said external control voltage to said reactive means thereby automatically adjusting the operating frequency of said oscillator.

3,303,436
SUBMINIATURE CRYSTAL OSCILLATOR OF HIGH STABILITY

Robert Krausz, Stamford, Conn., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 12, 1964, Ser. No. 351,573
1 Claim. (Cl. 331—116)



A subminiature oscillator of high stability comprising:
a transistor having emitter, collector, and base,
a crystal connected at one end of the collector,

an alternating current bypass capacitor connected at one end to the base,

tuning capacitor means for the crystal connected in series with the other end of the crystal and the other end of the bypass capacitor,

an emitter resistor connected between the emitter and the junction between the bypass capacitor and the tuning capacitor means,

a swamping capacitor connected between emitter and collector,

another swamping capacitor connected between emitter and the junction between the bypass capacitor and the tuning capacitor means,

a base bias resistor and a collector load resistor connected in common at one end and connected to base and collector respectively at their other ends, and

a stabilizing resistor connected at one end to the commonly connected ends of base biasing resistor and collector load resistor,

the resistance of the stabilizing resistor being on the order of less than five percent of the resistance of the collector load resistor and the resistance of the collector load resistor being less than five percent of the resistance of the base biasing resistor, and

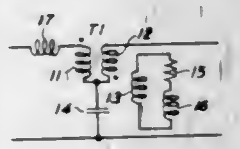
a direct current power supply having its positive terminal connected to the other end of the stabilizing resistor and having its negative terminal connected to the junction between said bypass capacitor and tuning compacitor means.

3,303,437
BUILDING-OUT NETWORK FOR NON-LOADED TRANSMISSION LINES

Robert W. De Monte, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Nov. 16, 1964, Ser. No. 411,509

6 Claims. (Cl. 333—28)



2. In combination, a non-loaded conductive transmission line and a combined building-out network and equalizer which comprises a transformer having at least three inductively coupled windings, a pair of said windings being connected in series aiding relation with each other in series with one side of said line and forming a conductive continuation thereof, a capacitor connected directly from the junction between said pair of windings to the other side of said line, and a passive impedance comprising a resistance and an inductance connected across the third of said windings.

3,303,438
LOW PASS FILTER FOR COUPLING CONTINUOUS SIGNAL THROUGH PERIODICALLY CLOSED GATE

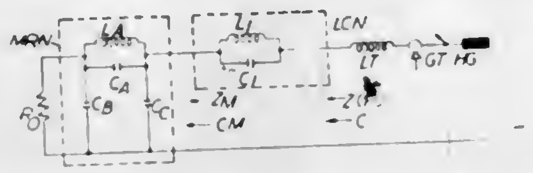
Alfred Leo Maria Fettweis, Antwerp, Belgium, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed July 30, 1962, Ser. No. 213,375

Claims priority, application Belgium, July 28, 1961, 606,649

4 Claims. (Cl. 333—70)

1. A low pass filter for use in resonant transfer systems, said systems having normally blocked gate means which are unblocked for the transfer of energy, means for resistively terminating said filter, inductance means for coupling said filter to said gate means, pulse means to provide pulses repeated at a sampling frequency for periodically unblocking said gate means, said filter including capacitance means resonantly tuned by said inductance means for storing energy received when said gate means are unblocked, reactive series anti-resonant branch means for terminating said filter on the side of said gate means, said reactive series anti-resonant branch means exhibiting inductive characteristics at low frequencies and capacitive characteristics at high frequencies, and said filter without said branches comprising a three capacitor π network, said network having two parallel capacitors joined by a series capacitor, inductance means bridging said series capacitor for tuning the circuit formed with said series capacitor to said sampling frequency.

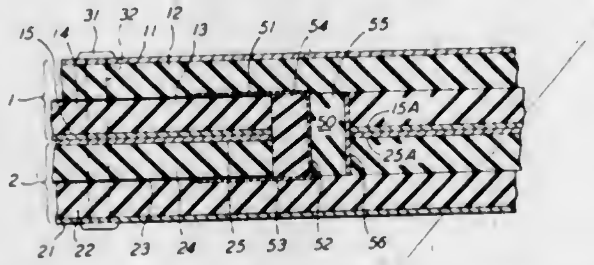


3,303,439
STRIP TRANSMISSION LINE INTERBOARD CONNECTION

William M. Fulp, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed June 14, 1965, Ser. No. 463,516

12 Claims. (Cl. 333—84)



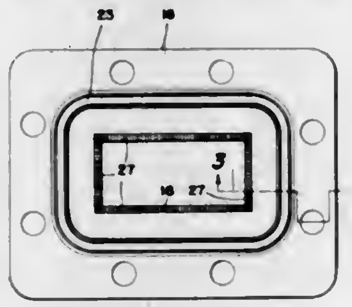
1. Means connecting strip transmission lines comprising two stacked circuit boards each containing a flat conductive strip included between a pair of conductive ground plates and separated from said plates by solid dielectric material, each of said strips having an end positioned directly opposite the corresponding end of the other strip, a conductive strip of foil having thickness and width dimensions approximating the corresponding dimensions of the flat conductive strips in said boards, means electrically and mechanically securing said foil to the ends of said strips, and dielectric material interposed between said foil and the ground plates of said stacked circuit boards.

3,303,440
RADIO FREQUENCY JOINTS

George F. Meyer, Playa Del Rey, Calif., assignor to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Mar. 30, 1964, Ser. No. 355,785

9 Claims. (Cl. 333—98)



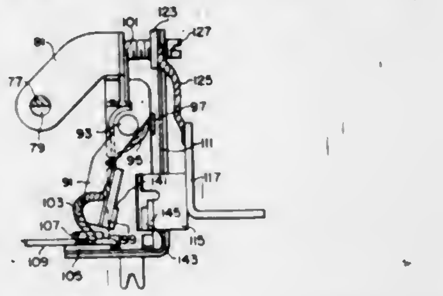
1. A radio frequency gasket of electrically conductive material for insertion between a pair of apertured metallic members, said gasket having opposed faces and having an opening therethrough for alignment with the apertures, each of said faces having a series of uniformly spaced elongated sharp ridge means surrounding said opening, said ridge means extending to the edge of said opening and being adapted to be embedded in said members up to the edges of the apertures therein for establishing electrical contact therewith in substantially uniform manner around the opening and immediately adjacent thereto, said ridge means extending across only a portion of the faces of said gasket which portion is only slightly greater than the depth of major current flow along the inner surface of such apertured metallic members.

3,303,441
CIRCUIT BREAKER WITH THERMAL TRIP MEANS AND MEANS FOR SHUNTING CURRENT AROUND THE THERMAL TRIP MEANS

Charles R. Paton, Daugherty Township, New Brighton, and Nick Yorgin, Economy Township, Ambridge, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 12, 1964, Ser. No. 410,571

6 Claims. (Cl. 335—12)



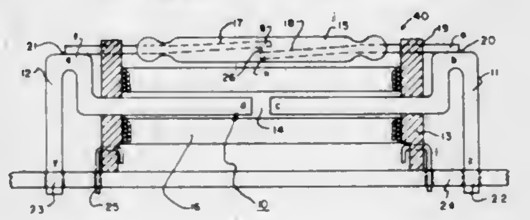
1. A circuit breaker comprising relatively movable contacts and opening means operable to effect opening of said contacts, a movable member operatively movable to effect operation of said opening means, current-carrying thermally responsive trip means operable upon the occurrence of an overload current below a predetermined value to operatively move said movable member, electromagnetic trip means comprising a yoke and armature and operable upon the occurrence of an overload current above said predetermined value to operatively move said movable member, a conducting shunt path shunting current around said thermally responsive trip means upon operation of said electromagnetic trip means, said shunt path comprising cooperable contact means on said yoke and armature closing upon operation of said electromagnetic trip means to close said shunt path.

3,303,442
REED RELAY CONSTRUCTION

Patrick E. McKeon, Chicago, and Leigh B. Robinson, Western Springs, Ill., assignors to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Nov. 26, 1965, Ser. No. 509,790

4 Claims. (Cl. 335—153)



1. A reed relay comprising:

a coil wound bobbin;

at least one core of magnetic material, each said core comprising two sections each having within said bobbin a main portion and outside of said bobbin a terminal portion and a shoulder portion intermediate said main portion and said terminal portion, said main portions of the two sections being mutually aligned longitudinally in end to end relationship but electrically insulated from each other, and said shoulder portions extending in a direction parallel to said main portions while said terminal portions extend in a direction perpendicular to said main portions and shoulder portions; and

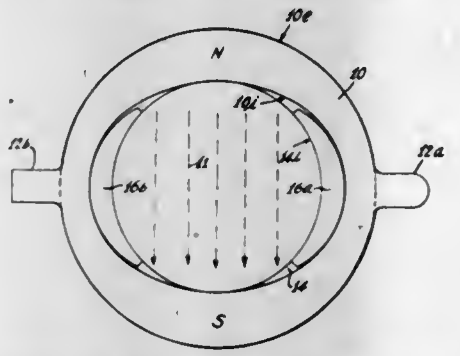
at least one reed switch comprising an elongated capsule of insulating material, having a pair of reed members therein, each of said reed members extending outwardly, along the axis of, and from the opposite ends of, said capsule to form terminals, said reed switch disposed externally and parallel to the length of said bobbin, said terminals each being mechanically supported by and electrically connected to the shoulder portion of the corresponding core sections.

3,303,443
MAGNETIC DEVICE HAVING ELLIPTICALLY SHAPED OPENING

Philip George McCabe and Eugene Lemke, Indianapolis, Ind., assignors to Radio Corporation of America, a corporation of Delaware

Filed Aug. 31, 1964, Ser. No. 393,270

6 Claims. (Cl. 335—210)



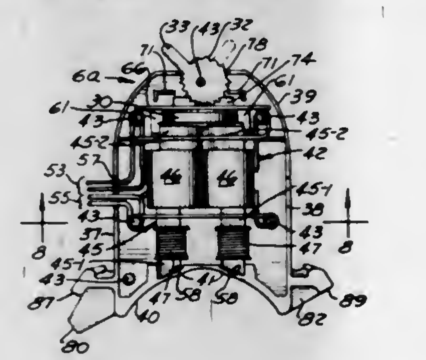
1. An apertured permanent magnet device comprising a generally ring-like configuration of magnetic material having an outer edge, and an inner edge defining the bounds of an aperture in said device, said outer edge having a circular contour and said inner edge having a contour substantially corresponding to an ellipse, said ring-like configuration of magnetic material being magnetized in a direction generally parallel to the minor axis of said ellipse.

3,303,444
ELECTRON BEAM CONVERGENCE AND DEFLECTION APPARATUS

Bernard M. Leeb, Highland Park, and Rod Belica, Chicago, Ill., assignors to Videocraft Manufacturing Co., Chicago, Ill., a corporation of Illinois

Filed July 16, 1964, Ser. No. 383,132

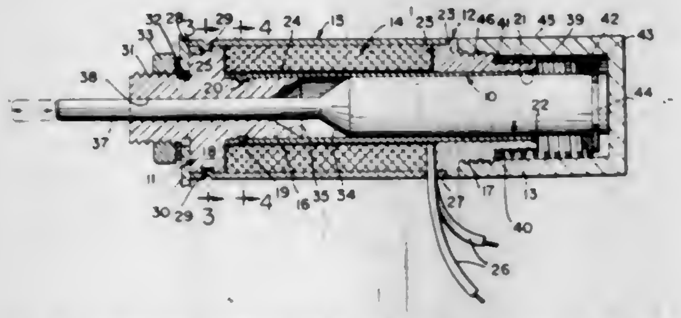
5 Claims. (Cl. 335—212)



1. Electron beam convergence apparatus for a cathode ray tube of the type having a plurality of electron guns at one end thereof for directing a number of spaced electron beams toward a screen at the other end of the tube,

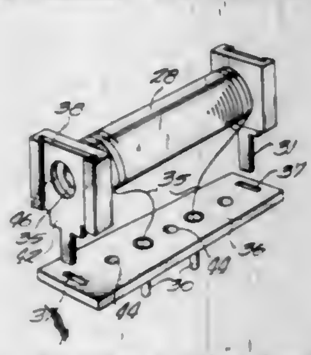
said apparatus comprising: a support frame assembly mountable over the neck of said tube and having a separate radially extending leg positioned to be opposite each one of the electron beams of said tube, a core on each leg forming a magnetic path which directs magnetic flux into the neck of said cathode ray tube, a disc magnet on each leg mounted opposite the associated core for rotation about its central transverse axis which extends generally radially of the frame assembly, each disc magnet having at least one exposed portion to be grasped for rotating the same about its central transverse axis, an eccentric cam disc mounted for rotation about an axially extending axis opposite said disc magnet, and an exposed handle on said cam disc to be grasped and turnable between a position where the cam disc holds said disc magnet against rotation and another position where it is released therefrom to enable the disc magnet to be freely turned.

3,303,445
SOLENOID CONSTRUCTION
Robert W. Flentge, Roselle, Ill., assignor to Albert F. Dormeyer, Chicago, Ill.
Filed Mar. 18, 1965, Ser. No. 440,826
9 Claims. (Cl. 335—255)



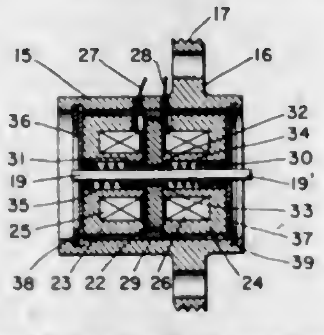
1. A solenoid comprising a coil tube in the form of a cylindrical sleeve, a plug at one end of said coil tube defined by a cylindrical portion snugly telescopically projecting within said tube and a radial flange portion abutting against the end of said tube, means securing said tube to said cylindrical portion, a face plate at the other end of said tube having an annular portion and a diametrically reduced portion extending from one end of said annular portion, a bore extending through said face plate so that it is snugly telescopically received over said tube, said annular portion defining a radial flange, said tube coacting with said radial flanges to define a coil bobbin, a coil wound on said bobbin, and a plunger slidably received in said tube and movable toward said plug upon energization of said coil.

3,303,446
ELECTRICAL RELAY HAVING A REED SWITCH
William Forbes Barton, Rolling Meadows, Ill., assignor to Grigsby-Barton, Inc., a corporation of Illinois
Filed Dec. 21, 1964, Ser. No. 419,829
6 Claims. (Cl. 335—296)



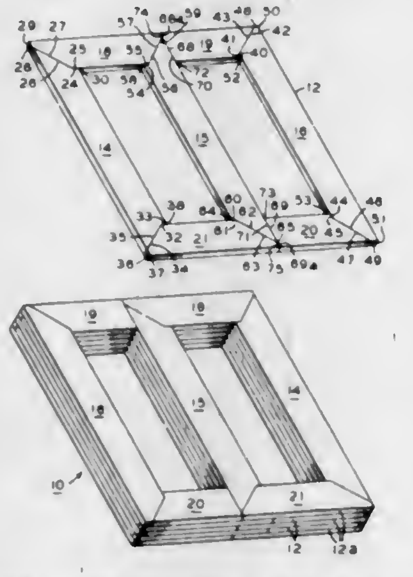
1. For use in forming a relay having a reed switch with an elongated sealed tube of insulating material and a pair of reeds of conducting material extending beyond the ends of the tube, the combination of a bobbin of insulating material having a core with an axis and a central coaxial opening extending along and throughout the length of the core to receive said tube, a coil encircling said core and having terminals, flags of conducting material mounted on said bobbin at opposite ends of said core and having parallel terminal posts projecting laterally from one side of the core, at least one of said flags having an open portion aligned with said bobbin opening and being large enough to permit endwise insertion of said tube into said bobbin opening, and terminal pins secured to said bobbin and projecting laterally from said core side in parallelism with said posts, said pins being connected individually to said coil terminals.

3,303,447
LOAD CELL HAVING A SPRING BIASED SHAFT
Searle G. Nevius, Playa del Rey, Calif., assignor to W. C. Dillon & Company Inc., a corporation of Illinois
Filed July 13, 1964, Ser. No. 382,036
7 Claims. (Cl. 336—30)



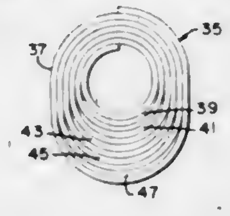
3. An improved load cell comprising: a casing, said casing having a diphragm portion designed to flex under load; a sensing unit mounted within said casing, said sensing unit having a shaft protruding therefrom, means biasing said shaft towards a position of extension from said sensing unit; means in said diaphragm designed to co-function with said shaft; electrical means in said sensing unit for sensing movement of said shaft in response to the co-functioning of said means in said diaphragm portion therewith.

3,303,448
JOINT STRUCTURE FOR THREE-LEGGED LAMINATED CORE
Otis T. Farry, University City, Mo., assignor to Wagner Electric Corporation, St. Louis, Mo., a corporation of Delaware
Filed June 5, 1963, Ser. No. 285,711
4 Claims. (Cl. 336—212)



1. A three-phase magnetic core structure having four outer sides comprising a plurality of stacked layers edgewise coincident in all four outer sides of the core structure, each of said layers including at least one sheet of assembled laminations, each sheet in each layer being identical and consisting of seven laminations comprising three parallel leg laminations including two outer leg laminations and a middle leg lamination, and four yoke laminations interconnecting said leg laminations to form two rectangular windows with joints between adjoining laminations, one of said outer leg laminations being identical in shape to said middle leg lamination and different in shape from the other of said outer leg laminations, two of said yoke laminations adjoining said one outer leg lamination being identical in shape to each other, the other two of said yoke laminations adjoining said other outer leg lamination being identical to each other and different in shape from the first named two yoke laminations whereby there is a total of four differently shaped laminations in said core structure, the joints in each of said sheets between each of said outer leg laminations and said adjoining yoke laminations and between the middle leg lamination and the first named two of said yoke laminations each including a minor portion perpendicular and a major portion at an angle of 45 degrees to the longitudinal axis of one of the adjoining laminations forming the joint, the joints between the middle leg lamination and said other two of said yoke laminations being straight line joints parallel to the longitudinal axis of the middle leg lamination, said first named two yoke laminations also forming straight line joints with said other two yoke laminations, respectively, alternate layers of said core structure being reversed with respect to the other layers with each of the joints in each layer being bridged by a lamination in an adjacent layer.

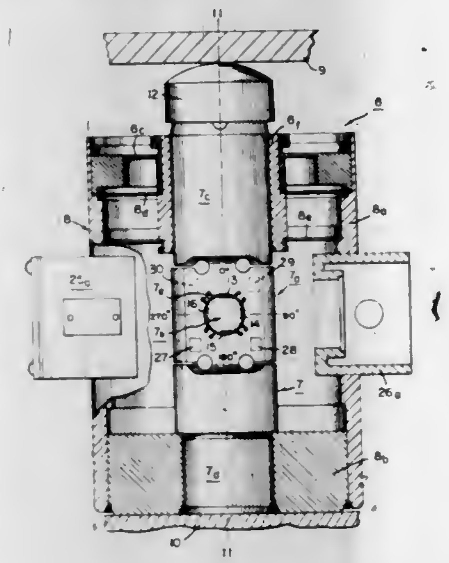
3,303,449
TOROIDAL MAGNETIC CORES HAVING VARYING CROSS-SECTIONAL AREAS
Morton Stimler, Hyattsville, Md., assignor to the United States of America as represented by the Secretary of the Navy
Original application Feb. 28, 1962, Ser. No. 176,458. Divided and this application Feb. 28, 1964, Ser. No. 354,493
1 Claim. (Cl. 336—213)



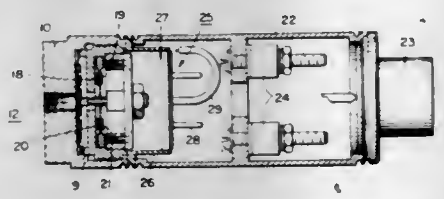
A saturable core adapted for progressive magnetic saturation comprising a generally toroidal shaped tape wound core formed from several layers of a ferrous tape material, a plurality of arcuate tapered laminations of ferrous material aligned in a radial sector and disposed between the layers of said tape material, whereby said core will have cross-sectional areas which progressively vary in magnitude from a minimum to a miximum to a minimum throughout one circumferential revolution of the core, said core having a single hole formed therein, said hole being circular and eccentrically disposed within the core.

3,303,450
SYMMETRICAL DUAL-GRID STRAIN GAGING
Anthony H. Brackett, Jr., Belmont, and Lawrence J. Frith, Cambridge, Mass., assignors to BLH Electronics, Inc., Waltham, Mass., a corporation of Delaware
Filed Oct. 6, 1964, Ser. No. 401,936
4 Claims. (Cl. 338—2)

4. A symmetrical dual-grid electrical strain gage unit comprising a first grid of strain-sensitive conductive material having a substantially serpentine configuration wherein the convolutions thereof have highly elongated spaced conductor portions which are substantially coplanar and wherein the connections between said conductor portions have resistance low in relation to the resistance of said conductor portions, at least certain of the adjacent convolutions of said first grid having spaces therebetween to accommodate convolutions of a second grid therebetween in coplanar and spaced relationship therewith, a second grid of configuration complementary to that of said first grid and of conductive material having a substantially serpentine configuration wherein the convolutions thereof have highly elongated spaced conductor portions which are substantially coplanar with said conductor portions of said first grid and which are spaced to interleave with said conductor portions of said first grid in said spaces and wherein the connections between said conductor portions of said second grid have resistance low in relation to the resistance of said conductor portions of said second grid, said first and second interleaved grids being of complementary configurations wherein said conductor portions thereof and the connections between conductor are in electrically noncontacting relationship, each of said grids having the same number of elongated conductor portions disposed on each side of a first axis of symmetry of the unit and having substantially equal lengths of said conductor portions disposed on each side of a second axis of symmetry of the unit which is normal to and intersects said first axis, and deformable insulating membrane means supporting the interleaved grids, whereby the interleaved grids are at substantially the same site and have electrical characteristics which are responsive to substantially the same external influences.



3,303,451
BEAM-TYPE TRANSDUCERS
Frank L. Yuan, West Newton, Mass., assignor to BLH Electronics, Inc., Waltham, Mass., a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,636
3 Claims. (Cl. 338—4)



1. Strain-responsive apparatus comprising a transducer element including a substantially stiff annular rim, substantially coplanar flexible cantilever beam members each integral with said rim at one end and of thickness less than that of said rim and each extending inwardly of the

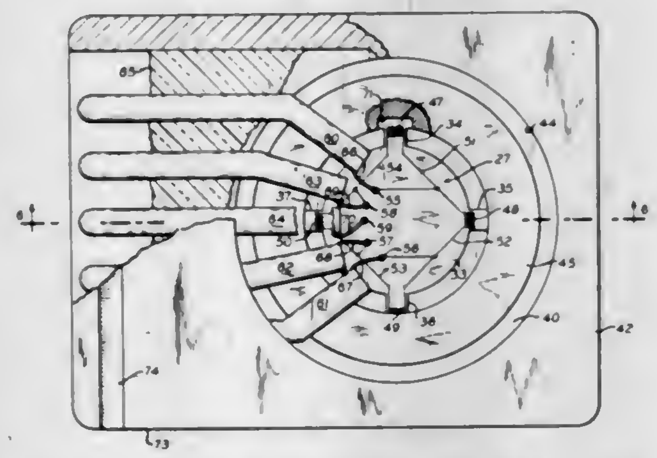
rim toward the center thereof from a portion of said rim substantially diametrically opposite to that from which the other of said beams extends, an elongated substantially stiff stem disposed at the center of said rim on at least one side of said coplanar beam members movable in directions of its longitudinal axis and substantially normal to the plane of said rim, said stem having a pair of substantially parallel stiff bifurcated arm portions separated by a slot extending substantially transversely to said beam members, said arm portions being integral with different ones of said beam members and being flexibly integral with the remainder of said stem at discrete flexure sites on said one side of said beam members which are substantially the same distance from the junctions of said stiff arm portions with said beam members, said elongated stem having an opening therein wider than the slot which reduces the thickness of said arm portions at said sites and thereby accommodates deflections of said stiff arm portions laterally of said stem, electrical strain gage means affixed to surfaces of said beam members for developing electrical output signals responsive to bending thereof, and means for applying forces to said stem along said axis at a position further removed from said beam members than said flexure sites.

3,303,452
PIEZORESISTIVE DEVICE

Galt B. Booth, Short Beach, Conn., assignor to Textron Electronics, Inc., Providence, R.I., a corporation of Delaware

Filed May 12, 1964, Ser. No. 366,816

11 Claims. (Cl. 338—5)



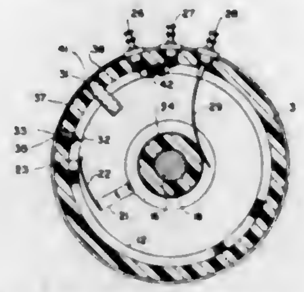
1. A piezoresistive device comprising a flat wafer of semiconductor material having a circular central portion surrounded by a radially spaced concentric encircling outer portion joined to the central portion by four substantially orthogonally related radial arms, a first rigid body secured to said central portion of the wafer, a second rigid body secured to said outer portion of the wafer, said bodies being movable relative to each other and arranged upon relative movement in opposite directions parallel to a normal to the plane of said wafer for imparting simultaneous double-cantilever deflection to said four arms, said arms each having for said deflection a longitudinal neutral axis and a centrally located inflection point, a continuous piezoresistive zone in each arm containing dispersed active impurities located substantially entirely within a region bounded by the respective inflection point, neutral axis, one of the faces of the wafer and one of the ends of the arm, said impurities being of a type producing a barrier junction between said zones and the adjacent material, the regions in two diametrically opposed arms being adjacent the central portion of the wafer while the regions in the other two arms are adjacent the outer portion, all of the regions lying adjacent the same face of the wafer, and conductive elements making ohmic connection to at least two spaced apart points in each of said zones.

3,303,453
VARIABLE RESISTANCE DEVICE

John P. Doering, Jr., Santa Ana, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed Nov. 26, 1963, Ser. No. 325,862

6 Claims. (Cl. 338—162)



1. In a variable resistance device, the combination comprising:

a housing having side walls defining a recess, a variable resistance element and its associated electrical wiper mechanism mounted in said recess;

end terminal connectors and tap connectors mounted on said housing and electrically connected to said variable resistance element in said housing;

a fixed resistor having a pair of leads adapted to be electrically connected between a pair of said terminal and tap connectors mounted on said housing;

a resistor support casing having a cavity adapted to receive said resistor therein with said resistor leads extending through an opening in one end of said support casing, said support casing having a flange on said one end thereof; and

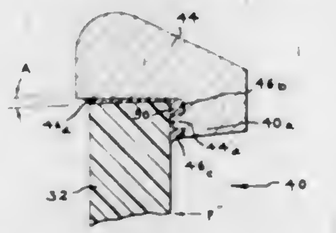
said housing having an aperture extending through a side wall thereof and adapted to receive said support casing, said aperture being countersunk from its outer surface inwardly substantially transverse to the wall of said housing to form a shoulder against which said flange of said support casing abuts to be retained in said aperture so that said leads of said resistor may be extended adjacent the outer surface of said housing and attached to a pair of said terminal and tap connectors.

3,303,454
ELECTRICAL CONNECTOR FRAME CONSTRUCTION

Daniel Joseph Crowley, Steelton, and Charles R. Sanders, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed July 2, 1964, Ser. No. 379,995

6 Claims. (Cl. 339—18)



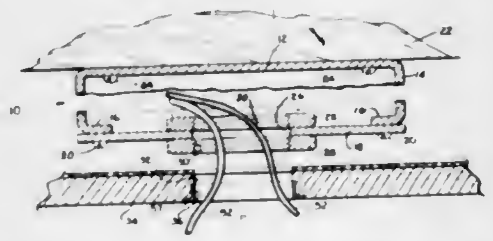
1. An assembly for electrical contactor panels and the like comprising at least one insulating board member having a matrix of transverse apertures in the major surface thereof adapted to secure contactors inserted therein which are loaded under substantial forces, a frame surrounding and supporting said board, said frame including an interior recess having first, second and third portions substantially filled with a fluid thermosetting plastic bonding material, the first recess portion extending along the frame interior surface opposite the edge surface of said board and spaced therefrom substantially entirely around said board, the second recess portion extending below the surface of said board to define a reservoir for said material, the third recess portion being spaced from said second recessed portion by a flange of said frame which extends to support said board whereby to limit flow of said fluid material from said reservoir out onto the surface of said board.

3,303,455
MEANS FOR SUSPENDING A LIGHTING FIXTURE OR THE LIKE

Arthur M. Tofani, Jr., 342 S. 18th St., Philadelphia, Pa. 19102

Filed Nov. 3, 1964, Ser. No. 408,588

4 Claims. (Cl. 339—88)



1. A device for detachably mounting a fixture, of the type which has a hollow stem, on a wall, said device including:

a receptacle comprising a collar embedded in a wall inwardly of the visible surface thereof, and

a sleeve carried by said collar and disposed transversely of the plane of the wall for receiving the stem of the fixture,

said sleeve having a pair of longitudinal, circumferentially opposed, slots and a pair of transverse, circumferentially opposed slots communicating with the inner ends of said longitudinal slots, respectively,

a pair of binding posts carried by said sleeve adjacent said transverse slots, respectively,

means connecting said binding posts to a source of current and,

a pair of lugs carried by the stem of the fixture and slidable through said longitudinal slots and into said transverse slots for mechanically interlocking the stem of said fixture with said receptacle,

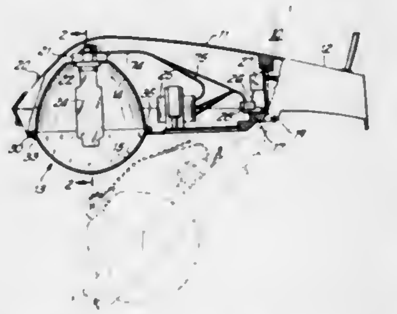
said lugs being engageable with said binding posts electrically to connect the energizable element of the fixture with the source of current.

3,303,456
LAMP SOCKET

Donald W. Harling, Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed Oct. 23, 1964, Ser. No. 405,970

7 Claims. (Cl. 339—180)



1. Lamp holding means for use with a lamp having a threaded conductive base and a central button contact mounted on said base and insulated from the conductive portion thereof, said lampholding means including an insulating base having a threaded bore for receiving said threaded lamp base, first and second spring contact means affixed to said base and extending inwardly toward said bore, one of said spring contact means engaging the central button contact when the lamp base is screwed into said threaded bore, said second spring contact means terminating in an inner edge disposed adjacent the periphery of said threaded bore, said inner edge having first and second portions, said first portion having a relatively large area resiliently engageable with the end of the conductive base of said lamp to provide good electrical contact therewith, said second portion being flexible independently of said first portion and having projecting means formed thereon and extending toward said lamp base, said projecting means having a sharp edge in high pressure engagement with said lamp base for resisting rotation of said lamp base outwardly of said bore.

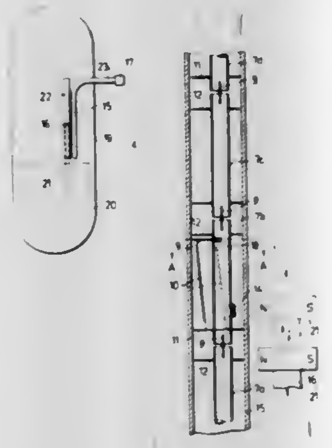
3,303,457
POSITION INDICATOR

Jan Assar Åkesson, Sollentuna, Sweden, assignor to Aktiebolaget Atomenergi, Stockholm, Sweden, a company of Sweden

Filed Oct. 21, 1964, Ser. No. 405,500

Claims priority, application Sweden, Oct. 22, 1963, 11,583/63

5 Claims. (Cl. 340—1)



4. A device for indicating the position of an object by ultra-sound comprising a tube having a slot in its wall, a plate mounted to be moved into and out of said tube through said slot to form a sound-reflecting bottom therein, means on said object for moving said plate into said tube through said slot and an ultrasonic transmitter-receiver situated at one end of said tube for measuring the distance therefrom to said sound-reflecting bottom.

3,303,458
METHOD AND MEANS FOR ELIMINATING CROSSOVER FREQUENCIES FROM A CONTINUOUS WAVE SEISMOGRAM

Tom Prickett, Jr., Richardson, and John P. Woods, Dallas, Tex., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania

Continuation of application Ser. No. 66,549, Nov. 1, 1960. This application Mar. 20, 1964, Ser. No. 354,819

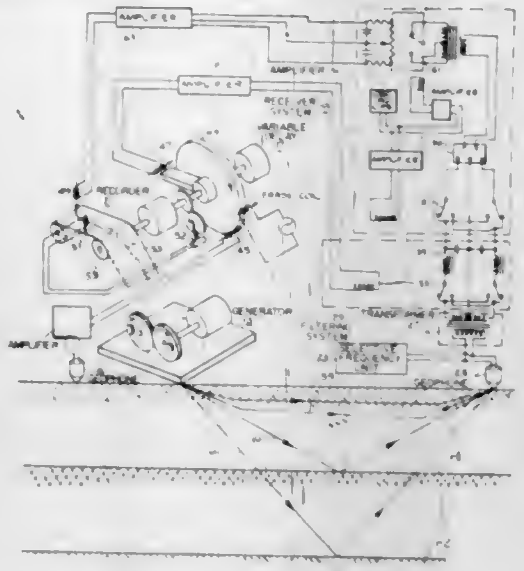
5 Claims. (Cl. 340—15.5)

1. A method of eliminating crossover frequencies in a continuous wave exploration operation utilizing a first cyclically-varying signal of predetermined periods and a second cyclically-varying signal counterpart variably delayed in time with respect to said first signal by predetermined amounts comprising the steps of:

(a) presenting in terms of frequency versus time a minimum predetermined period of said cyclically-varying signal and a minimum predetermined period of the cyclically-varying signal counterpart separated from said signal by a maximum predetermined delay,

(b) measuring those frequencies at which said signal and said delayed counterpart signal intersect, and

(c) adjusting a selective frequency unit to pass frequencies between the highest low frequency crossover point and the lowest high frequency crossover point.

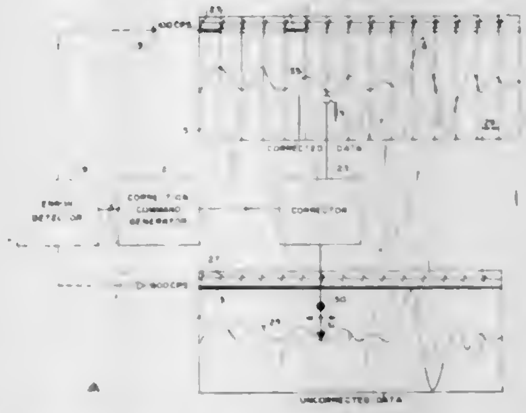


3,303,459
COORDINATE ADJUSTMENT OF FUNCTIONS

John P. Woods and Edwin B. Neitzel, Dallas, and Tom Prickett, Jr., Richardson, Tex., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania

Original application June 30, 1960, Ser. No. 39,876. Divided and this application Oct. 11, 1965, Ser. No. 494,738

6 Claims. (Cl. 340—15.5)



1. An apparatus for fitting a signal, prerecorded on X and Y axes having amplitude represented on the Y axis and original indicia spaced along the X axis indicating locations of significant features of said signal, to corresponding preprinted indicia spaced along the X axis of a visual presentation medium wherein at least two of the preprinted indicia on the visual presentation medium occupy different relative spatial positions along its X axis than the corresponding original indicia of the prerecorded signal, comprising

(a) a correction voltage source means developing a predetermined total correction voltage proportional to the total difference in the relative spatial positions of selected original indicia and the corresponding preprinted indicia;

(b) a correction command generator means connected to the output of said correction voltage source for evenly distributing said total correction voltage as the prerecorded signal is reproduced;

(c) a signal transfer means for reproducing said prerecorded signal and presenting said prerecorded signal on said visual presentation medium in visible form; and

(d) a corrector means connected to the output of said correction command generator for responding to the distributed total correction voltage in a manner to adjust the length of said prerecorded signal as it passes through said signal transfer means thereby allowing said prerecorded signal to be presented on said visual presentation means in the same relationship to the prerecorded indicia as it was recorded to the original indicia.

3,303,460
WELL LOGGING

Charles B. Vogel, Thomas W. Lamb, and Minter I. Palmer, Jr., all of Houston, Tex., assignors to Shell Oil Company, a corporation of Delaware

Filed June 27, 1958, Ser. No. 745,073

4 Claims. (Cl. 340—18)

1. A method of well logging comprising: traversing a section of the borehole of the well with an array of acoustic impulse producing and receiving stations while producing and receiving acoustic impulses within said array; producing indications of the time required for said impulses to travel through the rock formations between a pair of like acoustic stations that are separated by an interval shorter than the thickness of the thinnest individual rock strata to be detected in the rock formations surrounding said well; during the same traverse of this borehole producing indications of the time required for said impulses to travel through the rock formations between a pair of like acoustic stations that are separated by an interval longer than the thickness of the thinnest individual rock strata to be detected in the rock formations surrounding said well; detecting the depth at which the travel times are measured and recording the time required for said impulses to travel through said intervals.

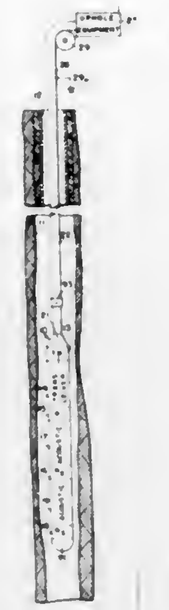
3,303,461
ACOUSTIC LOGGING APPARATUS WITH DOWNHOLE RECEIVERS CONTROLLED BY SPACED SWITCHING

Lyman M. Edwards and Edward B. Tickell, Jr., Houston, Tex., assignors, by mesne assignments, to PGAC Development Company, Houston, Tex., a corporation of Texas

Filed Sept. 23, 1963, Ser. No. 310,684

18 Claims. (Cl. 340—18)

14. A method for logging a partially cased borehole comprising the steps of moving a downhole tool through said borehole via a cable connected between said downhole tool and the surface, emitting acoustic wave energy from a source carried by said downhole tool, detecting said energy at a plurality of receiving points spaced from said source in a direction extending longitudinally of the borehole, producing from the energy detected at only one of said receiving points a first log as said tool is moved through the cased portion of the borehole, producing from the energy detected at at least two of said receiving points a second log as said tool is moved through the uncased portion of the borehole, selectively transmitting a signal from the surface via said cable to the downhole tool, and utilizing the latter signal in the downhole tool to render the receiving points selectively effective to produce said logs whereby a changeover between said first log and said second log is made from the surface without removing said downhole tool from the borehole.

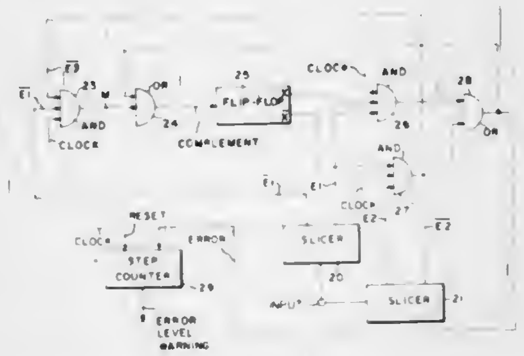


3,303,462
ERROR DETECTION IN DUOBINARY DATA SYSTEMS

Berton E. Dotter, Jr., Belmont, Calif., assignor, by mesne assignments, to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Jan. 30, 1963, Ser. No. 255,127

5 Claims. (Cl. 340—146.1)



1. Apparatus for detecting errors in data transmitted in the form of a signal having pulses of three discrete amplitude levels including one mean level and two extreme levels, wherein the same extreme level pulse as the previous extreme level pulse normally follows an intervening series of an even number of successive mean level pulses, and the opposite extreme level pulse from the previous extreme level pulse normally follows an intervening series of an odd number of successive mean level pulses, which comprises:

(a) a pair of slicers, each having two output terminals, one positive and the other negative, the first slicer having an output on the positive terminal only upon receipt of a pulse of one of said two extreme levels, and the second slicer having an output on the positive terminal only upon receipt of a pulse of the other of said two extreme levels, said slicers otherwise having output on the negative terminals;

(b) a means connecting the negative terminals of both slicers to the inputs of a first AND-gate;

(c) a flip-flop having a complement input and two complementary outputs;

(d) a means connecting the output of said first AND-gate, which indicates the receipt of a mean level pulse, to the complement input of said flip-flop;

(e) second and third AND-gates;

(f) a means connecting one output of said flip-flop to one input of said second AND-gate, and the other input of said second AND-gate to the positive output of the first slicer;

(g) a means connecting the other output of said flip-flop to one input of said third AND-gate, and the other input of said third AND-gate to the positive output of the second slicer; and

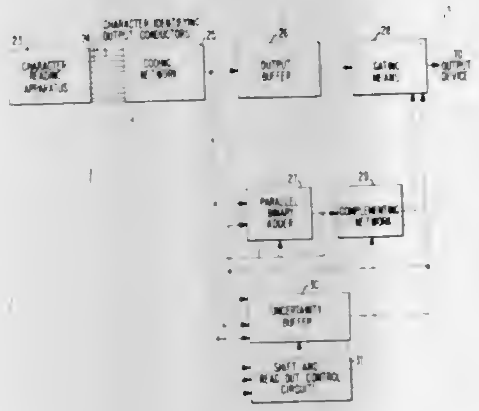
(h) a means for indicating an error when one of said second and third AND-gates has an output, said error indicating means also being connected to the complement input of said flip-flop.

3,303,463
ERROR DETECTION AND CORRECTION APPARATUS FOR CHARACTER READERS

Arthur Hamburgen, Belmont, Mass., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Mar. 4, 1963, Ser. No. 262,417

10 Claims. (Cl. 340—146.1)


CHARACTER RECOGNITION APPARATUS
OUTPUT BUFFER
UNCERTAINTY BUFFER
SHIFT AND READ OUT CONTROL CIRCUIT

1. Apparatus for:

(a) checking the accuracy of readings by character reading apparatus or the like of character groups each comprising a number of characters having assigned values and a single redundant check character whose assigned value causes a character group to satisfy an arithmetical checking formula; and

(b) selectively completing incompletely read character groups wherein each of said incompletely read character groups has more than one uncertainty character position and the character reading apparatus provides at least two uncertainty characters for each uncertainty character position, comprising:

storage means for receiving and storing the signals representing the assigned values of the recognized characters of a character group and the signals representing the assigned values of at least two uncertainty characters for each uncertainty character position of said character group;

means for determining whether the assigned values of a group of characters supplied thereto satisfy said arithmetical checking formula; and

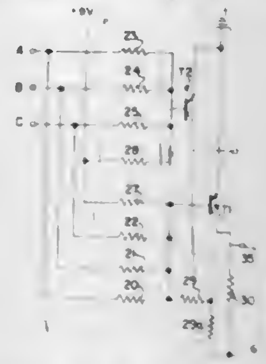
means to supply representations of possible combinations of said assigned values of said recognized characters and said uncertainty characters from said storage means to said means for determining to determine which, if any, of said possible combinations satisfy said arithmetical checking formula.

3,303,464
RING-SUM LOGIC CIRCUIT

Edwin R. Kolb, University Heights, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware

Filed May 27, 1964, Ser. No. 370,493

14 Claims. (Cl. 340—146.2)



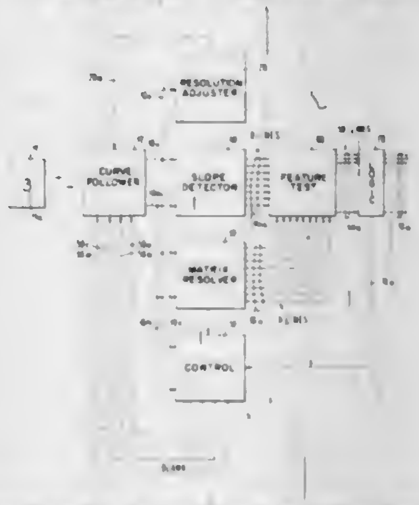
1. A logic circuit including a first threshold device providing an output in response to an input control signal of a predetermined magnitude, input circuit means including a plurality of input connections and means for summing the inputs on said connection connected to the input of said threshold device to provide said control signal in response to the presence of at least a predetermined number of inputs on said connections, a second threshold device providing an output in response to an input control signal of a predetermined magnitude, input circuit means for said second device connected to said input connections for summing said inputs and for providing said input control signal for said second threshold device in response to the presence of a second predetermined number of inputs on said input connections, and circuit means responsive to an output from said second device for applying an input signal to the input circuit for the first threshold device to change the magnitude of said control signal for said first device by an amount corresponding to said second predetermined number to increase the number of inputs on said input connections necessary to provide said output from said first threshold device.

3,303,465
CHARACTER RECOGNITION APPARATUS EMPLOYING A CURVE FOLLOWER

Pierre Essinger, Yorktown Heights, and Evon C. Greanias, Chappaqua, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 30, 1963, Ser. No. 334,507

6 Claims. (Cl. 340—146.3)



1. Apparatus for identifying an imprinted lexical symbol comprising:

(a) curve follower means for tracing the outline of said symbol and producing time variant waveforms representing the successive displacements of the follower means in tracing the symbol;

(b) means for processing said waveforms and producing first digital signals indicative of the successive directions of movement of said follower means in tracing the symbol;

(c) means for processing said waveforms and producing second digital signals indicative of the successive column and row displacement positions of said follower means relative to a synthetic matrix having a first given integral number of columns and a second given integral number of rows, wherein the height and width of the matrix is equal to the height and width of the trace of said follower means;

(d) feature test circuits including means for testing for the presence and absence of given combinations of said first digital signals and said second digital signals in given permutational orders, for predetermined time durations, and producing feature test success signals;

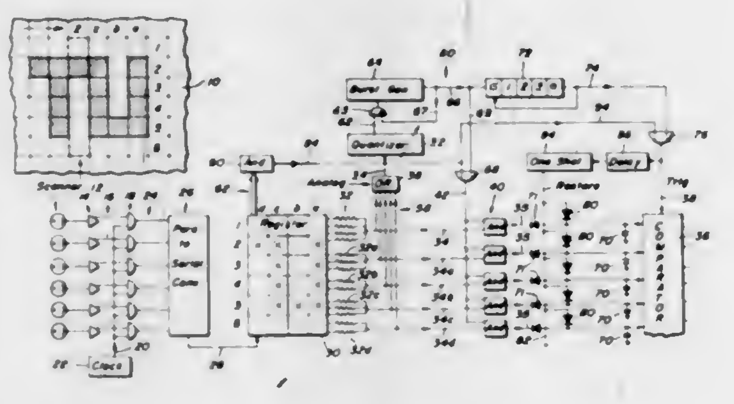
(e) and means for logically combining said feature test success signals in given combinations thereof to provide a recognition signal indicative of the identity of the symbol.

3,303,466
CHARACTER SEPARATING READING MACHINE

Arthur W. Holt, Silver Spring, Md., assignor, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Mar. 5, 1963, Ser. No. 263,020

3 Claims. (Cl. 340—146.3)



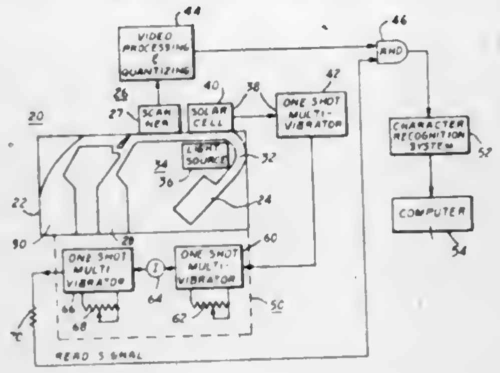
1. In an optical reading machine for characters on a contrasting background, a scanner including a set of photocells to scan a character and its background and provide information outputs corresponding to the character and its background, a processor network responsive to said outputs to provide a set of correlation signals corresponding to the degree of match between the character being scanned and preset character criteria, and a trigger-signal actuated decision means for identifying the character on the basis of said correlation signals; the improvement comprising means to examine sets of said correlation signals and to provide a control signal in response to the attainment of a predetermined value by any correlation signal in a set, means responsive to said control signal to initiate a routine of storing the optimum correlation signals of successive sets of correlation signals and thereafter to provide a first trigger signal for said decision means, detecting means responsive to said information outputs for providing a second trigger signal in response to detection of information outputs corresponding to a clear background space alongside of the character, means for gating said first and said second trigger signals to select one of said first or second trigger signals for triggering said decision means, and means for conducting said selected trigger signal to said decision means.

3,303,467
READ CONTROL METHOD AND APPARATUS FOR A CHARACTER READER

William E. Lutz, Glenside, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Filed Dec. 24, 1963, Ser. No. 333,109

2 Claims. (Cl. 340—146.3)



1. The method of reading printed characters from a document containing both printed characters and other printed material with a character reader having an optical reading station and a document transport for transporting documents past said reading station at a substantially constant velocity, comprising the steps of,

manually measuring the distance from the leading edge of a document to the first one of said printed characters to derive a first distance,

manually measuring the distance from the first one of said printed characters to the last one of said printed characters to derive a reading distance that excludes said printed material,

transporting documents one-by-one past said reading station,

detecting the leading edge of a document to generate a reference signal,

optically scanning said document from the beginning to the end thereof to derive character signals when said printed characters are scanned and undesired signals when said printed material is scanned,

delaying said reference signal for a time that is manually preset to substantially coincide with the time it takes for said document to move a distance equal to said first distance at said velocity,

utilizing said delayed reference signal to generate a read signal having a duration that is manually preset to coincide substantially with the time it takes for said document to move a distance equal to said reading distance at said velocity, and

applying said read signal to gate open said reading station to pass only said character signals and block said undesired signals.

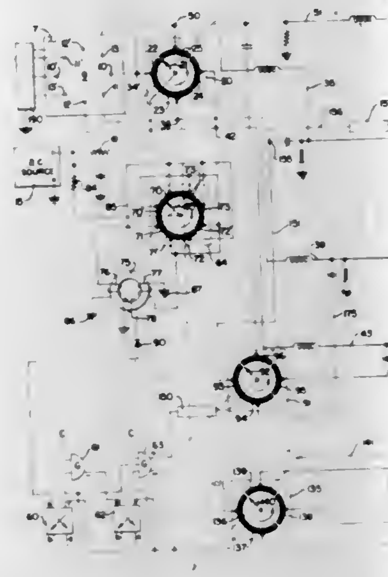
3,303,468
CHARACTER RECOGNITION SYSTEM EMPLOYING A SENSING DEVICE WITH A PHOTOSENSITIVE SURFACE

Sidney H. Liebson, Dayton, and Robert W. Clark, Centerville, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Mar. 2, 1964, Ser. No. 348,371

8 Claims. (Cl. 340—146.3)

1. A character identification system comprising a source of direct current potential, a sensing device having a photosensitive surface area, means for imaging the character to be identified upon said photosensitive surface area, means for successively applying said source of direct current potential across each of a plurality of paths upon said photosensitive surface area as determined by a plurality of pairs of spaced points thereon whereby potential drops dependent on the imaged character are successively developed across each of said paths, potential-level-sensitive circuit means for producing signal pulses to be evaluated in response to the said potential drop across each of said paths, and evaluating logic circuit means for producing an output signal representative of the character imaged upon the said photosensitive sensing surface area in response to said signal pulses produced by said potential-level-sensitive circuit means.

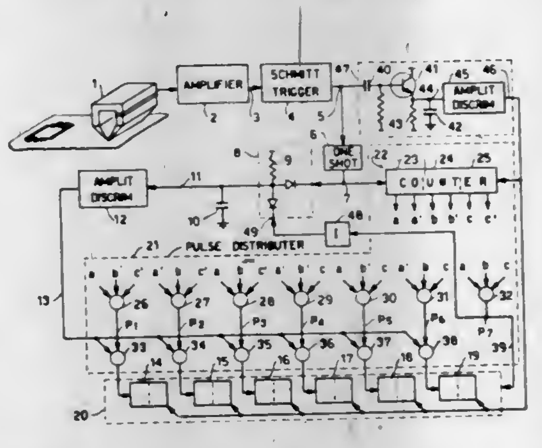


3,303,469
METHOD AND APPARATUS FOR READING CHARACTERS

Pier Giorgio Perotto, Turin, Italy, assignor to Ing. C. Olivetti & C. S.p.A., Ivrea, Italy, a corporation of Italy

Continuation of application Ser. No. 119,432, June 26, 1961. This application Nov. 12, 1965, Ser. No. 516,189

10 Claims. (Cl. 340—146.3)



1. Apparatus for reading printed characters each one represented by a group of $n+1$ marks, comprising:

(a) a scanning head for producing a series of $n+1$ reading pulses responsive to said marks, the interval between each pair of contiguous reading pulses having either a long or a short duration,

(b) means for converting said series of reading pulses into a series of significant pulses each one corresponding to one of said intervals and having a corresponding duration,

(c) means for individually integrating said significant pulses to produce a corresponding series of saw-tooth amplitude modulated pulses,

(d) an amplitude discriminator for converting said series of amplitude modulated pulses into a series of binary digits,

(e) a storage register, and

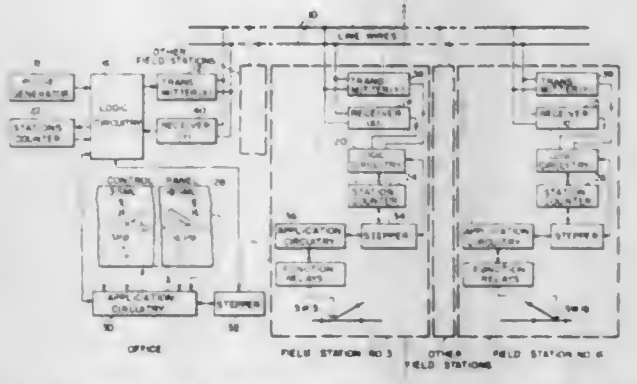
(f) synchronizing means responsive to said significant pulses for transferring said binary digits to said storage register.

3,303,470
CENTRAL TO REMOTE SIGNALLING SYSTEM HAVING ROLL CALL INTERROGATION

Frederick W. Brixner, Rochester, Neil A. Stillman, East Rochester, and Henry C. Sibley, Spencerport, N.Y., assignors to General Signal Corporation, a corporation of New York

Filed June 7, 1962, Ser. No. 200,874

7 Claims. (Cl. 340—163)



1. A system of two-way communication over a communication channel connecting a control office and a plurality of remote field stations wherein the system is operable at times during a control cycle to transmit selected codes from the control office to the field stations and at other times during an indication cycle to transmit selected indication codes from one of the field stations to the control office comprising, roll call transmitting means at the control office for normally transmitting over said communication channel successive series of relatively short time spaced roll call pulses for quickly scanning the field stations, there being only one pulse for each field station in each series of pulses, control designating means at the control office for designating the start of a control cycle, indication designating means at each of the field stations for designating the start of an indication cycle, control code transmitting means at the control office controlled jointly by said control designating means and by said roll call transmitting means for initiating a control cycle of operation for transmission over the communication channel of selected control code pulses for a selected field station, said control code transmitting means being rendered operable to transmit only during a time space between the roll call pulses, and indication code transmitting means for each of the field stations controlled jointly by said indication designating means and said roll call pulses for initiating an indication cycle of operation for transmission over the communication channel of selected indication pulses, said indication code transmitting means being rendered effective only during the reception at the associated station of a particular roll call pulse, said roll call transmitting means at the control office being controlled to extend the duration of a roll call pulse to cover the time of transmission of indication code during an indication cycle.

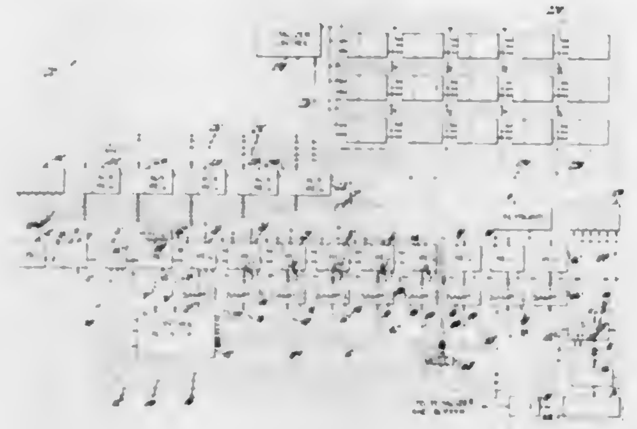
3,303,471
DATA COLLECTING AND RECORDING DEVICE

John M. Duncan, Birmingham, William L. Sprague, Royal Oak, and John L. Decker, Pontiac, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 26, 1963, Ser. No. 304,368

8 Claims. (Cl. 340—172.5)

1. Data collection and classification apparatus comprising: clock means for producing signals at a plurality of selected frequencies, the clock means including first storage means connected to receive one of said selected frequencies and to store a coded representation thereof; selectively operable means for providing a plurality of classification signals; second storage means connected to receive and to store a coded representation of the classification signals; recording means connected to the first and second storage means for making a permanent record of the contents thereof; control means having output means and operable to produce a plurality of output signals in response to input command signals; means connecting the selectively operable means to the control means to provide first command signals which condition the control means for operation; means connecting clock signals at another of said selected frequencies to the control means to provide second command signals which operate the control means; and means connecting the output means of the control means to the first and second storage means to gate the contents thereof into the recording means.

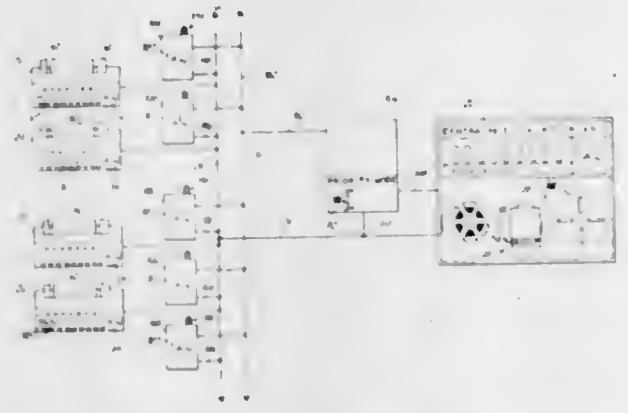


3,303,472
SYSTEM AND APPARATUS FOR AUTOMATIC DATA COLLECTION

Oliver H. Chalker, Jr., and George J. Yagusic, Litchfield, and Raymond R. Lupkas, Waterbury, Conn., assignors, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Oct. 8, 1962, Ser. No. 229,001

14 Claims. (Cl. 340—172.5)



1. In a data collection system, a document reader station comprising, in combination:

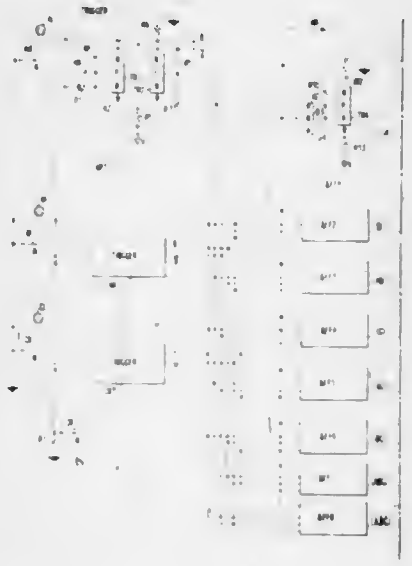
(A) memory means
    (a) settable by means of a document inserted in the reader station to store characters recorded on the inserted document;
(B) means at said reader station
    (a) for providing a ready to transmit signal when said memory means has been set to store a predetermined number of characters;
(C) conditioning means
    (a) responsive to a predetermined individual conditioning signal to condition the reader station for transmission;
(D) transmit means
    (a) controlled by said conditioning means, and
    (b) responsive to a transmit signal when said reader is conditioned for transmission to condition said memory means for transmission over common data communication channels; and,
(E) scanning signal responsive means
    (a) responsive to scanning signals when said memory means is conditioned for transmission to cause the characters stored in said memory means to be transmitted over the communication channels.

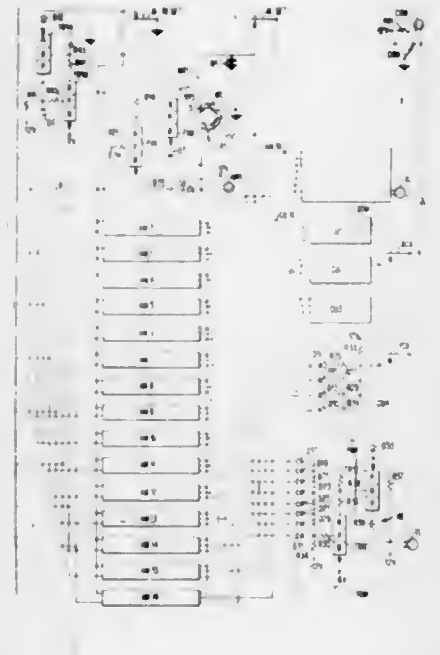
3,303,473
ADAPTIVE LOGIC CIRCUITS

Genung L. Clapper, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Oct. 28, 1963, Ser. No. 319,317

11 Claims. (Cl. 340—172.5)





1. An adaptive logic system comprising, in combination,

a plurality of input circuits, each capable of supplying input signals therefrom;

a plurality of output circuits, each requiring the supply thereto of output signals to render said output circuits effective;

a plurality of conditioning circuits, each capable of supplying conditioning signals therefrom; and

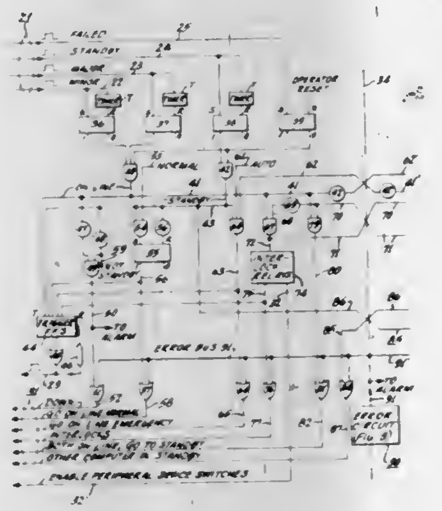
a plurality of adaptive memory units, each of said adaptive memory units having an input connected to an associated one of said input circuits, an output connected to an associated one of said output circuits, and a conditioning input connected to one of said conditioning circuits, and arranged to provide an output to said output circuit when and only when an input is provided to said input circuit, following the supply to said unit of an input from said input circuit and a conditioning signal from said conditioning circuit.

3,303,474
DUPLEXING SYSTEM FOR CONTROLLING ON-LINE AND STANDBY CONDITIONS OF TWO COMPUTERS

Clarence J. Moore, Philadelphia, and Stephen W. Leibholz, Hatboro, Pa., assignors to Radio Corporation of America, a corporation of Delaware

Filed Jan. 17, 1963, Ser. No. 252,221

13 Claims. (Cl. 340—172.5)



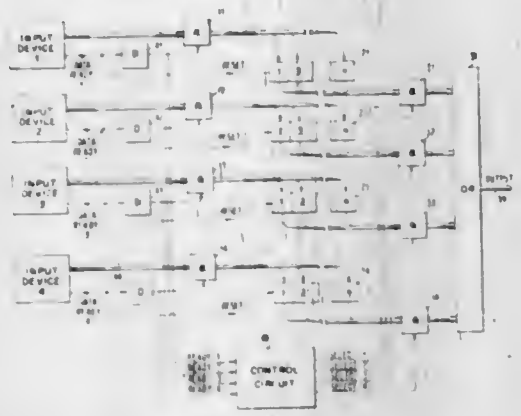
13. The combination of two computers each including validation pulse generating means under program control for generating program validation pulses indicative of normal on-line, standby and failed conditions in the respective computer, program interrupt means, command and status means for controlling the operation of the computer after its previous program is interrupted, and input-output switches for connecting common input-output devices with the respective computer,

a duplexing control unit including means connected to receive said program validation pulses from both computers and operative to generate a "standby" signal level on the repeated occurrence with at least a predetermined frequency of said standby pulses and the absence of said failed pulse from a standby one of said computers, and to generate an "on-line" signal level on the repeated occurrence with at least a predetermined frequency of said normal pulses and the absence of said failed pulse from the other on-line one of said computers, and means responsive to the termination of said "on-line" signal level to apply signals to the program interrupt means, the command and status means and the input-output switches of both computers, whereby automatically to cause the standby one of the computers to replace the other computer in the on-line condition, and

error detection means responsive to inconsistent conditions in said duplexing control unit and operative to apply a signal to said command and status means in both computers to cause the computers to ignore all other signals from said duplex control unit.

3,303,475
CONTROL SYSTEM

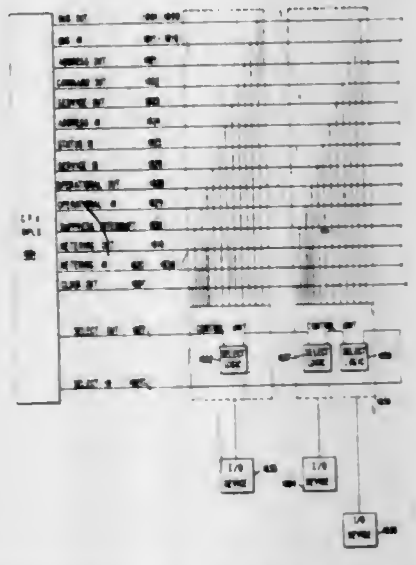
Herbert Hellerman, Yorktown Heights, and Kenneth E. Iverson, Mount Kisco, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Nov. 29, 1963, Ser. No. 326,768
8 Claims. (Cl. 340—172.5)



1. A control system for multiplexing the data from a plurality of devices for transmission in a common channel comprising, in combination:
means for indicating the remaining time availability of the data from each of the plurality of devices, for each transmission interval;
means for determining which of the plurality of devices is indicated by said indicating means as having the minimum remaining time availability;
and means for selecting for transmission, during each transmission interval, the data from the device which is determined to have the minimum remaining time availability.

3,303,476
INPUT/OUTPUT CONTROL

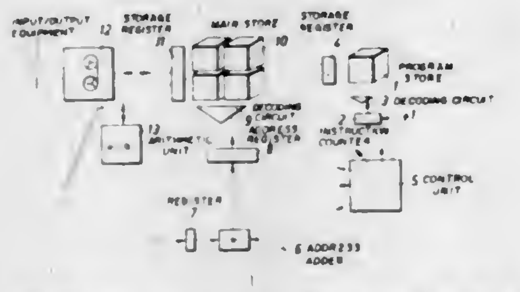
James T. Moyer, Endicott, and Francis R. Rausch, Vestal, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Apr. 6, 1964, Ser. No. 357,383
7 Claims. (Cl. 340—172.5)



1. The combination with a stored program controlled computer central processing unit having an interface connected thereto including a plurality of BUS Out data lines disposed for connection to a plurality of remote I/O control units, a plurality of tag control lines including Address Out and Operational In lines, and periodically pulsed serially related Select Out and Select In selection lines of,
address means in the control unit for producing address signals designating an address for the control unit,
address match means connecting the address means and the BUS Out lines to provide a signal upon a match of an address placed on the Bus Out by the central unit with that of the control unit,
means jointly responsive to the address match signal, a pulse on the Select Out line, and a signal from the central unit on the Address Out line connected for producing a response signal from the particular control unit to the central unit over the Operational In line, and
switch means connected between the Select Out and Select In lines responsive to said response signal for disconnecting the Select Out and Select In lines at said I/O control unit.

3,303,477
APPARATUS FOR FORMING EFFECTIVE MEMORY ADDRESSES

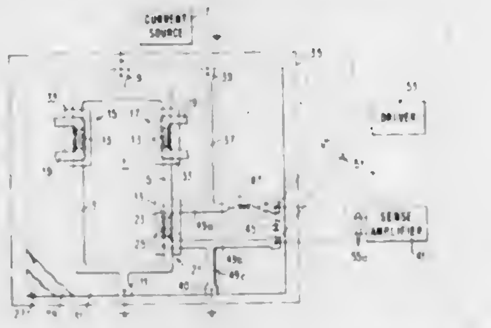
Heinz E. Voigt, Constance, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany
Filed Oct. 8, 1964, Ser. No. 402,386
Claims priority, application Germany, Oct. 8, 1963, T 24,849
6 Claims. (Cl. 340—172.5)



1. In a program-controlled computer having an addressable store and an address adder which combines instruction given relative addresses additively with a reference address to form an effective address which describes only one cell of the store of the computer, the improvement wherein the lines representing the relative addresses and the reference addresses have fewer binary places than are required to designate an effective storage address for a clear distinction between all storage cells, said adder having means for adding the leading n value places of the relative address to the reference address which has m value places, with $m>n$ to form an effective address having the required number of places.

3,303,478
INFORMATION COUPLING ARRANGEMENT FOR CRYOGENIC SYSTEMS

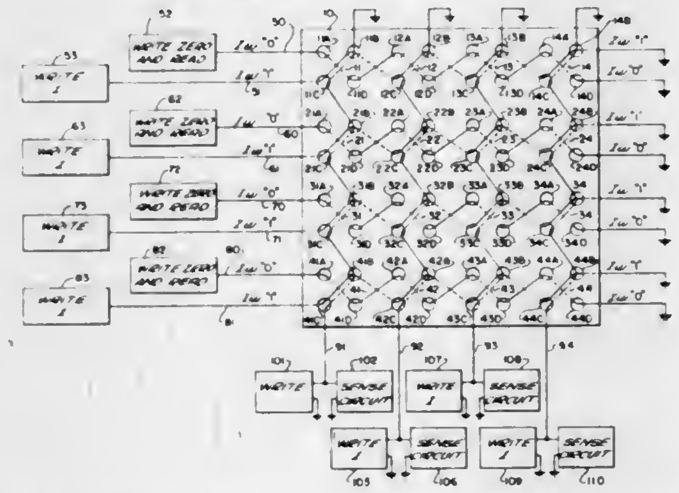
Eugene S. Schlig, Croton Falls, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 1, 1963, Ser. No. 292,043
7 Claims. (Cl. 340—173.1)



1. A coupling arrangement for cryogenic systems wherein binary information to be coupled is manifested by the state of a superconductive element comprising
a superconductive element adapted to be operated in a superconductive and a resistive state,
binary information means for controlling the state of said superconductive element,
current means connected to said superconductive element,
a nonlinear device connected in parallel arrangement with said superconductive element, said nonlinear device having first and second distinct operating modes, biasing of said nonlinear device in said first mode by said current means being dependent on the state of said superconductive element,
superconductive means for effecting said parallel arrangement,
means for applying drive signals across said nonlinear device, said drive signals being of sufficient amplitude to cause said nonlinear device to switch to said second mode only when said superconductive element is in a resistive state, said drive signals being of short duration compared to the inductive time constant associated with said superconductive element, and
means responsive to said nonlinear device while operating in said second mode.

3,303,479
MULTIAPERTURE MAGNETIC MEMORY SYSTEM

Milton Rosenberg, Santa Monica, Calif., assignor to Ampex Corporation, Culver City, Calif., a corporation of California
Filed June 12, 1961, Ser. No. 116,379
5 Claims. (Cl. 340—174)

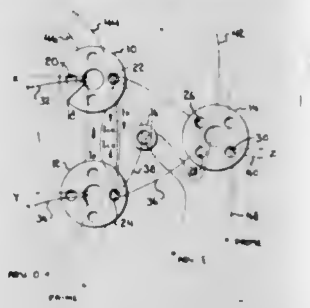


1. A memory element comprising a plate of magnetic material having at least two states of magnetic remanence, said plate comprising a plurality of memory elements each including a plurality of spaced apertures around a region of the material of said plate, first winding means inductively coupled to predetermined ones of said regions of material by passing through predetermined ones of the apertures around said regions for driving said regions to one of their two states of magnetic remanence, second driving means inductively coupled to said predetermined ones of said regions of material by passing through others of the apertures around said regions than said predetermined ones for driving said regions to the other of said two states of magnetic remanence, and means for sensing the state of magnetic remanence of said predetermined regions of material.

3,303,480
DUMMY LOAD FOR MAGNETIC CORE LOGIC CIRCUITS

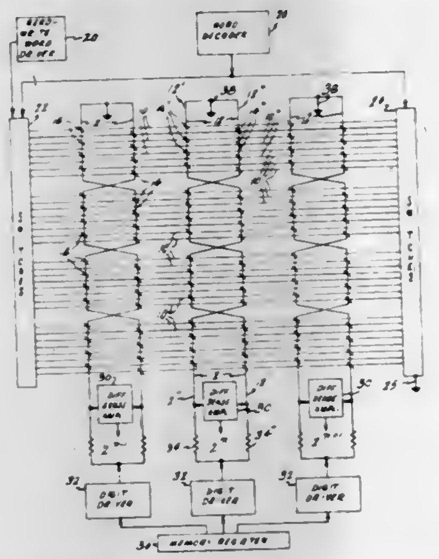
David R. Bennion and William K. English, Menlo Park, and David Nitzan, Palo Alto, Calif., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Mar. 8, 1962, Ser. No. 178,372
6 Claims. (Cl. 340—174)

1. A magnetic device for handling intelligence in binary form comprising multi-aperture magnetic cores capable of being driven into stable states of magnetization representative of binary intelligence by applied magnetomotive force; means adapted to drive two of said cores with binary input signals and means linking said two cores adapted to cause the intelligence states thereof to be transferred therefrom, said means including a priming winding linking a transmitting aperture of each core and adapted to apply a priming magnetomotive force thereto prior to each intelligence transfer from the said core, the transmitting apertures of the said two cores including output legs wound by a common coupling winding linking the said output legs in a reverse sense and linking the input leg of a further core, an auxiliary load including a winding linking the said output legs of the two cores in the same relative sense and having an impedance so related to the impedance of said coupling winding as to assure an approximate equality of ampere turns at each of said windings with respect to prime induced currents such that said auxiliary load operates to cancel the effect of prime induced magnetomotive forces in said coupling loop.



3,303,481
MEMORY WITH NOISE CANCELLATION

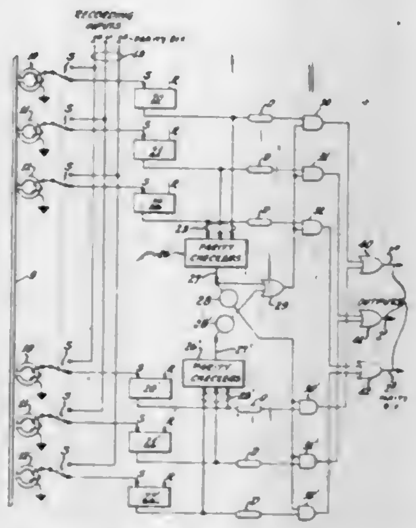
Barry I. Kessler, Cherry Hill, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Sept. 5, 1962, Ser. No. 221,501
3 Claims. (Cl. 340—174)



1. A word-organized memory array comprising
a plurality of word lines,
a plurality of digit-sense line pairs each consisting of two periodically transposed conductors extending transversely with relation to said word lines,
solely one magnetic memory core located at each crossover of a word line and a digit-sense line pair, and linked by said word line and solely one of the conductors of said digit-sense line pair,
a word driver coupled to each word line,
a digit driver coupled to both conductors of each digit-sense line pair, and
a differential sense amplifier having two inputs coupled respectively to the two conductors of each digit-sense line pair.

3,303,482
REDUNDANT RECORDING SYSTEM WITH PARITY CHECKING

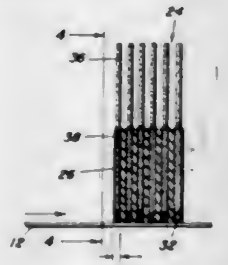
Robert H. Jenkins, Audubon, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Feb. 25, 1963, Ser. No. 260,708
12 Claims. (Cl. 340—174.1)



1. The combination of
a source of one group of signals and another redundant source of a second group of the same signals,
parity checking means for checking the parities of the signals in the two groups, and
gating means responsive to said parity checking means to select the group of signals having correct parity when only one group of signals has correct parity, and to select both groups of signals when neither group has correct parity.

3,303,483
MULTIBIT MAGNETIC HEAD STRUCTURE

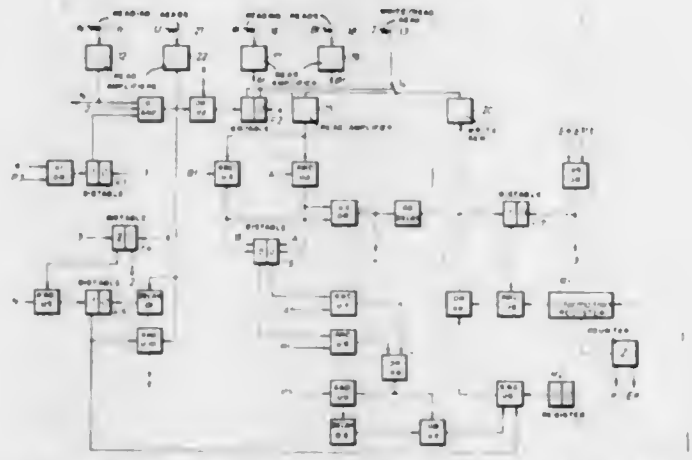
Jacob Rabinow, Bethesda, Md., assignor, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Apr. 29, 1963, Ser. No. 276,359
1 Claim. (Cl. 340—174.1)



A multi-section magnetic head capable of simultaneously recording a plurality of discrete bits closely adjacent to each other lengthwise of a magnetic track, said head having a plurality of discrete head sections each of which is capable of recording a binary bit simultaneously with and independently of the other head sections, each section comprising a U shaped core made of magnetic material and having a pair of flat elongate sides closely spaced and parallel throughout their lengths, and a transverse connecting member at one pair of ends of said sides, the other pair of ends of said sides being spaced a distance of no more than 0.1 inch to form a flux gap of the same dimension, a flat winding on each core to accept energizing signals, each winding disposed around the connecting member of its core and partially disposed in the space between its confronting sides and partially in the space between the projected planes of said sides, a portion of said winding occupying more than 50% of the space between said flat sides of its core, and a thin non-magnetic shield between the confronting sides of adjacent cores of each head section to magnetically isolate each head section, the shield between adjacent cores being flat and parallel to the longer dimensions of the gaps of said discrete head sections.

3,303,484
METHOD AND APPARATUS FOR OPTIONALLY WRITING-IN AND READING-OUT VARIABLE LENGTH INFORMATION BLOCKS IN CIRCULATING MEMORIES

Hermann Endres, Stuttgart-Muhlhausen, Heinrich Böhme, Stuttgart-Weilimdorf, and Gerhard Jung, Stuttgart-Stammheim, Germany, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 23, 1962, Ser. No. 232,370
Claims priority, application Germany, Oct. 24, 1961, St 18,467
4 Claims. (Cl. 340—174.1)

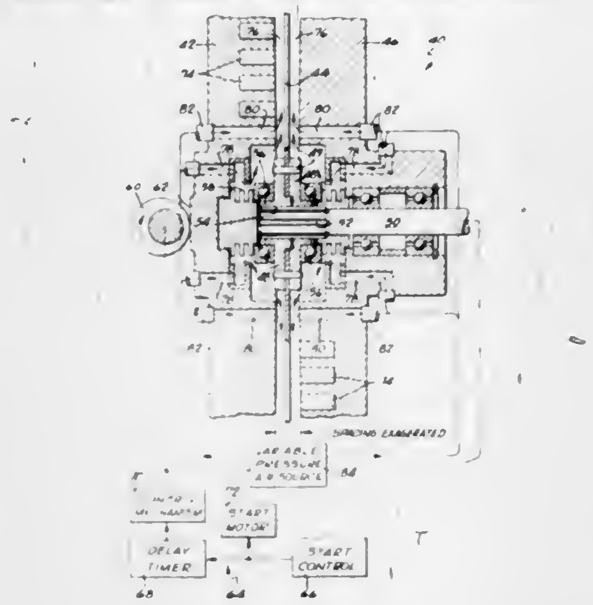


1. A method for effecting block-wise transfers of information items between an information track of a circulating memory and rapid data-processing systems on one hand, and for effecting character-by-character transfers between the circulating memory and slow input and output devices on the other hand, using a combined reading/writing head per track, reference being made to said rapid data-processing systems and said input and output devices as adjacent systems, and wherein the writing and reading is achieved in relation to a track space including a sufficient number of character cells to store a word, comprising the steps of assigning at least two groups (A, B), in a predetermined sequence, to successive character storage cells, then during at least one rotation of the memory performing an information transfer between the memory and at least one of said adjacent systems while varying a control character stored in each storage cell to distinguish between the block-wise and the character-by-character information transfer operation being performed, depending on the group to which the storage cell belongs, the variation of the control characters being such that the condition of the control characters after a character-by-character reading is the same as after a character-by-character writing and such that character-by-character reading is performed only on information transferred into said memory by a block-wise writing operation.

3,303,485
MAGNETIC DISC WITH AIR BEARING WHICH SPIRALS RADIALLY OUTWARD

Lester H. Lee, Mountain View, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Mar. 18, 1963, Ser. No. 265,694
9 Claims. (Cl. 340—174.1)

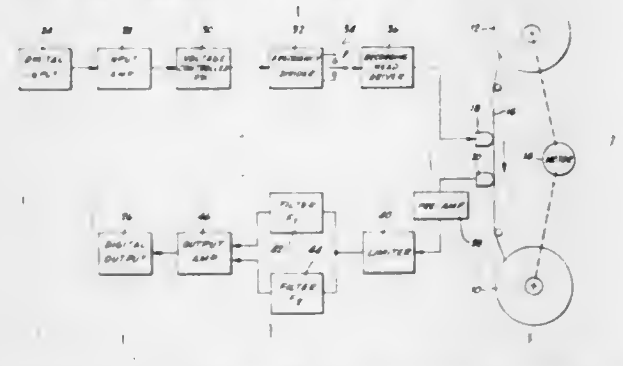
1. A flexible disk magnetic memory system comprising:
a relatively thin flexible disk having magnetic recording surfaces on both sides thereof;
a pair of backing plates, each of said plates being aligned adjacent a different side of said disk and providing a planar surface in controlled parallelism therewith;
a plurality of magnetic transducer disposed in each plate;
means for rotating said disk relative to said plates about the central axis of said disk; and



spacing means for maintaining said plates and disk in controlled spaced relation, said spacing means including means adapted to direct a substantially equal flow of gas to the space between said plate and said disk on each side of said disk between the central axis of said disk and the innermost of said transducers so as to provide a gas bearing which spirals radially outwardly from said central axis during rotation of said disk.

3,303,486
DIGITAL FREQUENCY SHIFT MAGNETIC RECORDING SYSTEM

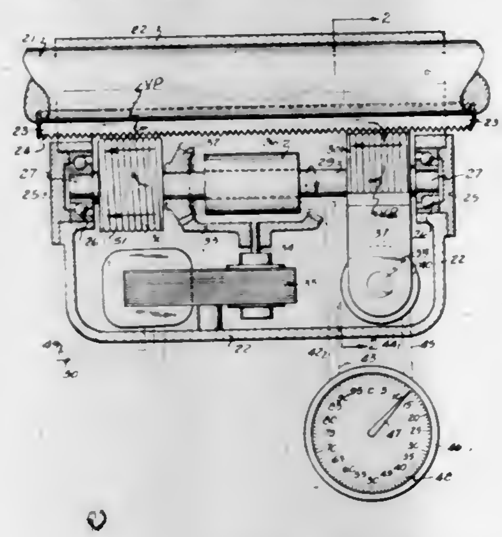
Ronald E. Young, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Nov. 12, 1963, Ser. No. 322,755
6 Claims. (Cl. 340—174.1)



1. A method of recording and reproducing digital data in an analog type tape recording system, said method comprising the steps of:
generating a first and a second voltage level signal representative of a binary "1" and "0" digit respectively;
introducing the first and second voltage level signals to a single voltage controlled oscillator having a first and a second operating state;
generating a first frequency signal by driving the oscillator to the first state in response to each of said binary "1" digits represented by said first voltage level signals introduced thereto;
generating a second frequency signal by driving the oscillator to the second state in response to each of said binary "0" digits represented by said second voltage level signals introduced thereto;
dividing the frequency of the first and second frequency signals by a factor related to the tape speed;
recording at least one cycle of either said first or second divided frequency signals for each of said binary digits respectively at such time as either the first or the second voltage level signals are introduced to the oscillator; and
sensing and filtering said first and second recorded signals to respectively develop first and second output signals in response thereto.

3,303,487
METHOD AND APPARATUS FOR MEASURING DISPLACEMENTS

Leif Eric De Neergaard, deceased, late of Madison, Wis., by Leo J. Mueller, executor, Chicago, Ill., assignor to Hans W. Trechsel, Wayzata, Minn., Deryck A. Gerard, Minneapolis, Minn., and Norman S. Parker, Evanston, Ill.
Filed June 29, 1964, Ser. No. 379,041
26 Claims. (Cl. 340—195)



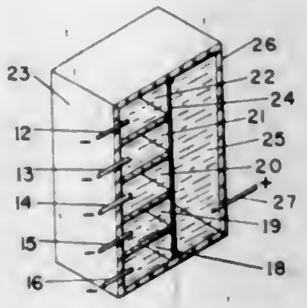
1. A system for measuring distance including indicating member means calibrated in units of measurement, a signal generating assembly including a lineally extending member having a plurality of areas thereon forming a uniform magnetic flux pattern, magnetic flux modulating means adjacent said lineally extending member, a coil associated with said modulating means, said modulating means being rotatable relative to said lineally extending member for modulating the magnetic flux pattern at a predetermined rate to induce a signal of a predetermined frequency in said coil, relative lineal movement between said lineally extending member and modulating means representative of a distance being measured changing the phase of the modulated magnetic flux and the signal, said indicating member means being responsive to phase changes in the signal to present a representation of the distance in units of linear measurement.

3,303,488
ELECTRO-OPTIC INFORMATION DISPLAY DEVICE UTILIZING AN ACID-BASE INDICATOR

John R. Anderson, Lutherville, Md., assignor to Electroscope Research, Inc., a corporation of Maryland
Filed Feb. 11, 1963, Ser. No. 257,422
5 Claims. (Cl. 340—324)

1. An electro-optic display system comprising a closed fluid container having at least one light transmitting wall, a divider positioned within said container and dividing it into first and second compartments in communication with each other through said divider, partitions positioned within the second compartment forming a plurality of separate cells within said second compartment each com-

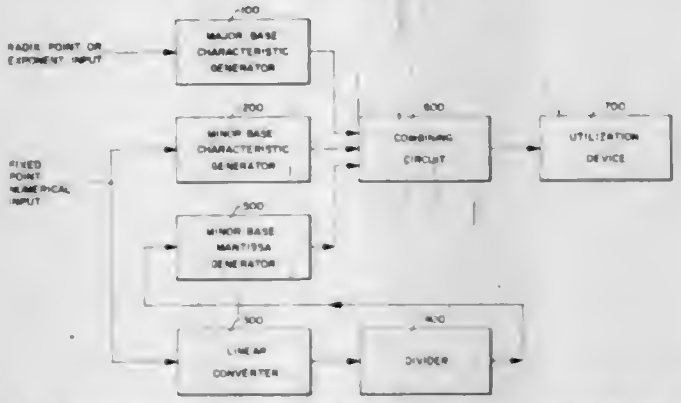
municating with said first compartment through said divider, a normally transparent electrolyte substantially filling said first compartment and said separate cells, an electrode operatively in contact with the electrolyte contained in said first compartment, a plurality of electrodes in operative contact respectively with the electrolyte contained in said separate cells, a pH indicator in the electrolyte contained in said separate cells, and means for applying an electric potential between the electrode of the first compartment and one or more of the electrodes in the said separate cells, whereby a color change is produced in the said separate cells through a change in color of the pH indicator responsive to the application of said electric potential.



3,303,489

DIGITAL TO LOG-ANALOG CONVERTER

Darwin Krucoff, Orange County, Calif.
(801 Alvarez Ave., Pinole, Calif. 94564)
Filed May 17, 1962, Ser. No. 196,047
8 Claims. (Cl. 340—347)

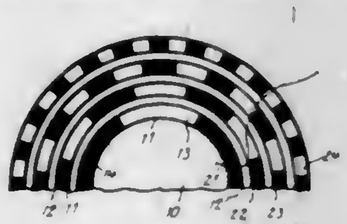

100
RADIX POINT OR EXPONENT INPUT
MAJOR BASE CHARACTERISTIC GENERATOR
200
MINOR BASE CHARACTERISTIC GENERATOR
800
COMBINING CIRCUIT
700
UTILIZATION DEVICE
FIXED POINT NUMERICAL INPUT
500
MINOR BASE MANTISSA GENERATOR
300
LINEAR CONVERTER
400
DIVIDER

1. A digital to log-analog converter comprising: first means for translating a digital input number into a fixed point portion and a power of a radix; second means responsive to a set of signals representing said power for producing a major base characteristic signal corresponding to the characteristic of a logarithm to said radix; third means for translating said fixed point portion to a logarithmic mantissa based also on said radix; and fourth means for combining said major base characteristic and said logarithmic mantissa to produce a log-analog of said digital input number.

3,303,490

PHOTOCONDUCTIVE CODED DISC ENCODER

George H. Keats, Stamford, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York
Filed Feb. 28, 1963, Ser. No. 261,801
10 Claims. (Cl. 340—347)

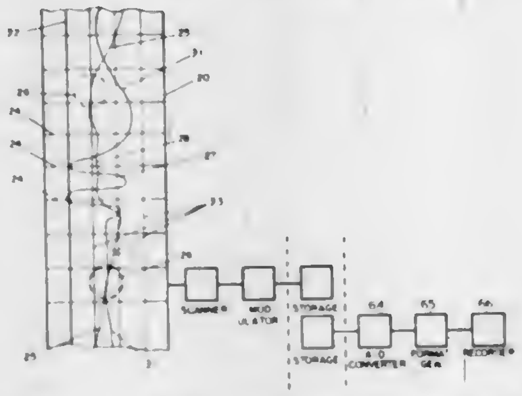


1. An encoder comprising in combination, an element having a track made up of alternate sections of light-sensitive material the electrical conductivity of which changes upon impingement of light and insulation representing a coded digital pattern, means including input shaft means for progressively illuminating successive light-sensitive portions of said track, and means for detecting changes in conductivity of said track as said portions are successively illuminated for producing a digital signal in accordance with the position of said input shaft means.

3,303,491

INFORMATION HANDLING SYSTEM

Daniel Silverman, 5969 S. Birmingham,
Tulsa, Okla. 74100
Filed Apr. 22, 1963, Ser. No. 274,683
18 Claims. (Cl. 340—347)



1. An information system for converting analog information in the form of a printed two dimensional curve on a record strip wherein the lateral departure of said curve from a longitudinal reference line represents an analog signal which is the stored information, into digital information, comprising:

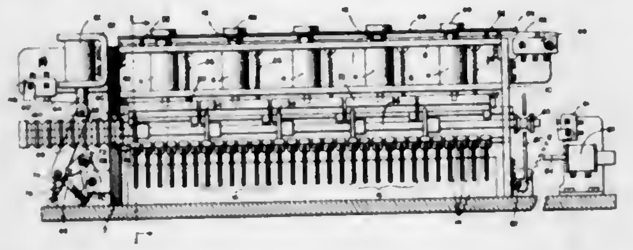
- (a) Means for transporting said record strip in a direction parallel to said reference line at a variable low speed suitable for tracing said curve,
- (b) Index means capable of movement in a direction substantially perpendicular to said reference line so as to trace said curve while said strip is being transported longitudinally,
- (c) means for generating a constant amplitude carrier signal, the period of which is a function of the rate of transport of said strip,
- (c′) means to amplitude modulate said carrier signal as a function of the analog signal traced by said index means, whereby an amplitude modulated analog electrical signal is provided which is a function of said departure of said curve,
- (d) Intermediate storage means cooperating with said transport means for recording in reproducible form said amplitude modulated analog electrical signals, at the variable low speed of transport of said strip,
- (e) Reproducer means cooperating with said storage means for reproducing said recorded information at high speed in the form of amplitude modulated analog electrical signals, and
- (f) High speed digitizing means for converting said amplitude modulated analog electrical signals to digital electrical signals.

3,303,492

SIGNAL TRANSLATING EQUIPMENT

Laurence Allan Cross, Jr., Lambertville, N.J., assignor, by mesne assignments, to Randomatic Data Systems, Inc., Trenton, N.J., a corporation of New Jersey
Filed May 16, 1963, Ser. No. 280,964
18 Claims. (Cl. 340—347)

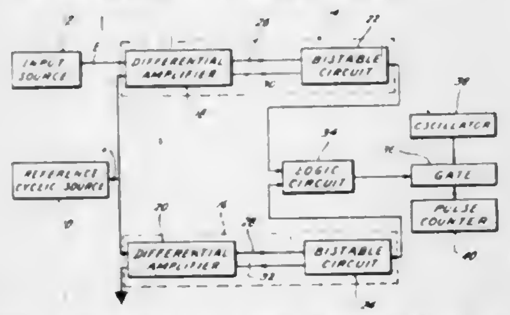
1. In combination with data processing equipment or the like having a plurality of groups of mechanical elements operable to control the operation of said equipment, translating means for utilizing coded signal input impulses to actuate selected ones of said mechanical elements for controlling the operation of said equipment, said translating means comprising a plurality of signal responsive means corresponding in number to the number of said groups and selectively operable in response to signal input impulses, each one of said signal responsive means being associated with a separate group of said mechanical elements, an actuating member interposed between each one of said signal responsive means and that group of mechanical elements with which said one signal responsive means is associated, said actuating member being movable from an operative position to displace a selected one of the mechanical elements of said group when said signal responsive means is operated, and means operable each time a signal input impulse is impressed on any of said signal responsive means to move simultaneously all of said actuating members to said operative position with respect to selected ones of the mechanical elements of the groups associated with the respective actuating members.



3,303,493

AMPLITUDE COMPARATOR SYSTEM

Roger Charbonnier, Meudon, Seine-et-Oise, France, assignor to Societe Rochar Electronique, Seine, France, a corporation of France
Filed Jan. 22, 1964, Ser. No. 339,488
Claims priority, application France, Jan. 28, 1963,
922,926
9 Claims. (Cl. 340—347)



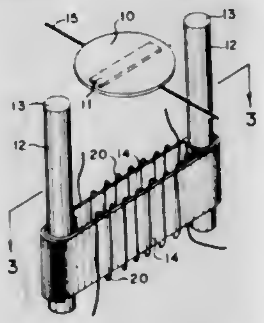
2. A system for comparing the amplitude of an input voltage with the amplitude of a cyclicly varying reference voltage and for providing an output logic signal at the instant of equality between the amplitudes of said voltages, comprising the combination of

- a first comparator circuit responsive to said input voltage and to said reference voltage, said comparator circuit comprising
  - a differential amplifier,
  - a bistable circuit for providing an output pulse responsive to the output of said differential amplifier, said bistable circuit reversing states when the amplitude of said reference voltage becomes equal to the amplitude of said input voltage, and
  - a unidirectionally conducting element coupling said output pulse to a control terminal on said differential amplifier for rendering ineffective the input circuit of said differential amplifier whereby the input impedance of said differential amplifier becomes very high during the entire time of nonequality of the voltages to be compared;
- a second comparator circuit responsive to said reference voltage;
- a logic circuit responsive to the outputs of said first and second comparator circuits for providing a pulse waveform, the duration of each pulse in said waveform being proportional to the absolute value of the amplitude of said input voltage;
- a signal generator for providing a signal of predetermined frequency; and
- a gate circuit having an output terminal, said gate circuit being responsive to said signal and to said pulse waveform for delivering to said output terminal a series of pulses, the number of pulses in said series being directly proportional to the amplitude of said input voltage.

3,303,494

MAGNETICALLY OPERATED SIGNS

Maurice Kenyon Taylor, Weston, Ontario, and Donald Winrow, Downsview, Ontario, Canada, assignors to Ferranti-Packard Electric Limited, Toronto, Ontario, Canada
Filed Feb. 14, 1966, Ser. No. 534,273
4 Claims. (Cl. 340—373)



1. A sign for displaying indicia, comprising:
an array of magnetically actuable indicia forming elements defining a viewing direction;
each of said elements having a swingably mounted member;
having two surfaces of contrasting appearance;
and carrying a permanent magnet with poles extending transversely to the axis of rotation of the member;
a magnetic field producing means for causing movement of said member:
including a pair of permanently magnetizable pole forming members;
a pair of flux-permeable members joining each pair of said pole forming members in separate magnetic paths;
an electrically conducting winding associated with each of said flux-permeable members arranged and constructed to create, when electric current is flowing therein, magnetic flux in the flux-permeable member with which it is associated;
to polarize said pole forming members in one or another polarity;
said pole forming members when sufficiently magnetized by such flux being effective to rotate said magnetically actuable member between two positions determined by said respective polarities;
said contrasting surfaces being arranged so that one is displayed in the viewing direction in each of said positions.

3,303,495

GLIDE SLOPE INDICATING SYSTEM

David W. Kermode, China Lake, and Dale W. Cox, Jr., Palos Verdes, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 25, 1963, Ser. No. 319,082
12 Claims. (Cl. 343—6.5)

9. A system for determining an airborne aircraft's altitude error with respect to its range from a predetermined point comprising, in combination:
an electronic altimeter for transmitting electronic sig-

nals from said aircraft to ground level and receiving reflected pulses therefrom for determining aircraft altitude;

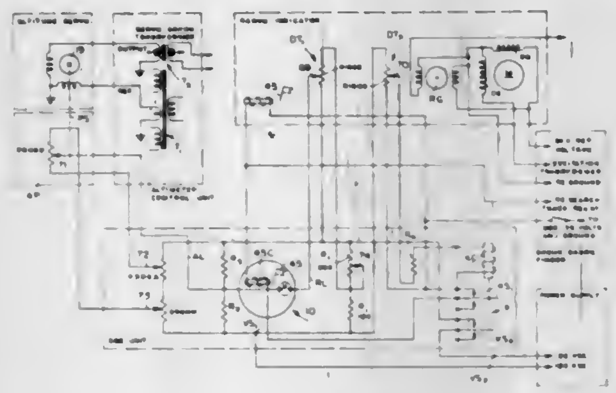
an electronic pulse transmitting beacon for transmitting pulsed response signals;

an electronic range finder system for transmitting interrogating signals to said beacon for initiating said response signals from said beacon so that the aircraft's range from said beacon may be determined; and

an electronic glide slope system for interconnecting the electronic altimeter and electronic range finder in such a manner as to provide error intelligence with respect to the aircraft's altitude and range as the aircraft approaches a landing along an aircraft approach profile;

wherein the electronic glide slope system includes:

a first potentiometer having at least one arm driven by said electronic altimeter system in accordance with aircraft altitude;



a second potentiometer having at least one arm driven by said electronic range finder system in accordance with the aircraft range;

means for imposing a voltage of equal value across said first and second potentiometers to provide a pair of potentiometer output voltage signals indicative of aircraft altitude and range;

a bridge circuit for interconnecting said first and said second potentiometers, whereby the potentiometer output voltage signals may be compared; and

a voltage indicating means connected within said modified bridge circuit so that voltage imbalance between the potentiometer output voltage signals may be detected, whereby the aircraft's altitude may be varied to conform to the predetermined altitude and range relationship.

3,303,496
IDENTIFICATION ARRANGEMENT

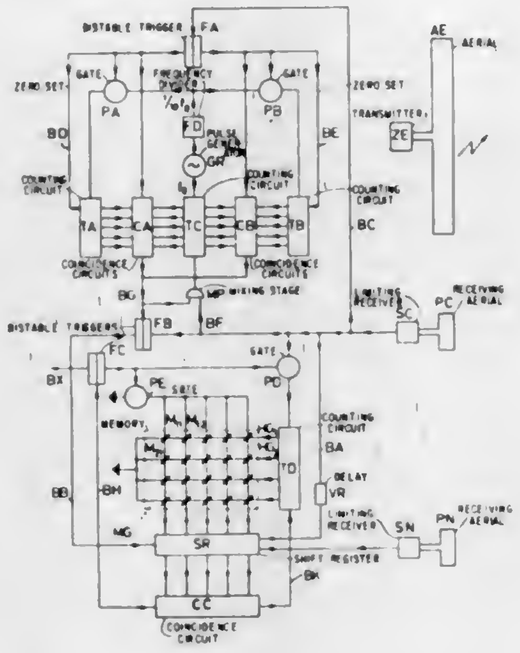
Jacob Koorneef and Jacobus Marius den Hertog, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

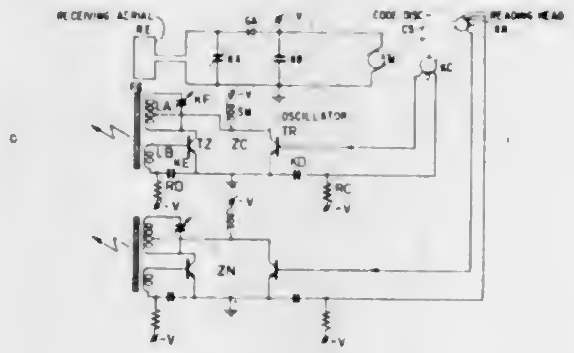
Filed Sept. 30, 1964, Ser. No. 400,473

Claims priority, application Netherlands, Oct. 2, 1963, 298,733

5 Claims. (Cl. 343—6.5)

1. A signal identification system including an interrogator, a transmitter and a receiver, said transmitter generating a uniquely coded signal including a plurality of indicia arranged in consecutive order and comprising a pulse coded information carrier, said carrier having a plurality of characteristic information pulse code series thereon, each of said pulse code series but the first indicative of the numerical value of a respective one of said indicia, the first of said pulse code series constituting a synchronizing code for indicating the beginning of the information portion of said series, and a plurality of pulse code group marks for indicating the beginning of each of said information pulse code series, reading means coupled to said carrier means and responsive to said code representations, motor means activated by wireless energy transmission from said interrogator, said motor means imparting relative motion between said carrier means and said reading means, said reading means converting said series and said marks to electrical pulses at a rate dependent upon the rate of said relative motion, and means coupling the electrical pulses produced by said reading means to said receiver.





3,303,497
TIME EXPANSION RADAR

Charles F. Chubb, Glen Head, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Mar. 28, 1963, Ser. No. 269,238

9 Claims. (Cl. 343—7.3)

2. A time-range expansion radar combining pulse compression and frequency comparison techniques comprising:

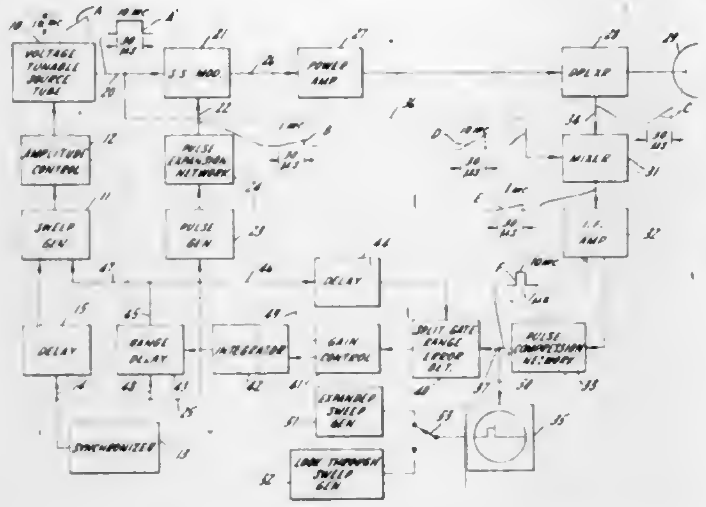
a sweep generator;

a radar system for transmitting and receiving sweep frequency pulses including a voltage tunable source tube having an output controlled in frequency sweeps by said sweep generator and modulated by pulses of finite duration;

a range tracking circuit having an output;

a receiver channel including a mixer, an intermediate frequency network, and a pulse compression circuit with an output coupled to said range tracking circuit, the output of said range tracking circuit being coupled to said sweep generator to cause said voltage tunable source tube to produce secondary sweep frequencies, said voltage tunable source tube output being coupled to said mixer to produce frequency comparison of the echo and secondary sweep frequency signals; and

an indicator coupled to the output of said pulse compression circuit to indicate the target being tracked



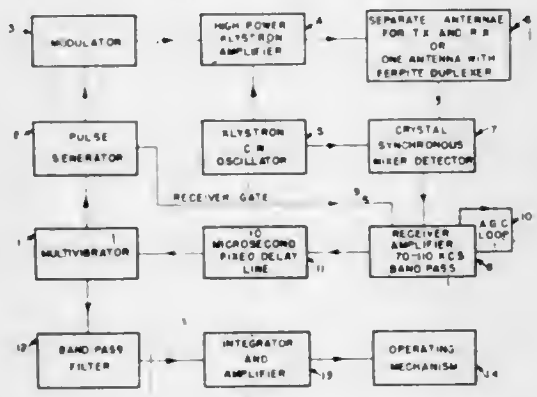
whereby the target tracking circuit causes frequency sweep signals to be produced for comparison with the corresponding echo frequency sweep pulse and pulse compression of the resultant frequency signal for indication by time-range expansion thereby obtaining high resolution of tracked targets.

3,303,498
TARGET FEEDBACK RADAR SYSTEM

Wilfred H. Bacon, Scarboro, Ontario, Canada, assignor to Canadian Arsenals Limited, Ottawa, Ontario, Canada, a corporation of Canada

Filed Sept. 24, 1957, Ser. No. 685,994

4 Claims. (Cl. 343—7.5)



MODULATOR
HIGH POWER KLYSTRON AMPLIFIER
SEPARATE ANTENNAE FOR TX AND RX OR ONE ANTENNA WITH FERRITE DUPLEXER
PULSE GENERATOR
KLYSTRON CW OSCILLATOR
CRYSTAL SYNCHRONOUS MIXER DETECTOR
RECEIVER GATE
MULTIVIBRATOR
10 MICROSECOND FIXED DELAY LINE
RECEIVER AMPLIFIER 70–110 MCS BAND PASS
AGC LOOP
BAND PASS FILTER
INTEGRATOR AND AMPLIFIER
OPERATING MECHANISM

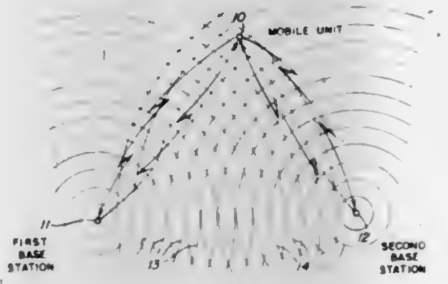
1. A radio system, wherein emitted radio frequency signals encountering an object are reflected to a receiver which comprises, a radio frequency transmitter, said transmitter comprising, a modulator for said transmitter, normally free-running means for generating pulses at a chosen recurrence frequency, said generating means being synchronizable to generate pulses at a synchronized recurrence frequency which is higher than said chosen recurrence frequency, means connecting said generating means to said modulator, a radio frequency receiver for radio signals at the frequency of said transmitter, said receiver providing an output corresponding to the envelope of received radio signals, a time delay device for the output from said receiver and means connecting the delay device to said synchronizable generating means, said transmitter emitting a radio frequency pulse in accordance with a first pulse from said generating means, said radio frequency pulse after reflection by said object being received by said receiver and producing an output, said output after a time delay causing said synchronizable generating means to generate a second pulse, said second pulse being generated at a time earlier than that determined by said generating means in its free-running state and defining the period of said synchronized recurrence frequency, means sensitive to the synchronized recurrence frequency for indicating the distance travelled by said radio frequency pulse from said transmitter and upon reflection to said receiver, and a bandpass filter for the frequency sensitive means for passing only a specific range of synchronized pulse recurrence frequencies to said sensitive means.

3,303,499
RADIO LOCATION RANGING SYSTEM

Edward H. Mahoney, Tulsa, and James E. Hawkins, Broken Arrow, Okla., assignors to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware

Filed Oct. 2, 1963, Ser. No. 313,255

32 Claims. (Cl. 343—15)



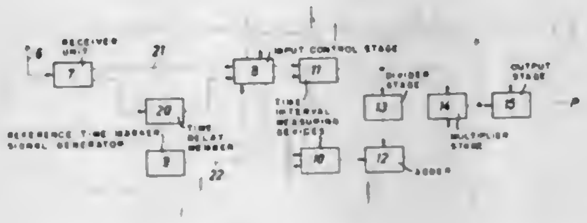
1. A radio position finding system comprising a mobile unit and two fixed, spaced apart transponder stations, said mobile unit comprising means for simultaneously radiating first and second pure, unmodulated signals of predetermined frequencies in different frequency channels during spaced apart intervals, receiving and indicating equipment effective during periods between the spaced apart intervals, means for generating a reference signal having its phase locked to said first signal, and timing means for rendering the radiating means and said equipment alternately effective; each of said transponder stations including means for simultaneously radiating during said periods first and second pure, unmodulated waves having frequencies respectively equal to the frequencies of said first and second signals, means for receiving said first and second signals during said intervals, and phase adjusting means for respectively locking the phases of the first and second waves to the phases of the received first and second signals; means responsive to at least one of said first and second signals for rendering the radiating means of the two transponder stations alternately effective during said periods; the receiving and indicating equipment including means for receiving the waves radiated from each of the transponder stations and for comparing the phase of the first wave received from a first of the transponder stations with said reference signal to provide a first fine position indication representing the position of the mobile unit relative to said first station, said equipment including means jointly responsive to the two waves received from said first transponder station for providing a first coarse position indication representing the location of the mobile unit relative to said first station, said equipment including means for comparing the phase of said reference signal with the first wave received from the second of said transponder stations to provide a second fine position indication representing the location of the mobile unit relative to said second station, and means jointly responsive to the two waves received from the second station for providing a second coarse position indication representing the position of the mobile unit relative to said second station.

3,303,500

NAVIGATION AND POSITION FINDING SYSTEM, OPERATING ON THE TRANSIT TIME PRINCIPLE, FOR PRODUCING PARALLEL POSITIONAL PLANES

Alexander Prichodjko, Oberelchingen, Kreis Neu Ulm, Albert Simianer, Thaifingen, Kreis Neu Ulm, and Hartmut Hipp, Gerlingen, Kreis Leonberg, Germany, assignors to Telefunken Patentverwertungs-G.m.b.H., Ulm (Danube), Germany

Filed Mar. 22, 1963, Ser. No. 267,306
Claims priority, application Germany, Mar. 24, 1962,
T 21,830; Sept. 18, 1962, T 22,751
72 Claims. (Cl. 343—103)



1. A system of the character described, comprising, in combination:

(a) two transmitters located at two spaced-apart known transmitter points, respectively, for transmitting informational time markers at instants t_1 and t_2, respectively, which instants are identical with an instant t_0; and

(b) receiving means for receiving said informational time markers and located at a receiver point spaced from said transmitter points, said receiving means including

  (1) means for determining the time difference Δt_{12} between the instants t_1' and t_2' at which the informational time markers that were transmitted at instants t_1 and t_2, respectively, are received,

  (2) means for determining the time difference Δt_m between the instant t_0 and an instant t_{12}' which is intermediate said instants t_1' and t_2' at which said informational time markers are received, and

  (3) means for forming the product $\Delta t_{12} \cdot \Delta t_m$, thereby to define a particular positional plane which contains said receiver point and which is at right angles to a straight line drawn through said transmitter points and hence a plane containing said receiver point, the position of which plane is fixed with respect to said known transmitter points.

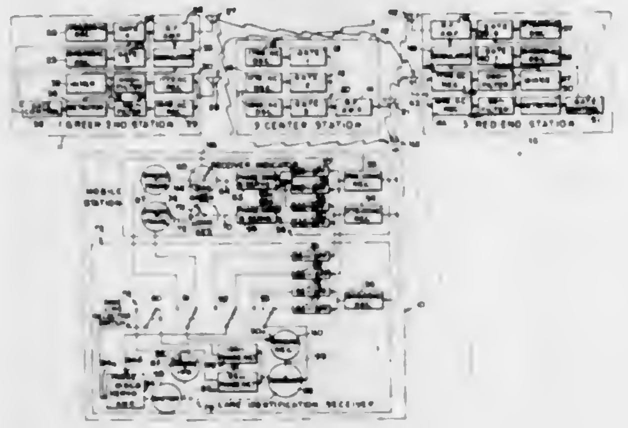
3,303,501

RADIO LOCATION SYSTEM WITH LANE IDENTIFICATION FACILITIES

Edward H. Mahoney, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware

Filed Apr. 22, 1964, Ser. No. 361,748
22 Claims. (Cl. 343—105)

15. A transmitting system of the hyperbolic, continuous wave type comprising first, second and third spaced apart transmitting stations, first, second and third transmitters at said first station, means for rendering said first second and third transmitters effective in sequence to respectively radiate first, second and third signals during different intervals, said first transmitter being effective during a first interval, said second transmitter being effective during a second interval and said third transmitter being effective during third and fourth intervals, fourth and fifth transmitters at said second station for respectively radiating fourth and fifth signals, control means at said second station for rendering said fourth transmitter effective during said third interval and for rendering said fifth transmitter effective during said first, second and fourth intervals, sixth and seventh transmitters at said third station for respectively radiating sixth and seventh signals, control means at said third station for rendering said sixth transmitter effective during said fourth interval and for rendering said seventh transmitter effective during said first, second and third intervals, first receiving means in said system for receiving and heterodyning the second and seventh signals to develop a first beat signal during said second interval and for radiating a first reference signal derived from said first beat signal, second receiving means in said system for receiving and heterodyning said third and sixth signals during said fourth interval to develop a second beat signal and for radiating a second reference signal derived from said second beat signal, third receiving means in said system for receiving and heterodyning said first and fifth signals during said first interval to develop a third beat signal and for radiating a third reference signal derived from said third beat signal, and fourth receiving means in said system for receiving and heterodyning said third and fourth signals during said third interval to develop a fourth beat signal, and for radiating a fourth reference signal derived from said fourth beat signal.

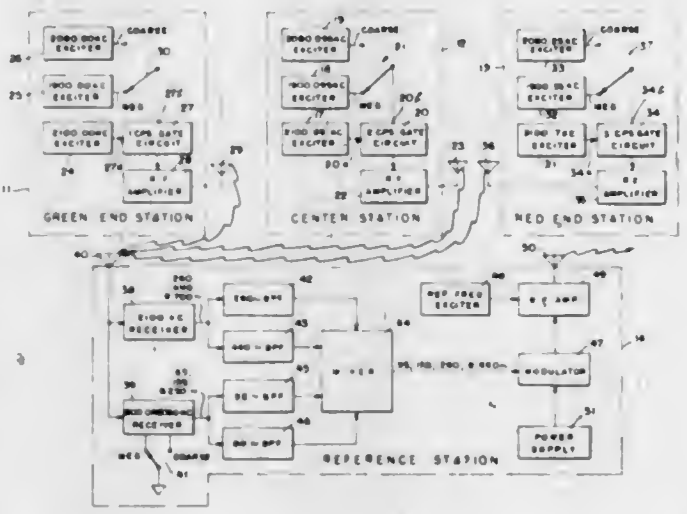


3,303,502

HYPERBOLIC CONTINUOUS WAVE POSITION FINDING SYSTEM INCLUDING AMBIGUITY RESOLUTION

Edward H. Mahoney, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware

Filed Apr. 22, 1964, Ser. No. 361,845
28 Claims. (Cl. 343—105)



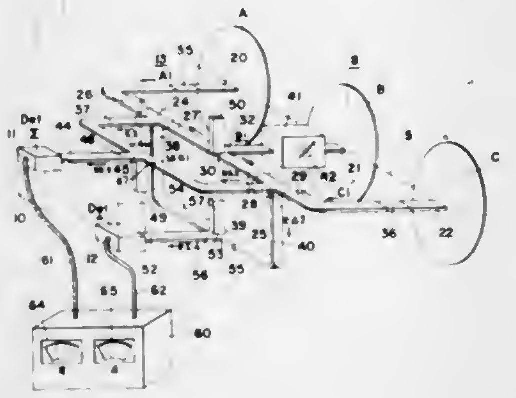
12. A transmitting system for use in radio location systems of the hyperbolic continuous wave type and comprising a pair of spaced apart transmitting units each including means for generating a position indicating signal and means for generating at least one ambiguity resolution signal, switching means at each of said units for alternately radiating the position indicating signal and the ambiguity resolution signal from that unit, the switching means at the two units being operated independently of each other and at different switching rates, a fixedly positioned reference station for receiving and heterodyning the two ambiguity resolution signals to develop a first beat signal and for receiving and heterodyning in pairs the two position indicating signals to develop a second beat signal, means at said reference station for generating and radiating a carrier wave, and means for radiating first and second reference signals respectively derived from said first and second beat signals.

3,303,503

SINGLE-SITE MONOPULSE RANGING SYSTEM

Vincent D. Stabilito, Delran, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Feb. 1, 1965, Ser. No. 429,688
7 Claims. (Cl. 343—112)



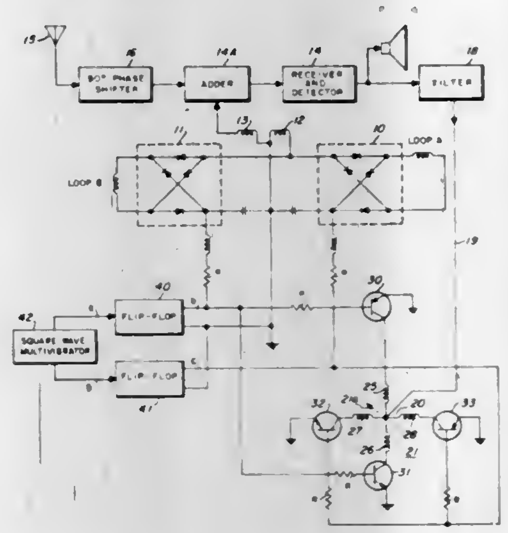
1. In a phase-comparison signal ranging system, the combination of an antenna array comprising a plurality of in-line directional antenna elements equally spaced and mounted to rotate in the azimuth plane and face broadside a remote signal source and a spherical signal wave front resulting from signal transmission therefrom, means providing signal output connections from said antenna elements and equalized signal output therefrom, a variable phase delay element in the output connection from the center antenna element for introducing therein a phase delay equal to the phase lead of a received signal thereon, means including a pair of hybrid-T coupling devices connected for linearly combining the signal output from said center antenna element through said phase delay device with each of the adjacent antenna elements on opposite sides thereof to provide two equalized pairs of sum and difference output signals therefrom, means connected with said hybrid-T coupling devices for linearly combining and detecting said sum output signals and said difference output signals, thereby to convert relative phase to relative energy through said coupling devices and final relative voltages through said detecting means, and means responsive to said voltages connected with said combining and detecting means for indicating the relative amplitudes thereof as said phase delay device is adjusted to bring the signal output from said center antenna element into phase for maximum sum signal voltage output and minimum difference signal voltage output, and means for translating the adjusted phase shift from degree readings to free space distances from the antenna array to different signal sources as a base for measurement of range to said sources.

3,303,504

AUTOMATIC RADIO DIRECTION FINDER SYSTEM

Lawrence R. Weill, 4015 Vista Place, San Diego, Calif. 92116

Filed Sept. 14, 1964, Ser. No. 396,447
6 Claims. (Cl. 343—120)



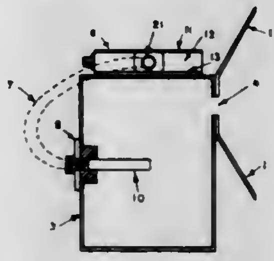
1. In combination in an automatic direction finder,
a pair of directional antennas oriented to produce right angle signal patterns,
a radio frequency receiver and detector coupled to said antennas for deriving the signal voltages at the terminals of said antennas,
a first and a second reversing switch connected between the input of the said receiver and, respectively, said antenna terminals,
a directional indicator with four equally angularly disposed field-producing elements, and a rotatable pointer responsive to the resultant field of said elements,
four switches coupled, respectively, between said elements and the output of said detector, and
a square wave generator,
said reversing switches and said four switches being responsive to the square wave of said generator for successively energizing said elements in synchronism with the successive operations of said reversing switches.

3,303,505

BROADBAND LINEAR SLOT ANTENNA WITH IMPEDANCE MATCHING NETWORK

Wilfred H. Bacon, Hugh Gordon Byers, and Max Katchky, all of Scarboro, Ontario, Canada, assignors to Canadian Arsenals Limited, Ottawa, Ontario, Canada, a corporation of Canada

Filed Sept. 24, 1957, Ser. No. 685,996
4 Claims. (Cl. 343—771)

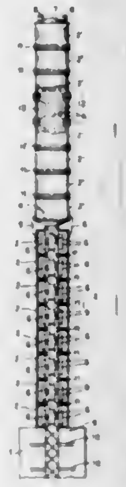


1. A broadside linear array antenna for use at microwave frequencies comprising, in combination, a series of radiating elements disposed along a linear axis, each of said radiating elements being a section of waveguide short circuited at each end, resonant at the prescribed design frequency, which has, on at least one one of its walls, which with the like wall on adjacent radiating elements forms a radiating face of the array, at least one radiator

slot parallel to the linear axis of the array and placed from the axial centre line of said wall by a distance such that the normalized conductance of the total number of slots is unity; an impedance matched power distribution system for supplying microwave energy to said radiating elements including at least one power feed section capable of accepting microwave energy from a source and distributing this microwave energy by consecutive impedance transformations in predetermined proportions amongst a series of power take offs connecting to the radiating elements associated with the feed section, said impedance transformations being accomplished by a series of quarter wave transformers whose characteristic impedance is controlled by the relative dimension of a centre conductor between two parallel conducting plates in a dielectric medium; and an appropriate number of feeder cables connecting said power take-offs to said associated radiating elements, the length of each said feeder cables being adjusted to control the relative phase of the microwave energy reaching said radiating elements.

3,303,506
DOUBLE MAST ANTENNA HAVING THE UPPER MAST SUPPORTED BY A CARRIER MAST WHICH EXTENDS THE LENGTH OF THE LOWER MAST

Hugo Diebold, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Berlin and Munich, a corporation of Germany
Filed June 11, 1963, Ser. No. 287,097
Claims priority, application Germany, June 29, 1962, S 80,159
7 Claims. (Cl. 343—872)

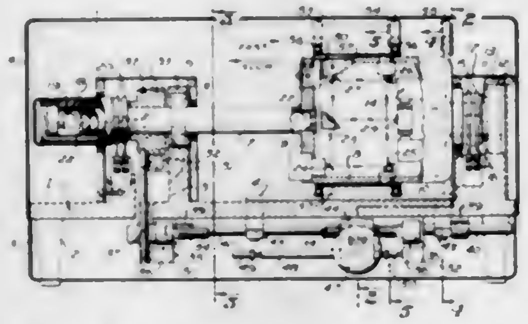


1. An antenna mast for a plurality of antennas operating in the ultra short wave range or in the decimeter wave range, especially for television antennas, omnidirectional antennas and the like, comprising two separate individually self-supporting tubular envelopes arranged in superposed relationship, each envelope comprising a plurality of tubular sections made of insulating material, means forming a foundation on which the lower antenna envelope is supported, and a carrier mast supported by said foundation and extending freely upwardly therefrom within said lower envelope, on which the upper antenna envelope is supported.

3,303,507
LONG TERM PHOTOGRAPHIC RECORDER

Francis E. Lehner, Monrovia, and Witold Krynicki, Pasadena, Calif., assignors to California Institute Research Foundation, Pasadena, Calif., a corporation of California
Filed Oct. 1, 1964, Ser. No. 400,756
10 Claims. (Cl. 346—24)

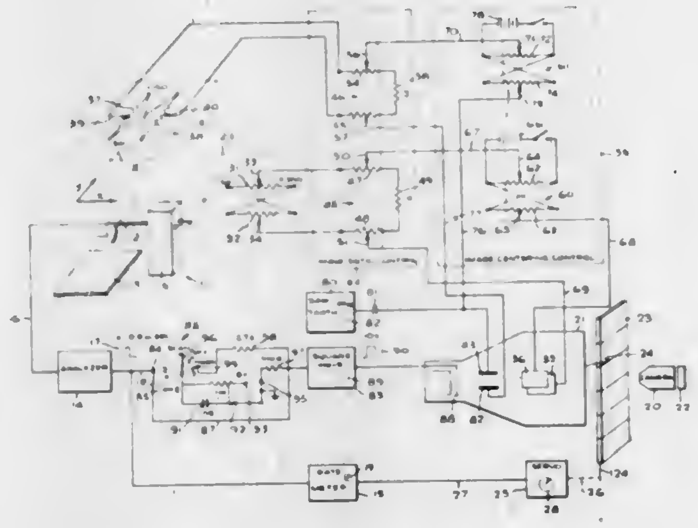
1. A long term photographic recorder, comprising:
(a) an indicating means including a reflecting element;
(b) means for rotating said reflecting element;
(c) a light source and reflecting means for directing a light beam toward said reflecting element for reflection therefrom in a direction radially of said rotating means;
(d) a transparent cylinder surrounding said indicating means;
(e) means for advancing said cylinder axially to cause said beam of light to describe a helical path thereon;
(f) a camera including a film supply reel, a film receiving reel, means for guiding a light sensitive film from said film supply reel, around said transparent cylinder to said receiving reel;



(g) a pair of clamping jaws movable to and from each other in a common arcuate path tangent to said cylinder and engageable with said film to draw said film tightly about said cylinder;
(h) and means operable periodically to release said clamping jaws and advance a convolution of said film about said cylinder.

3,303,508
PHOTOGRAPHIC COLOR SCANNING APPARATUS

Henry L. Jaffe, Santa Monica, and Ralph M. Adams, San Gabriel, Calif., assignors to Cedars of Lebanon-Mt. Sinai Hospitals of the Los Angeles Jewish Medical Center, Los Angeles, Calif., a California non-profit corporation
Filed Apr. 27, 1964, Ser. No. 362,747
27 Claims. (Cl. 346—33)



1. In photographic color scanning apparatus cooperable with a detector and a traversing mechanism for the detector: a holder for a photosensitive sheet; means fixed with respect to the holder for producing a spot of illumination on the sheet; means coupled to the detector for causing the illumination spot to traverse relative to the photosensitive sheet in accordance with the traverse of said detector; and means having preselected color coded characteristics interposed between the illumination producing means and the holder for changing the color characteristic of the illumination spot in accordance with the activity of the detector.

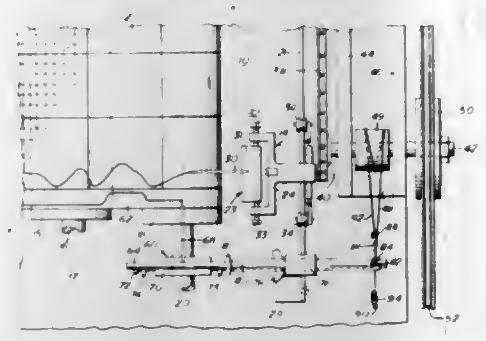
3,303,509
RECORDER

Robert T. Smith, Jr., Hatboro, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Jan. 29, 1965, Ser. No. 428,948
6 Claims. (Cl. 346—34)

1. A switching circuit for a recording apparatus employing an electromechanical Select-O-Print multi-point recording circuit, comprising a rotatable print cycle selector wheel having a plurality of radially-spaced-apart adjustable puffed-out and pushed-in pins on its outer peripheral surface, a toggle switch electrically connected to an electric power source, the toggle switch being operably positioned to successively contact only the sides of pulled-out pins and to remain in an open-switch position when the pin cycle selector wheel is rotated and each of the pulled-out pins is retained in said side contact therewith, the toggle switch being further operably connected to be self-biased out of physical contact and into a closed-switch position when it is rotated to a position immediately above a pushed-in pin, a relay-operated switching circuit electrically connected with the toggle switch, a reversible motor gear reduction drive unit operably connected to rotate the wheel at one of two different speeds when the toggle switch is in contact with a pulled-out pin and the motor is thereby electrically energized by a current flowing from the power source, the relay-operated switching circuit being further operably connected to rotate the wheel at the other one of the two different speeds when the toggle switch is adjacent a pushed-in pin and thereby out of contact with the pins and the flow of current to the relay is thereby cut in, and a manually-operated electric switching circuit to cut out the power source to the relay to thereby make ineffective the energizing function of the relay when a pulled-out pin contacts the toggle switch, and the manually-operated switching circuit thereby being operative to retain the speed of the gear reduction drive at a selected one of said two mentioned speeds.

3,303,510
WATER LEVEL DIRECTION INDICATOR

Allen B. Jones, 804 Maple St., Oakdale, La. 71463
Filed Jan. 26, 1965, Ser. No. 428,274
2 Claims. (Cl. 346—49)



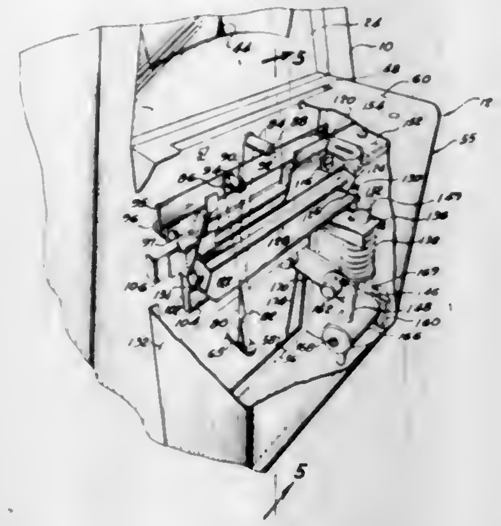
1. In an apparatus for measuring and recording a changeable condition having a directional characteristic, a recorder comprising means for supporting a moving record sheet, a plurality of displaceable writing means operable to draw markings on said sheet, first and second mechanisms controlling displacement of a first of said plurality of writing means, said first control mechanism being operable to linearly displace said first writing means in either of two opposite directions within a first predetermined span of travel in respect to said sheet, and said second control mechanism being operable to reverse the travel direction of said first writing means at predetermined points in said span of travel, a third mechanism controlling displacement of a second of said plurality of writing means being operable to linearly displace said second writing means in either of two opposite directions within a different predetermined span of travel in respect to said sheet, said third displacement control mechanism comprising a rotatable means operable to effect said linear displacement of said second writing means, said first and second control mechanisms having displacement guide means operatively associated therewith providing a support for a bearing member adjustably secured to said guide means, said rotatable means being operatively maintained in said bearing member, means pivotably supporting said second writing means adjacent one end of said rotatable means, an actuatable means, operable in response to variations in said changeable condition, to drive said first displacement control mechanism in accordance with the relative magnitude and direction of said changeable condition, and said third displacement control mechanism in accordance with a generally partial relative magnitude and the direction of said changeable condition, said rotatable means having secured to an end opposite said one end thereof an impelling means comprising a lever and a flexible means fixed to said lever connecting the latter to said actuable drive means through frictional contact, whereby said flexible connecting means transmits a limited drive to said impelling means of said rotatable means.

3,303,511
WHEEL ALIGNMENT REGISTER

Thomas E. Bjorn, Northbrook, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia
Filed Sept. 28, 1964, Ser. No. 399,641
9 Claims. (Cl. 346—50)

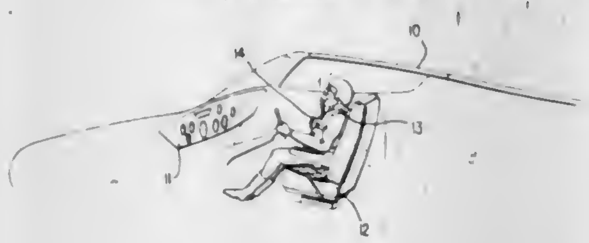
1. In a vehicle wheel alignment tester for forming a permanent record of the alignment of a vehicle wheel in response to the passage of said wheel along one path, comprising means movable by said wheel a distance corresponding to the misalignment of said vehicle wheel in response to the passage of a vehicle wheel along said one path, die means operated along a predetermined path by said movable means to a position individually corresponding to the misalignment of said vehicle wheel, ham-

mer means substantially coextensive with said path, means for locating a record between said die means and hammer means, and means automatically actuated in response to the passage of said wheel along said one path for controlling said die and hammer means to mark said record in accordance with the die position along said predetermined path.



3,303,512
APPARATUS FOR RECORDING AIRCRAFT CONDITIONS

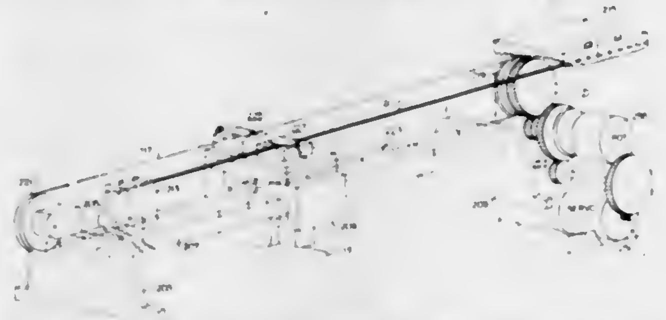
Edward B. Johnson, 4654 N. 34th St., Arlington, Va. 22207
Filed Dec. 1, 1964, Ser. No. 415,078
7 Claims. (Cl. 346—107)



1. An apparatus for photographically recording the instrument panel of an aircraft during emergency ejection of a pilot from the pilot seat of the ejection type provided with an ejection mechanism and control means therefor, comprising an acceleration-responsive photographic recorder means having normally inoperative shutter release means operated only by acceleration forces of the magnitude occurring during ejection, means for mounting the camera on the flight gear of the pilot in a predetermined position so as to face the instrument panel with the pilot in the normally prescribed position during ejection, and means for automatically recording the instrument panel in the acceleration-responsive recorder means by actuating the ejection control means thereby causing the shutter release means to be operated by said forces to automatically record the instrument panel.

3,303,513
TRANSDUCER INDEXING SYSTEM FOR PLAYING BACK VARIOUS GEOPHYSICAL RECORDINGS

John P. Woods, Dallas, Tom Prickett, Jr., Richardson, William M. Mullings, Garland, and James K. Lyons, Dallas, Tex., assignors to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania
Application Nov. 17, 1964, Ser. No. 417,531, now Patent No. 3,268,910, dated Aug. 23, 1966, which is a division of Ser. No. 348,322, Feb. 25, 1964, now Patent No. 3,210,770, dated Oct. 5, 1965, which in turn is a continuation of Ser. No. 99,858, Mar. 31, 1961. Divided and this application Oct. 23, 1965, Ser. No. 507,987
4 Claims. (Cl. 346—139)



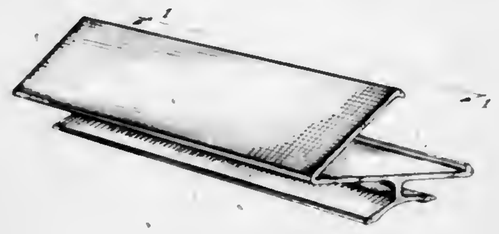
1. A band pulley pen indexing device, comprising,
(a) a frame member,
(b) first and second tubular ways supported by said frame member,
(c) a pen housing slidably mounted on said tubular ways,
(d) at least one pen carried by said pen housing,
(e) gear means fixed to one end of said frame member,
(f) an anchor support rigidly attached to said first tubular way near the end of said frame member remote to said gear means,
(g) a first pulley associated with and attached to said gear means,
(h) a second pulley mounted on the end of said frame member remote to said gear means,
(i) a continuous band mounted on said first and second pulleys so that a portion thereof passes through said first tubular way,
(j) a connecting band joining said gear means and said anchor support,
(k) a magnetic clutch mounted on said pen housing and adapted to engage said continuous band, and
(l) a magnetic brake mounted on said pen housing which is adapted to engage said connecting band.

DESIGNS

FEBRUARY 7, 1967

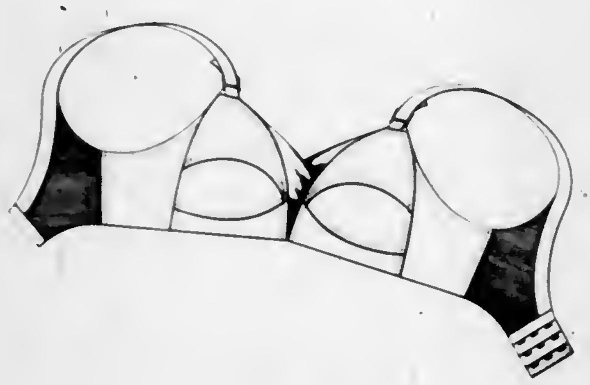
206,853
HOLDER FOR A NAME PLATE PRISM OR THE LIKE

Leo R. Slaton, Chicago, Ill., assignor to Swiss Harmony, Inc., Chicago, Ill., a corporation of Illinois
Filed Aug. 23, 1965, Ser. No. 86,675
Term of patent 7 years
(Cl. D1—3)



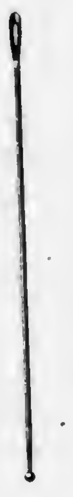
206,854
BRASSIERE

Charles M. Sachs, Fort Lee, N.J., assignor to International Latex Corporation, Dover, Del., a corporation of Delaware
Filed May 6, 1964, Ser. No. 79,838
Term of patent 14 years
(Cl. D2—24)



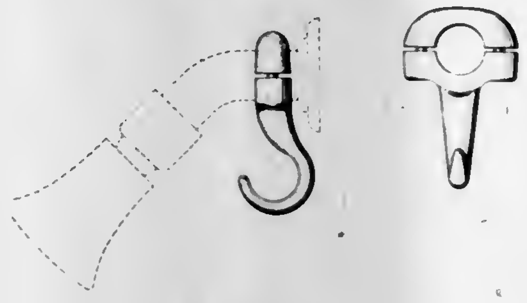
206,855
BODKIN

Lena J. Ferla, Jenkintown, Pa., assignor to Inventors League Inc., Bala Cynwyd, Pa., a corporation of Pennsylvania
Filed Oct. 22, 1965, Ser. No. 87,777
Term of patent 14 years
(Cl. D3—19)



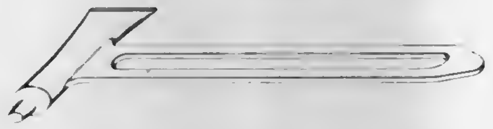
206,856
HOOK FOR SHOWER FIXTURE

Harold J. Poole, Boca Raton, Fla. (1601 E. Crest Drive, Charlotte, N.C. 28206)
Filed Dec. 20, 1965, Ser. No. 246
Term of patent 14 years
(Cl. D4—3)



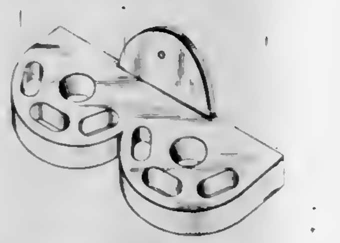
206,857
TOOTH PASTE TUBE SQUEEZER

Gerald Dalton, 459 North 250th East, Kaysville, Utah 84037
Filed Mar. 3, 1966, Ser. No. 1,275
Term of patent 14 years
(Cl. D4—3)



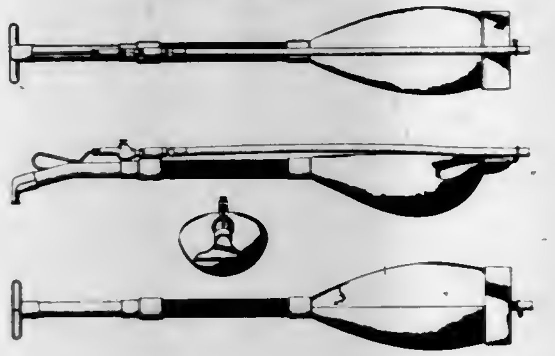
206,858
COMBINED TOOTHBRUSH AND DENTIFRICE TUBE HOLDER

George Buzard, 128 4th St., Marlon, Mich. 49665
Filed Oct. 25, 1965, Ser. No. 87,937
Term of patent 14 years
(Cl. D4—3)



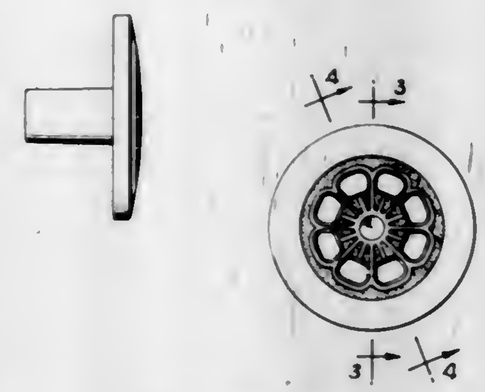
206,859
PORTABLE AIR POWERED VACUUM CLEANER

Frank Polizzi, 305 La Jolla Drive, Newport Beach, Calif. 92037
Filed Apr. 11, 1966, Ser. No. 1,825
Term of patent 14 years
(Cl. D9—2)



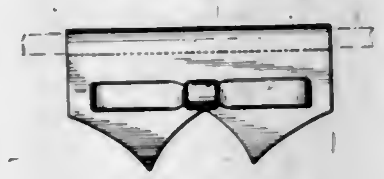
206,860
CABINET KNOB

La Verne E. Clayton, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed Feb. 1, 1966, Ser. No. 855
Term of patent 14 years
(Cl. D10—8)



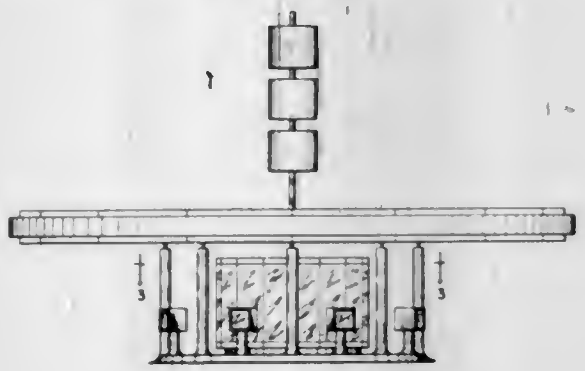
206,861
DOG COLLAR ORNAMENT OR SIMILAR ARTICLE

Daniel A. Klimkiewicz, Rutherford, N.J., assignor of one-half to Ronald A. Darby, Hawthorne, N.J.
Filed Sept. 23, 1965, Ser. No. 87,130
Term of patent 14 years
(Cl. D12—2)



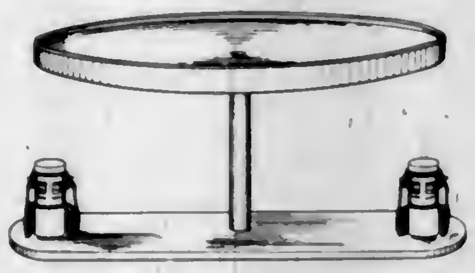
206,862
SERVICE STATION

Albert Shotmeyer, Wyckoff, N.J.
(℅ Shotmeyer Brothers Co., Hawthorne, N.J. 07507)
Filed Mar. 16, 1966, Ser. No. 1,492
Term of patent 14 years
(Cl. D13—1)



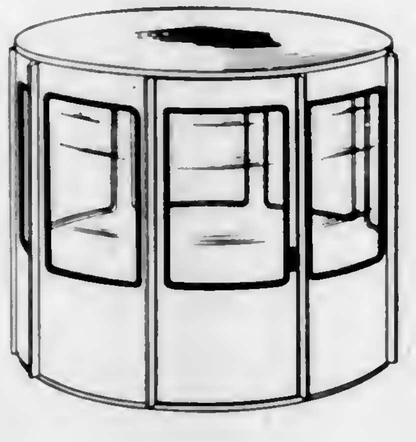
206,863
DISPENSING ISLAND

Eliot F. Noyes, New Canaan, Ernest M. Bevilacqua, Wilton, and Robert E. Graf, New Canaan, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,572
Term of patent 14 years
(Cl. D13—1)



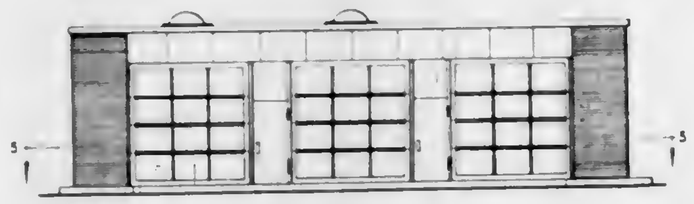
206,864
CIRCULAR BUILDING

Eliot F. Noyes, New Canaan, Conn., assignor to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,573
Term of patent 14 years
(Cl. D13—1)



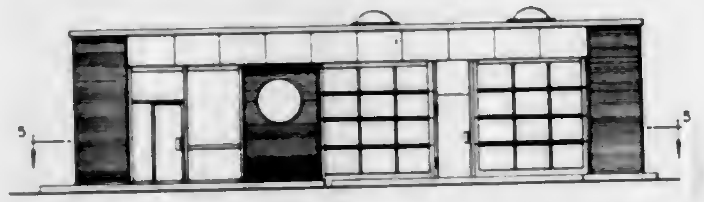
206,865
SERVICE BUILDING

Eliot F. Noyes, New Canaan, and Arthur De Salvo, Jr., Norwalk, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,577
Term of patent 14 years
(Cl. D13—1)



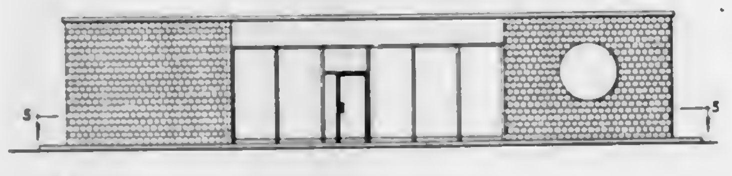
206,866
AUXILIARY BUILDING

Eliot F. Noyes, New Canaan, and Arthur De Salvo, Jr., Norwalk, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,580
Term of patent 14 years
(Cl. D13—1)



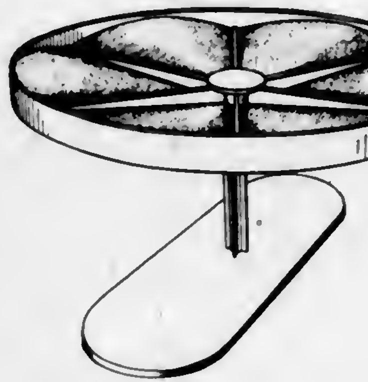
206,867
BUILDING

Eliot F. Noyes, New Canaan, and Arthur De Salvo, Jr., Norwalk, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,581
Term of patent 14 years
(Cl. D13—1)



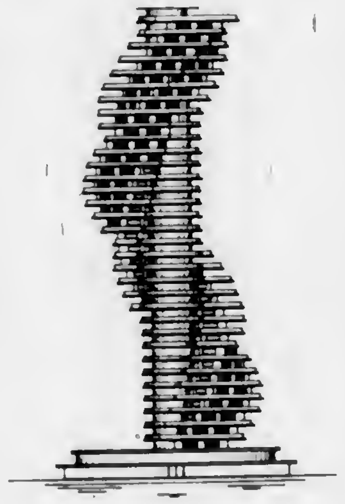
206,868
CIRCULAR SHELTER

Eliot F. Noyes, New Canaan, Conn., assignor to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,582
Term of patent 14 years
(Cl. D13—1)



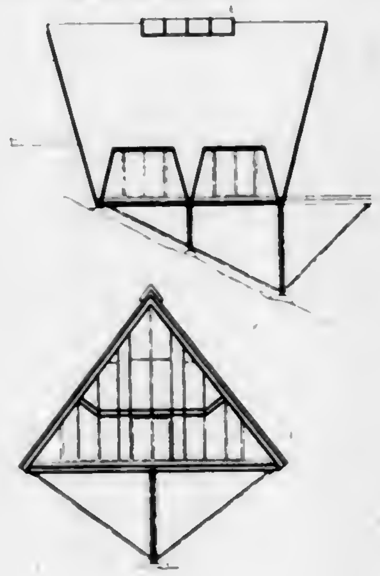
206,869
BUILDING

Herbert Hoke, Jr., Wichita, Kans., assignor of one-half to Cora E. Sneed, Wichita, Kans.
Filed Aug. 18, 1964, Ser. No. 81,365
Term of patent 3½ years
(Cl. D13—1)



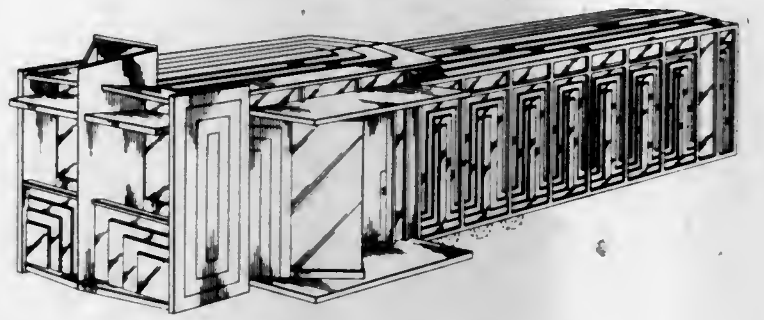
206,870
BUILDING

Norman T. Gilroy, 5 Taylor Lane, Larkspur, Calif. 94913
Filed Mar. 29, 1965, Ser. No. 84,490
Term of patent 14 years
(Cl. D13—1)



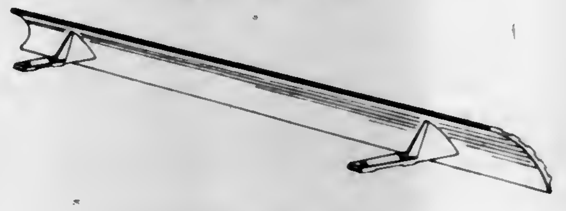
206,871
MOBILE HOME

Glenn R. Thomas and Charles E. Kerr, both of 3010 Military, Oklahoma City, Okla. 73106
Filed Apr. 25, 1966, Ser. No. 1,994
Term of patent 14 years
(Cl. D14—3)



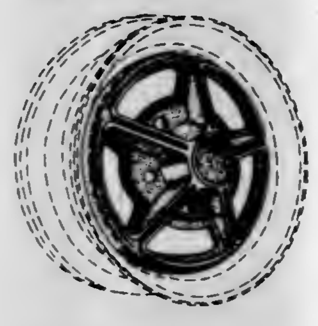
206,872
AUTOMOBILE ROOFTOP AIR DEFLECTOR

Louis L. Borick, 17527 Corinthian Drive, Encino, Calif. 91316
Filed Feb. 23, 1966, Ser. No. 1,192
Term of patent 14 years
(Cl. D14—6)



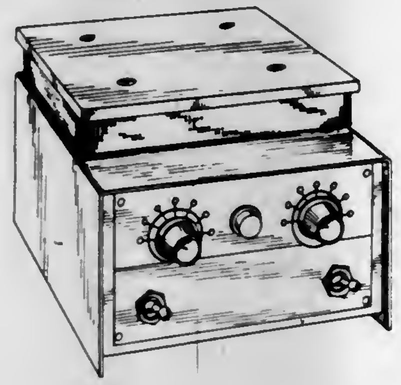
206,873
WHEEL

Donald J. Reid, Pleasant Ridge, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Delaware
Filed Dec. 20, 1965, Ser. No. 251
Term of patent 14 years
(Cl. D14—30)



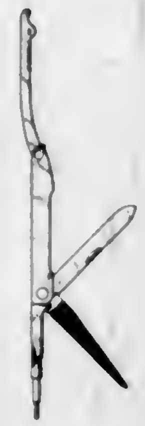
206,874
COMBINED ELECTRIC HEATER AND MAGNETIC STIRRER

Alexander I. Newman, River Forest, Ill., assignor to Lab-Line Instruments, Inc., Melrose Park, Ill., a corporation of Delaware
Filed Apr. 1, 1966, Ser. No. 1,734
Term of patent 14 years
(Cl. D16—2)



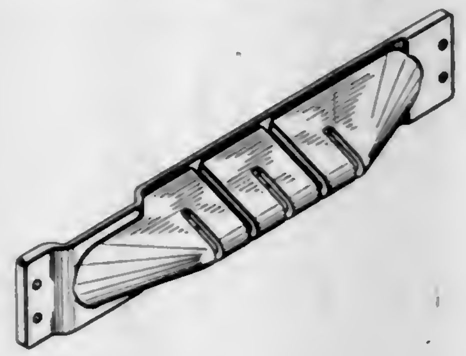
206,875
COMBINED WRITING INSTRUMENT AND POCKET KNIFE

Alfred Mosch, 31—24 86th St.,
Jackson Heights, N.Y. 11369
Filed June 10, 1966, Ser. No. 2,642
Term of patent 14 years
(Cl. D22—3)



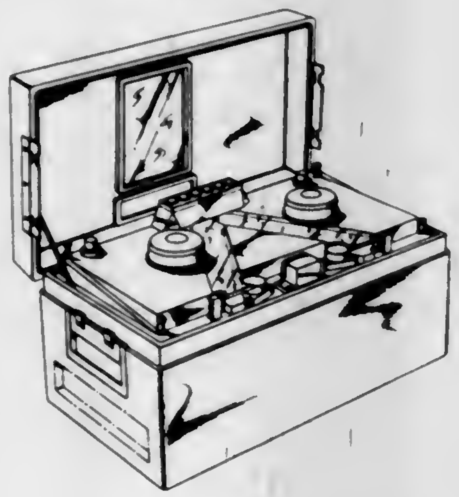
206,876
INSULATING SUPPORT FOR ELECTRICAL BUS BARS OR SIMILAR ARTICLE

Philip W. Emley, Nashotah, Wis., and Roger B. Knowles, Amsterdam, N.Y., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Continuation of design applications Ser. No. 86,229 and Ser. No. 86,231, July 21, 1965. This application July 7, 1966, Ser. No. 3,317
Term of patent 14 years
(Cl. D26—10)



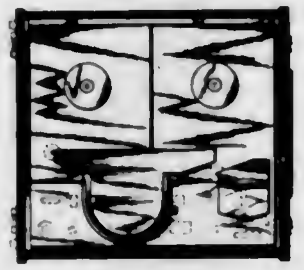
206,877
MAGNETIC TAPE TRANSPORT

Ronald E. Loosen, Woodland Hills, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Jan. 24, 1966, Ser. No. 959
Term of patent 14 years
(Cl. D26—14)



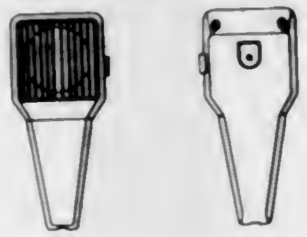
206,878
VIDEO TAPE RECORDER OR SIMILAR ARTICLE

Takao Takanshi, Funabashi-shi, Japan, assignor to Sony Corporation, Tokyo, Japan, a corporation of Japan
Filed Aug. 30, 1965, Ser. No. 86,763
Claims priority, application Japan Mar. 2, 1965
Term of patent 7 years
(Cl. D26—14)



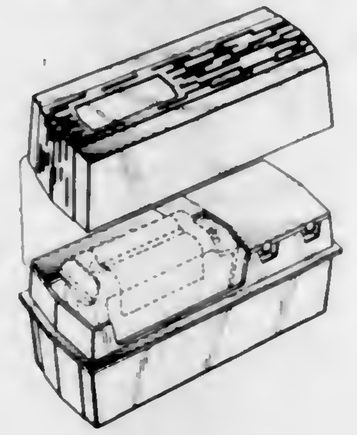
206,879
MICROPHONE

Hajime Ota, Tokyo, Japan, assignor to Fedtro, Inc., a corporation of New York
Filed Oct. 22, 1965, Ser. No. 87,774
Term of patent 14 years
(Cl. D26—14)



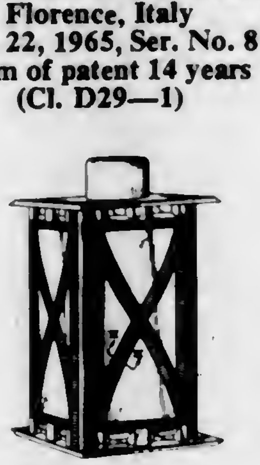
206,880
SHAVER CHARGING STAND

Burton Kelly, Western Springs, Ill., assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed July 9, 1965, Ser. No. 86,094
Term of patent 14 years
(Cl. D26—15)



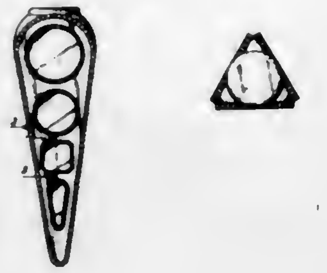
206,881
CHRISTMAS TREE ORNAMENT

Dario Moranduzzo, Via Aretina 161,
Florence, Italy
Filed Oct. 22, 1965, Ser. No. 87,795
Term of patent 14 years
(Cl. D29—1)



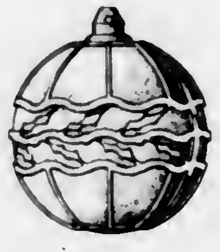
206,882
CHRISTMAS TREE ORNAMENT

Dario Moranduzzo, Via Aretina 161,
Florence, Italy
Filed Oct. 22, 1965, Ser. No. 87,820
Term of patent 14 years
(Cl. D29—1)



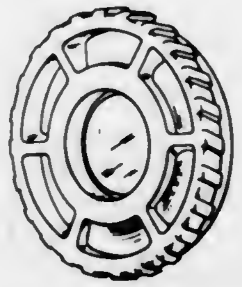
206,883
CHRISTMAS TREE ORNAMENT

Dario Moranduzzo, Via Aretina 161,
Florence, Italy
Filed Oct. 24, 1965, Ser. No. 87,896
Term of patent 14 years
(Cl. D29—1)



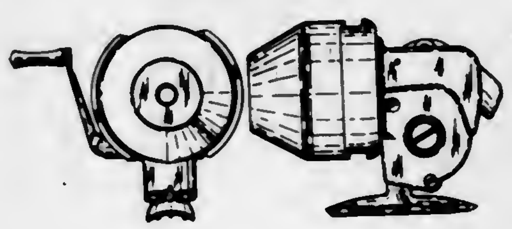
206,884
END CAP FOR CANISTER-TYPE GRENADES AND THE LIKE

Irwin R. Barr, Lutherville, and Robert W. Schnepfe, Jr., Timonium, Md., assignors to AAI Corporation, Cockeysville, Md., a corporation of Maryland
Filed Dec. 20, 1965, Ser. No. 240
Term of patent 14 years
(Cl. D30—1)



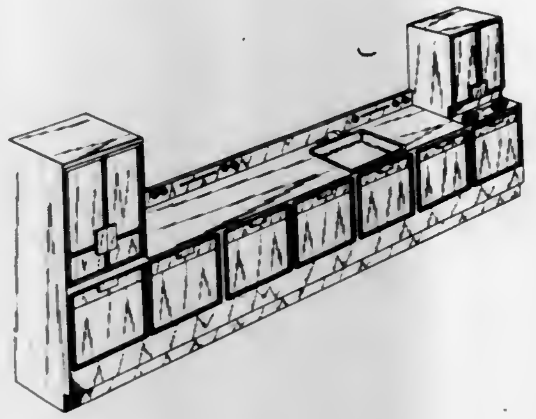
206,885
SPINNING REEL

John K. Taggart, Indianapolis, Ind., Philip M. Parker, Rogers, Ark., and Earl E. Miller, Dowagiac, Mich., assignors to James Heddon Sons, Dowagiac, Mich., a corporation of Michigan
Filed Nov. 4, 1965, Ser. No. 87,996
Term of patent 14 years
(Cl. D31—4)



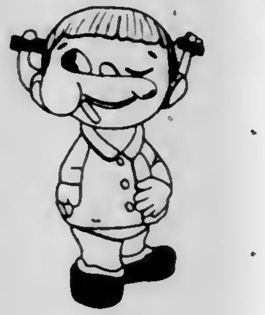
206,886
COMBINATION KITCHEN UNIT

Manuel Cecil Kite, 225 Clifton St.,
Oakland, Calif. 94618
Filed Jan. 12, 1966, Ser. No. 574
Term of patent 14 years
(Cl. D33—19)



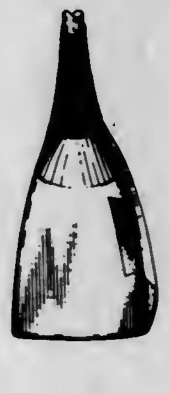
206,887
DOLL

Enrique Bernat Fontlladosa, 184 Paris St.,
Barcelona, Spain
Filed Jan. 24, 1966, Ser. No. 726
Term of patent 14 years
(Cl. D34—4)

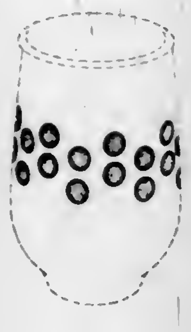


206,888
GOLF CLUB

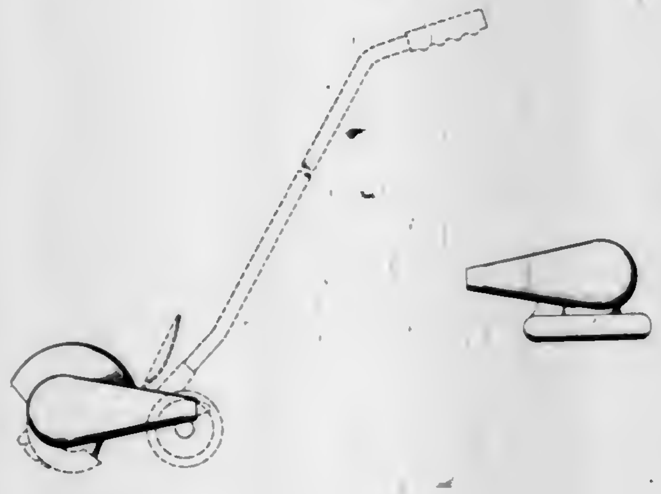
Sylvain F. Blitz, Jr., Phoenix, Ariz.
(7320 E. Taylor St., Scottsdale, Ariz. 85257)
Filed Dec. 13, 1965, Ser. No. 152
Term of patent 14 years
(Cl. D34—5)



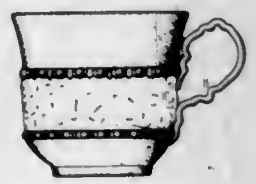
206,889
GLASS TUMBLER OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed Nov. 1, 1965, Ser. No. 87,963
Term of patent 14 years
(Cl. D36—8)



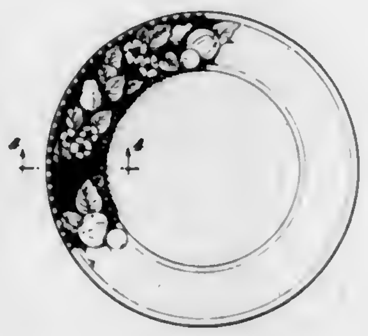
206,890
LAWN EDGER CASING
Oral I. Adams, Sepulveda, and Robert D. Lee, Sherman Oaks, Calif., assignors to Forrest N. Daggett, doing business as Rowe Tool Company, Alhambra, Calif.
Filed Dec. 13, 1965, Ser. No. 163
Term of patent 14 years
(Cl. D40—1)



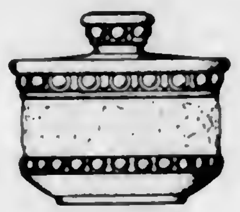
206,891
CUP
Robert Y. Allen, Los Angeles, Melvin Shaw, Beverly Hills, and Evan K. Shaw, Rolling Hills, Calif., assignors to Metlox Manufacturing Co., Manhattan Beach, Calif., a corporation of California
Filed Mar. 1, 1966, Ser. No. 1,236
Term of patent 7 years
(Cl. D44—9)



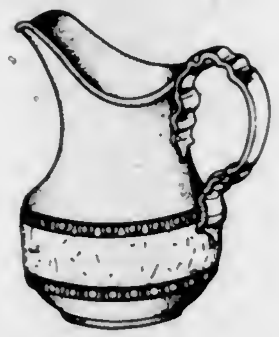
206,892
PLATE OR SIMILAR ARTICLE
Robert Y. Allen, Los Angeles, Melvin Shaw, Beverly Hills, and Evan K. Shaw, Rolling Hills, Calif., assignors to Metlox Manufacturing Co., Manhattan Beach, Calif., a corporation of California
Filed Mar. 1, 1966, Ser. No. 1,229
Term of patent 7 years
(Cl. D44—15)



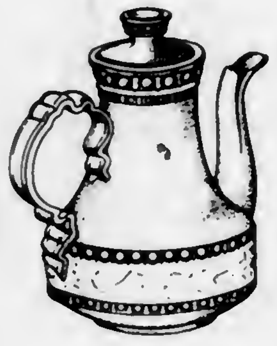
206,893
SUGAR BOWL OR THE LIKE
Robert Y. Allen, Los Angeles, Melvin Shaw, Beverly Hills, and Evan K. Shaw, Rolling Hills, Calif., assignors to Metlox Manufacturing Co., Manhattan Beach, Calif., a corporation of California
Filed Mar. 1, 1966, Ser. No. 1,234
Term of patent 7 years
(Cl. D44—15)



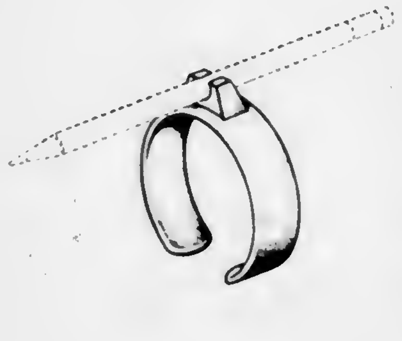
206,894
PITCHER
Robert Y. Allen, Los Angeles, Melvin Shaw, Beverly Hills, and Evan K. Shaw, Rolling Hills, Calif., assignors to Metlox Manufacturing Co., Manhattan Beach, Calif., a corporation of California
Filed Mar. 1, 1966, Ser. No. 1,230
Term of patent 7 years
(Cl. D44—21)



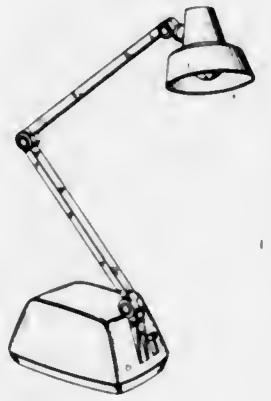
206,895
COFFEE POT OR SIMILAR ARTICLE
Robert Y. Allen, Los Angeles, Melvin Shaw, Beverly Hills, and Evan K. Shaw, Rolling Hills, Calif., assignors to Metlox Manufacturing Co., Manhattan Beach, Calif., a corporation of California
Filed Mar. 1, 1966, Ser. No. 1,235
Term of patent 7 years
(Cl. D44—26)



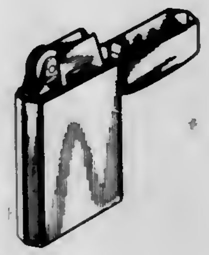
206,896
BRACELET
Frances H. Fiely, 1448 John Glenn Road, Dayton, Ohio 45410
Filed Oct. 22, 1965, Ser. No. 87,814
Term of patent 7 years
(Cl. D45—4)



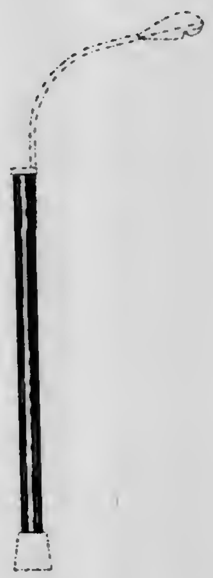
206,897
DESK LAMP
Morison S. Cousins, Bayside, N.Y., assignor to Tensor Corporation, Brooklyn, N.Y.
Filed Feb. 7, 1966, Ser. No. 950
Term of patent 14 years
(Cl. D48—20)



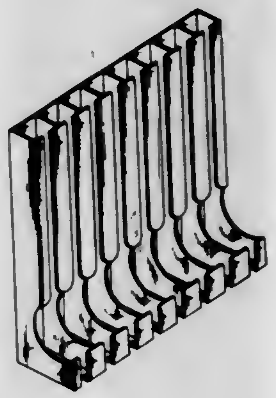
206,898
CIGARETTE LIGHTER
Robert H. Ensign, Bronxville, Robert J. Harper, Scarsdale, and Stephen M. Soreff, New York, N.Y., assignors to Scripto, Inc., a corporation of Georgia
Filed Sept. 29, 1965, Ser. No. 87,214
Term of patent 14 years
(Cl. D48—27)



206,899
OUTDOOR LIGHT POST
Donald Deskey, 222 Central Park S., New York, N.Y. 10019, and Alexander Lurkis, 193—12 Nero Ave., Hollis, N.Y. 11423
Filed July 13, 1965, Ser. No. 86,138
Term of patent 14 years
(Cl. D48—31)

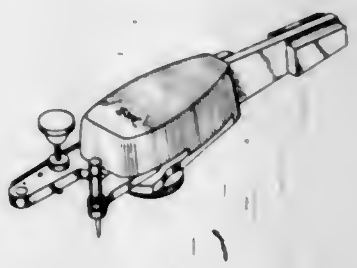


206,900
HAIR TINTER DISPENSER
Lowell R. Hagedorn, 3041 Lakeshore Blvd., Wayzata, Minn. 55091
Filed June 16, 1965, Ser. No. 85,757
Term of patent 7 years
(Cl. D52—2)



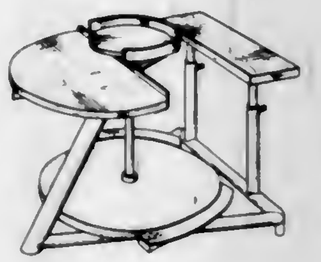
206,901
SCRIBER

Carl R. Sellen, Paramus, William A. Neithardt, Secaucus, and William J. Drexler, Ridgefield, N.J., and Francesco Collura, New York, N.Y., assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
Filed Oct. 22, 1965, Ser. No. 87,784
Term of patent 14 years
(Cl. D52—6)



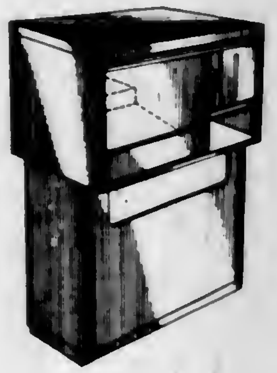
206,902
POTTER'S WHEEL

William Lockerbie Williams, 7812 Boulder Ave., Highland, Calif. 92346
Filed Aug. 22, 1966, Ser. No. 3,551
Term of patent 7 years
(Cl. D55—1)



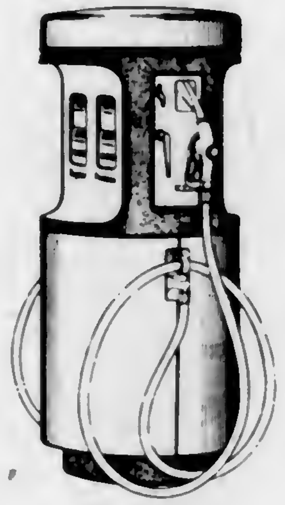
206,903
SERVICE STATION CABINET

Homer F. King, Elmhurst, Ill., assignor to Advertising Metal Display Co., Chicago, Ill., a corporation of Illinois
Filed Jan. 24, 1966, Ser. No. 730
Term of patent 14 years
(Cl. D52—2)



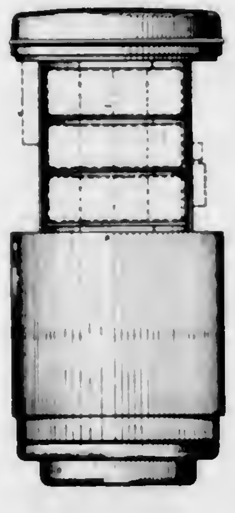
206,904
CYLINDRICAL LIQUID DISPENSING PUMP

Eliot F. Noyes, New Canaan, Ernest M. Bevilacqua, Wilton, and Robert E. Graf, New Canaan, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,575
Term of patent 14 years
(Cl. D52—2)



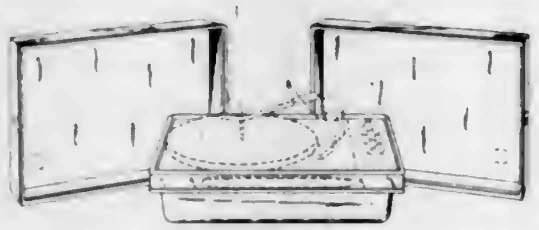
206,905
CYLINDRICAL DISPENSING STAND FOR SERVICE FILLING STATIONS

Eliot F. Noyes, New Canaan, Ernest M. Bevilacqua, Wilton, and Allen D. Hawthorne, New Canaan, Conn., assignors to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1966, Ser. No. 1,576
Term of patent 14 years
(Cl. D52—2)



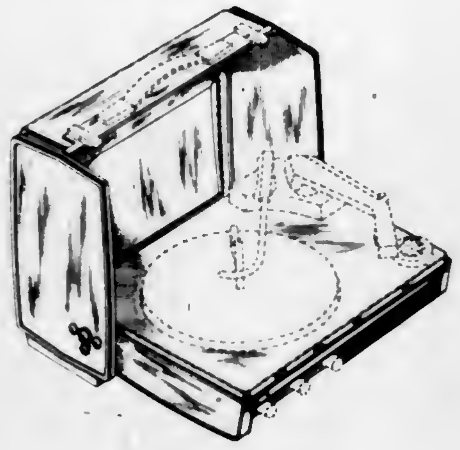
206,906
PORTABLE STEREO PHONOGRAPH

George M. Buckler, Baldwinsville, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 7, 1966, Ser. No. 525
Term of patent 14 years
(Cl. D56—4)



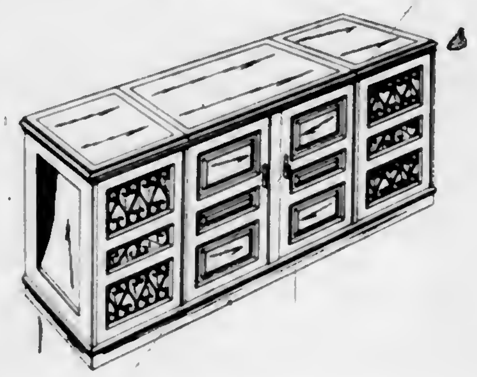
206,907
PORTABLE PHONOGRAPH OR SIMILAR ARTICLE

George M. Buckler, Baldwinsville, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 7, 1966, Ser. No. 527
Term of patent 14 years
(Cl. D56—4)



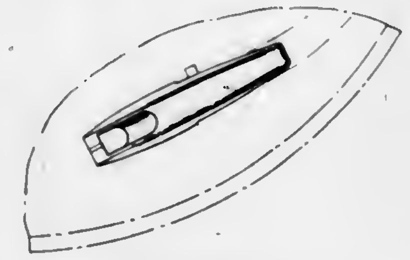
206,908
CONSOLE PHONOGRAPH OR SIMILAR ARTICLE

Francis W. Campbell, Liverpool, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 17, 1966, Ser. No. 629
Term of patent 14 years
(Cl. D56—4)



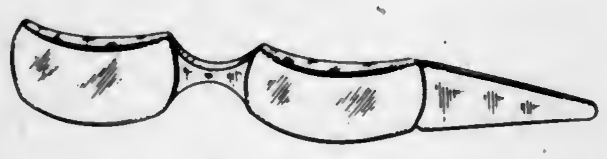
206,909
PHONOGRAPH PICKUP CARTRIDGE

Kenneth R. Fenne, River Forest, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Mar. 18, 1966, Ser. No. 1,540
Term of patent 14 years
(Cl. D56—4)



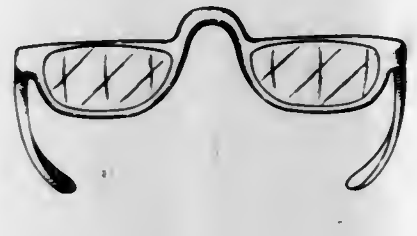
206,910
LORGNETTE

Edward J. Lueddeke, 608 F St., Belmar, N.J. 07719
Filed Dec. 14, 1965, Ser. No. 175
Term of patent 14 years
(Cl. D57—1)



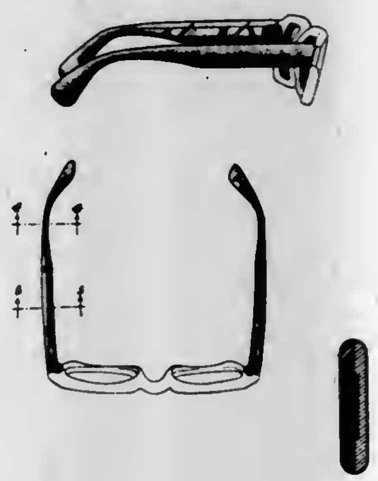
206,911
PAIR OF EYEGLASSES

Robert H. Ramp, Pittsford, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Apr. 29, 1966, Ser. No. 2,066
Term of patent 14 years
(Cl. D57—1)



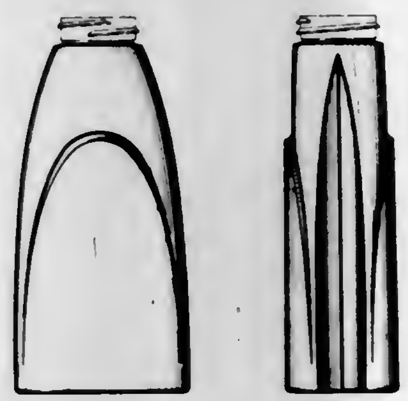
206,912
EYEGLASS FRAME

Anton Dietrich, Munich, Germany, assignor to Optische Werke G. Rodenstock, Munich, Germany, a company of Germany
Filed Oct. 20, 1965, Ser. No. 87,615
Term of patent 14 years
(Cl. D57—1)

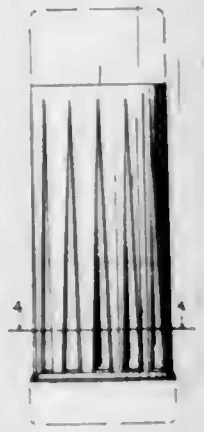


206,913
BOTTLE

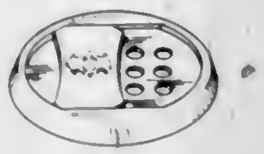
David G. Hills, Canton, Conn., assignor to National Dairy Products Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 7, 1966, Ser. No. 522
Term of patent 14 years
(Cl. D58—6)



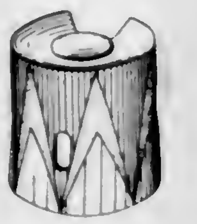
206,914
VACUUM BOTTLE JACKET
Howard W. Phillips, Nashville, Tenn., assignor to Aladdin Industries Incorporated, Chicago, Ill., a corporation of Illinois
Filed Oct. 8, 1964, Ser. No. 82,092
Term of patent 14 years
(Cl. D58—8)



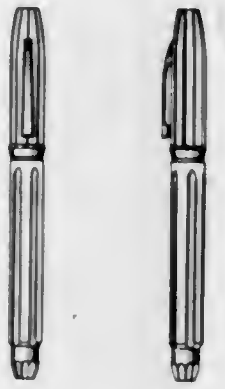
206,915
DISPENSING CLOSURE OR SIMILAR ARTICLE
James M. Amburgey, Kendall Park, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
Filed Dec. 13, 1965, Ser. No. 161
Term of patent 14 years
(Cl. D58—26)



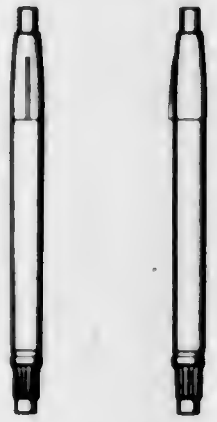
206,916
DISPENSER CAP FOR A PRESSURIZED CAN
Nathan Berman, Havertown, Pa., assignor to Renuzit Home Products Co., Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 11, 1966, Ser. No. 1,833
Term of patent 14 years
(Cl. D58—26)



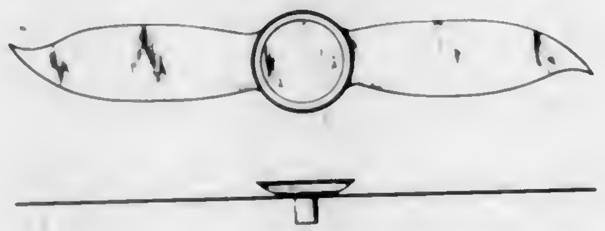
206,917
WRITING INSTRUMENT
Grover Jensen, Newtown, Conn., assignor to Eagle Pencil Company, Danbury, Conn., a corporation of Delaware
Filed Dec. 9, 1965, Ser. No. 128
Term of patent 14 years
(Cl. D74—17)



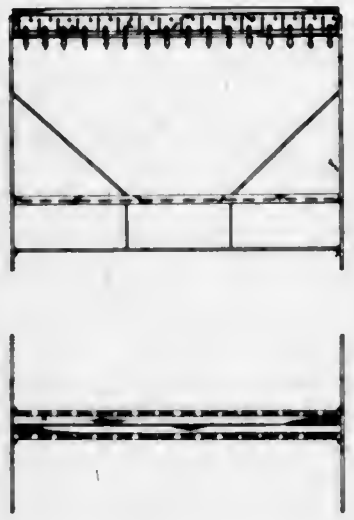
206,918
WRITING INSTRUMENT
Robert W. Seeman, Abington, Pa., assignor to Blaisdell Pencil Company, Bethayres, Pa., a corporation of Pennsylvania
Filed Dec. 15, 1965, Ser. No. 191
Term of patent 14 years
(Cl. D74—17)



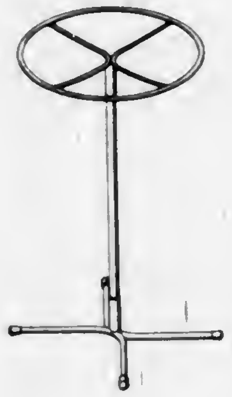
206,919
DISPLAY PEDESTAL FOR FRUIT OR THE LIKE
Edward C. Bruno, 1880 S. Monaco,
Denver, Colo. 80222
Filed Jan. 24, 1966, Ser. No. 752
Term of patent 14 years
(Cl. D80—9)



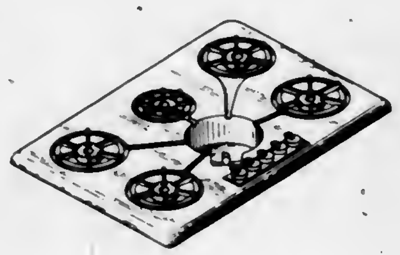
206,920
COIN OPERATED LOCKING RACK FOR SKIS
Emil J. Braun, Minneapolis, Minn., assignor to Valv-O-Matic, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Apr. 14, 1966, Ser. No. 1,892
Term of patent 14 years
(Cl. D80—10)



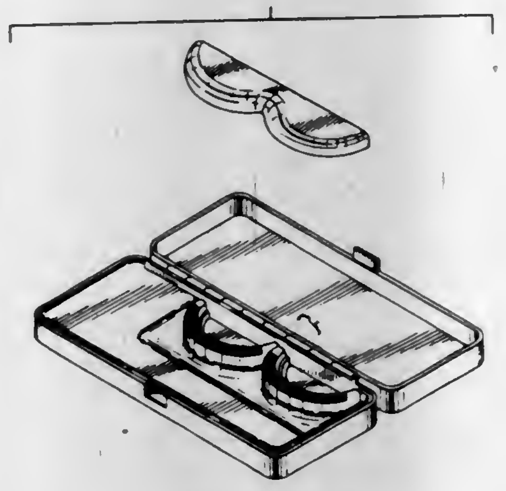
206,921
DISPLAY STAND
Vernon L. Burchett, 5746 Mariposa Ave.,
Citrus Heights, Calif. 95610
Filed June 6, 1966, Ser. No. 2,585
Term of patent 14 years
(Cl. D80—10)



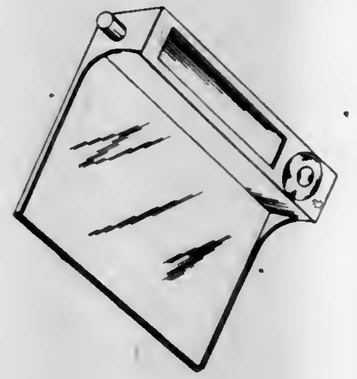
206,922
COMBINATION STOVE AND SINK
Mike Tecton, 5101 45th St. NW.,
Washington, D.C. 20016
Filed Sept. 3, 1965, Ser. No. 86,820
Term of patent 14 years
(Cl. D81—25)



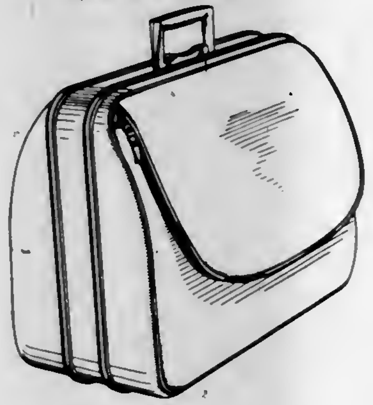
206,923
COMBINED CONTAINER AND CLEANER FOR ARTIFICIAL EYELASHES
Howard Aylott, Welwyn Garden City, England, assignor to Eylure Limited, Welwyn Garden City, England, a company of Great Britain
Filed July 12, 1965, Ser. No. 86,105
Term of patent 14 years
Claims priority, application Great Britain Apr. 21, 1965
(Cl. D86—10)



206,924
ILLUMINABLE COSMETIC MIRROR
Robert Prouty, 4229 Elliot, Dayton, Ohio 45410, and William M. Carmody, 214 Magnolia Lane, Fairborn, Ohio 45324
Filed Sept. 22, 1965, Ser. No. 87,112
Term of patent 14 years
(Cl. D86—10)



206,925
HANDBAG
John Artmann, Downsview, Ontario, John C. Cooper, Toronto, Ontario, and Walter Reid, Islington, Ontario, Canada, assignors to Cooper-Weeks Limited, Toronto, Ontario, Canada, a company of Ontario
Filed Feb. 15, 1965, Ser. No. 83,817
Claims priority, application Canada Aug. 15, 1964
Term of patent 14 years
(Cl. D87—5)



206,926

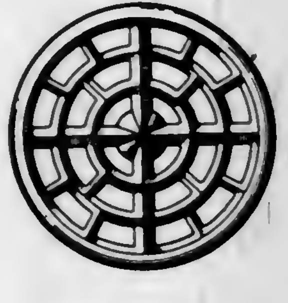
MASHER HEAD

Robert B. Lurski, Oak Park, Ill., assignor to Club Aluminum Products Company, La Grange Park, Ill., a corporation of Illinois

Filed Mar. 9, 1966, Ser. No. 1,374

Term of patent 14 years

(Cl. D89—1)



206,927

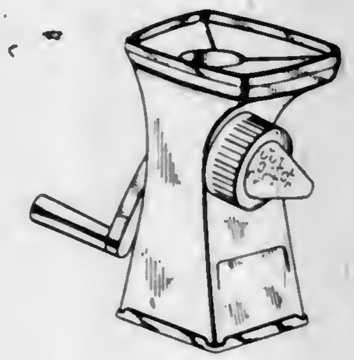
FOOD COMMINUTOR OR SIMILAR ARTICLE

Samuel J. Popeil, 2920 N. Commonwealth, Chicago, Ill. 60657

Filed Nov. 26, 1965, Ser. No. 88,241

Term of patent 14 years

(Cl. D89—1)



206,928

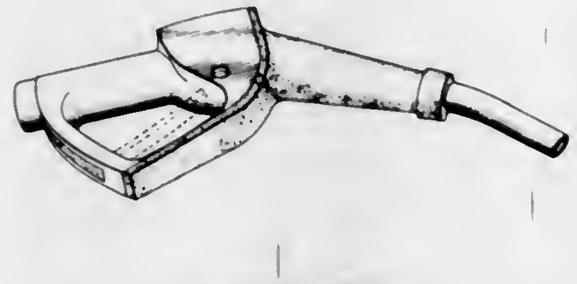
GASOLINE PUMP NOZZLE

Eliot F. Noyes, New Canaan, Ernest M. Bevilacqua, Wilton, and Robert E. Graf, New Canaan, Conn., assignors to Mobil Oil Corporation, a corporation of New York

Filed July 1, 1966, Ser. No. 2,898

Term of patent 14 years

(Cl. D91—1)



206,929

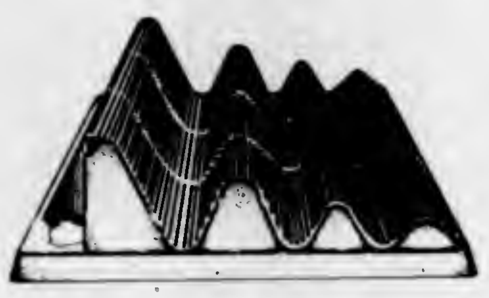
MULTI-LEVEL AQUARIUM FILTER

Herbert R. Axelrod, Deal, N.J., assignor to T.F.H. Publications, Inc., Jersey City, N.J., a corporation of New Jersey

Filed Nov. 22, 1965, Ser. No. 88,177

Term of patent 14 years

(Cl. D91—1)



LIST OF PLANT PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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Hemet Wholesale: *See*—
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Lambert, Andrew B. Pieris. 2,711, 2-7-67, Cl. 54.
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Swim, Herbert C., and O. L. Weeks, to O. L. Weeks d.b.a. Weeks Wholesale Rose Grower. Rose plant. 2,709, 2-7-67, Cl. 25.
Swim, Herbert C., and O. L. Weeks, to Swim and Weeks, a co-partnership consisting of H. C. Swim and O. L. Weeks. Rose plant. 2,710, 2-7-67, Cl. 25.
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Weeks, O. L.: *See*—
  Swim, Herbert C., and Weeks. 2,709.
  Swim, Herbert C., and Weeks. 2,710.
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  King, Homer F. 206,903.
Aladdin Industries Inc.: *See*—
  Phillips, Howard W. 206,914.
Allen, Robert Y., and M. and E. K. Shaw, to Metlox Mfg. Co. Cup. 206,891, 2-7-67, Cl. D44—9.
Allen, Robert Y., and M. and E. K. Shaw, to Metlox Mfg. Co. Plate or similar article. 206,892, 2-7-67, Cl. D44—15.
Allen, Robert Y., and M. and E. K. Shaw, to Metlox Mfg. Co. Sugar bowl or the like. 206,893, 2-7-67, Cl. D44—15.
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Ampex Corp.: *See*—
  Loosen, Ronald E. 206,877.
Anchor Hocking Glass Corp.: *See*—
  Benes, Frank J. 206,889.
Artmann, John, J. C. Cooper, and W. Reid, to Cooper-Weeks Ltd. Handbag. 206,925, 2-7-67, Cl. D87—5.
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Aylott, Howard, to Eylure Ltd. Combined container and cleaner for artificial eyelashes. 206,923, 2-7-67, Cl. D86—10.
Barr, Erwin R., and R. W. Schnepfe, Jr., to AAI Corp. End cap for canister-type grenades and the like. 206,884, 2-7-67, Cl. D30—1.
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Berman, Nathan, to Renuzit Home Products Co. Dispenser cap for a pressurized can. 206,916, 2-7-67, Cl. D58—26.
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  Noyes, Eliot F., Bevilacqua, and Graf. 206,904.
  Noyes, Eliot F., Bevilacqua, and Graf. 206,928.
  Noyes, Eliot F., Bevilacqua, and Hawthorne. 206,905.
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  Seeman, Robert W. 206,918.
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Bruno, Edward C. Display pedestal for fruit or the like. 206,919, 2-7-67, Cl. D80—9.
Buckler, George M., to General Electric Co. Portable stereo phonograph. 206,906, 2-7-67, Cl. D56—4.
Buckler, George M., to General Electric Co. Portable phonograph or similar article. 206,907, 2-7-67, Cl. D56—4.
Burchett, Vernon L. Display stand. 206,921, 2-7-67, Cl. D80—10.
Buzard, George. Combined toothbrush and dentifrice tube holder. 206,858, 2-7-67, Cl. D4—3.
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  Noyes, Eliot F., Bevilacqua, and Graf. 206,928.
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- Inventors League Inc.: *See—*
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- Klimkiewicz, Daniel A., ½ to R. A. Darby. Dog collar ornament or similar article. 206,861, 2-7-67, Cl. D12—2.
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  - Noyes, Eliot F., Bevilacqua, and Hawthorne. 206,905.
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- Moranduzzo, Dario. Christmas tree ornament. 206,883, 2-7-67, Cl. D29—1.
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- Noyes, Eliot F., E. M. Bevilacqua, and A. D. Hawthorne, to Mobil Oil Corp. Cylindrical dispensing stand for service filling stations. 206,905, 2-7-67, Cl. D52—2.
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  - Braun, Emil J. 206,920.
- Williams, William L. Potter's wheel. 206,902, 2-7-67, Cl. D55—1.

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TO WHOM

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- AMP Inc.: *See—*
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  - Crowley, Daniel J., and Sanders. 3,303,454.
  - Stoltz, Herbert C. 3,302,274.
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  - Beetle, Robert H., and Dabney. 3,302,919.
  - Zupez, John A., and Hoyer. 3,302,985.
- Achon, Marco A., to Avisun Corp. Process for the copolymerization of alpha-olefins in the presence of a coordination catalyst and an organic sulfur compound. 3,303,175, 2-7-67, Cl. 260—88.2.
- Adams, Cecil E., G. E. De Villers, and G. M. Hipple, to Abex Corp. Control for variable displacement pump or motor. 3,302,585, 2-7-67, Cl. 103—162.
- Adams, James C.: *See—*
  - Van Langenhoven, Jules E., Billingslea, Sage, Adams, and Joyce. 3,302,523.
- Adams, Lawrence G.: *See—*
  - Oudheusden, Albert J., Jr., and Adams. 3,302,361.
- Adams, Ralph M.: *See—*
  - Jaffe, Henry L., and Adams. 3,303,508.
- Aebi, Claude M., and L. A. Teuscher, to International Business Machines Corp. Formation of diazo couplers in situ. 3,303,028, 2-7-67, Cl. 96—91.
- Aero-Flow Dynamics, Inc. (L. J. Wing Mfg. Co. Division): *See—*
  - Banko, Edward J. 3,302,684.
- Aero-Flow Dynamics, Inc.: *See—*
  - Downey, George T. 3,302,796.
- Agfa Aktiengesellschaft: *See—*
  - Kiper, Gerd. 3,302,544.
- Aguilera, Jorge. Index tab assembly and method of using same. 3,303,080, 2-7-67, Cl. 156—216.
- Ahearn, George P., and W. W. Gale, to Esso Production Research Co. Surfactant-waterflooding process. 3,302,713, 2-7-67, Cl. 166—9.
- Ahlberg, Russell W. Scaffolding construction. 3,302,751, 2-7-67, Cl. 182—118.
- Aid Inc. of Pennsylvania: *See—*
  - Eagleson, Hodge M., Jr., and Richards. 3,302,757.
- Air Reduction Co., Inc.: *See—*
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- Airtron, Inc.: *See—*
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- Ajax Mfg. Co., The: *See—*
  - Ware, Ben F., and Oligny. 3,302,438.
- Akesson, Jan A., to Atomenergi Aktiebolaget. Position indicator. 3,303,457, 2-7-67, Cl. 340—1.
- Akin, Alfred A., Jr., to D. P. Bushnell. Archery aiming device. 3,302,292, 2-7-67, Cl. 33—46.
- Akioka, Akihiko: *See—*
  - Sakai, Hiroshi, Hara, and Akioka. 3,303,182.
- Albert, Raoul L. (also known as Michel Nalpas), to Societe Anonyme "pronal." Method of stabilizing containers for bulk material. 3,302,366, 2-7-67, Cl. 53—37.
- Albrecht, Cornelius B. J. D'A., and P. C. van der Linden, to North American Philips Co. Inc. Method of visualizing an electrostatic charge image by exposure to charged particles of boron oxide. 3,303,027, 2-7-67, Cl. 96—1.
- Aldco, Inc.: *See—*
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  - Stoner, Arthur M., and Paquin. 3,302,428.
- Alexander, Earl L., and B. H. Minnich, to North American Aviation, Inc. Rocket motor. 3,302,405, 2-7-67, Cl. 60—254.
- Alleaume, Jean, to Technigaz. Corrugated sheet-like yieldable wall element and vessels or tanks made thereof. 3,302,359, 2-7-67, Cl. 52—573.
- Allen, Matthew: *See—*
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- Allen, Robert H., to The Dow Chemical Co. Method for providing a plastic surgical support. 3,302,642, 2-7-67, Cl. 128—90.
- Allen, Robert P., W. D. Cashman, G. W. Short, and J. O. Winsor, to Letourneau-Westinghouse Co. Anti-jack-knifing hitch assembly for tractor-trailers. 3,302,957, 2-7-67, Cl. 280—432.
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- Allison, David F., to Fairchild Camera and Instrument Corp. Semiconductor device complex. 3,303,400, 2-7-67, Cl. 317—235.
- Allmand, John W. Underwater breathing apparatus. 3,302,643, 2-7-67, Cl. 128—142.
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- American Homes Products Corp.: *See—*
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- American Machine & Foundry Co.: *See—*
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- Anderson, Alfred J.: *See—*
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- Andrews, George M., and C. W. Gibson, to Vega Industries, Inc. Folding door. 3,302,691, 2-7-67, Cl. 160—206.
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- Anderson, John R., to Electrascope Research, Inc. Electro-optic information display device utilizing anacid-base indicator. 3,303,488, 2-7-67, Cl. 340—324.
- Anderson, Paul L., to Thiele Engineering Co. Rotary coupon placer. 3,302,946, 2-7-67, Cl. 271—29.
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Design Patents

4	206,888
6	206,859
	206,870
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	206,877
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40	206,871
42	206,855
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47	206,914
49	206,857
55	206,876

Plant Patents

4	2,707
4	2,709
4	2,710
31	2,708
36	2,711

U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
February 7, 1967 Volume 835 Number 1

TRADEMARKS

NOTICES

Examination

Pursuant to the provisions of Rule 341(c), an examination for persons seeking registration before the United States Patent Office as patent attorneys or agents will be held Friday, April 28, 1967.

With the exception of those former patent examiners for whom the examination is waived, all persons recognized for practice before the Patent Office in patent cases must, pursuant to the noted rule, pass the examination. Those passing the examination do not thereby qualify for recognition for practice before the Patent Office in trademark cases. Recognition for practice in trademark cases is governed by Rule 2.12 of the Trademark Rules of Practice, which does not require the passing of an examination.

The examination will be given under the supervision of the Civil Service Commission, and may be taken in any of the cities in which the Civil Service Commission regularly conducts examinations. Applications to take the examination must be filed in the Patent Office together with a $15 fee not later than March 28, 1967.

Application blanks may be obtained from the Clerk of the Patent Office Committee on Enrollment, Room 3718, Department of Commerce Bldg., Washington, D.C., 20231.

EDWIN L. REYNOLDS,
Jan. 18, 1967. *Chairman, Committee on Enrollment.*

Errata

In the OFFICIAL GAZETTE of Nov. 29, 1966, at page TM 246, in reference to 819,473, after "Co." *MULTIPLE CLASS (Classes 23, 26 and 37)*. should be inserted.

In the OFFICIAL GAZETTE of Dec. 13, 1966, at page TM 97, after "820,253" "CHANEL-SLIDE" should be deleted and *CHANNEL-SLIDE* should be inserted.

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 22,406 (COCA-COLA in script), The Coca-Cola Company, Nutrient or tonic beverages; **Reg. No. 47,189**, same,

CONDITION OF TRADEMARK APPLICATIONS AS OF DECEMBER 31, 1966

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	28,133
Date of oldest new application	Dec. 16, 1965
Date of oldest amended application (filing date)	Nov. 7, 1963

C. M. WENDT, Director, Trademark Examining Operation TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	12-16-65	12-12-63
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	1-13-66	11-7-63
Renewals (All Classes)	12-5-66	--------
Sec. 12(c) Publications (All Classes)	11-28-66	--------

Applications filed during the month of December 1966—2,208

Registrations Issued	292—No. 823,537 to No. 823,828
Renewals Issued	50

For the Quarter October 1, 1966 through December 31, 1966

Applications filed	6,639
Registrations issued	5,407
Renewals issued	866
Cancellations under Section 8	1,329

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Tonic beverages and syrups for the manufacture of such beverages; **Reg. No. 238,145** (COCA-COLA), same, Beverages and syrups for the manufacture of such beverages; **Reg. No. 238,146** (COCA-COLA in script), same; **Reg. No. 415,755** (COKE), same, Non-alcoholic maltless beverages and the syrups for making such beverages, **filed** Nov. 28, 1966, D.C. Conn. (New Haven), Doc. 11712, *The Coca-Cola Company* v. *Topsy's Hamburgs (Drive In)*. **Same, filed** Nov. 30, 1966, D.C., W.D. Wash. (Seattle), Doc. 6972, *The Coca-Cola Company* v. *The Ram (Cocktail Lounge)*. **Same, filed** Sept. 19, 1966, D.C., W.D. Wash. (Seattle), Doc. 6886, *The Coca-Cola Company* v. *Melody Lane (Marine Room Bar) and Melody Lane (Restaurant)*. Final judgment; defendants enjoined Dec. 2, 1966.

Reg. No. 47,189. (See Reg. No. 22,406.)

Reg. No. 77,810 (ROGERS AND DESIGN), International Silver Company, Silver-plated flatware and hollow ware; **Reg. No. 147,780** (ROGERS & BRO. AND DESIGN), same, Silver-plated flatware—namely, forks, spoons, ladles, and knives; **Reg. No. 329,754** (WM. ROGERS & SON), same, Silver-plated flatware for table use and the like; **Reg. No. 329,755** (WM ROGERS AND DESIGN), same; **Reg. No. 329,756** (ROGERS CUTLERY CO.), same; **Reg. No. 329,757** (1865 WM. ROGERS MFG. CO.), same; **Reg. No. 329,758** (1847 ROGERS BROS.), same; **Reg. No. 330,606** (ROGERS NICKEL SILVER), same, Unplated base alloy tableware—namely, spoons, knives and forks; **Reg. No. 385,300** (1847 ROGERS BROS. STERLING), same, Sterling silver flatware and hollow ware for table use and the like; **Reg. No. 438,217** (ROGERS AND DESIGN), same, Silver polish; **Reg. No. 734,880** (1847 ROGERS BROS.), same, Stainless steel flatware—namely, knives, forks and spoons; **Reg. No. 758,067** (WM. ROGERS & SON), same, **filed** Dec. 6, 1966, D.C., S.D.N.Y., Doc. 66/4177, *The International Silver Company* v. *National Silver Company et al.*

Reg. No. 147,780. (See Reg. No. 77,810.)

Reg. No. 187,851 (LAFAYETTE in script), R. E. Thompson Manufacturing Company, Radio receiving sets and parts thereof, head telephones, and loud speakers; **Reg. No. 759,564**, same, Lafayette Radio Electronics Corporation, Radio sets, amplifiers: public address, hi-fi, stereo, preamplifiers, radio tuners, etc., **filed** Aug. 15, 1966, D.C.N.J. (Newark), Doc. 817-66, *Lafayette Radio Electronics Corporation* v. *Jax International Corp.* Stipulation of dismissal Dec. 14, 1966.

Reg. No. 238,145. (See Reg. No. 22,406.)

Reg. No. 238,146. (See Reg. No. 22,406.)

Reg. No. 329,754. (See Reg. No. 77,810.)

Reg. No. 329,755. (See Reg. No. 77,810.)

Reg. No. 329,756. (See Reg. No. 77,810.)

Reg. No. 329,757. (See Reg. No. 77,810.)

Reg. No. 329,758. (See Reg. No. 77,810.)

Reg. No. 330,606. (See Reg. No. 77,810.)

Reg. No. 372,491 (TIGRESS), Samuel Rubin, Perfume; **Reg. No. 580,819**, same, Fabergé, Inc., Soap; **Reg. No. 766,870**, Faberge, Inc. (Delaware corp.) assignee of Faberge, Inc. (New York corp.), Perfumes, colognes, lipsticks, nail polish, etc., **filed** Aug. 31, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66-1417-AAH, *Faberge, Inc.* v. *Bergel of Hollywood, Inc.* Stipulation dismissing action without prejudice Dec. 9, 1966.

Reg. No. 385,300. (See Reg. No. 77,810.)

Reg. No. 415,755. (See Reg. No. 22,406.)

Reg. No. 438,217. (See Reg. No. 77,810.)

Reg. No. 532,722 (AMERICAINE in script), Americaine, Inc., Pharmaceutical preparations used in the control of pain or itching, etc., **filed** Oct. 18, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c1882, *Arnar-Stone Laboratories, Inc.* v. *Medical Supply Company et al.* On motion of defendant Medical Supply Co., order its counterclaims dismissed with prejudice. By agreement order, injunction issued. On motion of plaintiff, order cause dismissed as to defendant Protective Equipment, Inc., Dec. 14, 1966.

Reg. No. 580,819. (See Reg. No. 372,491.)

Reg. No. 608,113 (PLANNED PARENTHOOD), Planned Parenthood Federation of America, Inc., Encouraging research in the field of contraception and evaluating and applying the result of such research and experience, etc., **filed** Dec. 2, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66-1930-CC, *Planned Parenthood Federation of America, Inc.* v. *Planned Parenthood Center of Los Angeles, Inc.*

Reg. No. 613,699 (EMBA), Mutation Mink Breeders Association, Mink fur pelts; **Reg. No. 670,052** (AUTUMN HAZE), same, **filed** July 14, 1966, D.C., S.D.N.Y., Doc. 66/2109, *Emba Mink Breeders Association* v. *Rosalie Furs, Inc.* Consent judgment; defendant enjoined Dec. 2, 1966.

Reg. No. 634,514 ("AQUATEX"), Rarolite Chemical Co., Inc., Resinous printing inks and colored water dyes for printing on textiles, **filed** Dec. 14, 1966, D.C., N.J. (Newark), Doc. 1240-66, *Fusecolor Corporation, formerly known as Rarolite Chemical Co.* v. *Dyetex Corporation.*

Reg. No. 668,337 (MUTILOG), Dennert & Pape, Slide rules, **filed** Sept. 28, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c1736, *Dennert & Pape Aristo Werke KG et al.* v. *Mary Louise & Associates.* Final consent judgment; defendant and its supplier, Sterling Plastics Co., Inc., have voluntarily discontinued using said mark Dec. 13, 1966.

Reg. No. 670,052. (See Reg. No. 613,699.)

Reg. No. 677,093 (KEROHYDRIC), Foster-Milburn Company, Dewaxed, oil-soluble, keratin moisturizing fraction of lanolin incorporated as an ingredient in a preparation for use on the skin to soften, etc.; **Reg. No. 690,107** (ALPHA-KERI), same, Antipruritic oil used for the treatment of dry and irritated skin conditions; **Reg. No. 702,131**, same, Dewaxed, oil soluble, keratin moisturizing fraction of lanolin, incorporated in an ingredient in therapeutic preparations for the treatment of minor skin disorders; **Reg. No. 760,917** (KERI), same, Antipruritic therapeutic lotion used for the treatment of dry and irritated skin conditions, **filed** Dec. 13, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c2291, *Foster-Milburn Company* v. *Kolar Laboratories, Inc.* Consent judgment; defendant enjoined Jan. 10, 1967.

Reg. No. 690,107. (See Reg. No. 677,093.)

Reg. No. 702,131. (See Reg. No. 677,093.)

Reg. No. 708,153 (FROSTIE JELLS), The P. S. Truesdell Company, Candy, **filed** Apr. 26, 1963, D.C., N.D. Ill. (Chicago), Doc. 63c726, *The P. S. Truesdell Company* v. *E. J. Brach & Sons.* Order granting plaintiff's motion for leave of court to dismiss complaint and answer without prejudice Feb. 25, 1966.

Reg. No. 722,057 (DIXIE FRY), Prepared Products Company, Inc., Crust mix to be used in the frying of foods, **filed** May 26, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66-897-PH, *Prepared Products Co.* v. *Dixie Fried Chicken, Inc.* Stipulation and order dismissing action without prejudice Dec. 2, 1966.

Reg. No. 727,341 (MR. TRAVEL AND DESIGN), Mr. Travel, Inc., Travel agency services, including arranging travel transportation, etc., **filed** Aug. 23, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c1409, *Mr. Travel, Inc.* v. *V.I.P. Travel Service, Inc.* Order dismissing complaint Dec. 14, 1966.

Reg. No. 734,880. (See Reg. No. 77,810.)

Reg. No. 736,643 (RHODIAMIDE), Societe des Usines Chimiques Rhone-Poulenc, Insecticides, **filed** Dec. 9, 1966, D.C., S.D.N.Y., Doc. 66/4236, *Etienne Aigner Shoe Company, Inc.* v. *Burlington Belt Corporation.*

Reg. No. 758,067. (See Reg. No. 77,810.)

Reg. No. 759,564. (See Reg. No. 187,851.)

Reg. No. 760,917. (See Reg. No. 677,093.)

Reg. No. 766,870. (See Reg. No. 372,491.)

Reg. No. 772,968 (CTL), Consolidated Testing Laboratories, Inc., X-Raying to detect flaws and other defects in industrial products and parts thereof, equipment and materials, etc., **filed** May 19, 1965, D.C., S.D.N.Y., Doc. 65/1513, *Consolidated Testing Laboratories, Inc.* v. *CTL, Inc.* Order discontinuing action Dec. 12, 1966.

Reg. No. 776,859 (CAB-L-TITE AND DESIGN), Dakota Engineering, Inc., Plastic molded articles for clamping devices; **Des. 177,315**, F. De Bartolo, CLAMP OR SIMILAR ARTICLE, **filed** Nov. 23, 1966, D.C., N.D. Ill (Chicago), Doc. 66c2144, *Dakota Engineering Co.* v. *Richco Plastic Co.*

Reg. No. 800,011 (CAMELOT), Camelot Motor Lodge and Inn Corporation, Motel services and restaurant, **filed** Dec. 12, 1966, D.C., E.D. Mich. (Detroit), Doc. 29368, *Camelot Motor Lodge & Inn Corporation* v. *Camelot Motel and Camelot Hotel.*

MARKS PUBLISHED FOR OPPOSITION

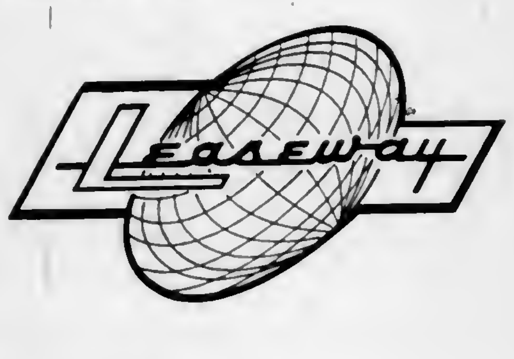
SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[**NOTE:** For publication of marks presented in applications for registration in one class, see section 2.]

SN 209,279. Leaseway Transportation Corp., Cleveland, Ohio. Filed Jan. 4, 1965.



Class 100—Miscellaneous

For Leasing of Industrial and Commercial Equipment and Machinery.

Class 105—Transportation and Storage

For Leasing of Automotive Equipment—Namely, Automobiles, Trucks, Tractors and Trailers, Aircraft, and Boats; and the Transportation of Goods of Others by Motor Vehicle.

First use July 1961.

Class 21—Electrical Apparatus, Machines, and Supplies

For Finished Parts—Namely, Electric Contacts, Sliding Contacts, and Electrical Switch Devices.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

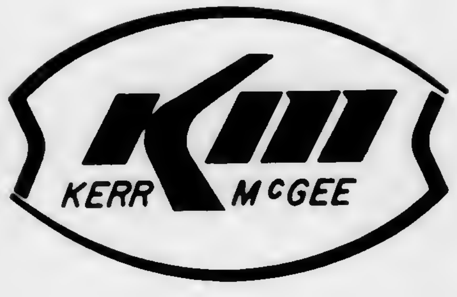
For Gears, Bearings, and Levers.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Welding Electrodes and Welding Electrode Elements.

First use on or about Dec. 21, 1944.

SN 229,256. Kerr-McGee Corporation, Oklahoma City, Okla., by change of name from Kerr-McGee Industries, Inc., Oklahoma City, Okla. Filed Oct. 4, 1965.



Owner of Reg. Nos. 683,905, 732,062, and 736,266.

Class 6—Chemicals and Chemical Compositions

For Anti-Freeze.
First use on or before Aug. 19, 1965.

Class 15—Oils and Greases

For Lubricating Oil and Automatic Transmission Fluid.
First use Nov. 19, 1964.

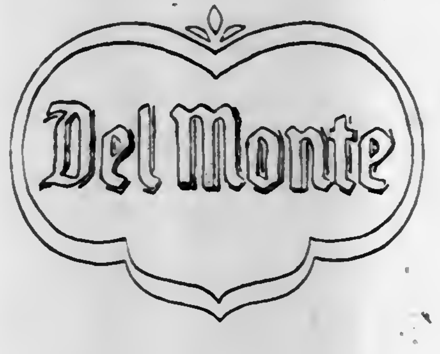
SN 230,112. P. R. Mallory & Co., Inc., Indianapolis, Ind. Filed Oct. 14, 1965.

INDAR

Class 14—Metals and Metal Castings and Forgings

For Metals—Namely, Nickel, Silver, Brass, Copper, Iron, Carbon Steels, Alloy Steels, Copper Infiltrated Steels, Metal Alloys, Compound Metals, and Composite Metals.

SN 240,048. California Packing Corporation, San Francisco, Calif. Filed Mar. 3, 1966.



Owner of Reg. Nos. 75,958, 641,111, and others.

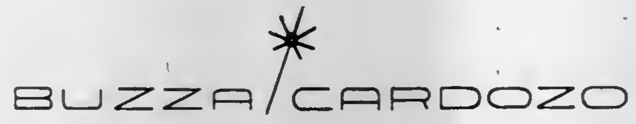
Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks.
First use Apr. 23, 1964.

Class 46—Foods and Ingredients of Foods

For Canned Vegetables, Canned Fruits, Canned Fruit and Vegetable Juices, Canned Fish, Dried Fruits, Pickles, Vegetable Relishes, Hot Peppers, and Catsup.
First use Oct. 30, 1964.

SN 243,819. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Apr. 20, 1966.



Class 7—Cordage

For Tying Ribbons, Bows, and Related Binding Materials.
First use at least as early as February 1937.

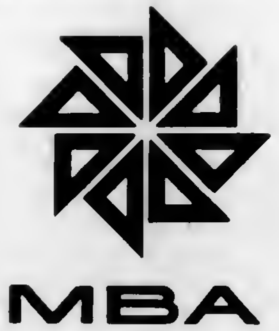
Class 37—Paper and Stationery

For Stationery—Namely, Writing Paper, Note Paper and Envelopes; Gift Wrapping Materials—Namely, Wrapping Papers and Tissues, Foils, Cellophane, and Kindred Wrapping Materials; Seals, Labels and Tags, With or Without Attached Ornaments; Invitations; Announcements; Place Cards; Bridge Tallies; and Enclosure Cards.
First use at least as early as February 1937.

Class 38—Prints and Publications

For Greeting Cards—Namely, Birthday Cards, Christmas Cards, Easter Cards, Valentines, St. Patrick Day Cards, April Fool's Day Cards, Confirmation and Communion Cards, Mother's Day Cards, Father's Day Cards, Graduation Cards, Jewish New Year Cards, Sweetest Day Cards, Halloween Cards, Thanksgiving Cards, Hanukkah Cards, New Year's Cards, Get Well Cards, Sympathy Cards, Activity Cards, Special Event Cards, Card Making Kits, Cut-Out Cards; Decorated Note Paper; Printed Seals, Labels and Tags, With or Without Attached Ornaments.
First use at least as early as June 1932.

SN 248,962. Martin Bloom Associates, Inc., St. Louis, Mo. Filed June 27, 1966.



Class 100—Miscellaneous

For Services in Connection With Advice and Consultation in the Field of Architecture and Building Design.

Class 103—Construction and Repair

For Services in Connection With Building Construction.
First use July 1965.

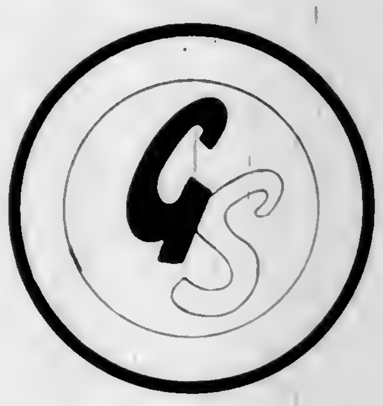
SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.
A fee of twenty-five dollars must accompany the opposition.

[**NOTE:** For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 226,158. Richard F. Morris, d.b.a. Morris Florists, Hinsdale, Ill. Filed Aug. 20, 1965.



For Flowering Plants and Ornamental Trees, Evergreens and Shrubs.
First use Aug. 12, 1965.

SN 248,100. Armour and Company, Chicago, Ill. Filed June 15, 1966.

VILLA

For Leather.
First use Sept. 13, 1965.

SN 248,187. Whip-Mix Corporation, Louisville, Ky. Filed June 15, 1966.

CHEMICAST

For Investment Compositions, Stone Compositions, and Plaster Compositions, in Dry Powder Form for Subsequent Mixing in Aqueous Material, for Providing Pattern and Model Investments.
First use Nov. 14, 1957.
Subj. to Intf. with SN 246,959.

SN 248,223. Fiberfil, Inc., Evansville, Ind. Filed June 16, 1966.

AMIDGLAS

For Plastics, Specifically Synthetic Injection Molding Materials in Pellet or Granular Form.
First use Apr. 12, 1966.

SN 248,343. Lancaster Chemical Corporation, d.b.a. Gordon Chemicals, Inc., Carlstadt, N.J. Filed June 17, 1966.

URAMOL

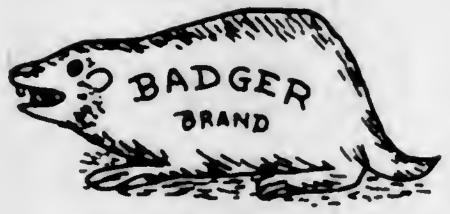
For Urea Formaldehyde Molding Compound.
First use 1957.

SN 248,406. American Renolit Corporation, New York, N.Y. Filed June 20, 1966.

PORCELLANA

For Imitation Patent Leather.
First use Mar. 25, 1965.

SN 248,907. A. L. Gebhardt Co., Milwaukee, Wis. Filed June 24, 1966.



The descriptive word "Brand" is disclaimed apart from the mark as shown.
For Finished Leather.
First use June 20, 1931.

SN 248,944. Diatomic Chemical Company, Los Angeles, Calif. Filed June 27, 1966.

CORONET

For Cat and Pet Litter.
First use at least as early as May 27, 1966.

Class 2—Receptacles

SN 232,709. The Mead Corporation, Dayton, Ohio. Filed Nov. 15, 1965.

MEAD packaging nestpride

The word "Packaging" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 404,980, 799,529, and others.
For Paperboard Container Cups.
First use mid-September 1965.

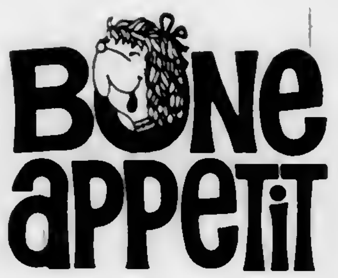
SN 236,842. Raburn Products, Inc., Wheeling, Ill. Filed Jan. 19, 1966.

FAST·FLOW

For Silverware Washing and Dispensing Receptacle for Use in Carrying, Washing, and Dispensing Equipment.
First use Dec. 20, 1965.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 246,208. Superior Pet Products, Inc., Boston, Mass. Filed May 20, 1966.



The word "Bone" is disclaimed apart from the mark as shown.
For Rolled Beef-Hide Product Resembling a Dog Bone, Packaged for Distribution by Others.
First use Apr. 15, 1966.

SN 246,407. United Case Company, Inc., Kansas City, Mo. Filed May 23, 1966.

UNILITE

For Suitcases and Luggage.
First use Feb. 15, 1966.

Class 4—Abrasives and Polishing Materials

SN 234,545. The Dentists' Supply Company of New York, York, Pa. Filed Dec. 14, 1965.

TRUWAX

Owner of Reg. No. 544,223.
For Floor Wax and Automotive Wax, and Waxes for Waxing, Cleaning, and Polishing in a Single Operation.
First use Aug. 18, 1965.

SN 256,042. The Procter & Gamble Company, Cincinnati, Ohio. Filed Oct. 10, 1966.

PRO GLO

For Concentrated Wax Emulsion for Use in Car Washing Installations.
First use Aug. 8, 1966.

Class 5—Adhesives

SN 232,050. Air Seal Company, Inc., Carrizo Springs, Tex. Filed Nov. 3, 1965.

SECON SEAL

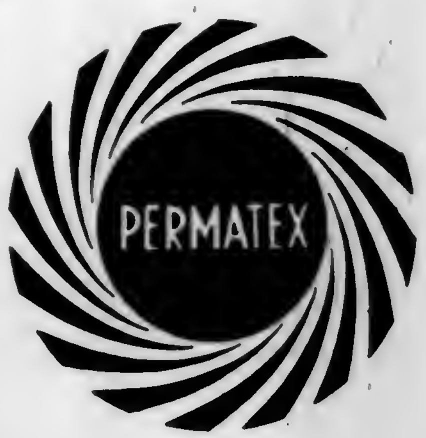
No claim is made to the word "Seal" apart from the mark as shown.
For Composition for Sealing Punctures in Tubeless Tires.
First use Oct. 22, 1965.

SN 232,766. Canadian Technical Tape Ltd., Montreal, Quebec, Canada. Filed Nov. 16, 1965.

CLIPPER

Owner of Reg. No. 794,984.
For Pressure Sensitive Tapes of All Types and Adhesives for Joining Paper, Wood, Metal, Glass, and Similar Articles to One Another.
First use February 1962; in commerce February 1962.

SN 248,248. Permatex Company, Inc., Brooklyn, N.Y. Filed June 16, 1966.



Owner of Reg. Nos. 93,418, 573,184, and others.

For Gasket Cement, Adhesive Sealants of the Fast Drying and Hard Setting Type and of the Non-Hardening and Pliable Type for Keeping Gaskets in Place as Well as for Replacing Gasket Materials on Parting Surfaces as Interfacial Sealants, and Multi-Purpose Cement for Sealing Cracks, and Openings Between Windows and Windshields, Glass, Wood, and Leather Parts.

First use September 1910 on gasket cement.

Class 6 — Chemicals and Chemical Compositions

SN 197,933. Rose Patch & Label Company, Grand Rapids, Mich. Filed July 15, 1964.

RōDI

For Dyes Used in the Manufacturing of Label Stock for Clothing.

First use in or about January 1963.

SN 234,271. The Denver Chemical Manufacturing Company, d.b.a. Wampole Laboratories, Stamford, Conn. Filed Dec. 9, 1965.

R_3• TITRATION SET

Applicant disclaims the words "Titration Set" apart from the mark as shown.

For Diagnostic Reagent for Laboratory Use.

First use Nov. 26, 1965.

SN 234,272. The Denver Chemical Manufacturing Company, d.b.a. Wampole Laboratories, Stamford, Conn. Filed Dec. 9, 1965.

R_3• SCREEN TEST

Applicant disclaims the words "Screen Test" apart from the mark as shown.

For Diagnostic Reagent for Laboratory Use.

First use Nov. 4, 1965.

SN 236,216. Allied Research Products, Inc., Baltimore, Md., assignee of Allied Research Products, Inc. (Barrett Chemical Products Division), Baltimore, Md. Filed Jan. 12, 1966.

SNR

For Electroplating Replenishment Solutions.

First use Nov. 17, 1954.

SN 236,220. Allied Research Products, Inc., Baltimore, Md., assignee of Allied Research Products, Inc. (Barrett Chemical Products Division), Baltimore, Md. Filed Jan. 12, 1966.

SNRB

For Electroplating Replenishment Solutions.

First use Nov. 17, 1954.

SN 238,084. Hill Manufacturing Company, Atlanta, Ga. Filed Feb. 4, 1966.

R.P.D. NO. 255

For Industrial Deodorants Used in Rendering Plants, Sewage Disposal Plants, Landfills, and Refuse Collection Agencies.

First use on or about Sept. 1, 1962.

SN 240,948. Permatex Company, Inc., Brooklyn, N.Y. Filed Mar. 14, 1966.

PERMATEX

Owner of Reg. Nos. 93,418, 519,208, and others.

For Hydraulic Brake Fluid, Radiator Cement and Rust Preventer, Radiator Sealer and Block and Head Sealer for Sealing Cracked Cylinder Heads and Openings in Cylinders and Water Jackets.

First use October 1960 on radiator sealer.

SN 246,357. Chas. Pfizer & Co., Inc., New York, N.Y. Filed May 23, 1966.

LEUKOTROL

For Blood Diagnostic Control Reagent for Laboratory Use.

First use May 12, 1966.

Class 7 — Cordage

SN 245,985. Sperry Rand Corporation, New Holland, Pa. Filed May 18, 1966.

SUPER 10

Owner of Reg. Nos. 662,420 and 671,070.

For Baler Twine.

First use Oct. 29, 1965.

SN 245,986. Sperry Rand Corporation, New Holland, Pa. Filed May 18, 1966.

SUPER 8

Owner of Reg. No. 662,420.

For Baler Twine.

First use Jan. 26, 1966.

SN 246,889. David Cordage Company, Portland, Oreg. Filed May 31, 1966.

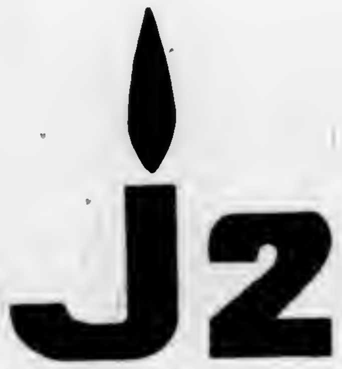
PLANTERS

For Twine, Particularly for Flax Sack Twine.

First use on or before Jan. 15, 1942.

Class 8 — Smokers' Articles, Not Including Tobacco Products

SN 257,490. Japan Gas Lighter Corp., New York, N.Y. Filed Oct. 28, 1966.



Owner of Reg. No. 815,277.

For Adapter Units Enabling Cigarette Lighters of Applicant To Be Refilled With the Butane Containers of Other Manufacturers.

First use Oct. 18, 1966.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 238,204. The Ensign-Bickford Company, Simsbury, Conn. Filed Feb. 7, 1966.

HI-FLEX CDF

Applicant disclaims exclusive rights to the notation "CDF" apart from the mark as shown.

For Confined Detonating Fuse.

First use Dec. 23, 1965.

SN 242,120. Explosives Engineering Company, Steamboat, Nev. Filed Mar. 29, 1966.

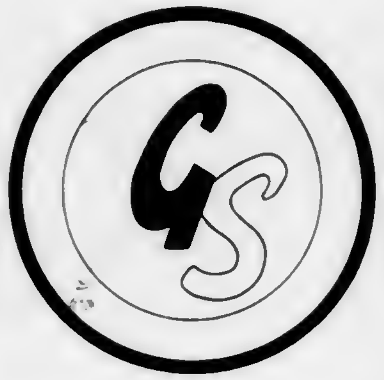
PLURA-JET

For Blasting Explosives.

First use Mar. 15, 1950.

Class 10 — Fertilizers

SN 226,156. Richard F. Morris, d.b.a. Morris Florists, Hinsdale, Ill. Filed Aug. 20, 1965.



For Fertilizers.

First use Aug. 12, 1965.

SN 246,163. Eagle-Picher Industries, Inc., Cincinnati, Ohio. Filed May 20, 1966.

MAN-GRO

For Fertilizer Additive.

First use Apr. 11, 1966.

SN 246,815. Shell Oil Company, New York, N.Y. Filed May 27, 1966.

NITROJECTION

For Ammonia for Soil Fertilizing.

First use Feb. 5, 1946.

Class 11 — Inks and Inking Materials

SN 248,397. Eby Chemical Company, Harrisburg, Pa. Filed June 20, 1966.

INK·A·DOT

The word "Ink" is disclaimed apart from the mark as shown.

For Marker Ink.

First use May 10, 1966.

SN 252,218. Switzer Brothers, Inc., Cleveland, Ohio. Filed Aug. 11, 1966.

TRI LUX

For Printing Inks (Finished and Partly Finished).

First use on or about Jan. 4, 1966.

Class 12 — Construction Materials

SN 234,048. Mfg. & Building Insulators of Texas, Inc., Houston, Tex. Filed Dec. 6, 1965.

K-13

For Spray-Type Cellulose Fiber Insulation Material.

First use on or about Nov. 15, 1961.

SN 241,535. Simpson Timber Company, Seattle, Wash. Filed Mar. 21, 1966.

SIERRA SAWN

No claim is made to the word "Sawn" apart from the mark as shown; applicant reserves all of its rights at common law. Owner of Reg. No. 782,670.

For Redwood Siding.

First use Dec. 13, 1965.

SN 241,740. W. G. Best Homes Corporation, Effingham, Ill. Filed Mar. 24, 1966.

best homes

Applicant disclaims the word "Homes" apart from the mark as shown.
For Prefabricated Homes and Components Thereof.
First use Feb. 25, 1966.

SN 241,783. Knox Homes Corporation, Thomson, Ga. Filed Mar. 24, 1966.

KNOX HOMES

The word "Homes" is disclaimed apart from the mark as shown.
For Prefabricated Homes and Components Thereof.
First use Feb. 18, 1966.

SN 241,787. Lester Brothers, Incorporated, Martinsville, Va. Filed Mar. 24, 1966.

Lesco homes

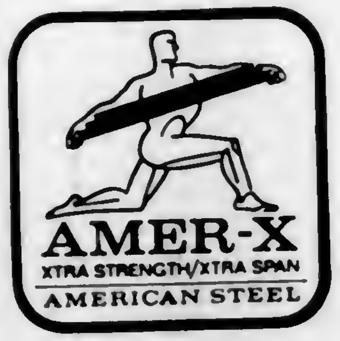
The word "Homes" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 586,605 and 814,270.
For Prefabricated Homes and Components Thereof.
First use Mar. 4, 1966.

SN 243,579. Pinkham Lumber, Inc., Ashland, Maine. Filed Apr. 15, 1966.

TWIN BEAR

For Lumber Products—Namely, Boards.
First use Feb. 14, 1966.

SN 243,619. American Steel, Inc., Portland, Oreg. Filed Apr. 18, 1966.



No claim is made to the words "Xtra Strength/Xtra Span" and "American Steel" apart from the mark as shown.
For Aluminum and Galvanized Steel Corrugated Roofing and Siding Sheets.
First use Jan. 17, 1966.

SN 244,192. Compro Corporation, Pawtucket, R.I. Filed Apr. 25, 1966.

KALDURE

For Stainless Steel Architectural Products—Namely, Screws, Bolts, Hinges, Door Frames, Window Frames, and Stainless Steel Members Used in Entrance and Curtain Wall Constructions.
First use on or about Jan. 4, 1965.

SN 244,324. Hercules Chemical Co., Inc., New York, N.Y. Filed Apr. 26, 1966.

TAPE DOPE

For Plastic Tape Pipe Joint Sealant.
First use March 1960.

Class 14—Metals and Metal Castings and Forgings

SN 231,718. Allis-Chalmers Manufacturing Company, Milwaukee, Wis. Filed Oct. 28, 1965.

DURON

For Ferrous Alloys Containing Spheroidized or Graphitized Carbon.
First use Sept. 29, 1961.

SN 240,464. National Steel Corporation, Pittsburgh, Pa. Filed Mar. 8, 1966.

WEIRNAMEL

Owner of Reg. Nos. 414,613, 790,221, and others.
For Sheet Steel and Enameling Iron.
First use Jan. 31, 1966.

SN 241,414. Armco Steel Corporation, Middletown, Ohio. Filed Mar. 21, 1966.

SSS

Owner of Reg. Nos. 725,242, and 725,529.
For High Strength Alloy Steel.
First use May 28, 1960.

Class 16—Protective and Decorative Coatings

SN 230,502. Badger Manufacturing Corporation, Chicago, Ill. Filed Oct. 19, 1965.

ASTRO

For Spray-Type Paint for Use on Wood and Metal and Engine Parts and Accessories.
First use Oct. 18, 1965.

SN 231,056. Continental Coatings Corporation, New York, N.Y. Filed Oct. 22, 1965.

Q-Rust

For Inorganic Zinc Coating for Protection of Steel.
First use Apr. 19, 1964.

SN 242,569. Corroline Corporation, Buffalo, N.Y. Filed Apr. 4, 1966.

CORRO-ZINC

For Inorganic Abrasive Resistant and Cathodic Protective Zinc Coating.
First use July 5, 1965.

SN 242,570. Corroline Corporation, Buffalo, N.Y. Filed Apr. 4, 1966.

CORRO-KLAD

For Monolithic Topping for Concrete.
First use July 5, 1965.

Class 17—Tobacco Products

SN 235,536. Tabacalera Nacional, S.A., Coral Gables, Fla. Filed Dec. 29, 1965.

DANLYS

For Cigars.
First use Dec. 13, 1965; in commerce Dec. 13, 1965.

SN 239,134. El Cano Cigar Corporation (Proprietary) Limited, Cape Town, Republic of South Africa. Filed Feb. 18, 1966.

JUAN SEBASTIAN DEL CANO

"Juan Sebastian Del Cano," who died in 1526 was a well known Spanish navigator born in Guetaria. Owner of South African Reg. No. 64/4215, dated Oct. 30, 1964.
For Cigarettes, Cigars, and Smoking Tobacco.

Class 18—Medicines and Pharmaceutical Preparations

SN 224,102. John Labatt Limited, London, Ontario, Canada. Filed July 23, 1965.

DELMARAGE

For Batyl, Chimyl and Selachyl Alcohols for Use as Pharmaceutical Preparations.
First use Oct. 16, 1964; in commerce Oct. 16, 1964.

SN 230,886. Pharmacy Girl, Inc., Brookfield, Conn. Filed Oct. 21, 1965.

ITCH-AID

Owner of Reg. No. 694,048.
For Lotion for Alleviating Skin Irritations Caused by Poison Ivy, Mosquito Bites, Detergent Itch, Fungus, and the Like.
First use Jan. 1, 1957.

SN 231,800. American Home Products Corporation, New York, N.Y. Filed Oct. 29, 1965.

CHOCOLAX

For Laxative.
First use Oct. 19, 1965.

SN 238,321. The Upjohn Company, Kalamazoo, Mich. Filed Feb. 7, 1966.

LINCOMIX

Owner of Reg. No. 760,244.
For Antibiotic Feed Additive for Veterinary Use.
First use Dec. 10, 1965.

SN 238,541. The Kendall Company, Walpole, Mass. Filed Feb. 10, 1966.

QUINORA

For Medicinal Preparation for Use in the Treatment of Cardiac Diseases.
First use Oct. 14, 1965.

SN 240,961. Schering Corporation, Bloomfield, N.J. Filed Mar. 14, 1966.

GARASONE

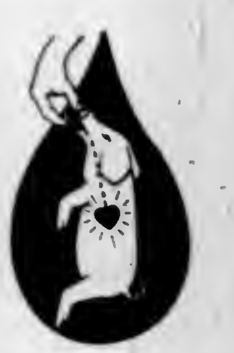
For Anti-Infective, Anti-Inflammatory Ophthalmic Preparation.
First use on or about Jan. 14, 1966.

SN 240,962. Schering Corporation, Bloomfield, N.J. Filed Mar. 14, 1966.

VALISONE

For Topical Corticosteroid Preparation.
First use on or about Jan. 20, 1966.

SN 244,896. Dr. Günther Fiegenbaum, Hamburg, Germany. Filed May 4, 1966.



The design of the pig is disclaimed apart from the mark as shown. Owner of German Reg. No. 815,672, dated Apr. 29, 1964.
For Vitamin Mineral Preparation in Drop Form for Veterinary Use.

SN 245,615. Richardson-Merrell Inc., New York, N.Y. Filed May 13, 1966.

NyQuil

For Liquid Colds Medication.
First use Apr. 26, 1966.

SN 246,861. Barnes-Hind Laboratories, Inc., Sunnyvale, Calif. Filed May 31, 1966.

Micel A

Owner of Reg. No. 147,148.
For Pharmaceutical Ingredient for an Acne Lotion.
First use Dec. 16, 1965.

SN 247,768. Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y. Filed June 10, 1966.

EMPRIFED

For Analgesic and Decongestant Preparations, Pain Relieving Preparations, and Preparations for the Relief of Sinus Congestion.
First use May 23, 1966.

SN 247,870. American Home Products Corporation, New York, N.Y. Filed June 13, 1966.

SOOTHOL

Owner of Reg. Nos. 534,272 and 635,457.
For Preparation for Inducing Sleep.
First use May 27, 1966.

SN 249,402. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

P-1011

For Antibiotic.
First use May 6, 1966.

SN 249,403. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

BETAMYCIN

For Antibiotic.
First use Apr. 4, 1966.

SN 249,404. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

HECLOX

For Antibiotic.
First use May 31, 1966.

SN 249,405. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

BETAPEN

For Antibiotic.
First use Apr. 4, 1966.

SN 249,406. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

P-125

For Antibiotic.
First use Apr. 15, 1966.

SN 249,792. Perry Medical Products, Inc., Portland, Oreg. Filed July 7, 1966.

FLOR-DAC

For Chewable Multiple Vitamin Tablets.
First use May 22, 1961.

SN 251,050. Carter-Wallace, Inc., New York, N.Y. Filed July 26, 1966.

OXYGENAIT

For Pharmaceutical Preparation—Namely, a Non-Narcotic Tranquilizer.
First use Feb. 24, 1966.

SN 251,051. Carter-Wallace, Inc., New York, N.Y. Filed July 26, 1966.

CARBOXASE

For Pharmaceutical Preparation—Namely, a Non-Narcotic Tranquilizer.
First use Feb. 24, 1966.

SN 251,052. Carter-Wallace, Inc., New York, N.Y. Filed July 26, 1966.

HIBOXASE

For Pharmaceutical Preparation—Namely, a Non-Narcotic Tranquilizer.
First use Feb. 24, 1966.

SN 251,201. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

TOFRAMATE

Owner of Reg. Nos. 672,089, 728,465, and 783,926.
For Anti-Depressant Preparations.
First use July 14, 1966.

SN 251,202. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

TOFRANOATE

Owner of Reg. Nos. 672,089, 728,465, and 783,926.
For Anti-Depressant Preparations.
First use July 14, 1966.

SN 251,203. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

TANDEROID

Owner of Reg. No. 694,148.
For Anti-Inflammatory Preparations.
First use July 14, 1966.

SN 251,204. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

CATAPRES

For Anti-Hypertensive Preparations.
First use July 14, 1966.

SN 251,206. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

TANDEXONE

Owner of Reg. No. 694,148.
For Anti-Inflammatory Preparations.
First use July 14, 1966.

SN 251, 207. Geigy Chemical Corporation, Ardsley, N.Y. Filed July 28, 1966.

LAMPREN

For Anti-Depressant Preparations.
First use July 14, 1966.

SN 253,316. Ives Laboratories Inc., New York, N.Y. Filed Aug. 29, 1966.

PROMAQUID

Owner of Reg. No. 792,108.
For Antihistaminic Preparation.
First use July 28, 1966.

SN 256,982. E. R. Squibb & Sons, Inc., New York, N.Y. Filed Oct. 21, 1966.

ALTINIL

For Anti-Depressant Preparation.
First use Sept. 20, 1966.

SN 257,337. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Oct. 27, 1966.

TTF

For Antibiotic-Vitamin Preparation for Veterinary Use.
First use Oct. 4, 1966.

SN 257,440. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Oct. 28, 1966.

TPF

For Antibiotic Preparation for Veterinary Use.
First use Oct. 4, 1966.

SN 257,441. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Oct. 28, 1966.

TSPC

For Antibiotic Preparation for Veterinary Use.
First use Oct. 4, 1966.

SN 258,449. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Nov. 14, 1966.

TPF/77

For Antibiotic Preparation for Veterinary Use.
First use Oct. 26, 1966.

SN 259,191. U.S. Ethicals Inc., Long Island City, N.Y. Filed Nov. 21, 1966.

SEREENAL

For Pharmaceutical Preparation—Namely, An Ataratic, Neuropsychic and Physical Relaxant.
First use July 31, 1958.
Subj. to Intf. with SN 227,202.

Class 19—Vehicles

SN 240,192. Pretty Products, Inc., Coshocton, Ohio. Filed Mar. 4, 1966.

PALOMAR

For Automobile Car Mats.
First use Jan. 21, 1966.

SN 240,194. Pretty Products, Inc., Coshocton, Ohio. Filed Mar. 4, 1966.

LUNAR

For Automobile Car Mats.
First use July 15, 1965.

SN 240,197. Pretty Products, Inc., Coshocton, Ohio. Filed Mar. 4, 1966.

ACTION

For Automobile Car Mats.
First use Dec. 15, 1965.

SN 240,287. Ford Motor Company, Dearborn, Mich. Filed Mar. 7, 1966.

RANGER

For Motor Trucks.
First use during January 1964.

SN 240,366. Travco Corporation, Brown City, Mich. Filed Mar. 7, 1966.

commercial
traveler

For Self-Contained Motor Vehicle Units Equipped for Commercial, Industrial, and Other Special Purposes.
First use Dec. 30, 1965.

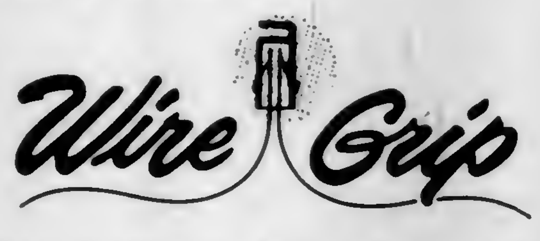
Class 21—Electrical Apparatus, Machines, and Supplies

SN 164,712. Fenwal Electronics, Inc., Framingham, Mass. Filed Mar. 15, 1963.

ISO-CURVE

For Thermistors.
First use Feb. 13, 1963.

SN 199,843. Mandex Manufacturing Company, Inc., Chicago, Ill. Filed Aug. 13, 1964.



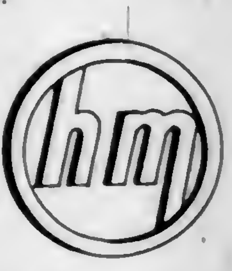
Applicant disclaims any rights in the design representation of the goods, apart from the mark as shown.
For Electrical Connectors.
First use May 1960.

SN 235,131. Societe des Accumulateurs Fixes et de Traction, Romainville, France. Filed Dec. 22, 1965.

LUMIJET

Owner of French Reg. No. 526,941, dated Jan. 4, 1965 (Seine); Natl. Inst. No. 238,284.
For Flashlights.

SN 236,605. Hudson Metal Products, Inc., Newark, N.J. Filed Jan. 17, 1966.



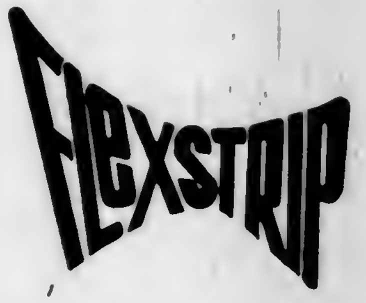
For Precision Drawn Metal Cases and Covers for Holding and Protecting Electronic Components.
First use on or about Jan. 18, 1957.

SN 237,757. Sprague Electric Company, North Adams, Mass. Filed Feb. 1, 1966.

TRIGATE

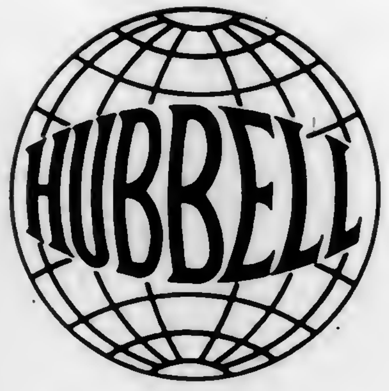
For Pulse Transformers.
First use Dec. 17, 1965.

SN 239,242. Digital Sensors Inc., Los Angeles, Calif. Filed Feb. 21, 1966.



For Flat Electrical Cable Jumpers or Connectors.
First use Jan. 25, 1966.

SN 239,413. Harvey Hubbell, Incorporated, Bridgeport, Conn. Filed Feb. 23, 1966.



Owner of Reg. Nos. 50,234, 754,895, and others.
For Electric Wiring and Lighting Devices—Namely, Switches; Receptacles; Caps; Connectors; Couplings; Attachment Plugs; Convenience Outlets; Motor Plugs and Couplings; Adapters; Current Taps; Cover Plates; Waterproof Covers for Caps, Connectors and Cover Plates; Closure Plugs; Shade Holders; Pull Sockets; Socket Fixtures; Lamp Holders; Bases; Fluorescent Starters; Reflectors; Electric Light Dimmers; Cable Grips; and Components of All the Foregoing.
First use 1904.

SN 239,809. Security Controls, Incorporated, Burbank, Calif. Filed Feb. 28, 1966.

VOID-A-MATIC

For Card Identification Devices—Namely, Solid State Readers Used in a Programmed Card Recognition and Information Retrieval System.
First use Oct. 25, 1965.

SN 239,984. Eprad Incorporated, Toledo, Ohio. Filed Mar. 2, 1966.

GOLDEN HOT-SHOT

For Electric Automobile Heaters for Use in Drive-In Theatres.
First use Feb. 3, 1966.

SN 240,256. Caloric Corporation, Topton, Pa. Filed Mar. 7, 1966.

CALORIC

For Waste Food Disposers.
First use on or about Feb. 25, 1966.

SN 240,257. Caloric Corporation, Topton, Pa. Filed Mar. 7, 1966.

ULTRAMATIC

For Waste Food Disposers.
First use on or about Feb. 25, 1966.

SN 244,089. Edgar E. Dopera, d.b.a. Original Instruments, Gardena, Calif. Filed Apr. 22, 1966.

SONIC STAR

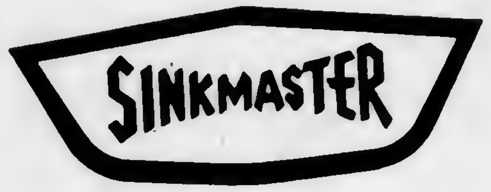
For Electronic Pickup for Stringed Musical Instruments.
First use on or after Dec. 17, 1965.

SN 246,515. Decca Limited, London, England. Filed May 11, 1966.

SEA-FIX

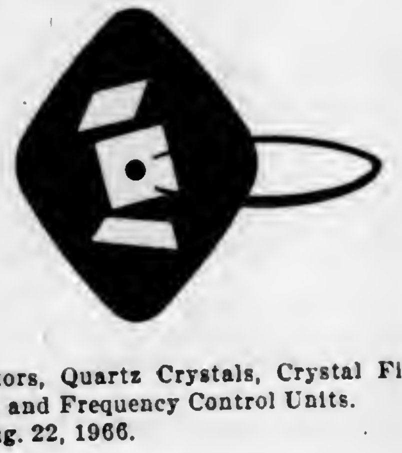
For Radio Transmitters, Radio Receivers, Radio Antennae, Batteries and Battery Chargers for Use in Ships and Aircraft, and Parts Therefor.
First use July 14, 1965; in commerce July 14, 1965.

SN 250,435. Whirl-A-Way Company, Los Angeles, Calif. Filed July 18, 1966.



For Electric Dishwashers.
First use May 16, 1966.

SN 254,090. Oak Electro/Netics Corp., Crystal Lake, Ill. Filed Sept. 9, 1966.



For Oscillators, Quartz Crystals, Crystal Filter Systems, Crystal Ovens, and Frequency Control Units.
First use Aug. 22, 1966.

SN 256,431. William B. Cunningham, d.b.a. Electronic Ordering Systems, Oklahoma City, Okla. Filed Oct. 14, 1966.

ORDER-MATIC

For Menu Supporting Housing and Intercommunicating System for Drive-In Restaurants and the Like.
First use July 11, 1955.

Class 22—Games, Toys, and Sporting Goods

SN 212,278. Eberhard Faber Inc., Wilkes Barre, Pa., assignee of Mel Appel and Martin Schnur (joint owners), Livingston, N.J. Filed Feb. 18, 1965.

FOTO FANTASTIKS

No claim of exclusive right is made to "Foto" for the goods recited.
For Photo Coloring Set Comprising a Series of Black and White Photographs, Various Colored Pencils, and a Water-Color Brush.
First use Jan. 15, 1965.

SN 217,998. Edco Products Corporation, d.b.a. Sedco, Santa Monica, Calif. Filed May 4, 1965.

SLOTMASTER

For Toy Tracked Vehicle Parts and Accessories.
First use Jan. 21, 1965.

SN 218,849. The Duban Shade Corporation, d.b.a. Estelle Toy Company. Filed May 14, 1965.

SILLY SUN PIX

No claim is made to the words "Sun" and "Pix" apart from the mark as shown.
For Toy Cameras.
First use Jan. 17, 1965.

SN 229,487. Coleman Company, Inc., Wichita, Kans., assignee of Boise Cascade Corporation, Boise, Idaho. Filed Oct. 7, 1965.

SUN BRAND

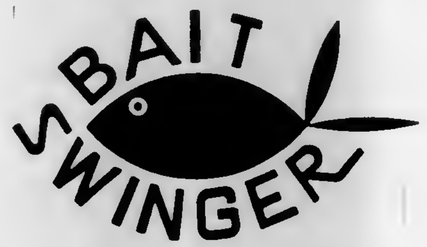
No claim of exclusive right is made to the word "Brand" apart from the mark as shown.
For Sleeping Bags for Outdoor Camping Use and Canvas Tents.
First use on or before Jan. 1, 1901.

SN 229,489. Coleman Company, Inc., Wichita, Kans., assignee of Boise Cascade Corporation, Boise, Idaho. Filed Oct. 7, 1965.

SUN COTTAGE

For Canvas Tents.
First use on or before Jan. 1, 1959.

SN 231,611. George R. Wright, Lincoln, Nebr. Filed Oct. 24, 1965.



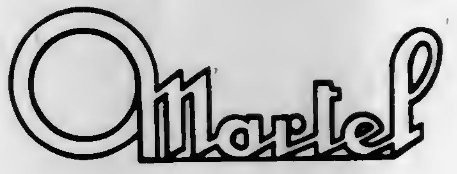
The word "Bait" is disclaimed apart from the mark as shown.
For Minnow Buckets.
First use Feb. 20, 1965.

SN 231,697. Omico Plastics, Inc., Owensboro, Ky. Filed Oct. 27, 1965.

SCORE-T

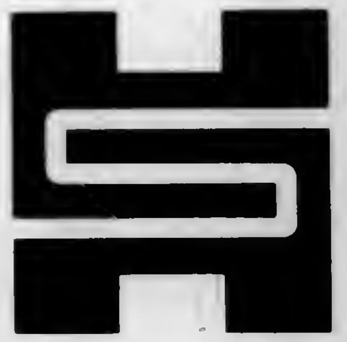
For Combination Pencil and Golf Tee's.
First use at least as early as Aug. 31, 1965.

SN 232,070. V. Gallino S.p.A., Regina Margherita, Turin, Italy. Filed Nov. 3, 1965.



"Martel" is the Italian word for "hammer."
For Lawn Bowling Equipment—Namely, Bocci Balls.
First use Sept. 9, 1965; in commerce Sept. 9, 1965.

SN 238,232. Josef Fischer Sportartikelerzeugung, Ried im Innkreis, Austria. Filed Feb. 7, 1966.



The mark consists of the letters "H" and "S" in stylized form. Owner of Austrian Reg. No. 56,053, dated Nov. 5, 1965.
For Snow and Water Skis.

SN 240,374. Western Import Inc., Portland, Oreg. Filed Mar. 7, 1966.

LEAGUE MASTER

For Sporting Goods, specifically Baseball Playing Equipment.
First use Jan. 10, 1965.

SN 240,513. Paul D. Faulk, Lake Charles, La. Filed Mar. 9, 1966.

FAULK'S

For Game Calls—Namely, Whistles, for Imitating the Cries or Other Utterances of Birds, Predators, Game, and Other Animals.
First use at least as early as June 1950.

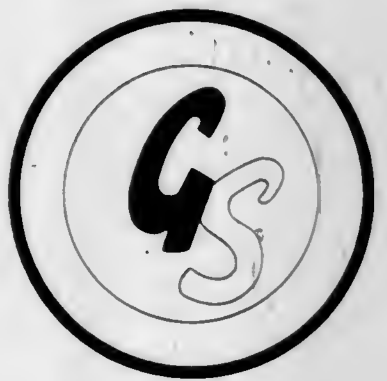
SN 241,090. Roy A. Strandberg, d.b.a. RD & SS, Bellevue, Wash. Filed Mar. 15, 1966.

PEG-A-LINE

For Peg Board and Pegs for Playing an Amusement-Type Parlor Game.
First use Jan. 16, 1966.

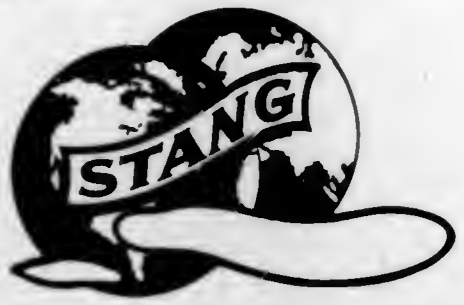
Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

SN 226,157. Richard F. Morris, d.b.a. Morris Florists, Hinsdale, Ill. Filed Aug. 20, 1965.



For Garden Tools and Equipment—Namely, Hand Tools Such as Grass, Lopping and Pruning Shears, Rakes, Shovels, Hoes, Cultivators, and the Like.
First use Aug. 12, 1965.

SN 226,682. John W. Stang Corporation, Orange, Calif. Filed Aug. 27, 1965.



For Hydraulic Apparatus—Namely, Centrifugal Pumps for Use as Wellpoint Pumps, Jetting Pumps, and Sump Pumps.
First use on or about May 8, 1965.

SN 230,283. H. K. Porter Company, Inc., Pittsburgh, Pa. Filed Oct. 15, 1965.

MOULDMASTER

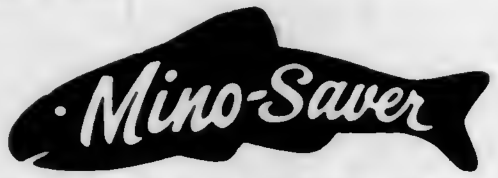
For Planer Knives.
First use Aug. 8, 1965.

SN 236,522. The Scott & Fetzer Company, Cleveland, Ohio. Filed Jan. 14, 1966.

ROLL-O-WAXER

For Manually Powered Mechanical Floor Waxers.
First use Jan. 3, 1966.

SN 238,167. Commerce Welding & Mfg. Co. Inc., Dallas, Tex. Filed Feb. 7, 1966.



For Motor-Driven Agitators for Supplying and Circulating Fresh Air and Oxygen Into Live Bait Tanks and Containers.
First use 1952.

SN 240,773. Oneida Ltd., Oneida, N.Y. Filed Mar. 11, 1966.

WINTERSONG

For Stainless Steel Flat Tableware.
First use Feb. 1, 1966.

SN 240,792. Scovill Manufacturing Company, Racine, Wis. Filed Mar. 11, 1966.

FLOW MOTION

For Electric Dry Shavers.
First use Dec. 6, 1965.

Class 26 — Measuring and Scientific Appliances

SN 230,189. Parfa Parfumerie & Kosmetik AG, Zurich, Switzerland. Filed Oct. 14, 1965.

FRACSILATOR

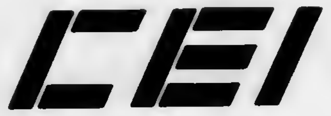
Owner of Swiss Reg. No. 205,900, dated Sept. 21, 1964.
For Fraction-Collectors for Chromatography, Fractional Elution and Filtration; Apparatus for Subdividing Substances Into Smaller Portions for the Chemical, Medical, and Related Industries and Laboratories.
First use September 1964; in commerce September 1964.

SN 235,602. Serometrics, Inc., Chicago Heights, Ill. Filed Nov. 18, 1965.

STRATOMAT

For Chromatography Apparatus.
First use February 1965.

SN 237,426. Communication Electronics Incorporated, Rockville Md. Filed Jan. 27, 1966.



For Electronic Equipment Primarily Designed for the Purpose of Intercepting, Analyzing, Demodulating and Processing of Signals Propagated by a Transmitter; Visual Display of Such Signals by Means of Oscilloscopes and Spectrum Analyzers; Distribution of Such Signals by Means of Multicouplers, Distribution Amplifiers, Audio and Video Amplifiers; Processing of Such Signals by Means of Up and Down Converters; Digital Counters and Associated Equipments; Stereophonic and Monophonic Components Including Tuners, Amplifiers, and Associated Components.
First use May 14, 1963.

SN 238,911. Aerospace Research, Inc., Boston, Mass. Filed Feb. 16, 1966.

LORCHRON

For Timing Apparatus Utilizing Loran Signals.
First use June 8, 1965.

SN 239,472. Vernon Photographic Corporation, Mt. Vernon, N.Y. Filed Feb. 23, 1966.

EXTEL

For Camera Lens Mounts.
First use Jan. 17, 1966.

SN 239,615. General Precision, Inc., Tarrytown, N.Y. Filed Feb. 25, 1966.

PARD

For Annotated Retrieval and Display Systems.
First use Jan. 24, 1966.

SN 239,714. Borg-Warner Corporation, Chicago, Ill. Filed Feb. 28, 1966.

OMNI-DATA

Owner of Reg. No. 753,703.
For Data Handling Systems, Electrostatic Page Printers, Electrostatic Strip Printers, Character Generators, Photoelectric Tape Readers, Tape Reelers, Tape Punches, and Parts Thereof for Replacement and Repair.
First use on or prior to Sept. 15, 1961 on photoelectric tape readers.

SN 239,869. Automatic Control Company, St. Paul, Minn. Filed Mar. 1, 1966.

PROBOTROL

For Induction and Electronic Liquid Level Controls.
First use September 1947.

SN 249,073. P. R. Rowe and Norman Johnson, executors under the will and of the estate of Burton McCollum, deceased, Houston, Tex. Filed June 27, 1966.

GAS GUN

For Seismic Radiators.
First use Dec. 16, 1964.

SN 250,622. Ernst Leitz, G.m.b.H. Wetzlar/Lahn, Germany. Filed July 20, 1966.

ORTHOPLAN

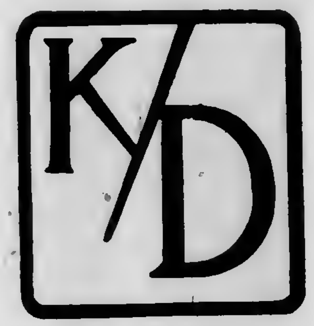
For Research Microscopes, Including Accessories Therefor, Such as Objectives and Oculars for Said Microscopes.
First use Dec. 15, 1965; in commerce Dec. 15, 1965.

SN 251,094. Bellco Glass, Inc., Vineland, N.J. Filed July 27, 1966.

KAP-UPTS

For Disposable Culture Tube Closures.
First use June 14, 1966.

SN 257,556. Kenneth A. Dawson, d.b.a. Kenneth A. Dawson Co., Belmont, Mass. Filed Oct. 31, 1966.



For Cameras, Revolving Stages for Microscopes, Mounting Bases for Microscopes, Micrometer Measuring Stages, Camera Attachments for Microscopes, Aligning Fixtures for Use With Microscopes, and Microscopes Including Stereoscopic Microscopes With Beam Splitters, Polarizing Microscopes, Microscopes With Projectors, Toolmaking and Metallurgical Microscopes With Stages, Micrometer Measuring Microscopes, and Microscopes With Camera Attachments.
First use in or about March 1964.

Class 28 — Jewelry and Precious-Metal Ware

SN 221,924. Hamilton Watch Company, Lancaster, Pa. Filed June 24, 1965.

GRANDE BAROQUE

Owner of Reg. No. 438,336.
For Sterling Silver Holloware.
First use Jan. 1, 1942.

Class 30—Crockery, Earthenware, and Porcelain

SN 166,129. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

NÖT

The style of lettering is not a feature of this mark.
For China Dinnerware.
First use Jan. 15, 1963.

SN 166,130. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

KÖNE

The style of lettering is not a feature of this mark.
For China Dinnerware.
First use Jan. 15, 1963.

SN 166,131. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

LYF

For China Dinnerware.
First use Jan. 15, 1963.

SN 166,132. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

TRIA

For China Dinnerware.
First use Jan. 15, 1963.

SN 166,133. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

TUÖ

The style of lettering is not a feature of this mark.
For China Dinnerware.
First use Jan. 15, 1963.

SN 166,135. Shenango Ceramics, Inc., New Castle, Pa., assignee of Shenango, China, Inc., New Castle, Pa. Filed Apr. 4, 1963.

SOM

For China Dinnerware.
First use Jan. 15, 1963.

SN 177,374. Shenango Ceramics, Inc., New Castle, Pa. Filed Sept. 19, 1963.

MEDITERRANEAN

For China Dinnerware.
First use Aug. 7, 1963.

SN 212,602. Shenango Ceramics, Inc., New Castle, Pa. Filed Feb. 23, 1965.

CRESTVIEW

For China Dinnerware.
First use Nov. 3, 1964.

SN 217,295. Castleton China, Inc., New Castle, Pa. Filed Apr. 26, 1965.

INTERMEZZO

Owner of Reg. Nos. 508,906 and 538,757.
For China Dinnerware.
First use Jan. 4, 1965.

SN 217,296. Castleton China, Inc., New Castle, Pa. Filed Apr. 26, 1965.

CRESCENDO

Owner of Reg. Nos. 508,906 and 538,757.
For China Dinnerware.
First use Jan. 4, 1965.

SN 217,297. Castleton China, Inc., New Castle, Pa. Filed Apr. 26, 1965.

GOLDEN SCROLL

Owner of Reg. Nos. 508,906 and 538,757.
For China Dinnerware.
First use Jan. 4, 1965.

Class 31—Filters and Refrigerators

SN 202,715. The Standard Oil Company, Cleveland, Ohio. Filed Sept. 25, 1964.

BORON SUPER FILTER

Applicant asserts no rights in the words "Super" and "Filter," when used properly to describe filters. Owner of Reg. Nos. 623,891, 766,219, and others.
For Liquid Fuel Filters.
First use Aug. 19, 1964.

Class 32—Furniture and Upholstery

SN 258,460. Quaker Maid Kitchens, Inc., Leesport, Pa. Filed Nov. 14, 1966.

LANCER

For Kitchen Cabinet Doors.
First use Oct. 21, 1966.

Class 33—Glassware

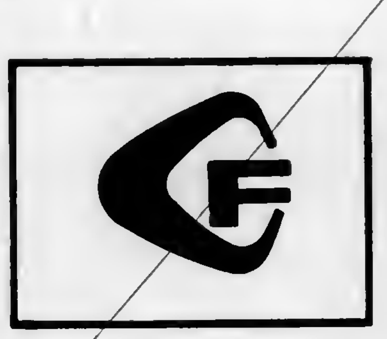
SN 238,597. Anchor Hocking Glass Corporation, Lancaster, Ohio. Filed Feb. 11, 1966.

ONE-DERFUL

For Glass Ovenware.
First use Jan. 29, 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

SN 239,038. Fostoria Corporation, Fostoria, Ohio. Filed Feb. 17, 1966.



Owner of Reg. No. 740,540.
For Combustion Type Equipment—Namely, Radiation Type Furnaces and Space Heaters, Industrial/Commercial Ovens, and Other Heat Transfer Apparatus and Parts Therefor.
First use July 1, 1965.

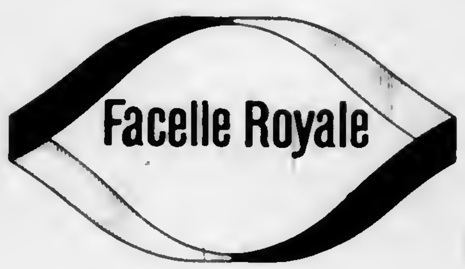
Class 37—Paper and Stationery

SN 188,265. Paper Mate Manufacturing Company, Santa Monica, Calif. Filed Mar. 9, 1964.

PROFILE

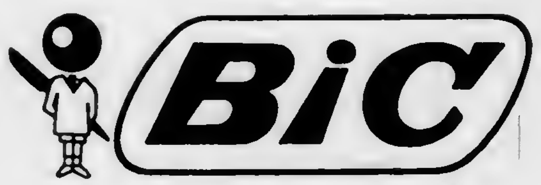
For Ball-Point Pens.
First use Jan. 18, 1964.

SN 228,356. Facelle Company Limited, Toronto, Ontario, Canada. Filed Sept. 22, 1965.



The application is lined for the color red, but no claim is made to the color as an integral portion of the mark. Owner of U.S. Reg. Nos. 270,416 and 769,571.
For Facial Tissues.
First use Nov. 5, 1963; in commerce Nov. 5, 1963.

SN 231,378. Marcel Louis Michel Antoine Bich, Clichy (Seine), France. Filed Oct. 23, 1965.



Priority claimed under Sec. 44(d) on French Reg. No. 535,049, dated July 9, 1965 (Seine); Natl. Inst. No. 256,295. Owner of U.S. Reg. No. 573,249.
For Ball-Point Pens, Both Retractable and Non-Retractable, Special Ink Cartridges and All Replaceable Parts for Such Pens.

SN 244,295. Bradner Central Company, Chicago, Ill. Filed Apr. 26, 1966.

PROGRESS

Owner of Reg. Nos. 329,102, 762,354, and 770,831.
For Paper Materials—Namely, Paper Rolls for Adding Machines, Paper Rolls for Check and Detail Machines, Loose Leaf Binders, Loose Leaf Portfolios, Theme Books, Notebooks, and Bond and Typewriter Papers.
First use Mar. 25, 1965.

SN 248,311. A. T. Cross Company, Lincoln, R.I. Filed June 17, 1966.

COLOR-CREST

For Pen and Pencil Desk Sets.
First use Apr. 5, 1966.

SN 250,582. Instructo Products Company, Philadelphia, Pa. Filed July 19, 1966.

spirit/tran

For Clear Plastic Masters for Duplicators.
First use Dec. 15, 1964.

SN 250,755. Fort Howard Paper Company, Green Bay, Wis. Filed July 21, 1966.

PRISCILLA

Owner of Reg. No. 298,870
For Toilet Tissue.
First use Apr. 30, 1965.

SN 250,812. American Can Company, New York, N.Y. Filed July 22, 1966.

RAIDERS

For Knit Paper Cleaning Towels and Wipers.
First use July 14, 1966.

Class 38—Prints and Publications

SN 222,433. Tatler Publishing Company, Washington, D.C. Filed June 30, 1965.

TOWN Tatler

For Weekly Booklet Which Is a Guide to Activities and Eating Places.
First use at least as early as 1958.

SN 237,210. Empresa Editora Zig-Zag S.A., Santiago, Chile. Filed Jan. 25, 1966.

CONDORITO

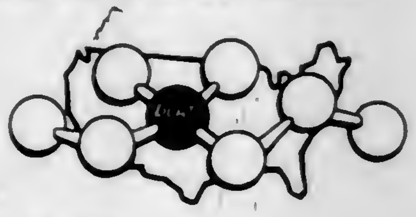
The translation of "Condorito" into English is "a small condor."
For Comic Magazine.
First use Dec. 16, 1955; in commerce Aug. 8, 1965.

SN 241,441. Drug, Chemical and Allied Trades Association Inc., New York, N.Y. Filed Mar. 21, 1966.

DCAT

For Newsletter.
First use Jan. 12, 1952.

SN 241,442. Drug, Chemical and Allied Trades Association Inc., New York, N.Y. Filed Mar. 21, 1966.



For Periodic Bulletin.
First use Apr. 5, 1965.

SN 242,297. Vance Publishing Corporation, Chicago, Ill. Filed Mar. 30, 1966.

THE DROVERS JOURNAL

For Weekly Newspaper.
First use Jan. 11, 1873.

SN 243,218. George Buchsbaum, d.b.a. Equality Publishing Company, New York, N.Y. Filed Apr. 12, 1966.

EGYENLÖSÉG

"Egyenlőség" means in English "equality."
For Jewish Newspaper in Hungarian Language.
First use Jan. 15, 1965.

SN 243,862. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Apr. 20, 1966.

Floogel

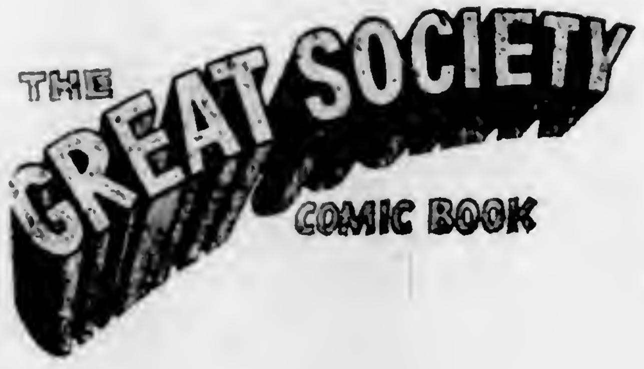
For Greeting Cards.
First use Apr. 6, 1966.

SN 244,416. Kimball Systems, Inc., Belleville, N.J. Filed Apr. 27, 1966.

THE KIMBALL SCENE

For House Organ.
First use in or around August 1964.

SN 253,405. Don J. Arneson, Tarrytown, N.Y. Filed Aug. 30, 1966.



No claim is made to the words "Comic Book" apart from the mark as shown.
For Comic Book, Issued From Time to Time.
First use Apr. 15, 1966.

SN 256,181. Spot-O-Gold Corporation, Philadelphia, Pa. Filed Oct. 11, 1966.

MAGIC LAMP

Owner of Reg. No. 801,355.
For Business Bonus Cards.
First use Sept. 14, 1964.

Class 39 — Clothing

SN 219,726. A. H. Plotkin & Son, Inc., New York, N.Y. Filed May 25, 1965.

DE MARCO

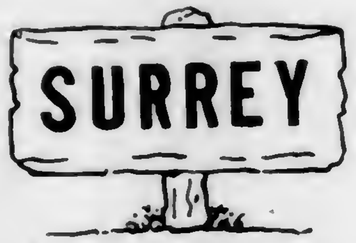
For Ladies' Shoes.
First use Nov. 15, 1964.

SN 225,550. Funk Bros. Hat & Cap Co., St. Louis, Mo. Filed Aug. 12, 1965.

"CUSHION-EZE-FIT" BY FUNKAP

Applicant disclaims the word "Fit" apart from the mark as shown. Owner of Reg. No. 500,111.
For Men's and Boys' Hats and Caps.
First use July 2, 1965.

SN 228,083. Tex-Sun Glove Company, Corsicana, Tex. Filed Sept. 17, 1965.



For Work Gloves Made of Leather and Canvas.
First use Oct. 10, 1953.

SN 230,074. Puritan Fashions Corporation, New York, N.Y. Filed Oct. 13, 1965.

GO-MAN

For Men's and Boys Pants, Slacks, and Trousers.
First use Feb. 18, 1965.

SN 236,208. The Uniform Center of New York, Inc., New York, N.Y. Filed Jan. 11, 1966.

UNIFORM CENTER OF NEW YORK

Owner of Reg. No. 676,492.
For Uniforms for Nurses, Doctors, and Surgeons.
First use May 1, 1954.

SN 239,107. Arbitman & Arbitman, Inc., New York, N.Y. Filed Feb. 18, 1966.

Romay

For Ladies', Misses', and Juniors' Wearing Apparel—Namely, Coats, Suits, Dresses, Blouses, Skirts, and Slacks.
First use Jan. 14, 1966.

SN 239,414. Her Majesty Underwear Company, Mauldin, S.C. Filed Feb. 23, 1966.

POCKET PETS

For Girls' Shifts, Dresses, Robes, and Smocks.
First use Jan. 11, 1966.

SN 243,237. Flogar Fabrics Inc., Miami, Fla. Filed Apr. 12, 1966.

FLEX
P.S.C.

For Underwear.
First use Oct. 15, 1965.

SN 243,858. Fit-Rite Pants Company, Inc., New York, N.Y. Filed Apr. 20, 1966.

REMARKA-PREST

For Men's and Boys' Trousers and Slacks.
First use Feb. 15, 1966.

SN 244,047. Wolverine Shoe and Tanning Corporation, Rockford, Mich. Filed Apr. 21, 1966.

MR. HUSH

Owner of Reg. Nos. 663,849 and 764,745.
For Shoes.
First use on or about Apr. 1, 1966.

SN 244,079. Leonard L. Charnay, Inc., New York, N.Y. Filed Apr. 22, 1966.

BOOT-LETTES

For Girls' Coats.
First use Apr. 14, 1966.

SN 244,996. Marlene Industries Corporation, New York, N.Y. Filed May 5, 1966.

THE MAMIE

For Children's, Teens', Misses', and Women's Blouses, Shirts, Knit Tops, Sweaters, Brassieres, Skirts, Pants, and Jackets.
First use Mar. 25, 1966.

SN 246,037. Burma-Bibas, Inc., New York, N.Y. Filed May 19, 1966.

SETURA

For Neckties, Shirts, and Sweaters.
First use Mar. 3, 1966.

SN 246,116. United States Rubber Company, New York, N.Y. Filed May 19, 1966.

HOT POTATOES

For Shoes.
First use May 5, 1966.

SN 246,886. Cuddle Knit Knitting Mills, Inc., Deer Park, N.Y. Filed May 31, 1966.

BROOKVILLE

For Ladies' Sweaters and Skirts.
First use May 23, 1966.

SN 247,214. Format Products, Inc., New York, N.Y. Filed June 3, 1966.

SLEEPYFEET

For Girls', Misses', and Ladies' Pajamas.
First use Mar. 8, 1966.

SN 249,611. Huntingdon Mills Inc., Philadelphia, Pa. Filed July 6, 1966.

JUGGLERS

For Children's Knit and Woven Sweaters, Skirts, Slacks, Hats, and Suits.
First use Apr. 1, 1966.

SN 250,212. Ben Cooper Inc., Brooklyn, N.Y. Filed July 14, 1966.

HERO COSTUME

The word "Costume" is disclaimed apart from the mark as shown.
For Masquerade Costumes.
First use June 1, 1966.

SN 256,500. Haggar Company, Dallas, Tex. Filed Oct. 17, 1966.

DIAL-A-SLACK

For Men's and Boys' Clothing—Namely, Slacks.
First use on about Oct. 6, 1966.

Class 40 — Fancy Goods, Furnishings, and Notions

SN 247,147. Henry Pollak, Inc., New York, N.Y. Filed June 2, 1966.

CALYPSO

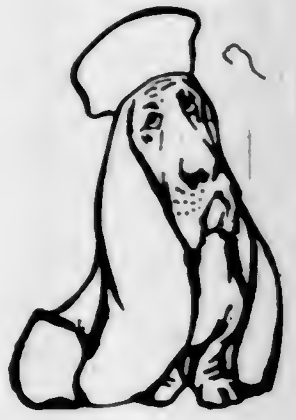
Owner of Reg. No. 423,552.

For Millinery Braids.

First use June 4, 1945.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 234,176. Canton Cotton Mills, Canton, Ga. Filed Dec. 8, 1965.



For Fabrics of Cotton, Wool, and Synthetic Materials, and Combinations Thereof.

First use Nov. 8, 1965.

SN 234,482. Tennessee Tufting Company, Nashville, Tenn. Filed Dec. 13, 1965.

VISLON

For Yarn Made Into Tufted Rugs.

First use Nov. 9, 1965.

SN 243,441. Graniteville Company, Graniteville, S.C. Filed Apr. 14, 1966.

Gala

For Duck of All Cotton and/or Blends of Cotton and Synthetics, for Use as Tentage.

First use July 31, 1963.

SN 244,800. Dunbar Furniture Corporation, Berne, Ind. Filed May 3, 1966.

DUNBAR

Owner of Reg. Nos. 693,853, 752,525, and 789,995.

For Upholstery and Drapery Fabrics.

First use at least as early as 1935.

SN 246,031. Bates Manufacturing Company, Incorporated, Lewiston, Maine. Filed May 19, 1966.

ECHO-PLY

For Fabrics for Making Draperies, Bedspreads, Blankets, Slipcovers, and Household Linens.

First use Apr. 19, 1966.

SN 246,073. Gimbel Brothers, Inc., New York, N.Y. Filed May 19, 1966.

bramwell

For Muslin and Percale Sheets and Pillow Cases.

First use Apr. 18, 1966.

SN 247,209. Ex-Cell Homefurnishings, Inc., New York, N.Y. Filed June 3, 1966.

EX-CELL Plastics

The word "Plastics" is disclaimed apart from the mark as shown. Owner of Reg. No. 742,714.

For Plastic Sink Bottom Skirts, Plastic Draperies, Plastic Cottage and Cafe Curtain Sets, Plastic Shower Curtains, Plastic Table Cloths, Plastic Mattress and Pillow Covers, Plastic Furniture Covers, and Plastic Yard Goods.

First use Dec. 1, 1949.

SN 247,668. Astrotex Ltd., New York, N.Y. Filed June 9, 1966.

ASTROTEX

For Fabrics Composed of Silk, Wool, Cotton, Synthetics, or Any Combination Thereof.

First use Apr. 4, 1962.

SN 250,047. J. P. Stevens & Co., Inc., New York, N.Y. Filed July 11, 1966.

CROSSWIND

Owner of Reg. No. 426,436.

For Piece Goods of One or More Natural Fibers Including Wool and Cotton, or of Synthetic Fibers or Cellulosic Fibers, or Blends of the Foregoing.

First use July 1, 1966.

SN 250,053. Thomas Pride Mills Inc., Calhoun, Ga. Filed July 11, 1966.

SASSYGRASS

For Carpet.

First use Jan. 7, 1966.

SN 250,094. Fieldcrest Mills, Inc., Spray, N.C. Filed July 12, 1966.

ACRISOFT

For Blankets.

First use Jan. 15, 1965.

SN 250,095. Fieldcrest Mills, Inc., Spray, N.C. Filed July 12, 1966.

NEW SOUTHWIND

For Blankets.

First use Feb. 18, 1965.

SN 250,158. J. & J. C. Dorward Limited, Galashiels, Scotland. Filed July 13, 1966.

GALA FOREST

Owner of U.S. Reg. Nos. 210,901, 218,190, and 719,365.

For Wollen Goods in the Piece.

First use in 1932; in commerce in 1932.

SN 250,459. Deering Milliken, Inc., New York, N.Y. Filed July 18, 1966.

CATTAIL

For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers, and Combinations Thereof.

First use on or about June 20, 1966.

SN 250,460. Deering Milliken, Inc., New York, N.Y. Filed July 18, 1966.

SASPARELLA

For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers, and Combinations Thereof.

First use on or about June 20, 1966.

SN 254,884. M. Lowenstein & Sons, Inc., New York, N.Y. Filed Sept. 21, 1966.

SKINNY BOY

For Textile Piece Goods for Wearing Apparel for Women and Children.

First use June 1, 1966.

Subj. to Intf. with SN 251,149.

Class 43 — Thread and Yarn

SN 250,326. Indian Head Inc., New York, N.Y. Filed June 27, 1966.

PARADISE

For Hand Knitting Yarns.

First use Dec. 17, 1962.

Class 44 — Dental, Medical, and Surgical Appliances

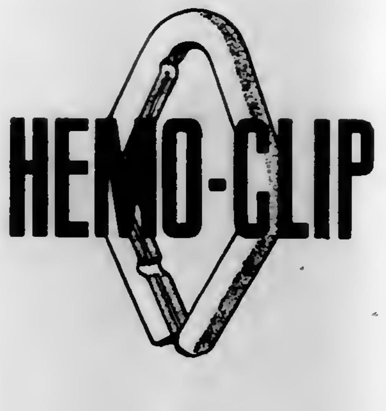
SN 240,326. Dr. Med. Dent. Werner Noetzli, Zurich, Switzerland. Filed Mar. 7, 1966.

P-O-P

Priority claimed under Sec. 44(d) on Swiss Reg. No. 215,436, dated Dec. 23, 1965.

For Dental Instruments—Namely, Dental Probes.

SN 242,523. Edward Weck & Company, Inc., Long Island City, N.Y. Filed Apr. 1, 1966.



Applicant disclaims the pictorial representation of the goods apart from the mark as shown. Owner of Reg. Nos. 807,570 and 818,344.

For Surgical Apparatus for Occluding Blood Vessels.

First use July 23, 1965.

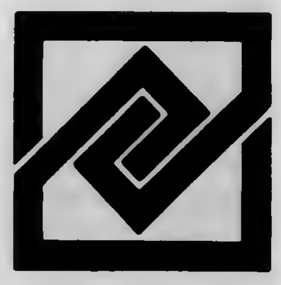
SN 245,865. Strait-O-Matic, Inc., South Orange, N.J. Filed May 17, 1966.

STRAIT-O-MATIC

For Electric Hair Straightening Devices.

First use Apr. 18, 1966.

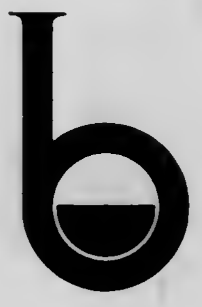
SN 245,879. Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, am Main, Germany. Filed May 10, 1966.



Owner of German Reg. No. 764,257, dated June 6, 1962.

For Dental Alloys and Ceramic Masses.

SN 246,230. Bentley Laboratories, Santa Ana, Calif. Filed May 23, 1966.



For Oxygenators.

First use July 7, 1965.

Class 45—Soft Drinks and Carbonated Waters

SN 242,439. Double Cola Company, d.b.a. The Double Cola Company, Chattanooga, Tenn. Filed Apr. 1, 1966.

Alive

For Soft Drinks and Concentrates for Making the Same.
First use Jan. 21, 1966.
Subj. to Intf. with SN 254,101.

Class 46—Foods and Ingredients of Foods

SN 198,068. National Tea Co., Chicago, Ill. Filed July 17, 1964.

AMERICAN DELUXE

The word "Deluxe" is disclaimed apart from the mark as shown. Owner of Reg. No. 563,955.
For All Varieties of Tea and Tea Bags (Filled), Including Instant Tea, and Coffee.
First use June 5, 1963.

SN 198,262. G. Fabbri S.p.A., Bologna, Italy. Filed July 21, 1964.

FABBRI

Priority claimed under Sec. 44(d) on Italian application filed Jan. 29, 1964; Reg. No. 166,136, dated July 27, 1964. Owner of U.S. Reg. Nos. 813,540, 810,638, and 810,639.
For Cherries in Liqueur, Black Cherries in Syrup, and Fruit Syrups for Food Purposes.
First use 1905; in commerce June 1958.

SN 214,075. H. E. Butt Grocery Company, Corpus Christi, Tex. Filed Mar. 15, 1965.

De-LiSH!

For Bakery Products—Namely, Cookies.
First use Jan. 20, 1965.

SN 215,303. Whirlpool Corporation, St. Joseph, Mich. Filed Mar. 29, 1965.

WONDER FRESH

Applicant disclaims the word "Fresh" apart from the mark as shown.
For Food Products—Namely, Fresh Fruits and Vegetables.
First use Mar. 3, 1965.

SN 216,720. Nolde Brothers, Incorporated, Richmond, Va. Filed Apr. 16, 1965.

NOLDE'S

For Bread.
First use July 2, 1892.

SN 216,721. Nolde Brothers, Incorporated, Richmond, Va. Filed Apr. 16, 1965.

NOLDE'S
SUPER SANDWICH

The wording "Super Sandwich" is disclaimed apart from the mark as shown.
For Bread.
First use Oct. 28, 1964.

SN 217,515. E. A. Ackerman Dairy Products, Inc., Eau Claire, Wis. Filed Apr. 28, 1965.

Milk Products of Distinction
PENNANT BRAND

The words "Milk Products of Distinction" and "Brand" are disclaimed apart from the mark as shown.
For Non-Fat Dry Milk and Sweet Cream Buttermilk Powder, Sold Exclusively to Food Manufacturers and Processors.
First use Mar. 22, 1965.

SN 218,209. National Tea Co., Chicago, Ill. Filed May 6, 1965.

SO FRESH

Owner of Reg. Nos. 605,231, 743,532, and others.
For Dairy Products—Namely, Butter and Fresh Eggs.
First use May 20, 1963.

SN 218,629. Fairmont Foods Company, Omaha, Nebr. Filed May 12, 1965.

Mushrooms

For Crackers and Cookies.
First use Apr. 19, 1965.

SN 220,399. National Tea Co., Chicago, Ill. Filed June 4, 1965.

TOP TASTE

Owner of Reg. Nos. 444,626, 728,902, and others.
For Fresh and Smoked Meats and Prepared Meat Products, Cheeses, Mustards, Flavoring Extracts for Baking, Table Salt, and Cheese Products of the Prepared Type—Namely, Pasteurized Process Cheese, Cheese Spreads and Cream Cheese.
First use Oct. 16, 1963.

SN 220,763. A. C. L. Haase Company, St. Louis, Mo. Filed June 9, 1965.

MAGIC CIRCLE

Owner of Reg. Nos. 236,896 and 372,325.
For Canned Fruit, Canned Oysters, Canned Vegetables, Canned Tomato Soup, and Salad Dressing.
First use September 1935 on canned vegetables.

SN 221,241. American Home Products Corporation, New York, N.Y. Filed June 16, 1965.

SNAPPIES

For Cocktail Snacks in the Nature of a Baked Product Which Is Cheese Flavored.
First use July 1935.

SN 223,796. Lance, Inc., Charlotte, N.C. Filed July 20, 1965.

LANCE

Owner of Reg. Nos. 280,194, 687,321, and others.
For Chewing Gum; Peanut Butter; Cracker Meal; and Snack Food Items—Namely, Crackers and Cracker Sandwiches, Cookies and Cookie Sandwiches, Cake-Like Products Including a Sweet Filling and a Cookie-Like Covering, Nuts, Candy, Potato Chips, Popcorn, Cooked Corn-Base Snacks, Fried Pork-Skin Snacks, and Melba Toast.
First use in or about May 1921.

SN 223,797. Lance, Inc., Charlotte, N.C. Filed July 20, 1965.

LANCE

Owner of Reg. Nos. 280,194, 687,321, and others.
For Chewing Gum; Peanut Butter; Cracker Meal; and Snack Food Items—Namely, Crackers and Cracker Sandwiches, Cookies and Cookie Sandwiches, Cake-Like Products Including a Sweet Filling and a Cookie-Like Covering, Nuts, Candy, Potato Chips, Popcorn, Cooked Corn-Base Snacks, Fried Pork-Skin Snacks, and Melba Toast.
First use Dec. 16, 1954.

SN 223,798. Lance, Inc., Charlotte, N.C. Filed July 20, 1965.

LANCE

Owner of Reg. Nos. 280,194, 687,321, and others.
For Chewing Gum; Peanut Butter; Cracker Meal; and Snack Food Items—Namely, Crackers and Cracker Sandwiches, Cookies and Cookie Sandwiches, Cake-Like Products Including a Sweet Filling and a Cookie-Like Covering, Nuts, Candy, Potato Chips, Popcorn, Cooked Corn-Base Snacks, Fried Pork-Skin Snacks, and Melba Toast.
First use Dec. 16, 1954; in or about May 1921 in a different form.

SN 224,686. CDC-Compagnie Generale des Produits Dubonnet Cinzano Byrrh, Paris, France, assignee of Societe Internationale Pam-Pam, Monte-Carlo, Monaco. Filed Aug. 2, 1965.

PAM PAM

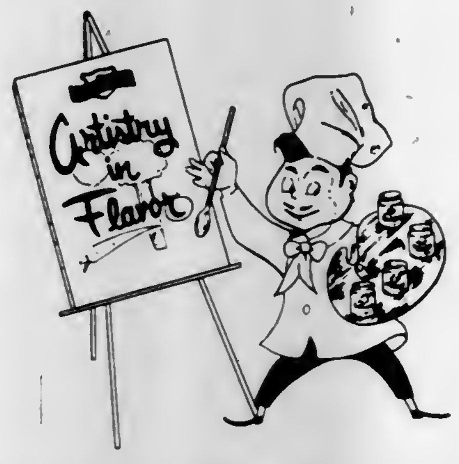
Owner of Monacan Reg. No. 61/2287, dated Nov. 23, 1961.
For Canned Fruit and Vegetable Juices.

SN 225,638. Country Gardens, Inc., Warden, Wash. Filed Aug. 13, 1965.

GOLDEN GLOW

The central portion of applicant's mark is lined for the color "gold" and the encircling design is lined for the color "red," but no claim is made as to the colors so named.
For Partially Pre-Cooked and Frozen French Fried Potatoes.
First use Jan. 7, 1963.

SN 228,175. L. J. Minor Corp., Cleveland, Ohio. Filed Sept. 20, 1965.



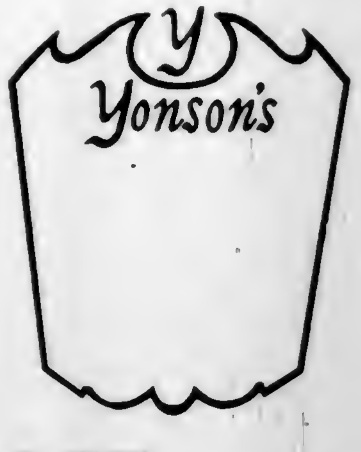
Applicant disclaims the word "Flavor" separate and apart from the mark as shown.
For Food Bases of Either a Seafood, Poultry, Meat-Containing or Meatless Nature, for Making Soups, Gravies, and Seasonings.
First use on or about May 25, 1965.

SN 233,469. Crescent Manufacturing Company, Seattle, Wash. Filed Nov. 29, 1965.

CRESCENT

Owner of Reg. Nos. 47,141, 60,451, and others.
For Food Flavoring Extracts, Food Colors, Food Seasonings of a Spice Nature, and Spices.
First use May 19, 1965.

SN 234,694. Yonson Foods, Inc., Belmont, Calif. Filed Dec. 15, 1965.



Owner of Reg. No. 780,775.
For Hydrogenated Vegetable Oil and Non-Fat Dry Milk Topping for Baked Potatoes, Dips, and Salads.
First use June 1964.

SN 235,326. National Biscuit Company, New York, N.Y. Filed Dec. 27, 1965.

SIP 'N CHIPS

Applicant disclaims the word "Chips" apart from the mark as shown.
For Cheese Snack Bakery Products.
First use Nov. 22, 1965.

SN 235,396. Dixie-Portland Flour Mills, Inc., d.b.a. Majestic Flour Mills, Memphis, Tenn. Filed Dec. 28, 1965.

BEAUTY BISCUIT

No claim is made to the word "Biscuit" apart from the mark as shown.
For Self-Rising Wheat Flour.
First use July 19, 1913.

SN 236,052. C. M. Holtzinger Fruit Co., Inc., d.b.a. C. M. Holtzinger Fruit Co., Yakima, Wash. Filed Jan. 10, 1966.

Royal Purple

Owner of Reg. No. 213,944.
For Fresh Deciduous Fruits, Excluding Plums.
First use July 29, 1925.

SN 236,877. Bowey's Inc., Chicago, Ill. Filed Jan. 20, 1966.

CLANKY

For Food Flavoring and Topping Syrups—Namely, Fruit, Butterscotch, Fudge, and Chocolate.
First use on or before Sept. 11, 1963.

SN 237,360. Loblaw Inc., Buffalo, N.Y. Filed Jan. 26, 1966.

RANCH KING

For Fresh and Frozen Beef.
First use Jan. 12, 1966.

SN 238,126. Sunline, Inc., St. Louis, Mo. Filed Feb. 4, 1966.

SPREE

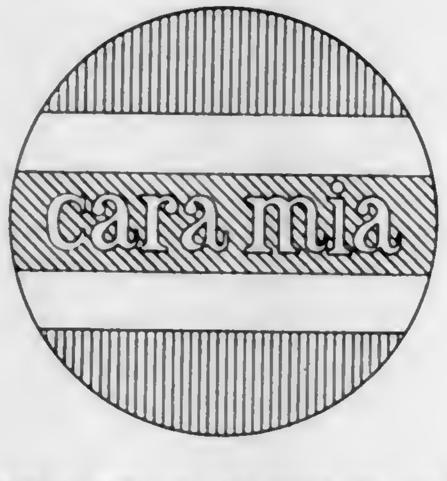
For Sour Candy in Tablet Form.
First use Jan. 17, 1966.

SN 238,482. Artichoke Industries, Inc., Castroville, Calif. Filed Feb. 10, 1966.

CARA MIA

The English translation of "Cara Mia" is "my dear."
For Marinated Artichoke Hearts.
First use Dec. 1, 1965.

SN 238,483. Artichoke Industries, Inc., Castroville, Calif. Filed Feb. 10, 1966.



The drawing is lined for the colors red and green. The English translation of "Cara Mia" is "my dear."
For Marinated Artichoke Hearts.
First use Dec. 1, 1965.

SN 239,046. Helme Products, Inc., New York, N.Y. Filed Feb. 17, 1966.

Enjoy

For Snack Food Items—Namely, Pretzels, Popcorn, Cheese Twists, and Corn Chips.
First use Jan. 12, 1966.

SN 239,054. John West Foods Limited, Liverpool, England. Filed Feb. 17, 1966.

JOHN WEST

"John West" is the name of a deceased individual. Owner of British Reg. No. 879,185, dated May 7, 1965; and U.S. Reg. No. 221,171.
For Salmon, Sardines, Pilchards, Shrimp, Crabs, Lobster, Tuna, Herring Roes, and Soups, All Being Canned.

SN 239,867. Anscott Enterprises Inc., Brooklyn, N.Y. Filed Mar. 1, 1966.

COUNTRY RICH

For Soups.
First use Sept. 1, 1965.

SN 240,040. TV Time Foods, Inc., Chicago, Ill. Filed Mar. 2, 1966.

POP 'N TOP

For Combination Package of Unpopped Popcorn, Popping Oil, and Flavoring Material To Be Applied To the Popped Popcorn.
First use Mar. 2, 1965.

SN 240,372. Washington State University, Pullman, Wash. Filed Mar. 7, 1966.

COUGAR GOLD

For Cheese.
First use at least as early as Mar. 20, 1952.

SN 240,899. Raymond C. Gibson, d.b.a. Gibson Dog Food Co., Ottawa, Kans. Filed Mar. 14, 1966.

BING-GO

For Dog Food.
First use Dec. 21, 1961.

SN 241,159. Mayfair Packing Company, San Jose, Calif. Filed Mar. 16, 1966.

DICE-ETS

For Dried Fruits.
First use Feb. 1, 1966.

SN 241,259. H. Kohnstamm & Co., Inc., New York, N.Y. Filed Mar. 17, 1966.

KOVAN

For Flavor Extract for Food Products.
First use May, 1957.

SN 241,304. Sheldon Bass, d.b.a. Porter Food Products, Linden, N.J. Filed Mar. 18, 1966.

SNACK SHOPPE

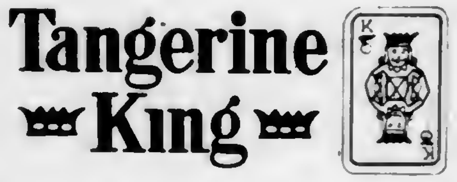
For Nuts.
First use Nov. 23, 1965.

SN 241,335. Geigy Chemical Corporation, Ardsley, N.Y. Filed Mar. 18, 1966.

SEQUESTRENE

Owner of Reg. Nos. 514,485 and 527,737.
For Metal Complexing Agents for Use in Food Processing.
First use April 1963.

SN 242,301. Albert Valdora, d.b.a. Valdora Produce Co., Riverside, Calif. Filed Mar. 30, 1966.



Applicant disclaims the word "Tangerine" apart from the mark as shown. Owner of Reg. No. 665,156.
For Fresh Tangerines.
First use Feb. 24, 1966.

SN 243,715. S. E. Rykoff & Co., Los Angeles, Calif. Filed Apr. 18, 1966.

RYKOFF INTERNATIONAL

For Canned Food Products—Namely, Fish, Shell Fish, Snails, Artichoke Hearts, Truffles, Goose Liver, Pork and Truffles Loaf, Fruits, Chutney, Goose Liver and Truffles Spread, and Olive Oil.
First use May 1965.

SN 252,676. Nebraska Consolidated Mills Company, d.b.a. Fant Milling Co., Omaha, Nebr. Filed Aug. 18, 1966.

BAKE DAY

Owner of Reg. Nos. 704,366 and 799,194.
For Flour, Cake Mixes, and Corn Meal.
First use no later than July 24, 1961.

SN 255,167. Caswell Coffee Company, San Francisco, Calif. Filed Sept. 27, 1966.

THE MANLY Coffee

The word "Coffee" is disclaimed apart from the mark as shown.
For Ground Coffee.
First use May 23, 1966.

SN 258,016. Robert T. Englund, d.b.a. R. T. Englund Company, Salinas, Calif. Filed Nov. 7, 1966.

PABLO

For Lettuce and Cantaloupes.
First use May 26, 1960, on lettuce.

SN 258,018. Robert T. Englund, d.b.a. R. T. Englund Company, Salinas, Calif. Filed Nov. 7, 1966.

HARVEST KING

For Lettuce and Cantaloupes.
First use Dec. 16, 1959, on lettuce.

Class 47 — Wines

SN 171,367. Monsieur Henri Wines, Ltd., Brooklyn, N.Y. Filed June 19, 1963.

CATHEDRAL

For Wines.
First use May 15, 1960.

Class 50 — Merchandise Not Otherwise Classified

SN 242,802. Color-Roc Mfg. Co., Phoenix, Ariz. Filed Apr. 6, 1966.

COLOROC

For Plastic Coated Rocks for Lawn Decoration.
First use July 20, 1962.

Class 51 — Cosmetics and Toilet Preparations

SN 216,509. International Equity Corporation, d.b.a. The Mark II Company, Bala-Cynwyd, Pa. Filed Apr. 14, 1965.

INFERNO

For Men's Cologne, Shave-Lotion, Deodorants, and Talcum Powder.
First use Oct. 5, 1964.

SN 221,186. Kabushiki Kaisha Seijudo, d.b.a. Naris Cosmetic Mfg. Co. Ltd., Fukushima-ku, Osaka, Japan. Filed June 15, 1965.

NARIS

Owner of Japanese Reg. No. 297,634, dated Jan. 13, 1938.
For Toilet Water, Lotions, Creams, Make-Up Preparations in the Form of Solid, Cake, Powder and Cream, Lipsticks, Eye-Shadows, Eye-Brow Pencils, Rouges, Hair Preparations (Hair Tonic, Hair Cream, Pomade, Hair Color), and Perfumes.

SN 229,843. Merchandising Corporation of America, Universal City, Calif. Filed Oct. 11, 1965.

CINEMATIQUE

For Cosmetics—Namely, Perfume, Rouge, Powder, Cleansing Lotion, Toner, Moisturizer, Lipstick, Eye Liner, Corrective Make-Up, and Liquid Make-Up.
First use July 28, 1965.

SN 232,705. Gino Paoli, Clifton, N.J., assignee of Sid S. Mack, Jacksonville, Fla. Filed Nov. 15, 1965.

VINA

For Men's Cologne and After-Shave Lotion.
First use Aug. 2, 1965.

SN 233,818. Pharmaceutical Laboratories, Inc., Plainfield, N.J. Filed Dec. 2, 1965.

TOP MAN

For Men's Shaving Preparations.
First use on or about Nov. 2, 1959.

SN 234,166. American Home Products Corporation, New York, N.Y. Filed Dec. 8, 1965.

OXIPER

For Astringent Mouthwash.
First use Nov. 24, 1965.

SN 234,660. Medical Supply Company, Rockford, Ill. Filed Dec. 15, 1965.

MEDI/FLEX

For Hospital Supplies—Namely, Skin Cleanser and a Massage Lotion.
First use Aug. 15, 1965.

SN 234,725. Daniel Borison, d.b.a. Dan's Snip 'n Curl, Beverly Hills, Calif. Filed Dec. 16, 1965.

DANNY BOY

For Hairdressing for Grooming the Hair and Keeping It in Place.
First use on or before Oct. 15, 1965.

SN 235,427. Robert T. Roberts, d.b.a. Trebor Perfumes, Detroit, Mich. Filed Dec. 28, 1965.

"DRAGNET"

For Perfume.
First use Feb. 16, 1965.

SN 236,714. Boutique, Inc., Atlanta, Ga. Filed Jan. 18, 1966.

BOUTIQUE

For Nail Enamel, Base Coat and Top Coat for Nail Enamels, and Cuticle Remover.
First use on or about Nov. 12, 1965.

SN 242,025. L. B. Laboratories, Inc., Glendale, Calif. Filed Mar. 28, 1966.

MAN SPRAY

The word "Spray" is disclaimed apart from the mark as shown.
For Men's Hair Dressing for Spray-Type Application.
First use Nov. 15, 1965.
Subj. to Intf. with SN 250,024.

SN 242,712. Carley, Inc., Haddonfield, N.J. Filed Apr. 5, 1966.

MASCULOTION

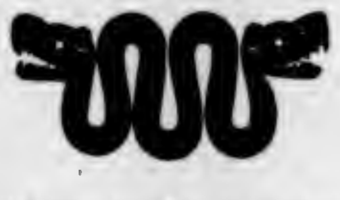
Owner of Reg. No. 801,996.
For Men's Hand and Body Lotion.
First use Mar. 12, 1966.

SN 245,925. Humphreys Medicine Company, Rutherford, N.J. Filed May 18, 1966.

HAMAVILLA

For Witch Hazel.
First use May 6, 1966.

SN 247,041. B. W. Mayer & Cohan, Ltd., Beau Brummell Ties Division, Cincinnati, Ohio. Filed June 1, 1966.



For After Shave Lotion and Eau de Cologne.
First use Oct. 29, 1963.

SN 247,358. Hawaiian Perfumers, Inc., d.b.a. Liana of Waikiki, Honolulu, Hawaii. Filed June 6, 1966.

TROPIC VENTURE

For After-Shave Cologne.
First use May 16, 1966.

SN 247,483. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

HAPPINESS

For Cold Perm and an Instant Cream Neutralizer.
First use July 8, 1964.

SN 248,176. Gloria Swanson Ltd., Syracuse, N.Y. Filed June 15, 1966.

ESSENCE OF NATURE

For Lipsticks, Hand Lotions, Face Creams, Cleansing Creams, and Liquid Makeup and Powder.
First use May 2, 1966.

SN 248,299. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

UNDERSTANDING

For Hair Tinting, Dyeing and Coloring Preparations.
First use Mar. 25, 1966.

SN 248,300. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

SUN ESSENCE

For Developing Lotion for Hair Tinting, Dyeing, Coloring and Lightening Preparations.
First use May 2, 1966.

SN 248,301. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

BETTER NATURE

For Hair Tinting, Dyeing and Coloring Preparation.
First use Mar. 25, 1966.

SN 248,303. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

DEFINE

For Hair Setting Lotion.
First use Apr. 25, 1966.

SN 248,304. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

EXOTHERM

For Hairsetting Lotion.
First use Mar. 1, 1966.

SN 248,305. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

THERMOWAVE

For Hair Setting Lotion.
First use Mar. 1, 1966.

SN 248,308. Clairol Incorporated, New York, N.Y. Filed June 17, 1966.

SURF'S UP!

For Hair Lightener.
First use May 10, 1966.

SN 248,593. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

CALIFORNIA GIRL

For Hair Coloring Preparation and a Hair Conditioner.
First use Apr. 22, 1966.

SN 248,594. Clairol Incorporated, New York, N.Y. Filed June 21, 1966

BLONDEASE

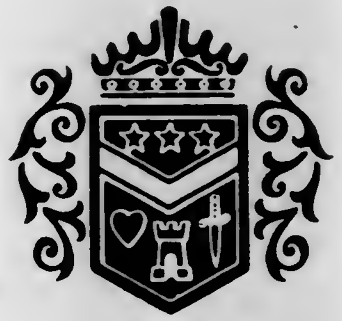
For Developing Lotion for Hair Tinting, Dyeing, Coloring, and Lightening Preparations.
First use Mar. 29, 1966.

SN 248,677. Clairol Incorporated, New York, N.Y. Filed June 22, 1966.

CLAIRESSENCE

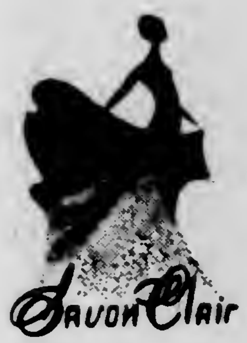
Owner of Reg. No. 302,399.
For Developing Lotion for Hair Tinting, Dyeing, Coloring and Lightening Preparations.
First use Nov. 10, 1964.

SN 248,823. Merle Norman Cosmetics, Inc., Los Angeles, Calif. Filed June 23, 1966.



For Powder Bases, Facial Creams and Lotions, Rouge, Deodorants, and Eye Cosmetics.
First use 1936.

SN 250,119. Marly, Inc., Brooklyn, N.Y. Filed July 13, 1966.



The French term "Savon Clair" can be translated as "clear soap." Owner of Reg. No. 759,441.
For Perfume, Cologne, Skin Moisturizer, Bath Oil, and Body Powder.
First use Apr. 18, 1966.

SN 253,093. Estee Lauder Incorporated, New York, N.Y. Filed Aug. 25, 1966.

BEAUTY SPA

For Cosmetic Skin Lotions.
First use October 1965.

Class 52 — Detergents and Soaps

SN 241,978. Chemical Associates, Inc., Houston, Tex. Filed Mar. 28, 1966.

SOMTHIN' ELSE

For Concentrated Liquid Detergent for Dishes, Fabrics, Hands, and Bath.
First use Mar. 10, 1966.
Subj. to Intf. with SN 242,369.

SN 245,021. Sea & Ski Corporation, d.b.a. Renauld International, Reno, Nev. Filed May 5, 1966.

BEAUTY AFTER THE BEACH

Owner of Reg. No. 747,042.
For Moisturizing Skin Soap.
First use Mar. 30, 1966.

SN 250,329. Babson Bros. Co., Oak Brook, Ill. Filed July 15, 1966.

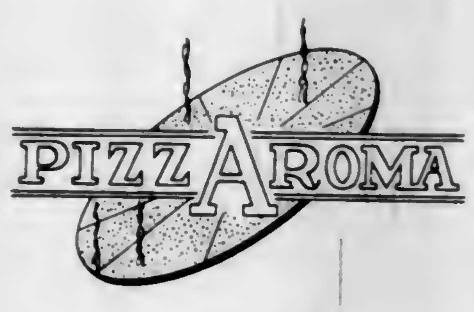
K. O. DYNE

For Iodine Detergent Sanitizer.
First use May 16, 1966.

SERVICE MARKS

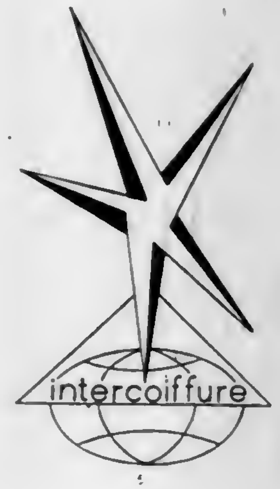
Class 100 — Miscellaneous

SN 185,875. George A. Dannheiser, d.b.a. Pizzaroma, Evansville, Ind. Filed Feb. 3, 1964.



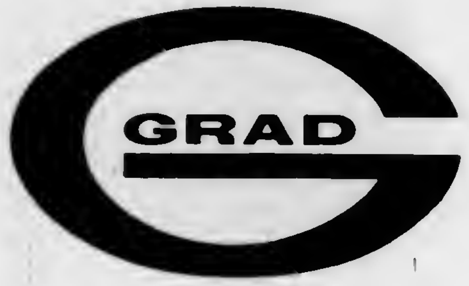
Applicant disclaims the representation of the pizza apart from the mark as shown.
For Pizza Parlor Services.
First use Dec. 7, 1963.

SN 232,560. International Master Ladies Hairdressers Association, "Intercoiffure," American Section, Philadelphia, Pa. Filed Nov. 12, 1965.



For Hair Dressing Services Rendered by Members of Applicant.
First use May 5, 1963.

SN 240,068. College Placement Council, Inc., Bethlehem, Pa. Filed Mar. 3, 1966.



The word "Grad" is disclaimed apart from the mark as shown.
For Accumulating Résumés of College Graduates for the Purpose of Distributing Them to Prospective Employers Through Electronic Data Processing.
First use Jan. 17, 1966.

SN 244,305. Com/Pair Systems Inc., Princeton, N.J. Filed Apr. 26, 1966.

THE PEOPLE-MATCHING PEOPLE

For Introduction Service Rendered to Persons Whose Compatability Has Been Determined by Computer.
First use Mar. 15, 1966.

SN 244,306. Com/Pair Systems Inc., Princeton, N.J. Filed Apr. 26, 1966.

COM/PAIR

For Introduction Service Rendered to Persons Whose Compatability Has Been Determined by Computer.
First use Mar. 15, 1966.

SN 256,258. Hotel Corporation of America, Boston, Mass. Filed Oct. 12, 1966.

The ROYAL ORLEANS

For Hotel Services.
First use Aug. 10, 1961.

Class 101 — Advertising and Business

SN 234,119. Dun & Bradstreet, Inc., New York, N.Y. Filed Dec. 7, 1965.

DUN'S MARKET IDENTIFIERS

Owner of Reg. Nos. 509,756, 509,757, and 784,165.
For Service of Supplying Sales and Marketing Information for the Business Community According to the Requirements of Individual Customers.
First use April 1965.

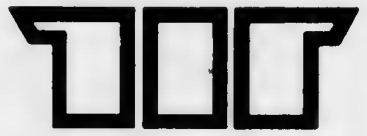
SN 252, 333. Adams, Martin & Nelson, Minneapolis, Minn. Filed Aug. 15, 1966.

GIANT BINGO

The word "Bingo" is disclaimed apart from the mark as shown.
For Promoting the Sale of the Goods and Services of Others Through the Use of Games To Win Stamps, Merchandise, or Travel.
First use July 25, 1966.
Subj. to Intf. with SN 254,823.

Class 102 — Insurance and Financial

SN 234,848. Richardson Homes Corporation, d.b.a. Closing Offices of America, Elkhart, Ind. Filed Dec. 17, 1965.



For Financing Construction of Prefabricated Buildings.
First use June 4, 1965.

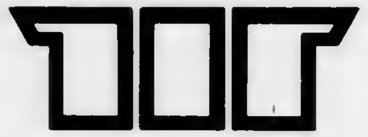
SN 235,497. The Diners' Club, Inc., New York, N.Y. Filed Dec. 29, 1965.

DINERS CLUB

Owner of Reg. Nos. 634,205 and 649,729.
For Extension of Credit to Customers Who Purchase at Subscribing Retail Establishments and Making Collections From Such Customers Through a Central Billing System.
First use on or about Nov. 1, 1965.

Class 103 — Construction and Repair

SN 234,849. Richardson Homes Corporation, d.b.a. Closing Offices of America, Elkhart, Ind. Filed Dec. 17, 1965.



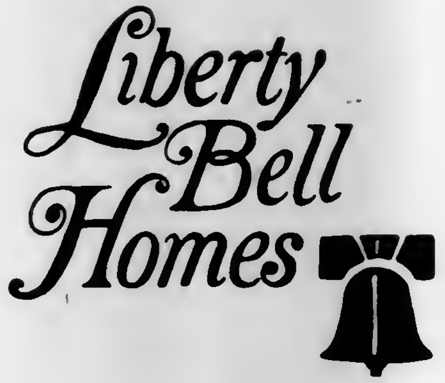
For Construction of Prefabricated Buildings.
First use June 4, 1965.

SN 244,788. Madway Mainline Homes Inc., Wayne, Pa. Filed May 3, 1966.

Liberty Bell Homes

The word "Homes" is disclaimed apart from the mark as shown.
For Erecting Prefabricated Homes.
First use Apr. 11, 1966.

SN 244,789. Madway Mainline Homes Inc., Wayne, Pa. Filed May 3, 1966.



The word "Homes" is disclaimed apart from the mark as shown.
For Erecting Prefabricated Homes.
First use Apr. 11, 1966.

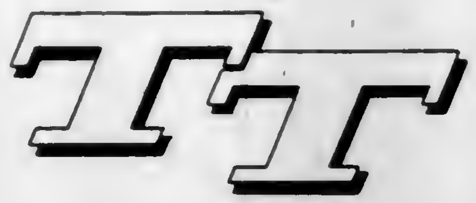
Class 105 — Transportation and Storage

SN 221,767. Trailer Train Company, Haverford, Pa. Filed June 22, 1965.

T.T.X.

No claim is made to the letter "X" except in combination with the mark as shown.
For Services in Making Available a Controlled National Pool of Specialized, Yet Interchangeable, Railroad Flat Cars for Use by Contracting Railroads in Their Respective Trailer-On-Flat-Car and Automobile Rack Carriage Services and Similar Services.
First use December 1955.

SN 221,768. Trailer Train Company, Haverford, Pa. Filed June 22, 1965.



For Services in Making Available a Controlled National Pool of Specialized, Yet Interchangeable, Railroad Flat Cars for Use by Contracting Railroads in Their Respective Trailer-On-Flat-Car and Automobile Rack Carriage Services and Similar Services.

First use November 1958.

Class 106 — Material Treatment

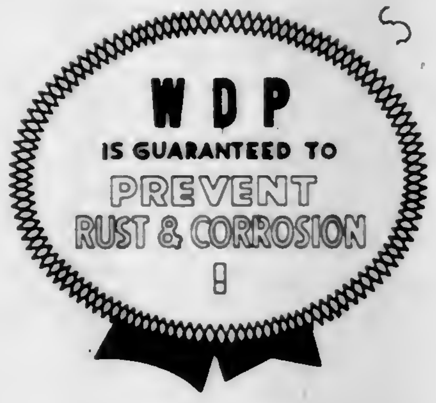
SN 199,366. Howe-Baker Engineers, Inc., Tyler, Tex. Filed Aug. 6, 1964.

MERCAPFINING

For Oil Treatment and Refining Services.

First use June 1964.

SN 229,386. Water Damage Protection Company, Detroit, Mich. Filed Oct. 5, 1965.



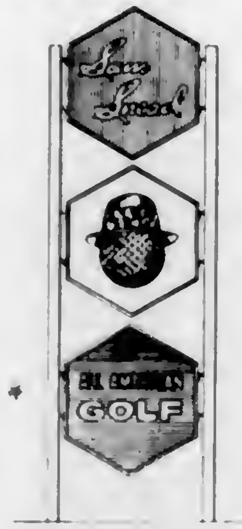
Applicant disclaims the wording "Is Guaranteed To Prevent Rust & Corrosion" apart from the mark as shown.

For Cleaning and Protecting Metal Surfaces and Electrical Equipment Against Rust and Corrosion.

First use on or about Jan. 7, 1964.

Class 107 — Education and Entertainment

SN 241,939. Sam Snead Enterprises, Inc., Louisville, Ky. Filed Mar. 25, 1966.

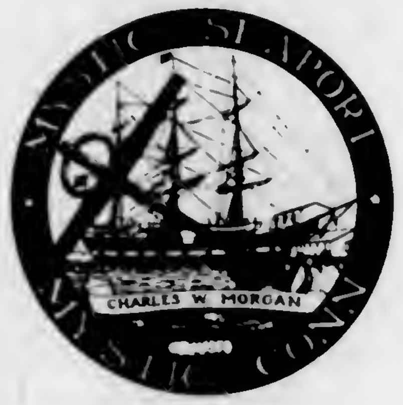


The drawing is lined for blue and red. The word "Golf" is disclaimed apart from the mark as shown. "Sam Snead" represents Samuel J. Snead whose consent is of record.

For Operation and Maintenance of Golf Courses, Driving Ranges and Putting Greens; and Operation of Golf Pro Shops Incidental Thereto.

First use Feb. 10, 1963.

SN 243,330. The Marine Historical Association, Incorporated, Mystic, Conn. Filed Apr. 13, 1966.



Applicant disclaims the words "Mystic, Conn.," apart from the mark as shown, but waives none of its common law rights to the mark or any feature thereof. The name "Charles W. Morgan" is not the name of any known living person.

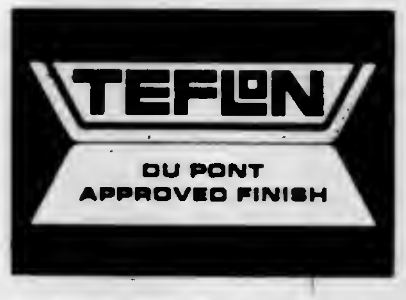
For Museum Services Relating to Marine and Associated Historical Matters.

First use at least as early as 1949.

CERTIFICATION MARKS

Class A — Goods

SN 257,559. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Oct. 31, 1966.



The mark certifies that the goods with which the mark is associated have been coated with primers, enamels, and clear formulated finishes sold by applicant under its trademark Teflon and that the coating has been applied in accordance with standards imposed by applicant. Owner of Reg. Nos. 418,698, 778,863, and others.

For Cooking Utensils (Such as Sauce Pans, Electric and Non-Electric Fry Pans and Skillets, Electric and Non-Electric Griddles, Electric and Non-Electric Broilers, Electric and Non-Electric Sandwich Grills, and Combination Grills and Warmers, Bacon Grills, Chicken Fryers, Deep Fat Fryers, Waffle Irons, and Pressure Cookers), Baking and Roasting Utensils (Such as Casseroles, Bake and Roast Pans, Roasters, Bakeware Sets, and Dutch Ovens), Oven Equipment (Such as Oven Panels and Oven Drip Trays), Miscellaneous Kitchen and Household Equipment (Such as Roast Racks, Egg Poachers, Steam and Dry Electric Irons, Electric Coffeemakers, Toasters, Corn Poppers, Rolling Pins, Egg Beaters, Ice Cream Scoops and Spades, Spatulas, Spoons, and Food Turners), and Snow Shovels.

First use Oct. 4, 1963.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

823,537. PROPYLUX. Westlake Plastics Company. SN 188,169. Pub. 11-22-66. Filed 3-6-64.

823,538. AOLUX. American Optical Company. SN 230,482. Pub. 11-22-66. Filed 10-19-65.

823,539. TRANSBECK. Beckwith-Arden Inc. SN 235,813. Pub. 11-22-66. Filed 1-5-66.

823,540. MISTER HICKORY. Adrian Lee Winters, Sr., d.b.a. Winters' Wood Specialties. SN 243,934. Pub. 11-22-66. Filed 4-20-66.

823,541. ROYAL AND DESIGN. Arden Corporation. SN 246,144. Pub. 11-22-66. Filed 5-20-66.

823,542. IMPERIAL. Arden Corporation. SN 246,145. Pub. 11-22-66. Filed 5-20-66.

Class 2 — Receptacles

823,543. EGG-GUARD AND DESIGN. International Paper Company. SN 219,125. Pub. 11-22-66. Filed 5-18-65.

823,544. SPECTROLINE AND DESIGN. Spectronics Corporation. MULTIPLE CLASS (Classes 2, 11, 16, 21, 26, 37, and 44). SN 232,105. Pub. 11-22-66. Filed 11-4-65.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

823,545. BOYT AND DESIGN. Welsh Sporting Goods Corp. MULTIPLE CLASS (Classes 3, 9, and 22). SN 198,790. Pub. 11-22-66. Filed 7-29-64.

823,546. PET-PALACE. R. G. Barry Corporation, d.b.a. The House of Foam. SN 237,421. Pub. 11-22-66. Filed 1-27-66.

823,547. VISTRAM. Farbenfabriken Bayer Aktiengesellschaft. SN 242,121. Pub. 11-22-66. Filed 3-29-66.

823,548. THE APACHE. Lark Luggage Corp. SN 249,207. Pub. 11-22-66. Filed 6-29-66.

Class 6 — Chemicals and Chemical Compositions

823,549. UTC. United Aircraft Corporation. SN 205,875. Pub. 11-22-66. Filed 11-9-64.

823,550. UTC AND DESIGN. United Aircraft Corporation. SN 205,881. Pub. 11-22-66. Filed 11-9-64.

823,551. AMERDIS. American-Lincoln Corporation. SN 229,482. Pub. 9-27-66. Filed 10-7-65.

823,552. PANOSCREEN. Chas. Pfizer & Co., Inc. SN 240,645. Pub. 11-22-66. Filed 3-10-66.

823,553. SPECTRA-SORB. American Cyanamid Company. SN 246,742. Pub. 11-22-66. Filed 5-27-66.

823,554. CHIFFAROMA. Robert M. McMath, d.b.a. Rosemary Shelton. SN 246,800. Pub. 11-22-66. Filed 5-27-66.

823,555. TP. Thiokol Chemical Corporation. SN 246,821. Pub. 11-22-66. Filed 5-27-66.

823,556. WIL-PLATE. Wilco Company. SN 246,841. Pub. 11-22-66. Filed 5-31-66.

823,557. SUPER-STAT. American Photocopy Equipment Company. SN 246,849. Pub. 11-22-66. Filed 5-31-66.

823,558. FLEUR-DE-LOVE. Chicago Candle Corporation. SN 246,877. Pub. 11-22-66. Filed 5-31-66.

823,559. SNAPSULE. Chicago Candle Corporation. SN 246,878. Pub. 11-22-66. Filed 5-31-66.

Class 7 — Cordage

823,560. ALWAYS . . . A JUMP AHEAD! The Wear-Flex Corporation. SN 241,397. Pub. 11-22-66. Filed 3-18-66.

823,561. DYNACOR. Tyrex Inc. SN 252,526. COLLECTIVE MARK. Pub. 11-22-66. Filed 8-17-66.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

823,545. (See Class 3 for this trademark.)

823,562. WINGAID. Larbar Corporation. SN 229,261. Pub. 11-22-66. Filed 10-4-65.

823,563. CHEMICAL MACE. General Ordnance Equipment Corp. SN 233,338. Pub. 11-22-66. Filed 11-26-65.

823,564. SCUF-FLEX. Canadian Safety Fuse Company Limited. SN 234,174. Pub. 11-22-66. Filed 12-8-65.

Class 10 — Fertilizers

823,565. SACCO. The Borden Company. SN 242,710. Pub. 11-22-66. Filed 4-5-66.

823,566. GREENLEAF. Greenleaf, Inc. SN 242,725. Pub. 11-22-66. Filed 4-5-66.

Class 11 — Inks and Inking Materials

823,544. (See Class 2 for this trademark.)

823,567. FRANKLIN. Miller-Cooper Ink Company. SN 220,016. Pub. 11-22-66. Filed 5-28-65.

Class 12 — Construction Materials

823,568. WORLD WIDE INDUSTRIAL BUILDING MAINTENANCE MONTH AND DESIGN. Southwestern Petroleum Corporation. SN 225,825. Pub. 11-22-66. Filed 8-16-65.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

823,569. R.D. WOOD 20. Amsted Industries Incorporated. SN 236,798. Pub. 11-22-66. Filed 1-19-66.

823,570. LOENCO AND DESIGN. Loenco, Inc. SN 237,138. Pub. 11-22-66. Filed 1-24-66.

823,571. BAR-SEAL. Barwood Manufacturing Corp. SN 245,897. Pub. 11-22-66. Filed 5-18-66.

Class 15 — Oils and Greases

823,572. WORLD WIDE INDUSTRIAL BUILDING MAINTENANCE MONTH AND DESIGN. Southwestern Petroleum Corporation. SN 225,826. Pub. 11-22-66. Filed 8-16-65.

823,573. HESS AND DESIGN. Hess Oil & Chemical Corporation. SN 237,966. Pub. 11-22-66. Filed 2-3-66.

823,574. CANNON AND DESIGN. Vernon L. Cannon, d.b.a. Hol-Can Oil Company. SN 246,629. Pub. 11-22-66. Filed 5-26-66.

Class 16 — Protective and Decorative Coatings

823,544. (See Class 2 for this trademark.)

823,575. ELECTROLON. Alside, Inc. SN 210,065. Pub. 11-22-66. Filed 1-18-65.

Class 18 — Medicines and Pharmaceutical Preparations

823,576. MEDPAK. The Upjohn Company. SN 182,687. Pub. 11-22-66. Filed 12-9-63.

823,577. FARIUM. Eastern Baker Pharmaceutical Corporation. SN 225,121. Pub. 11-22-66. Filed 8-6-65.

823,578. TRANKS. Konate Pharmacal Co., Inc. SN 237,844. Pub. 11-22-66. Filed 2-2-66.

823,579. ACID-EZE E.C. Acid-Eze Co., Inc. SN 239,195. Pub. 11-22-66. Filed 2-21-66.

823,580. BUTATRAX. Sutliff & Case Co., Inc. SN 240,357. Pub. 11-22-66. Filed 3-7-66.

823,581. GUAIAMINE. Sutliff & Case Co., Inc. SN 240,358. Pub. 11-22-66. Filed 3-7-66.

823,582. THEOFED. Sutliff & Case Co., Inc. SN 240,359. Pub. 11-22-66. Filed 3-7-66.

823,583. QUADA-CREME. Sutliff & Case Co., Inc. SN 240,360. Pub. 11-22-66. Filed 3-7-66.

823,584. DRAGEES NEUNZEHN. Dr. Ballowitz & Co. SN 240,405. Pub. 11-22-66. Filed 3-8-66.

823,585. KEFLORDIN. Eli Lilly and Company. SN 242,619. Pub. 11-22-66. Filed 4-4-66.

823,586. LINATONE. Lambert-Kay, Incorporated. SN 243,143. Pub. 11-22-66. Filed 4-11-66.

823,587. BRISTAB. Bristol-Myers Company. SN 243,404. Pub. 11-22-66. Filed 4-14-66.

823,588. NOWGO. American Home Products Corporation. SN 243,763. Pub. 11-22-66. Filed 4-19-66.

823,589. ENZIMICINA. The Denver Chemical Manufacturing Company, d.b.a. Wampole Laboratories. SN 244,088. Pub. 11-22-66. Filed 4-22-66.

823,590. FEROCINE. Haver-Lockhart Laboratories, Incorporated. SN 244,108. Pub. 11-22-66. Filed 4-22-66.

823,591. ANTIPHRINE. Haver-Lockhart Laboratories, Inporated. SN 244,110. Pub. 11-22-66. Filed 4-22-66.

823,592. LIVER-LAX. A. J. Hetherington Co. SN 244,217. Pub. 11-22-66. Filed 4-25-66.

823,593. CYREDIN. Richardson-Merrell Inc. SN 245,105. Pub. 11-22-66. Filed 5-6-66.

823,594. SLUMBEX. Snyder's Drug Stores, Inc. SN 245,110. Pub. 11-22-66. Filed 5-6-66.

823,595. GALLIMYCIN-AA. Abbott Laboratories. SN 245,139. Pub. 11-22-66. Filed 5-9-66.

823,596. AVCEN. Richardson-Merrell Inc. SN 245,512. Pub. 11-22-66. Filed 5-12-66.

823,597. MEDICAMENTA PD VERA. Parke, Davis & Company. SN 245,656. Pub. 11-22-66. Filed 5-16-66.

823,598. DIOSMOL. Merck & Co., Inc. SN 245,731. Pub. 11-22-66. Filed 5-16-66.

823,599. BONAID. The Norwich Pharmacal Company. SN 248,948. Pub. 11-22-66. Filed 6-27-66.

Class 19 — Vehicles

823,600. ALUMA FRAME AND DESIGN. Holiday Rambler Corporation. SN 233,905. Pub. 11-22-66. Filed 12-3-65.

823,601. UNIT. Amsted Industries Incorporated. SN 234,496. Pub. 11-22-66. Filed 12-13-65.

823,602. FREIGHTLINER. Freightliner Corporation. SN 235,177. Pub. 11-22-66. Filed 12-23-65.

823,603. AGWAY. Agway, Inc. SN 244,868. Pub. 11-22-66. Filed 5-4-66.

823,604. SONETT. Saab Aktiebolag. SN 248,081. Pub. 11-22-66. Filed 6-15-66.

823,605. SEMIFOIL. Blount Marine Corporation. SN 254,421. Pub. 11-22-66. Filed 9-14-66.

Class 21 — Electrical Apparatus, Machines, and Supplies

823,544. (See Class 2 for this trademark.)

823,624. TIMEFAX NDA. Communication Papers Inc. SN 171,973. Pub. 11-22-66. Filed 6-27-63.

823,625. SUPER-LOG. Womack Electronics, Inc. SN 252,053. Pub. 11-22-66. Filed 8-10-66.

823,626. SIECO AND DESIGN. Stuart Muchnick, d.b.a. Steri Import and Export Company. SN 253,817. Pub. 11-22-66. Filed 9-6-66.

Class 22 — Games, Toys, and Sporting Goods

823,545. (See Class 3 for this trademark.)

823,606. PSYCHE. Albert M. Gardner, Jr. SN 208,563. Pub. 11-22-66. Filed 12-21-64.

823,607. SURFERS' WORLD. Surfers' World, Inc., assignee of Goodwin Alarik. SN 224,370. Pub. 9-27-66. Filed 7-28-65.

823,608. SURF STICK. Surfers' World, Inc., assignee of Goodwin Alarik. SN 224,371. Pub. 9-27-66. Filed 7-28-65.

823,609. BROADCAST TRIPLE AND DESIGN. Earl W. Hoyt, d.b.a. Recreation Enterprises. SN 227,942. Pub. 11-22-66. Filed 9-16-65.

823,610. A SPRINGBOK JIGSAW PUZZLE AND DESIGN. Springbok Editions, Inc. SN 229,461. Pub. 11-22-66. Filed 10-6-65.

823,611. SPRINGBOK (DESIGN). Springbok Editions, Inc. SN 229,462. Pub. 11-22-66. Filed 10-6-65.

823,612. STINGRAY AND DESIGN. Old Pal, Inc. SN 231,928. Pub. 11-22-66. Filed 11-1-65.

823,613. PIKE AND DESIGN. Old Pal, Inc. SN 231,929. Pub. 11-22-66. Filed 11-1-65.

823,614. STARFISH AND DESIGN. Old Pal, Inc. SN 231,930. Pub. 11-22-66. Filed 11-1-65.

823,615. TROUT AND DESIGN. Old Pal, Inc. SN 231,931. Pub. 11-22-66. Filed 11-1-65.

823,616. WAHOO AND DESIGN. Old Pal, Inc. SN 231,932. Pub. 11-22-66. Filed 11-1-65.

823,617. REPRESENTATION OF A SAILFISH. Old Pal, Inc. SN 232,018. Pub. 11-22-66. Filed 11-2-65.

823,618. SWING-O-RING AND DESIGN. Roland C. Ienni. SN 235,831. Pub. 11-22-66. Filed 1-5-66.

823,619. PROTECT-O-POOL. D'Adesky Bros. Corp. SN 237,205. Pub. 11-22-66. Filed 1-25-66.

823,620. SOAPY SIDDLE. Mattel, Inc. SN 253,591. Pub. 11-22-66. Filed 9-1-66.

823,621. TRIKEY TRIDDLE. Mattel, Inc. SN 253,592. Pub. 11-22-66. Filed 9-1-66.

823,622. SIZZLY FRIDDLE. Mattel, Inc. SN 253,593. Pub. 11-22-66. Filed 9-1-66.

823,623. WINDY FLIDDLE. Mattel, Inc. SN 253,594. Pub. 11-22-66. Filed 9-1-66.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

823,624. (See Class 21 for this trademark.)

823,625. (See Class 21 for this trademark.)

823,626. (See Class 21 for this trademark.)

823,627. AUTO-SET CLAFFBOX AND DESIGN. M. B. Claff & Sons, Inc. SN 214,952. Pub. 11-22-66. Filed 3-25-65.

823,628. SLIDE-VEYOR. Stone Conveyor Co., Inc. SN 218,711. Pub. 11-22-66. Filed 4-26-65.

823,629. RAYGO. Raygo, Inc. SN 221,100. Pub. 11-22-66. Filed 6-14-65.

823,630. ROLO-FLEX. American Chain & Cable Company, Inc. SN 221,822. Pub. 11-22-66. Filed 6-24-65.

823,631. TELE-TORQUE. Owatonna Tool Company. SN 239,304. Pub. 11-22-66. Filed 2-21-66.

823,632. UNI-LIFT. Templeton, Kenly & Co. SN 239,340. Pub. 11-22-66. Filed 2-21-66.

823,633. BIG A. Rickel, Inc. SN 240,347. Pub. 11-22-66. Filed 3-7-66.

823,634. VISI-TROL AND DESIGN. Visi-Trol Engineering Company, Inc. SN 245,779. Pub. 11-22-66. Filed 5-16-66.

823,635. KLEEROFF. George Roman. SN 245,970. Pub. 11-22-66. Filed 5-18-66.

Class 24 — Laundry Appliances and Machines

823,636. TUMBLE PRESS. Whirlpool Corporation. SN 236,941. Pub. 11-22-66. Filed 1-20-66.

823,637. THRIFTY MISS AND FEMALE DESIGN IRON AND IRONING BOARD ETC. APL Corporation. SN 238,589. Pub. 11-22-66. Filed 2-11-66.

Class 25 — Locks and Safes

823,638. SAFE-N-SOUND. Loftin Research and Development Corporation. SN 236,391. Pub. 11-22-66. Filed 1-13-66.

Class 26 — Measuring and Scientific Appliances

823,544. (See Class 2 for this trademark.)

823,639. VT VARI-TECH AND DESIGN. Vari-Tech Company. SN 229,699. Pub. 11-22-66. Filed 10-8-65

823,640. TRANSITIONER. B. T. Heinz, d.b.a. B. T. Heinz Co. SN 234,349. Pub. 11-22-66. Filed 12-10-65.

823,641. UVIR-2. Boston Research Corporation. SN 238,039. Pub. 11-22-66. Filed 2-4-66.

823,642. SUPER-STAT. American Photocopy Equipment Company. SN 246,848. Pub. 11-22-66. Filed 5-31-66.

823,643. TELSTAR. Eig Cutlery, Inc. SN 250,747. Pub. 11-22-66. Filed 7-21-66.

823,644. CROLUX. E. I. du Pont de Nemours and Company. SN 251,584. Pub. 11-22-66. Filed 8-3-66.

823,645. ELECTRO-NITE POSITHERM. Electro-Nite Engineering Company. SN 252,710. Pub. 11-22-66. Filed 8-19-66.

823,646. ELECTRO-NITE. Electro-Nite Engineering Company. SN 252,711. Pub. 11-22-66. Filed 8-19-66.

Class 27 — Horological Instruments

823,647. LUXOR. Selza Watch Co. S.A. SN 236,292. Pub. 11-22-66. Filed 1-12-66.

Class 31 — Filters and Refrigerators

823,648. EQUI-FLO. Cambridge Filter Corporation. SN 242,423. Pub. 11-22-66. Filed 4-1-66.

823,649. AQUA-SENSOR. Culligan, Inc. SN 242,572. Pub. 11-22-66. Filed 4-4-66.

Class 32 — Furniture and Upholstery

823,650. CHAIR IN A CIRCLE WITHIN A SUNBURST WITH SLOGAN "WE BRIGHTEN HOMES ALL-WAYS." William J. Crosby, d.b.a. Crosby Upholstering Co. SN 222,829. Pub. 11-22-66. Filed 7-7-65.

823,651. DU PONT AND DESIGN. E. I. du Pont de Nemours and Company. SN 251,859. Pub. 11-22-66. Filed 8-8-66.

Class 33 — Glassware

823,652. LHR. Pittsburgh Plate Glass Company. SN 239,539. Pub. 11-22-66. Filed 2-24-66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

823,653. AGWAY. Agway, Inc. SN 244,871. Pub. 11-22-66. Filed 5-4-66.

Class 37 — Paper and Stationery

823,544. (See Class 2 for this trademark.)

823,654. STIXIE ETC. AND DESIGN. Coated Products, Inc. SN 176,712. Pub. 12-28-65. Filed 9-11-63.

823,655. LUXOSCRIPT. L. & C. Hardtmuth, Inc. SN 228,046. Pub. 6-21-66. Filed 9-17-65.

823,656. BOND-WRAP. Filmcraft-Chicago. SN 242,809. Pub. 11-22-66. Filed 4-6-66.

Class 38 — Prints and Publications

823,657. EXCAVATING CONTRACTOR. A. B. Morse Company. SN 238,266. Pub. 11-22-66. Filed 10-7-66.

823,658. DJ-I AND DESIGN. Dow Jones-Irwin, Inc. SN 240,420. Pub. 11-22-66. Filed 3-8-66.

823,659. NOVA BOOKS AND DESIGN. Universal Publishing & Distributing Corporation. SN 241,203. Pub. 11-22-66. Filed 3-16-66.

823,660. A AWARD BOOKS AND DESIGN. Universal Publishing & Distributing Corporation. SN 241,204. Pub. 11-22-66. Filed 3-16-66.

823,661. ELBERTIDES. Elbert Advertising Agency, Inc. SN 241,651. Pub. 11-22-66. Filed 3-23-66.

823,662. DP AND DESIGN. Dell Publishing Co., Inc. SN 241,872. Pub. 11-22-66. Filed 3-25-66.

823,663. DELACORTE PRESS. Dell Publishing Co., Inc. SN 241,873. Pub. 11-22-66. Filed 3-25-66.

823,664. PER/SE. Per Se, Inc. SN 242,170. Pub. 11-22-66. Filed 3-18-66.

823,665. SKOOKUM. Skookum Packers Association, Inc. SN 244,258. Pub. 11-22-66. Filed 4-25-66.

823,666. MCD. Guide Services, Inc. SN 246,680. Pub. 11-22-66. Filed 5-26-66.

Class 39 — Clothing

823,667. MISCELLANEOUS DESIGN. Highlander Sportswear, Inc. SN 198,845. Pub. 11-22-66. Filed 7-30-64.

823,668. MISCELLANEOUS DESIGN. Anwelt Corporation. SN 234,797. Pub. 11-22-66. Filed 12-17-65.

823,669. KEVIN-KENT. Central Textiles, Inc. SN 237,201. Pub. 11-22-66. Filed 1-25-66.

823,670. GRANNY PRINTS. Wembley, Inc. SN 238,027. Pub. 11-22-66. Filed 2-3-66.

823,671. AIRMAID. Bear Brand Hosiery Co. SN 238,156. Pub. 11-22-66. Filed 2-7-66.

823,672. PACHANGAS. Divina Footwear, Inc., d.b.a. Ambassador. SN 238,344. Pub. 11-22-66. Filed 2-8-66.

823,673. FABRICCINI. Le Sabre Sportswear, Inc. SN 238,752. Pub. 11-22-66. Filed 2-14-66.

823,674. TENNIES. Melville Shoe Corporation. SN 241,358. Pub. 11-22-66. Filed 3-18-66.

823,675. STAND-INS. Ragan Knitting Co., Inc. SN 241,370. Pub. 11-22-66. Filed 3-18-66.

823,676. N & N. Newman and Newman. SN 241,499. Pub. 11-22-66. Filed 3-21-66.

823,677. TARALAN. Talbott Knitting Mills, Inc. SN 241,944. Pub. 11-22-66. Filed 3-25-66.

823,678. VISTRAM. Farbenfabriken Bayer Aktiengesellschaft. SN. 242,122. Pub. 11-22-66. Filed 3-29-66.

823,679. BIG ROBY. Melville Shoe Corporation. SN 243,002. Pub. 11-22-66. Filed 4-8-66.

823,680. ARTISAN HOUSE AND DESIGN. Artisan House Imports. SN 248,285. Pub. 11-22-66. Filed 6-17-66.

Class 40 — Fancy Goods, Furnishings, and Notions

823,681. ALURA. Novelty Cord & Tassel Co., Inc. SN 242,641. Pub. 11-22-66. Filed 4-4-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

823,682. NRC-RESCUE BLANKET. National Research Corporation. SN 233,813. Pub. 11-22-66. Filed 12-2-65.

823,683. NRC-SPACE BLANKET. National Research Corporation. SN 233,814. Pub. 11-22-66. Filed 12-2-65.

823,684. SENTRY. Dettra Flag Company, Inc. SN 245,173. Pub. 11-22-66. Filed 5-9-66.

Class 43 — Thread and Yarn

823,685. PRECIOUS NANTUK. Columbia-Minerva Corporation. SN 242,562. Pub. 11-22-66. Filed 4-4-66.

Class 44 — Dental, Medical, and Surgical Appliances

823,544. (See Class 2 for this trademark.)

Class 45 — Soft Drinks and Carbonated Waters

823,686. DR. HERRING'S. Herring Ginger Ale Company. SN 213,873. Pub. 11-22-66. Filed 3-11-65.

823,687. HAV·A·PARTY. La Salle Wines & Champagne, Inc. SN 237,847. Pub. 11-22-66. Filed 2-2-66.

823,688. KIN. The Coca-Cola Company. SN 245,684. Pub. 11-22-66. Filed 5-16-66.

Class 46 — Foods and Ingredients of Foods

823.689. SHOPWORTH AND DESIGN. United States Wholesale Grocers' Association, Inc., d.b.a. Food Merchandisers of America. SN 170,965. COLLECTIVE MARK. Pub. 11-22-66. Filed 6-13-63.

823,690. MINIATURE DINING. Perfect Hostess Foods. SN 178,727. Pub. 11-22-66. Filed 10-10-63.

823,691. GEX AND DESIGN. National Bellas Hess, Inc. SN 188,133. Pub. 11-22-66. Filed 3-6-64.

823,692. STAR GG AND DESIGN. A. Giurlani & Bro. SN 197,116. Pub. 11-22-66. Filed 7-6-64.

823,693. SOLO-BIRD. Solomon Bros. SN 213,489. Pub. 11-2-65. Filed 3-5-65.

823,694. RATH AND DESIGN. The Rath Packing Company. SN 224,790. Pub. 11-22-66. Filed 8-2-65.

823,695. SCOTIA. Lee Collins Company, assignee of Joseph K. Dennis Company. SN 227,265. Pub. 11-22-66. Filed 9-7-65.

823,696. ANTI-PYREXIN. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,313. Pub. 11-22-66. Filed 10-15-65.

823,697. GOBBLERS AND DESIGN. Gro-Kote, Inc. SN 230,384. Pub. 11-22-66. Filed 10-18-65.

823,698. SHELL (DESIGN). Baker Extract Company. SN 232,765. Pub. 11-22-66. Filed 11-16-65.

823,699. FUN FISH. Consolidated Foods Corporation, d.b.a. Booth Fisheries. SN 232,981. Pub. 11-22-66. Filed 11-19-65.

823,700. HY DERV. Cream Products Company, Inc. SN 232,983. Pub. 11-22-66. Filed 11-19-65.

823,701. ALTA. Nick Kalender, d.b.a. Nick Kalender Farm. SN 233,106. Pub. 11-22-66. Filed 11-22-65.

823,702. MERBA LINE. Erman-Bach, Ltd. SN 233,331. Pub. 11-22-66. Filed 11-26-65.

823,703. HAND BRANDS. Hand Brands, Inc. SN 233,339. Pub. 11-22-66. Filed 11-26-65.

823,704. GOODNESS SHAKE. Milk Proteins, Inc. SN 233,516. Pub. 11-22-66. Filed 11-29-65.

823,705. CELEBRATION. Schroeder Bros., Inc. SN 233,637. Pub. 11-22-66. Filed 11-30-65.

823,706. SON SON AND DESIGN. Anderson-Hutchison Sales, Inc., d.b.a. Son Son Foods Co. SN 233,985. Pub. 11-22-66. Filed 12-6-65.

823,707. JUICE BOWL. Mead Johnson & Company. SN 234,137. Pub. 11-22-66. Filed 12-7-65.

823,708. THE ORIGINAL BITUMINOUS CANDY, "FUEL FOR ENERGY" AND DESIGN. Dairy Maid Confectionery Company. SN 234,544. Pub. 11-22-66. Filed 12-14-65.

823,709. BIG DIP. Foremost Dairies, Inc. SN 234,556. Pub. 11-22-66. Filed 12-14-65.

823,710. HAND BRANDS AND DESIGN. Hand Brands, Inc. SN 234,822. Pub. 11-22-66. Filed 12-17-65.

823,711. TWIST'RS. Continental Baking Company. SN 235,065. Pub. 11-22-66. Filed 12-20-65.

823,712. MORIARTY'S SHAMROCK BRAND AND DESIGN. Moriarty Meat Company. SN 235,212. Pub. 11-22-66. Filed 12-23-65.

823,713. IMPERIAL SUN. Eady Farming Co. SN 236,071. Pub. 11-22-66. Filed 1-10-66.

823,714. PRE-COOLER AND DESIGN. Eady Farming Co. SN 236,072. Pub. 11-22-66. Filed 1-10-66.

823,715. MR. FRESH AND DESIGN. G. P. Gundlach & Company. SN 236,595. Pub. 11-22-66. Filed 1-17-66.

823,716. TURTLE. C. W. Butler, d.b.a. Butler Farms. SN 238,043. Pub. 11-22-66. Filed 2-4-66.

823,717. SO RARE. Rarity Packing Co., Inc. SN 238,891. Pub. 11-22-66. Filed 2-15-66.

823,718. ELMER'S TUNE AND DESIGN. Rarity Packing Co., Inc. SN 238,892. Pub. 11-22-66. Filed 2-15-66.

823,719. RICH-MOOR. Rich-Moor Corporation. SN 242,495. Pub. 11-22-66. Filed 4-1-66.

823,720. GORDO AND DESIGN. Growers Exchange, Inc. SN 242,593. Pub. 11-22-66. Filed 4-4-66.

823,721. BIG JUAN. J. R. Norton Co. SN 244,608. Pub. 11-22-66. Filed 4-29-66.

823,722. PRODUCT 19. Kellogg Company. SN 246,322. Pub. 11-22-66. Filed 5-23-66.

823,723. SHOW BOAT CSP AND DESIGN. Central Sands Produce, Inc. SN 251,381. Pub. 11-22-66. Filed 8-1-66.

Class 47 — Wines

823,724. FUJIYAMA. Nishimoto Trading Co., Ltd. SN 190,822. Pub. 11-22-66. Filed 4-10-64.

823,725. VICTOR HUGO. California Wine Association. SN 237,081. Pub. 11-22-66. Filed 1-24-66.

823,726. JACQUIN. Charles Jacquin et Cie., Inc. SN 237,940. Pub. 11-22-66. Filed 2-3-66.

Class 48 — Malt Beverages and Liquors

823,727. TOBY. Charrington & Co. Limited. SN 231,890. Pub. 11-22-66. Filed 11-1-65.

823,728. STAG AND DESIGN. Carling Brewing Company Incorporated, d.b.a. Carling Brewing Company. SN 239,378. Pub. 11-22-66. Filed 2-23-66.

823,729. KRONENBOURG 1664 AND DESIGN. Brasserie de Kronenbourg, Anct. F. G. Hatt Brasserie du Bas-Rhin, S.A. SN 242,325. Pub. 11-22-66. Filed 3-31-66.

823,730. HATT. Brassiere de Kronenbourg, Anct. F. G. Hatt, Brassierie du Bas-Rhin, S.A. SN 242,326. Pub. 11-22-66. Filed 3-31-66.

Class 49 — Distilled Alcoholic Liquors

823,731. MCCORMICK. McCormick Distilling Co. SN 227,308. Pub. 11-22-66. Filed 9-7-65.

823,732. GLYNN BURNIE. Charles N. May & Company. SN 231,576. Pub. 11-22-66. Filed 10-24-65.

823,733. HEUBLEIN. Heublein, Inc. SN 249,908. Pub. 11-22-66. Filed 7-11-66.

823,734. NINOTCHKA. Simon Levi Company, Ltd. SN 253,084. Pub. 11-22-66. Filed 8-25-66.

Class 50 — Merchandise Not Otherwise Classified

823,735. TENEX. Tenex Corporation. SN 228,766. Pub. 4-19-66. Filed 9-27-65.

823,736. LINTEX. The Borden Company. SN 233,445. Pub. 11-22-66. Filed 11-29-65.

823,737. MAGNETIX. Hermes Plastics Inc. SN 242,899. Pub. 11-22-66. Filed 4-7-66.

823,738. REAL-O-STAKE. Arthur C. Farnham, d.b.a. The Real-O-Stake Company. SN 244,478. Pub. 11-22-66. Filed 4-28-66.

823,739. SENTRY AND DESIGN. Dettra Flag Company, Inc. SN 245,171. Pub. 11-22-66. Filed 5-9-66.

823,740. SENTRY. Dettra Flag Company, Inc. SN 245,172. Pub. 11-22-66. Filed 5-9-66.

Class 51 — Cosmetics and Toilet Preparations

823,741. LORD HUDSON AND DESIGN. Hudson National, Inc., by change of name from Hudson Vitamin Products, Inc. SN 191,978. Pub. 11-22-66. Filed 4-24-64.

823,742. MAXIMIZER. Sybil Ives Incorporated. SN 228,369. Pub. 11-22-66. Filed 9-22-65.

823,743. BLUSH FIRE. Chas. Pfizer & Co., Inc. SN 228,491. Pub. 11-22-66. Filed 9-23-65.

823,744. PRO-LONG. Gabrieleen Company, Inc. SN 230,144. Pub. 11-22-66. Filed 10-14-65.

823,745. LATHER MAT. Eversharp, Inc. SN 234,405. Pub. 11-22-66. Filed 12-13-65.

823,746. LATHER MATIC. Eversharp, Inc. SN 234,406. Pub. 11-22-66. Filed 12-13-65.

823,747. GOLD FIRE. The House of Wrisley, Inc. SN 242,244. Pub. 11-22-66. Filed 3-30-66.

823,748. ANDREA DUMON. Andrea Dumon, Incorporated, d.b.a. Andrea Dumon Laboratories. SN 247,755. Pub. 11-22-66. Filed 6-10-66.

823,749. BEAUTY SEAL. Dr. Vladimir Alexandre Oneskiw, d.b.a. Laboratories du Dr. V. A. Oneskiw and/or Beauty Seal. SN 250,115. Pub. 11-22-66. Filed 7-13-66.

823,750. TROPIC LIME. Ar. Winarick, Inc. SN 251,581. Pub. 11-22-66. Filed 8-3-66.

823,751. CURLS AWAY. Richard Hudnut. SN 252,056. Pub. 11-22-66. Filed 8-10-66.

823,752. BRIXEL. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 252,516. Pub. 11-22-66. Filed 8-17-66.

823,753. ULTREX. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 252,521. Pub. 11-22-66. Filed 8-17-66.

823,754. ENGLISH CROWN. Countess Maritza Cosmetic Co., Inc. SN 252,524. Pub. 11-22-66. Filed 8-17-66.

823,755. CORR-ECTIN. Lever Brothers Company. SN 252,786. Pub. 11-22-66. Filed 8-22-66.

823,756. MONSIEUR LANVIN. Lanvin-Charles of the Ritz, Inc. SN 252,788. Pub. 11-22-66. Filed 8-22-66.

823,757. TALIXE. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,706. Pub. 11-22-66. Filed 9-2-66.

823,758. ONE WAY AND DESIGN. Lenard et Cie., Inc. SN 253,715. Pub. 11-22-66. Filed 9-1-66.

Class 52 — Detergents and Soaps

823,748. (See Class 51 for this trademark.)

823,759. MRS. CARE AND DESIGN. The Dow Chemical Company. SN 186,064. Pub. 11-22-66. Filed 2-5-64.

823,760. BK-CCA. Pennsalt Chemicals Corporation. SN 230,558. Pub. 11-22-66. Filed 10-19-65.

823,761. BOILERITE AND DESIGN. Radiator Specialty Company. SN 230,567. Pub. 11-22-66. Filed 10-19-65.

823,762. SEE CLEEN AND DESIGN. Hardwick Products, Inc. SN 234,415. Pub. 11-22-66. Filed 12-13-65.

823,763. ARROWHEAD AND TRIANGLE DESIGN. Rohm & Haas Company. SN 237,386. Pub. 11-22-66. Filed 1-26-66.

823,764. INSTANT FELS. Purex Corporation, Ltd. SN 240,782. Pub. 11-22-66. Filed 3-11-66.

823,765. SUDS & DRY. Chemical Service of Baltimore, Inc. SN 241,581. Pub. 11-22-66. Filed 3-22-66.

823,766. DIA-CLEAN. Diamond Alkali Company. SN 252,317. Pub. 11-22-66. Filed 8-15-66.

Service Marks

Class 100 — Miscellaneous

823,767. LOUIE THE ELF AND DESIGN. Maitland Junior Chamber of Commerce. SN 208,471. Pub. 11-22-66. Filed 12-18-64.

823,768. CROWN AND LIONS DESIGN. Imperial House Motels, Inc. SN 222,158. Pub. 11-22-66. Filed 6-28-65.

823,769. IMPERIAL HOUSE AND DESIGN. Imperial HOUSE MOTELS, Inc. SN 223,421. Pub. 11-22-66. Filed 7-15-65.

823,770. KLM. Koninklijke Luchtvaart Maatschappij N.V. MULTIPLE CLASS (Classes 100, 102, and 105). SN 230,474. Pub. 11-22-66. Filed 10-19-65.

823,771. OTIS. Otis Engineering Corporation. SN 232,141. Pub. 11-22-66. Filed 11-4-65.

823,772. FEI AND DESIGN. Financial Executives Institute. SN 242,350. Pub. 11-22-66. Filed 3-31-66.

Class 101 — Advertising and Business

823,773. YOUTHPOWER. Youthpower, Inc. SN 225,388. Pub. 11-22-66. Filed 8-9-65.

823,774. 3 STAR AND DESIGN. The Three Star Stamp Company. SN 234,087. Pub. 11-22-66. Filed 12-6-65.

823,775. DAS DIRECTIONAL ADVERTISING SERVICES. Ebsco Industries, Inc. SN 235,553. Pub. 11-22-66. Filed 12-30-65.

823,776. MR. FRESH AND DESIGN. G. P. Gundlach & Company. SN 236,596. Pub. 11-22-66. Filed 1-17-66.

823,777. CIB. Computers for Industry and Business, Inc. SN 238,174. Pub. 11-22-66. Filed 2-7-66.

823,778. BENEFACTS. Alextronics Corporation. SN 238,594. Pub. 11-22-66. Filed 2-11-66.

823,779. MR. WIGGS AND DESIGN. Sandusky Distributing Company. SN 245,796. Pub. 11-22-66. Filed 5-16-66.

Class 102 — Insurance and Financial

823,770. (See Class 100 for this trademark.)

823,780. MISCELLANEOUS DESIGN. Interstate Management Corporation. SN 179,137. Pub. 11-22-66. Filed 10-16-63.

823,781. TRIANGLE AND CIRCLE (DESIGN). D. A. Campbell Company, Inc., assignee of Douglas A. Campbell, d.b.a. D. A. Campbell Company. SN 194,462. Pub. 11-22-66. Filed 5-28-64.

823,782. CASH MASTER. Western Pennsylvania National Bank. SN 231,325. Pub. 11-22-66. Filed 10-22-65.

823,783. MISCELLANEOUS DESIGN. Greater Nebraska Life Insurance Company. SN 236,319. Pub. 11-22-66. Filed 1-10-66.

Class 103 — Construction and Repair

823,784. FRIENDLY GRAYSON AND DESIGN. Grayson Rose Automatic Transmission Company. SN 227,680. Pub. 11-22-66. Filed 9-13-65.

823,785. ALL CLEAR. Michael Agostino. SN 236,868. Pub. 11-22-66. Filed 1-20-66.

823,786. G AND DESIGN. Paul J. Grunau Company. SN 237,341. Pub. 11-22-66. Filed 1-26-66.

Class 105 — Transportation and Storage

823,770. (See Class 100 for this trademark.)

823,787. BEST EXPRESS AND DESIGN. The Best Fertilizers Co. SN 220,068. Pub. 11-22-66. Filed 6-1-65.

823,788. NORTHWEST AND DESIGN. Northwest Airlines, Inc., d.b.a. Northwest Orient Airlines. SN 222,191. Pub. 11-22-66. Filed 6-28-65.

823,789. DOLLAR A DAY RENT A CAR ETC. AND DESIGN. Dollar-A-Day Rent-A-Car. SN 246,237. Pub. 11-22-66. Filed 5-23-66.

Collective Membership Mark

Class 200

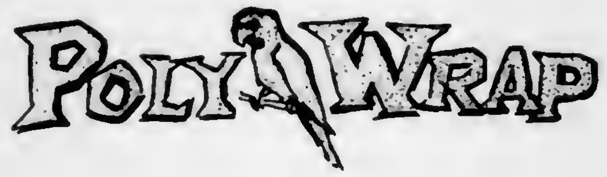
823,790. ORNAMENTED CROSS (DESIGN). Choristers Guild. SN 234,881. Pub. 11-22-66. Filed 12-20-65.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 1 — Raw or Partly Prepared Materials

823,791. Flex-O-Glass, Inc., Chicago, Ill. SN 207,385. Filed P.R. 12-3-64; Am. S.R. 11-14-66.



Owner of Reg. No. 550,712.

For Transparent, Translucent and Colored Flexible Plastic Material in Sheet Form.

First use January 1955.

823,792. Lee Patten Seed Company, Moonachie, N.J. SN 222,587. Filed P.R. 7-2-65; Am. S.R. 10-31-66.

SHADYLAWN

For Lawn Seed Mixture.
First use May 21, 1965.

823,793. Beaunit Corporation, New York, N.Y. SN 226,504. Filed P.R. 8-26-65; Am. S.R. 11-29-66.

XTRA – TUF

For Synthetic Staple Fiber.
First use on or about Aug. 3, 1965.

823,794. L. Teweles Seed Co., Milwaukee, Wis. SN 231,603. Filed P.R. 10-24-65; Am. S.R. 11-9-66.

BI-CROST

For Seed Corn, Specifically Two Way Cross Hybrids.
First use on or about Oct. 19, 1965.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

823,795. Dial-A-Card, Inc., Northfield, Ill. SN 204,057. Filed P.R. 10-15-64; Am. S.R. 10-13-66.

DIAL-A-CARD

For Card Index Files.
First use June 24, 1964.

Class 6 — Chemicals and Chemical Compositions

823,796. Brockstone Chemical Company, Burbank, Calif. SN 182,405. Filed P.R. 12-5-63; Am. S.R. 11-10-66.

NOMOR STATIC

For Chemical for Introduction Into Dry Cleaning Tumblers for Eliminating Electrical Static on Clothes That Tend to Retain Lint.
First use on or before Oct. 4, 1962.

823,797. Thompson-Hayward Chemical Company, Kansas City, Kans. SN 232,368. Filed P.R. 11-8-65; Am. S.R. 12-6-66.

KLEAN-KILL

For Insecticide Strip.
First use Aug. 31, 1965.

823,798. Collier Carbon and Chemical Corporation, Los Angeles, Calif. SN 233,879. Filed P.R. 12-3-65; Am. S.R. 12-8-66.

LEAF-DRY

For Compositions for Desiccating Plants.
First use Sept. 15, 1965.

Class 12 — Construction Materials

823,799. Allaco Products, Inc., Braintree, Mass. SN 215,685. Filed P.R. 4-5-65; Am. S.R. 11-3-66.

KWIK-PLUG

For Epoxy Resins for Use in Shoe Last Repair.
First use Mar. 1, 1965.

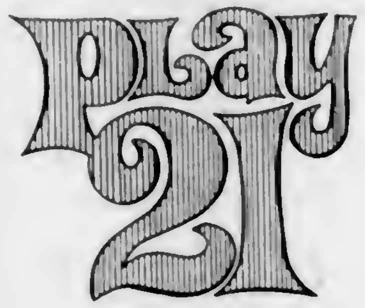
Class 22 — Games, Toys, and Sporting Goods

823,800. Bemis Manufacturing Company, Sheboygan Falls, Wis. SN 201,798. Filed P.R. 9-14-64; Am. S.R. 10-24-66.

HICKORY STICK

For Baseball Bats.
First use Aug. 14, 1964.

823,801. Strategic Merchandising Corp., New York, N.Y. SN 226,686. Filed P.R. 8-27-65; Am. S.R. 11-14-66.



The lining shown on the drawing is not intended to designate any particular color.
For Printed Material Comprising Descriptive and Promotional Literature, Prize Slips and Pamphlets Wherein Printed Games Are Presented, Said Printed Material Being for Use and Distribution by Retail Stores as Equipment for Promoting and Playing a Promotional Game.
First use June 2, 1965.

823,802. Anderson & Thompson Ski Co., Inc., Seattle, Wash. SN 230,486. Filed P.R. 10-19-65; Am. S.R. 11-10-66.

AROSA

The subject mark "Arosa" is the name of a town in Switzerland.
For Snow Skis.
First use July 1, 1965.

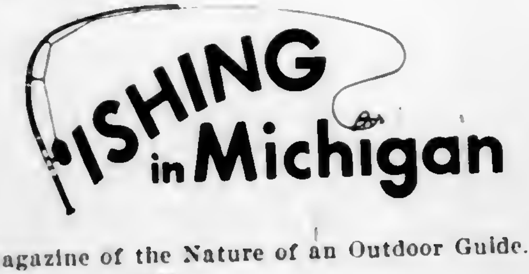
Class 38 — Prints and Publications

823,803. Success Motivation Institute, Inc., Waco, Tex. SN 214,930. Filed P.R. 3-24-65; Am. S.R. 4-5-66.

PROGRAMMED SALES MEETINGS

For Educational and Training Courses Comprising Printed Instructional Material and Sound Recordings Pertaining Thereto.
First use at least as early as Feb. 25, 1965.

823,804. Michigan Outdoor Publishing Company, Kalamazoo, Mich. SN 221,075. Filed P.R. 6-14-65; Am. S.R. 11-18-66.



For Magazine of the Nature of an Outdoor Guide.
First use Apr. 1, 1965.

823,805. Michigan Outdoor Publishing Company, Kalamazoo, Mich. SN 221,076. Filed P.R. 6-14-65; Am. S.R. 11-18-66.

FISHING IN MICHIGAN

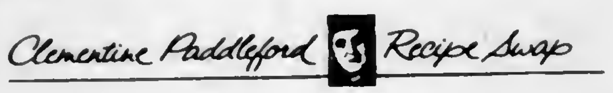
For Magazine of the Nature of an Outdoor Guide.
First use Apr. 1, 1965.

823,806. United National Life Insurance Company, Mesa, Ariz. SN 228,497. Filed P.R. 9-23-65; Am. S.R. 11-7-66.

YOUR SECURITY REPORT

Applicant disclaims any exclusive right to use the word "Report" except as it is used as a part of the mark.
For Newsletter.
First use Aug. 3, 1965.

823,807. United Newspapers Magazine Corporation, New York, N.Y. SN 230,214. Filed P.R. 10-14-65; Am. S.R. 12-6-66.



The portrait on the drawing is that of Clementine Paddleford, whose consent is of record.
For Column in a Newspaper Magazine Section.
First use June 27, 1965.

823,808. Tower Press, Inc., Lynn, Mass. SN 231,293. Filed P.R. 10-22-65; Am. S.R. 10-3-66.

POPULAR NEEDLEWORK AND CRAFTS

For Monthly Magazine.
First use in or about August 1965.

823,809. International Association of Religious Science Churches, Carmel, Calif. SN 231,422. Filed P.R. 10-23-65; Am. S.R. 11-21-66.

CREATIVE THOUGHT

For Monthly Religious Magazine.
First use June 1965.

823,810. American Greetings Corporation, Cleveland, Ohio. SN 234,495. Filed P.R. 12-13-65; Am. S.R. 10-20-66.

DESIGNERS COLLECTION

For Greeting Cards.
First use at least as early as June 1, 1963.

823,811. Psychiatric News and Views, Inc., New York, N.Y. SN 234,666. Filed P.R. 12-15-65; Am. S.R. 11-14-66.

PSYCHIATRIC PROGRESS

For News Magazine.
First use Oct. 8, 1965.

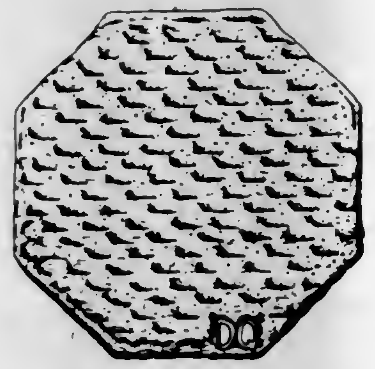
Class 46 — Foods and Ingredients of Foods

823,812. The Quaker Oats Company, Chicago, Ill. SN 203,887. Filed P.R. 10-13-64; Am. S.R. 9-19-66.

DIET FROSTED

For Breakfast Cereals.
First use Sept. 25, 1964.

823,813. American Dairy Queen Corporation, Minneapolis, Minn. SN 208,221. Filed P.R. 12-16-64; Am. S.R. 12-5-66.



For Frozen Meat Patties.
First use Sept. 10, 1964.

823,814. C. C. Graber Co., Ontario, Calif. SN 209,927. Filed P.R. 1-14-65; Am. S.R. 11-14-66.

GRABER OF CALIFORNIA

Owner of Reg. No. 508,371.
For Foods—Namely, Olives, Nuts, Jellies, Jams, and Candy.
First use Nov. 30, 1962.

823,815. Taterstate Frozen Foods, Washburn, Maine. SN 210,709. Filed P.R. 1-26-65; Am. S.R. 11-14-66.

MAINE SPECIAL

No claim is made to the word "Maine" apart from the mark as a whole.
For Frozen French Fried Potatoes.
First use on or about Dec. 1, 1962.

823,816. Central Soya Company, Inc., d.b.a. Central Soya, Fort Wayne, Ind. SN 214,324. Filed P.R. 3-17-65; Am. S.R. 11-8-66.

SOYABITS

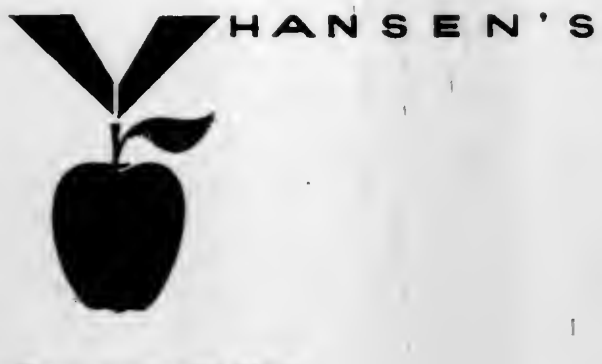
For Edible Soy Grits.
First use Sept. 12, 1958.

823,817. Philip Morris Incorporated, d.b.a. Clark Gum Co., New York, N.Y. SN 224,317. Filed P.R. 7-27-65; Am. S.R. 12-7-66.

PEPPY MINT

For Chewing Gum.
First use Aug. 28, 1964.

823,818. Hansen Fruit & Cold Storage Co., d.b.a. Hansen Fruit Co., Yakima, Wash. SN 225,309. Filed P.R. 8-9-65; Am. S.R. 11-23-66.



For Fresh Apples and Pears.
First use Dec. 15, 1964.

Class 47 — Wines

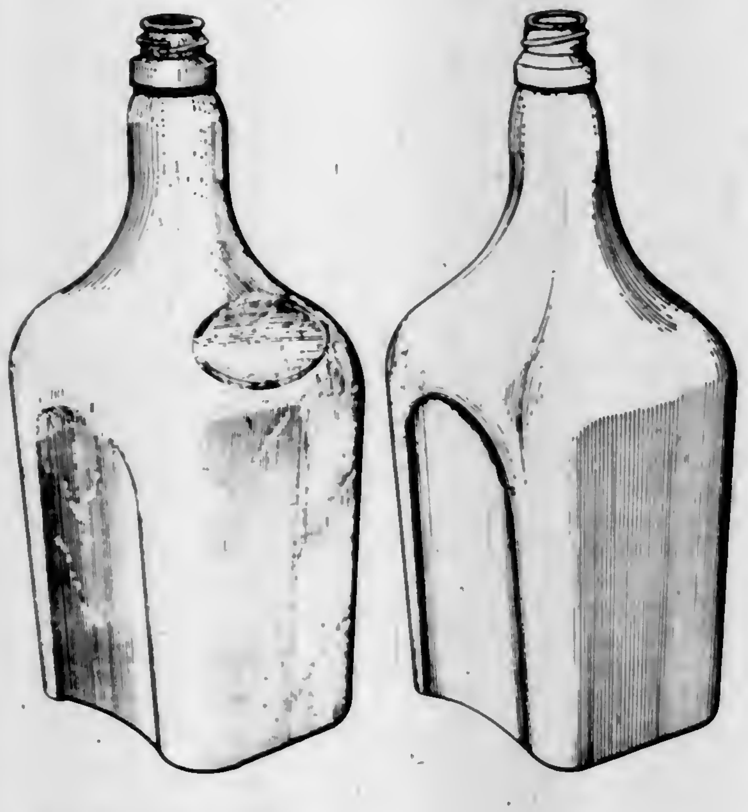
823,819. Per Venge, d.b.a. Venge and Company, Los Angeles, Calif. SN 213,916. Filed P.R. 3-11-65; Am. S.R. 12-1-66.

ORANGITA

For Sherry Wine With Orange Flavoring Therein.
First use Dec. 20, 1964.

Class 49 — Distilled Alcoholic Liquors

823,820. Brown-Forman Distillers Corporation, Louisville, Ky. SN 203,735. Filed P.R. 10-12-64; Am. S.R. 10-19-65.



For Bourbon Whiskey.
First use Mar. 23, 1964.

823,821. Medley Distilling Company, Owensboro, Ky. SN 230,673. Filed P.R. 10-20-65; Am. S.R. 12-7-66.

MELLOW BOND

For Bourbon Whiskey.
First use Oct. 2, 1944.

Class 50 — Merchandise Not Otherwise Classified

823,822. Litho Chemical & Supply Co., Inc., Lynbrook, N.Y. SN 201,705. Filed P.R. 9-11-64; Am. S.R. 12-1-66.

"PRE-KOTE"

For Lithographic Plates.
First use on or about Aug. 24, 1964.

823,823. Embart Corporation, Bloomfield, Conn., assignee of Plymouth Cordage Company, Plymouth, Mass. SN 210,346. Filed P.R. 1-21-65; Am. S.R. 5-11-66.

Hol-EE

For Seed Bed Covers.
First use Dec. 18, 1964.

Service Marks

Class 100 — Miscellaneous

823,824. Collier Carbon and Chemical Corporation, Los Angeles, Calif. SN 226,625. Filed P.R. 8-27-65; Am. S.R. 12-8-66.

AUTOLAB

For Testing, Statistical and Advisory Services Rendered to Growers in Connection With Fertilizer Application Programs.
First use on or about June 15, 1965.

Class 101 — Advertising and Business

823,825. The Advertising Council, Inc., New York, N.Y. SN 251,168. Filed P.R. 7-28-66; Am. S.R. 12-13-66.

advertising contributed for the public good.

For Services—Namely, Conducting Nationwide Advertising Campaigns on Behalf of Federal Government Agencies and Private Non-Profit Organizations on Non-Controversial Subjects in Cooperation With Volunteer Advertising Agencies and Through Facilities Contributed by Mass Communications Media, Which Promote Voluntary Citizen Actions Pertaining to, and Public Understanding of, Such Subjects as the Peace Corps, Traffic Safety, Forest Fire Prevention, American Red Cross, U.S. Savings Bonds, Mental Retardation, Support for Colleges, Need for Continued Education, United Community Funds and Other Matters of Concern to All.
First use at least prior to Oct. 1, 1965.

Class 103 — Construction and Repair

823,826. David L. Beatty, d.b.a. David Beatty, Kansas City, Mo. SN 221,002. Filed P.R. 6-14-65; Am. S.R. 11-9-66.

LEC TRO KUS TICS

For Designing and Installation of High Fidelity Sound Systems and Complementary Acoustical Treatment.
First use Feb. 21, 1965.

Class 104 — Communication

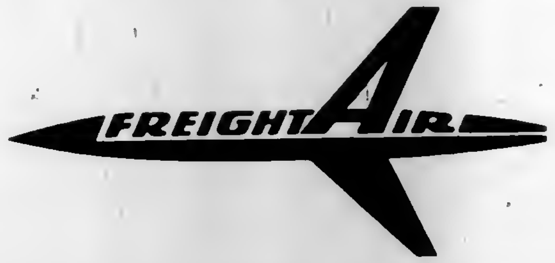
823,827. The Western Union Telegraph Company, New York, N.Y. SN 204,938. Filed P.R. 10-27-64; Am. S.R. 11-23-66.

Broadband Exchange

For Designing, Installing, and Maintaining Customer to Customer Voice and Band Connections for Transmitting Voice, High Speed Data, Facsimile or Other Types of Record Communications.
First use Oct. 20, 1964.

Class 105 — Transportation and Storage

823,828. Deutsches Luftfrachtkontor & Co., Jamaica, N.Y. SN 214,622. Filed P.R. 3-22-65; Am. S.R. 12-7-66.



For Carrying on the Business of Freight Forwarders in Foreign and Interstate Shipments by Air.
First use Jan. 2, 1962.

TRADEMARK REGISTRATIONS RENEWED

29,135. PYRAMID AND DESIGN. Cl. 6. 11-10-1896.
29,592. WISH BONE AND DESIGN. Cl. 46. 2-23-1897.
58,270. CROWLEY'S. Cl. 43. 12-11-06.
58,578. BORDEN'S. Cl. 46. 12-18-06.
59,609. JELLITAC. Cl. 5. 1-15-07.
60,026. MASCOT. Cl. 23. 1-22-07.
62,973. BLACK SILK. Cl. 4. 6-4-07.
212,529. NEBCO. Cl. 7. 5-4-26.
216,658. PURITAN BRAND AND DESIGN. Cl. 46. 8-17-26.
220,175. TOTEM POLE (DESIGN). Cl. 1. 11-2-26.
220,179. BOCCANEGRA AND DESIGN. Cl. 46. 11-2-26.
221,809. LONE STAR. Cl. 12. 12-14-26.
222,050. 3 STARS (DESIGN). Cl. 14. 12-21-26.
222,245. PARMISELLO. Cl. 46. 12-28-26.
222,549. SPEEDBALL. Cl. 11. 1-4-27.
224,145. COLONIAL FRIED CAKES. Cl. 46. 2-22-27.
224,702. STIPPELEN. Cl. 16. 3-1-27.
224,978. PHI DELTA THETA LETTERS. Cl. 28. 3-8-27.
225,523. M WITHIN A CIRCLE. Cl. 33. 3-22-27.
225,774. FRE AND DESIGN. Cl. 18. 3-22-27.
225,950. SAPOLIN. Cl. 4. 3-29-27.
226,235. PLEE-ZING. Cl. 46. 4-5-27.
227,227. SKYROCKET. Cl. 46. 5-3-27.
228,084. IRVIN AIR CHUTE AND DESIGN. Cl. 19. 5-24-27.
228,085. IRVIN AND DESIGN. Cl. 19. 5-24-27.
228,087. AIR CHUTE. Cl. 19. 5-24-27.
421,755. MECO AND DESIGN. Cl. 23. 6-18-46.
423,753. OLD MONASTERY. Cl. 49. 9-10-46.
423,844. DUTCH BOY AND DESIGN. Cl. 6. 9-10-46.
425,239. KEL-VI-TOL. Cl. 16. 11-12-46.
425,721. PRINTMASTER. Cl. 26. 12-3-46.
425,787. FORTICEL. Cl. 16. 12-3-46.
425,815. VIEWPOINT. Cl. 37. 12-3-46.
425,962. WINDOW ON THE WORLD. Cl. 38. 12-10-46.
425,963. WORLD INTELLIGENCE. Cl. 38. 12-10-46.
426,107. CLOWN AND DESIGN. Cl. 38. 12-17-46.
426,301. TECMANGAM. Cl. 6. 12-24-46.
426,346. TYOTOCIN. Cl. 18. 12-24-46.
426,353. EATONITE. Cl. 23. 12-24-46.
426,434. CADROSON. Cl. 18. 12-24-46.
426,478. MESANTOIN. Cl. 18. 12-24-46.
426,636. SPRING CHICKEN. Cl. 46. 1-7-47.
426,794. MOTORTONE. Cl. 23. 1-14-47.
427,809. TOURAIDE. Cl. 38. 2-25-47.
428,071. CRAZY DAISY WINDER. Cl. 23. 3-11-47.
428,078. HYTOR. Cl. 23. 3-11-47.
428,435. BENSON & HEDGES. Cl. 17. 3-25-47.
429,278. PEN-A-SEAL. Cl. 6. 4-29-47.
429,452. MARBELIGHT. Cl. 12. 4-29-47.

TRADEMARK REGISTRATIONS CANCELED

Section 8

The following registrations issued Dec. 20, 1960

708,567. FLORA. Cl. 1.
708,569. KOPOXITE. Cl. 1.
708,573. ABSTRACT. Cl. 1.
708,578. TP. Cl 1.
708,579. HEARTS O' SUEDE. Cl. 1.
708,581. PHILJET. Cl. 1.
708,582. LION DESIGN. Cl. 1.
708,583. GRANDE. Cl. 1.
708,584. BAKRYL. Cl. 1.
708,585. DAKOTA QUEEN AND DESIGN. Cl. 1.
708,604. PESTI-FOG. Cl. 6.
708,588. ROGERS RARITY AND DESIGN. Cl. 3.
708,609. GARRY'S MELT. Cl. 6.
708,610. INSTANT-SAFE. Cl. 6.
708,619. KLERION. Cl. 6.
708,622. MATCHVIEWS U.S.A. Cl. 9.
708,623. HUMBOLDT EMERALDS AND DESIGN. Cl. 12.
708,627. M/F. Cl. 12.
708,636. RCA WITHIN A CIRCLE. Cl. 13.
708,641. FERROPLAST. Cl. 14.
708,657. HSM. Cl. 18.
708,658. BIRAUPIN. Cl. 18.
708,659. NUTRI GUIDES 77. Cl. 18.
708,667. DRYPED. Cl. 18.
708,681. ENTOQUEL. Cl. 18.
708,685. FROSTY. Cl. 19.
708,686. PACK-RAT. Cl. 19.
708,689. TOPITS. Cl. 22.
708,691. KINGSWAY. Cl. 22.
708,693. SWAMI'S BALL. Cl. 22.
708,694. COLOR READINESS. Cl. 22.
708,696. THE SQUIRE. Cl. 22.
708,699. TASP SET. Cl. 22.
708,701. CLOBBER-BOBBER. Cl. 22.
708,704. THE VISIBLE MAN. Cl. 22.
708,709. CONOMATIC PIPPIN. Cl. 23.
708,715. CENTA-SCRIBE. Cl. 23.
708,716. MOTRAC AND DESIGN. Cl. 23.
708,717. BLUE CHIP. Cl. 23.
708,720. SADEX. Cl. 23.
708,722. CHECK A LINE AND DESIGN. Cl. 26.
708,724. CONTA-SONICS. Cl. 26.
708,725. KECO-STATIC. Cl. 26.
708,729. ELECTRO-LAB. Cl. 26.
708,733. POLAR-BAR AND DESIGN. Cl. 31.
708,735. RCA WITHIN A CICRLE. Cl. 32.
708,739. HORCH. Cl. 35.
708,740. SPRING-PAK. Cl. 35.
708,748. HAMAPAC. Cl. 37.
708,751. THE BECKER INVENTORY SENTRY. Cl. 37.

708,752. LION DESIGN. Cl. 37.
708,753. NINE O'CLOCK PRESS ETC. AND DESIGN. Cl. 38.
708,754. BRASILIA INTERATIONAL. Cl. 38.
708,755. NEW CONDITIONS. Cl. 38.
708,758. SLENDERELLA. Cl. 39.
708,761. HARRINGTON TWEED. Cl. 39.
708,767. TWIRL. Cl. 40.
708,768. A AMERICAN AND DESIGN. Cl. 40.
708,769. REPRESENTATION OF BABY. Cl. 40.
708,773. TASHMIR. Cl. 42.
708,796. MIST-O-GARLIC. Cl. 46.
708,798. TRIPLETT ETC. AND DESIGN. Cl. 46.
708,801. STAND-R-MIX. Cl. 46.
708,805. SELLS AND DESIGN. Cl. 46.
708,806. CHIPPY AND DESIGN. Cl. 46.
708,815. FOUR-MIX. Cl. 46.
708,820. PINEAPPLE GRAPEFRUIT TREAT. Cl. 46.
708,821. RASPBERRY APPLE TREAT. Cl. 46.
708,822. STRAWBERRY TREAT. Cl. 46.
708,823. CL-50 IN OVAL DESIGN. Cl. 46.
708,824. WAYSIDE INN. Cl. 46.
708,829. VEDA. Cl. 50.
708,833. PHENOMA. Cl. 51.
708,838. CHINA DOLL. Cl. 51.
708,850. WHITE FROST. Cl. 52.
708,861. HOLIDAY ETC. AND DESIGN. Cl. 101.
708,862. EUROPCARS. Cl. 105.

Section 18

766,043. GLEN MORVEN. Cl. 49. 3-3-64.
785,069. TINEAX. Cl. 18. 2-16-65.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

123,390. SHAW AND DESIGN. Cl. 47. 10-29-18. Alex D. Shaw & Co. National Distillers and Chemical Corporation, doing business as National Distillers Products Co., New York, N.Y. Corrected: In the statement, column 2, line 2, "26, 1886" should be deleted and *27, 1896* should be inserted.

415,786. THE WINNER. Cl. 22, 8-14-45. Bancroft Racket Company, Pawtucket, R.I. Amended to appear:

WINNER

368,632. XEROX. Cl. 103. 12-30-52. The Haloid Company. Xerox Corporation, Rochester, N.Y. Amended to appear:

XEROX

576,118. XEROX. Cl. 6. 6-16-53. The Haloid Company, Xerox Corporation, Rochester, N.Y. Amended to appear:

XEROX

578,061. XEROX. Cl. 26. 7-28-53. The Haloid Company, Xerox Corporation, Rochester, N.Y. Amended to appear:

XEROX

724,571. WANT-MOR. Cl. 46. 11-28-61. Seaboard Allied Milling Corporation, doing business as Rodney Milling Company, Kansas City, Mo. Corrected: In the statement, column 1, line 1, "Company" should be deleted and *Corporation* should be inserted.

737,262. MASTER SPRING FLOUR. Cl. 46. 9-4-62. Seaboard Allied Milling Corporation, doing business as Rodney Milling Company, Kansas City, Mo. Corrected: In the statement, column 1, line 1, "Company" should be deleted and *Corporation* should be inserted.

742,071. SUN SPRING FLOUR. Cl. 46. 12-11-62. Seaboard Allied Milling Corporation, doing business as Ismert-Hincke Milling Company and I-H Milling Company, Kansas City, Mo. Corrected: In the statement, column 1, line 1, "Company" should be deleted and *Corporation* should be inserted.

815,780. ACCUCYL. Cl. 23. 9-27-66. Chemcut Corporation, by change of name from Centre Circuits, Inc., State College, Pa. Corrected: In the statement, column 1, line 2, "Pord" should be deleted and *Park* should be inserted.

818,278. WHITE. Cl. 32. 11-8-66. White Furniture Company, Mebane, N.C.. Corrected: In the statement, column 2, line 3, "1961" should be deleted and *1941* should be inserted.

818,693. TUESDAY. Cl. 38. 11-15-66. Tuesday Publications, Inc., Chicago, Ill. Corrected: In the statement, column 1, line 1, "Publication" should be deleted and *Publications* should be inserted.

819,813. GUARD. Cl. 21. 12-6-66. In-Flight Devices, Inc. In-Flight Devices, Corp., Columbus, Ohio. Corrected: In the statement, column 1, line 1, after "Devices", *Corp.* should be inserted.

REGISTRATIONS PUBLISHED UNDER SEC. 12(c)

The following marks registered under the act of 1905, or the act of 1881, are published under the provisions of section 12(c) of the Trademark Act of 1946. These registrations are not subject to opposition but are subject to cancellation under section 14 of the act of 1946.

Class 6 — Chemicals and Chemical Compositions

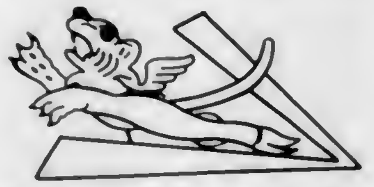
260,150. Aug. 20, 1929. United Drug Company, Boston, Mass. Pub. by Rexall Drug and Chemical Company, d.b.a. Rexall Drug Company, Los Angeles, Calif.

Rex-Salvine

For Ointment for Burns and Cuts.

Class 8 — Smokers' Articles, Not Including Tobacco Products

428,211. Mar. 11, 1947. The Flying Tigers (American Volunteer Group—Chinese Air Force) Incorporated, Los Angeles, Calif. Pub. by registrant.

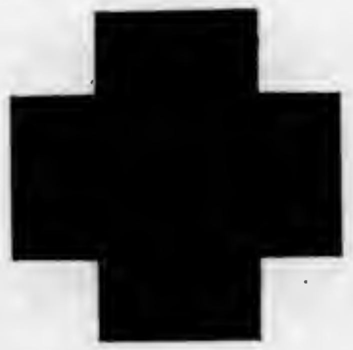


FLYING TIGERS

For Pyrophoric Cigarette and Cigar Lighters.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

60,918. Feb. 26, 1907. The Eastern Dynamite Company, Kenvil, N.J. Pub. by E. I. du Pont de Nemours and Company, Wilmington, Del.



For High Explosives.

Class 12 — Construction Materials

425,522. Nov. 26, 1946. Universal Zonolite Insulation Co., Chicago, Ill. Pub. by Concrete Thermal Casings, Inc., Kirkland, Wash.

For Admixture of Vermiculite, Portland Cement, and a Water-Proofing Compound, Said Admixture Being Contained in Bags and Other Suitable Containers and Used for Insulating Underground Pipes Against Loss of Heat Conducted Through Said Pipes.

427,833. Feb. 25, 1947. Laclede-Christy Clay Products Company, St. Louis, Mo. Pub. by H. K. Porter Company, Inc., Pittsburgh, Pa.

DUO-FLEX

For Mortar.

Class 15 — Oils and Greases

424,449. Oct. 8, 1946. Frank W. Dryden & Sons, Baltimore, Md. Pub. by Dryden Oil Company, Inc., Baltimore, Md.

DRYDENE

For Lubricating Oils and Greases.

Class 18 — Medicines and Pharmaceutical Preparations

335,165. May 26, 1936. United Drug Company, Boston, Mass. Pub. by Rexall Drug and Chemical Company, d.b.a. Rexall Drug Company, Los Angeles, Calif.

Rex-Rub

For Athlete's Rub.

Class 22 — Games, Toys, and Sporting Goods

61,432. Mar. 19, 1907. S. L. Allen & Co., Philadelphia, Pa.

FLYER

For Sleds.

61,433. Mar. 19, 1907. S. L. Allen & Co., Philadelphia, Pa. Pub. by S. L. Allen & Co., Inc., Philadelphia, Pa.

FLEXIBLE

For Sleds.

426,739. Jan. 7, 1947. Theodore H. Riner, d.b.a. Ebcor Manufacturing Co., Bakersfield, Calif. Pub. by registrant.

Eager Beaver

For Fishing Lures.

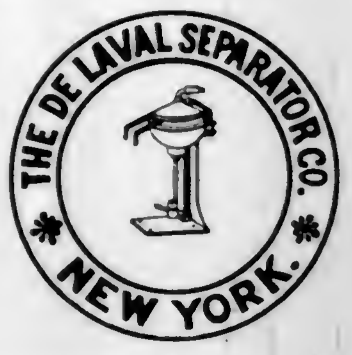
Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

56,558. Oct. 9, 1906. George Wostenholm & Son, Limited, Sheffield, England. Pub. by registrant.

I*XL

For Pocket and Table Knives, Etc.

56,918. Oct. 23, 1906. The De Laval Separator Company, Poughkeepsie, N.Y. Pub. by registrant.


THE DE LAVAL SEPARATOR CO.
NEW YORK

For Cream Separators of All Kinds.

Class 26—Measuring and Scientific Appliances

426,259. Dec. 24, 1946. Wm. Ainsworth & Sons, Inc., Denver, Colo. Pub. by registrant.

AINSWORTH

For Beam Balances, Etc.

426,260. Dec. 24, 1946. Wm. Ainsworth & Sons, Inc., Denver, Colo. Pub. by registrant.

WM. AINSWORTH

For Beam Balances, Etc.

Class 28—Jewelry and Precious-Metal Ware

381,210. Sept. 17, 1940. Jos. H. Meyer Bros., Brooklyn, N.Y. Pub. by The Richelieu Corp., New York, N.Y.

SATINORE

For Necklaces, Bracelets, Rings, Jewelry Clips, Brooches, and Earrings.

420,676. Apr. 30, 1946. Morton B. Farrell Company, Detroit, Mich. Pub. by Jack Kellmer Company, Philadelphia, Pa.

Heirloom Pearls

For Pearls, Pearl Necklaces, and Pearl Mounted Jewelry, Etc.

Class 33—Glassware

222,459. Jan. 4, 1927. Fostoria Glass Company, Moundsville, W. Va. Pub. by registrant.

FOSTORIA

For Table Glassware.

Class 34—Heating, Lighting, and Ventilating Apparatus

370,565. Aug. 29, 1939. Shoot-A-Lite Corporation, New York, N.Y. Pub. by The Turner & Seymour Mfg. Co., Torrington, Conn.

SHOOT-A-LITE

For Pyrophoric Lighters.

Class 37—Paper and Stationery

320,252. Dec. 18, 1934. United Drug Company, Boston, Mass. Pub. by Rexall Drug and Chemical Company, Los Angeles, Calif.

CASCADE

For Fountain Pens.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

220,661. Nov. 16, 1926. Horrockses, Crewdson & Co., Limited, Preston and Manchester, England. Pub. by Horrockses (Sales) Limited, Preston, England.

HORROCKSES

For Cotton Piece Goods.

425,338. Nov. 12, 1946. Riverside & Dan River Cotton Mills, Inc., now by change of name Dan River Mills, Incorporated, Danville, Va. Pub. by Dan River Mills, Incorporated, Danville, Va.

BELLWETHER

For Piece Goods of Cotton, Rayon, Wool, or Mixtures Thereof.

425961. Dec. 10, 1946. Riverside & Dan River Cotton Mills, Inc., now by change of name Dan River Mills, Incorporated, Danville, Va. Pub. by Dan River Mills, Incorporated, Danville, Va.

NYRAY

For Piece Goods of Cotton, Rayon, Wool, or Mixtures Thereof

Class 47—Wines

311,749. Apr. 3, 1934. Jacques Joseph Marie Bollinger, Ay, France. Pub. by Julius Wile Sons & Co., Inc., New York, N.Y.

BOLLINGER

For Champagne Wines.

Class 52—Detergents and Soaps

55,886. Aug. 21, 1906. Colgate & Co., New York, N.Y. Pub. by Colgate-Palmolive Company, New York, N.Y.

COLGATE

For Soap.

222,255. Dec. 28, 1926. E. F. Houghton & Co., Philadelphia, Pa. Pub. by registrant.

HOUGHTO-CLEAN

For Compound in Dry or Granulated Form for All Cleansing purposes.

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APL Corp., Linden, N.J. 823,637, pub. 11-22-66. Cl. 24.
Abbott Laboratories, North Chicago, Ill. 823,595, pub. 11-22-66. Cl. 18.
Acid-Eze Co., Inc., Trion, Ga. 823,579, pub. 11-22-66. Cl. 18.
Advertising Council, Inc., The, New York, N.Y. 823,825. Cl. 101.
Agostino, Michael, Bronx, N.Y. 823,785, pub. 11-22-66. Cl. 103.
Agway, Inc., Syracuse, N.Y. 823,603, pub. 11-22-66. Cl. 19.
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Ainsworth, Wm., & Sons, Inc., Denver, Colo. 426,260, 12(c) pub. 2-7-67. Cl. 26.
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Allen, S. L., & Co., by S. L. Allen & Co., Inc., Philadelphia, Pa. 61,433, 12(c) pub. 2-7-67. Cl. 22.
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American Dairy Queen Corp., Minneapolis, Minn. 823,813. Cl. 46.
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American-Lincoln Corp., Toledo, Ohio. 823,551, pub. 9-27-66. Cl. 6.
American Optical Co., Southbridge, Mass. 823,538, pub. 11-22-66. Cl. 1.
American Photocopy Equipment Co., Evanston, Ill. 823,557, pub. 11-22-66. Cl. 6.
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Anderson-Hutchison Sales, Inc., d.b.a. Son Son Foods Co., Kansas City, Mo. 823 706, pub. 11-22-66. Cl. 46.
Anderson & Thompson Ski Co., Inc., Seattle, Wash. 823,802. Cl. 22.
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Barry, R. G., Corp., d.b.a. The House of Foam, Columbus, Ohio. 823,546, pub. 11-22-66. Cl. 3.
Barwood Mfg. Corp., Everett, Mass. 823,571, pub. 11-22-66. Cl. 13.
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California Wine Association, San Francisco, Calif. 823,725, pub. 11-22-66. Cl. 47.
Cambridge Filter Corp., Syracuse, N.Y. 823,648, pub. 11-22-66. Cl. 31.
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Cannon, Vernon L., d.b.a. Hol-Can Oil Co., Dothan, Ala. 823,574, pub. 11-22-66. Cl. 15.

Carling Brewing Co.: *See—*
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Celotex Corp., The, Chicago, Ill. 708,627, canc. Cl. 12.
Central Sands Produce, Inc., Bancroft, Wis. 823,723, pub. 11-22-66. Cl. 46.
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Chicago Candle Corp., Chicago, Ill. 823,559, pub. 11-22-66. Cl. 6.
Choristers Guild, Dallas, Tex. 823,790, pub. 11-22-66. Cl. 200.
Claff, M. B., & Sons, Inc., Brockton, Mass. 823,627, pub. 11-22-66. Cl. 23.
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Coated Products, Inc., Middlesex, N.J. 823,654, pub. 12-28-65. Cl. 37.
Coca-Cola Co., The, Atlanta, Ga. 823,688, pub. 11-22-66. Cl. 45.
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Consolidated Paper Co., Monroe, Mich. 708,578, canc. Cl. 1.
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Culligan, Inc., Northbrook, Ill. 823,649, pub. 11-22-66. Cl. 31.
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Dell Publishing Co., Inc., New York, N.Y. 823,662, pub. 11-22-66. Cl. 38.
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Du Pont de Nemours, E. I., and Co., Wilmington, Del. 823,644, pub. 11-22-66. Cl. 26.
Du Pont de Nemours, E. I., and Co., Wilmington, Del. 823,651, pub. 11-22-66. Cl. 32.
Du Pont de Nemours, E. I., and Co.: *See—*
Eastern Dynamite Co., The.
Dynas Aktiebolag, Vaja, Sweden. 708,582, canc. Cl. 1.
Dynas Aktiebolag, Vaja, Sweden. 708,752, canc. Cl. 37.
Eady Farming Co., Calexico, Calif. 823,713, pub. 11-22-66. Cl. 46.
Eady Farming Co., Calexico, Calif. 823,714, pub. 11-22-66. Cl. 46.
Eastern Baker Pharmaceutical Corp., Jacksonville, Fla. 823,577, pub. 11-22-66. Cl. 18.
Eastern Dynamite Co., The, Kenvil, N.J., by E. I. du Pont de Nemours and Co., Wilmington, Del. 60,918, 12(c) pub. 2-7-67. Cl. 9.
Eastern States Farmers' Exchange, Inc., West Springfield, Mass. 708,815, ren. 2-7-67. Cl. 46.
Eastman Kodak Co.: *See—*
Tennessee Eastman Corp.
Eaton Yale & Towne Inc.: *See—*
Eaton Mfg. Co.
Eaton Mfg. Co., to Eaton Yale & Towne Inc., Cleveland, Ohio. 426,353, ren. 2-7-67. Cl. 23.
Ebeor Mfg. Co.: *See—*
Riner, Theodore H.
Ebsco Industries, Inc., Birmingham, Ala. 823,775, pub. 11-22-66. Cl. 101.
Eig Cutlery, Inc., Miami, Fla. 823,643, pub. 11-22-66. Cl. 26.
Elbert Advertising Agency, Inc., Waltham, Mass. 823,661, pub. 11-22-66. Cl. 38.
Electro Nite Engineering Co., Philadelphia, Pa. 823,645-6, pub. 11-22-66. Cl. 26.
Emhart Corp., Bloomfield, from Plymouth Cordage Co., Plymouth, Mass. 823,823. Cl. 50.
Encyclopaedia Britannica, Inc., Chicago, Ill. 425,962-3, ren 2-7-67. Cl. 38.
Erman-Bach, Ltd., New York, N.Y. 823,702, pub. 11-22-66. Cl. 46.
Etablissements Horstmann, Paris, France. 708,720, canc. Cl. 23.
Eversharp, Inc., Milford, Conn. 823,745-6, pub. 11-22-66. Cl. 51.
Exeter Citrus Association, Exeter, Calif. 227,227, ren. 2-7-67. Cl. 46.
Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany. 823,547, pub. 11-22-66. Cl. 3.
Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany. 823,678, pub. 11-22-66. Cl. 39.
Farnham, Arthur C., d.b.a. The Real-O-Stake Co., San Carlos, Calif. 823,738, pub. 11-22-66. Cl. 50.
Farrell, Morton B., Co., Detroit, Mich., by Jack Kellmer Co., Philadelphia, Pa. 420,676, 12(c) pub. 2-7-67. Cl. 28.
Filmcraft-Chicago, Chicago, Ill. 823,656, pub. 11-22-66. Cl. 37.
Financial Executives Institute, New York, N.Y. 823,772, pub. 11-22-66. Cl. 100.
Flex-O-Glass, Inc., Chicago, Ill. 823,791. Cl. 1.
Flying Tigers, The (American Volunteer Group Chinese Air Force) Inc., Los Angeles, Calif. 428,211, 12(c) pub. 2-7-67. Cl. 8.
Foremost Dairies, Inc., San Francisco, Calif. 823,709, pub. 11-22-66. Cl. 46.
Fostoria Glass Co., Moundsville, W. Va. 222,459, 12(c) pub. 2-7-67. Cl. 33.
Freightliner Corp., Portland, Oreg. 823,602, pub. 11-22-66. Cl. 19.
Gabrieleen Co., Inc., Chicago, Ill. 823,744, pub. 11-22-66. Cl. 51.
Gardner, Albert M., Jr., Lancaster, Pa. 823,606, pub. 11-22-66. Cl. 22.

Garry Laboratories, Inc., Buffalo, N.Y. 708,609, canc. Cl. 6.
General Aniline & Film Corp., New York, N.Y. 425,721, ren. 2-7-67. Cl. 26.
General Implement Corp., Clearwater, Fla. 708,604, canc. Cl. 6.
General Ordnance Equipment Corp., Pittsburgh, Pa. 823,563, pub. 11-22-66. Cl. 9.
Gides, Inc., Beverly Hills, Calif. 708,659, canc. Cl. 18.
Gillette Co., The, d.b.a. The Tony Co., Boston, Mass. 708,767, canc. Cl. 40.
Giuriani, A., & Bro., San Francisco, Calif. 823,692, pub. 11-22-66. Cl. 46.
Goerlich's, Inc.: *See—*
Basca Mfg. Co., Inc.
Goldhill, Edward S., to DCA Food Industries Inc., New York, N.Y. 224,145, ren. 2-7-67. Cl. 46.
Goodwin Alarik: *See—*
Surfers' World, Inc.
Gorton-Pew Fisheries Co., Ltd., Gloucester, to Collins, Lee Co., Chelsea, Mass. 426,636, ren. 2-7-67. Cl. 46.
Graber, C. C., Co., Ontario, Calif. 823,814. Cl. 46.
Grayson Rose Automatic Transmission Co., Birmingham, Ala. 823,784, pub. 11-22-66. Cl. 103.
Greater Nebraska Life Insurance Co., Lincoln, Nebr. 823,783, pub. 11-22-66. Cl. 102.
Greenleaf, Inc., Denver, Colo. 823,566, pub. 11-22-66. Cl. 10.
Gro-Kote, Inc., Santa Rosa, Calif. 823,697, pub. 11-22-66. Cl. 46.
Growers Exchange, Inc., Glendale, Ariz. 823,720, pub. 11-22-66. Cl. 46.
Grunau, Paul J., Co., Milwaukee, Wis. 823,786, pub. 11-22-66. Cl. 103.
Guide Services, Inc., Atlanta, Ga. 823,666, pub. 11-22-66. Cl. 38.
Gundlach, G. P., & Co., Cincinnati, Ohio. 823,715, pub. 11-22-66. Cl. 46.
Gundlach, G. P., & Co., Cincinnati, Ohio. 823,776, pub. 11-22-66. Cl. 101.
Haloid Co., The. Xerox Corp., Rochester, N.Y. 568,632. Am. 7(d). Cl. 103.
Haloid Co., The. Xerox Corp., Rochester, N.Y. 576,118. Am. 7(d). Cl. 6.
Haloid Co., The. Xerox Corp., Rochester, N.Y. 578,061. Am. 7(d). Cl. 26.
Hamac A.C., Zug, Switzerland. 708,748, canc. Cl. 37.
Hammel, Riglander & Co., to Hammel, Riglander & Co. Inc., New York, N.Y. 60,026, ren. 2-7-67. Cl. 23.
Hammel, Riglander & Co. Inc.: *See—*
Hammel, Riglander & Co.
Hand Brands, Inc., Pound Ridge, N.Y. 823,703, pub. 11-22-66. Cl. 46.
Hand Brands, Inc., Pound Ridge, N.Y. 823,710, pub. 11-22-66. Cl. 46.
Hanna Paint Mfg. Co., The, Columbus, Ohio. 224,702, ren. 2-7-67. Cl. 16.
Hansen Fruit Co.: *See—*
Hansen Fruit & Cold Storage Co.
Hansen Fruit & Cold Storage Co., d.b.a. Hansen Fruit Co., Yakima, Wash. 823,818. Cl. 46.
Hardtmuth, L. & C., Inc., Bloomsbury, N.J. 823,655, pub. 6-21-66. Cl. 37.
Hardwick Products, Inc., Marblehead, Mass. 823,762, pub. 11-22-66. Cl. 52.
Harvey, Eva: *See—*
Clown Comics, Inc.
Haver-Lockhart Laboratories, Inc., Shawnee, Kans. 823,590, pub. 11-22-66. Cl. 18.
Haver-Lockhart Laboratories, Inc., Shawnee, Kans. 823,591, pub. 11-22-66. Cl. 18.
Heinz, B. T., d.b.a. B. T. Heinz Co., Seattle, Wash. 823,640, pub. 11-22-66. Cl. 26.
Heinz, B. T., Co.: *See—*
Heinz, B. T.
Hermes Plastics Inc., New York, N.Y. 823,737, pub. 11-22-66. Cl. 50.
Herring Ginger Ale Co., Jacksonville, Fla. 823,686, pub. 11-22-66. Cl. 45.
Herrling, Robert F., d.b.a. Iroquois Stamp Co., Lake Forest, Ill. 708,610, canc. Cl. 6.
Hertz System, Inc., Chicago, Ill. 708,862, canc. Cl. 105.
Hess Oil & Chemical Corp., Perth Amboy, N.J. 823,573, pub. 11-22-66. Cl. 15.
Hetherington, A. J., Co., Hughson, Calif. 823,592, pub. 11-22-66. Cl. 18.
Heublein, Inc., Hartford, Conn. 823,733, pub. 11-22-66. Cl. 49.
Highlander Sportswear, Inc., Newark, N.J. 823,667, pub. 11-22-66. Cl. 39.
Hol-Can Oil Co.: *See—*
Cannon, Vernon L.
Holiday, Inc., Midwest City, Okla. 708,861, canc. Cl. 101.
Holiday Rambler Corp., Wakarusa, Ind. 823,600, pub. 11-22-66. Cl. 19.
Horner Sales Corp.: *See—*
Balch, Gerald G.
Horrockses, Crewdson & Co., Ltd., Preston, and Manchester, England, by Horrockses (Sales) Ltd., Preston, England. 220,661, 12(c) pub. 2-7-67. Cl. 42.
Horrockses (Sales) Ltd.: *See—*
Horrockses, Crewdson & Co., Ltd.
Houghton, E. F., & Co., Philadelphia, Pa. 222,255, 12(c) pub. 2-7-67. Cl. 52.
House of Foam, The: *See—*
Barry, R. G., Corp.
House of Wrisley, Inc., The, Paris, Tenn. 823,747, pub. 11-22-66. Cl. 51.
Hoyme Hatchery and Poultry Farm: *See—*
Hoyme, Obed.

Hoyme, Obed, d.b.a. Hoyme Hatchery and Poultry Farm, Dell Rapids, S. Dak. 708,585, canc. Cl. 1.
Hoyt, Arthur S., New York, N.Y., to Arthur S. Hoyt Co., Inc., Hicksville, N.Y. 59,609, ren. 2-7-67. Cl. 5.
Hoyt, Arthur S., Co., Inc.: *See—*
Hoyt, Arthur S.
Hoyt, Earl W., d.b.a. Recreation Enterprises, Los Altos, Calif. 823,609, pub. 11-22-66. Cl. 22.
Hudnut, Richard, Morris Plains, N.J. 823,751, pub. 11-22-66. Cl. 51.
Hudson National, Inc., New York, N.Y., from Hudson Vitamin Products, Inc., New York, N.Y. 823,741, pub. 11-22-66. Cl. 51.
Hudson Vitamin Products, Inc.: *See—*
Hudson National, Inc.
Humphreys, J. F., & Co., Bloomington, Ill., to Thomas J. Lipton, Inc., Englewood Cliffs, N.J. 29,592, ren. 2-7-67. Cl. 46.
Hunt, C. Howard, Pen Co., Camden, N.J., to Hunt Mfg. Co., Philadelphia, Pa. 222,549, ren. 2-7-67. Cl. 11.
Hunt Mfg. Co.: *See—*
Hunt, C. Howard, Pen Co.
I-H Milling Co.: *See—*
Seaboard Allied Milling Corp.
Ienni, Roland C., Andover, N.J. 823,618, pub. 11-22-66. Cl. 22.
Imperial House Motels, Inc., Dayton, Ohio. 823,768-9, pub. 11-22-66. Cl. 100.
Indle, Ludwig, Subiaco, Australia. 708,833, canc. Cl. 51.
In-Flight Devices Corp.: *See—*
In-Flight Devices, Inc.
In-Flight Devices, Inc. In-Flight Devices Corp., Columbus, Ohio. 819,813, cor. Cl. 21.
International Association of Religious Science Churches, Carmel, Calif. 823,809. Cl. 38.
International Cement Corp., to Lone Star Cement Corp., New York, N.Y. 221,809, ren. 2-7-67. Cl. 12.
International Paper Co., New York, N.Y. 823,543, pub. 11-22-66. Cl. 2.
Interstate Management Corp., Evansville, Ind. 823,780, pub. 11-22-66. Cl. 102.
Iroquois Stamp Co.: *See—*
Herrling, Robert F.
Irving Air Chute Co., Inc., Lexington, Ky. 228,084-5, ren. 2-7-67. Cl. 19.
Irving Air Chute Co., Inc., Lexington, Ky. 228,087, ren. 2-7-67. Cl. 19.
Ismert-Hincke Milling Co.: *See—*
Seaboard Allied Milling Corp.
Jacquin, Charles, Et. Cie., Inc., Philadelphia, Pa. 823,726, pub. 11-22-66. Cl. 47.
Johnson, Mead & Co., Evansville, Ind. 823,707, pub. 11-22-66. Cl. 46.
Kalender, Nick, d.b.a. Nick Kalender Farm, Dinuba, Calif. 823,701, pub. 11-22-66. Cl. 46.
Kalender, Nick, Farm: *See—*
Kalender, Nick.
Kellmer, Jack, Co.: *See—*
Farrell, Morton B., Co.
Kellogg Co., Battle Creek, Mich. 823,722, pub. 11-22-66. Cl. 46.
Kellogg, Spencer, and Sons, Inc., Buffalo, N.Y., to Textron Inc., Providence, R.I. 425,239, ren. 2-7-67. Cl. 16.
Kennedy, Morell K., d.b.a. Nine O'Clock Press, Pasadena, Calif. 708,753, canc. Cl. 38.
Keuffel & Esser Co., Hoboken, N.J. 708,725, canc. Cl. 26.
Kingsway, Inc., Chicago, Ill. 708,691, canc. Cl. 22.
Konate Pharmacal Co., Inc., Springfield Gardens, N.Y. 823,578, pub. 11-22-66. Cl. 18.
Koninklijke Luchtvaart Maatschappij N.V., New York, N.Y. 823,770, pub. 11-22-67. Multiple Class (Classes 100, 102, and 105).
Koppers Co., Inc., Pittsburgh, Pa. 708,569, canc. Cl. 1.
La Salle Wines & Champagne, Inc., Farmington, Mich. 823,687, pub. 11-22-66. Cl. 45.
Laboratories du Dr. V. A. Oneskiw and/or Beauty Seal: *See—*
Oneskiw, Dr. Vladimir A.
Laclede-Christy Clay Products Co., St. Louis, Mo., by H. K. Porter Co., Inc., Pittsburgh, Pa. 427,833, 12(c) pub. 2-7-67. Cl. 12.
Lambert-Kay, Inc., Los Angeles, Calif. 823,586, pub. 11-22-66. Cl. 18.
Langley Corp., San Diego, Calif. 708,715, canc. Cl. 23.
Lanvin-Charles of The Ritz, New York, N.Y. 823,756, pub. 11-22-66. Cl. 51.
Larbar Corp., St. Paul, Minn. 823,562, pub. 11-22-66. Cl. 9.
Lark Luggage Corp., New York, N.Y. 823,548, pub. 11-22-66. Cl. 3.
Lawry, Rolla C., d.b.a. Moon Laboratories, St. Louis, Mo., to American Home Products Corp., New York, N.Y. 225,774, ren. 2-7-67. Cl. 18.
Laws, Leonard S., Winfield, Kans. 708,701, canc. Cl. 22.
Le Sabre Sportswear, Inc., New York, N.Y. 823,673, pub. 11-22-66. Cl. 39.
Lee Patten Seed Co., Moonachie, N.J. 823,792. Cl. 1.
Lenard et Cie., Inc., Flushing, N.Y. 823,758, pub. 11-22-66. Cl. 51.
Lester, Barbara C., d.b.a. Miss Barbara Co., Somersworth, N.H. 708,694, canc. Cl. 22.
Lever Bros. Co., New York, N.Y. 823,755, pub. 11-22-66. Cl. 51.
Levi, Simon, Co., Ltd., Los Angeles, Calif. 823,734, pub. 11-22-66. Cl. 49.
Lilly, Eli, and Co., Indianapolis, Ind. 823,585, pub. 11-22-66. Cl. 18.
Lipton, Thomas J., Inc.: *See—*
Humphreys, J. F., & Co.

Litho Chemical & Supply Co., Inc., Lynbrook, N.Y. 823,822. Cl. 50.
Loftin Research and Development Corp., Los Angeles, Calif. 823,638, pub. 11-22-66. Cl. 25.
Loenco, Inc., Altadena, Calif. 823,570, pub. 11-22-66. Cl. 13.
Lone Star Cement Corp.: *See*—
International Cement Corp.
Long, Henry M., Lancaster, Pa. 708,699, canc. Cl. 22.
Lynedoch Whisky Co., Ltd., Glasgow, Scotland. 766,043, canc. Cl. 49.
Madeleine de Martel Cosmetics: *See*—
Sherman, Robert M.
Magnetic Devices, Inc., Frederick, Md. 708,729, canc. Cl. 26.
Maitland Junior Chamber of Commerce, Maitland, Fla. 823,767, pub. 11-22-66. Cl. 100.
Maryland Glass Corp., Morris Plains, N.J. 225,523, ren. 2-7-67. Cl. 33.
Mattel, Inc., Hawthorne, Calif. 823,620-3, pub. 11-22-66. Cl. 22.
May, Charles N., & Co., Chicago, Ill. 823,732, pub. 11-22-66. Cl. 49.
Mechanical Equipment Co., New Orleans, La. 421,755, ren. 2-7-67. Cl. 23.
Media Communications, Inc., d.b.a. Brasilia International Co., Los Angeles, Calif. 708,754, canc. Cl. 38.
Medley Distilling Co., Owensboro, Ky. 823,821. Cl. 49.
Melville Shoe Corp., New York, N.Y. 823,674, pub. 11-22-66. Cl. 39.
Melville Shoe Corp., New York, N.Y. 823,679, pub. 11-22-66. Cl. 39.
Merck & Co., Inc.: *See*—
Sharp & Dohme, Inc.
Merck & Co., Inc., Rahway, N.J. 823,598, pub. 11-22-66. Cl. 18.
Metzger, Morris, and Sons Inc., New York, N.Y. 708,761, canc. Cl. 39.
Meyer, Jos. H., Bros., Brooklyn, by The Richelieu Corp., New York, N.Y. 381,210, 12(c) pub. 2-7-67. Cl. 28.
Michigan Outdoor Publishing Co., Kalamazoo, Mich. 823,804. Cl. 38.
Michigan Outdoor Publishing Co., Kalamazoo, Mich. 823,805. Cl. 38.
Milk Proteins, Inc., Detroit, Mich. 823,704, pub. 11-22-66. Cl. 46.
Miller-Cooper Ink Co., Kansas City, Mo. 823,567, pub. 11-22-66. Cl. 11.
Minneapolis-Moline Co., Hopkins, Minn. 708,716, canc. Cl. 23.
Miss Barbara Co.: *See*—
Lester, Barbara C.
Monmouth Canning Co.: *See*—
Baxter, H. C., & Bro.
Moon Laboratories: *See*—
Lawry, Rolla C.
Moriarty Meat Co., Chicago, Ill. 823,712, pub. 11-22-66. Cl. 46.
Morrill & Sturgeon, Portland, Oreg. 708,623, canc. Cl. 12.
Morris, Philip, Inc., d.b.a. Clark Gum Co., New York, N.Y. 823,817. Cl. 46.
Morris Specialties, Inc., West New York, N.J. 708,796, canc. Cl. 46.
Morrison Bros. Seed Co.: *See*—
Morrison Seed Co.
Morrison Seed Co., Spokane, to Morrison Bros. Seed Co., Dishman, Wash. 220,175, ren. 2-7-67. Cl. 1.
Morris, Philip, Inc.: *See*—
Benson & Hedges.
Morse, A. B., Co., Barrington, Ill. 823,657, pub. 11-22-66. Cl. 38.
Muchnick, Stuart, d.b.a. Steri Import and Export Co., Springfield Gardens, N.Y. 823,626, pub. 11-22-66. Cl. 21.
Mud Control Laboratories, Inc., Oklahoma City, Okla. 708,619, canc. Cl. 6.
McCormick Distilling Co., Weston, Mo. 823,731, pub. 11-22-66. Cl. 49.
McMath, Robert M., d.b.a. Rosemary Shelton, New York, N.Y. 823,554, pub. 11-22-66. Cl. 6.
Nash Engineering Co., South Norwalk, Conn. 428,078, ren. 2-7-67. Cl. 23.
National Bellas Hess, Inc., North Kansas City, Mo. 823,691, pub. 11-22-66. Cl. 46.
National Dairy Products Corp.: *See*—
Parmisello Cheese Co.
National Distillers and Chemical Corp.: *See*—
Shaw, Alex D.
National Distillers Products Co.: *See*—
Shaw, Alex D.
National Lead Co., New York, N.Y. 423,844, ren. 2-7-67. Cl. 6.
National Research Corp., Cambridge, Mass. 823,682-3, pub. 11-22-66. Cl. 42.
New Bedford Cordage Co., to Wall Industries, Inc., New York, N.Y. 212,529, ren. 2-7-67. Cl. 7.
Newman and Newman, New York, N.Y. 823,676, pub. 11-22-66. Cl. 39.
Nine O'Clock Press: *See*—
Kennedy, Morell K.
Nishimoto Trading Co., Ltd., Los Angeles, Calif. 823,724, pub. 11-22-66. Cl. 47.
Nordson Pharmaceutical Laboratories, Inc., Irvington, N.J. 708,667, canc. Cl. 18.
Northwest Airlines, Inc., d.b.a. Northwest Orient Airlines, Minneapolis, Minn. 823,788, pub. 11-22-66. Cl. 105.
Northwest Orient Airlines: *See*—
Northwest Airlines, Inc.
Norton, J. R., Co., Glendale, Ariz. 823,721, pub. 11-22-66. Cl. 46.
Norwich Pharmacal Co., The, Norwich, N.Y. 823,599, pub. 11-22-66. Cl. 18.
Novelty, Cord & Tassel Co., Inc., Brooklyn, N.Y. 823,681, pub. 11-22-66. Cl. 40.
N.V. Commercieel Afzetbevorderend Orgaan Voor Groentenen Fruitproducten "Centraal Bureau 2," The Hague, Netherlands. 708,798, canc. Cl. 46.
Old Pal, Inc., Lititz, Pa. 823,612-17, pub. 11-22-66. Cl. 22.
Otis Engineering Corp., Dallas, Tex. 823,771, pub. 11-22-66. Cl. 100.
Owatonna Tool Co., Owatonna, Minn. 823,631, pub. 11-22-66. Cl. 23.
Osnabrucker Kupfer- und Drahtwerk, Osnabruck, Germany. 708,641, canc. Cl. 14.
Pacific Union Marbelite Co., Los Angeles, Calif., to The Union Metal Mfg. Co., Canton, Ohio. 429,452, ren. 2-7-67. Cl. 12.
Parke, Davis & Co., Detroit, Mich. 823,597, pub. 11-22-66. Cl. 18.
Parmisello Cheese Co., San Francisco, Calif., to National Dairy Products Corp., Chicago, Ill. 222,245, ren. 2-7-67. Cl. 46.
Pennsalt Chemicals Corp., Philadelphia, Pa. 823,760, pub. 11-22-66. Cl. 52.
Perfect Hostess Foods, Santa Monica, Calif. 823,690, pub. 11-22-66. Cl. 46.
Per Se, Inc., Stanford, Calif. 823,664, pub. 11-22-66. Cl. 38.
Per Venge, d.b.a. Venge and Co., Los Angeles, Calif. 823,819. Cl. 47.
Pfizer, Chas., & Co., Inc., New York, N.Y. 823,552, pub. 11-22-66. Cl. 6.
Pfizer, Chas., & Co., Inc., New York, N.Y. 823,743, pub. 11-22-66. Cl. 51.
Philadelphia Quartz Co.: *See*—
Crosfield, Joseph, & Sons, Ltd.
Phi Delta Theta, Oxford, Ohio. 224,978, ren. 2-7-67. Cl. 28.
Phillips Petroleum Co., Bartlesville, Okla. 708,581, canc. Cl. 1.
Pittsburgh Plate Glass Co., Pittsburgh, Pa. 823,652, pub. 11-22-66. Cl. 33.
Plastic Contact Lens Co., The, Chicago, Ill. 708,724, canc. Cl. 26.
Plee-Zing Corp., The, assor. to The Plee-Zing Corp., New York, N.Y., and Savannah, Ga., to Plee-Zing, Inc., Evanston, Ill. 226,235, ren. 2-7-67. Cl. 46.
Plee-Zing, Inc.: *See*—
Plee-Zing Corp., The.
Plymouth Cordage Co.: *See*—
Emhart Corp.
Porter, H. K., Co., Inc.: *See*—
Laclede-Christy Clay Products Co.
Prescott, J. L., Co.: *See*—
Black Silk Stove Polish Works.
Psychiatric News and Views, Inc., New York, N.Y. 823,811. Cl. 38.
Purex Corp., Ltd., Lakewood, Calif. 823,764, pub. 11-22-66. Cl. 52.
Quaker Oats Co., The, Chicago, Ill. 823,812. Cl. 46.
Radiator Specialty Co., Charlotte, N.C. 823,761, pub. 11-22-66. Cl. 52.
Radio Corp. of America, New York, N.Y. 708,636, canc. Cl. 13.
Radio Corp. of America, New York, N.Y. 708,735, canc. Cl. 32.
Ragan Knitting Co., Inc., Thomasville, N.C. 823,675, pub. 11-22-66. Cl. 39.
Rarity Packing Co., Inc., Oxnard, Calif. 823,717, pub. 11-22-66. Cl. 46.
Rarity Packing Co., Inc., Oxnard, Calif. 823,718, pub. 11-22-66. Cl. 46.
Rath Packing Co., The, Waterloo, Iowa. 823,694, pub. 11-22-66. Cl. 46.
Raygo, Inc., Minneapolis, Minn. 823,629, pub. 11-22-66. Cl. 23.
Real-o-Stake Co., The: *See*—
Farnham, Arthur C.
Recreation Enterprises: *See*—
Hoyt, Earl W.
Regan Industries, Inc., San Bruno, Calif., from Regan Mfg. Corp., San Bruno, Calif. 708,722, canc. Cl. 26.
Regan Mfg. Corp.: *See*—
Regan Industries, Inc.
Reliance Products Sales Corp., Woonsocket, R.I. 708,769, canc. Cl. 40.
Renwal Toy Corp., Mineola, N.Y. 708,704, canc. Cl. 22.
Rexall Drug Co.: *See*—
United Drug Co.
Rexall Drug and Chemical Co.: *See*—
United Drug Co.
Richardson-Merrell Inc., Cincinnati, Ohio. 823,593, pub. 11-22-66. Cl. 18.
Richardson-Merrell Inc., New York, N.Y. 823,596, pub. 11-22-66. Cl. 18.
Richelieu Corp., The: *See*—
Meyer, Jos. H., Bros.
Rich-Moor Corp., Los Angeles, Calif. 823,719, pub. 11-22-66. Cl. 46.
Rickel, Inc., Kansas City, Mo. 823,633, pub. 11-22-66. Cl. 23.
Riner, Theodore H., d.b.a. Ebcor Mfg. Co., Bakersfield, Calif. 426,739, 12(c) pub. 2-7-67. Cl. 22.
Rite-Rite Mfg. Co., Downers Grove, Ill., to Textron Inc., Providence, R.I. 425,815, ren. 2-7-67. Cl. 37.
Riverside & Dan River Cotton Mills, Inc., now by change of name Dan River Mills, Inc., Danville, Va. 425,338, 12(c) pub. 2-7-67. Cl. 42.
Riverside & Dan River Cotton Mills, Inc., now by change of name Dan River Mills, Inc., Danville, Va. 425,961, 12(c) pub. 2-7-67. Cl. 42.

Rodney Milling Co.: *See*—
Seaboard Allied Milling Corp.
Rogers, Inc., New York, N.Y. 708,588, canc. Cl. 3.
Rohm & Haas Co., Philadelphia, Pa. 823,763, pub. 11-22-66. Cl. 52.
Rolley Co.: *See*—
Botany Industries, Inc.
Roman, George, Baltimore, Md. 823,635, pub. 11-22-66. Cl. 23.
Saab Aktiebolag, Linkoping, Sweden. 823,604, pub. 11-22-66. Cl. 19.
Sandoz Chemical Works, Inc., New York, N.Y., to Sandoz, Inc., Hanover, N.J. 426,478, ren. 2-7-67. Cl. 18.
Sandoz, Inc.: *See*—
Sandoz Chemical Works, Inc.
Sandusky Distributing Co., Sandusky, Ohio. 823,779, pub. 11-22-66. Cl. 101.
Sapolin Co., Inc., to Sapolin Paints, Inc., New York, N.Y. 225,950, ren. 2-7-67. Cl. 4.
Sapolin Paints, Inc.: *See*—
Sapolin Co., Inc.
Schaper Mfg. Co., Inc., Minneapolis, Minn. 708,693, canc. Cl. 22.
Schenley Distillers, Inc.: *See*—
Bernheim Distilling Co.
Schroeder Bros., Inc., New York, N.Y. 823,705, pub. 11-22-66. Cl. 46.
Seaboard Allied Milling Corp., d.b.a. Rodney Milling Co., Kansas City, Mo. 724,571, cor. Cl. 46.
Seoboard Allied Milling Corp., d.b.a. Rodney Milling Co., Kansas City, Mo. 737,262, cor. Cl. 46.
Seaboard Allied Milling Corp., d.b.a. Ismert-Hincke Milling Co., and I-H Milling Co., Kansas City, Mo. 742,071, cor. Cl. 46.
Sell's Specialties, Inc., New York, N.Y. 708,805, canc. Cl. 46.
Selza Watch Co. S.A., Bienne, Switzerland. 823,647, pub. 11-22-66. Cl. 27.
Sharp & Dohme, Inc., Philadelphia, Pa., to Merck & Co., Inc., Rahway, N.J. 426,346, ren. 2-7-67. Cl. 18.
Sharp & Dohme, Inc., Philadelphia, Pa., to Merck & Co., Inc., Rahway, N.J. 426,434, ren. 2-7-67. Cl. 18.
Shaw, Alex D., & Co. National Distillers and Chemical Corp. d.b.a. National Distillers Products Co., New York, N.Y. 123,300, cor. Cl. 47.
Shelton, Rosemary: *See*—
McMath, Robert M.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 823,752-3, pub. 11-22-66. Cl. 51.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 823,757, pub. 11-22-66. Cl. 51.
Shoot-A-Lite Corp., New York, N.Y., by The Turner & Seymour Mfg. Co., Torrington, Conn. 370,565, 12(c) pub. 2-7-67. Cl. 34.
Shulman Fabrics, Inc., Paterson, N.J. 708,773, canc. Cl. 42.
Silberman, Jay D., d.b.a. White Frost Chemicals, Greenwich, Conn. 708,850, canc. Cl. 52.
Simmons-Broardman Publishing Corp., New York, N.Y. 708,755, canc. Cl. 38.
Skookum Packers Association, Inc., Wenatchee, Wash. 823,665, pub. 11-22-66. Cl. 38.
Slenderella Systems, Inc., Stamford, Conn. 708,758, canc. Cl. 39.
Snyder's Drug Stores, Inc., St. Paul, Minn. 823,594, pub. 11-22-66. Cl. 18.
Solomon Bros., New York, N.Y. 823,693, pub. 11-2-65. Cl. 46.
Son Son Foods Co.: *See*—
Anderson-Hutchison Sales, Inc.
Southwestern Petroleum Corp., Fort Worth, Tex. 823,568, pub. 11-22-66. Cl. 12.
Southwestern Petroleum Corp., Fort Worth, Tex. 823,572, pub. 11-22-66. Cl. 15.
Spectronics Corp., Westbury, N.Y. 823,544, pub. 11-22-66. Multiple Class (Classes 2, 11, 16, 21, 26, 37, and 44).
Spring Packing Corp., Chicago, Ill. 708,740, canc. Cl. 35.
Springbok Editions, Inc., New York, N.Y. 823,610-11, pub. 11-22-66. Cl. 22.
Springer, Ralph C., Culver City, Calif. 428,071, ren. 2-7-67. Cl. 23.
Standard Process Laboratories: *See*—
Vitamin Products Co.
Steri Import and Export Co.: *See*—
Muchnick, Stuart.
Stone Conveyor Co., Inc., Honeoye, N.Y. 823,628, pub. 11-22-66. Cl. 23.
Strategic Merchandising Corp., New York, N.Y. 823,801. Cl. 22.
Success Motivation Institute, Inc., Waco, Tex. 823,803. Cl. 38.
Surfers' World, Inc., Laguna Beach, from G. Alarik, La Canada, Calif. 823,607-8, pub. 9-27-66. Cl. 22.
Sutliff & Case Co., Inc., Peoria, Ill. 823,580-3, pub. 11-22-66. Cl. 18.
Sybil Iver Inc., White Plains, N.Y. 823,742, pub. 11-22-66. Cl. 51.
Talbott Knitting Mills, Inc., New York, N.Y. 823,677, pub. 11-22-66. Cl. 39.
Taterstate Frozen Foods, Washvurn, Maine. 823,815. Cl. 46.
Templeton, Kenly & Co., Broadview, Ill. 823,632, pub. 11-22-66. Cl. 23.
Tenex Corp., Elk Grove Village, Ill. 823,735, pub. 4-19-66. Cl. 50.
Tennessee Eastman Corp., Kingsport, Tenn., to Eastman Kodak Co., Rochester, N.Y. 426,301, ren. 2-7-67. Cl. 6.
Teweles, L., Seed Co., Milwaukee, Wis. 823,794. Cl. 1.
Textron Inc.: *See*—
Kellogg, Spencer, and Sons, Inc.
Rite-Rite Mfg. Co.
Thiokol Chemical Corp., Bristol, Pa. 823,555, pub. 11-22-66. Cl. 6.
Thompson-Hayward Chemical Co., Kansas City, Kans. 823,797. Cl. 6.
Three Star Stamp Co., The, Hopkins, Minn. 823,774, pub. 11-22-66. Cl. 101.
Toni Co., The: *See*—
Gillette Co., The.
Tower Press, Inc., Lynn, Mass. 823,808. Cl. 38.
Tuesday Publications, Inc., Chicago, Ill. 818,693, cor. Cl. 38.
Turner & Seymour Mfg. Co., The: *See*—
Shoot-A-Lite Corp.
Twin Coach Co., The, Buffalo, N.Y. 708,686, canc. Cl. 19.
Tyrex Inc., New York, N.Y. 823,561, pub. 11-22-66. Cl. 7.
Union Metal Mfg. Co., The: *See*—
Pacific Union Marbelite Co.
Upjohn Co., The, Kalamazoo, Mich. 823,576, pub. 11-22-66. Cl. 18.
United Aircraft Corp., Sunnyvale, Calif. 823,549-50, pub. 11-22-66. Cl. 6.
United Drug Co., Boston, Mass., by Rexall Drug and Chemical Co., d.b.a. Rexall Drug Co., Los Angeles, Calif. 260,150, 12(c) pub. 2-7-67. Cl. 6.
United Drug Co., Boston, Mass., by Rexall Drug and Chemical Co., Los Angeles, Calif. 320,252, 12(c) pub. 2-7-67. Cl. 37.
United Drug Co., Boston, Mass., by Rexall Drug and Chemical Co., d.b.a. Rexall Drug Co., Los Angeles, Calif. 335,165, 12(c) pub. 2-7-67. Cl. 18.
United National Life Insurance Co., Mesa, Ariz. 823,806. Cl. 38.
United Newspapers Magazine Corp., New York, N.Y. 823,807. Cl. 38.
U.S. Industries, Inc., New York, N.Y. 708,717, canc. Cl. 23.
United States Wholesale Grocers' Association, Inc., Washington, D.C. 823,689, pub. 11-22-66. Cl. 46.
Universal Publishing & Distributing Corp., New York, N.Y. 823,659-60, pub. 11-22-66. Cl. 38.
Universal Zonolite Insulation Co., Chicago, Ill., by Concrete Thermal Casings, Inc., Kirkland, Wash. 425,522, 12(c) pub. 2-7-67. Cl. 12.
Vari-Tech Co., Grand Rapids, Mich. 823,639, pub. 11-22-66. Cl. 26.
Venge and Co.: *See*—
Per Venge.
Visi-Trol Engineering Co., Inc., Detroit, Mich. 823,634, pub. 11-22-66. Cl. 23.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 823,696, pub. 11-22-66. Cl. 46.
Wall Industries, Inc.: *See*—
New Bedford Cordage Co.
Wallace & Tiernan Inc., Belleville, N.J. 785,069, canc. Cl. 18.
Wear-Flex Corp., The, Milwaukee, Wis. 823,560, pub. 11-22-66. Cl. 7.
Welsh Sporting Goods Corp., Iowa Falls, Iowa. 823,545, pub. 11-22-66. Multiple Class (Classes 3, 9, and 22).
Wembley, Inc., New Orleans, La. 823,670, pub. 11-22-66. Cl. 39.
Western Pennsylvania National Bank, Pittsburgh, Pa. 823,782, pub. 11-22-66. Cl. 102.
Western Union Telegraph Co., The, New York, N.Y. 823,827. Cl. 104.
Westfield Food Products, Inc., Westfield, N.Y. 708,820-22, canc. Cl. 46.
Westlake Plastics Co., Lenni Mills, Pa. 823,537, pub. 11-22-66. Cl. 1.
Whirlpool Corp., Benton Harbor, Mich. 823,636, pub. 11-22-66. Cl. 24.
White Frost Chemicals: *See*—
Silberman, Jay D.
White Furniture Co., Mebane, N.C. 818,278, cor. Cl. 32.
White Laboratories, Inc., Kenilworth, N.J. 708,681, canc. Cl. 18.
Wilco Co., Los Angeles, Calif. 823,556, pub. 11-22-66. Cl. 6.
Wile, Julius, Sons & Co., Inc.: *See*—
Bollinger, Jacques J. M.
Winters, Adrian L., Sr., d.b.a. Winters' Wood Specialties, Columbia, La. 823,540, pub. 11-22-66. Cl. 1.
Womack Electronics, Inc., Danville, Va. 823,625, pub. 11-22-66. Cl. 21.
Wostenholm, George, & Son, Ltd., Sheffield, England. 56,558, 12(c) pub. 2-7-67. Cl. 23.
Xerox Corp.: *See*—
Haloid Co., The.
Youthpower, Inc., Milwaukee, Wis. 823,773, pub. 11-22-66. Cl. 101.

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
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PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of December 1966

Examiner affirmed	158
Examiner affirmed in part	36
Examiner reversed	50
Total	244

Adjudicated Patents

(D.C. Calif.) Zilk Patent No. 2,887,250 (222—76), for DISPENSING APPARATUS, *Held* invalid. *Zilk* v. *Deaton Fountain Service,* 247 F. Supp. 548; 149 USPQ 594.

(D.C. Ind.) Norman, Powell, and Sherer Patent No. 2,896,257 (18—30), for INJECTION MOLDING MACHINE, *Held* invalid. *Koehring Co.* v. *National Automatic Tool Co.*, 257 F. Supp. 282; 150 USPQ 777.

(D.C. Ariz.) Redmond Patent No. 2,895,821 (75—75), for PROCESS FOR REFINING BLISTER COPPER. Claims 1 and 3 *Held* valid and infringed. *Brian Jackson Associates, Inc.* v. *San Manuel Copper Corp.,* 259 F. Supp. 793; 151 USPQ 5.

(D.C. Calif.) Wagner Patent No. 2,934,932 (52—747), for HYDRAULIC CEMENT MORTAR COMPOSITIONS AND METHOD OF USE. Claims 1, 2 and 4 to 9 *Held* valid and infringed. *Tile Council of America, Inc.* v. *Ceramic Tilers Supply, Inc.*, 257 F. Supp. 339; 149 USPQ 398.

(D.C.D.C.) Rutkowsky and Rutkowsky Patent No. 3,010,584 (211—121), for ARTICLE STORING AND DELIVERING APPARATUS. Claims 5 to 8 *Held* invalid and not infringed; claims 1 to 4 *Held* invalid. *Railex Corp.* v. *Joseph Guss & Sons, Inc.*, 256 F. Supp. 994; 150 USPQ 491.

(D.C. Mass.) Mayers Patent No. 3,035,372 (65—32), for METHOD FOR MAKING A GLASS TO METAL SEAL. Claims 1 and 2 *Held* valid and infringed. *Philips Electronic Pharmaceutical Industries Corp.* v. *Electronic Products Inc.*, 256 F. Supp. 705; 150 USPQ 188.

(D.C. Va.) Preis and Kuhnl Patent No. 3,071,847 (30—346.71), for RAZOR BLADE HAVING MEANS FOR TILTABLY LOCKING THE SAME IN THE OPENED UP HEAD OF A RAZOR, *Held* invalid and not infringed. *Eversharp, Inc.* v. *Philip Morris Inc.*, 256 F. Supp. 778; 150 USPQ 99.

(D.C. Mich.) Nelsson Patent No. 3,090,164 (52—346), for WALL CONSTRUCTION AND RESILIENT RUNNER THEREFOR. Claims 1 to 3 *Held* valid and infringed. *U.S. Gypsum Co.* v. *Dale Industries Inc.*, 260 F. Supp. 78; 151 USPQ 251.

(D.C. Ill.) Gass Patent No. 3,121,582 (293—67), for UNIVERSAL BUMPERETTE ASSEMBLY. Claims 1 and 2 *Held* infringed. *Gass* v. *Montgomery Ward & Co.*, 258 F. Supp. 494; 151 USPQ 97.

(D.C.N.J.) Foster Patent No. 3,129,860 (222—512), for CLOSURE CONSTRUCTION FOR SIFTING CONTAINERS, *Held* invalid. *J. L. Clark Mfg. Co.* v. *American Can Co.*, 256 F. Supp. 719; 151 USPQ 313.

Dedication

3,235,324.—*Wayne R. Merriman*, Midland, Mich. BOILER PROTECTION. Patent dated Feb. 15, 1966. Dedication filed Nov. 15, 1966, by the assignee, *The Dow Chemical Company.*

Hereby dedicates to the Public the remaining term of said patent.

Disclaimer and Dedication

Reissue No. 25,757.—*Park L. Morse*, Moraga, Calif. INSULATING AND CORROSION PROTECTIVE MATERIAL AND METHOD OF APPLICATION. Reissue patent dated Apr. 6, 1965. Disclaimer and dedication filed Nov. 21, 1966, by the assignee, *American Gilsonite Company.*

Hereby enters this disclaimer and dedicates to the Public the remaining term of said patent subsequent to Nov. 17, 1966.

Disclaimers

2,996,658.—*Francois F. Kirchner* and *Leroy S. Jimerson, Jr.*, Ridgefield, Conn. MAGNETIC RESONANCE APPARATUS. Patent dated Aug. 15, 1961. Disclaimer filed Nov. 16, 1966, by the assignee, *Varian Associates.*

Hereby enters this disclaimer to the remaining term of said patent.

3,023,358. *Francois F. Kirchner*, Ridgefield, Conn. CONTROL SYSTEMS. Patent dated Feb. 27, 1962. Disclaimer filed Nov. 16, 1966, by the assignee, *Varian Associates.*

Hereby enters this disclaimer to the remaining term of said patent.

3,031,169.—*Art I. Robinson*, Wichita Falls, Tex., and *Garman O. Kimmell*, Oklahoma City, Okla. APPARATUS FOR AUTOMATICALLY CONTROLLING DRILLING. Patent dated Apr. 24, 1962. Disclaimer filed Dec. 22, 1966, by the assignee, *Bear Manufacturing Corporation.*

Hereby enters this disclaimer to claim 9 of said patent.

New Applications Received During December 1966

Patents	8,347
Designs	384
Plant Patents	10
Reissues	17
Total	8,758

Issue—February 14, 1967

Patents	1,041	—No. 3,303,514	to No. 3,304,554,	incl.
Designs	59	—No. 206,930	to No. 206,988,	incl.
Plant Patents	4	—No. 2,712	to No. 2,715,	incl.
Reissues	5	—No. 26,155	to No. 26,159,	incl.
Total	1,109			

3,058,176.—*Edward A. Zegers,* Flossmoor, Ill. MEANS FOR AND METHOD OF DETACHABLY MOUNTING SASH GUIDING WEATHERSTRIPS IN WINDOW FRAMES. Patent dated Oct. 16, 1962. Disclaimer filed Nov. 21, 1966, by the inventor.

Hereby enters this disclaimer to claims 1, 3 and 4 of said patent.

3,096,345.—*Ingenuin Hechenbleikner* and *Kenneth R. Molt,* Cincinnati, Ohio. ACETAL AND KETAL PHOSPHITES. Patent dated July 2, 1963. Disclaimer filed Jan. 6, 1967, by the assignee, *Carlisle Chemical Works, Inc.*

Hereby enters this disclaimer to claims 26 and 30 of said patent.

3,163,888.—*Robert Shattuck,* Parkersburg, W. Va. PROCESS AND APPARATUS FOR HEATING PLASTIC GRANULES. Patent dated Jan. 5, 1965. Disclaimer filed Nov. 17, 1966, by the assignee, *Borg-Warner Corporation.*

Hereby enters this disclaimer to claims 1–3, 5, 7, 8, 10, and 11 of said patent.

Patents Available for Licensing or Sale

D199,562. HANDLED STEERING WHEEL. John T. Le Rose, 61 Joseph St., Moonachie, N.J., 07074.

3,068,000. ANIMATED FOOT OPERATED MOTION DEVICE. Carl T. Hanson, Route 2, Box 29, Waterville, Kans., 66548.

3,269,574. THRIFTY CAMPER LIFT ASSEMBLY. Winton J. Bennett, 1500 S. Dallas St., Auburn, Ind., 46706.

3,295,914. HITCH GUIDE MIRROR FOR TRAILER MOUNTING. William Dietrich. Correspondence to: Christensen, Sanborn & Matthews, 711 Olympic National Life Bldg., 920 2nd Ave., Seattle, Wash., 98104.

3,298,571. AUTOMATICALLY ACTUATED FLUID PRESSURE AND TRIGGERING DISCHARGE VALVE. Joseph F. Novak, 609 State St., Calumet City, Ill., 60409.

The following 2 patents are offered by: Delmar L. Hampl, 916 E. 1st, Russell, Kans., 67665.

3,034,360.	GRAIN AND MATERIAL SAMPLER.
3,237,798.	HYDRAULIC LOAD CARRIER.

General Signal Corporation is prepared to grant non-exclusive licenses under the following 50 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patents may be addressed to: General Railway Signal Company, a unit of General Signal Corporation, Attention, Manager, Patent Department, P.O. Box 600, Rochester, N.Y., 14602.

3,158,409.	BRAKE CONTROL SYSTEM FOR RAILWAY TRAINS.
3,160,796.	MAGNETIC STICK TYPE RELAY HAVING SATURABLE CORE MEMBER.
3,163,259.	AUTOMATIC CAR RETARDER.
3,163,384.	DETECTION MEANS FOR IMPROPERLY LUBRICATED JOURNALS.
3,164,224.	CAR RETARDER FOR RAILROADS.
3,169,736.	RAILWAY CAR RETARDERS AND CONTROL THEREOF.
3,172,627.	CAB SIGNAL RECEIVING SYSTEM FOR RAILROADS.
3,176,125.	RECORDING SYSTEM FOR VEHICLE TRAFFIC.
3,176,126.	PROTECTIVE SYSTEM FOR HIGHWAY CROSSINGS.
3,176,127.	INDICATION DISPLAY AND STORAGE SYSTEM FOR A CENTRALIZED TRAFFIC CONTROL SYSTEM FOR RAILROADS.
3,177,359.	JOURNAL TEMPERATURE INFORMATION RECORDING SYSTEM FOR TRAINS.
3,178,515.	PLURAL MODULATION COMMUNICATION SYSTEM.
3,178,683.	CROSSING PROTECTION SYSTEM.
3,183,350.	SYSTEM FOR DETECTING HOT ELEMENTS ON RAILWAY VEHICLES.
3,196,232.	REED RELAY.
3,200,245.	AUTOMATIC CAR RETARDER CONTROL SYSTEM.
3,200,246.	CAR RETARDER CONTROL SYSTEM.
3,204,061.	ELECTROMAGNETIC RELAY STRUCTURE.
3,205,478.	HIGHWAY CROSSING WARNING SYSTEM.
3,209,865.	CAR RETARDING SYSTEM.
3,211,907.	CAR ROUTING SYSTEM FOR RAILROADS.
3,214,038.	CONTROL SYSTEM FOR RAILWAY VEHICLES.
3,214,039.	A VEHICLE CONTROL SYSTEM.
3,214,581.	CONTROL SYSTEM FOR RAILWAY CAR RETARDERS.
3,217,662.	CONTROL FOR HELPER LOCOMOTIVE.
3,217,663.	STRAIN GAUGE CONTROL FOR A HELPER LOCOMOTIVE.
3,218,452.	RAILWAY TRACK SWITCH CONTROL SYSTEM.
3,218,454.	VEHICLE CONTROL SYSTEM.
3,218,455.	SLOW ORDER CONTROL FOR RAILWAY LOCOMOTIVES.
3,219,814.	CENTRALIZED TRAFFIC CONTROL SYSTEM.
3,219,815.	INTERLOCKING SYSTEM FOR RAILROADS.
3,231,788.	SENSITIVE RELAY OPERATING CIRCUIT.
3,234,377.	VEHICLE CONTROL SYSTEM.
3,240,929.	CONTROL SYSTEM FOR RAILWAY TRAINS.
3,241,003.	CONTROL CIRCUIT FOR A FIELD START RELAY IN A CODE TYPE COMMUNICATION SYSTEM.
3,244,941.	MOUNTING MEANS FOR ELECTROMAGNETIC DEVICES.
3,246,140.	VIGILENCE MONITORING SYSTEM FOR LOCOMOTIVE ENGINEER.
3,248,538.	STRAINED MOVEMENT DETECTION AND RESETTING SYSTEM.
3,250,914.	ZONE CONTROL SYSTEM.
3,251,312.	LOCOMOTIVE SPEED CONTROL SYSTEM.
3,251,989.	MODULATED CARRIER FREQUENCY INDICATION SYSTEM FOR IDENTIFIED VEHICLES.
3,251,990.	VEHICLE DETECTION AND CONTROL SYSTEM.
3,253,143.	LOCOMOTIVE CONTROL SYSTEM.
3,268,862.	CODE COMMUNICATION SYSTEM.
3,270,199.	SPEED CONTROL SYSTEM FOR VEHICLES.
3,284,627.	VEHICLE CONTROL SYSTEM.
3,285,196.	APPARATUS FOR CONTROLLING A VEHICLE WHEN GETTING UNDER WAY.
3,286,091.	VEHICLE TRAFFIC CONTROL SYSTEM.
3,287,555.	AUTOMATIC VEHICLE CONTROL SYSTEM.
3,297,867.	VEHICLE STOPPING CONTROL SYSTEM.

The Radio Corporation of America offers to grant non-exclusive licenses on reasonable terms and conditions under the following 75 patents.

Inquiries respecting licenses under RCA patents should be addressed to: Radio Corporation of America, Staff Vice President, Patent Licensing, 30 Rockefeller Plaza, New York, N.Y., 10020.

3,263,030.	DIGITAL CROSSPOINT SWITCH.
3,263,303.	METHOD OF MAKING MODULES.
3,264,157.	CATHODE RAY TUBE FABRICATION.
3,264,397.	CONTROL SYSTEM.
3,264,408.	AUTOMATIC FREQUENCY CONTROL.
3,264,413.	F.M. STEREOPHONIC RECEIVER USING AN INSULATED GATE-FIELD-EFFECT TRANSISTOR FOR COMBINING THE SUBCARRIER AND COMPOSITE WAVES.
3,264,414.	STEREOPHONIC F.M. RECEIVERS.
3,264,488.	BALANCED CURRENT PUMPED PARAMETRIC CONVERTER.
3,264,490.	CRYOELECTRIC LOGIC CIRCUITS.
3,264,532.	HEAT RESPONSIVE VARIABLE CHARACTERISTIC SEMICONDUCTOR DEVICE.
3,264,564.	VARIABLE IMPEDANCE DEVICE FOR TRANSISTOR AUTOMATIC GAIN CONTROL.
3,264,567.	BINARY CODED DECIMAL COUNTER CIRCUITS.
3,264,624.	SYSTEM FOR THE RETRIEVAL OF INFORMATION FROM A CONTENT ADDRESSED MEMORY AND LOGIC NETWORKS THEREIN.
3,264,707.	METHOD OF FABRICATING SEMICONDUCTOR DEVICES.
3,265,906.	INVERTER CIRCUIT IN WHICH A COUPLING TRANSISTOR FUNCTIONS SIMILAR TO CHARGE STORAGE DIODE.
3,265,915.	CATHODE RAY TUBE.
3,266,124.	METHOD OF AND APPARATUS FOR SEALING GLASS-TYPE ENVELOPES.
3,266,329.	MECHANICAL MOVEMENT.
3,266,497.	DATA PROCESSING.
3,266,798.	MEANS FOR RETURNING A RECORD CARD TO ITS STACK.
3,267,295.	LOGIC CIRCUITS.
3,267,308.	THERMIONIC ENERGY CONVERTER.
3,267,317.	DEVICE FOR PRODUCING RECOMBINATION RADIATION.
3,267,845.	MATRIX PRINTER EMPLOYING PRINT BARS.
3,268,317.	APPARATUS FOR MANUFACTURING REED SWITCHES.
3,268,362.	DEPOSITION OF CRYSTALLINE NIOBIUM STANNIDE.
3,268,658.	TRANSISTOR CLAMP CIRCUIT.
3,268,753.	PLURAL ELECTRON GUN ASSEMBLY AND MAGNETIC CONVERGENCE CAGE.
3,268,760.	PLURAL ELECTRODE UNIT ELECTRON TUBE.
3,268,820.	TIMING PULSE GENERATOR HAVING SELECTIVE PULSE SPACING.
3,268,821.	TIMING OR CLOCK PULSE GENERATOR EMPLOYING PLURAL COUNTERS CAPABLE OF BEING SELECTIVELY GATED.
3,268,827.	INSULATED-GATE FIELD-EFFECT TRANSISTOR AMPLIFIER HAVING MEANS TO REDUCE HIGH FREQUENCY INSTABILITY.
3,268,849.	ELECTRICAL CONNECTORS.
3,268,885.	ANALOG-TO-DIGITAL CONVERTER.
3,269,795.	AUTOMATIC EXCITER LAMP CHANGER.
3,269,838.	METHOD OF MAKING LUMINESCENT SCREENS FOR CATHODE RAY TUBES.
3,269,956.	METHOD FOR PREPARING RARE EARTH ACTIVATED ZINC SULFIDE PHOSPHORS AND PRODUCTS THEREOF.
3,270,125.	COLOR KINESCOPE OPERATING AND TESTING ARRANGEMENTS.
3,270,126.	COLOR MATRIX INCLUDING NEGATIVE FEEDBACK AND A CROSS-FEED CONNECTION.
3,270,128.	POWER SUPPLY PROTECTION ARRANGEMENT.
3,270,130.	SERVO SYSTEM WITH PLURAL REFERENCE SIGNALS.
3,270,235.	MULTI-LAYER SEMICONDUCTOR ELECTROLUMINESCENT OUTPUT DEVICE.
3,270,241.	CYCLOTRON WAVE DOUBLE-STREAM DEVICES.
3,270,291.	LASER CONTROL DEVICE USING A SATURABLE ABSORBER.
3,270,292.	ULTRA HIGH FREQUENCY TRANSISTOR OSCILLATOR.
3,270,571.	TELEVISION TUNER.
3,271,026.	DOCUMENT STACKING DEVICE.
3,271,034.	POSITIONING MECHANISM.
3,271,610.	COLOR CATHODE RAY TUBE WITH INDEX STRIPES ON ULTRA-VIOLET-EMITTING PHOSPHOR LAYER.
3,271,635.	SEMICONDUCTOR DEVICES WITH SILVER-GOLD LEAD WIRES ATTACHED TO ALUMINUM CONTACTS.
3,272,914.	DIRECT-CURRENT RESTORER SYSTEM FOR COLOR TELEVISION RECEIVER.
3,272,915.	COLOR TELEVISION RECEIVER INCLUDING TRANSISTORIZED COLOR KILLER.
3,272,989.	INTEGRATED ELECTRICAL CIRCUIT.
3,272,996.	SIGNAL LIMITER.
3,273,021.	ENCLOSURE FOR HIGH VOLTAGE APPARATUS.
3,273,084.	VARIABLE ATTENUATOR.
3,273,134.	PRINTED CIRCUIT ASSEMBLIES OF MAGNETIC CORES.
3,273,476.	PHOTOCOMPOSING SYSTEM.
3,273,774.	ELECTROSTATIC WEB FEEDING APPARATUS.
3,273,979.	SEMICONDUCTIVE DEVICES.
3,274,327.	MULTILAYER CIRCUIT CONNECTION.
3,274,398.	LOGIC CIRCUITS.
3,274,399.	TRIGGER CIRCUIT.
3,274,404.	ELECTRON TUBES AND METHODS OF OPERATION THEREOF FOR ENERGY CONVERSION.
3,274,406.	ACOUSTIC-ELECTROMAGNETIC DEVICE.
3,274,439.	CIRCUITS FOR DISCHARGING A CAPACITOR THROUGH AN ARC DISCHARGE DEVICE.
3,274,518.	MODULATION SYSTEM.
3,274,550.	CHARACTER RECOGNITION SYSTEM INCLUDING CIRCUITS FOR LOCATING CHARACTERS AND CIRCUITS FOR DISCRIMINATING AGAINST NOISE.
3,274,565.	OPTICAL-PHOTOCONDUCTIVE REPRODUCER UTILIZING INSULATIVE LIQUIDS.
3,274,566.	STORAGE CIRCUIT.
3,274,567.	FERROELECTRIC CONTROL CIRCUIT.
3,275,466.	METHOD OF ADHERING PARTICLES TO A SUPPORT SURFACE.
3,275,558.	DOUBLY DOPED TITANIUM DIOXIDE MASER ELEMENT.
3,275,952.	MICROWAVE PHASE SHIFTER SYSTEM PROVIDING SUBSTANTIAL CONSTANT PHASE SHIFT OVER BROAD BAND.
3,275,996.	DRIVER-SENSE CIRCUIT ARRANGEMENT.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 19, 1966

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-24-63	10-18-61
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-13-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	8-29-63	10- 3-61
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	7-11-63	3-12-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Metallurgical Apparatus; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7- 2-63	10-23-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-15-63	8-30-62
SECURITY, GROUP 220—S. BOYD, Manager Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-16-64	4-25-62
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	5- 9-63	7- 3-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	5-15-63	12- 1-61
PHYSICS, GROUP 280—R. L. EVANS, Manager Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-13-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager Industrial Arts; Household, Personal and Fine Arts.	9-22-65	3-12-65

Total number of pending applications (excluding Designs)	197, 247
Total number of Design applications pending	4,319
Total number of applications awaiting action (excluding Designs)	140, 694
Total number of Design applications awaiting action	2, 617
Date of oldest new application awaiting action	May 9, 1963
Date of oldest amended application awaiting action	July 3, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during February 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 690. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1958.*

Patents	Numbers 2,496,256 to 2,499,344, inclusive
Plant Patents	Numbers 919 to 925, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	11-23-64	5-31-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	9- 8-64	9-24-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	7- 7-64	6-18-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	3-12-65	1-13-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	12- 3-64	8-20-62
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, Including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	7- 8-64	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

Joseph Petisi and James Howard Boothe
v.
Hans H. Rennhard and Charles R. Stephens, Jr.

No. 7634. Decided August 4, 1966

[53 CCPA —; 363 F.2d 903; 150 USPQ 669]

1. Interference—Priority—Priority as to Species Within Genus Count—Rule of *Kyrides* v. *Andersen*.

"* * * the rule of *Kyrides* v. *Andersen* * * * [is] that one who is prior as to a species within a genus wins a priority award on a count to that genus."

2. Same—Reduction to Practice—Constructive—Compounds—35 U.S.C. 112.

"* * * we turn to another consideration dealing with the adequacy of disclosure in the parent application and which appears to be the crux of the position taken by the Board and argued by appellees. This position is that the parent Petisi application fails to *specify unequivocally*, or to 'positively identify,' to quote appellees' brief, any embodiment within the interference count and therefore cannot be considered as a constructive reduction to practice thereof. While the premise in this proposition may be true, we think the conclusion derived therefrom is not valid, simply because the proposition rests upon the false assumption that such positive identification is required for a constructive reduction to practice. The reason it is not required is simply that we are concerned only with what has been taught by the parent specification to those 'skilled in the art to which it pertains,' 35 U.S.C. 112, and, as *to them*, a compound may well be disclosed without positive identification."

3. Same—Same—Same—Same.

"What we think appellants effectively said in their parent application is: 'We are not absolutely certain, but *we think isomers (A) and (B) are* the 7-nitro and 9-nitro-6-demethyl-6-deoxytetracyclines.' This is not a shotgun announcement, or blind speculation, but direct to-the-point disclosure of what appellants believed, without alternatives. The mere fact of its being a belief is not, of itself, fatal to appellants' case. The compounds were, we think, taught to one of ordinary skill in the chemical art."

4. Same—Priority—Compounds.

"* * * we note that appellants' belief turned out to be precisely the fact, or at least they became sufficiently convinced as to make an 'unequivocal' identification of their compounds. In comparing their parent and c-i-p applications, one finds that the procedures of Examples 1 through 4, discussed above, of the parent are identical with Examples 1 through 4 in the c-i-p, and in the c-i-p application the products of those procedures are identified as the 7-nitro and 9-nitro compounds. On this basis alone, therefore, it must be concluded that, as between the parties here, appellants are the prior inventors of these two species because Examples 1 through 4 in the parent necessarily produced the same product. The *product*, not the formula or name, is the invention, and it is as to *this* that priority has been shown."

Appeal from the Patent Office. Interference No. 92,332.

REVERSED.

Norton S. Johnson (*John Boustead*, *Roger T. McLean*, *Martin J. Brown*, of counsel) for appellants.

Werner H. Hutz (*Nicholas E. Oglesby, Jr.* of counsel) for appellees.

Before Rich, *Acting Chief Judge*, and Martin, Smith, and Almond, Jr., *Associate Judges*, and Judge William H. Kirkpatrick, *United States Senior District Judge for the Eastern District of Pennsylvania*

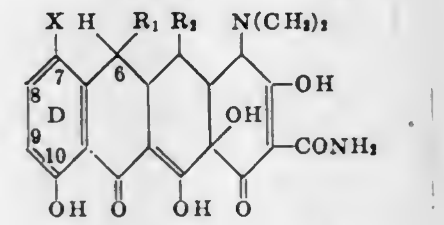
Rich, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Board of Patent Interferences awarding priority of invention to appellees Rennhard et al., the senior party, in Interference No. 92,332, between Petisi et al. application Serial No. 65,584, filed October 28, 1960, for "New Tetracycline Compounds," and Rennhard et al. application Serial No. 847,867, filed October 22, 1959, the title of which does not appear in the record.[1]

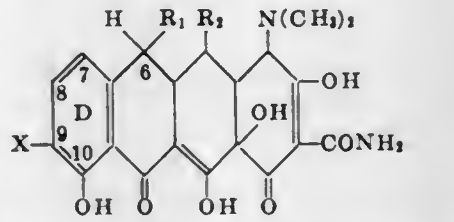
During the motion period appellants, Petisi et al., moved to shift the burden of proof on the basis of three prior filed applications, only one of which—Serial No. 797,884, filed March 9, 1959—was copending with the involved Petisi et al. application and is of interest here.[2] That motion was denied, the decision was adhered to on reconsideration, and a petition to the Commissioner from that decision was denied since neither manifest error nor abuse of discretion by the Examiner was found. Thereupon Petisi et al. took the testimony of certain witnesses for the purpose of explaining the disclosure of the parent application and to show they were entitled, under the law of "inherency," to the March 9, 1959, filing date of that application as a date of constructive reduction to practice.

The subject matter in issue is certain tetracycline derivatives disclosed as having antibacterial activity. The single count reads (number-positions of certain carbon atoms and identification of the D-ring have been added):

A compound selected from the group consisting of



and



wherein X is a member selected from the group consisting of nitro and amino; R_1 is a member selected from the group consisting of hydrogen and methyl; R_2 is a member selected from the group consisting of hydrogen and hydroxyl; with the provision that R_1 is methyl when R_2 is hydroxyl; and the non-toxic acid addition salts thereof.

It will be helpful for an understanding of the case to observe at this point that the count reads on two compounds in particular, 7-nitro-6-demethyl-6-deoxytetracycline and 9-nitro-6-demethyl-6-deoxytetracycline, i.e., those compounds having structures as above depicted wherein X is nitro and R_1 and R_2 are hydrogen. These will be called, hereinafter, the 7-nitro and 9-nitro compounds.

Neither party took priority testimony, the party Rennhard et al. thus being restricted to a date no earlier than March 30, 1959, the filing date of their application Serial No. 802,655, referred to in their preliminary statement as "disclosing the invention set forth by the count." We are therefore presented with the sole issue considered at final hearing: are Petisi et al. entitled to the benefit of the filing date of their parent application with regard to the subject matter defined by the count? 35 U.S.C. 120, 112. [1] More specifically, the issue is whether that parent application teaches either of the above-indicated 7-nitro and 9-nitro compounds, and thereby entitles appellants to an award of priority under the rule of *Kyrides* v. *Andersen*, 28 CCPA 1336, 121 F.2d 514, 50 USPQ 131, that one who is prior as to a species within a genus wins a priority award on a count to that genus.

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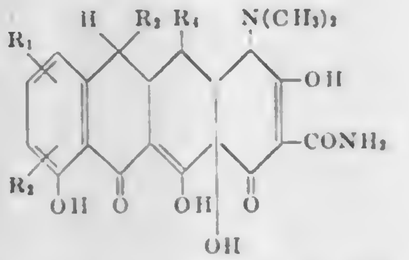
[1] It appears from the record and briefs that the parties in interest are Lederle Laboratories (Petisi et al.) and Chas. Pfizer and Co. (Rennhard et al.).

[2] The involved Petisi et al. application is a continuation-in-part of application Serial No. 797,884. These will be referred to, hereinafter, as the c-i-p and parent applications respectively, although the latter in reality is also a c-i-p, twice removed, of the first-filed application in a long series.

That application begins by saying (emphasis ours):

> This invention relates to new compounds of the tetracycline family and more particularly is concerned with novel tetracyclines which may be represented by the following general formula:



> wherein R$_1$ and R$_2$ are H, NO$_2$, NH$_2$, CN and halogen with the proviso that R$_1$ and R$_2$ may not both be H and with the further proviso that when R$_1$ is halogen R$_2$ may not be hydrogen and vice versa, R$_3$ is H or CH$_3$ and R$_4$ is H or OH.
>
> *Certain of the new compounds* of this invention, e.g., the nitrotetracyclines, *are prepared by the reaction of 6-demethyl-6-deoxytetracycline*, 6-deoxytetracycline or 5-hydroxy-6-deoxytetracycline *with potassium nitrate*, preferably a molar equivalent thereof, and a strong mineral acid, e.g., sulfuric acid, at a temperature ranging from about −15° C. to about +15° C. The resulting nitrotetracycline is usually isolated from the reaction mixture as the acid sulfate by precipitation with cold ether. The free base may be obtained by adjusting an aqueous solution of the product to a pH of from about 4 to 6 with mild alkali, i.e., sodium carbonate. *The resulting product may be termed* nitro-6-deoxytetracycline, *nitro-6-demethyl-6-deoxytetracycline* or nitro-5-hydroxy-6-deoxytetracycline depending upon the starting material used.
>
> *When 6-demethyl-6-deoxytetracycline is used* as the starting material *it has been found that the resulting nitration product is a mixture which can be separated into two distinct compounds* by fractional crystallization. For convenience, *these are referred to as nitro-6-demethyl-6-deoxytetracycline isomer (A) and nitro-6-demethyl-6-deoxytetracycline isomer (B).*

A few paragraphs later, following a comparison of ultraviolet and infrared absorption spectra of "isomer (A)" and "isomer (B)," the application says:

> The structure of nitro-6-demethyl-6-deoxytetracycline (A) and nitro-6-demethyl-6-deoxytetracycline (B) *has not as yet been proved unequivocally, but it is believed that* the two compounds are position isomers with *the nitro group attached to the aromatic* [*D*] *ring* of the tetracycline nucleus *in the ortho position to the hydroxyl* [the 9-position] in one compound and *in the para position to the hydroxyl* [the 7-position] in the other compound. [Emphasis ours.]

Appellants contend, as to the first above-quoted passage, that it teaches the preparation and separation of two nitro compounds, each having the structural formula there set out with R$_3$ and R$_4$ being hydrogen and one or both of R$_1$ and R$_2$ being nitro; that all that is therefore needed for complete identification of these compounds is information as to whether one or two nitro groups are present and where on the D-ring they are; and that one of ordinary skill in the chemical art *would know*, from a reading of this disclosure, that isomer (A) and isomer (B) are two of only six possible compounds, three mono-nitro and three di-nitro, and that, being isomers, they

must constitute one of three possible pairs of mono-nitro compounds *or* one of three possible pairs of di-nitro compounds. They can not be one mono- and one di-, else they would not be isomers.

As to the second above-quoted passage, appellants contend that, while it is said that the structures have not been proved unequivocally, the paragraph does teach that both compounds are *mono*-nitro since it refers to "the nitro group."

Other teachings to those of ordinary skill in the art that isomers (A) and (B) are mono-nitro compounds can be found in the parent application, according to appellants, in some of the working examples. Example 1 describes the preparation of a crude nitration product of 6-demethyl-6-deoxytetracycline, which is separated in Example 2 into compounds (A) and (B), the latter being converted in Example 3 to its free base form, which is separated out in Example 4. The "calculated" and "found" analytical data disclosed for nitrogen compare so favorably in each of Examples 1 and 4 that the conclusion is alleged to be inescapable to one of ordinary skill that a mono-nitro compound, upon which the calculated values were based, had in fact been prepared. In addition, appellants point to the expression "920 milligrams (2 mmoles)" of nitro-6-demethyl-6-deoxytetracycline in Example 14 and contend that one of ordinary skill would reason that a mono-nitro compound was there disclosed since the molecular weight of such a compound is 460 (we compute it to be 459).

Thus, it is appellants' position that one of ordinary skill in the art would be taught by the parent specification that isomers (A) and (B) are mono-nitro-6-demethyl-6-deoxytetracyclines, and, that being so, they are entitled to an award of priority because, of the three possible pairs of mono-nitro compounds, two include *either* the 7-nitro *or* 9-nitro compound within the count, and the other pair includes *both*.

Appellees attack this line of reasoning, saying, in effect, that isomers (A) and (B) need not be isomeric *to each other*, and arguing that since the percentage of nitrogen "found" in Example 1 exceeds the "calculated" value, 8.79 *vs.* 8.46, that "crude" product might have been a mixture of the count-excluded 8-nitro compound and a di-nitro compound, which also of course is excluded by the count. Appellees admit that a mono-nitro compound was "probably" present in Example 4, but again emphasize that it might have been the 8-nitro compound.[3] It is also contended that assignment of a molecular weight of 460 to isomer (A) "was sheer speculation" since it was not based on "actual data available in the parent Petisi application."

Notwithstanding these contentions, we are inclined to think appellants' reasoning sound. [2] Be that as it may, we turn to another consideration dealing with the adequacy of disclosure in the parent application and which appears to be the crux of the position taken by the Board and argued by appellees. This position is that the parent Petisi application fails to *specify unequivocally*, or to "positively identify," to quote appellees' brief, any embodiment within the interference count and therefore cannot be considered as a constructive reduction to practice thereof. While the premise in this proposition may be true, we think the conclusion derived therefrom is not valid, simply because the proposition rests upon the false assumption that such positive identification is required for a constructive reduction to practice. The reason it is not required is simply that we are concerned only with what has been taught by the parent specification to those "skilled in the art to which it pertains," 35 U.S.C. 112, and, as *to them*, a compound may well be disclosed without positive identification.

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[3] Much of the testimony of appellants' expert witnesses is to the effect that nitration of the D-ring at the "7" and "9" positions is far more likely than at the "8" position because of the presence of an "ortho and para directing group," hydroxyl, at the 10-position, but, as will appear later, we find it unnecesary to consider this testimony.

[3] What we think appellants effectively said in their parent application is: "We are not absolutely certain, but *we think isomers* (*A*) *and* (*B*) *are* the 7-nitro and 9-nitro-6-demethyl-6-deoxytetracycles." This is not a shotgun announcement, or blind speculation, but direct to-the-point disclosure of what appellants believed, without alternatives. The mere fact of its being a belief is not, of itself, fatal to appellants' case. The compounds were, we think, taught to one of ordinary skill in the chemical art.

[4] Moreover, while not necessary to our decision here, we note that appellants' belief turned out to be precisely the fact, or at least they became sufficiently convinced as to make an "unequivocal" identification of their compounds. In comparing their parent and c-i-p applications, one finds that the procedures of Examples 1 through 4, discussed above, of the parent are identical with Examples 1 through 4 in the c-i-p, and in the c-i-p application the products of those procedures are identified as the 7-nitro and 9-nitro compounds. On this basis alone, therefore, it must be concluded that, as between the parties here, appellants are the prior inventors of these two species because Examples 1 through 4 in the parent necessarily produced the same product. The *product*, not the formula or name, is the invention, and it is as to *this* that priority has been shown.

Having taken this view of the case, we find it unnecessary to consider the testimony of appellants' witnesses, or to pass on the application of the law of inherency.

The decision of the Board is reversed.

REVERSED.

MARTIN, *J.*, concurs in the result.

U.S. Court of Customs and Patent Appeals

IN RE RAYMOND F. LE BLANC, BORIS PUSCASU AND JOHN NICITA

No. 7632. Decided November 10, 1966

[55 CCPA —; 368 F.2d 887; 151 USPQ 545]

1. PATENTABILITY—EVIDENCE—COMPARATIVE TESTS.

"We are not satisfied that the tests indicate a substantial superiority of the wipers of the claims over those of the reference. The Solicitor argues, and we agree, that the tests are rendered inconclusive because there is no indication that the tests provided for any 'negative incidence' for the wipers of the reference."

2. SAME—PARTICULAR SUBJECT MATTER—"WINDSHIELD WIPER."

The refusal of certain claims in an application entitled "Windshield Wiper," as unpatentable over the prior art, is affirmed.

APPEAL from the Patent Office. Serial No. 854,693.

AFFIRMED.

Sidney A. Ochs, *George W. Talburtt* for appellants.

Joseph Schimmel (*Jere W. Sears* of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

RICH, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals[1] affirming the rejection of claims 22–28 in appellants' application Serial No. 854,693, filed November 23, 1959, for "Windshield Wiper." No claim has been allowed.

The invention is a windshield wiper designed to minimize the tendency of wipers to lift away from the glass at high car speeds due to air flow. This purpose is effected by an airfoil transverse section of the yokes (wiper blade holders).[2] Each yoke which incorporates this feature is described as having a "frontal face * * * continuously arcuate and concave and [a] * * * rear face generally paralleling said frontal face" and an orientation vis-à-vis the wiper blade such that "tangents taken at successive points on said frontal face * * * make successively smaller acute angles with said axis" of the transverse section of the wiper body. FIGURE 6 shows a cross-section of a wiper blade and yoke of the invention.

FIG. 3.

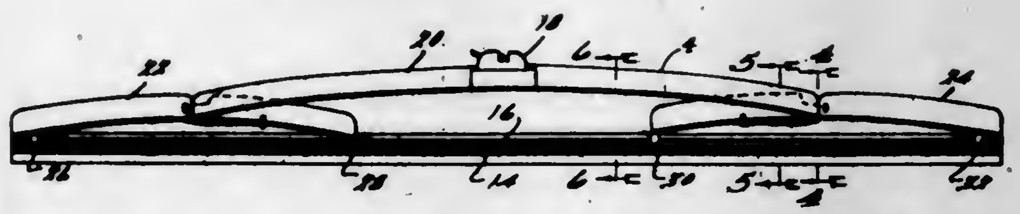
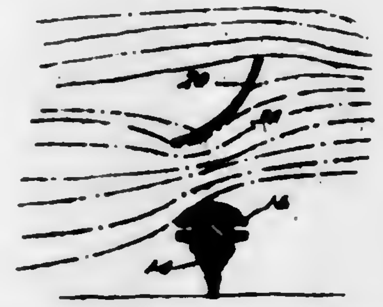


FIG. 5.



Claim 22 is the main claim. The other claims are dependent thereon. Claim 22 reads (emphasis ours):

22. A wiper for use on an oscillatable wiper arm associated with the windshield of a vehicle and over which air flows upon forward movement of the vehicle, said wiper comprising a blade structure having an elongated flexible wiping body with a lengthwise extending wiping edge and an elongated flexible backing strip supporting said wiping body and having a transverse section substantially normal to the *axis of the transverse section of the wiping body*, and a pressure applying structure comprising a substantially rigid primary yoke having a portion adapted for attachment to said wiper arm and extending in the lengthwise direction of said backing strip and a pair of secondary yokes extending in the lengthwise direction of said backing strip and providing an operative connection between said primary yoke and said backing strip, one of said secondary yokes being connected intermediate its ends to the primary yoke at a position adjacent one end of said primary yoke and having its opposite ends connected to said backing strip at longitudinally spaced points on said backing strip, the other of said secondary yokes being connected intermediate its ends to the primary yoke at a position adjacent the opposite end of said primary yoke from that to which said one secondary yoke is connected and said other secondary yoke having its opposite ends connected to said backing strip at longitudinally spaced points, said primary yoke being in spaced relation to said blade structure intermediate its positions of connection with said secondary yokes to define an opening therewith to accommodate a flow of air between said wiping body and said primary yoke, said primary yoke having a frontal face and a rearward face and having a

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[1] Consisting of Examiners-in-Chief Manian and Dracopoulos, the latter writing the opinion, and Acting Examiner-in-Chief Angel.

[2] FIG. 3 of the application is reproduced below. Secondary yokes 22 and 24 are mounted on opposite ends of primary yoke 20.

> leading edge and a trailing edge, said frontal face being that face which first encounters the said air flow during forward movement of the vehicle and said leading edge being that edge nearest to said wiping body, said frontal and rearward faces together defining a member having *an airfoil transverse section* substantially throughout its length, said *frontal face being continuously arcuate and concave and said rear face generally paralleling said frontal face*, and said faces being so oriented relative to said wiping body such that said frontal *face sweeps upwardly from a point thereon adjacent the said axis* of said wiping body *to make an acute angle with said axis* and whereby tangents taken at successive points on said frontal face between said first mentioned point and said trailing edge make successively smaller acute angles with said axis, said primary yoke thereby *presenting its airfoil section at a favorable angle of attack to air deflected upwardly by said wiping body* in order to utilize the optimum airfoil characteristics of the airfoil section of said primary yoke to urge the wiper into contact with a windshield.

Claim 23 further recites an airfoil design for the secondary yokes similar to that of the primary yoke. Claim 24 differs from claim 22 in that the primary yoke extends beyond the points of connection with the secondary yokes. Claim 25 recites a primary yoke approximately the length of the wiping body. Claims 26 and 27 specify a lack of uniformity in the concavity of the frontal face of the primary yoke. Claim 28 is drawn to a wiper in which the areas of the frontal face of the primary yoke adjacent the ends are greater per unit length than the intermediate areas.

The Examiner relied on the following references:

Péras et al. (Peras), 3,037,233, June 5, 1962.

Oishei, 2,794,203, June 4 1957.

Peras teaches that the tendency of windshield wipers to lift away from the glass may be lessened by an airfoil design of the yokes. FIGS. 5–8 of the patent are illustrative:

FIG. 5

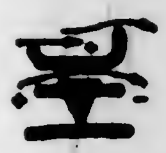


FIG. 6

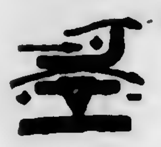


FIG. 7

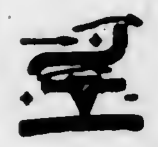
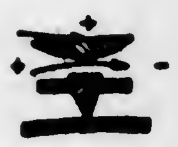


FIG. 8



The tendency of the wiper to lift away is said to be a consequence of the reduced pressure above the wiper and increased pressure between the glass and wiper the latter pressure further increased by the U-shape cross-section of the ordinary yoke and its orientation. The reference says this tendency may be overcome by forming the yoke with a "profile such that it causes an increase in pressure above and a reduced pressure beneath the wiper, so as to press the latter against the windscreen. The profile has preferably a convex face directed towards the wiper and a concave or flat face towards the front * * *." In one form of the invention it is disclosed that the yoke has a "negative incidence, that is to say it is inclined towards the windscreen in the direction of flow of the tangential stream of air." The effect is clearly that of an airfoil positioned in the air stream to obtain a desired pressure on the wiper blade.

Oishei also discloses a wiper intended to overcome the tendency to lift away from the windshield. In his specification he describes the invention thus:

> According to the present invention, each wiper is provided with a wind reacting surface upon which the respective laterally flowing wind currents will impinge to urge the wiper downwardly toward the windshield for holding it more firmly in its operative contact with the windshield. Obviously then, the reacting surface area will be of sufficient expanse to counteract the objectionable lifting force with the surface area on the passenger side being oppositely inclined to the driver side of the vehicle. In the present disclosure, the reacting surface is carried by a fin or vane 13, preferably on the back of the wiper and at the outer end portion thereof. The wind fin may be flared in an outward direction to increase the surface area toward the outer end for a greater effectiveness. It may be fixed at the optimum angle to cause the force of the wind currents to react most favorably in maintaining the wiping contact, or it may be movably mounted to yieldably resist the air currents in producing a uniform downward urge.

Appellants submitted an affidavit evaluating performance tests in which appellants' wipers and those of Peras were compared with the "conventional" sort. The evaluation was summarized by the affiants as showing that wiper structures embodying the basic airfoil features of the invention provide:

> (1) A substantial advance in performance over the conventional "crisp" wiper structure;
>
> (2) A substantial advance in performance over the FIGURES 5, 6, and 8 structures of Peras et al.; and
>
> (3) A substantial advance in performance over the FIGURE 7 structure of Peras et al. unless modified for manufacturing and styling purposes in which event they are even then substantially equal in performance.

The Examiner rejected claims 22 and 23 as obvious in view of Peras and claims 24–28 as obvious in view of Peras taken with Oishei. He dismissed the results of the tests as indicative of no more than a slight improvement over the structures of Peras and due to the use of the "cleaner airfoil design."

The Board, relying on Peras, affirmed the Examiner's rejection, observing:

> The structural differences added in the dependent claims do not appear to be seriously argued by the appellants as leading [lending] patentability to their base claim 22 over the prior art.

The Board concluded that the airfoil of appellants' claims was "at best, an obvious variant of the basic airfoil concept of the Peras et al. patent." It reasoned that the sections illustrated in FIGS. 5–8 of the Peras specification did not exhaust those contemplated by the disclosure. The Board pointed to the statement: "The profile has preferably a convex face directed towards the wiper and a concave or flat face towards the front" as a clear suggestion if not a direct teaching of the structure of the appealed claims. It agreed with the Examiner's analysis of the test results.

Appellants argue that Peras does not teach their distinctive combination of continuously arcuate, parallel surfaces and orientation vis-à-vis the wiper blade. They attack the statement which the Board relied on as a clear suggestion of their invention as but a broad generalization:

> The terms "convex" and "concave" like "airfoil" connote many different shapes and since no part of the specific constructions in Peras et al. suggest a continuously arcuate convex face there is no more basis for saying that the quoted language includes appellants' claimed continuously arcuate concave-convex form than it would be to say it included an undulated section. Moreover there is not the slightest suggestion of the important orientation feature in the appealed claims.

They also controvert the characterization of the test results as indicative of small differences and the determination of patentability on the basis of claim 22 alone.

The only question, then, is whether the structure and orientation of the claimed apparatus is obvious in view of Peras and Oishei.

We consider appellants' contention that the Peras disclosure contains "not the slightest suggestion of the important orientation feature" to be without merit. Peras refers to an arrangement of the frame (yoke) in one form of their invention so that it has a negative incidence, i.e., the frame "is inclined towards the windscreen in the direction of flow of the tangential stream of air." Appellants' claims demand an orientation of the yoke such that tangents taken between points on the frontal face between the vertical axis of the wiper and the trailing edge make successively smaller acute angles with that axis.[3] As the Solicitor points out, the claims are thus satisfied by *any tilting* of a yoke of appellants' design toward the wind. The yoke of Peras' FIG. 8, with its "negative incidence," is so tilted.

The principal issue thus resolves itself into whether the design of the yoke makes the claimed invention unobvious in view of Peras. The Board felt that the reference in Peras to the preferred surfaces as concave or flat toward the front and convex toward the rear at least strongly suggested appellants' configuration. Appellants' objection is premised on their characterization of that teaching as insufficiently precise to suggest, without benefit of hindsight, any shape other than those of Peras' FIGS. 5–8. We agree with appellants that "concave" in Peras' specification is used in a broad sense. We concede that the fact that it embraces the structures of Peras' FIGS. 5–8 does not justify a conclusion that it includes *every* other shape. But we cannot agree that "concave" is used in such a way that no modification of, for example, Peras' FIG. 8 is suggested by it. It seems to us that, in the absence of a clearly indicated special meaning, one skilled in the art would quickly think of a frontal surface much like appellants' on reading that a "concave" surface was a preferred alternative in Peras' FIG. 8. "Convex," we note, also seems to be used in a broader than ordinary sense, but it clearly also embraces the configuration of appellants' rear face (see Peras' FIG. 8).

Appellants also rely on their test data to negate the Board's contention of obviousness. Their brief, after quoting the Board's dismissal of the test data as indicative of small differences inherent in appellants' changed profile, says:

> This conclusion is believed erroneous and contrary to the facts. It also fails to give any weight to test data making it clear that the results obtained with at least three of the four constructions in Peras et al. are no better than those for the conventional "crisp" wiper, and that such would, if anything, direct one away from a construction such as appellants['].

In general, the tests allegedly showed the wipers of Peras' FIGS. 5, 6, and 8 to be unsatisfactory and the wiper of Peras' FIG. 7 to lose effectiveness at a speed about 20 m.p.h. less than that at which appellants' best wiper lost effectiveness.

[1] We are not satisfied that the tests indicate a substantial superiority of the wipers of the claims over those of the reference. The Solicitor argues, and we agree, that the tests are rendered inconclusive because there is no indication that the tests provided for any "negative incidence" for the wipers of the reference.

We therefore agree with the Board that to construct the wipers of appellants' claims 22 and 23 would have been obvious to one skilled in the art from the Peras disclosure.

Appellants object to the Board's resolution of all their claims on the basis of claims 22 and 23. Each of the further limitations of claims 24–28 seems to us a minor variation on the pertinent teaching of Peras. Adjustments in size and shape to secure a greater "vane" effect seem to us obvious, especially in view of Oishei. The latter reference teaches the extension of the vane area beyond the point of connection of the primary and secondary yokes and the utilization of more vane area near the outer end.

[2] The decision of the Board is affirmed.

AFFIRMED.

Judge Smith took no part in the consideration or decision of this case.

Judge Martin participated in the hearing of this case but died before a decision was reached.

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[3] Apparently tangents taken between the *leading* edge and the point on the frontal face adjacent the vertical axis can form *any* angle with that axis and still be within the claims.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,369,384, E. M. Zubatsky, COMBINATION SHIPPING CRATE AND TRAILER, **filed** Oct. 16, 1959, D.C., E.D. Wis. (Milwaukee), Doc. 59–C–224, *Eugene M. Zubatsky* v. *Chicago, Milwaukee, St. Paul & Pacific R.R. Co. et al.* Patent in suit held invalid; action dismissed Dec. 30, 1966.

2,742,462, G. Gever, NEW-N-(5-NITRO-2-FURFURYLIDENE)-3-AMINO-2-OXAZOLIDONES, **filed** Dec. 13, 1966, D.C., E.D. Calif. (Fresno), Doc. F–66–30, *The Norwich Pharmacal Company* v. *Hayre's Egg Farms.* **Same, filed** Dec. 22, 1966, D.C., M.D. Ga. (Columbus), Doc. 1213, *The Norwich Pharmacal Company* v. *McCants Poultry Farm and Hatchery.*

2,882,642, H. J. Hill, CARPET STRETCHER, **filed** Nov. 28, 1966, D.C., N.D. Calif. (San Francisco), Doc. 46054, *Roberts Consolidated Industries, Inc.* v. *Crain Cutter Company, Inc.*

3,008,206, C. E. Meese et al., HOSE CLAMP, **filed** Mar. 20, 1963, D.C., N.D. Ohio (Cleveland), Doc. C63–197, *Clarence E. Meese et al.* v. *Eaton Manufacturing Company.* Final consent judgment; patent held invalid Dec. 9, 1966.

3,011,804, R. S. Burns, DUAL WELL COMPLETION APPARATUS; **3,097,695**, R. K. LeRouax et al., MULTIPLE STRING TUBING HANGER, **filed** May 2, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–736–CC, *Armco Steel Corporation* v. *Joy Manufacturing Company.* Stipulation and order dismissing this action without prejudice Nov. 4, 1966.

3,029,107, L. B. Myers, HEADREST, **filed** Jan. 21, 1966, D.C. Minn. (St. Paul), Doc. 3–66–13, *Mark Manufacturing Co.* v. *Sterling Products Co., Inc.* Final judgment; defendant enjoined Dec. 16, 1966.

3,035,754, A. A. Meister, BAG CONSTRUCTION, **filed** Apr. 25, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c725, *Bagcraft Corporation of America* v. *Oneida Paper Products, Inc.* Stipulation and order dismissing complaint and counterclaim without prejudice Dec. 1, 1966.

3,043,160, H. R. Killian, VALVE OPERATOR; **3,050,781**, same, MOLDED IN PLACE RUBBER SEAT BUTTERFLY VALVE; **3,122,353**, same; **3,193,914**, same, METHOD OF MAKING A BUTTERFLY VALVE WITH AN INTEGRAL SEAT, **filed** Sept. 7, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c1483, *Henry Pratt Company* v. *Crane Company.* Final judgment—issues raised by complaint and answer settled by agreement of the parties; patents held valid Dec. 9, 1966.

3,050,781. (See 3,043,160.)

3,052,011, W. E. Brainard et al., MACHINE TOOL WITH A MECHANICAL CUTTING TOOL CHANGER, **filed** Dec. 27, 1966, D.C., E.D. Wis. (Milwaukee), Doc. 66–C–360, *Kearney & Trecker Corp.* v. *Giddings & Lewis Machine Tool Co.*

3,057,467, R. R. Williams, PACKAGE FOR TREATING AGENTS AND DISPOSABLE APPLICATOR FORMING A PART THEREOF, **filed** Jan. 15, 1964, D.C., N.D. Ill. (Chicago), Doc. 64c70, *Canaan Products, Inc.* v. *Edward Don & Company.* Final judgment; patent held valid and infringed; defendants enjoined; counterclaim dismissed Dec. 30, 1966.

3,058,176, E. A. Zegers, MEANS FOR AND METHOD OF DETACHABLY MOUNTING SASH GUIDING WEATHER-STRIPS IN WINDOW FRAMES, **filed** Oct. 10, 1963, D.C., N.D. Ill. (Chicago), Doc. 63c1822, *Edward A Zegers* v. *Zegers, Inc.* Judgment holding Patent No. 3,058,176 valid and claims 1, 3, 4, 5 and 6 of said patent held infringed Aug. 27, 1965. **Appealed**—judgment of District Court reversed in part and remanded for proceedings consistent therewith Nov. 29, 1966. Judgment on mandate—claims 1, 3 and 4 of Patent No. 3,058,176 held invalid; claims 5 and 6 of Patent No. 3,058,176 held valid and infringed; defendant enjoined Dec. 21, 1966.

3,062,662, B. McDonald, CONFECTION, **filed** Dec. 9, 1966, D.C.N.J. (Newark), Doc. 1222–66, *McDonalds Bubble-Gum-Pop Co.* v. *Charms Co.*

3,064,264, C. S. Spinney, MATTRESS HANDLE PRESS; **3,193,164**, C. L. Frasier, MATTRESS BORDER PROGRAMMER; **3,243,092**, same, APPARATUS FOR ATTACHING STRAP HANDLES; **3,285,404**, C. S. Spinney, **filed** Dec. 19, 1966, D. C. Maine (Portland), Doc. 9–124, *Fibre Conversion Company* v. *The Morley Company.*

3,065,664, Hertel and Neil, FIBER MEASUREMENT, **filed** Dec. 14, 1966, D.C., N.D. Tex. (Dallas), Doc. 3–1823, *The University of Tennessee Research Corporation* v. *Motion Control, Inc.*

3,068,617, B. R. Borski, GLAZING GASKET, **filed** Feb. 21, 1966, D.C., E.D. Mich. (Detroit), Doc. 28058, *Ball Brothers Company, Inc.* v. *Helmerich & Payne, Inc.* Pursuant to joint motion, order complaint and counterclaim are dismissed without prejudice, Dec. 2, 1966. **Same, filed** Feb. 23, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c353, *Helmerich & Payne, Inc. et al.* v. *Ball Brothers Co., Inc. et al.* Decree as above.

3,087,487, M. E. Clynes, COMPUTER OF AVERAGE RESPONSE TRANSIENTS, **filed** Nov. 18, 1964, D.C., N.D. Ill. (Chicago), Doc. 64c1950, *Technical Measurement Corporation* v. *Nuclear-Chicago Corporation.* Stipulation and order dismissing complaint and counterclaim without prejudice (notice Dec. 22, 1966).

3,097,695. (See 3,011,804.)

3,105,408, T. J. Bachhuber, SHOTGUN SHELL RELOADING DEVICE; **3,240,104**, same, SHOTGUN SHELL RELOADER; **3,242,790**, same, **filed** Dec. 15, 1966, D.C., N.D. Tex. (Dallas), Doc. 3–1825, *Mayville Engineering Company, Incorporated* v. *Rotex Manufacturing Company.*

3,105,748, W. Stahl, METHOD AND SYSTEM FOR DRYING GAS AND RECONCENTRATING THE DRYING ABSORBENT, **filed** Oct. 8, 1965, D.C., S.D. Tex. (Houston), Doc. 65–H–661, *Textron, Inc.* v. *Maloney Crawford Tank & Manufacturing Co. et al.* Final judgment; claims of patent held valid but not infringed Dec. 21, 1966.

3,122,353. (See 3,043,160.)

3,136,480, E. S. O'Neill, WHIP DEVICE, **filed** June 11, 1964, D.C., N.D. Iowa (Sioux City), Doc. 64–C–3015–W, *Eugene S. O'Neill* v. *Stockmen's, Inc. et al.* Order holding patent valid; claims 1, 2, 5, 6 and 7 of said patent held infringed; defendants enjoined Dec. 22, 1966.

3,143,783, G. O. Gaetke, CONCRETE SLAB KEY JOINT FORMING STRIP, **filed** Dec. 14, 1966, D.C. Colo. (Denver), Doc. 66–C–640, *Mas Con Supply Company* v. *Burke Concrete Accessories, Inc.*

3,144,730, J. C. Johnson, TRANSPARENT BOWL DISPLAY, **filed** Nov. 3, 1965, D.C., N.D. Ill (Chicago), Doc. 65c1822, *J. Clifford Johnson* v. *Kellogg Company et al.* Stipulation and order of dismissal Dec. 15, 1966.

3,159,094, Crease and Sutton, COOKING DEVICE; **Des. 194,200**, P. L. Crease, INVERTIBLE OVEN-BROILER OR THE LIKE, **filed** Dec. 14, 1966, D.C., N.D. Ohio (Cleveland), Doc. C66–930, *Dominion Electric Corporation* v. *The Higbee Company.*

3,160,452, H. H. Rothman, HOT AND COLD FOOD SERVICE CART; **3,275,393**, Stentz and Conklin, same, **filed** Dec. 29, 1966, D.C., W.D. Mo. (Kansas City), Doc. 16291–2, *United Service Equipment Co., Inc.* v. *Crimsco, Inc.*

3,160,984, J. W. Ryan, MOTOR SIMULATING SOUNDING TOY, **filed** Feb. 4, 1965, D.C., S.D.N.Y., Doc. 65/354, *Mattel, Inc.* v. *Murray Ohio Mfg. Co.* Consent order dismissing action Dec. 14, 1966.

3,163,422, M. Swardlick, SHUFFLEBOARD CUE, **filed** Dec. 20, 1966, D.C., S.D. Fla. (Miami), Doc. 66–1530, *Murray Swardlick* v. *Frank Dee.*

3,163,756, Meeder and Kus, SAMPLE-CONVEYING AND LIGHT-SEALING MECHANISM FOR SCINTILLATION COUNTING; **3,246,156**, R. B. Frank et al., AUTOMATIC SAMPLE CHANGER FOR RADIOACTIVE SAMPLES, **filed** Dec. 15, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c2309, *Nuclear-Chicago Corp.* v. *Picker X-Ray Corp.*

3,171,700, Parsell and Brickman, BAR CABINET, **filed** Dec. 16, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c2319, *Ever-Wear* v. *Wieboldt Stores, Inc.*

3,176,747, J. F. Nenzell, SELF-SEALING NUT ASSEMBLY, **filed** Dec. 21, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–2042–FW, *Florence D. Wolfe et al.* v. *Standard Pressed Steel Company.*

3,179,791, P. J. Mole, ILLUMINATING DEVICE FOR PRODUCING VARIED COLOR EFFECTS, **filed** Dec. 29, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c2403, *Philip Mole* v. *Austin Continental Industries, Inc. et al.*

3,193,161. (See 3,064,264.)

3,193,914. (See 3,043,160.)

3,240,104. (See 3,105,408.)

3,242,790. (See 3,105,408.)

3,243,092. (See 3,064,264.)

3,246,156. (See 3,163,756.)

3,275,393. (See 3,160,452.)

3,285,404. (See 3,064,264.)

Des. 194,200. (See 3,159,094.)

REISSUES

FEBRUARY 14, 1967

Matter enclosed in heavy brackets **[ ]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,155
STREET SWEEPER DIRT BOX ASSEMBLY

Charles T. Link, Jr., Skokie, Robert F. Schmidt, Elgin, and John S. Gooden, Chicago, Ill., by Elgin Sweeper Company, Elgin, Ill., a corporation of Delaware
Original No. 2,828,037, dated Mar. 25, 1958, Ser. No. 458,176, Sept. 24, 1954. Application for reissue July 13, 1965, Ser. No. 475,039
5 Claims. (Cl. 214—508)

2. In a street sweeper, a housing, an upwardly inclined conveyor within said housing, a dirt box having a floor normally disposed in a horizontal plane below the upper end portion of said conveyor, means adjacent the end of said dirt box remote from said conveyor for supporting said dirt box for upward pivotal movement about a horizontal axis parallel to said conveyor with the other end of said dirt box being thereby moved in an arc adjacent the underside of the upper end portion of said conveyor, a door pivotal on said housing for movement about an axis parallel to said horizontal axis and spaced upwardly therefrom *enabling said door to be pivoted at its upper end in a direction away from the horizontal axis of the dirt box to create a door discharge opening through which the contents of the dirt box can be discharged, the dirt box being pivoted to a dumping position in response to the opening of the door,* said door including a generally vertical wall forming an end wall for the housing and a bottom wall forming a continuation of said dirt box floor, said door being pivoted outwardly and said dirt box being pivoted upwardly to discharge **[**dirt from said housing**]** *all of the dirt directly out of the door opening upon pivoting of the door to open position.*

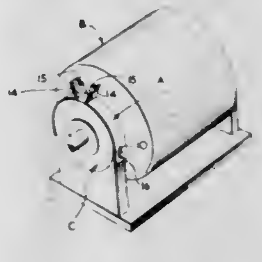
26,156
PORTABLE PROJECTION SCREEN

Hermann Muller, Munich, Germany, assignor to Agfa Aktiengesellschaft, Leverkusen-Bayerwerk, Germany, a corporation of Germany
Original No. 3,087,535, dated Apr. 30, 1963, Ser. No. 41,948, July 11, 1960. Application for reissue Jan. 26, 1965, Ser. No. 455,022
16 Claims. (Cl. 160—24)

16. A portable projection screen assembly comprising a vertical column having stand means at its lower end, elongated support means carried by said column, roller means carried by and mounted at its ends on said support means, a screen wound upon said roller means, said roller means being biased to roll up said screen to rolled up position but permitting said screen to be unrolled to unrolled position, extensible means for supporting said screen in unrolled position and including a slider which is slidably carried by said column, which is moved in one direction when said screen is unrolled to unrolled position and which is moved in the other direction when said screen is rolled to rolled up position, said stand means including a plurality of legs movably carried by said column and movable between an extended column-supporting position and a folded storage position relative to said column, said stand means normally tending to assume said extended column-supporting position, and coupling means including spring means operatively connecting said slider and stand means, said spring means being stressed when said slider is moved in said other direction to automatically move said stand means to said folded storage position.

26,157
MOUNTING CLIPS OR CLAMPS

George A. Tinnerman, 17864 Beach Road,
Lakewood, Ohio 44107
Original No. 3,139,261, dated June 30, 1964, Ser. No. 170,975, Feb. 5, 1962, which is a division of Ser. No. 5,073, Jan. 27, 1960, now Patent No. 3,066,903, dated Dec. 4, 1962. Application for reissue June 24, 1966, Ser. No. 562,979
10 Claims. (Cl. 248—361)

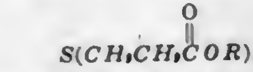


1. A mounting clip comprising a strip of resilient formable material having securing means on its first end and coupling means on its second end and a body lying therebetween, said strip being bent adjacent said second end to form an offset tension applying shank, a free end of said tension applying shank being bent upon itself angularly in respect to the first mentioned bend to provide along one edge thereof an outwardly projecting securing element forming said coupling means, said clip being usable in pairs with one clip reversed relative to another providing complementary interlapping and interlockable securing elements engageable with one another under tension to clamp an object when said first ends are secured.

26,158
POLY-α-OLEFIN COMPOSITIONS CONTAINING DIALKYL-3,3′-THIODIPROPIONATES AND A NITROGEN CONTAINING COMPOUND

Clarence E. Tholstrup, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Original No. 3,072,604, dated Jan. 8, 1963, Ser. No. 16,969, Mar. 23, 1960. Application for reissue Dec. 26, 1963, Ser. No. 340,702
16 Claims. (Cl. 260—45.85)

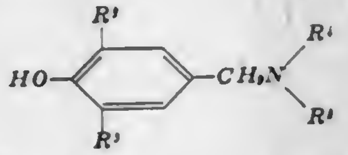
15. A solid poly-α-olefin composition comprising a solid poly-α-olefin prepared from an α-monoolefinic *aliphatic hydrocarbon having 2 to 10 carbon atoms containing a stabilizer combination comprising at least about .001% by weight based on said poly-α-olefin of a diester of 3,3'-thiodipropionic acid having the formula*

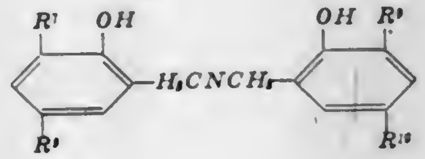


$$S(CH_2CH_2\overset{O}{\overset{\|}{C}}OR)_2$$

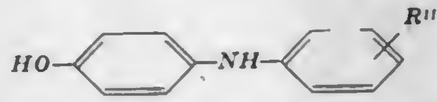
wherein R is an alkyl radical having 4 to 20 carbon atoms, and at least about .001% by weight based on said poly-α-olefin of a nitrogen-containing compound selected from the group consisting of compounds having the formulas

N-lauroyl-p-aminophenol





and

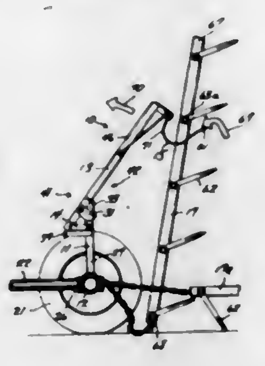


wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, and R^{10} are alkyl radicals having 1 to 18 carbon atoms, and wherein R^{11} is selected from the group consisting of alkyl radicals having 1 to 18 carbon atoms and alkoxy radicals having 1 to 18 carbon radicals.

20. A stabilizer combination comprising dilauryl 3,3'-thiodipropionate and N-lauroyl-p-aminophenol, the weight ratio of said thiodipropionate to said amine being in a range of 1/50 to 50/1.

26,159
FARM IMPLEMENT LIFT APPARATUS

Arnold F. Kopaska, Rte. 4, Guthrie Center, Iowa 50115
Original No. 3,183,982, dated May 18, 1965, Ser. No. 280,615, May 15, 1963. Application for reissue Nov. 22, 1965, Ser. No. 521,227
9 Claims. (Cl. 172—624)



7. In a wheeled transport carrier including a drawbar adapted to pull at least one harrow section located rearwardly thereof, a mechanism for lowering a harrow section into contact with the ground and for lifting said harrow section from contact with the ground, said mechanism including:

a lift unit mounted on the drawbar for movement be tween a forward position and a rearward position in which the lift unit extends rearwardly towards the harrow section,

means attached to said lift unit for supporting a harrow section off the ground with said means being engageable with and disengageable from said harrow section when said lift unit is substantially in said rearward position, and

means for selectively maintaining said lift unit in its forward position.

PLANT PATENTS

GRANTED FEBRUARY 14, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,712
LITTLELEAF LINDEN

David B. Cole, Mentor, Ohio, assignor to The Cole Nursery Company, Mentor, Ohio, a corporation of Ohio
Filed Apr. 7, 1965, Ser. No. 446,442
1 Claim. (Cl. Plt.—51)

A new and distinct variety of Littleleaf Linden tree (*Tilia cordata*) substantially as herein shown and described, characterized particularly as to novelty by its straightness of trunk, high density of foliage and its compact, relatively narrow pyramidal upright habit, the branches emerging radially from the trunk at a substantial upward angle and then turning still more upwardly in direction at an angle of from about 45° to about 30° from the vertical forming a symmetrical tree from any side. Resistance to adverse weather and drought are exceptional.

2,713
PLUM TREE

Charles L. Vinyard, Fresno, Calif., assignor to Hervin Farms, Inc., Fresno, Calif., a California organization
Filed Oct. 19, 1965, Ser. No. 498,173
1 Claim. (Cl. Plt.—38)

A new and distinct variety of plum tree substantially as illustrated and described and which is characterized by its vigorous growth; its early blooming somewhat before the Beauty plum tree (unpatented), and its regular and heavy bearing of unusually large plums which ripen three to four days earlier than the plums from the Beauty plum tree which it most nearly resembles but from which it is distinguished in its larger fruit which is more profusely and more evenly distributed along the branches of the tree and its more firmly textured flesh which has a greater resistance to bruising.

2,714
MANDARIN ORANGE PLANT

Nance Marion Darrow and Robin James Darrow, both of Box 81, Gayndah, Queensland, Australia
Filed Oct. 18, 1965, Ser. No. 497,573
1 Claim. (Plt.—45)

The new and distinct variety of mandarin orange plant as described and illustrated, having leaders developing in a recumbent position.

2,715
SUGAR CANE

Leslie M. Weetman and Benjamin A. Bourne, both of Clewiston, Fla., assignors to United States Sugar Corporation, Clewiston, Fla., a corporation of Delaware
Filed Oct. 4, 1965, Ser. No. 494,303
1 Claim. (Cl. Plt.—89)

The new and distinct variety of sugar cane herein shown and described, identified by the combination of the characteristics enumerated above.

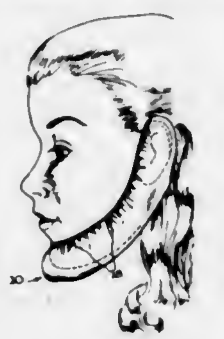
PATENTS

GRANTED FEBRUARY 14, 1967

GENERAL AND MECHANICAL

3,303,514
EAR PROTECTOR

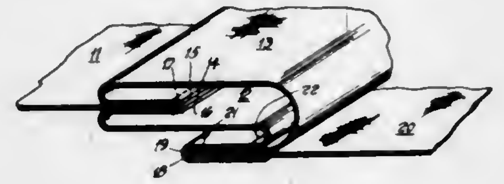
Ola V. Wessels, 602 W. Page St., Dallas, Tex. 75208
Filed Sept. 13, 1965, Ser. No. 486,876
1 Claim. (Cl. 2—174)



An ear protector for preventing entry of fluids into a user's ears comprising an elongated transversely curved trough formed of a waterproof flexible fabric and having its margin formed into a hem, an elastomeric strand in said hem of less peripheral length than the hem puckering said hem to form said transversely curved trough, said trough having end portions forming enlarged pocket means at opposite ends thereof to fit over the top ends of both ears of the wearer, said ear protector having a length and width such that the trough snugly and yieldably embraces the chin, side face portions and both ears of the user.

3,303,515
SEAM STRUCTURE

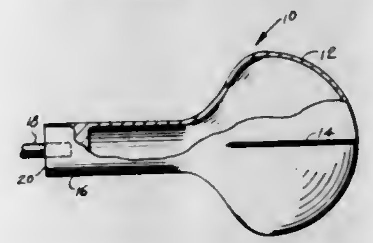
Seymour Lash, Hicksville, N.Y., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 30, 1964, Ser. No. 414,922
3 Claims. (Cl. 2—275)

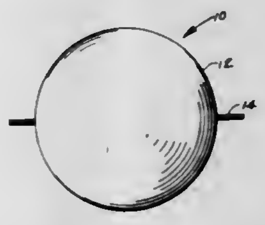


1. A seam structure comprising
a first fabric,
a second fabric,
a first tape,
a second tape,
each of said fabrics and said tapes having a first edge and a second opposite edge,
said first tape, first fabric and second tape lying in juxtaposed relation and having their first edges in common alignment and secured together by stitching,
said first and second tapes each being folded back upon itself,
said second tape and said second fabric lying in juxtaposed relation and having their second edges in common alignment and secured together by stitching,
said first tape having its second edge wrapped around the seam formed by the second edge of said second tape and said second fabric and secured together by stitching.

3,303,516
TOILET TANK FLOAT BALL

Antimo M. Glorioso, 12606 Mt. Overlook Ave., Cleveland, Ohio 44120
Filed Sept. 1, 1964, Ser. No. 393,554
6 Claims. (Cl. 4—56)

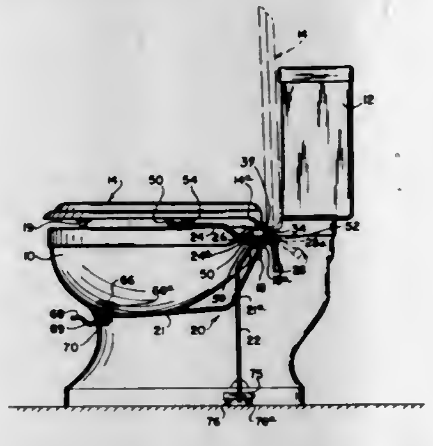




1. An improved float ball for toilet tank regulating mechanisms comprising, in combination, a bulbous, hollow body serving as a float to open and close the valve mechanism of a toilet tank, a hollow, cylindrical extension carried by said hollow body of said float ball providing means for securing said float ball to the brass rod of the regulating valve mechanism of the toilet tank, a pair of wing members carried by said hollow body providing a means of preventing said float ball from touching the flush ball and providing an absolute shutoff for the toilet tank regulating mechanism when the tank is full.

3,303,517
TOILET SEAT LIFTER

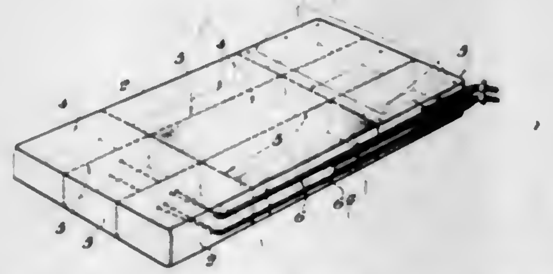
Clyde M. Wood and Doris R. Wood, both of 1100 Som Center Road, Mayfield Heights, Ohio 45069
Filed Jan. 2, 1964, Ser. No. 335,176
12 Claims. (Cl. 4—251)



1. In a seat lifter mechanism for a toilet bowl having a seat pivoted to the bowl by a lug extending through a section of the bowl, said mechanism comprising foot actuated linkage means for lifting the seat upwardly about its pivotal axis, means mounting said linkage means for supporting the same, and means on said mounting means for attaching the lifter mechanism to the seat lug, said

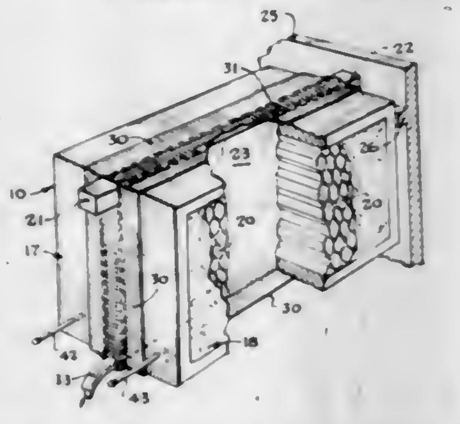
mounting means comprising a plate-like member having an aperture therethrough adapted for receiving the mounting lug of the seat and to be held in coacting relationship therewith by the nut of the seat lug, and means on said plate-like member for adjusting the position of the member with respect to the toilet bowl when in coupled relationship to the seat lug.

3,303,518
INFLATABLE MATTRESSES, PILLOWS AND CUSHIONS
George Ingram, 803 Raleigh House, London, England
Filed Sept. 8, 1964, Ser. No. 394,866
1 Claim. (Cl. 5—349)



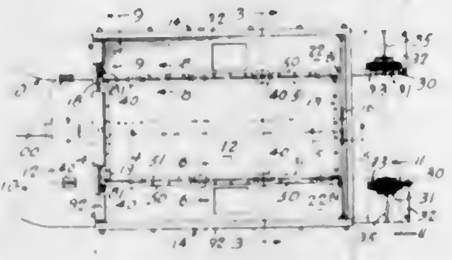
A mattress for supporting a body, comprising an airtight envelope having an upper wall and a lower wall united by a peripheral wall, the walls being of flexible impervious material, internal transverse webs of flexible impervious material extending between, and joined in an airtight manner to, the walls to divide the interior of the mattress into a plurality of isolated compartments, a plurality of pairs of flexible tubes grouped together and secured to the exterior of the peripheral wall, the number of pairs corresponding to the number of compartments and extending in an air-tight manner through the flexible impervious material to open at their inner ends into the compartments with one pair opening into each compartment, each pair of tubes comprising an inflating tube and a deflating tube, the outer ends of the inflating tubes and deflating tubes being coupled, by a control box, to a common main air pressure inlet tube and a common air extraction tube respectively, and manually operable means on the control box for selectively opening and closing the passage betwen each inflating and deflating tube and the respective air inlet and air extraction tube.

3,303,519
HONEYCOMB DEVICE FOR EXTERIOR EXTRACTION OF HONEY
Ira Jay Krause, Winthrop Harbor, Ill.
(3201 Bethel Blvd., Zion, Ill. 60099)
Filed Apr. 14, 1965, Ser. No. 448,075
19 Claims. (Cl. 6—2)



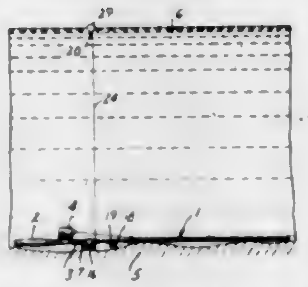
1. A beehive comprising in combination at least one honyecomb unit adapted to be supported in said beehive, said honeycomb unit comprising a comb with cells extending from one side to the other, a solid plate member for covering the ends of said cells at one side of said comb, combined hinging and sealing means attaching said plate to said comb and operable from outside said beehive to cause said plate member to move away from said comb and passage means adapted for collecting the deposited honey from outside said beehive when said plate member is moved away from said ends of said cells containing honey.

3,303,520
COLLAPSIBLE CATAMARAN
Peter V. Bachley, 4131 Cote des Neiges Road, Montreal, Quebec, Canada
Filed Mar. 17, 1965, Ser. No. 440,542
4 Claims. (Cl. 9—1)



1. A collapsible catamaran comprising in combination a first deck having parallel side edges; a pair of elongated pontoons each having a second deck and a hull portion on one side and co-extensive with said second deck, said pairs of pontoons being hingedly mounted one to each parallel side edge of the first deck for rotational movement, about a longitudinal axis, taken along the side edges of said first deck respectively, between a first floating position, wherein each second deck is in the same plane as the first deck and provides an added deck area with the first deck, and a second transport position 180° from said first floating position wherein each second deck is folded over onto said first deck; a wheel mounting bracket mounted on each second deck at one end thereof and on the side opposite said hull said mounting bracket supporting a wheel spaced from said deck, and adapted to rotate in the longitudinal direction; the first deck having a longitudinal end edge spaced from the longitudinal end of the second deck, carrying the wheel bracket, a distance substantially clear of said wheel bracket, whereby said wheel will be in a downwardly extending transport position when said second deck is folded over onto said first deck; the second deck also including a support bracket along the edge adjacent the side edge of said first deck adapted to engage the underside of said first deck in a load supporting manner when said pontoons are in a first floating position.

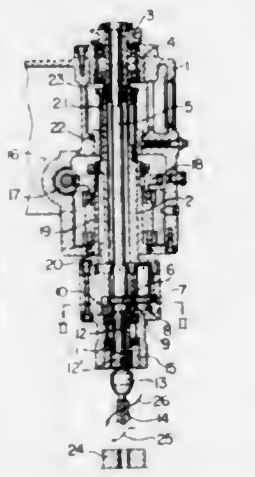
3,303,521
RECOVERY DEVICE
Theodore H. Mix, 518 N. State, New Ulm, Minn. 56073
Filed Apr. 23, 1965, Ser. No. 450,323
6 Claims. (Cl. 9—9)



1. In a recovery device for submerged articles, a casing having a pair of spaced openings therein, a check valve normally closing one of said openings, a removable closure member for the other of said openings, means for attaching said casing to an article prior to submersion of said object, a generally cylindrical container supported by said closure member within said casing, a length of

flexible cord wound on the exterior surface of said container and having one end secured to said container and the opposite end secured to said casing, said container having an open end adjacent said closure member and an inlet opening spaced from said open end, a second check valve normally closing said inlet opening, an elongated inflatable bladder extending longitudinally within said container and having an open end disposed adjacent the open end of said container, means engaging the open end of said bladder to hold the open end of the bladder against movement longitudinally outwardly of said container, water activated gas generating material in said casing responsive to entry of water into said casing through said first-mentioned check valve to generate gas under sufficient pressure to eject said container and closure member from said casing, and water activated gas-generating material in the container responsive to entry of water through said second check valve to generate gas under sufficient pressure to remove said closure member from the container and invert and inflate said bladder externally of said container.

3,303,522
VIBRATING TAPPING MACHINE
Junichiro Kumabe and Kenzi Nakata, Tokyo, Japan, assignors to Niigata Engineering Co., Ltd., Tokyo, Japan
Filed Apr. 3, 1964, Ser. No. 357,156
Claims priority, application Japan, Apr. 13, 1963, 38/17,951
7 Claims. (Cl. 10—129)

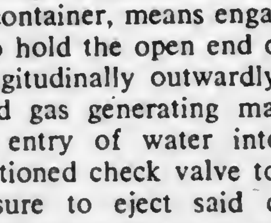


1. A thread cutting machine comprising a thread cutting member, means for rotating and feeding said member at a preselected speed in the thread cutting direction, and means for superimposing a vibratory feeding and rotating motion of preselected amplitude and frequency on said first-mentioned rotating and feeding speed in the thread cutting direction.

3,303,523
BACK HEIGHT CONTROL GAGE
Basil E. Chadbourne, Lynn, Mass., assignor to Duchess Footwear Corp., Salem, Mass., a corporation of Massachusetts
Filed Feb. 18, 1965, Ser. No. 433,572
3 Claims. (Cl. 12—141)

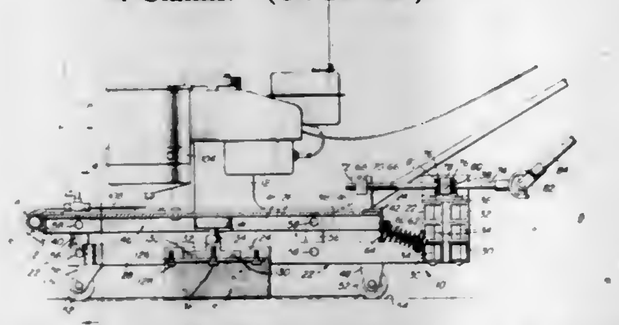
1. Means for controlling the back height of the counter portion of a shoe upper comprising

- a mold body shaped to form the counter portion of a shoe upper and adapted to be oriented to carry the upper in an inverted position,
- a slot provided in the back seam region of the mold body extending vertically from the top surface of the inverted body downwardly substantially to the bottom of the body,
- a recess provided in the upper surface of the body and extending forwardly from the top of the slot,
- a generally L-shaped gage conforming in shape to the slot and recess and removably mounted in the slot and recess to provide the counter forming portion of the body with a smooth continuous molding surface,
- a rearwardly extending projection carried by the gage



and extending from the body in the back seam region for engaging the top line of the counter portion of an upper placed on the body,
- and tool engaging means connected to the gage for removing the gage from the slot and recess.

3,303,524
VERTICALLY ADJUSTABLE CRADLE FOR A SURFACE BRUSHING MACHINE
Walter E. Schneider, 1005 E. Airline, Victoria, Tex. 77901
Filed Jan. 27, 1965, Ser. No. 428,325
4 Claims. (Cl. 15—49)

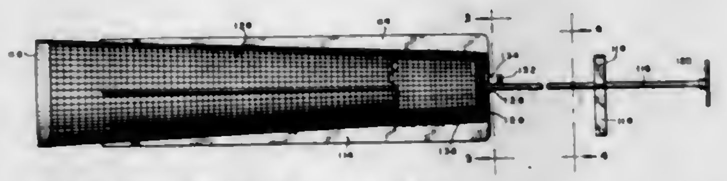


1. A cradle for adjustably supporting a floor or ground surface brushing machine comprising a chassis, said chassis including a pair of parallel side bars and a cross bar rigidly secured to the rear ends of said side bars, a rectangular top frame, a plurality of substantially identical tiltbars, at least a pair of said tilt bars being pivotally mounted on each chassis side bar and pivotally secured to corresponding bars of said top frame, screw threaded means swivelly mounted on said chassis cross bar and operatively swiveled on a corresponding part of said top frame for moving said top frame longitudinally of said chassis to thus pivot said tilt bars and adjust the distance of said top frame and chassis relative to each other while maintaining them in parallel relation to each other, manually operable means universally connected to said screw threaded means, and steerable wheel means journaled on said chasis, said screw threaded means comprising a bolt, a nut swivelly mounted on said top frame, a sleeve through which said bolt rotatably extends, said means preventing longitudinal motion of said bolt through said sleeve, means for swivelly mounting said sleeve on said chassis, a pair of handle bar rods pivotally secured to said frame, a handle bar at the end of each handle bar rod, a cross brace securing said handle bar rods together in spaced apart relation adjacent their handle bar ends, said manually operable means comprising a crank journaled through said cross brace, a crank handle on said crank adjacent said handle bar ends, a universal joint connecting the other end of said crank to said screw threaded means, a platform mounted on said top frame and a floor or ground brushing machine mounted on said platform, said machine comprising a motor, a motor shaft rotatably extending downwardly through said platform, and a floor or ground surface engaging brush detachably secured on said motor shaft below said platform, whereby operation of said

crank handle to rotate said screw threaded means adjusts the pressure said brush provides on the surface on which the cradle is supported while maintaining the same angle of the plane of rotation of said implement.

3,303,525
PIPELINE PIG RETRIEVER

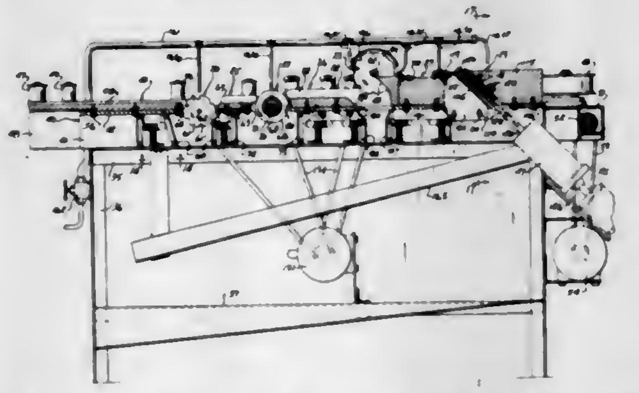
Claude M. Peoples, Edward A. Hurst, and James H. Martin, Jr., Baytown, Tex., assignors, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware
Filed Oct. 14, 1963, Ser. No. 315,838
12 Claims. (Cl. 15—104.06)



3. A pig receiver which comprises
a frustoconical foraminous body having a larger end and a smaller end,
end plate means depending from and extending across said body at said smaller end,
said end plate means having a concentric passage and a radial slot formed therein,
a positioning rod having a first end extending freely through said concentric passage and having a second end,
pad means secured to said first end of said positioning rod,
and positioning means for supporting said body and said rod within a pig trap.

3,303,526
FISH FILLETING MACHINE

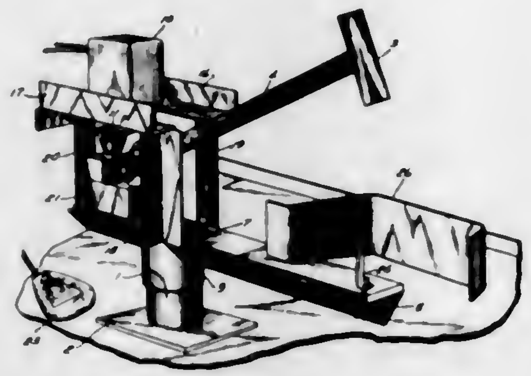
Robert L. La Pine, Wells, and Melvin J. Crepeau and Richard J. Pardon, Escanaba, Mich., assignors, by mesne assignments, to First National Bank of Escanaba, Escanaba, Mich., a national banking association
Filed Jan. 30, 1964, Ser. No. 341,295
19 Claims. (Cl. 17—4)



1. An apparatus for dressing beheaded fish comprising, conveyor means for advancing fish along a path with the belly facing downwardly, an inlet guide for engaging the underside of the belly of the fish to support the same, a pair of laterally spaced rotary ventral cutters mounted on an axis disposed below the level of the inlet guide and adjacent one end thereof and having cutting edges extending above the level of the inlet guide to form spaced ventral cuts through the belly of the fish and on opposite sides of the anus and belly spikes to a depth adjacent the backbone of the fish, means disposed in the path of movement of the fish for eviscerating the fish, an intermediate guide including a pair of laterally spaced rail sections spaced apart to receive the belly spikes of the fish therebetween and defining spaced upper guide edges for straddling the backbone of the fish to support and center the fish, and a pair of spaced rotary dorsal cutters mounted on an axis disposed above the level of the intermediate guide and having cutting edges extending downwardly between the upper guide edges on the intermediate guide to sever the backbone with the back and belly spikes attached from the side portions of the fish.

3,303,527
OYSTER OPENING MACHINE

Leo H. Lanier, P.O. Box 698, Amite, La. 70422
Filed May 3, 1965, Ser. No. 452,690
10 Claims. (Cl. 17—9)



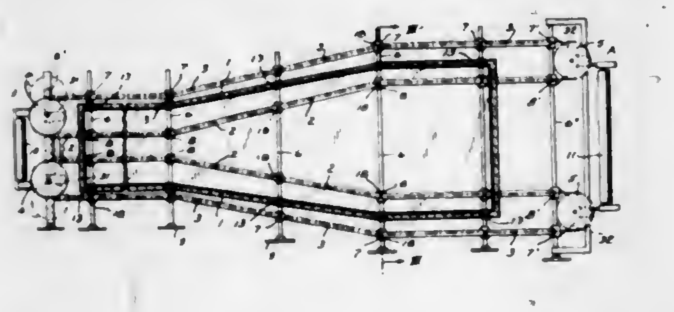
1. An oyster opening machine comprising:
a supporting frame having a power section and a work section, cooperably disposed therein;
a power source deployed within said power section and an elongated arm pivotally mounted to said power source for movement through a substantially arcuate path and extending from said power source to said work section;
said elongated arm having a weighty head mounted at the end adjacent said work section thereof;
said work section having a work table deployed beneath said weighty head,
a cutting blade mounted substantially perpendicular to said work table having a cutting edge projecting upwardly therefrom,
said weighty head having a surface for performing a pounding function and an edge thereof cooperable with said cutting blade for performing a scissor-like function therebetween, and
means for actuating said power source to drive said weighty head into proximity with said cutting blade.

3,303,528
APPARATUS FOR LATERALLY STRETCHING LENGTHS OF THERMOPLASTIC SYNTHETIC MATERIAL

Fritz Gageur, Lindau, and Herbert Mende, Friedrichshafen-Manzell, Germany, assignors to Lindauer Dornier Gesellschaft m.b.H., Lindau (Bodensee), Germany
Filed Nov. 25, 1964, Ser. No. 413,767
Claims priority, application Germany, Nov. 26, 1963, L 46,419
9 Claims. (Cl. 18—1)

1. An apparatus for laterally stretching thermoplastic synthetic continuous films, comprising:
an ablong casing having two opposed lateral walls and an inlet and an outlet for the films to be stretched,
two endless tenter clip chains, one each of said chains being disposed alongside a respective one of said lateral walls,
each of said chains having a forward run inside said casing and a return run outside of said casing, all of said runs being in a common horizontal plane,
reversing mechanisms for said tenter clip chains at the inlet and at the outlet of said casing,
track means for guiding the forward and return runs of said chains, each of said track means being subdivided into a plurality of longitudinal sections whose adjoining ends are movably connected,

said sections of said track means for the forward and return runs of each chain being disposed in pairs having adjoining ends,
a plurality of spindles projecting through said casing,
connecting means operatively interconnecting each of said spindles with four of said pairs of said adjoining ends on said forward and return runs,
a first two of said four pairs being disposed outwardly of said casing and a further two of said four pairs being disposed internally of said casing,
said connecting means including means for moving said first two and said further two of said four pairs of said adjoining ends in opposite directions for changing the distance between said forward runs for laterally stretching films of different width,

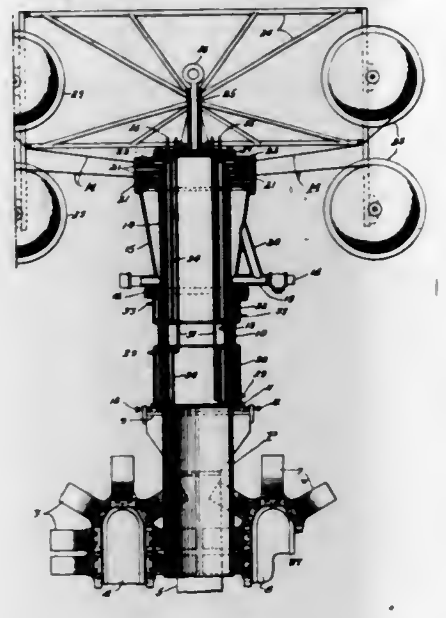


each of said reversing mechanisms including tenter clip chain-guide means for reversing the direction of movement of the respective chain, said guide means laterally offsetting said forward and return runs of the respective chains to an extent which is greater than one half of the difference between the maximum and minimum width of the films stretched in the apparatus,
each of said reversing mechanisms including means for laterally moving said guide means toward and from one another, for changing the distance between said chains for laterally stretching films of different width.

3,303,529
PRODUCTION OF HOLLOW ARTICLES

Le Roy R. Boggs, Bristol, Tenn., assignor to Universal Moulded Fiber Glass Corporation, Bristol, Va., a corporation of Delaware
Filed June 17, 1963, Ser. No. 288,422
5 Claims. (Cl. 18—4)

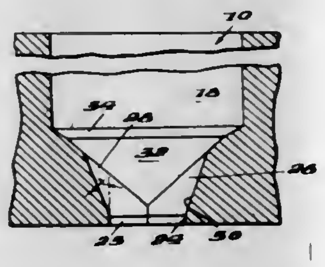
5. Apparatus for making hollow articles formed of fiber reinforced resin material comprising a forming device comprising external die and internal core parts defining an annular generally vertically oriented forming passage having an entrance end for receiving resin impregnated fiber reinforced and having a discharge end for delivering the formed article, a puller mechanism for drawing the formed articles downwardly from the discharge end of said forming device, said puller mechanism having a frame structure, said external die part being mounted on and supported by said frame structure of the mechanism, a tubular die extension extending upwardly from the die part and mounted on the die part and carried thereby, an annular support member mounted on the upper end of said tubular die extension at the upper end thereof and carried thereby, a core extension extending upwardly from said internal core part and rigidly connected thereto, said core extension further being rigidly mounted at its upper end on said annular support member and being carried thereon in depending orientation, said die extension, and said core extension, and said annular support member defining an enclosed liquid resin reservoir chamber immediately above said forming device, means for introducing heat hardenable liquid resin into said reservoir chamber, reinforcement support means mounted exteriorly of said reservoir, and



reinforcement guide means giving access to said reservoir chamber for introduction of reinforcement thereinto.

3,303,530
SPINNERETTE

James Stanley Cobb, Jr., Martinsville, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 13, 1965, Ser. No. 425,219
4 Claims. (Cl. 18—8)



1. A spinnerette plate having at least one convergent nozzle extending therethrough to an orifice in the form of angularly disposed, interconnected slots in the discharge face, said nozzle terminating in a capillary section defined by planar walls substantially normal to the discharge face and extending from said capillary section in first and second adjoining, intersecting, divergent sections, said first divergent section having an angle of divergence less than that of said second section and being defined by uninterrupted planar surfaces each diverging from one of said walls, the latter being of equal height through the periphery of said capillary section.

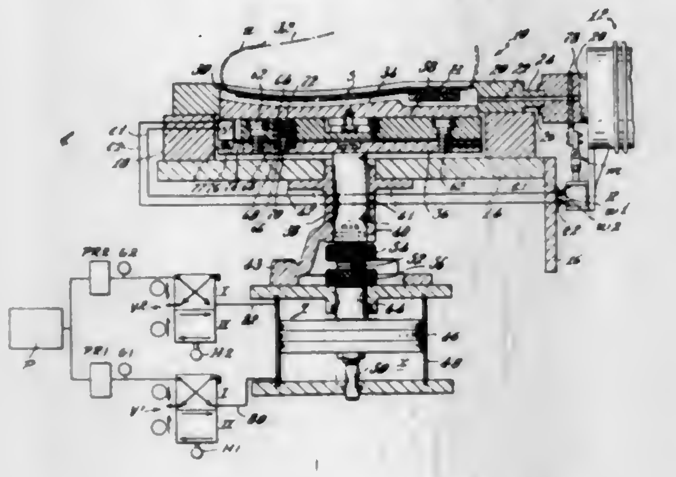
3,303,531
SPINNERETTE

Joseph Ogden, Brielle, N.J., assignor to Engelhard Industries, Inc., Newark, N.J., a corporation of Delaware
No Drawing. Filed Feb. 26, 1965, Ser. No. 435,735
2 Claims. (Cl. 18—8)

2. A spinnerette composed of an alloy of 65% Ni and 35% Cr.

3,303,532
INJECTION MOLDING COMPOSITE BOTTOMS FOR SHOES

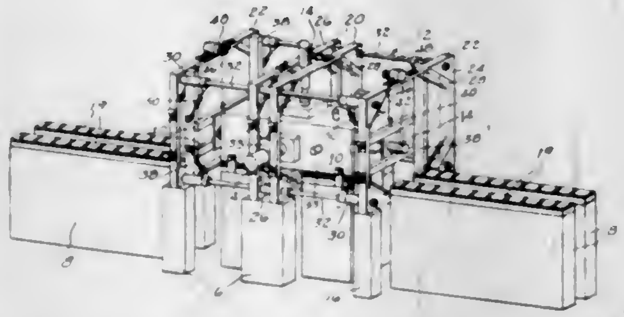
Herbert P. Ludwig, Desmastr. 12, Uesen, near Bremen, Germany
Original application Oct. 6, 1964, Ser. No. 401,886. Divided and this application June 21, 1966, Ser. No. 559,138
13 Claims. (Cl. 18—17)



1. Apparatus for applying composite bottoms to shoes comprising a mold having an open top and bottom, a sole plate supported at the bottom opening for movement toward the bottom of a last resting on the open top of the mold, means for moving the sole plate through the mold toward the bottom of the last to press an intermediate bottom element into engagement with the bottom of an upper on the last, means for retracting the sole plate to form, in conjunction with the mold, a closed cavity between it and the intermediate bottom element of sufficient depth to provide an outsole of the desired thickness, and means for injecting bottom-forming composition into the cavity to form an outsole about the bottom element.

3,303,533
HOT PRESSING APPARATUS

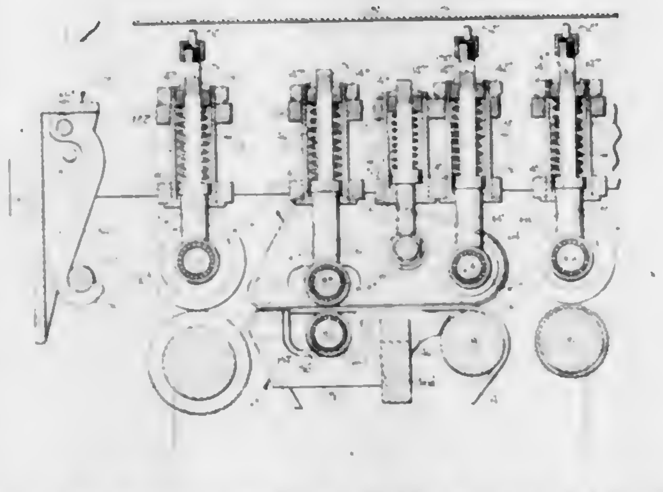
Alan G. King, West Boylston, Mass., assignor to Norton Company, Worcester, Mass., a corporation of Massachusetts
Filed Oct. 23, 1963, Ser. No. 318,322
11 Claims. (Cl. 18—17)



1. Apparatus for intermittently subjecting material in a multi-sided mold to temperatures of sufficient degree and pressure in a range to mold said material by the hot pressing thereof comprising a series of molds having chambers therein to receive the material to be hot pressed, and plungers in the chambers to press against the material, a furnace adapted to serially receive the molds containing the material to be hot pressed, said furnace including a hot zone, means to feed molds filled with said material generally longitudinally through said zone, said molds being moved therethrough with said plungers disposed transversely to said longitudinal direction of movement, means to heat the zone to hot pressing temperatures, opposed means at the heated zone for applying pressure toward all of the sides of the mold with substantially balanced opposed pressures including means to simultaneously create a hot pressing molding pressure against the plungers while the mold is disposed in said zone, and said pressure applying means being activated for a time period to maintain the pressure for a sufficient time period to complete a hot pressing operation and then being released, and means to remove the molds serially from said zone after completion of said hot pressing and molding operation.

3,303,534
DOUBLE APRON DRAFTING SYSTEM FOR DRAWING FRAMES

Gianfranco Andreani, % S. O. M. Andreani & C., Via F. Corridoni 31, Bergamo, Italy
Filed July 28, 1964, Ser. No. 385,689
Claims priority, application Italy, Aug. 21, 1963, 17,335/63; Nov. 28, 1963, 24,578/63; Dec. 11, 1963, 25,232/63; Jan. 15, 1964, 843/64
19 Claims. (Cl. 19—248)

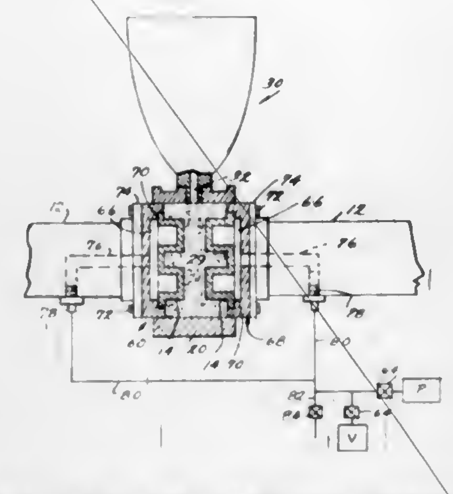


1. In combination with a drawing frame for doubling several textile slivers and having front and rear pairs of drafting rolls; a double apron drafting system including top and bottom endless aprons positioned between and spaced from said front and rear pairs of drafting rolls, front and rear spaced apron-supporting rollers for supporting each top and bottom apron and forming substantially parallel and juxtaposed proximal runs from said aprons between which said slivers pass from the front pair to the rear pair of drafting rolls, means applying a predetermined high yieldable downward pressure to the rear top-apron-supporting roller, and means for applying a predetermined relatively low yieldable downward pressure to the front top-apron-supporting roller substantially independently of the pressure applied to said rear top-apron-supporting roller.

3,303,535
SAND MOLD PATTERNS FORMED OF POROUS OR PERMEABLE METAL

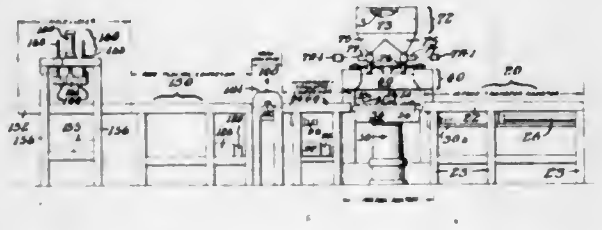
Earl M. Rearwin, High Point, N.C., and William R. Jackson, Greenville, S.C., assignors to Owens Development Corporation, Miami Beach, Fla., a corporation of Florida
Filed Oct. 18, 1963, Ser. No. 317,189
7 Claims. (Cl. 22—10)

1. In an apparatus for shaping a mixture of sand or the like into a relatively self-supporting body by compressing the sand in contact with a rigid pattern: flask means and at least one rigid pattern defining together a sand retaining chamber; said pattern being contoured to impress a complementary contour in the sand and having a substantial portion constructed of porous, gas-permeable material having a large number of small diameter passageways therethrough, said portion extending from the front surface of said pattern which contacts the sand to the rear surface of said porous portion; a pattern support plate carrying said pattern, said plate having a cavity therein facing the rear surface of said pattern and defining therewith a second chamber which is coextensive with said porous portion, said plate having an aperture therein for introducing or withdrawing fluid from said second chamber whereby flow of fluid may be effected through said porous portion in either direction, said pattern support plate being movably mounted relaitve to said flask means whereby said flask means may be opened and closed.



3,303,536
PROCESS AND APPARATUS FOR AUTOMATICALLY PRODUCING AND ASSEMBLING FOUNDRY MOLDS

Alexander A. Pegon, Norristown, Pa., assignor to Turbo Machine Company, Lansdale, Pa., a corporation of Pennsylvania
Filed Apr. 16, 1965, Ser. No. 448,823
8 Claims. (Cl. 22—20)



2. Apparatus for continuously producing closed molds ready for pouring comprising

a conveyor for successively advancing pairs of cope and drag flasks to and from three stations including

a molding station having a single molding machine with a single pattern plate, means for lowering a pair of said flasks onto the pattern plate so that the pattern plate with the cope and drag thereon form a pair of receptacles each having four sides and a bottom for receiving therein finely divided particles, means for simultaneously introducing finely divided particles into the cope and drag over pattern halves on said pattern board, and means for simultaneously compacting the particles around the pattern halves so as to form a pair of half pattern impressions in the undersurfaces of the molds,

a drag rollover station having means for receiving the cope and drag from the molding station and inverting the drag so that the drag half pattern impression faces downwardly, and

a mold closing station having means for receiving the cope and drag from the rollover station, lifting the cope while the drag advances to a location therebeneath and then lowering the cope on the drag thereby forming the closed mold.

6. A process for continuously producing closed molds ready for pouring comprising the steps of

receiving a cope and drag upon a platform,

lowering the platform so that the cope and drag come to rest simultaneously upon a single pattern plate having two complementary pattern halves fixedly mounted thereon, the pattern halves being thereby located within the cope and drag,

introducing finely divided particles into the cope and drag and around the pattern halves,

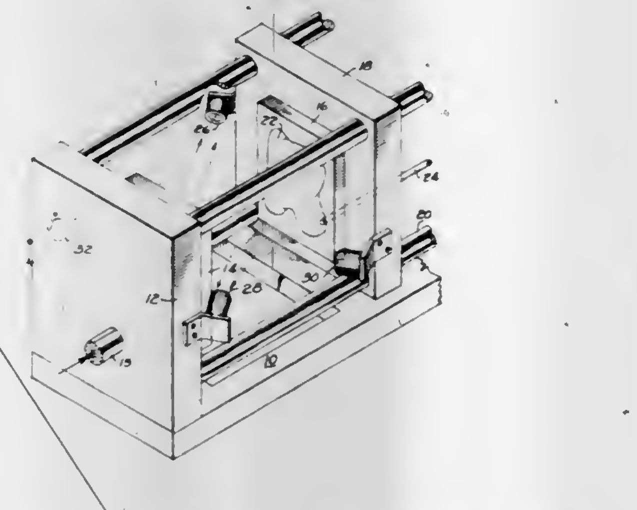
raising the pattern plate so as to compact the particles against a pair of members positioned vertically above the cope and drag thereby forming matching pattern half impressions in the undersurfaces of the molds,

inverting the drag so that the drag pattern half impression faces upwardly, and

lifting the cope to a higher level, advancing the drag at the initial level to a position therebeneath, and lowering the cope on the drag to form a closed mold.

3,303,537
SAFETY EJECTION CONTROLS FOR CASTING MACHINES

Joseph D. Mislan, Morrisville, Pa., assignor to Systems Matrix, Inc., a corporation of New Jersey
Filed Apr. 7, 1964, Ser. No. 357,956
8 Claims. (Cl. 22—94)



8. In a casting machine of the type having a pair of relatively movable platens adapted to carry molding die blocks between open and closed positions, injection means for supplying molten material to a cavity defined by said die blocks, and a machine program control for opening said die blocks for ejection of a molded part and for thereafter closing said die blocks in preparation for a succeeding injection and molding cycle, the improvement comprising:

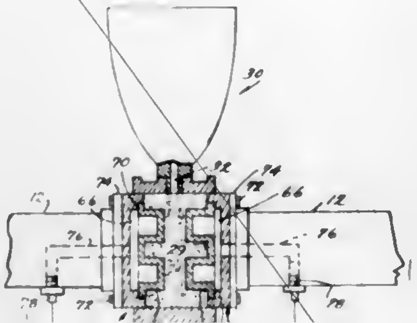
(a) radiant energy sensing means mounted relative to said platens to respond to the temperature of at least one of said die blocks, and

(b) means responsive to the output of said sensing means for signalling a departure of the temperature of the sensed die block away from a predetermined range.

3,303,538
METHOD FOR LOWERING A MULTIPLE CAST INGOT DURING CONTINUOUS CASTING USING ONLY WEB CONTACT

Klaus Frenken, Essen-Werden, and Wilhelm Stellmacher, Dusseldorf, Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany, a German body corporate
Filed Apr. 11, 1963, Ser. No. 272,283
Claims priority, application Germany, Apr. 17, 1962, M 52,524
1 Claim. (Cl. 22—200.1)

In a continuous casting a method for lowering and guiding a multiple cast casting of preferably round cross-section with individual ingots interconnected by webs that facing the rear surface of said pattern and defining therewith a second chamber which is coextensive with said porous portion, said plate having an aperture therein for introducing or withdrawing fluid from said second chamber



lowering the platform so that the cope and drag come to rest simultaneously upon a single pattern plate having two complementary pattern halves fixedly mounted thereon, the pattern halves being thereby located within the cope and drag,

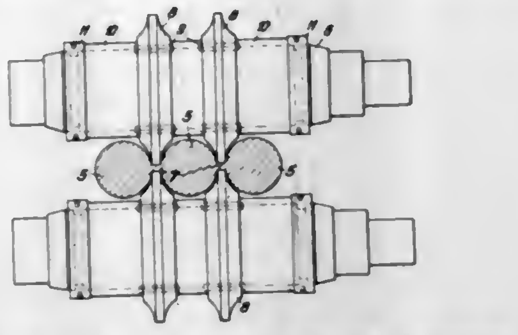
introducing finely divided particles into the cope and drag and around the pattern halves,

raising the pattern plate so as to compact the particles against a pair of members positioned vertically above the cope and drag thereby forming matching pattern half impressions in the undersurfaces of the molds,

inverting the drag so that the drag pattern half impression faces upwardly, and

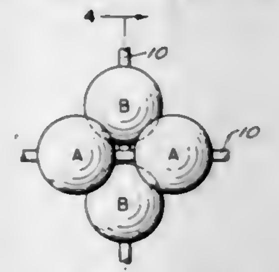
lifting the cope to a higher level, advancing the drag at the initial level to a position therebeneath, and lowering the cope on the drag to form a closed mold.

are thin in comparison with the cross-sectional area of said ingots, the improvement comprising, using a roll contact pressure only on said webs and solely for lowering and guiding said casting.



3,303,539
FLEXIBLE CORD AND FASTENING MEANS

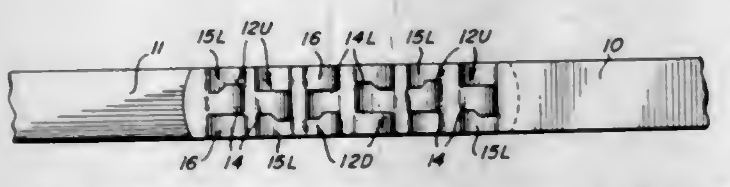
William B. White, Stonington, Conn., assignor to Greene Plastics Corporation, a corporation of Rhode Island
Filed Apr. 5, 1965, Ser. No. 445,646
2 Claims. (Cl. 24—16)



1. A flexible locking device comprising a cord-like member, a plurality of bead members fixed on said cord member in spaced relation to each other, said bead members being of such a size relative to the space between them that one pair of bead members on said cord member is prevented from being freely passed at generally right angles to another pair of bead members on said cord member to cause the cord members to engage, at least one of said members being provided with sufficient elasticity so that the one pair of bead members may be forced at right angles past the other pair of bead members to cause said cord members to engage so that the four bead members of said two pair contact and remain in contact to lock the cord member parts together by the tending of said elasticity to return the parts which permitted the forcing of the parts into such relation.

3,303,540
SEALLESS STRAP CONNECTION

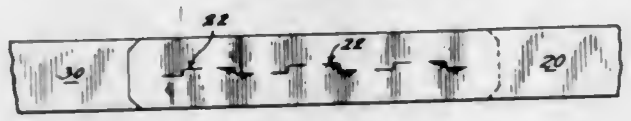
John R. Beach, Elmhurst, Ill., assignor to Signode Corporation, a corporation of Delaware
Filed June 30, 1965, Ser. No. 468,320
4 Claims. (Cl. 24—20)



1. In a sealless strap connection between overlapped lengths of metal strap, a tandem array of longitudinally spaced shear lock joints, each joint comprising nestable strap sections, partly offset longitudinally to engage in one way mutually interlocking relation, each strap section having a central recess bounded at one face by an integral tongue portion offset in one normal direction from said section and flanked by integral marginal web portions offset in the opposite normal direction, said tongue portion being defined from said web portions only along lengthwise lines of severance one of which has an intermediate lateral jog such that said tongue and one of said webs each have a single integral laterial wing, said wings being complementary, each joint having one section presenting a locking tongue nestable within the recess of the other section and partly offset longitudinally thereof to establish one way interlocking engagement between the wing of said locking tongue and the web wing of said other section.

3,303,541
SEALLESS STRAP CONNECTION

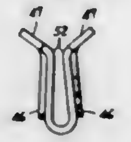
John R. Beach, Elmhurst, Ill., assignor to Signode Corporation, a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,725
3 Claims. (Cl. 24—20)



1. In a sealless strap connection between overlapped lengths of metal strap, a tandem array of longitudinally spaced shear lock joints, each joint being defined between nestable strap sections provided by matched integral portions of each length of metal strap, said nestable strap sections that define each joint being partly offset longitudinally to engage in one way mutually interlocking relation, each said nestable strap section having a single longitudinally oriented staggered slit comprised of lengthwise slit end regions and a lateral jog region joining the slit end regions, each staggered slit defining and being flanked by complementary integral strap web portions offset in opposite normal directions to present lengthwise opposed shoulders bordering the intermediate jog region of the slit, each joint having each of its nestable strap sections presenting a locking shoulder nestable within the jog region of the other strap section and enterable endwise into the opposing slit end region of said other section to establish one way interlocking engagement therebetween.

3,303,542
FASTENERS

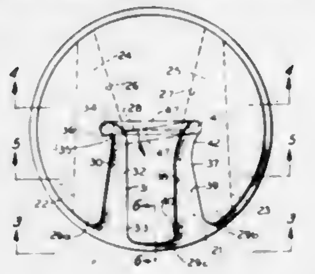
Robert J. Holton, Cleveland, Ohio, assignor to Tinnerman Products, Inc., Cleveland, Ohio, a corporation of Ohio
Original application Feb. 14, 1963, Ser. No. 258,494, now Patent No. 3,208,122, dated Sept. 28, 1965. Divided and this application Jan. 13, 1965, Ser. No. 425,124
12 Claims. (Cl. 24—73)



1. A fastening device adapted for insertion in an opening in a support member, said device comprising, a generally vertically oriented loop-like body portion adapted to be received through the opening in said support member, a pair of tab portions projecting upwardly from said body portion and disposed in laterally spaced relationship relative to one another, said tab portions being adapted for engagement with one side of said support member, at least one resilient tongue portion formed from the material of each of the opposed sides of said body portion and extending downwardly in the same general direction as said body portion, and means including fulcrum areas disposed adjacent the juncture of said body portion with said tab portions, said fulcrum areas being disposed in confronting spaced relationship for engagement against one another and adapted to cause pivotal movement of said resilient tongue portions outwardly away from said body portion and into engagement with the other side of said support member adjacent the opening therein upon pivotal movement of said tab portions toward one another and engagement of said fulcrum areas against one another.

3,303,543
DETACHABLE FASTENER

Eleanor S. La Rue, 418 18th Ave., San Francisco, Calif. 94121, and Frederick Gene La Rue, Ukiah, Calif., assignors to said Eleanor S. La Rue
Filed July 31, 1964, Ser. No. 386,629
14 Claims. (Cl. 24—104)

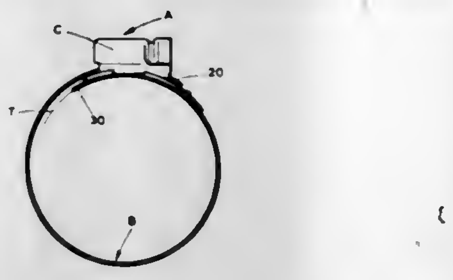


1. A detachable fastener comprising: a male element having a pair of legs resiliently urged by a biasing force into spaced apart relation and being displaceable relative to each other against such biasing force, and a female element provided with a longitudinally extending opening and provided also with a pair of surfaces extending generally lengthwise of said opening, said surfaces being adapted to have the legs of said male element respectively move therealong and being oriented relative to each other so as to displace said legs laterally against such biasing force, one of said surfaces having a notch therealong adapted to seat one of said legs therein, said notch being off-set laterally from the general line of said one surface in a direction in which such biasing force urges said one leg thereinto, the other of said surfaces having a recess therealong adapted to seat the other of said legs therein at the same time that said one leg is seated within said notch, such resilient biasing force being operative upon movement of said legs along said surfaces to cause said one leg to resiliently snap into said notch and said other leg to enter said recess and thereby releasably interlock said male and female elements against relative longitudinal displacements, said male element being removable from such condition of interlock by the application of a torque thereto tending to rotate the same about the longitudinal axis of the other of said legs while in said recess and thereby displace said one leg from said notch, said notch being the only notch provided by said female element cooperative with said male element to establish a releasable interlock therebetween.

3,303,544
CLAMPING RINGS

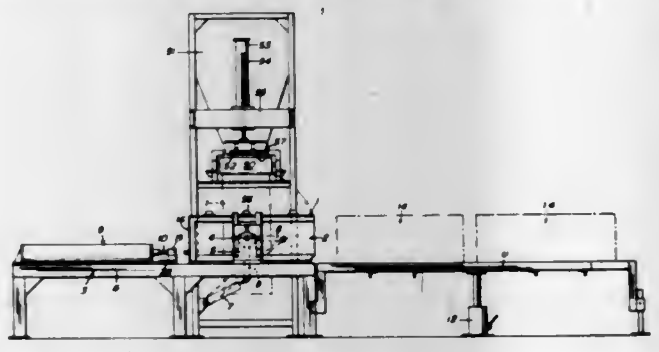
Georges Louis Nigon, 10 Rue Papillon, Paris, France
Filed Sept. 23, 1965, Ser. No. 489,538
Claims priority, application France, Mar. 23, 1965, 10,363
2 Claims. (Cl. 24—274)

1. A pipe clamp comprising a clamping strip provided with transverse oblique slots at one end thereof, an actuating device supported at the other end of the strip and comprising a cap including a flat wall closing one end of said cap, a plate integral with the cap, means on the strip and on the plate cooperating for mutually displaceable assembly thereof; a threaded rod including a head at one end, said rod further including screw threads engageable with the transverse oblique slots and a portion of reduced diameter between the head and the threads; the said rod being positioned entirely inside of the cap and secured against longitudinal movement relative to the latter by cooperation of the other end thereof with the said flat wall, the said cap comprising a transverse rib projecting inwardly to cooperate with the reduced diameter portion of the rod, and two longitudinal ribs between the end of the cap opposite said flat wall and the transverse rib and joining the latter to define at the forward part of the cap a portion of substantially semi-cylindrical configuration encompassing the head of the rod.



3,303,545
MOLDING MACHINE WITH MOVABLE END MEANS FOR CLOSING MOLD AND STRIPPING ARTICLE

Charles J. Heitzman, Honolulu, Hawaii, assignor to R & H Molding, Inc., Honolulu, Hawaii, a corporation of Hawaii
Continuation of application Ser. No. 334,133, Dec. 30, 1963. This application Jan. 6, 1966, Ser. No. 519,155
9 Claims. (Cl. 25—41)



1. A machine for molding articles of self-hardening material comprising a mold box open at one end, a mold in said box and including a liner, means for swinging said box on a fixed horizontal axis between a vertical position for presenting said mold for filling with said material through said open end and a horizontal position, movable means in said box for closing a lower end of said mold during filling thereof in said vertical position, means for consolidating said material in said mold in said vertical position, means in said box for locating and during filling backing said movable means, and horizontally acting means removed from said box throughout said swinging thereof and projectable thereinto in said horizontal position for moving said movable means along said box and thereby stripping therefrom through said open end said liner and a molded article thereon, said movable means being releasably connectable to said horizontally acting means for return thereby to starting position in said box on retraction thereof after said stripping.

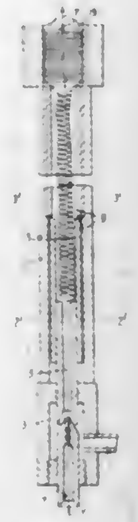
3,303,546
APPARATUS FOR TREATING FILAMENTARY MATERIAL IN A FLUID

Victor Bruce Van Blerk, Sea Point, Cape Town, Cape Province, Republic of South Africa, assignor to British Nylon Spinners Limited, Pontypool England
Filed July 22, 1964, Ser. No. 384,505
5 Claims. (Cl. 28—1)

1. Apparatus for treating filamentary material in a fluid, comprising

(a) a conduit for a fluid under pressure,

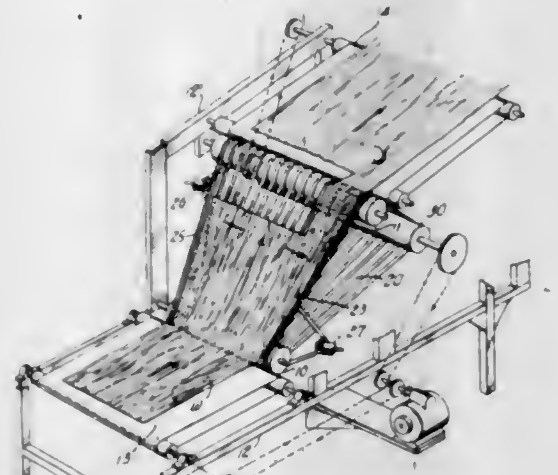
(b) means for entraining filamentary material within said conduit,
(c) means defining a chamber leading out of said conduit downstream thereof and located within a tubular member, said chamber having a mean diameter greater than that of said conduit,



and (d) fluid exhaust means in said chamber including a skirt of rods extending parallel to the axis of said conduit for restricting the filamentary material to the axially mid-portion of said chamber and for allowing said fluid to exhaust between and radially outwardly of the rods of said skirt and thence axially out of said chamber.

3,303,547
CROSS STRETCHING MACHINE FOR NONWOVEN WEBS

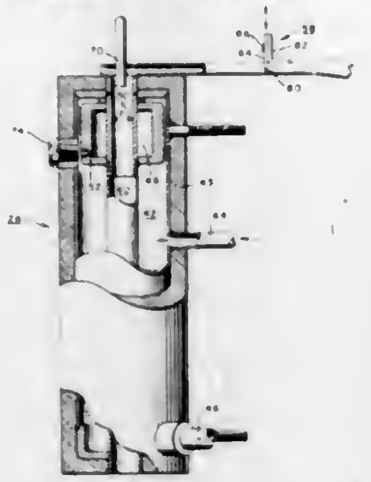
Frank Kalwaites, Somerville, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Dec. 1, 1964, Ser. No. 415,126
3 Claims. (Cl. 28—1)



1. A machine for cross-stretching fibrous webs comprising: first and second spaced apart rotatable rolls, a narrow width endless belt extending in a series of adjacent flights between said rolls, said flights following divergent paths as they extend from the first roll to the second roll and convergent paths as they return from the second roll to the first roll, said flights having pins extending from the surface thereof, a third roll in contact with said convergent flights to apply uniform tension to all flights and means for driving one of said rolls whereby a fibrous web passing from said first roll to said second roll is cross-stretched under uniform tension.

3,303,548
YARN TREATING APPARATUS

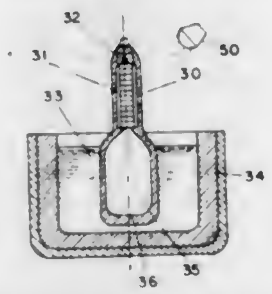
William H. Hills and Euell K. McIntosh, Pensacola, Fla., and James R. Williams, Robertsdale, Ala., assignors to Monsanto Company, a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,926
3 Claims. (Cl. 28—61)



1. Yarn treating apparatus comprising, in combination:
(a) walls defining a substantially vertical elongated passageway having an upper open end and a lower open end,
(b) means defining with said walls an expansion chamber surrounding said passageway near one of said ends,
(c) a steam chamber containing pressurized steam surrounding said expansion chamber and said passageway,
(d) means defining a restricted orifice connecting said steam chamber to said expansion chamber whereby a small amount of steam is admitted to said expansion chamber,
(e) means defining at least one aperture connecting said expansion chamber to said pasageway, said at least one aperture having a much larger cross-sectional area than said orifice, whereby the steam admitted to said expansion chamber is permitted to diffuse at low velocity into said passageway, and
(f) an exhaust nozzle, mounted exteriorly of and adjacent one of said ends of said passageway, supplying just sufficient vacuum to take up the steam issuing from said one of said ends.

3,303,549
METHOD OF MAKING SEMICONDUCTOR DEVICES UTILIZING VACUUM WELDING

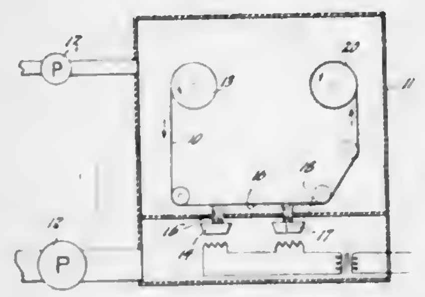
William P. Peyser, Nashua, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Mar. 23, 1964, Ser. No. 353,682
12 Claims. (Cl. 29—25.3)



1. A method of manufacturing a semiconductor device, said method comprising the steps of separately making component members of said device, which members are metallurgically compatible and have different conductivities, cleaning those surfaces of said component members which are to be joined, placing said cleaned surfaces of said members in mating relationship, then vacuum welding said members in the absence of any substantial mechanical pressure thereon by subjecting them to a vacuum in the order of 10^{-10} millimeters of mercury at a temperature which does not substantially exceed ambient temperature for a sufficient length of time to cause bonding between the members to form a semiconductor junction therebetween.

3,303,550
METHODS OF FABRICATING WOUND ELECTRICAL CAPACITORS

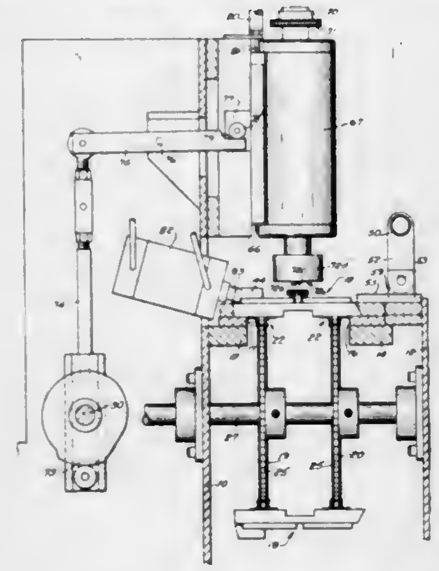
William S. Banzhof, Jr., Clemmons, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 23, 1965, Ser. No. 481,871
2 Claims. (Cl. 29—25.42)



1. A method of manufacturing an electrical capacitor comprising:
- depositing an aluminum film on one surface of a dielectric strip while in a protective atmosphere;
- depositing an electrically conductive metal termination path on the aluminum film adjacent the edge thereof while still in said protective atmosphere; passing the dielectric strip into an oxidizing chamber to oxidize the aluminum film;
- overlapping two of such strips so that the termination path of each strip is exposed and is located at an opposite side edge with respect to the other termination path;
- convolutely winding said strips into a roll;
- positioning a terminal against each end of said roll; and applying solder to said ends to bond said terminals thereto.

3,303,551
PIPE UNION PROCESSING MACHINE

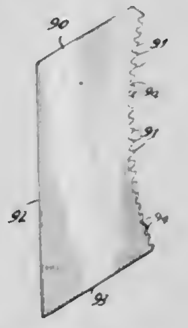
Lucien W. Carignan, East Providence, R.I., assignor to New England Malleable Iron Company, a corporation of Rhode Island
Filed May 13, 1965, Ser. No. 455,575
7 Claims. (Cl. 29—33)



1. A machine for sequentially processing a work piece comprising a continuous conveyor chain, chucks mounted at intervals on said chain, each chuck comprising relatively movable opposed jaws, a plurality of spindles mounted over said chain, said spindles being located at spaced intervals, the intervals of said chucks and the intervals of said spindles being one a multiple of the other, drive means, a timing shaft driven by said drive means, intermittent motion means coupled between said drive means and said conveyor chain, clutch operating means moving said jaws to grip the work while the conveyor chain is at rest, means on said timing shaft to actuate each of said spindles when said conveyor chain is at rest, whereby a machining operation coupled to said spindle may work on material held by said chucks while at rest.

3,303,552
BROACH

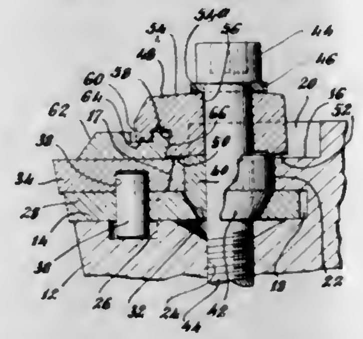
Charles O. Lofgren and Axel Anderson, Rockford, Ill., assignors to Sundstrand Corporation, a corporation of Illinois
Original application Oct. 2, 1961, Ser. No. 142,088, now Patent No. 3,222,702. Divided and this application Mar. 8, 1965, Ser. No. 437,882
6 Claims. (Cl. 29—95.1)



1. In a rotary broaching machine, a broach having a blade-shaped body with a plurality of teeth arranged to define a curved cutting profile as an arc of a cricle, said body having a back edge generally parallel to a tangent of said circle and a side edge at an angle of approximately 60 degrees to the back edge and generally parallel to the faces of the cutting teeth.

3,303,553
CUTTING TOOL ASSEMBLY

Ole C. Severson, Shelton, Conn., assignor to The Viking Tool Company, Shelton, Conn., a corporation of Connecticut
Filed Aug. 24, 1964, Ser. No. 391,540
7 Claims. (Cl. 29—96)

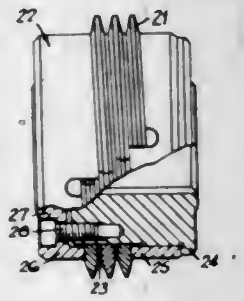


1. A cutting assembly for a machine tool comprising: a tool holder adapted to be supported by the machine tool and having a tool holder head including a positioning surface and slidably movable planar seat means; a cutting insert supported on said planer seat means for movement therewith and having a first side disposed to function as a cutting implement and a second side arranged to position against said positioning surface; a chip-breaking plate removably supported on said cutting insert; and clamping means having a first portion arranged to slidably move said planer seat means to position the second side of said cutting insert against said

positioning surface and a second portion arranged to said cutting insert, whereby said cutting insert is simultaneously clamped and positioned in said tool holder head.

3,303,554
CUTTING TOOLS

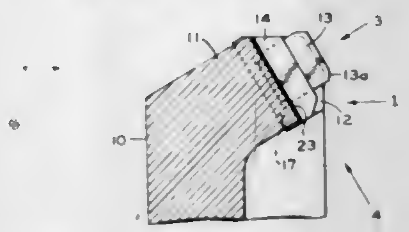
William Henry Bateman, Rickmansworth, and Harold Richard Bagley, Coventry, England, assignors to Wickman Wimet Limited, Coventry, England
Filed Jan. 4, 1965, Ser. No. 423,171
Claims priority, application Great Britain, Jan. 9, 1964, 1,001/64; Nov. 18, 1964, 46,910/64
5 Claims. (Cl. 29—103)



1. A hob having cutting teeth extending in a helical path, said hob including a body, and a plurality of radially split substantially ring-shaped members formed from a sintered hard metal, the teeth being formed upon said members, and means securing said members to said body and constraining said members on said body so that said teeth extend in the required helical path.

3,303,555
FINE PITCH MILLING CUTTER

Victor Milewski, Birmingham, Mich., assignor to The Valeron Corporation, Detroit, Mich., a corporation of Michigan
Filed Jan. 4, 1965, Ser. No. 423,235
9 Claims. (Cl. 29—105)

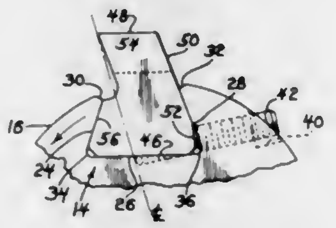


1. A cutting tool comprising an annular cutter body having a plurality of projecting lugs extending angularly from an end face of said body with slots therebetween, a locating element accurately oriented and interlocked on each lug, said locating element having cutting insert edge and face locating means therein, a cutting element, and frictionally retained wedge means reacting against said cutting element and adjacent lug wall for forcing said cutting element in compressive engagement with said locating element.

3,303,556
INSERTED BLADE ROTARY CUTTER

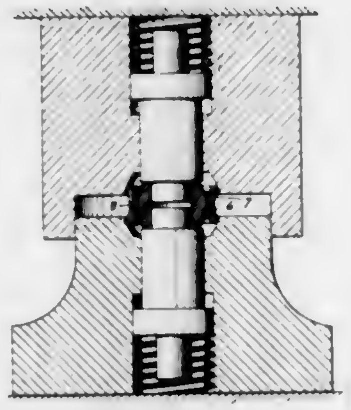
Henry J. Pinkowski, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Original application Mar. 12, 1964, Ser. No. 351,451. Divided and this application July 20, 1966, Ser. No. 566,652
9 Claims. (Cl. 29—105)

1. A cutter mounting insert blades having form type cutting edges and a substantial sharpening life comprising in combination, cutter body means having a central axis and a circumferential surface, means interrupting said circumferential surface to provide a first cutter insert reference surface which is disposed at a predetermined angle relative to a diametral plane of said body means, second cutter reference surface located adjacent said first cutter reference surface and disposed at an angle in the range of 45° to 100° to said first cutter reference surface, said second cutter reference surface being located radially inwardly from the furthest radial extent of said body means, cutter insert means having a base surface and a top surface for respectively engaging said second cutter reference surface of said cutter body and for projecting beyond the furthest radial extent of said body means for engagement with a workpiece, said cutter insert means further having a face surface angularly disposed to said top and base surfaces configured to provide profile cutting edges, said face surface being located on a first side of said cutter insert means, locating surface means on said cutter insert means adjacent said face surface and on the same side thereof for engaging said first cutter reference surface, and grinder reference surface means on said cutter insert blade means disposed on the second side thereof generally opposite to said face surface and said locating surface means, clamp means associated with said body means of said cutter for engaging the second side of said cutter insert for causing said face surface to maintain a predetermined relationship to said cutter reference first and second surfaces by engagement of said second side surface on said cutter insert by forcing said base and said locating surface means thereagainst whereby simultaneous removal of an identical amount of stock from said face surface and said locating surface means without removal of stock from any other portion of said insert means will afford an identical orientation of cutter insert profile cutting edges to a workpiece after sharpening of the insert.



3,303,557
METHOD OF MAKING ANTIFRICTION BEARINGS

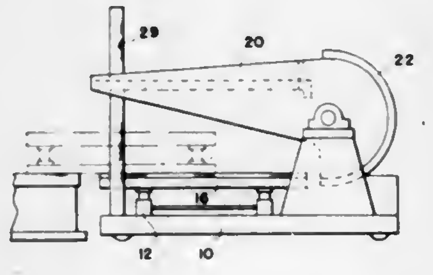
Leonard A. Litsky, New Britain, Conn., assignor to The Fafnir Bearing Company, New Britain, Conn., a corporation of Connecticut
Filed Mar. 3, 1961, Ser. No. 93,143
3 Claims. (Cl. 29—149.5)



1. In a method of making a universal bearing of the ball and socket type in which an inner metal ball having an outer spherical surface is seated within a unitary outer metallic ring member, the improvement which comprises providing on the inner surface of a metallic ring member of cylindrical form a layer of fabric of bondable yarns and Teflon yarns woven together with said bondable yarns on one surface of said fabric and in contact with the inner surface of said ring and the Teflon yarns exposed on the other surface of said fabric, bonding the bondable yarns of said fabric to said inner surface of said ring member, whereby the fabric layer is maintained in position in said ring member, assembling a metal ball within said ring member and then applying external pressure on the outer surface of said ring member to convert the inner and outer surfaces of said ring member and said layer of fabric bonded thereto to a spherical form conforming substantially to the outer spherical surface of said ball, whereby the ball is locked in position within said ring member against axial displacement, with the exposed Teflon yarn in surface contact with said ball and forming a bearing surface therefor.

3,303,558
DIE MANIPULATOR

Harry W. Horlacher and Clyde I. Pelton, Warren, Ohio, assignors to The Taylor-Winfield Corporation, Warren, Ohio, a corporation of Ohio
Filed Dec. 29, 1964, Ser. No. 421,971
5 Claims. (Cl. 29—239)

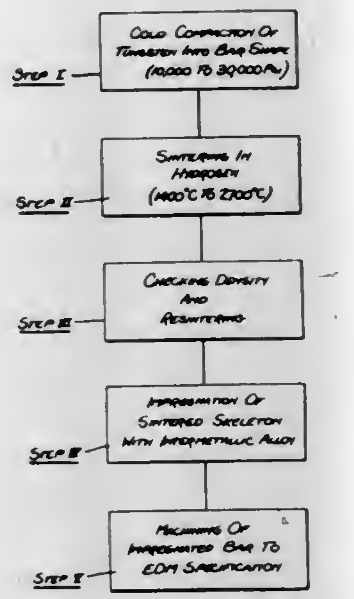


1. A portable die receiver and manipulator comprising a caster-supported base adapted to be brought into proximity with the bed of a press, a horizontally disposed die-receiving platen supported on said base and guided thereon for vertical up and down movement, power means carried by said base to raise and lower said platen, a support carried by said base for rotation about an axis spaced above and adjacent to an end portion of said platen, a second platen rigidly carried by said support and adapted to be brought into a parallel position above said first mentioned platen when said support is rotated to one of its positions, and power means carried by said base for rotating said support whereby said second platen may be opened away from said first mentioned platen, the arrangement being such that top and bottom sections of a die may be secured, respectively, to said second and first mentioned platens after which said first mentioned platen may be lowered to open the die and permit said support and second platen carried thereby to swing the top section of the die away from the bottom portion thereof.

3,303,559
ELECTRICAL DISCHARGE MACHINE ELECTRODES

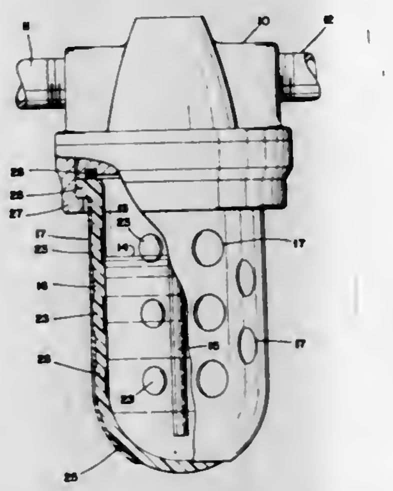
John Sam Holtzclaw, Clermont, Fla., assignor to Rametco, Inc., Clermont, Fla.
Filed May 12, 1965, Ser. No. 455,186
12 Claims. (Cl. 29—420.5)

1. The method of fabricating an EDM electrode, comprising the steps of compacting particulates of a refractory metal selected from the class consisting of tungsten, molybdenum, tantalum and columbium, sintering said compact to produce a porous blank, impregnating the porous blank with a reducing agent to reduce oxides on the surface thereof, impregnating the pores of said blank with a molten intermetallic alloy having a relatively high electrical conductivity and a lower melting point than the sintering temperature of said refractory metal, said alloy having a wetting agent added thereto to increase the fluidity thereof and thereby facilitate impregnation, and machining the impregnated blank to a desired electrode shape.


COLD COMPACTION OF TUNGSTEN INTO BAR SHAPE (10,000 TO 30,000 PSI)
STEP I
SINTERING IN HYDROGEN (1400°C TO 2700°C)
STEP II
CHECKING DENSITY AND RESINTERING
STEP III
IMPREGNATION OF SINTERED SKELETON WITH INTERMETALLIC ALLOY
STEP IV
MACHINING OF IMPREGNATED BAR TO EDM SPECIFICATION
STEP V

3,303,560
METHOD OF MAKING CONTAINERS FOR FLUIDS UNDER PRESSURE

Zdenek J. Lansky, Winnetka, and Kurt W. H. Leibfritz, Norridge, Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio
Original application Oct. 16, 1963, Ser. No. 316,739, now Patent No. 3,241,700, dated Mar. 22, 1966. Divided and this application Oct. 23, 1965, Ser. No. 503,446
3 Claims. (Cl. 29—421)



1. The method of making a receptacle comprising forming a hollow cylindrical container from a material capable of appreciable plastic deformation without fracturing, forming a perforated cylindrical shield with an inside diameter substantially the same as the outside diameter of the cylindrical container, assembling the shield over the cylindrical container and contracting the shield to a lesser inside diameter than the initial outside diameter of the container while the inside diameter of the container is unsupported whereby the container is contracted in inside and outside diameter between said perforations so as to place the container material between the perforations in compressive stress and the container material opposite the perforations remains substantially non-contracted so as to extend into the perforations for locking the shield upon said container.

3,303,561

PROCESS FOR THE PREPARATION OF AN IRON-ALUMINUM ALLOY

Gérard Cabane, 24 Ave. Lombart, Fontenay-sous-Bois, France; Pierre Mouturat, 9 Rue Margueritte, Paris, France; Jean-François Petit, 24 Rue du Moulin de Saquet, Villejuif, France; Gérard Sainfort, 17 Ave. J. Perrot, Grenoble, France; and Marc Salesse, Cite du Commissariat a l'Energie Atomique 8, Gif-sur-Yvette, France

Filed Feb. 26, 1963, Ser. No. 261,152
Claims priority, application France, Mar. 2, 1962, 889,735; Oct. 18, 1962, 912,600
30 Claims. (Cl. 29—528)

1. A process for the preparation of an iron-aluminum alloy consisting essentially of between greater than 18% and about 40% by weight of aluminum, up to 1% by weight of an additive selected from the group consisting of zirconium, niobium, titanium, yttrium, the rare earths, boron and mixtures thereof and the balance iron, comprising the steps of:
 melting said iron,
 incorporating said additive and said aluminum into said molten iron,
 casting with only a sight amount of superheat to produce, after solidifcation and cooling of the alloy, an ingot thereof,
 and hot working said ingot.

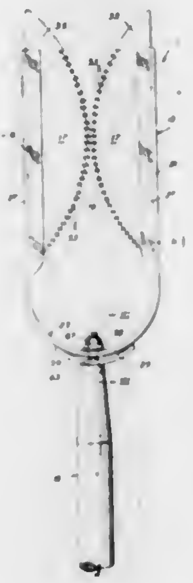
23. A process for the preparation of an at least binary iron-aluminum alloy consisting essentially of between greater than 18% and about 40% by weight of aluminum and the balance iron, said alloy being characterized by a relatively low brittleness permitting machining operations, comprising the steps of:
 melting said iron,
 adding said aluminum to said molten iron,
 casting at a temperature less than 50° C. above the temperature of solidification of the alloy into a preheated ingot mold to produce, after solidification and cooling, an ingot thereof,
 and destroying the cast structure of said ingot by hot state mechanical working and deformation.

3,303,562

TREE PRUNING TOOL

Lendon W. Booth, 943 Semmes, Memphis, Tenn. 38111
Filed Feb. 10, 1965, Ser. No. 431,568
1 Claim. (Cl. 30—166)

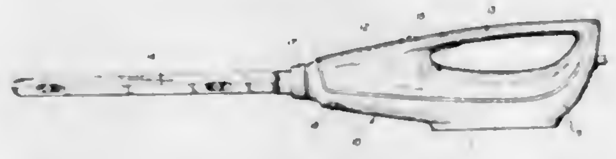
A tool for pruning tree limbs comprising a pair of thin flat elongated saw blades with each blade having respectively a forward end and a rearward end and with each blade having respectively an arced and saw-toothed inner edge and a substantially straight outer edge, the teeth respectively of said pair of blades extending toward said rearward end of each blade of said pair of blades, a U-shaped resilient support member having an intermediate portion and a pair of leg portions, said pair of leg portions providing channels respectively in each leg portion, means removably securing said pair of blades respectively to said pair of leg portions of said support member with said outer edges of said pair of blades respectively being received in said channels of said pair of leg portions, said pair of blades being arranged substantially in a common plane and in symmetrical and opposing relationship with each blade being secured to said support member, said arced and saw-toothed edges of said pair of blades being arranged with said saw-toothed edge of one blade being disposed towards said saw-toothed edge of the other blade, said pair of blades being resiliently urged by said support member to closed and at rest positions with said arced and saw-toothed edges respectively being contiguously arranged, and an adjustable elongated handle secured at one end thereof to said intermediate portion of said support member, said handle being securely adjustable to various lengths, said tool being adapted to be used by placing said pair of blades astraddle a tree limb with said arced and saw-toothed edges respectively engaging opposite sides of the limb and reciprocatingly moving said tool to simultaneously cut grooves in opposite sides of the limb and to sever the limb from the tree, said means securing an end of said handle to said intermediate portion of said support member including a threaded aperture means in said intermediate portion, a curved rigid backing member having an aperture therein and a curvature of a radius less than the radius of said support member, and a threaded stud fixedly secured in said end of said handle, said handle being secured to said support member with said threaded stud extending through said backing member and threadedly engaging said threaded aperture means of said intermediate portion, said means securing said handle to said support member being threadedly adjustable to determine the position of one blade relative to the other blade or the distance between said arced and saw-toothed inner edges of said pair of blades.



3,303,563

POWER OPERATED KNIFE WITH ADJUSTABLE BLADES

Robert M. Peterson, Racine, Wis., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed June 25, 1965, Ser. No. 466,954
10 Claims. (Cl. 30—272)

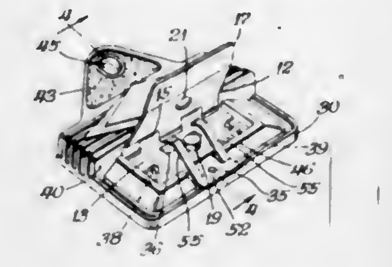


1. In a power operated knife having a housing, power transmission means in the housing, a knife blade, and blade driving means detachably connecting said knife blade to said transmission means, means for adjusting the position of the blade relatively to the housing for cutting material in planes at an angle to each other comprising
 (a) a turret rotatably mounted on one end of the housing having an opening therethrough for passage of the blade tang into the housing,
 (b) a blade carrier rotatably mounted adjacent the blade driving means in axial alignment with the turret, and
 (c) cooperating means on the carrier and driving means limiting the rotatable movement of the carrier in opposite directions.

3,303,564

PERFORATING DEVICE

James C. Hendricks, Marengo, Ill., assignor to McGill Metal Products Company, Marengo, Ill., a corporation of Illinois
Filed Jan. 7, 1965, Ser. No. 424,019
3 Claims. (Cl. 30—358)



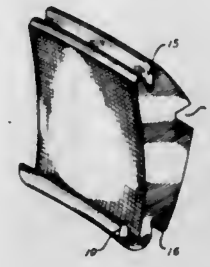
3. A device for perforating sheet material and for insertion in a ring binder, including in combination, a metal punch having upper and lower plates, said lower plate having a single projection thereon and said upper plate having a corresponding punch opening therein for perforating sheets inserted therebetween, hinge means joining said upper and lower plates, a substantially flat plastic carrying member having a mounting surface for said punch, means for staking said lower plate to said mounting surface, said carrying member having hinge housing means including a recess therein for accommodating said hinge means, said member having a mounting ear with an opening therein for mounting the device in a ring binder and a raised shoulder having a channel therein and surrounding said mounting surface thereby prohibiting contact of said upper and lower plates, and spring means being positioned between said lower plate and said mounting surface and extending through said channel of said raised shoulder, means including said lower plate for securing said spring means to said carrying member, said spring means being compressed when said plates are moved into perforating position, so that upon release of said plates said spring means acts to return said upper plate to a non-perforating position relative to said lower plate and clears the sheet material from said punch projection.

3,303,565

ORTHODONTIC BRACKETS

George V. Newman, 101 Laurel Ave., Livingston, N.J. 07039
Filed Apr. 9, 1964, Ser. No. 358,579
1 Claim. (Cl. 32—14)

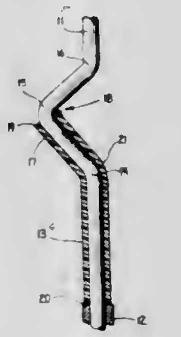
An orthodontic bracket comprising:
(a) a plate having curved posterior surface adapted to register with the anterior surface of a tooth,
(b) a transverse, generally medial, anterior channel for an arch wire on the plate,
(c) transverse, horizontally arcuate top and bottom, channels for a ligature on the plate, and
(d) a bottom enlargement on the plate extending rearwardly and upwardly to define a seat for the incisal edge of the tooth.



3,303,566

ORTHODONTIA APPLIANCE AND METHOD OF MAKING SAME

Carl J. Winkler, Sr., 7490 N. Pennsylvania St., Marion County, Ind. 46952
Filed Dec. 2, 1964, Ser. No. 415,247
8 Claims. (Cl. 32—14)



1. In an orthodontic face bow containing a mouth wire having a centrally curved portion from which legs extend in diverging directions, means for exerting rearward pressure on at least one buccal tube of a semi-pemanent brace, comprising on at least one side of said mouth wire of said face bow
 a V-shaped crimp in said mouth wire having substantially a right angle at its apex, and
 a closely fittting length of flexible tubing engaged on said mouth wire with its anterior end abutting the apex angle of said crimp and its posterior end abutting such a buccal tube.

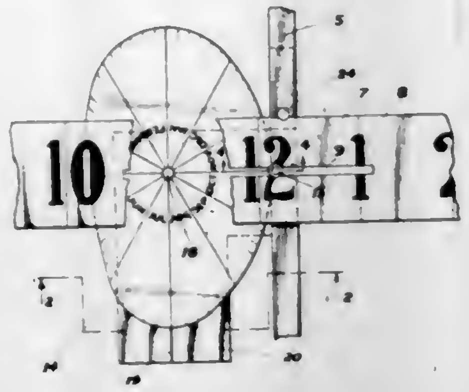
3,303,567

SUN DIAL

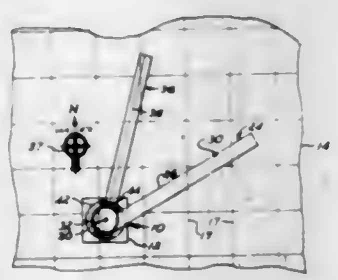
John P. Blanks, 1235 NW. 30th, Miami, Fla. 33065
Filed Nov. 1, 1963, Ser. No. 320,650
2 Claims. (Cl. 33—62)

1. In a sun dial of the type that is provided with an upstanding frame that carries a gnomon rod and a declination band, an arcuate hour band that is connected at its opposite ends to a ring that is pivoted on the frame, the hour band extending transversely of the upstanding frame and adapted to be shifted in a transverse path for varying the time as would be cast upon the hour band by the gnomon rod, the hour band being provided with an elongated slot intermediate its width, a stud engageable in the slot and with the stud adapted to be clamped with respect to the hour band and with the stud extending below the slot, a cam device that is supported upon the frame and with the cam device having its marginal

edge engageable with the stud and whereby to shift the hour band in accordance with the time to be ascertained, a bracket plate that is fixed on one side of the frame and with the cam pivotally supported on the bracket plate.



3,303,568
COURSE PROTRACTOR
**Hans F. Geiger, 5845 N. New Jersey,
Indianapolis, Ind. 46204
Filed Dec. 7, 1964, Ser. No. 416,506
5 Claims. (Cl. 33—75)**



1. A course protractor, comprising:

a first indicator member, having a north-south indicator, and carrying a variation scale having its zero-mark on said north-south indicator, and including an east-variation scale extending rightwardly from said zero-mark and a west-variation scale extending leftwardly therefrom, and provided with an aperture;

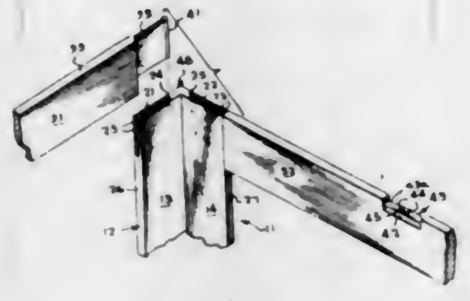
a second indicator member, being an arm-member carrying a course-heading scale and a chart-course line, said course-heading scale beginning at a zero point in line with said chart-course line and running counter-clockwise, the said second member being provided with an aperture around which said scale is concentric and toward which said chart-course line is directed;

a third indicator member, carrying a corrected-course designator line and carrying also a deviation scale beginning at a zero point in line with said corrected-course designator line, including an east-deviation indicator directing movement of said third member clockwise for east-deviation and a west-deviation indicator directing movement of said third member counter-clockwise for west-deviation, the said third member being provided with an aperture toward which said corrected-course designator line is directed; and

means extending through said apertures rotatably interconnecting the said three indicator members, said means provided with a hollow bore;

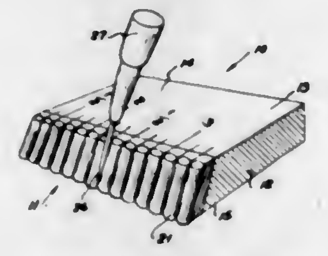
the said first indicator member being formed to provide substantial transparent areas facilitating positioning of the device at a specific location on an associated chart, and the said second and third indicator members being formed to provide substantial transparent areas at least in the region of the said scales, and all of the said scales being operatively adjacent and concentrically arranged with each other and with the indicator-members-connecting means, providing that the scales are co-operatively usable.

3,303,569
MASON'S LEVEL AND SQUARE
**Thomas S. Wyatt, 2111 Dresden Road,
Richmond, Va. 23229
Filed Dec. 27, 1965, Ser. No. 516,317
4 Claims. (Cl. 33—89)**



1. A hand tool of separable component parts for effecting measurements of planar surfaces, comprising a pair of elongated horizontal arms, an elongated vertical member detachably interlocked with and maintaining the horizontal arms in operable relation, the vertical member depending from the horizontal arms and including first and second vertical arms fixedly joined to each other in a perpendicular manner along the longitudinal length of the vertical arms to define an included angle of 90°, the vertical arms each having a free vertical surface and at least one free end surface, an elongated aperture opening on each free vertical surface and said free end surface and extending toward the juncture of the first and second vertical arms to define an interlock slot bounded by spaced parallel walls, each horizontal arm having a free end and an interlocking end, the interlocking end having an interlocking arm extending along the longitudinal axis of the horizontal arm, the interlocking arm having an interlocking means thereon and adapted to be received within the interlock slot, indicating means integral with each vertical arm and at least one horizontal arm for determining the relative spatial relationship of the planar surfaces with at least one known plane.

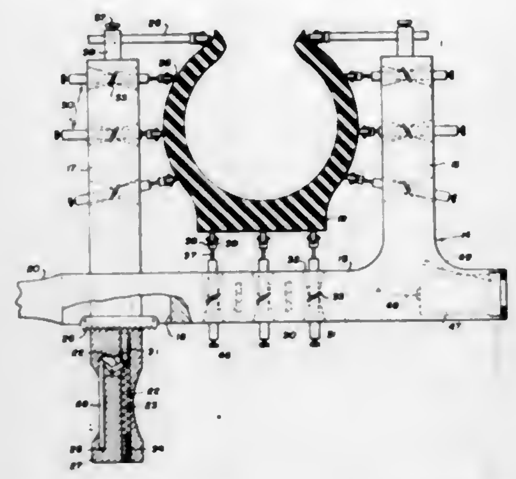
3,303,570
PRECISION MEASURING RULER
**George F. Hamann, Sr., 807 Thomson St.,
Flint, Mich. 48503
Filed July 21, 1965, Ser. No. 473,630
1 Claim. (Cl. 33—107)**



An elongated precision measuring strip having an elongated edge and upper and lower faces;

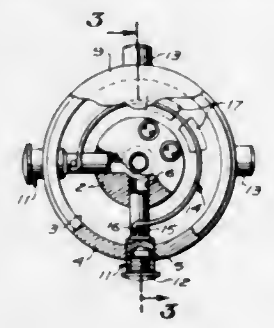
said elongated edge being covered with a row of axially parallel, round, identical, fine wires of circular cross-section; arranged in diametrical line to line direct and intimate contact, with no spaces between them, arranged on and secured to said edge transversely of the strip and perpendicular to said faces.

3,303,571
APPARATUS FOR TESTING WHEEL MOUNTED INFLATED TIRES
**William E. Veals, Darlingford, Manitoba, Canada
Filed June 22, 1964, Ser. No. 376,967
5 Claims. (Cl. 33—174)**



1. A device for testing wheel mounted inflated tires comprising in combination a base, a yoke secured to said base and extending upwardly therefrom, said yoke including a pair of spaced and parallel side arms and a substantially horizontal portion spanning the lower ends of said side arms, a plurality of spring loaded probes extending inwardly from said side arms and said horizontal portion, contacting the surface of the tire being tested, an indicator electrically connected to each of said probes, a source of electrical energy, said probes including means to complete the circuit between said probes, said source of electrical energy and said indicator, upon outward movement of said probes, thereby indicating an increase of dimension of said tire in contact with said probes.

3,303,572
DIAMETER GAUGE
**Thad Vreeland, Jr., Arcadia, Calif., assignor to California Institute Research Foundation, Pasadena, Calif., a corporation of California
Filed Apr. 12, 1965, Ser. No. 447,351
6 Claims. (Cl. 33—178)**



1. A diameter gauge, comprising:

(a) a housing having at least one radial guide bore and an annular chamber intersecting the guide bore;

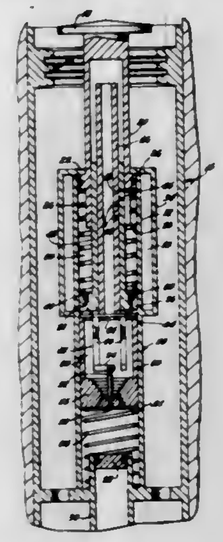
(b) a radially movable probe element mounted in said guide bore and bridging said chamber and having a sensing end;

(c) a curved spring strip fitted within said annular chamber and having a free end engaging said movable probe element to urge said probe element radially, whereby said spring strip flexes in correspondence to radial positions of said probe element;

(d) electrical strain gauge means mounted on said spring strip to sense flexed conditions thereof;

(e) and an electrical circuit utilizing said strain gauge means for translating the flexed conditions of said spring strip into diametrical measurements.

3,303,573
BINARY POSITION INDICATOR
**Robert L. Alder, Pasadena, Calif., and Justin A. Varney,
7326 Oglesby Ave., Los Angeles, Calif. 90045
Filed Aug. 23, 1963, Ser. No. 304,084
11 Claims. (Cl. 33—205)**



10. Means to indicate at a receiving station at the top of an oil well changes in a condition at a remote sending station in the oil well, comprising:

a first signal means at the sending station forming a portion of the channel of the fluid stream;

a second signal means movable along said portion of the channel;

a plurality of a given number of first choke means spaced apart on one of the two signal means longitudinally thereof;

second choke means on the other of the two signal means to cooperate with the first choke means to restrict the fluid stream to create a succession of pressure signals in the fluid stream corresponding in number to said given number in response to the movement of the second signal means,

said second signal means being movable in one direction from a first position to a second position in response to the flowing of the fluid;

yielding means to return the second signal means from its second position to its first position whereby the second signal means reciprocates along the first signal means in response to stopping and starting of the fluid stream;

means at the sending station including a body of instrument fluid together with means coupled to the second signal means to displace the instrument fluid at a retarded rate from a high pressure region to a low pressure region whereby the retarded rate normally determines the character of the pressure signals;

a pair of overlapping relatively movable code members in the instrument fluid;

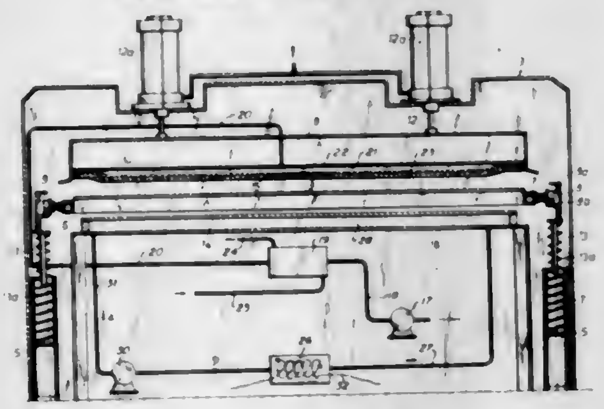
means responsive to changes in said condition to create relative movement between the two code members to indicate the changes;

code apertures in the two code members respectively to coincide at different relative positions of the two code members;

and an apertured sensing member in the instrument fluid operatively related to the second signal means to move simultaneously therewith along the pair of overlapping code members to bypass the instrument fluid to the low pressure region through the coinciding code apertures of the two code members at fluid-restricting positions of the second signal means whereby such coincidence accelerates the second signal means to produce signals distinct from the signals produced when the signal signals means is not accelerated, said code apertures being distributed to create different sequences of the distinctive signals over the range of movement of the second signal means to indicate different relative positions of the two overlapping code members.

3,303,574
METHOD OF AND APPARATUS FOR VACUUM DRYING OF FLAT MATERIAL IN FOIL SHAPE, ESPECIALLY LEATHER

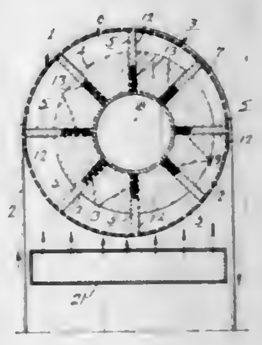
Rolf Hohmann, Krefeld, Germany, assignor to Trockentechnik G.m.b.H., Homberg, Germany
Filed Apr. 5, 1965, Ser. No. 445,377
Claims priority, application Germany, Apr. 7, 1964,
T 25,970
16 Claims. (Cl. 34—16)



1. An apparatus for vacuum drying flat material, especially leather, which includes: a first station comprising means for smoothing out a wet piece of flat material and readying the same for vacuum drying, a second station comprising means for vacuum drying a piece of wet material readied for drying at said first station, rail means respectively extending at a first level and at a second level from said first station to said second station, and two carriage means respectively movably mounted on said rail means for receiving pieces of material to be processed and movable on said rail means from said first station to said second station and from said second station to said first station, said carriage means being interconnected so that one carriage means will be at said first station when the other carriage means is at said second station and vice versa, that section of said rail means which is at said second station being variable as to height.

3,303,575
PUMPING ROLLER

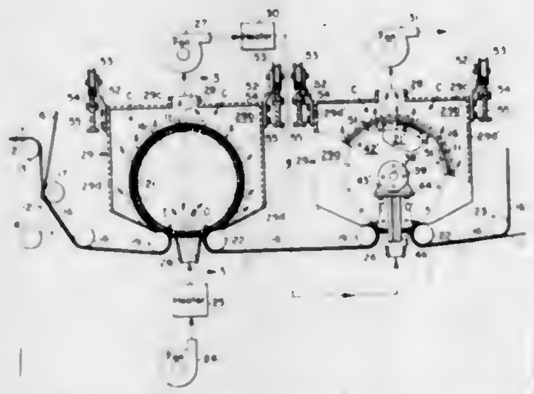
Karl-Herman Gistrén, Nacka, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden
Filed Mar. 17, 1965, Ser. No. 440,555
Claims priority, application Sweden, Mar. 20, 1964,
3,470/64
13 Claims. (Cl. 34—115)



1. A rotatable roller for a web-like material characterized in that the roller consists of an outer rotor, over which the web-like material is conducted, an inner rotor eccentrically supported in relation to the outer rotor, a number of extensible partitions arranged substantially radially between the outer and the inner rotor, and means to effect rotation of said partitions, said partitions defining pumping compartments which are extended and retracted as the roller rotates thereby pumping air through the web-like material.

3,303,576
APPARATUS FOR DRYING POROUS PAPER

James Bryant Sisson, Hamilton, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed May 28, 1965, Ser. No. 459,652
17 Claims. (Cl. 34—115)

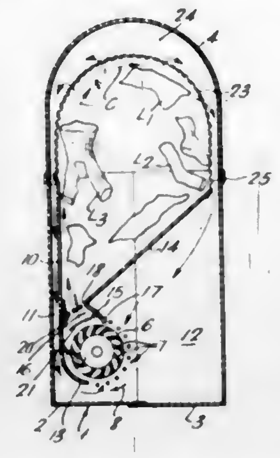


1. A dryer for porous webs comprising:
(A) a rotatably mounted sieve roll closed at its ends and having a foraminous sidewall;
(B) an infeed station adjacent said sieve roll and incorporating means for feeding a continuous length of a moist web onto the foraminous sidewall of the sieve roll as the sieve roll rotates past said station, said web having a width matching the length of said foraminous sidewall;
(C) an outlet station adjacent said sieve roll and incorporating means for removing the continuous length of web from said foraminous sidewall following the drying thereof, said outlet station being spaced peripherally of the sieve roll from said infeed station so that said web covers a major portion of the periphery of said foraminous sidewall and that a full length minor portion of the foraminous sidewall intermediate said infeed and said outlet stations is not covered by the web;
(D) conveying means for transporting said web to said infeed station and from said outlet station;
(E) air supply means for providing a moving stream of low pressure drying air; and
(F) an air duct located adjacent the outer surface of said full length minor portion of said foraminous sidewall and in communication with said air supply means, said duct directing the moving stream of drying air into said sieve roll through substantially the length of said full length minor portion in a substantially radial direction and from the sieve roll interior through said major portion of said foraminous sidewall and the web covering it, whereby the moisture is uniformly removed from the web by the drying air passing therethrough.

3,303,577
AIR AGITATED LAUNDRY DRIER

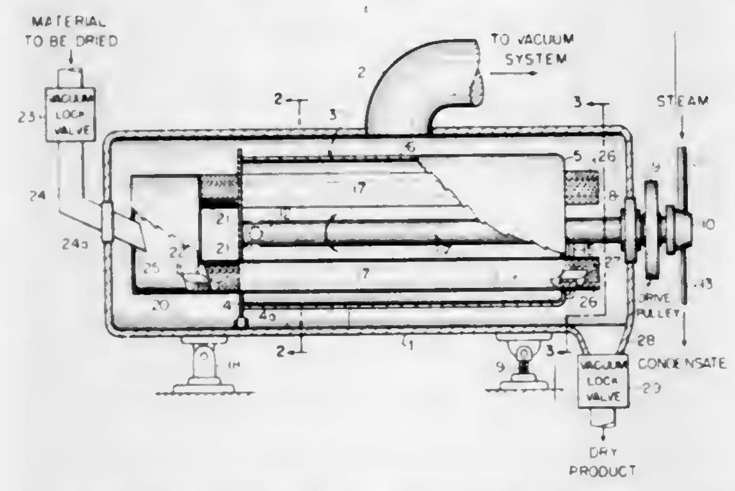
Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application Apr. 26, 1960, Ser. No. 24,807, now Patent No. 3,152,876, dated Oct. 13, 1964. Divided and this application Sept. 1, 1964, Ser. No. 393,500
Claims priority, application Germany, Apr. 28, 1959,
L 33,124
4 Claims. (Cl. 34—151)

1. A laundry drier comprising an outer enclosure, a hopper-shaped laundry containing chamber within the outer enclosure, and a blower discharging a stream of warm air upwardly from the bottom of the chamber to maintain the laundry in agitation as the air passes through the chamber, said chamber being asymmetrical with one wall sloping more than the opposite wall.



3,303,578
CONTINUOUS FREEZE-DRYING APPARATUS

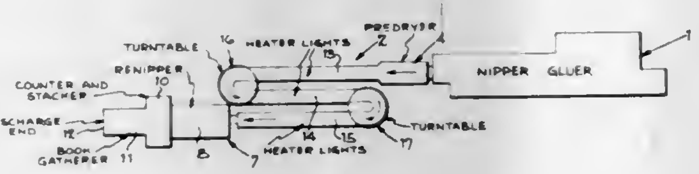
William C. Rockwell, El Cerrito, Vern F. Kaufman, Lafayette, and Edison Lowe, El Cerrito, Calif., assignors to the United States of America as represented by the Secretary of Agriculture
Filed July 29, 1964, Ser. No. 386,096
4 Claims. (Cl. 34—182)



3. A drier comprising, in combination, a shell defining a gas-tight enclosure, means for evacuating the interior of the shell to maintain a vacuum therein, an elongated drying tube of polygonal cross-section within said shell and having a feed end and a discharge end, the said drying tube being mounted at a slope from the horizontal so that the discharge end is lower than the feed end, said drying tube providing the means for conveying material therethrough with a tumbling action while exposing it to heat and vacuum, means for rotating the drying tube, means for heating the drying tube, a feed screw mounted adjacent to the feed end of the drying tube and operative by the rotation of the drying tube to feed material thereinto at a predetermined rate, a perforated tube connected coaxially to the discharge end of the drying tube for receiving material discharged from the drying tube and for exposing said material to vacuum and to a lesser degree of heat than it would be if retained in said drying tube, a discharge screw mounted in said perforated tube and having a direction of twist opposite to that of the aforesaid feed screw, said discharge screw acting as a weir to restrict discharge of material from said perforated tube and to maintain a bed of material of predetermined depth throughout the length of the drying tube and the perforated tube, and means for removing product discharged past said discharge screw.

3,303,579
BOOK DRYING APPARATUS

Arthur Crawley III, Cincinnati, Ohio, assignor to Crawley Book Machinery, Inc., Newport, Ky., a corporation of Kentucky
Filed Jan. 21, 1965, Ser. No. 426,947
15 Claims. (Cl. 34—236)



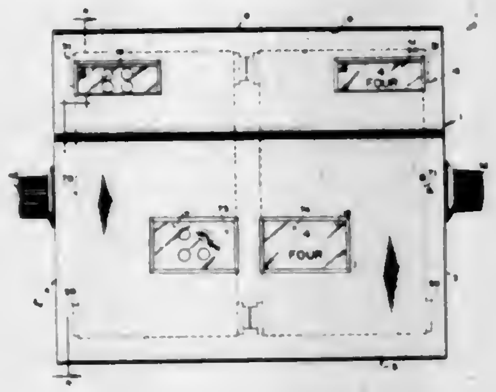
1. A book drying apparatus for applying heat to assembled and freshly glued books comprising:
a frame structure;
a plurality of conveyor runs angularly related to one another and mounted for lineal advancement along said frame structure;
said conveyor runs comprising an upstream run and at least one downstream run;
each conveyor run having a book-receiving end and a book-discharge end;
said upstream conveyor run adapted to receive said freshly glued books;
the discharge end of the upstream conveyor run being disposed adjacent the receiving end of the downstream run;
a turntable rotatably journalled for rotation about a generally vertical axis adjacent the discharge end of the upstream conveyor run and the receiving end of the downstream conveyor run;
power means in driving connection with said conveyor runs for advancing the same lineally and for imparting rotary motion to the turntable in a direction to advance the books in an arcuate path from the discharge end of the upstream conveyor run to the receiving end of the downstream run.

3,303,580
EDUCATIONAL AID

Virginia L. Stinar, 3403 E. McLoughlin Blvd., Vancouver, Wash. 98661
Filed Feb. 12, 1965, Ser. No. 432,173
4 Claims. (Cl. 35—9)

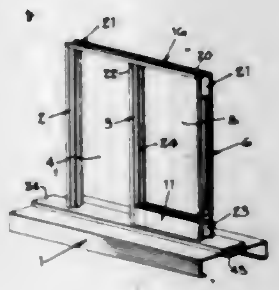
1. An educational device comprising in combination;
a casing having a bottom wall, side walls, front and rear walls and a top closure,
said closure comprising a front and a rear portion sloping upwardly from said front and rear walls respectively in a manner that when the front portion is viewed from a normal operating position, the rear portion is hidden, and having a first pair of laterally spaced openings in said rear portion, and a second pair of laterally spaced openings in said front portion offset laterally from said first pair of openings,

two independently rotatable driving gears mounted within said casing one each through each of said side walls and rotatable from the exterior thereof,
at least one pair of rollers rotatably mounted within the casing forwardly of said driving gears,
at least one pair of rollers similarly mounted rearwardly of said driving gears and having a driving connection therewith,
tapes entrained over said rollers and having printed numbers and symbols thereon readable progressively through said sight openings as the tapes are moved by said rollers from one to the other.



3,303,581
SCALE MODEL DOOR FRAMES

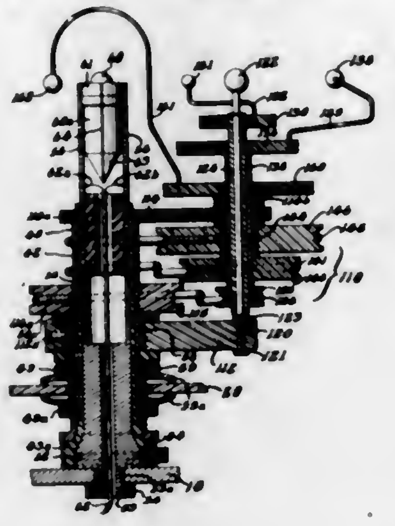
Robert E. Levinson, Cincinnati, Ohio, assignor to The Steelcraft Manufacturing Company, Rossmoyne, Ohio, a corporation of Ohio
Filed Apr. 6, 1965, Ser. No. 446,796
13 Claims. (Cl. 35—16)



1. A miniature sectional door frame for demonstrating a plurality of door frame assemblies utilizing interchangeable framing sections, said door frame comprising:
a base adapted to support the assembled miniature frame assembly;
a pair of jambs in the form of generally hollow sections adapted to be mounted vertically upon said base;
respective splice clips interfitting the lower end portions of said jamb sections;
said splice clips including coupling heads projecting downwardly below the lower ends of said jambs, with the said lower ends of the jamb sections resting upon the base;
said base including apertures adapted to receive said coupling heads, thereby to connect the lower ends of the jamb sections in abutting engagement with said base;
a head rail in the form of a generally hollow section extending across the upper ends of the vertical jamb sections;
and connector elements interconnecting the opposite end portions of the head rail section to the upper end portions of the vertical jamb sections.

3,303,582
TERRESTRIAL-CELESTIAL DISPLAY APPARATUS

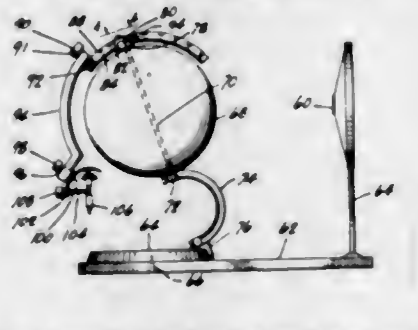
Robert H. Farquhar, 423 St. Davids Road, St. Davids, Pa. 19087
Filed Aug. 11, 1964, Ser. No. 388,865
4 Claims. (Cl. 35—47)



1. In an attachment interchangeable with other attachments for apparatus of the character described having a stem for receiving said attachments, the combination comprising a first sleeve adapted for being removably fitted over said stem and for being turned thereabout, a second sleeve turnably fitted over said first sleeve, an arm affixed to an upper end portion of said first sleeve and extending laterally therefrom, a second arm disposed in underlying spaced relation to said first arm and mounted upon said second sleeve for being turned freely thereabout, a bolt member affixed to a free end portion of said second arm and extending upwardly therefrom, a plurality of additional sleeves internested with said bolt member and extending therewith through the free end portion of said first arm, belt and pulley means interconnecting each of said additional sleeves with said second sleeve for turning each of said additional sleeves at a predetermined rate independently of the others when said first and second sleeves are turned about their central axis relative to each other, spherical members representing bodies of the universe operatively carried by said internested members, a transparent globe enveloping said attachment, and means affixing said globe to a lower end portion of said second sleeve, a lower end portion of said first sleeve being exposed for being gripped manually and turned for rotating said attachment about said stem independently of said globe.

3,303,583
SATELLITE ORBITAL SIMULATOR

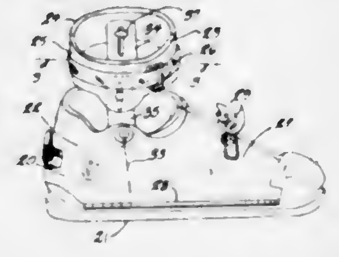
Thorvald K. Petersen, Santa Monica, Calif., assignor to Douglas Aircraft Company Inc., Santa Monica, Calif.
Filed Feb. 2, 1965, Ser. No. 429,863
2 Claims. (Cl. 35—47)



1. An earth satellite orbital simulator comprising:
a base structure having a simulated heavenly body affixed thereto;
an earth globe mounted on said base structure;
an elongated satellite model having a longitudinal axis;
an adjustable mounted swivel link comprising a satellite precession link having a swivelable mounting on an axis extending through the center of said earth globe, and a satellite orbit link, said satellite orbit link being rotatably mounted at one end thereof to said satellite precession link, said orbit link being rotatable about an axis extending through the center of said earth globe;
said swivelable mounting having means for selectively adjusting the effective length of said precession link between said mounting and said one end, to thereby select an orbital plane;
a satellite attitude control shaft rotatably mounted to said satellite orbit link on an axis parallel to the axis of rotation of said orbit link, said satellite model being rotatably mounted on an attitude control link affixed to said satellite attitude control shaft;
said satellite attitude control shaft and said satellite attitude control link being operable to place said model longitudinal axis in predetermined angular position relative to said heavenly body; and
handle means connected to said satellite attitude control link for maintaining said model in fixed preselected attitude relative to said heavenly body while rotating said model about the earth glode on a preselected orbit determined by the selected effective length of said precession link.

3,303,584
EDGING ADJUSTMENT FOR SKI BOOTS

Frank D. Werner, Minneapolis, and Marvin A. Luger, St. Paul, Minn., assignors to Rosemount Engineering Company, Minneapolis, Minn., a corporation of Minnesota
Filed Dec. 24, 1964, Ser. No. 420,936
5 Claims. (Cl. 36—2.5)

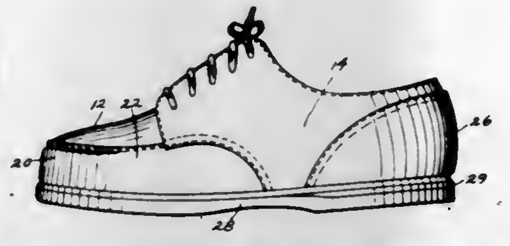


1. A ski boot comprising a boot having a main portion and a flap portion, said flap portion comprising a substantial portion of one side of said boot, the flap portion being openable to permit foot access to the interior of said boot, releasable means to hold the flap in closed position, a first strap pivotally mounted to said main portion and a second strap pivotally mounted to said flap portion about coincidental axes transverse of said boot and substantially aligning with the ankle joint of a foot within said boot and with said flap in closed position, and a separate ankle cuff section mounted on each of said straps and together encircling the leg below the calf of the leg and immediately above the ankle bone area, and releasable means to fix the path of pivotal movement of the ankle cuff sections with respect to the sole of the boot.

3,303,585
MOCCASIN SHOE CONSTRUCTION

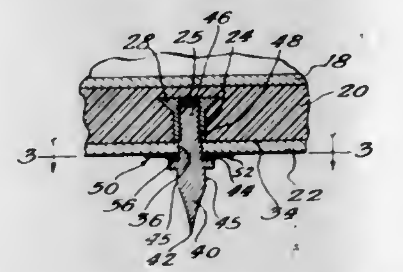
Richard J. Potvin, Brockton, Mass., assignor to R. J. Potvin Shoe Company, Inc., a corporation of Massachusetts
Filed Mar. 30, 1964, Ser. No. 355,537
4 Claims. (Cl. 36—11)

1. A moccasin shoe comprising an upper including a vamp portion and a quarter portion, said vamp portion having bottom portions with a central longitudinal closure seam, and said quarter portion being formed of a single piece passing around the heel of the shoe and attached to the vamp portion at the sides and having integrally formed bottom portions joined together by a central longitudinal closure seam aligned with the closure seam of said vamp bottom portion, and a back stay attached to said quarter portion and having an upper edge, said quarter portion having an upper edge spaced above that of said back stay.



3,303,586
TRACK SHOE

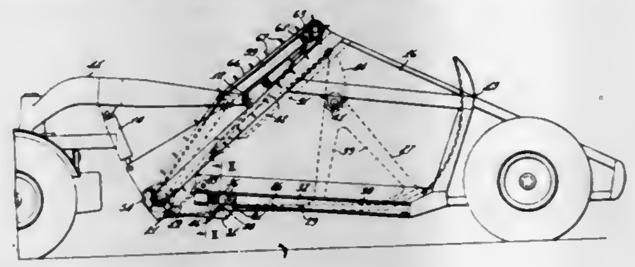
Robert Boeing, Cincinnati, Ohio, assignor to Brunswick Corporation, a corporation of Delaware
Filed Nov. 30, 1965, Ser. No. 510,536
3 Claims. (Cl. 36—67)



1. In a shoe for sport wear having an outsole and an intermediate molded plastic plate abutting said outsole in face to face relation, a threaded bushing molded into said plate, said bushing having a cylindrical shank portion with an axial end face abutting against the inner face of said outsole around the edge of an aperture in said outsole, a washer against the outer face of said insole having an aperture extending therethrough, and a threaded spike having one end projecting through said aperture in said washer and being threaded into said bushing with a laterally extending flange on said spike abutting against said washer whereby said flange on said spike urges said washer and said outsole against the axial end face of said bushing and molded plastic plate to secure said spike to said shoe.

3,303,587
EARTHMOVER

Harvey W. Rockwell, Cedar Rapids, Iowa, assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Mar. 6, 1964, Ser. No. 349,962
9 Claims. (Cl. 37—8)

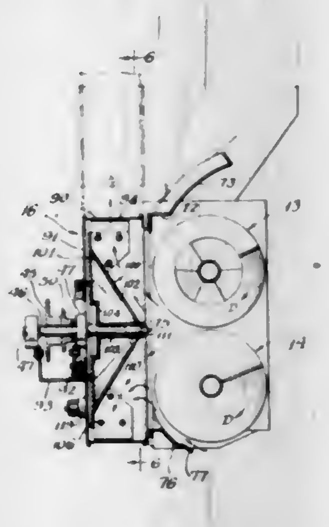


6. An earthmover comprising:
a wheeled draft frame,
a wheeled bowl frame connected to said draft frame for vertical swinging movement having
  a pair of laterally spaced vertical side walls and
  a transversely extending excavating blade structure rigidly secured at its opposite ends to the lower forward portions of said side walls, respectively, and

a bottom closure and dumping structure including
  a rear bottom section pivotally secured to said side walls on a first transverse axis spaced above the bottom of said walls,
  power means for pivoting said rear bottom secsecion about said first axis between closed and dumping positions,
  a front bottom section having its rear end pivotally connected to the forward end of said rear bottom section on a second transverse axis,
  longitudinally extending track means on said side walls, and
  a transverse strikeoff structure at the rear of said excavating blade structure pivotally connected to the forward end of said front bottom section on a third transverse axis and reciprocally carried at its transversely opposite ends in said track means.

3,303,588
ROTARY SNOW PLOW

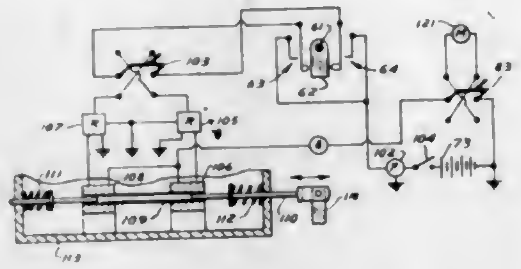
Frederick O. Krause, Wausau, Wis., assignor to Wausau Iron Works, Wausau, Wis., a corporation of Wisconsin
Filed Sept. 25, 1963, Ser. No. 311,544
2 Claims. (Cl. 37—43)



1. In a rotary snow plow the combination comprising, snow gathering means including a ground engaging snow confronting blade means and rotatably driven auger means mounted forwardly adjacent said blade means for feeding snow from opposite ends thereof laterally thereacross to a central zone thereof, said blade means having an opening at said central zone; snow blower means mounted opposite said opening and behind said blade means, said blower means comprising a substantially cylindrical housing, rotatably driven impeller means mounted coaxially within said housing and formed with a central guide means comprising a cone providing a conical guide surface, the apex of which cone is aligned coaxially of said housing and adjacent the said opening in said blade means to confront and direct substantially all snow entering said housing along a generally curvilinear path to the periphery of said impeller means, and planar paddle means mounted adjacent said periphery for receiving snow from said guide means and adapted to discharge the same tangentially through a discharge opening formed in said blower housing, the periphery of said impeller means terminating radially inwardly of the interior walls of said blower housing and said paddle means extending radially outwardly of said periphery with the effective snow engaging area of each paddle means being less than the snow receiving area of said discharge opening in said blower housing to substantially minimize recirculation of snow within the latter.

3,303,589
AUTOMATIC CONTROL DEVICE FOR ROAD GRADERS AND THE LIKE

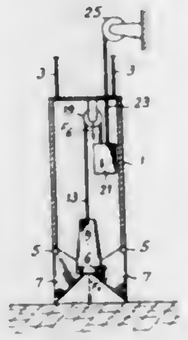
Theodore Rivinius, 1011 Ave. B W., Bismarck, N. Dak. 58501
Filed Apr. 27, 1964, Ser. No. 362,740
18 Claims. (Cl. 37—156)



15. In a road grader or the like having an earth working blade, power means operable to control the angular position of said blade with respect to a horizontal plane, and an element for sensing the relationship of the cutting edge of the earth working blade with respect to a reference plane, the improvement comprising a control circuit operable in response to said element and controlling said power means, and interrupter means in said control circuit to alternately disable said power means and permit said power means to operate when the control circuit is energized thereby giving a pulsating action to said power means.

3,303,590
GRAVITY-CLOSING SCOOP

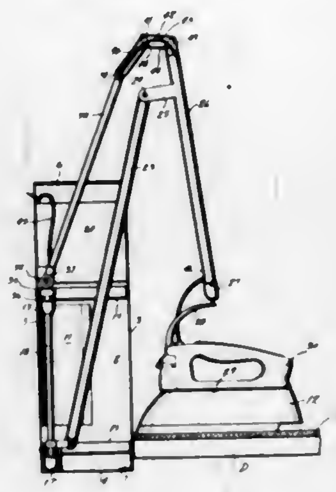
Pierre Grospas, Le Continental, Place des Moulins, Monte Carlo, Monaco
Filed July 29, 1963, Ser. No. 298,315
7 Claims. (Cl. 37—183)



1. A scoop comprising at least two gripping members such as shells mounted by a first set of articulated joints on a pusher member and movable in relation to one another, and a closure device for said members comprising a closure control member connected, on the one hand, to the pusher member and, on the other hand, by means of a pulling member to a second set of articulated joints for said gripping members so as to exert, when actuated, a force which acts vertically and downwards on said pusher member and a force acting vertically and upwards on said pulling member, said control member also being connected to a member having a large mass, means independent of said gripping members and acting directly on said member having a large mass to raise said last named member to a high position in relation to said pusher member and to keep it in said position, and for subsequently releasing said member having a large mass which then, by means of gravity, causes said gripping members to close while increasing the downward thrust exerted by said pusher member.

3,303,591
IRONING APPARATUS

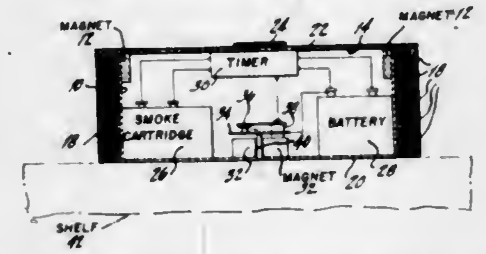
Edwin E. Foster, 1801 Camp Craft Road, Austin, Tex. 78746
Filed Nov. 5, 1965, Ser. No. 506,539
5 Claims. (Cl. 38—31)



1. An ironing apparatus comprising:
(a) a casing,
(b) first linkage means mounted within said casing for pivotal movement therein,
(c) second linkage means connected to said first linkage means exteriorly of said casing,
(d) an iron connected to said linkage means remote from connection of the latter to the first linkage means for movement therewith between disposition within said casing when in disuse and operative position exteriorly of said casing,
(e) a prime mover mounted within said casing upwardly of said first linkage means,
(f) a drive shaft engaged to said prime mover for rotation upon energization of the latter,
(g) a crank mounted on said drive shaft for rotation therewith,
(h) a first constant compression spring link connected at one end to said crank,
(i) a second constant compression spring link connected at one end to said casing in spaced relationship to said first constant spring link,
(j) means provided within said casing for operatively connecting the other ends of said first and second compression spring links to said first linkage means, and
(k) control means for energizing said prime mover for optionally effecting raising and lowering of said first linkage means for consequent raising and lowering of said iron.

3,303,592
ROBBERY PROTECTIVE AND DETECTING DEVICE

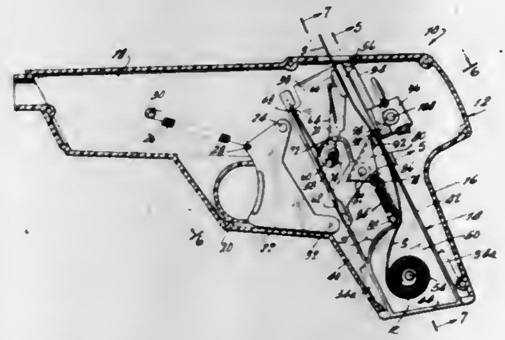
George S. Harner, 124 Jackson St., Garden City, N.Y. 11530
Filed Oct. 1, 1965, Ser. No. 492,104
6 Claims. (Cl. 42—1)



1. A robbery protective device comprising a dummy packet simulating a package of currency, said packet having concealed therein a cartridge for discharging a noxious substance, a timer having a switch and a battery coupled together in an electrical circuit to actuate said cartridge, said packet having a hole therein extending from a point adjacent said switch to the outside of said packet for accommodating a pin therein which when inserted into said hole engages said switch and disables said timer from actuating said cartridge.

3,303,593
CLIP-LOADING CAP GUN

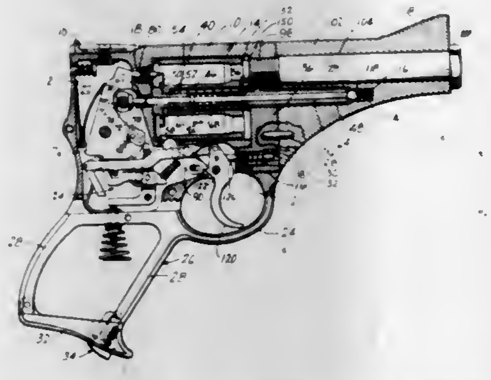
Walter Moe, Plainview, and Edwin A. Nielsen, Oceanside, N.Y., assignors to Ideal Toy Corporation, Hollis, N.Y., a corporation of New York
Filed Aug. 19, 1965, Ser. No. 480,954
10 Claims. (Cl. 42—57)



1. A cap-firing toy gun comprising a gun body having a handle portion, a barrel portion and a trigger mounted on said gun body and movable between an inactive position and a firing position, said handle portion being formed with a clip-receiving internal cavity, said toy gun further comprising a clip having a clip body, a cap firing mechanism including an actuating lever, hammer means and anvil means mounted within said clip body, said clip being slidably received within said clip-receiving cavity with said actuating lever position to be engaged by said trigger to actuate said cap-firing mechanism when said trigger is moved into its firing position, and releasable securement means including latch means and latching lug means on said clip body and said gun body engageable when said clip is slidably received in said clip-receiving cavity.

3,303,594
FIREARM BARREL, SHROUD, FRAME, AND CYLINDER CONSTRUCTION

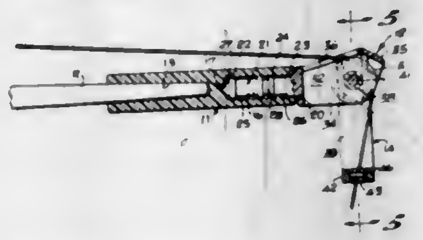
Karl R. Lewis, 54 Folly Brook Blvd., Wethersfield, Conn. 06109
Application Nov. 16, 1964, Ser. No. 411,470, which is a division of application Ser. No. 71,339, Nov. 23, 1960, now Patent No. 3,163,951, dated Jan. 5, 1965. Divided and this application Dec. 14, 1965, Ser. No. 517,503
13 Claims. (Cl. 42—59)



1. The combination in a firearm of: a frame, a barrel connected directly with the forward portion of said frame and extending forwardly therefrom, a shroud separate from and surrounding said barrel, means for preventing relative angular displacement of said shroud with respect

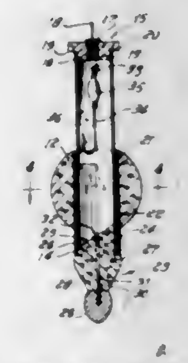
to said frame and for accurately locating said shroud angularly relative to said frame, and means for restraining said shroud against displacement longitudinally of said barrel and frame, said shroud including a front sight formed integral therewith.

3,303,595
SWIVEL ACTION PULLEY TIP FOR FISHING RODS
Ralph P. Wells and Joyce L. Wells, Miami, Fla., assignors to Wells Engineering & Research, Inc., a corporation of Florida
Filed Feb. 15, 1965, Ser. No. 432,638
8 Claims. (Cl. 43—24)



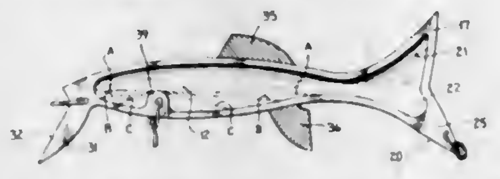
1. A swivel action pulley tip for fishing rods comprising, in combination, an elongated sleeve member, a pulley housing member, said sleeve member having an axial opening in one end for receiving in interfitting engagement the tip end of a fishing rod, and a coaxial cylindrical opening in the other end, said pulley housing member having at one end an integral cylindrical shank portion journalled within said cylindrical opening, means for limiting the rotational motion of said pulley housing member to less than a full turn with respect to said sleeve member, said pulley housing member having integrally formed at the other end a pair of spaced parallel walls defining therebetween a longitudinally-extending slot the plane of symmetry of which includes the longitudinal axis of said shank portion, a pulley wheel in said slot, means journalling said pulley wheel with respect to said walls, a U-shaped yoke having spaced parallel leg portions the outer ends of which straddle outer surface portions of said walls, means for journalling said outer ends of said leg portions about an axis common with the axis of rotation of said pulley wheel for swinging motion with respect to said pulley wheel, said yoke having a web portion, said web portion having a central line guide opening, and means limiting the swinging motion of said yoke with respect to said pulley wheel.

3,303,596
FISHBAIT CONTAINER AND FLOAT
Roy K. Lewis, 3530 Cedar Spring Ave., Dallas, Tex. 75219, and Raymond W. Lewis, 5735 Richmond Ave., Dallas, Tex. 75206
Filed May 21, 1965, Ser. No. 457,640
2 Claims. (Cl. 43—41.2)



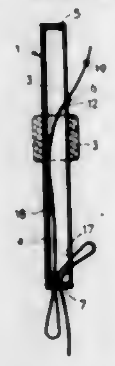
1. In a fish bait saver, a tubular body having means at the top thereof for passage of a fishing line thereinto, a weight on the lower end of said body and having an inclined upper surface, a chamber formed in said body between said means and said weight and having an opening in one side, the lower end of said opening being aligned with the lowermost side of the inclined surface of said weight, the said chamber being capable of receiving live bait secured to said fishing line, a sleeve slidably arranged on said body normally closing said chamber, and a float fixed on said sleeve to lift said sleeve to open said chamber to release its contents when said body is cast into the water.

3,303,597
FISHING LURE
Lawrence R. Leach, 820 S. Grant St., Muncie, Ind. 47302
Filed Nov. 18, 1964, Ser. No. 412,202
3 Claims. (Cl. 43—42.35)



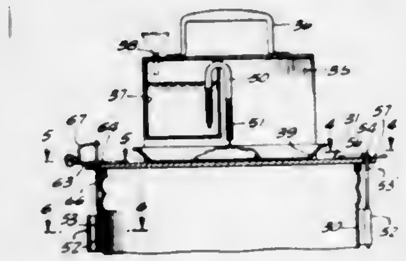
3. An artificial fish lure comprising an elongated body having a forward and rearward end, a tail on the rearward end of said body and including a rearwardly and upwardly extending fin and a rearwardly and downwardly extending fin, said upwardly extending fin having a lesser weight to volume ratio than the entire lure, said downwardly extending fin having a greater weight to volume ratio toward the distal portion thereof than toward the proximal portion thereof to weight the distal portion of the downwardly extending fin whereby the downwardly extending fin tends to maintain the body in an upright position while at rest in water, said lure having a weight to volume ratio slightly lower than that of water whereby said lure barely floats in water, a lip on the lower forward portion of said body, said lip extending forwardly and downwardly and having a greater weight to volume ratio than the entire lure so as to weight the forward portion of said lure, said lip being flat so as to act as a deflector when the lure is pulled through the water causing the lure to move downwardly beneath the surface of the water and beneath said rest position, and a pair of fish hooks pivoted to said lure.

3,303,598
BOBBER
Roy W. Spindler, R.R. 1, New Haven, Ind. 46774
Filed Aug. 30, 1965, Ser. No. 483,706
7 Claims. (Cl. 43—44.9)



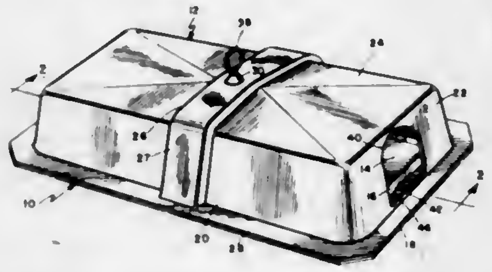
1. A bobber comprising a tubular member for use as a staff, a pair of guide means disposed one at each of the opposite ends of said staff adjacent the open ends thereof, each of said guide means comprising a relatively thin wire including an annular portion which is fitted within the interior of said staff and is secured thereto, and a chordal portion including an eyelet offset slightly from the axial center line of said staff to provide spaced aligned guidance surfaces through which a fishing line can be threaded through said staff and is slidable relatively thereto, and a flotation bulb carried by the outer periphery of said tubular member and dividing it into a submerged portion and an erect upper portion, and proportioned to be of a volume which provides flotation support for the bobber, a sinker, a hook, and the fishing line, the portion of the staff extending above the water being of relatively large outer diameter and thin-walled construction to offer insubstantial resistance to submergence responsive to fishing bite.

3,303,599
INSECT TRAP
Earcy L. Ballard, 16640 Randall Ave., Fontana, Calif. 92335
Original application Feb. 13, 1963, Ser. No. 258,263, now Patent No. 3,224,145, dated Dec. 21, 1965. Divided and this application Dec. 20, 1965, Ser. No. 514,998
7 Claims. (Cl. 43—118)



1. An insect trap comprising in combination, a first container having an imperforated bottom and side walls and an open top and having therein on the bottom of the container at the central part thereof only a lure in solid form for insects to be destroyed, an elevated second container containing liquid disposed adjacent to said first container, and means spaced from said lure providing for a relatively slow transfer of liquid from said second container to said first container whereby the liquid drips from said means onto the solid lure in said first container from a position above it for moistening the said lure, said first container having a spaced position relative to said second container allowing access of insects to the lure in said first container from the open top thereof, whereby dead insects accumulate in said first container.

3,303,600
PET PROTECTING BAIT HOLDER
Luther E. Freeman, 5719 Adelaide Ave., San Diego, Calif. 92115
Filed June 1, 1965, Ser. No. 459,997
1 Claim. (Cl. 43—131)

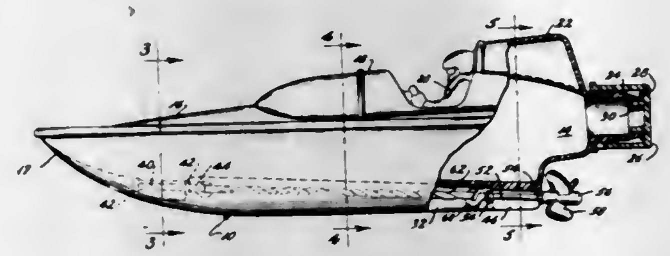


A pet protecting bait holder, comprising:
- a bait holding tray having a substantially flat bottom portion with a raised barrier wall peripheral thereto and a tray flange extending horizontally outwardly from said wall generally coplanar with said bottom portion;
- an upwardly domed cover having side enclosing walls, the lower edge of said walls being spaced outwardly of said barrier wall to define a channel between the barrier wall and adjacent portions of said side walls, and having a horizontally outwardly extending flange substantially peripherally coextensive with and seating closely on said tray flange;
- certain of said side enclosing walls having pest admitting openings;
- a retaining pin extending through said cover and said tray and having a ground penetrating point to secure the bait holder to the ground;
- and said cover being of light-weight plastic sheet material and having crush-resistant means including a saddle extending over the upper central portion thereof, said pin having a head engaging said saddle, and vertical lateral posts supporting the ends of the saddle portion, the lower ends of said posts seating on said tray flange.

3,303,601
DESTRUCTION OF NEMATODES
Whitney H. Mears, Morris Plains, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Sept. 21, 1965, Ser. No. 489,039
3 Claims. (Cl. 43—132)

1. A method for the treatment of an aqueous medium containing nematodes comprising applying modulated ultrasonic waves, at a frequency of about 10 to about 100 kilocycles per second and at a power of about 50 to about 200 watts per gallon of aqueous medium, to the aqueous medium containing nematodes for about 0.25 to about 10 minutes, whereby the nematodes are destroyed.

3,303,602
CONTAINER CONVERTIBLE TO A TOY
Livingston Carley Douglas, Leonia, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
Filed May 28, 1964, Ser. No. 370,791
4 Claims. (Cl. 46—11)

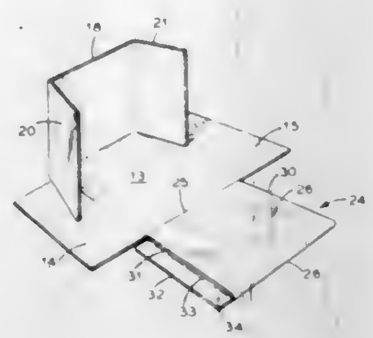


1. A combined toy and container, comprising a receptacle shaped to simulate a boat, said boat having a hull including a prow and a stern, an opening having a threaded neck portion for access to the receptacle projecting rearwardly from said stern, a cap operatively engaging said neck portion to close said opening, said hull at the bottom thereof being provided with a longitudinally extending channel, a pair of projections integral with said hull adjacent opposite ends of said channel, each pair of projections defining a longitudinal slot therebetween, a first shaft nonrotatably received within the forward slot, a second shaft rotatably received within the rear slot, means to limit longitudinal movement of said shafts within said slots, a propeller fastened to the rear end of said second shaft, and elastic band propulsion means operatively connected between said first shaft and said second shaft.

3,303,603
COMBINATION PACKAGE AND TOY
Marion Abeson, 46 W. 83rd St., New York, N.Y. 10024
Filed July 18, 1963, Ser. No. 296,050
9 Claims. (Cl. 46—11)

9. A one piece package for a record comprising a laminated blank comprising a layer of metal foil and a layer of flexible, resilient, cellular cushioning material adhered thereto, said blank comprising a series of hingedly and integrally related panels defined by fold lines, one of said panels comprising a pair of opposed panel portions

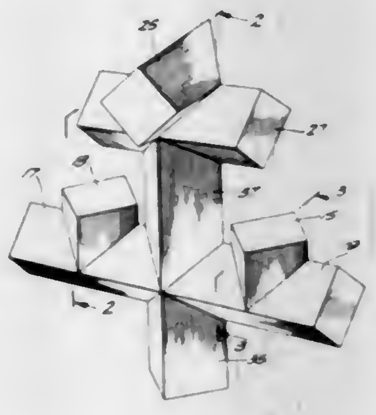
forming a compartment therebetween for receiving a record therein, the remaining panels being adapted to be



successively folded about their fold lines into overlying and enclosing relation to said compartment panel portions with the metal foil layer of said blank outermost.

3,303,604
BUILDING TOY

Robert G. Mote, 1132 Queens Ave.,
Yuba City, Calif. 95991
Filed Feb. 10, 1964, Ser. No. 343,721
5 Claims. (Cl. 46—25)



1. A building toy comprising a plurality of structural units characterized by at least two features which make mating interfit between said units and consequent assembly thereof into aggregates possible, said features being so distributed as to permit such unit interfit and aggregative assembly;

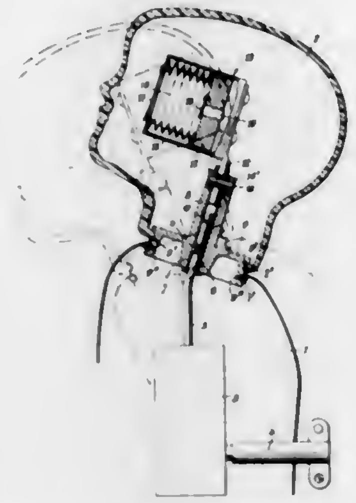
(a) said structural units being tubes which are square in cross-section;

(b) at least one of said features being a notch in at least one of said tubes, said notch being defined by end surfaces of walls of said one tube, said end surfaces lying entirely in two planes, said two planes intersecting each other at a right angle, the line of intersection of said two planes being in a first axial plane containing two diametral corners of said one tube and being perpendicular to a second axial plane containing the other two diametral corners of said one tube, said first axial plane bisecting said right angle, whereby two male tube segments symmetrical about said first axial plane are formed;

(c) and at least one other of said features being means in the form of a female notch in at least one other of said tubes for mating with at least one of said two male tube segments, each such female notch being so positionally oriented on its respective structural unit as to permit mating engagement of its unit with, and in axially perpendicular relationship to, another of said structural units having a notch as defined in sub-paragraph (b).

3,303,605
DOLL HAVING MOVABLE HEAD AND GRAVITY ACTUATED SOUNDING MEANS

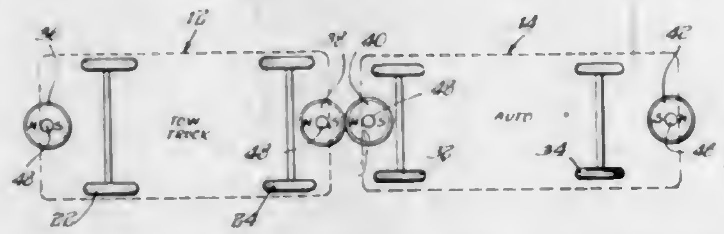
Pierre Henry, Lausanne, Switzerland, assignor to Techna Anstalt für Verwertung technischer Neuheiten, Vaduz, Liechtenstein, a corporation of Liechtenstein
Filed Jan. 8, 1962, Ser. No. 164,838
Claims priority, application Switzerland, Dec. 20, 1961, 14,770/61
9 Claims. (Cl. 46—118)



1. An animated doll comprising a body, a head movably mounted on said body, actuating means within said body and operatively connected to said head for imparting a complex motion to said head with respect to said body, said actuating means including a motor in said body having a drive shaft terminating in an angularly offset shaft extension projecting into said head and coupled thereto, said shaft extension serving as the generatrix of conical surface about which the central axis of said head moves during successive animating cycles and in response to rotation of said drive shaft, and a crying mechanism disposed within said head and operatively connected to said shaft extension for emitting a crying sound in response to said complex motion of said head, said crying mechanism including a cylindrical housing mounted on said shaft extension with its longitudinal axis substantially at right angles thereto, means including a weighted piston slidably mounted within said housing for defining an air chamber, and sounding means carried by said housing for emitting said crying sound in response to movement of said piston under the influence of gravity through an actuating stroke to decrease the volume of said air chamber.

3,303,606
MAGNETIC TOY VEHICLE SET

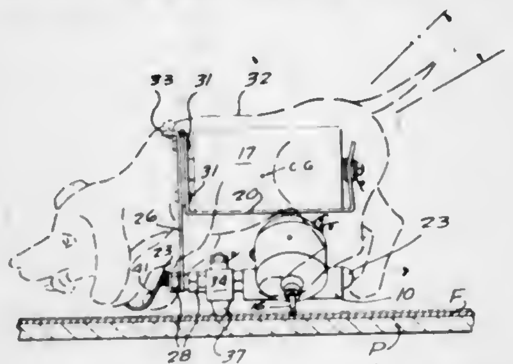
Morley Mann, 517 S. Monterey Ave.,
Villa Park, Ill. 60181
Filed May 5, 1964, Ser. No. 364,941
3 Claims. (Cl. 46—241)



1. A toy vehicle set comprising a first toy wheeled vehicle and a second toy wheeled vehicle, first and second magnets respectively mounted adjacent front and rear ends of said first vehicle, and third and fourth magnets respectively mounted at front and rear ends of said second vehicle, said second and third magnets having unlike poles facing outwardly of their respective ends of their respective vehicles for enabling said second and third magnets to couple magnetically said vehicles when said front end of said second vehicle is positioned adjacent said rear end of said first vehicle, said fourth magnet having a pole facing outwardly of said second vehicle like said outwardly facing pole of said third magnet and said first magnet having a pole facing outwardly of its associated end of the first vehicle like said outwardly facing pole of said third and fourth magnets for enabling said first vehicle to be manipulated for magnetically pushing the second vehicle without mechanically contacting the same when said either end of said second vehicle is adjacent said front end of said first vehicle.

3,303,607
LINE FOLLOWER DEVICE, ESPECIALLY FOR TOYS

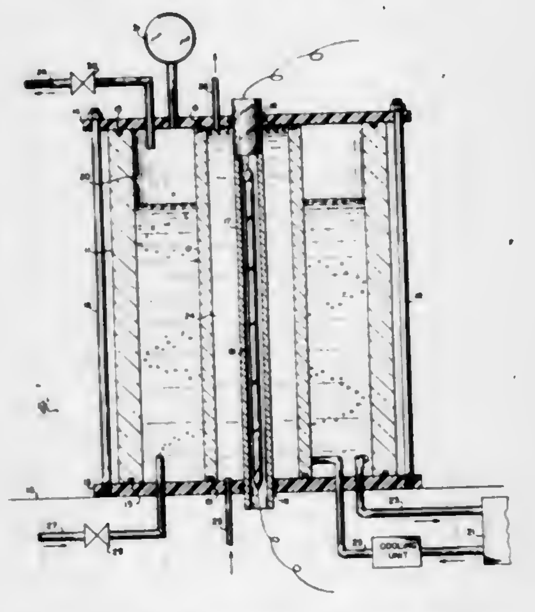
Albert M. Zalkind, Arlington, Va. (Warner Bldg., 13th and E NW., Washington, D.C. 20004)
Original application Mar. 13, 1958, Ser. No. 721,128, now Patent No. 3,083,503, dated Apr. 2, 1963. Divided and this application Oct. 12, 1965, Ser. No. 495,102
7 Claims. (Cl. 46—244)



1. A toy vehicle comprising a pair of motors having rotary motor shafts extending downwardly therefrom with said shafts mounted at an acute angle with relation to the vertical axis of said vehicle and said shafts serving as means to support at least a portion of said vehicle on a surface and effect propulsion of said vehicle by direct rotary engagement of said shafts with said surface.

3,303,608
OXYGEN PRODUCTION BY PHOTOSYNTHESIS OF ALGAE UNDER PRESSURE

Patrick J. Hannan, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 2, 1965, Ser. No. 484,775
3 Claims. (Cl. 47—1.4)



1. A method of producing oxygen in photosynthesis by algae which comprises subjecting an algal culture in the linear phase of growth to an applied pressure of up to about 10 p.s.i. above atmospheric while passing an air-carbon dioxide mixture of low carbon dioxide concentration through said culture at an input rate which is less than the saturation carbon dioxide rate therefor.

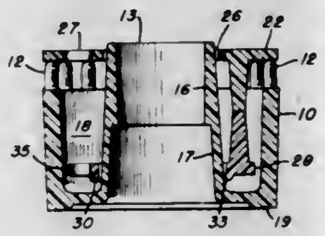
3,303,609
FIBROUS MULCH

Richard MacHenry, Prospect Park, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Nov. 23, 1964, Ser. No. 413,278
2 Claims. (Cl. 47—9)

1. A method of impeding soil erosion and promoting plant growth comprising depositing on the soil a cover comprising randomly arranged thin-walled water-insoluble hydrophilic fibers having an average wall thickness not exceeding about three microns and a water retention of at least about double that of a solid fiber of like mass and composition.

3,303,610
FLOWER HOLDER

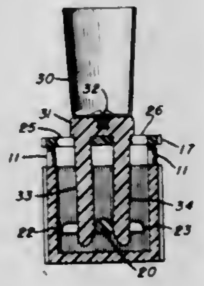
Paul F. K. Erbguth, 120 Station Road,
Great Neck, N.Y. 11023
Filed July 6, 1964, Ser. No. 380,223
11 Claims. (Cl. 47—41.11)



1. A flower holder comprising,
(a) an open case having a plurality of spaced pins extending upwardly from the open end thereof,
(b) an insert member comprising an upper member supported by the said pins and a lower member spaced from the case bottom, and
(c) means forming a plurality of axially aligned openings in said upper and lower members.

3,303,611
FLOWER HOLDER

Paul F. K. Erbguth, 120 Station Road,
Great Neck, N.Y. 11023
Filed Aug. 21, 1964, Ser. No. 391,213
6 Claims. (Cl. 47—41.11)

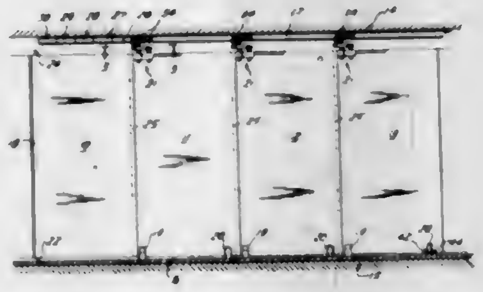


1. A flower holder comprising,
(a) a case open at one end and having spaced pins extending from the open end,
(b) an insert member supported on said pins and extending into the case,
(c) means forming upper and lower sets of spaced, vertically-aligned openings in said insert member, and

(d) a candle-receiving ferrule secured to a pair of spaced prong members which pass through adjacent sets of the said openings, the lower portions of said prong members clampingly engaging the common wall defining the spacing between the lower openings of such sets.

3,303,612
FOLDING PARTITION AND HANGER THEREFOR

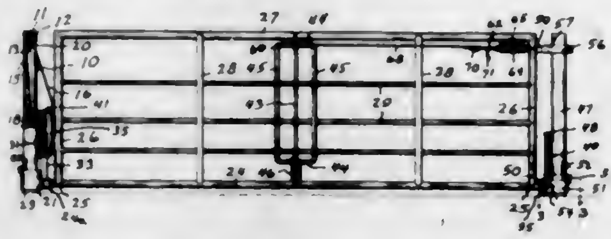
John C. Baker, 16 Anchor Drive,
Massapequa, N.Y. 11758
Filed Apr. 20, 1965, Ser. No. 449,523
15 Claims. (Cl. 49—127)



1. In a folding and sliding partition having a plurality of independently slidable, swingable, and foldable rigid partition sections, a ceiling guide rail, a floor guide rail disposed beneath said ceiling guide rail, guide means on the partition sections adjacent the lower leading and trailing corners thereof for guiding engagement with the floor guide rail, and hanger means on the upper edge of the partition sections in vertical alignment with the leading lower guide means, tipping of the partition sections in their planes, when the partition sections reach the retracted position at which they are to be folded, permitting the lower trailing guide means on the partition sections to be removed from the floor guide means whereby the partition sections may be swung to folded position about the common axis of the hanger means and the lower leading guide means, the improvement in the combination of the hanger means and the ceiling guide rail which comprises: the ceiling guide rail having a main, elongated portion and sub-sections thereof aligned with the main portion of and forming a part of the ceiling guide rail, there being a ceiling guide rail sub-section for each of the said partition sections, the ceiling guide rail sub-sections each having a body mounted at the location at which each of the said partition sections is to be folded, the hanger means each having a fitting with a body mounted on the upper edge of a partition section at the leading corner thereof, said fitting having a slider member projecting above the body thereof, means mounting the slider member for pivotal movement with respect to the body of the fitting about said vertical axis containing the lower leading guide member, said slider member being slidably received in longitudinally aligned position within the ceiling guide rail and being non-rotatable with respect to the main portion of such ceiling guide rail, the ceiling guide rail sub-sections each having means for permitting the turning of a slider member received therein through a limited angle in a partition section folding direction from its longitudinally aligned position, each ceiling guide rail sub-section having means to receive and guide therethrough the slider members in their longitudinally aligned positions when the partition sections in unfolded longitudinally aligned position are thrust toward their partition folding positions, and cooperating stop means on the slider member and the body of the fitting for retaining the slider member in longitudinally aligned position when its partition section is in longitudinally aligned position, for permitting the turning of the slider member by said slider member turning means of a guide sub-section, upon the initial folding of the partition sub-section, and for restoring the slider member to its longitudinally aligned position upon the unfolding of the partition section to its longitudinally aligned position.

3,303,613
FARM GATE

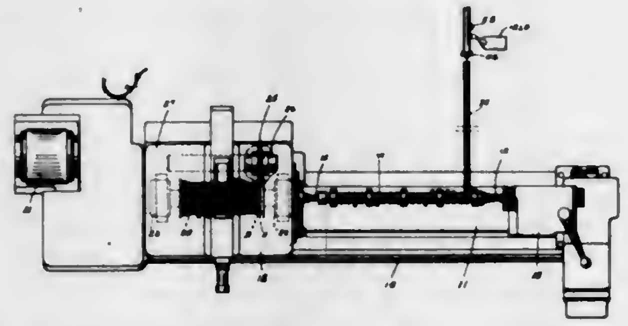
Ronald P. Seuntjens, Danbury, Iowa 51019
Filed Feb. 4, 1965, Ser. No. 430,305
1 Claim. (Cl. 49—131)



A farm gate comprising a pair of laterally spaced posts, a gate member secured between said posts, said gate member being adapted to rotate about a lower horizontal axis, spring means for returning said gate to vertical position after being rotated on said axis, a latch member secured to said gate, a latch socket attached to one of said posts, means for releasing said latch member from said socket incidental upon movement of a vehicle against said gate, said means including a framework, means for pivoting said framework to said gate member on a normally vertical axis, means attached between said framework and said latch member for operating said latch member, said spring means including a spring received in and having one end secured to one of said posts, a pulley attached to said post, a cable passing over said pulley and being attached to said spring and said gate member, said pulley being rotatable about a vertical axis whereby said spring will operate to close said gate to vertical position, from either side thereof, brackets receiving said posts upon which said gate member is mounted, said brackets being slidably secured to said posts between an upper and a lower position, further springs attached between said posts and said brackets for resiliently holding said brackets in said upper position, a dash-pot member pivotally attached to one of said brackets and to said gate member to provide a slow return of said gate to vertical position, one of said brackets being rotatable about the vertical axis of the post upon which it is mounted so as to provide swinging of said gate about said post, and means for releasing the lower end of said gate from the other of said brackets.

3,303,614
MULTIPLE MASTER CAMS FOR CAM GRINDING MACHINES

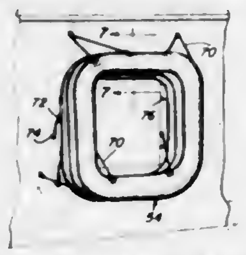
John R. Fries, Ralph E. Price, and John A. Boller, Waynesboro, Pa., assignors to Landis Tool Company, Waynesboro, Pa.
Filed Aug. 20, 1964, Ser. No. 390,916
9 Claims. (Cl. 51—101)



9. In a cam grinding machine,
(a) means to minimize the effect of grinding wheel wear on the contour of a product cam comprising
(b) multiple sets of master cam contours,
(c) each of which has been ground from the same model but with a follower of different diameter,
(d) a master cam follower for all of said sets of master cam contours,
(e) and means operable when a grinding wheel wears to a predetermined diameter to shift said master cam follower from one set of master cams to another.

3,303,615
INFLATABLE DOCK SEAL

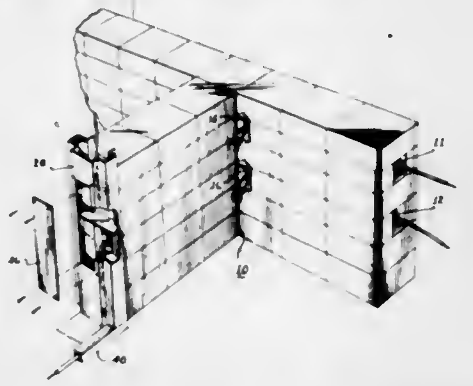
Larry O'Neal, Youngstown, Ohio
(4953 Timbercrest Drive, Canfield, Ohio 44406)
Filed Feb. 12, 1965, Ser. No. 432,359
15 Claims. (Cl. 52—2)



1. For engagement with a building wall about an opening therein, an inflatable dock cover, said cover being generally in the form of a hollow elongated cylinder positionable about a major portion of the border of the opening, said cylinder having a longitudinally extending lateral recess defined therein, said recess defining a pair of right angularly related panels engageable against the inner faces of the opening and one adjacent wall surface so as to enclose the corner defined therebetween.

3,303,616
CONDUIT SYSTEM FOR STRUCTURES HAVING MASONRY WALLS AND DOOR FRAMES

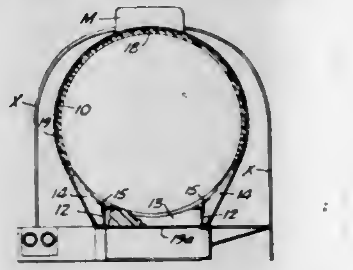
Arthur T. Brown, 276 Country Club Road,
Tucson, Ariz. 85716
Filed July 19, 1963, Ser. No. 296,333
2 Claims. (Cl. 52—213)



2. An architectural construtcion comprising
(a) vertical masonry walls defining inside corners at their respective intersections, a pair of channels extending longitudinally within said walls;
(b) a hollow door jamb divided into a first and second compartment and having a removable access panel covering a portion of said first and second compartments;
(c) a hollow hinge-supporting member parallel to said door jamb and divided into a third and a fourth compartment and having a removable access panel covering a portion of said third and fourth compartments;
(d) a hollow header member at right angles to and joining said door jamb and hinge-supporting member, the interior of said header member communicating with said first and third compartments to form a first conduit, said first conduit being in communication with one of said pair of channels;
(e) a hollow sill at right angles to and joining said door jamb and hinge-supporting member, the interior of said sill communicating with said second and fourth compartments to form a second conduit said second conduit being in communication with the other of said pair of channels;
(f) dividing means disposed in said door jamb for separating said first and second compartments; and
(g) dividing means disposed in said hinge-supporting member for separating said third and fourth compartments.

3,303,617
CORED WALL CONSTRUCTION

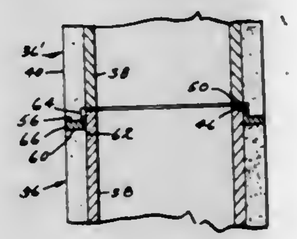
Lawrence J. Hessburg, Jr., St. Paul, and Thomas C. Olson, Minneapolis, Minn., assignors to Stainless & Steel Products Co., St. Paul, Minn., a corporation of Minnesota
Filed Apr. 16, 1963, Ser. No. 273,348
17 Claims. (Cl. 52—249)



2. Annular wall structure comprising spaced apart inner and outer walls and a core of foam disposed therebetween, said core being self-bonded to both of said walls and uniting same and forming therewith an integral structure, said core comprising a portion which was foamed and applied to the major portion of one surface of one of said walls and at least partially cured and shrunk prior to the formation of said integral structure, and another portion which was foamed and cured simultaneously with the formation of said integral structure.

3,303,618
PREFABRICATED CHIMNEYS AND VENTS

Paul S. Kelsey, 301 Paxon Hollow Road,
Media, Pa. 19063
Filed May 28, 1964, Ser. No. 370,807
11 Claims. (Cl. 52—269)



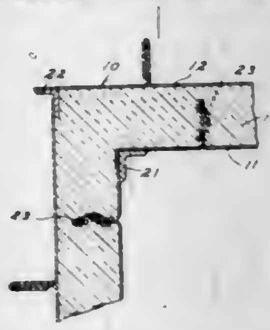
1. A prefabricated chimney comprising a plurality of block members superimposed on one another wherein each block comprises a body of thermal insulating material and a refractory lining having a passage longitudinally therethrough about which the body is molded, said refractory lining being of greater length than said body of thermal insulating material, the minimum difference in the length between the lining and the body of a block being the minimum desired mortar joint thickness between adjacent block members, said lining positioned so that it projects from and beyond one end of said body thereby defining a first shoulder extending radially outwardly from the refractory lining to the outer surface of the body, and means defining a longitudinally extending recess at the other end of said body, said lining terminating within said recess and defining a square shoulder with said body within said recess, said recess having a substantially greater width than said re-

fractory lining, and a second shoulder at said other end extending between the outer extent of said recess and the outer surface of the body, the projection of said lining beyond said one end of the body is received within the recess of an adjacent block and engages the square shoulder defined within the recess of said adjacent block, the spaces defined between the first and second shoulder of adjacent blocks being filled with mortar and a relatively thin layer of acid resistant cement being included between the engaging surfaces of the projection of said lining beyond said one end of the body and the square shoulder defined within the recess of said adjacent block and being separated from said mortar by the recess, the mortar and cement thereby bonding the blocks to one another.

3,303,619

INDUSTRIAL OVEN WALL CONSTRUCTION

Louis J. Janecek, Detroit, Mich., assignor to The R. C. Mahon Company, Warren, Mich., a corporation of Michigan
Filed Dec. 21, 1962, Ser. No. 246,623
2 Claims. (Cl. 52—303)



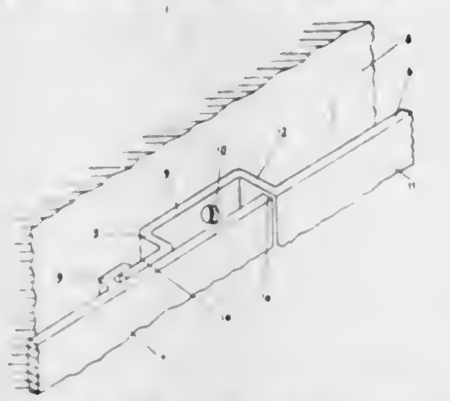
1. In an industrial oven wall, the combination comprising
an inner wall,
an outer wall spaced from the inner wall,
an insulating material interposed between the inner and outer wall,
each said wall comprising prefabricated panels of sheet metal including a central portion having longitudinal side edges,
a longitudinally extending flange bent from and extending along one side edge of the central portion,
and a reversely bent portion bent from and extending along the other side edge of the central portion into which the flange of the adjacent panel extends to define a joint,
the interengaging joints of the inner wall having a continuous uninterrupted longitudinal crimp intermediate the bend and the free longitudinal edge of the joint which is formed by continuously longitudinally crimping in place after the outer wall is assembled to cold work the interengaging flange and reversely bent portions and thereby provide a vapor impervious seal at the joints of the inner wall,
said joints of the outer wall being uncrimped to permit vapor to pass therethrough.

3,303,620

JOINING SHEET MATERIALS

William Dawson, Welwyn Garden City, and David Charles Kirby, Welwyn, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Dec. 9, 1963, Ser. No. 328,922
Claims priority, application Great Britain, Dec. 18, 1962, 47,750/62
6 Claims. (Cl. 52—309)

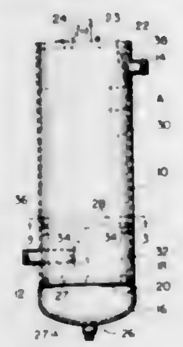
1. A generally rectangular panel of a synthetic thermoplastic polymeric material for fastening to a supporting structure in combination with similar panels to provide a cladding such that the main area of the panel is spaced from said supporting structure, said panel having a continuous recess along at least one edge but not more than two edges, where two edges are recessed these being adjacent edges, which recess is in the form of a trough having a base at such a depth that it provides the means whereby said panel is maintained in spaced relationship from said supporting structure, and has a flange formed on the limb forming the side of the trough remote from the main area of the panel, said flange lying in a plane substantially perpendicular to the plane of said limb and extending from said limb in a direction away from the main area of the panel, said panel being provided with at least one clip on the face of the panel from which said recess projects but near to the edge of the panel that is opposite to the recessed edge of the panel, said clip having a flange extending, in a plane spaced from but substantially parallel to the plane of the panel in the vicinity of said clip, from its point of attachment to the panel towards the edge of the panel opposite to the recessed edge, said clip being arranged to hold one panel to a second panel by the clip of one panel engaging with the flange formed on the limb of the recess of the second panel.



3,303,621

GAS DRIER

Wilkes E. Hill, Erie, Pa., assignor to Van Products Company, Erie, Pa., a corporation of Pennsylvania
Filed Nov. 30, 1964, Ser. No. 414,709
13 Claims. (Cl. 55—388)

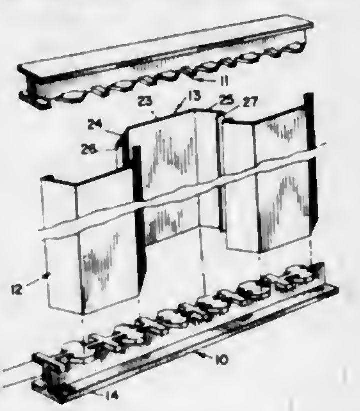


1. A drier for compressed gas comprising an enclosure having a gas inlet and a gas outlet, generally horizontal means in said enclosure adapted for supporting a bed of deliquescent desiccant material on the upper surface thereof, said horizontal means comprising a generally imperforate substantially planar member dividing said enclosure into an upper chamber and a lower chamber and extending transversely across said enclosure a sufficient amount to define in conjunction with the interior surface of the enclosure passage means disposed adjacent said interior surface, said inlet communicating with said lower chamber and said outlet communicating with said upper chamber, a drain opening in said lower chamber for removing a solution of desiccant draining down from the desiccant bed, said inlet being disposed above said drain opening, said passage means being operative to cause inlet gas to flow into contact with the enclosure interior surface prior to passing through the bed of desiccant material and to cause exposure of the inlet gas to desiccant solution from the bed prior to passage of the inlet gas into the bed, and passageway means coupled to said inlet for directing inlet gas to approximately the vertical axial center of the enclosure and in close proximity to said member so that the inlet gas will be directed upwardly to violently impinge on the underside of said member, thereby dispersing the inlet gas upon its emission into said lower chamber.

3,303,622

WALL STRUCTURE WITH INTERLOCKING PANEL MEMBERS

George W. Minds, Jr., Pacific Palisades, Calif., assignor of one-half to John B. Colligan, Glendale, Calif.
Filed Nov. 7, 1963, Ser. No. 322,235
5 Claims. (Cl. 52—473)

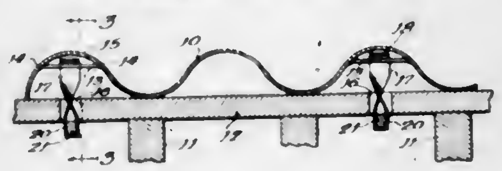


1. An improved wall structure comprising: a pair of spaced apart panel retaining members; each of said panel retaining members comprising an I-beam with the upper flange of one of said I-beams being in opposing relationship to the lower flange of the other said I-beams; at least one panel coupled to and between said I-beams, each of said I-beams including on at least one side thereof at least two projecting portions, said projecting portions being disposed in the upper flange of said one I-beam and in said lower flange of the other of said I-beams, said projecting portions defining with said retaining members spaced apart notches, and said panel including angled edge portions interlocked, respectively, with said opposing notches of said projecting portions of said spaced apart I-beams in the flanges aforementioned.

3,303,623

ROOF ANCHOR

Elgrin C. Hawkins, 108 E. Flora St., Tampa, Fla. 33604
Filed Oct. 3, 1963, Ser. No. 313,622
2 Claims. (Cl. 52—483)

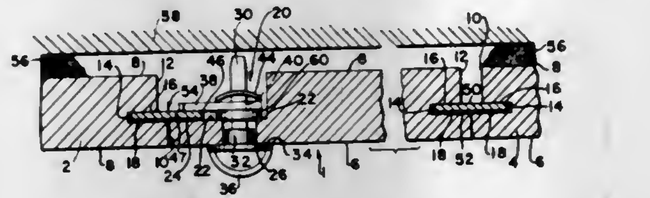


1. Roof anchor means in combination with a sheet metal roofing panel and sheathing strips, said anchor means comprising a shallow bracket secured to the underside of said panel and overlying an opening formed in said sheathing strips, a tension lug having a hook portion interlocking with said shallow bracket and having a loop portion extending through said opening and beyond the lower surface of said sheathing strips, a wedge-shaped key extending through said loop portion and reacting against the under surface of said sheathing strips, said roofing panel being corrugated, and said bracket being a single plate connecting the opposite walls of a corrugation of said roofing panel and subtending an arc of substantially 90°.

3,303,624

REMOVABLE TILE AND FASTENER ASSEMBLY

Ernest Swain, 41 Dollard Drive, North Babylon, N.Y. 11703
Filed Apr. 23, 1964, Ser. No. 362,037
4 Claims. (Cl. 52—496)



1. In a tile assembly for covering a surface, the combination comprising a pair of coplanar, spaced, stationary tiles and a removable tile disposed therebetween and in coplanar relation therewith, said tiles having obverse and reverse surfaces and end walls disposed at opposite ends thereof, said end walls of said stationary tiles having channels similarly provided lengthwise thereof, each said channel having upper and lower walls disposed in spaced, parallel relation, the reverse surface of said removable tile having a cut-away portion adjacent one of the end walls thereof, the other end wall thereof having a channel provided lengthwise thereof, said cut-away portion having a base parallel with respect to said reverse surface and coplanar with respect to the lower wall of said channels, a portion of said base extending the length of said one of said end walls, a passage through said removable tile providing communication between said base and said obverse surface, a button rotatably mounted within said passage, said button having coaxially disposed stud, neck, shoulder and head portions, said stud being rectangular of cross-section, said head portion being adapted to extend outwardly of said obverse surface of said removable tile, said shoulder portion being contiguous with said obverse surface thereof, a flat arm member having a rectangular opening disposed therethrough inwardly of one end thereof, said arm member being removably secured to said stud and adapted to rotate therewith, said arm member extending laterally of said stud, the lower surface of said arm member being coplanar with respect to the upper wall of said channels and parallel with the base of said cut-away portion, spline members removably receivable lengthwise of said channels, a portion of a respective spline member being receivable within abutting channels of respective tiles, said spline members having upper and lower surfaces adapted for seating engagement with said upper and lower walls, respectively, of said channels, said rotatable arm member being adapted to pressingly engage a portion of the upper surface of the spline member extending without the channel of a stationary tile to thus retain said spline member against the portion of said base extending the length of said one of said end walls of said removable tile to thereby removably retain said removable tile in end wall abutting relation with said stationary tile.

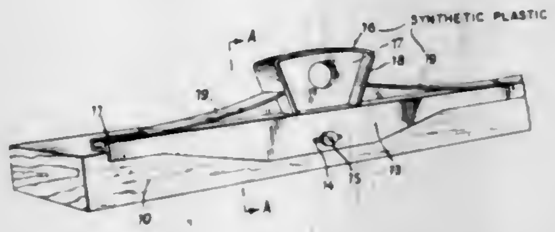
3,303,625

ROOF OR WALL COVERING

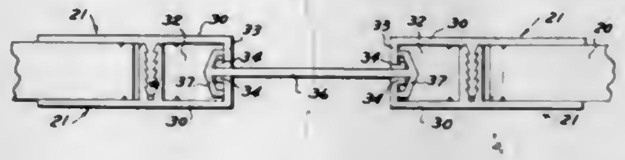
Josef Furrer, Altdorf, Uri, Switzerland
Filed Apr. 29, 1964, Ser. No. 363,522
Claims priority, application Switzerland, May 1, 1963, 5,465/63
6 Claims. (Cl. 52—520)

1. The combination for covering a roof or wall, including: at least one band for covering the roof or wall; a plurality of parallel spaced hollow ribs extending along one dimension of said band and narrowed at their base; at least two spaced rail means which are intended to be parallel and intended to extend transversely to said ribs, a plurality of individual anchor means slidably held in each of said rail means projecting beyond said rail

means in the direction of said band, the plurality of anchor means corresponding to a given rail means spaced apart by a distance equal to that between two successive ribs, said anchor means being engageable by the interior of said ribs in a clamping relationship, and the dimension of each of said anchor means transverse to said rail means being sufficiently small with respect to the length of a rib that two anchors of adjacent rail means and corresponding to the same rib can shift with respect to one another along the rail means to enter the interior of the rib, whereby to allow for lack of perpendicularity between the ribs and the rail means, for lack of parallelism between adjacent rail means, and for lack of straightness of the rail means; and a plurality of means for spacing the plurality of anchor means corresponding to a given rail means along the length thereof, said means being slidably held in said rail means.



3,303,626
CONNECTING MEANS FOR FRAMED PANELS
George B. Brigham, 517 Oxford Road,
Ann Arbor, Mich. 48104
Filed July 23, 1963, Ser. No. 297,028
6 Claims. (Cl. 52—586)



1. In combination, two rectangular coplanar framed paneled units, each having a rectangular panel and a peripheral rectangular frame; with the frame of each unit surrounding and framing the panel thereof;

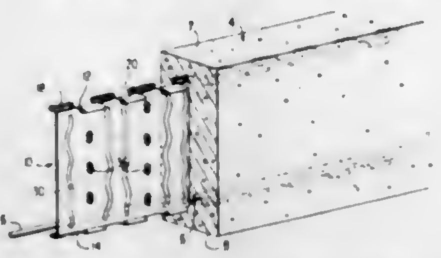
each frame comprising snap-together co-operating male and female completed rectangular frame members; each completed rectangular frame member having a face flange for one face of a panel and having a transverse flange normal to the face flange; the transverse flange of the female frame member being bifurcated to receive between its halves the transverse flange of the male frame member; the outer faces of the transverse flange of the male frame member and as well the inner faces of the bifurcated transverse flanges of the female frame member having co-operating interlocking rib and groove snap together formations extending longitudinally of these transverse flanges;

with the face flanges being extended beyond the transverse flanges to provide sockets surrounding the panel;

with the face flanges having at their edges supplementary transverse flanges projected towards each other to close the sockets;

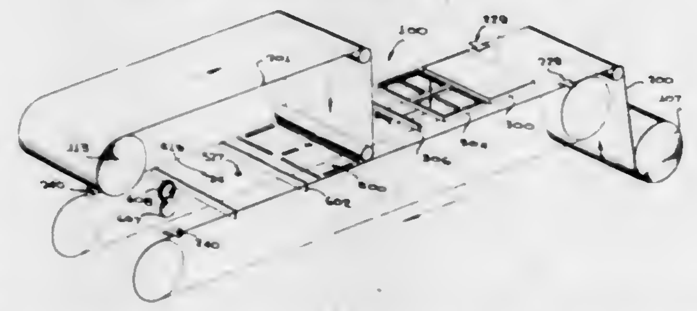
and means extending laterally from the supplementary transverse flanges of one unit and headed to form a T at its end fitting in the socket of the coplanar adjacent framed unit for joining the two units edge to edge.

3,303,627
REINFORCED STRUCTURAL MEMBERS
Raul L. Mora, 3230 SW. 23rd Court,
Fort Lauderdale, Fla. 33305
Filed Apr. 9, 1964, Ser. No. 358,529
18 Claims. (Cl. 52—723)



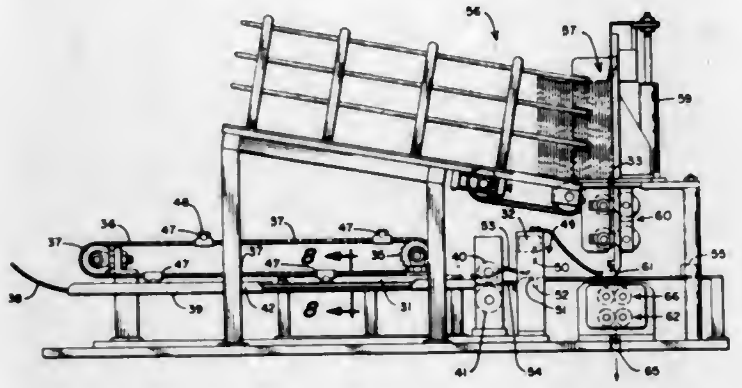
1. In a structural member formed from concrete-like material having reinforcing means extending longitudinally in the lower portion thereof for resisting flexural stresses, a means for reinforcing the member against vertical shear occasioned by external loads applied transversely to the member including a continuous web of sheet metal entirely embedded in the member generally along the longitudinal axis thereof and terminating substantially at the ends of said member, the opposite longitudinal edges of said web each having a series of generally hooked shaped male and female flanges alternately projecting laterally in opposite directions from the plane of said web with adjacent flanges respectively positioned transversely beyond and inwardly of the longitudinal edge of said web from which they project said flanges being constructed and dimensioned to be connected with complementary flanges of another similar reinforcing web by reception of the male flanges in the female flanges.

3,303,628
PACKAGING MACHINE AND METHOD OF FORMING PACKAGES
Stephen P. Lovas, West Hempstead, N.Y., and George S. Di Monico, Waldwick, N.J., assignors to Royal Packaging Equipment, Inc., Fort Lee, N.J., a corporation of New Jersey
Filed Dec. 17, 1962, Ser. No. 245,288
89 Claims. (Cl. 53—22)



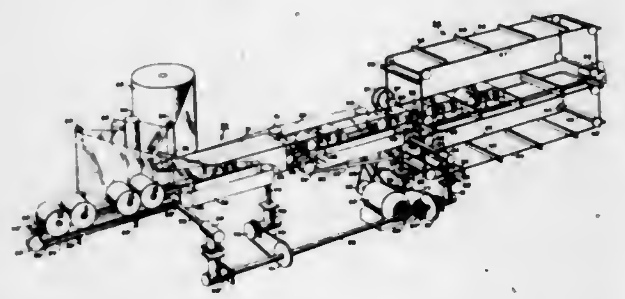
1. The herein described method of forming packages which comprises, feeding a heat sealable web step-by-step and horizontally while gripping the same at its marginal edges only, heating the web to prepare it for the formation of pockets therein, successively forming clusters of pockets in the web during one of the rest positions, each cluster of pockets being defined in part by an outlining peripheral wall portion and also by longitudinal and transverse wall portions intersecting centrally to provide four adjacent pockets corners, depositing fill in the pockets of each cluster, laying a heat sealable cover web over the filled pocket clusters, heat sealing the cover web over each pocket cluster about the peripheral wall portion thereof and over the intersecting wall portions except adjacent the intersection thereof, evacuating the pockets of each cluster simultaneously through an orifice formed at the wall portion intersection thereof, and then completing the heat sealing at the wall portion intersection.

3,303,629
PACKAGING WITH THERMOPLASTIC MATERIALS
Carl J. Tobin, Lackawanna, N.Y., assignor to Gould-National Batteries, Inc., a corporation of Delaware
Filed Feb. 3, 1964, Ser. No. 341,899
5 Claims. (Cl. 53—28)



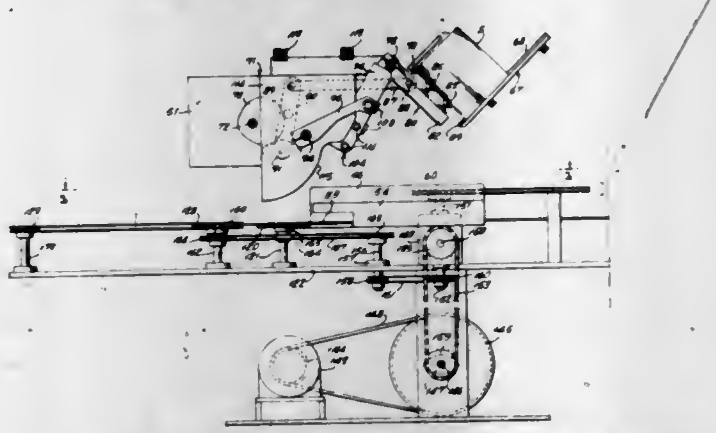
1. In a packaging machine, in combination: heating means in intimate and direct contact with at least a part of only one surface of a sheet of heat-sealable material for heating said part of said surface to sealing temperature; means for heating a narrow strip of said same one surface across said sheet to a temperature at which said material will bend without breaking; means for folding said sheet along said latter strip so that said heated parts of said one surface are facing each other; and means in contact with the other surface of said sheet for pressing said heated facing surface parts into sealing contact with one another.

3,303,630
PACKAGING APPARATUS AND METHOD FOR CYLINDRICAL ARTICLES
Alson R. Harm, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Feb. 27, 1964, Ser. No. 347,884
3 Claims. (Cl. 53—28)



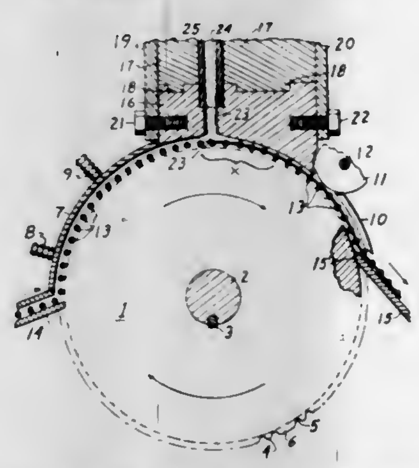
2. A method of forming a package for a plurality of cylindrical articles comprising the steps of feeding said articles in spaced pairs to a wrapping station, continuously feeding a web of flexible, heat-sealable web material to said wrapping station, continuously enclosing said pairs of articles at said wrapping station in an elongated tube formed from said flexible, heat-sealable web material so that the lateral edges of said web material are in overlapping relation along one lateral side of the elongated tube, heat sealing said overlapped side edges, moving said articles and said elongated tube forward at substantially constant speed to a transverse heat sealing station, moving said pairs of articles forward at reduced speed at said transverse heat sealing station, said speed differential causing slack web material to form between consecutive pairs of articles before said pairs of articles enter said transverse heat sealing station, infolding the slack material by a pair of oppositely disposed fluid pressure jets, thereafter clamping, sealing and severing the material at said heat sealing station between adjoining pairs of articles so that the slack material remains infolded and is sealed between the arcuate surface of the cylindrical articles and the end portions of said wrapping material joined by said end seam.

3,303,631
MACHINE FOR AND METHOD OF APPLYING CARRIERS TO CONTAINERS
Robert H. Ganz, Bergenfield, N.J., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Oct. 8, 1962, Ser. No. 228,800
20 Claims. (Cl. 53—48)



1. In a machine for wrapping carrier blanks around sets of containers, means for moving containers along a predetermined path, a blank hopper disposed above the plane of said path, first blank moving means for removing carrier blanks from said hopper, and second blank moving means for receiving carrier blanks from said first blank moving means and positioning the carrier blanks into overlying relation to containers, said first and second blank moving means having blank retaining members facing in the same direction at the time of blank transfer therebetween.

3,303,632
NAIL PACKAGING DEVICE
Donald B. Halstead, Pomona, Calif., assignor of thirty-three and one-third percent to Neal M. White, Montclair, Calif., and thirty-three and one-third percent to Irney L. Rogers, Hacienda Heights, Calif.
Filed Aug. 3, 1964, Ser. No. 387,006
6 Claims. (Cl. 53—140)



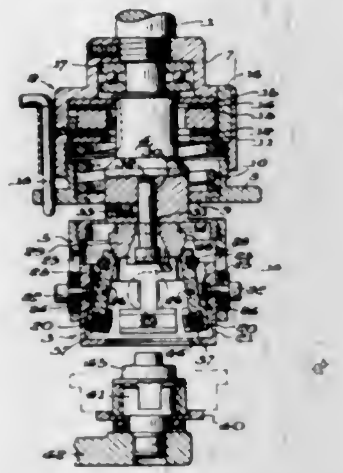
1. A taping device for elongated elements such as nails, pins, cartridges comprising a rotary carrier means which receives the elements at one portion and delivers the elements at another portion thereof, a plastic bath means intermediate the said portions, said rotary carrier means having an annular channel at the middle portion of its periphery to receive plastic and mold it around the middle portions of the said elements, and means along the sides of the channel for guiding the elongated elements in predetermined spaced apart order.

3,303,633
CONTAINER CAPPING APPARATUS

Charles V. Wilhere, Pittsburgh, Pa., assignor to Horix Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 8, 1964, Ser. No. 416,735

14 Claims. (Cl. 53—306)



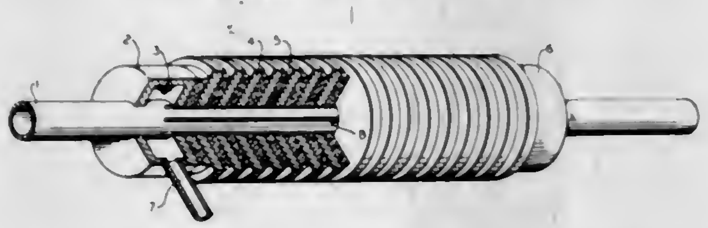
1. Container capping apparatus comprising a hollow downwardly opening chuck body rotatable on a vertical axis, opposed upright jaws in said body around said axis movable vertically and radially, means supported by the chuck body holding the jaws against rotation around its axis and for normally supporting them in a lower position in the body, a cam mounted in the upper part of said body and having an inclined surface beside the upper ends of the jaws, means pressing said ends radially against said cam surface, means for lowering and raising the chuck body, and a cap support mounted below said body for stopping downward movement of the jaws when their lower ends are in a position to straddle a screw cap on said support, further lowering of said body being adapted to move the cam downward relative to the jaws in order to move their upper ends radially, the cam being formed to move said upper ends in a direction that will move the lower ends of the jaws inwardly into frictional engagement with a cap, the cam having above said inclined surface a more nearly vertical surface for frictional engagement by the upper ends of the jaws to hold them there when the lowered chuck body is raised, whereby a cap can be lifted from said support, and the jaws being formed for greater frictional engagement with the cap than with said upper cam surface.

3,303,634
APPARATUS AND METHODS FOR SEPARATING LIQUID FROM A BINARY PHASE LIQUID-GAS MIXTURE

James H. Berrian, 409 Rowland Ave., Camarillo, Calif. 93010

Filed Apr. 20, 1965, Ser. No. 449,655

4 Claims. (Cl. 55—35)



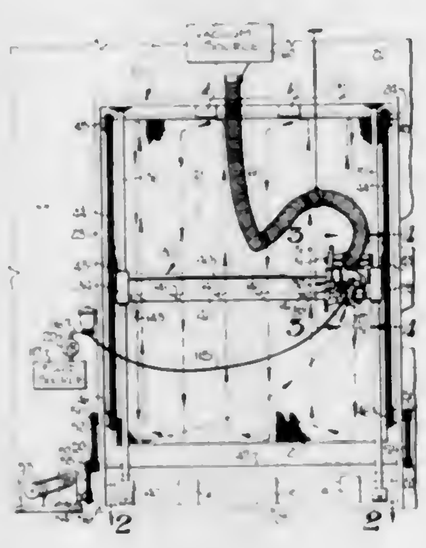
1. A method for extracting and separating liquid from a gas phase which comprises
  contacting with the gas phase one region of a porous, solid matrix of material wettable by the liquid and having pores of capillary dimensions, maintaining said first mentioned region of said matrix at a temperature low enough to produce condensation at said first mentioned region of liquid from said gas phase so that said first mentioned region is exposed in contact with a binary phase mixture of said gas phase with said liquid condensed from said gas phase; and
maintaining a pressure differential between said first mentioned region of said porous matrix and a second region of said matrix not in contact with said binary phase mixture, the higher of the two pressures constituting the pressure differential being maintained at said first mentioned region;
  said pressure differential not exceeding the critical phase partition pressure differential but being sufficiently great to cause liquid deposited on the surface of said matrix at said first mentioned region to travel into said matrix away from said surface to the extent that said surface becomes dry in the event that said liquid deposited on said surface is not continuously replaced with other liquid;
  said pressure differential being maintained during both the presence and absence of continuous deposition of liquid against the high-pressure region of said matrix and insuring maintenance of said matrix impervious to the passage of gas during both the said presence and absence of continuous deposition of liquid against the high-pressure region of said matrix.

3,303,635
FILTER CLEANING SYSTEM

James W. Sherrill, Stanley, N.C., assignor to Microtron Corporation, Charlotte, N.C., a corporation of North Carolina

Filed Aug. 6, 1964, Ser. No. 387,898

22 Claims. (Cl. 55—96)



1. A method of cleaning a filter which comprises
(a) moving a suction cleaning head automatically through a filter cleaning cycle adjacent and generally parallel to one face of the filter from a starting point through a sinuous path of travel to a terminal point while applying a suction cleaning force to the filter through said suction cleaning head and while simultaneously cleaning gas with said filter, and
(b) automatically returning said suction cleaning head from said terminal point and across the filter substantially to said starting point in a substantially direct path of travel crossing said sinuous path of travel previously traced during said filter cleaning cycle while continuing application of said suction cleaning force to effect additional cleaning of the filter and for quickly repositioning said suction cleaning head for a succeeding filter cleaning cycle.

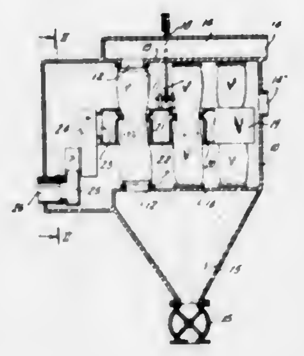
3,303,636
CLEANING ARRANGEMENT FOR FILTER TUBES

Johannes Liel, Munster, Westphalia, Germany, assignor to Standard Filterbau-Gesellschaft m.b.H., Munster, Westphalia, Germany

Filed July 16, 1963, Ser. No. 295,411

Claims priority, application Germany, July 16, 1962, St 19,487

1 Claim. (Cl. 55—294)



A cleaning arrangement for a plurality of parallel filter tubes which extend in vertical direction, comprising, in combination, a container having a horizontal top wall and a horizontal bottom wall spaced in said vertical direction a distance less than the length of the filter tubes, said container including a plurality of tubular walls extending between said top and bottom walls and respectively surrounding the filters tubes spaced from the same, each tubular wall having two inwardly projecting higher and lower nozzle means, each nozzle means including a pair of opposite nozzles angularly displaced relative to the respective other nozzle means an angle of 180° and adapted to engage and to deform spaced sections of the respective surrounded filter tube, each of said nozzles extending substantially along a chord of said tubular wall and having a part-circular concave edge formed with an outlet slot extending in a horizontal direction through an angle of substantially 90°, each pair of nozzles being adapted to constrict the respective filter tube section in one horizontal direction and to cause expansion of the respective filter tube section in a transverse horizontal direction, said pairs of nozzles being spaced in vertical direction along the length of the respective filter tube such a distance that the same remains undeformed between said deformed sections thereof;
  means for moving said container in said vertical direction so that consecutive sections of the filter tubes are deformed by said nozzle means;
  and means for supplying a fluid to the interior of said container so that fluid passes through said nozzle means and through the walls into the filter tubes for displacing deposits from the inner surfaces of the filter tubes.

ERRATUM

For Class 55—388 see:
Patent No. 3,303,621

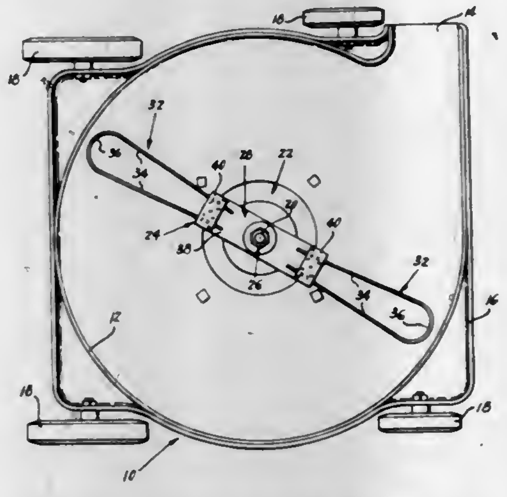
3,303,637
SAFETY LAWN MOWER BLADE

Frank E. Wixson, 1138 W. Juliah Ave., Flint, Mich. 48505

Filed May 14, 1964, Ser. No. 367,388

1 Claim. (Cl. 56—295)

In combination, a rotary lawn mower including a substantially vertical driving shaft, means operatively secured to said shaft for rotating the same, and a mower blade secured to said shaft for rotation in a horizontal plane therewith, said mower blade including a pair of radially extending cutter members formed of spring steel material of circular cross section, said mower blade including a hub portion secured to said shaft; each of said cutter members extending radially outward from the hub portion and including a pair of radially opposed elongated loops of said spring wire material, said loops each having two substantially straight leg portions, each leg portion having one end secured to said hub portion and a substantially U-shaped connecting portion integrally formed between the other ends of said leg portions, said hub portion including a first substantially rectangular elongated plate member having a central portion defining an aperture for receiving said shaft, and a pair of substantially rectangular second plate members, fixed to the ends of said first plate member with the ends of the leg portions of each of said loops interposed between said first plate member and one of said second plate members in clamped relation.

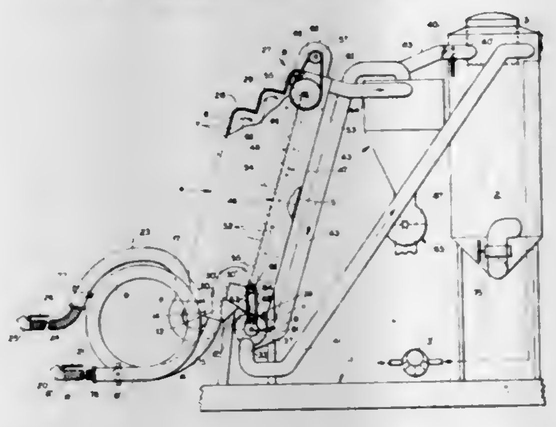


3,303,638
APPARATUS AND METHOD FOR SEPARATING STEM AND LEAVES FROM GRAPES IN A GRAPE HARVESTER

George Lee Koehn, Livingston, Calif., assignor to E. & J. Gallo Winery, Livingston, Calif., a corporation of California

Filed Jan. 10, 1964, Ser. No. 337,061

14 Claims. (Cl. 56—330)



4. Apparatus for harvesting grapes that comprises:
(a) a conduit open at one end and a source of constant vacuum connected with the opposite end whereby grapes in bunches on the vines will be separated from the vines and drawn into said conduit for movement therein toward said source upon the open end of said conduit being positioned to substantially enclose such bunches;
(b) said conduit including a stem and leaf separator comprising a housing forming an enlarged section of said conduit;
(c) the first portion of said conduit between said housing and said open end opening upwardly into the lower part of said housing, and the second portion of said housing between said housing and said source opening into the upper part of said housing whereby

the movement of air in said housing is generally upwardly;

(d) grape collecting means in the lower part of said housing spaced from said first portion for collecting grapes drawn into said housing;

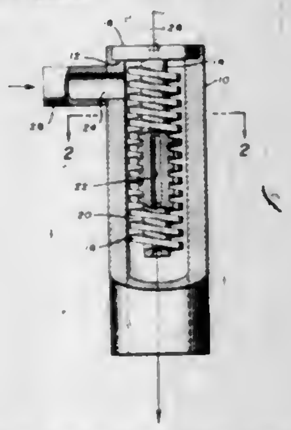
(e) upwardly moving conveyor means within said housing extending into said upper and lower parts at its upper and lower ends for carrying into said upper part and to said second portion of said conduit such stems and leaves as may fail to be carried by air moving upwardly through said housing to said second portion;

(f) stem and leaf collecting means in said second portion of said conduit for removing the stems and leaves from said second portion, and a continuation of said second portion extending from said stem and leaf collecting means to said source, including a grape storage tank;

(g) grape removing means for discharging grapes directly from said grape collector into said continuation and for sealing said graps collector against admission of atmosphereic air at atmospheric pressure into said housing during said discharge, whereby grapes so discharged into said continuation will be carried in said continuation into said tank.

3,303,639
PNEUMTIC FALSE TWISTER

Ernest P. Carter, Durham, and Roger S. Otstot, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed June 23, 1965, Ser. No. 466,159
6 Claims. (Cl. 57—77.3)



1. Apparatus for imparting false twist to a continuous strand, comprising:

(a) a body member having an internal bore which is substantially unobstructed at one end thereof,

(b) a hollow member disposed in said bore, said member having a passageway for receiving a yarn to be false twisted,

(c) a screw thread-like configuration circumscribing said hollow member, and

(d) an inlet for introducing a gaseous medium into the internal bore wherein said thread-like configuration is adapted for directing said medium in a coherent stream having a coiling motion whereby false twist is imparted to said yarn.

3,303,640
METHOD OF PRODUCING COMPOSITE ELASTIC YARN

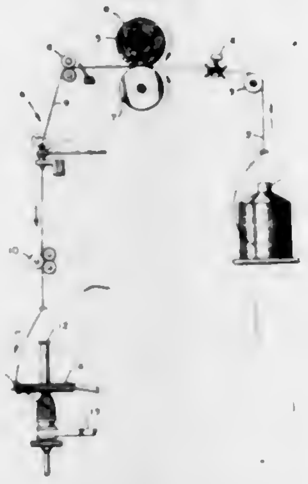
Thomas Reid, Danielson, and William D. MacDonald, South Woodstock, Conn., assignors to The Hale Manufacturing Company, Putnam, Conn., a corporation of Delaware
Filed Dec. 11, 1963, Ser. No. 329,670
8 Claims. (Cl. 57—163)

1. A method of producing a composite yarn comprising:

(a) providing a source of an elastic filament and a source of staple inelastic fiber roping having a low order of parallelism and individual fibers of which cross in a haphazard arrangement;

(b) forwarding the elastic filament and the staple roping from their respective sources;

(c) moving the elastic filament and the staple roping together in contacting relation to a drafting zone;



(d) in said zone drafting the staple fiber roping in the range of 1.10 to 2.00 and elongating the elastic filament a corresponding amount;

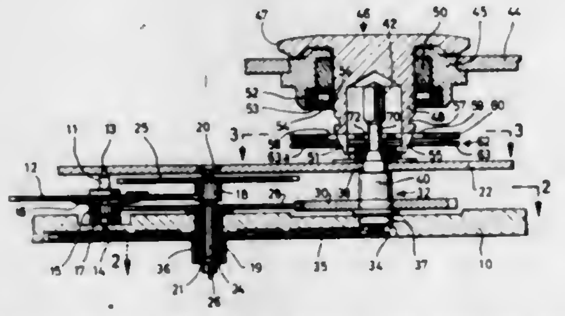
(e) imparting a false twist to the staple roping and the filament in the drafting zone;

(f) thereafter twisting the staple roping and the filament together with a true twist of about 4 to 8 turns per inch; and

(g) collecting the resulting composite yarn in an orderly manner.

3,303,641
WATCH INDICATOR SETTING MEANS

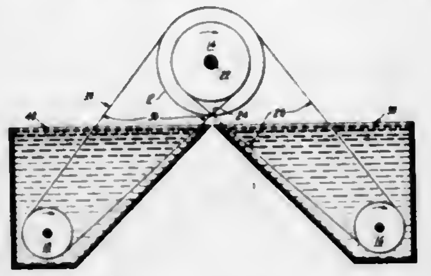
Josef Egger, Heinz Meitinger, and Fred Esselborn, Pforzheim, Germany, assignors to The United States Time Corporation, Waterbury, Conn., a corporation of Connecticut
Filed Dec. 18, 1964, Ser. No. 419,471
Claims priority, application Germany, June 6, 1964, U 10,800
8 Claims. (Cl. 58—85.5)



1. A hand-setting device to adjust the minute and the hour hand of a watch encased in a case, including a frame plate, a gear train rotatably mounted on the frame plate and having an hour wheel, a crown at least a portion of which is exterior to the case, a setting staff which performs at all times the function of supporting gears in said gear train and which performs selectively the function of a setting staff, means mounting said setting staff on the frame plate and adapted to be coupled to the crown, means to couple and uncouple the crown into a direct driving relation with the setting stem, first and second gears carried by the setting staff, and a center staff rotatably mounted on the frame plate and a gear fixed to said staff, wherein the first gear is in mesh with the gear on the center staff and functions in the gear train, and the second gear on the setting staff meshes with the hour wheel.

3,303,642
MOTOR

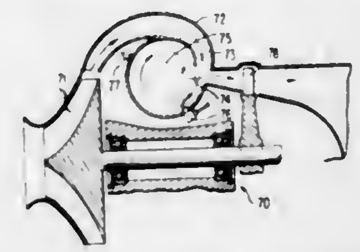
Leighton Lee II, Guilford, Conn., assignor to The Lee Company, Westbrook, Conn., a corporation of Connecticut
Filed June 4, 1965, Ser. No. 461,251
8 Claims. (Cl. 60—23)



7. A motor comprising, wheel means including driving and driven wheels coupled to provide relatively low and high peripheral speeds respectively, a pair of spaced idler wheels, an endless belt passing from the driving wheel to a first of the idler wheels, to the driven wheel, to the second of the idler wheels and back to the driving wheel, said belt being adapted for expansion and contraction, means for expanding the section of the belt passing from the driving wheel around said first idler wheel to the driven wheel, and means for contracting the section of the belt passing from the driven wheel around the second idler wheel to the driving wheel.

3,303,643
METHOD AND STRUCTURE FOR SUPPLYING AND CONFINING FLUID IN A REACTION CHAMBER

Melville W. Beardsley, 40 Windward Drive, Severna Park, Md. 21146
Filed Oct. 22, 1965, Ser. No. 502,103
19 Claims. (Cl. 60—39.02)

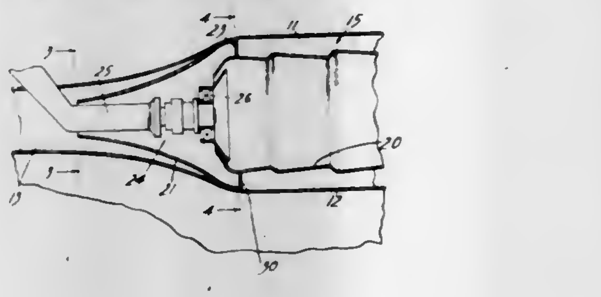


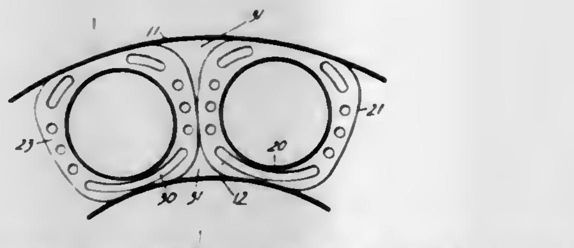
1. In combination in an internal combustion engine of the type having means to compress air, means to mix fuel with said compressed air, means to ignite said air-fuel mixture, and means to transform the kinetic energy of the resultant combustion products into useful work, a combustion chamber comprising: a rigid enclosure having an inlet port connected to receive induction air from said compression means and an outlet port to discharge combustion products from said enclosure, said inlet port being a jet producing nozzle positioned and adapted to introduce said induction air substantially in a jet sheet across said outlet port whereby to resist discharge of gas through said outlet port and cause compression of air in said enclosure, and a deflecting surface positioned in the path of said jet sheet to deflect at least a portion of said jet sheet through said outlet port into said combustion chamber during a first condition when the pressure in the combustion chamber is less than the total pressure of said jet sheet and for deflecting said jet sheet away from said outlet port during a second condition when the pressure in the combustion chamber is at least equal to the total pressure of said jet sheet.

6. A method of supplying and controlling the volume of fluid in a reaction chamber of an internal reaction engine or the like; comprising the steps of directing a jet-sheet of fluid across a port in the chamber to impinge on a deflecting surface and cause at least a portion of said jet-sheet of fluid to enter into said chamber through said port, and continuing the flow of said jet-sheet of fluid across said port to prevent discharge of fluid out of said chamber through said port until the pressure in said chamber becomes greater than the total pressure of said jet-sheet of fluid as caused by a release of energy from a reaction in said chamber.

3,303,644
COMBUSTION EQUIPMENT FOR A GAS TURBINE ENGINE

Harry Moxon and Terence Durrant, both of Derby, England, assignors to Rolls-Royce Limited, Derby, England, a British company
Filed Apr. 6, 1966, Ser. No. 540,636
Claims priority, application Great Britain, Dec. 4, 1963, 47,997/63; Oct. 6, 1965, 42,467/65
9 Claims. (Cl. 60—39.37)





1. Combustion equipment for a gas turbine engine comprising an outer and an inner casing defining a smoothly diverging annular space therebetween which is adapted to be supplied with compressed air from the engine compressor, an apertured plate abutting the outer and inner casings, at least one flame tube which is spaced from said outer and inner casings and mounted adjacent its upstream end in the apertured plate, the plate extending radially outwardly of said at least one flame tube to a substantial extent whereby all the air passing through said apertures so as to flow outwardly of said at least one flame tube on all sides thereof will be at substantially the same pressure.

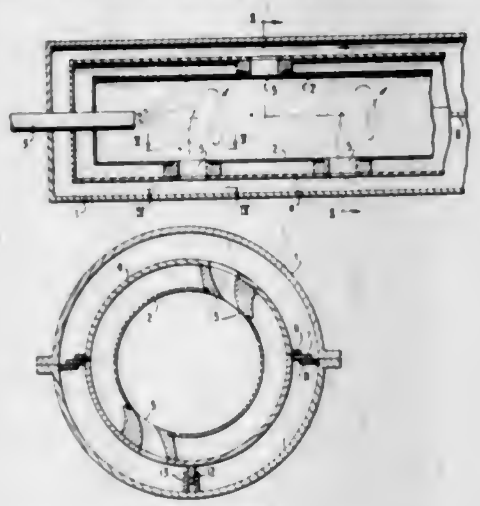
3,303,645
ULTRA-HIGH TEMPERATURE BURNERS

Eiichi Ishibashi, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 3, 1966, Ser. No. 531,582
Claims priority, application Japan, Apr. 30, 1963, 38/22,237
17 Claims. (Cl. 60—39.65)

1. A combustion chamber, comprising:
an outer first wall;
an inner second wall spaced from said outer wall;
an intermediate third wall spaced from said outer and inner walls;
means, including said outer wall and said intermediate wall operable to contain cooling fluid under a high pressure in a first space, between said outer wall and said intermediate wall;
said intermediate wall and said inner wall being spaced from each other to form an intermediate space therebetween;
means, including said inner wall, enclosing a combustion space containing hot fluid on the inner side of

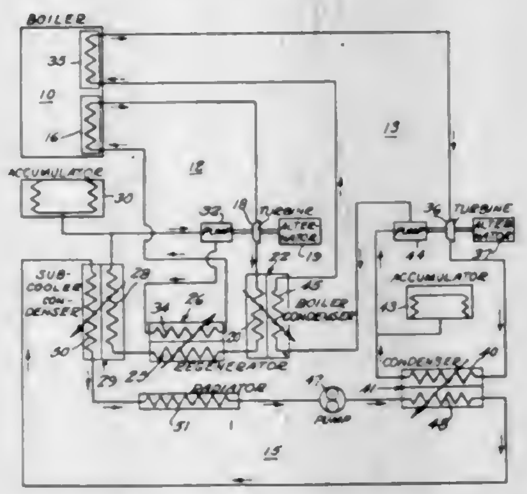
said inner wall opposite from said intermediate wall and said outer wall;

nozzle means operable to conduct cooling fluid from the first space, through said intermediate wall and into the combustion space, and operable to prevent the cooling fluid from entering the intermediate space before it enters the combustion space; said nozzle means being rigidly attached to said intermediate wall and extending toward and through a correspondingly shaped opening in said inner wall; said nozzle means having an inner portion of reduced size within and smaller than the opening in said inner wall, an adjacent outer portion of increased size larger than the opening in said inner wall, and a shoulder portion transversely connecting said inner and outer portions closely adjacent to the outer side of said inner wall; said outer portion; said inner portion and said shoulder portion forming inner wall supporting means operable to allow free three-dimensional thermal expansion of said inner wall, and forming, with said inner wall, fluid passage means operable to conduct fluids between the inner and outer sides of said inner wall to prevent a differential pressure across said inner wall.



3,303,646
REDUNDANT BINARY TURBOELECTRIC POWER SYSTEM

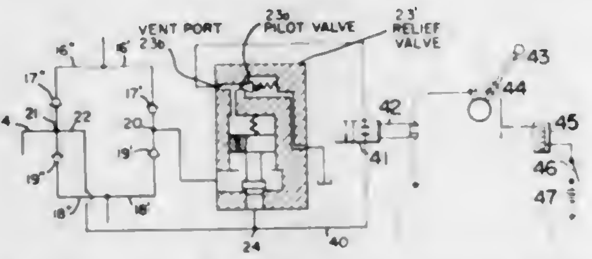
Donald L. Southam, Cleveland Heights, Ohio, assignor to TRW Inc., a corporation of Ohio
Filed May 13, 1965, Ser. No. 455,436
5 Claims. (Cl. 60—49)



1. A power delivery system comprising, a heat energy source, first and second heat exchanger means carried by said energy source, first and second turbines each having a fluid intake and a fluid exhaust, means defining a first fluid carrying loop between said first heat exchanger means and said first turbine for carrying heated fluid from said first heat exchanger means to said intake of said first turbine and for carrying fluid from said exhaust of said first turbine back to said first heat exchanger means, means defining a second fluid carrying loop between said second heat exchanger means and said second turbine for carrying heated fluid from said second heat exchanger means to said intake of said second turbine and for carrying fluid from said exhaust of said second turbine back to said second heat exchanger means, heat transfer means at the exhaust of said first turbine to transfer unused heat energy therefrom to the fluid in said second fluid carrying loop, means defining a third fluid carrying loop connected in heat sensing relation with said first and second fluid carrying loops at said exhaust of said first and second turbines for cooling the fluid from said first and second turbines, power utilization means, and first and second power output means driven by said first and second turbines respectively for providing power to said power utilization means.

3,303,647
HYDRAULICALLY OPERATED POWER SYSTEM

Masayuki Futamata, Ota-ku, Tokyo-to, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed June 3, 1965, Ser. No. 461,012
Claims priority, application Japan, June 6, 1964, 39/44,704; June 15, 1964, 39/47,170
7 Claims. (Cl. 60—53)



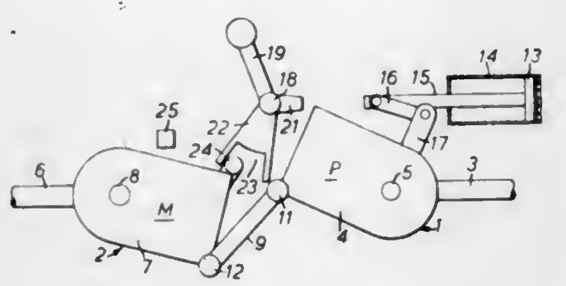
1. A hydraulically operated power system comprising: a prime mover; a hydraulic pump driven by said prime mover; a hydraulic motor; a supply line for supplying hydraulic fluid from said pump to said motor; a return line for returning the hydraulic fluid from said motor to said pump; branch lines branching from said supply and return lines and communicating with a hydraulic fluid reservoir; check valves, and a relief valve having a pilot valve provided with a vent port, inserted in said branch lines; a change-over valve for controlling the communication between the two sides of said relief valve; and means to operate said change-over valve; said relief valve being adapted to permit flow of hydraulic fluid from said supply line through said branch lines to said return line, in order to bypass fluid around said motor, when said change-over valve is opened, whereby said motor is rendered free to stop or rotate irrespective of the rotation of said prime mover, and being adapted to block fluid flow from said supply line through said branch lines to said return line, for supplying all the fluid delivered from said pump to said motor in order to drive said motor, when said change-over valve is closed.

3,303,648
HYDRAULIC APPARATUS

Alexander G. Hutcheon, Benhall, Cheltenham, England, assignor to Dowty Technical Developments Limited, Brockhampton, Cheltenham, England, a British company
Filed June 16, 1965, Ser. No. 464,349
Claims priority, application Great Britain, June 17, 1964, 25,205/64
2 Claims. (Cl. 60—53)

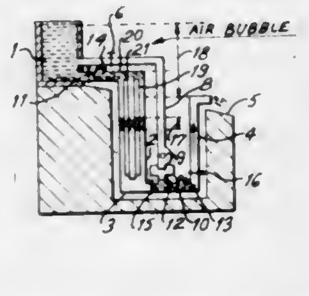
1. A hydraulic power transmission comprising a variable positive displacement hydraulic pump, a variable positive displacement hydraulic motor hydraulically con-

nected to the pump, linkage means arranged to adjust the pump and motor displacements simultaneously, to vary the speed ratio of the transmission, and stop means arranged to locate the motor in a zero displacement position, the pump and motor being of the tilting head type and the linkage means being connected between the tilting heads of the pump and the motor, and comprising a pivot on the pump head, a pivot on the motor head, and a link of fixed length extending between the two pivots and arranged to pass through a zero displacement position relatively to the motor head, to reach the zero displacement position of the motor, there being a removable stop adapted to engage the motor head at a position near its dead centre relative to the link, so as normally to prevent the motor head from passing through its dead centre to the zero displacement position.



3,303,649
HYDRAULIC SYSTEM HAVING A NATURAL DIFFERENCE OF LEVEL, TO BE USED AS DRIVING POWER OR FOR OBTAINING OTHER BENEFITS

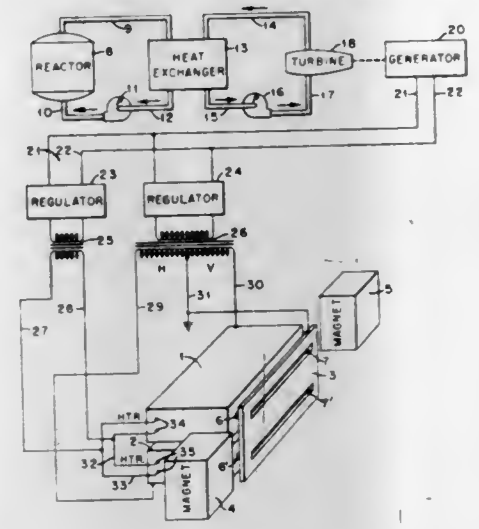
Domenico Mastini, New York, N.Y. (% Casciani, 1616 E. 51st St., Brooklyn, N.Y. 11234)
Filed Sept. 8, 1966, Ser. No. 578,943
6 Claims. (Cl. 60—55)



2. A hydraulic system containing a siphon tube having an ascending liquid leg joined by a generally horizontal cross leg to a descending liquid leg curved in zig-zag form in such a manner that the sum of the volume of a vertical part with the volume of one semi- horizontal part of each curved portion must not exceed the volume of said horizontal cross leg, said ascending and descending legs each including a shut-off valve at its free end, said cross leg including an air-inlet valve opening into said cross leg, a liquid drain valve adapted to drain said cross leg, a lower container to collect the water drained through said drain valve, a descending pipe containing therein a turbine wheel, said descending pipe including a valve for regulation of discharging water, a body of flowing water, said free end of said ascending leg being submerged below the surface of said body of water, said descending zig-zag leg extending exteriorly of said body of water below the surface of said body of water, said descending zig-zag leg having each one of its vertical sections of a height smaller than the height between the surface of said body of water and the point of discharge of the siphon.

3,303,650
ION PROPULSION

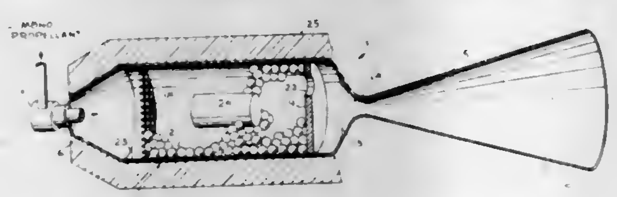
Oliver C. Yonts, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Sept. 22, 1965, Ser. No. 489,445
8 Claims. (Cl. 60—202)



1. An improved ion source system for providing a space charged neutralized beam for the ionic propulsion of a space vehicle comprising at least one pair of ion sources, each of said sources including an elongated cavity, a charge material disposed within each of said cavities, an A.C. heater mounted adjacent to said charge material in each cavity for heating and substantially completely ionizing said charge material, a source of A.C. power connected to each of said heaters, and an ion exit slit being disposed in one wall of each of said cavities; an ion accelerating member disposed in front of both of said ion sources, said member being provided with ion exit slits in alignment with the ion exit slits of said ion sources; a source of A.C. voltage; a high voltage transformer connected to said A.C. voltage; means for connecting one end of the secondary of said transformer to one of said ion sources and for connecting the other end of said transformer secondary to the other ion source; means for connecting a center tap of said transformer secondary to ground and to said ion accelerating member; and a pair of magnets disposed one each at the respective ends of said ion source cavities for providing a magnetic field for electron trapping, whereby the A.C. high voltage provided by said transformer and connected to said ion sources effects production of alternate bursts of negative and positive ions from each of said ion sources such that the positive ion beam from one of the ion sources and the negative ion beam from the other ion source at any given time provide a composite space charged neutralized beam beyond said accelerating member.

3,303,651
NUCLEAR ISOTOPE MONOPROPELLANT HYDRAZINE ENGINE

Arthur F. Grant, Jr., Palos Verdes Estates, and John S. Martinez, Redondo Beach, Calif., assignors, by mesne assignments, to TRW Inc., a corporation of Ohio
Filed May 29, 1963, Ser. No. 284,082
11 Claims. (Cl. 60—203)



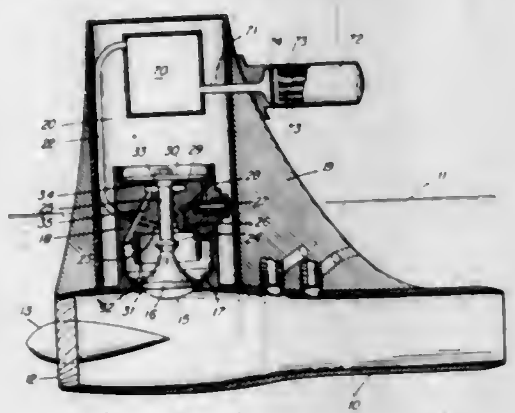
1. A liquid propellant engine comprising:
(A) a reaction chamber including a catalyst bed;

(B) means for injecting at least one liquid propellant into said chamber;

(C) at least one radioisotope heat source positioned adjacent said reaction chamber and generating sufficient heat energy to maintain said catalyst bed at a temperature sufficient to initiate the rapid reaction of said propellant.

3,303,652
METHOD FOR OPERATING A JET PROPULSION ENGINE WITH SOLID FUELS

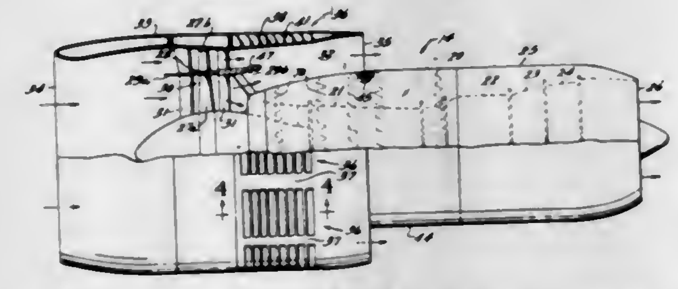
Friedrich Julius Maas, Zurich, Switzerland, assignor to Kemenczky Establishment, Vaduz, Liechtenstein, a corporation of Liechtenstein
Filed Nov. 23, 1964, Ser. No. 413,159
Claims priority, application Switzerland, Nov. 23, 1963, 14,376/63
2 Claims. (Cl. 60—204)



1. A method of operating a hydrojet engine having a thrust tube for receiving and expelling water, a check valve positioned in the forward end of said tube, a pressure chamber in valved, fluid communication with said tube downstream of said check valve and a gas producer in valved, fluid communication with said pressure chamber; comprising the steps of (1) continuously burning solid fuel in said gas producer to obtain a high pressure gas (2) intermittently supplying said high pressure gas to said pressure chamber and (3) intermittently passing said gas from said chamber to the thrust tube for expelling a column of water therefrom.

3,303,653
LIGHTWEIGHT THRUST REVERSER

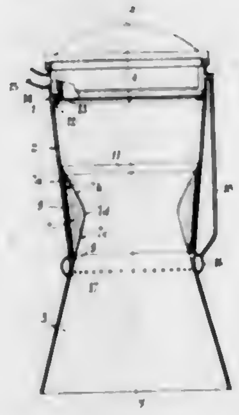
Thomas Neil Hull, Jr., Marblehead, Mass., assignor to General Electric Company, a corporation of New York
Filed June 30, 1965, Ser. No. 468,299
9 Claims. (Cl. 60—229)



1. In a jet propulsion powerplant of the fan type having an inner jet and a fan driven by the jet engine, thrust reversing means comprising:
a cylindrical wall enclosing the inner jet engine, the fan extending radially outward of said wall,
a cylindrical casing surrounding the fan and spaced from said engine wall to form therewith an axially extending bypass passageway for the flow of motive fluid between inlet and outlet openings at opposite ends of said casing,
a plurality of thrust reversing cascades each comprising a plurality of axially spaced turning vanes extending circumferentially about an arcuate portion of said casing, said turning vanes having upstream concave surfaces and downstream convex surfaces to define therebetween a plurality of channels extending through said casing for the flow of motive fluid therethrough from said passageway to the exterior of said casing,
a plurality of sets of first elastic diaphragms, each set being associated with a respective one of said cascades and comprising a plurality of diaphragms each mounted on the convex surface of a respective one of said turning vanes, said first elastic diaphragms having inflated positions extending across said channels for preventing flow of motive fluid through said channels and deflated positions contiguous with said convex surfaces for permitting flow of motive fluid through said channels,
a second circumferential elastic diaphragm carried by said engine wall adjacent said outlet opening, said second elastic diaphragm having an inflated position extending across said axial passageway for preventing flow of motive fluid through said outlet opening and a deflated position for permitting flow of motive fluid through said outlet opening,
and means for inflating and deflating said sets of first elastic diaphragms and said second elastic diaphragm.

3,303,654
COMBUSTION CHAMBER FOR RAM-JETS OR ROCKET POWER UNITS EMPLOYING A COOLING FILM OF LIQUID FUEL

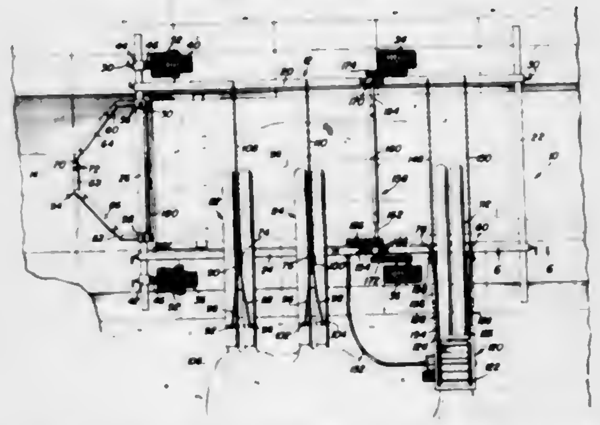
Heinz Bringer, Vernon, France, assignor to Etat Francais (French State) represented by the Minister of Armed Forces, Ministerial Delegation for Armament, Direction of Researches and Manufacture of Armament, Laboratory of Ballistic and Aerodynamic Researches, Vernon, France
Filed Nov. 5, 1964, Ser. No. 409,250
Claims priority, application France, Jan. 29, 1964, 961,920, Patent 1,391,927
4 Claims. (Cl. 60—258)



1. Combustion chamber with nozzle for liquid-fuel ram-jets and rockets, which comprises a unitary metal casing comprising in succession in the direction of flow of the combustion gases a frustoconical convergent wall having a major base and a minor base and defining the combustion chamber proper, and a divergent wall, an annular graphite member having an inner surface and a frustoconical external surface comprising a major base and a minor base, said graphite member being fitted entirely within said convergent wall between the minor base of said convergent wall and an intermediate section between its minor base and its major base, the inner surface of said graphite member forming a convergent-divergent element of which the divergent section merges into the divergent wall of said metal casing, a refractory binder interposed between the external frustoconical surface of said annular graphite member and said convergent wall, an annular shoulder provided in the zone where the inner surfaces of said convergent and divergent walls of said casing merge into each other, and engaged by the minor base of said annular graphite member, and a ring member secured to the inner surface of said convergent wall and engaging the major base of said annular graphite member to hold said graphite member against said annular shoulder.

3,303,655
SELF-CONTROLLED IRRIGATING MACHINE

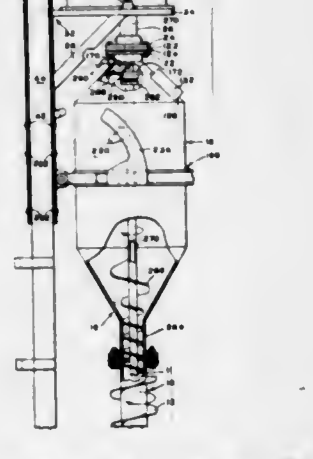
Glen H. Loomis, Cody, Wyo., assignor of one-half to Jerry W. Housel, Cody, Wyo.
Filed May 23, 1963, Ser. No. 282,726
14 Claims. (Cl. 61—12)



1. A self-propelled irrigating machine adapted to move along a water supply ditch assembly having opposite banks, said machine including frame means, support wheel means journaled from said frame means, water delivery means carried by the frame means adapted to communicate water in the ditch with a field to be irrigated, and sliding dam means adapted to be disposed in the ditch defined by said assembly, support means rigidly depending from said frame means to extend into said ditch on the downstream side of said dam means and providing continuous rigid peripheral lower portions to conform to the bottom and side walls of said ditch to thereby transmit the side pressure of water on said sliding dam means to said frame means and enable said machine to utilize the pressure of water in the ditch to move the frame means along said ditch assembly.

3,303,656
METHOD AND APPARATUS FOR CONSTRUCTING COLUMNS OF MATERIAL IN SOIL

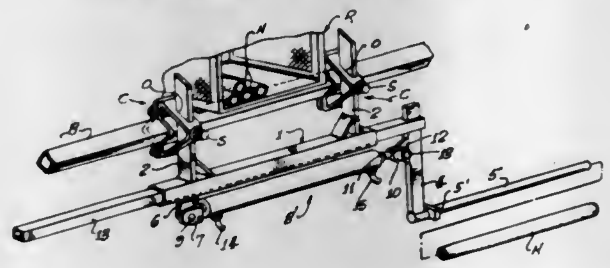
Richard E. Landau, Middle Village, N.Y.
(717 Cornwell Ave., West Hempstead, N.Y. 11552)
Filed Dec. 21, 1962, Ser. No. 246,411
14 Claims. (Cl. 61—63)



13. A method of forming columns of material in soil by means of an auger apparatus containing a supply of column forming materials and having a hollow shaft with a cutting flight or flights, and hollow shaft having a conveyor means extending longitudinally of and within said hollow shaft, comprising helical cutting into said soil with said hollow shaft auger, withdrawing said auger from said soil such that a cavity is formed in said soil, conveying said contained material into said cavity in timed relationship with the withdrawal of said auger to form said column of material.

3,303,657
IRRIGATION CONDUIT INSTALLING MEANS

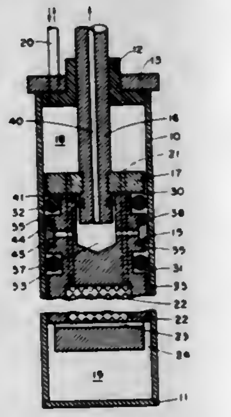
Willis J. McConnell and Willis T. McConnell, both of P.O. Box 21, Calipatria, Calif. 92233
Filed July 29, 1965, Ser. No. 475,791
8 Claims. (Cl. 61—72.7)



1. Apparatus for installing water transmitting conduit elements through an earthen embankment forming a side of an irrigation ditch, said apparatus comprising a horizontally extending mandrel carried by an actuating means operable to move said mandrel parallel to the axial line of said mandrel, said mandrel affording support for a conduit element telescopically mounted thereon, a mobile means on which said mandrel actuating means is mounted, said mobile means being operable to carry said mandrel actuating means and said mandrel in a path adjacent and parallel to the embankment in which the conduit is to be installed with said mandrel disposed transversely to said path, power means including manually controlled devices on said mobile means operable to move said mandrel actuating means bodily vertically and other manually controlled devices on said mobile means operable both to cause said mandrel and a conduit element mounted thereon to move endwise into an embankment and, thereafter, to move said mandrel in the opposite direction to withdraw it from the conduit element and the embankment leaving the conduit element installed therein.

3,303,658
VENTED SEAL FOR AIR REFRIGERATOR

Fred F. Chellis, Manchester, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed Oct. 23, 1965, Ser. No. 503,726
7 Claims. (Cl. 62—6)

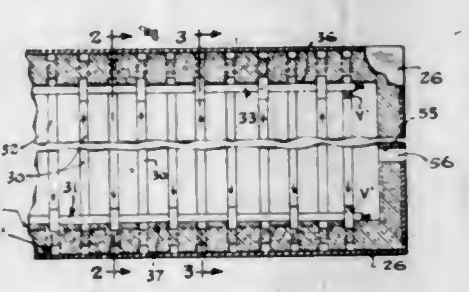


1. In a refrigerator in which a displacer is reciprocated within a cylindrical housing to define therein through the motion of said displacer two isolated chambers at widely

different temperatures, a sealing means adapted to prevent fluid from leaking from the warmer chamber to cold voids in the refrigerator, said sealing means comprising
(a) two parallel, spaced fluid seals between the surface of said displacer and the internal wall of said cylindrical body;
(b) a narrow annular passage between said fluid seals defined between the surface of said displacer and said internal wall of said cylindrical body; and
(c) fluid communication means between said annular passage and a low-pressure region.

3,303,659
REFRIGERATION METHOD AND APPARATUS

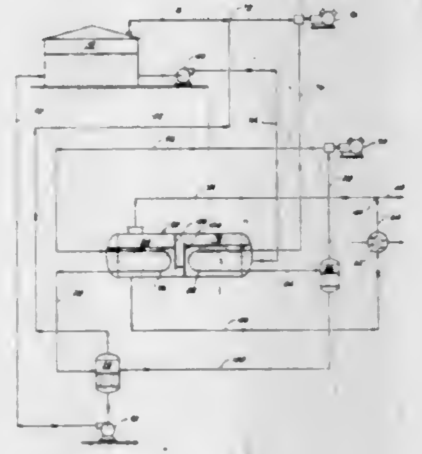
Carl F. Fritch, Jr., Glen Ellyn, Ill., assignor to Chemetron Corporation, Chicago, Ill., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,982
2 Claims. (Cl. 62—45)



1. Method of refrigerating a container having internal wall structure forming a compartment and surrounding external wall structure, with insulation disposed between the internal and external wall structures, comprising the steps of: forming a network of spaced apart flow paths spaced from said internal wall structure and disposed adjacent said external wall structure, passing vapor of cold liquefied gas in heat exchange relation with the compartment, thereafter passing the vapor through the network of passages, and venting spent vapor from the network of passages to the atmosphere.

3,303,660
PROCESS AND APPARATUS FOR CRYOGENIC STORAGE

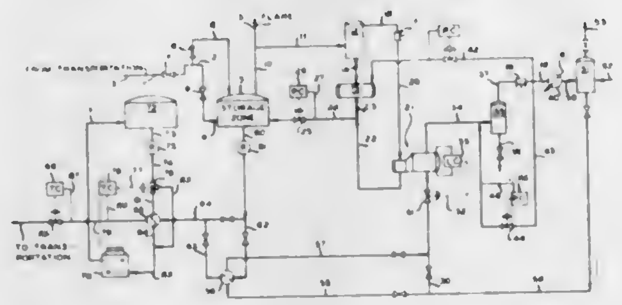
Clyde H. O. Berg, 5 Euclid Ave., Long Beach, Calif. 90803
Filed Sept. 27, 1965, Ser. No. 490,175
8 Claims. (Cl. 62—51)



1. A process comprising the steps of:
compressing the methane rich vapor emitted from a stored body of liquefied natural gas;
condensing the resultant pressurized methane rich vapor by contacting said pressurized vapor in an indirect heat exchange relationship in a plurality of stages with a portion of said body of liquefied natural gas to vaporize at least a part of the methane from said portion of liquified natural gas, and leave a higher boiling hydrocarbon liquid residue;
passing both said vaporized methane and said liquid residue through said plurality of stages together;
withdrawing said vaporized methane and said liquid residue separately from the last of said stages;
combining a stream of said liquid residue and said vaporized methane to produce a combined stream;
flashing the pressurized condensate produced in said condensing step to produce a liquid fraction and a vapor fraction;
combining said liquid fraction with the stored body of liquified natural gas; and
returning said vapor fraction to said compressing step.

3,303,661
FLUID HANDLING

Joseph T. Karbosky, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 452,166
5 Claims. (Cl. 62—55)



1. A method for transferring a cool liquid from a source to a storage zone through an ambiently heated conduit, said storage zone having associated therewith a refrigeration system including a compression zone for at least partially liquefying refrigerant vapors and means for removing cool liquid from said storage zone comprising gradually filling said ambiently heated conduit with cool liquid similar to that in said source, removing vapor from said ambiently heated conduit and returning same to at least one of said source and said storage zone, transferring the liquid from said source into said storage zone through said ambiently heated conduit, removing cool liquid from said storage zone and passing same in heat exchange relationship with said at least partially liquefied refrigerant to cool same and to heat said cool liquid from said storage zone.

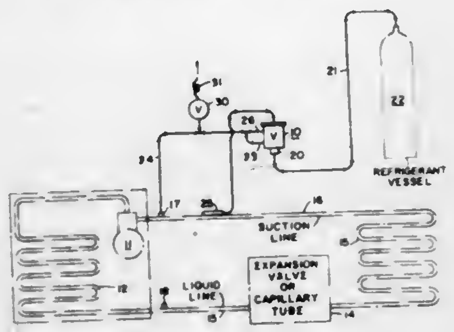
3,303,662
PROCESS FOR CELL PRESERVATION

Sheldon W. Moline, Eggertsville, and Arthur W. Rowe, Tonawanda, N.Y., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Jan. 23, 1964, Ser. No. 339,577
5 Claims. (Cl. 62—62)

1. A process for preserving animal organs which comprises (1) perfusing the organ with a perfusion medium containing nutrients for the cells in said organ and a protective additive to reduce damage to the cells of the organ during subsequent freezing, (2) cooling the perfused organ to the freezing point, (3) further cooling the perfused organ through the liquid-solid phase change in less than about 10 minutes, (4) further cooling the solidified organ to about −50° C. at a rate of not more than about 3° C. per minute, and (5) further cooling the frozen organ and maintaining the frozen organ at a temperature below about −130° C.

3,303,663
REFRIGERATION SYSTEM CHARGING APPARATUS

William V. Miller, South Amherst, and Robert A. Essig, Elyria, Ohio, assignors to Luxaire, Inc., Elyria, Ohio, a corporation of Ohio
Filed Oct. 20, 1965, Ser. No. 498,923
3 Claims. (Cl. 62—149)

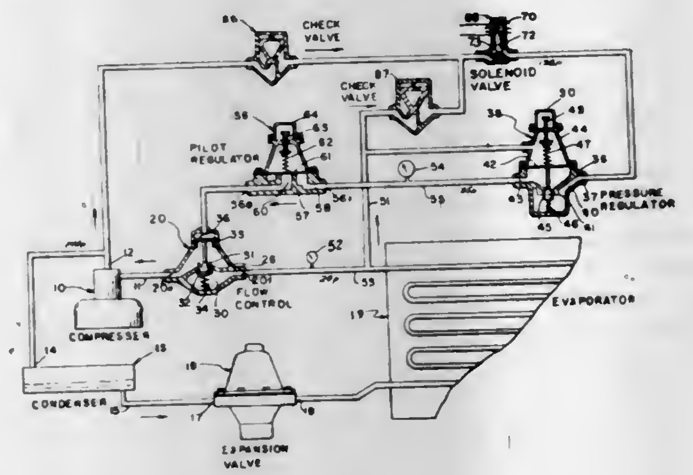


1. Refrigerant charging apparatus adapted to be detachably connected to a source of refrigerant for predetermining the charge of refrigerant in an operating expansion cooling system of the type containing a refrigerant and having a suction line gage port and a liquid line gage port comprising: valve means including an inlet valve, and a blocking valve; each of said inlet and blocking valves being thermostatically controlled and having inlet and outlet ports together with a thermal control means and bias means including pressure responsive means for opening and closing the respective valve in accordance with relative conditions of temperature and pressure sensed by the respective valve; means adapted to detachably connect the inlet port of said blocking valve to a source of refrigerant; means adapted to detachably connect the pressure responsive means of said blocking valve to the gage port of the liquid line of an operating cooling system; the thermal control means of said blocking valve being responsive to ambient atmospheric temperature whereby said valve is closed to prevent passage of refrigerant from the source of refrigerant when the pressure in said liquid line is a predetermined value for a related ambient atmospheric temperature; means connecting the inlet port of said inlet valve to the outlet port of said blocking valve; means adapted to detachably connect the outlet port of said inlet valve to the suction line gage port of an operating cooling system; means connecting the pressure responsive means of said inlet valve to the outlet port of said inlet valve; and means adapted to detachably connect the thermal control means of said inlet valve to the suction line of the cooling system in temperature sensing relation whereby said valve is open when the temperature of said suction line is a predetermined value for a related pressure in the suction line as sensed by the pressure responsive means of said inlet valve to thereby pass refrigerant from said source and blocking valve into the suction line of the operating cooling system until the temperature of the suction line is a predetermined value for a related pressure in the suction line.

3,303,664
REFRIGERATION SYSTEM HAVING A BACK PRESSURE VALVE

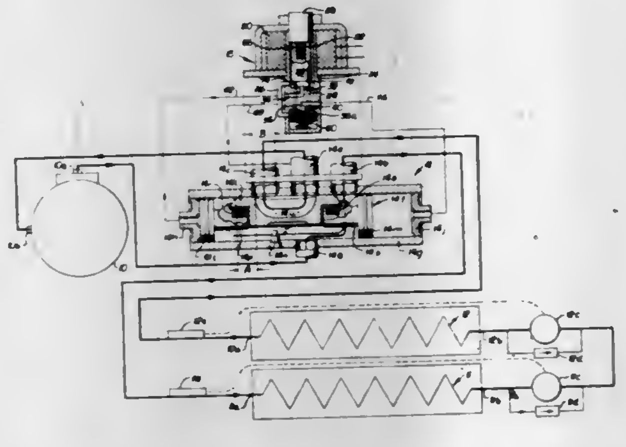
Charles C. Hansen, Hinsdale, Ill., assignor to Refrigerating Specialties Company, Broadview, Ill., a corporation of Illinois
Filed Apr. 30, 1965, Ser. No. 452,142
12 Claims. (Cl. 62—217)

1. In a refrigeration system having serially connected condenser, expansion valve and evaporator, and serially connected therewith a refrigerant flow control valve, and a compressor providing high and low refrigerant pressures,
said flow control valve, a pressure responsive element for opening said valve and having a bleed orifice bypassing said pressure responsive element,
a compensating regulator means including a valve member, resilient means urging the valve member to its open position and a member responsive to refrigerant pressure upon one side thereof for urging the valve member to its open position and upon its other side to refrigerant pressure for urging closure of the valve member,
said other side of the pressure responsive member being in communication with one side of the valve member,
means connecting one of said high and low pressures to the upstream side of the flow control valve, and to said one side of said pressure responsive member to urge opening of the valve member,
means connecting the other one of said high and low pressures to the other side of the valve member,
said resilient means urging said valve member to its open position to impose a predetermined pressure differential between pressures on opposite sides of the valve member, and
means connecting said one side of the valve member to said pressure responsive element and through said bleed orifice to the downstream side of said flow control valve.



3,303,665
MEANS AND TECHNIQUES USEFUL IN REFRIGERATION SYSTEMS

William Alton Ray, North Hollywood, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed July 22, 1965, Ser. No. 473,939
6 Claims. (Cl. 62—324)



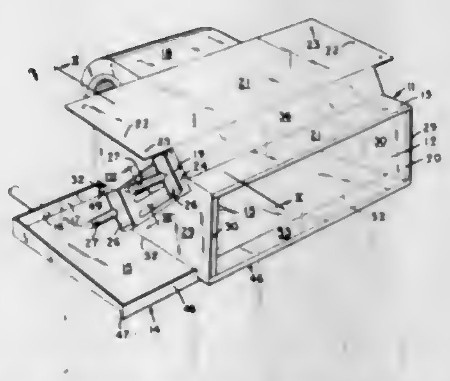
1. In a reversible refrigeration system of the character described the combination comprising: a compressor having a pressure outlet and an exhaust inlet; a first coil; a second coil; a four-way transfer valve including a casing and a valve element slidably mounted in said casing; an

electromagnetically operated pilot valve; said casing having a pressure inlet in communication with the pressure outlet of said compressor; said casing having an exhaust outlet in communication with said compressor exhaust inlet; means intercommunicating one end of said first coil with one end of said second coil; said casing having a first valve port in communication with the other end of said first coil; said casing having a second port in communication with the other end of said second coil; said valve element being effective in a first position thereof to intercommunicate said casing pressure inlet with said first port and simultaneously intercommunicate said casing exhaust outlet with said second port; said valve element being effective in a second position thereof to intercommunicate said casing pressure inlet with said second port and to simultaneously intercommunicate said first port with said casing pressure exhaust outlet; said valve element having a first piston and a second piston respectively on opposite ends thereof which define with said casing a corresponding first casing chamber and a second casing chamber; said pilot valve including a housing defining two chambers; means intercommunicating said casing exhaust outlet with each of the two last mentioned chambers; said last two mentioned pilot valve chambers being separated by a wall portion; two fluid channels extending through said wall portion and terminating respectively at a corresponding valve seat, one of said fluid channels being in communication with said first casing chamber and the other of said fluid channels being in communication with said second casing chamber; a valve element in one of said pilot valve chambers; resilient means normally urging the last mentioned valve element into engagement with one of said pilot valve ports; a solenoid plunger movably mounted in the other of said pilot valve chambers and including valve means cooperating with the other of said pilot valve ports; means normally urging said plunger to normally close the last mentioned port; and means interconnecting said plunger and the valve element in said one pilot valve chamber.

3,303,666

AIR CONDITIONING UNIT

Walter B. Toper, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Oct. 24, 1965, Ser. No. 504,506
3 Claims. (Cl. 62—426)

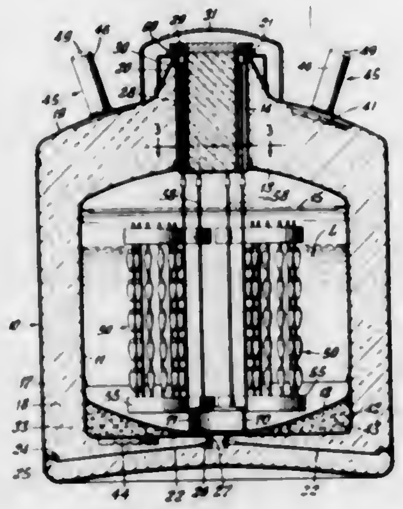


1. An air conditioning unit comprising a casing having opposed walls cooperating in providing a passage adapter to pass air through the casing, means including a coil in said passage adapted to cool the air passing through said passage, and mounting means including cooperating nested portions of said walls and said coil detachably mounting said coil operatively positioned in said passage and retarding substantial leakage of air and relative movement between said coil and said opposed walls, said mounting means removably receiving said coil from below the casing and detachably mounting said coil on said body by means releasable from below the unit.

3,303,667

CRYOGENIC APPARATUS

Warren E. Perkins, Deerfield, Ill., assignor to Union Carbide Corporation, a corporation of New York
Continuation of application Ser. No. 170,354, Feb. 1, 1962, which is a division of application Ser. No. 580,898, Apr. 26, 1956, now Patent No. 3,168,362, dated Feb. 2, 1965. This application Apr. 6, 1965, Ser. No. 448,559
10 Claims. (Cl. 62—457)

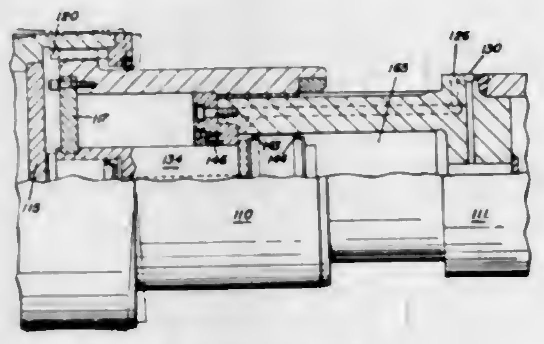


1. An insulation jacketed container for storing perishable products at a low temperature, said container having a storage chamber for holding said products in contact with a vaporizable liquid refrigerant, a low thermally conductive neck tube member transversing a wall of the container and having a straight smooth inner wall to define an elongated passage in communication with the storage chamber affording access thereto, a low thermally conductive plastic plug slideably supported in the neck tube substantially occupying said longitudinal passage, said plug being constructed and arranged with a straight smooth outer surface to provide a narrow unobstructed annular channel between the neck tube inner wall and the plug outer surface to cause vapors of the vaporizable refrigerant to flow in heat exchange relation along the wall of said neck tube passage for utilizing the sensible refrigeration in the refrigerant vapors to reduce the net flow of conductive heat through said opening and to automatically prevent the formation of excessive gas pressure in said vessel as a result of heat leakage, whereby said vessel may store said perishable products for sustained periods of time.

3,303,668

EXTENDIBLE COUPLING

Joseph J. Winkler, Erie, Pa., assignor to Zurn Industries, Inc., Erie, Pa., a corporation of Pennsylvania
Filed Jan. 21, 1965, Ser. No. 426,815
10 Claims. (Cl. 64—9)



1. A coupling for shafts comprising,
a sleeve adapted to have first means thereon for attaching it to a first shaft,
said sleeve terminating in a flange at the end remote from said first means,
internal teeth in said flange,

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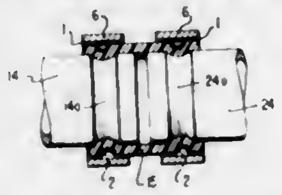
a hollow hub having a piston member supported thereon generally concentric to said hub,
external teeth on said hub engaging said sleeve teeth,
a hollow generally cylindrical shaft adapter received in said hollow of said hub with said piston slidably received in said hollow shaft adapter,
fluid means adapted to exert a force on said piston for moving it axially in said hub selectively in either of two directions,
and means on said hub adapted to engage means on said sleeve when said hub is moved toward said sleeve.

3,303,669

CLAMP STRUCTURE WITH CORRUGATED INSERT RING FOR RELATIVELY HARD, INELASTIC PARTS

Hans Oetiker, 21 Oberdorfstrasse, Horgen, Switzerland
Filed Jan. 21, 1964, Ser. No. 339,224
Claims priority, application Switzerland, Jan. 29, 1963, 1,090/63
11 Claims. (Cl. 64—11)

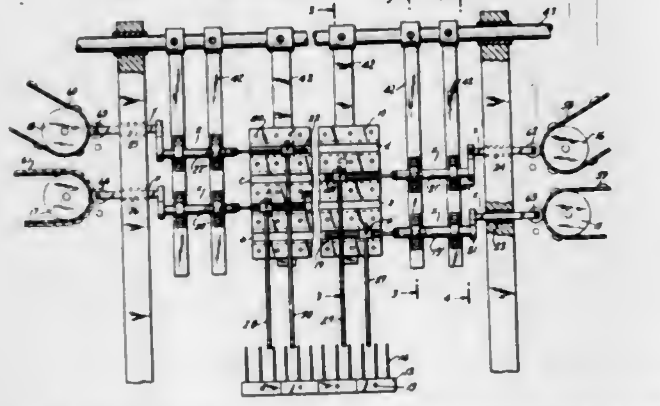


9. A flexible coupling for connecting together two shaft ends, comprising:
a first and second shaft end,
a hose-like coupling part made of plastic material and slipped with the hollow ends thereof over said shaft ends,
and two clamp means for securing said coupling part to said shaft ends each including an endless hose clamp having a projecting fold operable to be contracted and a sheet-metal strip bent together into a ring and provided in the circumferential direction thereof with an inwardly directed, relatively narrow corrugation, said ring being completely separate from a respective hose clamp and being inserted as intermediate ring between the clamp and the plastic coupling part to transmit the tensional and pressure forces produced exclusively by the corresponding clamp whereby upon contraction of the clamp the coupling part is securely clamped onto the corresponding shaft end along the pressure area defined by the corrugation.

3,303,670

MULTI-SLIDE GUIDE-BAR

Rudolph George Bassist, 3660 Waldo Ave., New York, N.Y. 10063
Filed May 4, 1964, Ser. No. 364,612
1 Claim. (Cl. 66—86)

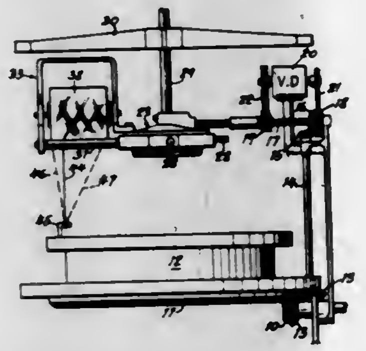


In a knitting machine of the type comprising a needle bar having a plurality of upwardly projecting needles:
a guide bar cooperating with said needle bar, said guide bar having a plurality of substantially parallel elongated slots formed in its face, each of said slots being spaced a distance from said needle bar different from the spacing of every other slot from said needle bar, at least one mobile guide element associated with each slot, each of said guide elements having a head slidably located within its respective slot and a portion extending from the head to a point outwardly of its respective slot, the length of said extending portions varying with the distance of their associated slots from said needle bar, the guide element associated with the slot closest to said needle bar having the shortest extending portion and the guide element associated with the slot farthest from said needle bar having the longest extending portion,
means for independently moving each of said mobile guide elements with respect to said slots along paths parallel to the longitudinal axis of said guide bar, said means including a separate pattern wheel allocated to each of said guide elements, a follower responsive to each pattern wheel, and a push rod operatively connected between each of said followers and a different one of said guide elements, and
at least one guide needle extending from each mobile guide element toward said needle bar, said guide needles being mounted near the free ends of said extending portions so that the guide needles mounted on the guide elements farther from said needle bar are spaced farther from said guide bar than the guide needles mounted on guide elements closer to said needle bar,
whereby said guide needles mounted on different mobile guide elements may be moved past one another without interference from one another.

3,303,671

YARN FEEDING MEANS FOR KNITTING MACHINES

Thomas Anderson Oliver, Jr., 119 Cedar St., Jenkintown, Pa. 19046
Continuation of application Ser. No. 326,112, Nov. 26, 1963. This application May 3, 1966, Ser. No. 547,377
13 Claims. (Cl. 66—132)

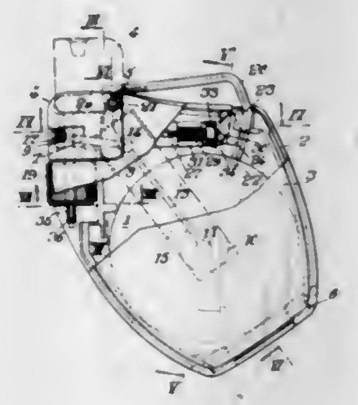


1. The combination with a rotary circular knitting machine of means to feed attenuated yarn of the spandex type from at least one wound package thereof to said machine to be taken by the latter at a first rate of yarn travel as determined by the rate of its consumption by said machine for incorporation into fabric being knit thereby, the said means causing each said package to rotate to unwind its yarn therefrom at a selected second rate of yarn travel to be fed to and to be taken by said machine for the purpose aforesaid, said first rate of yarn travel being greater than said second rate of yarn travel, the disposition of said means relative to said machine and the relationship between the unwinding of said yarn and the taking of the same by said machine providing for the movement of said yarn from said package to said

machine in such manner that the difference in said rates of yarn travel in itself is the cause of and determines the desired amount of attenuation in said yarn as it is being taken by said machine.

3,303,672
PLASTIC CIGARETTE LIGHTER CASING

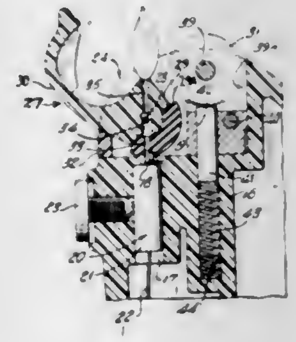
Marcel Quercia, Paris, France, assignor to Societe dite: Flaminaire Marcel Quercia, Paris, France, a society of France
Filed July 21, 1964, Ser. No. 384,197
Claims priority, application France, July 25, 1963, 942,696
8 Claims. (Cl. 67—7.1)



1. A cigarette lighter comprising, in combination, a hollow casing having two molded plastic complementary parts hinged together along an edge portion thereof and forming a common seam substantially along a plane perpendicular to the smallest dimension of said casing; displaceable fire resistant clip means shaped to conform to the configuration of a portion of said casing to opposite sides of said seam and spaced from said edge portion, said clip means being arranged over said portion of said casing in order to hold said two parts in abutment with one another; and burner means located in said casing in the region covered by said clip means, said clip means having an opening aligned with said burner means so that a flame produced on said burner means may pass through said opening while said plastic casing is protected by said clip means from the heat developed by the flame.

3,303,673
OPERATING MECHANISM FOR CIGARETTE LIGHTER

John Erskine Ayres, 1563 Coles Ave., Mountainside, N.J. 07092
Filed Nov. 2, 1964, Ser. No. 408,168
3 Claims. (Cl. 67—7.1)

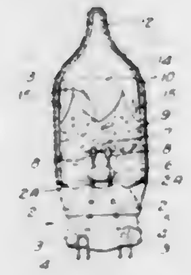


1. In a gas-burning cigarette lighter of the type which includes a hollow body defining a fuel chamber containing a supply of inflammable gas under pressure and in liquid form, said body having an end wall containing a discharge outlet with said outlet being in communication with said fuel chamber, the improvement which comprises:

(a) a pair of spaced walls of rigid material carried by and extending upwardly from the upper wall of the lighter body on opposite sides of the discharge outlet;
(b) a shaft extending between said side walls at a point above the discharge outlet;
(c) a control member of rigid material pivotally mounted on said shaft in the space between said upstanding walls with an arcuate surface thereof opposing said discharge outlet;
(d) said control member being manually movable between an open position and a closed position and having a bore extending therethrough;
(e) said bore having an end located in said arcuate surface and communicating with the discharge outlet in the lighter body in the open position of the control member;
(f) a sealing member of resilient material carried by the arcuate surface of the control member and entering into sealing engagement with an exterior surface of the lighter body surrounding the discharge outlet in both the open and closed positions of the control member,
(g) said sealing member having a passageway extending therethrough and communicating with the bore in the control member and with the discharge outlet in the open position of the control member; and
(h) an operating lever connected to the control member;
(i) said operating lever having a free end extending beyond the spaced walls when the control member is in its open position.

3,303,674
FLASH LAMP

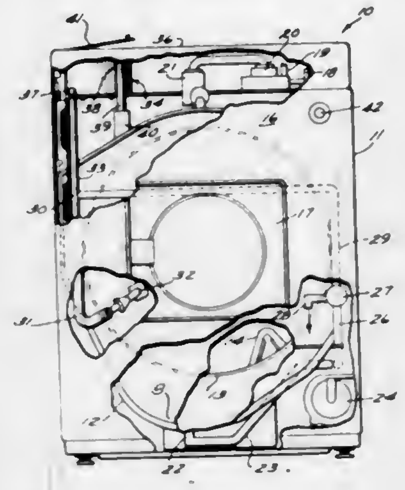
Robert M. Anderson, Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed Apr. 30, 1965, Ser. No. 452,189
6 Claims. (Cl. 67—31)



1. A flash lamp comprising a sealed bulb consisting of a short length of glass tubing of substantially uniform wall thickness throughout and sealed at each end, a filling of a combustion-supporting gas in said bulb at a pressure of at least several atmospheres, a quantity of combustible sheet foil material located within said bulb and consisting essentially of material selected from the group consisting of zirconium, thorium, hafnium and combinations thereof, said foil material having a configuration and dimensions at least great enough so that the foil resiliently contacts the bulb wall tending to hold the foil in position, and ignition means at one end of said bulb for igniting said combustible material, and a quantity of combustible filamentary strand material loosely distributed within said bulb and being substantially closer in proximity to said ignition means than is said foil material, said filamentary strand material consisting essentially of materials selected from the group consisting of zirconium, thorium, hafnium and combinations thereof, and said lamp generating a total light output per unit bulb volume of at least 3,000 lumen-seconds per cc.

3,303,675
DISPENSER WITH CLEANING MEANS

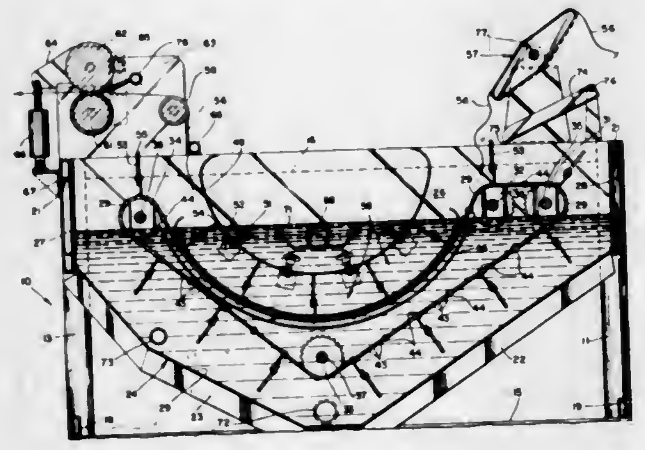
Glen R. Severance, Benton Harbor, and Keith D. Salisbury, St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware
Filed June 8, 1964, Ser. No. 373,167
9 Claims. (Cl. 68—17)



1. A dispenser comprising,
a housing forming an enclosure being an access opening
  for loading a supply of particulate material therein,
    said housing having an inlet and an outlet formed
      therein through which a stream of carrier fluid
      may be directed, and
freely disposed agitating means in said enclosure responsive to the flow of fluid therethrough to admix the material with the stream and to wipe the adjoining interior surfaces of said enclosure said agitating means comprising a paddle wheel having a hub disposed on a rotational axis and including radially outwardly extending paddles connected to said hub to rotatably drive said paddle wheel relative to said enclosure.

3,303,676
WET-FINISHING TEXTILE APPARATUS

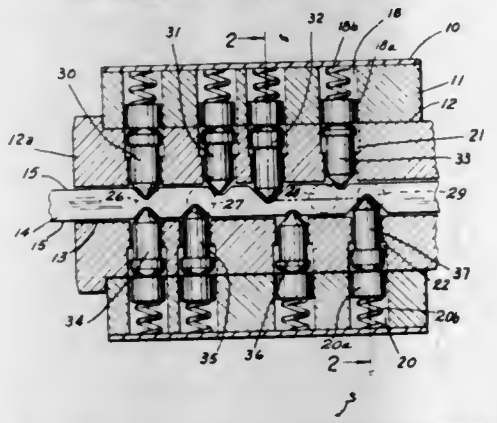
Raymond N. Witt, Jr., Weymouth, Mass., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed Jan. 27, 1965, Ser. No. 428,334
5 Claims. (Cl. 68—148)



1. A tensionless open-width textile finishing machine comprising a tank adapted to hold a treating fluid, a foraminous endless belt having upper and lower flights arranged to move longitudinally of the tank, upstanding baffles attached to said belt at spaced intervals thereby forming a compartment between any two of said baffles, means to maintain a portion of the outrunning flight of said belt beneath the level of fluid in said tank, a foraminous shield overlying the submerged portion of the upper flight of said belt and positioned immediately above the upper edge of said baffles, power driven means to gather successive increments of a textile web into loose open-width folds and to drop such increments successively into successive compartments, and power means to move the belt.

3,303,677
PICK-RESISTANT LOCK AND KEY THEREFOR

Charles A. Bauer, Woodbridge, Conn., assignor to Sargent & Company, New Haven, Conn., a corporation of Connecticut
Filed Feb. 23, 1966, Ser. No. 534,607
15 Claims. (Cl. 70—358)



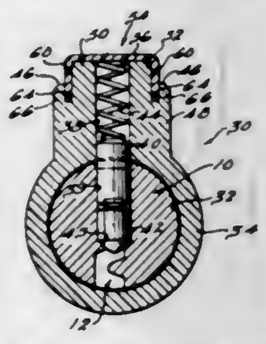
1. In a pin tumbler lock, a housing of elongated form providing means defining at least three series of longitudinally arranged driver pin bores, extending transversely of the housing in spaced angular relation to one another a key barrel within the housing having means defining a keyway extending through the outer end thereof and rotatable in the housing by a key, said barrel having means defining tumbler pin bores therein extending from the keyway through the periphery of the barrel and alignable axially with said bores formed in the housing when the barrel is in one angular position relatively to the housing, and three series of pin tumblers in said barrel bores, each of which pins is urged inwardly toward the keyway, having a tapered inner end, for cooperation with the key when the barrel is in the last-mentioned angular position thereof by a companion spring-biased driver pin in its housing bore and presenting a shear line between the barrel and the housing when the key is in the barrel, one tumbler of one series extending beyond the point to which a tumbler of a second series extends into the keyway so that the last-mentioned tumblers are in effect in overlapping relationship when the shear line is presented, one tumbler pin of the third series extending into the keyway when the key is removed from the barrel and having its axis spaced rearwardly from the axis of the innermost overlapping pin a distance less than one half the diameter of the last-mentioned overlapping pin to inhibit picking of the lock.

3,303,678
PIN TUMBLER LOCK CYLINDER ASSEMBLY

Zoltan J. Bernard, Allen Park, and Louis J. Goppold, Highland Park, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 413,209
2 Claims. (Cl. 70—373)

1. A pin tumbler lock assembly comprising:
(A) a cylindrical plug;
(B) a case including
  (1) a main body portion having a horizontal cylindrical bore rotatably receiving said plug and
  (2) a rectangular column portion upstanding from said main body portion and presenting at its side walls, adjacent its upper end, an endless substantially vertical circumferential surface, said column portion further including a plural-

ity of vertical bores opening at their lower ends in said horizontal bore and at their upper ends at the upper end of said column;
- (C) a cup-shaped rectangular cap fitted over the upper end of said column portion and having
  - (1) a base portion overlying said vertical bores and
  - (2) an endless side wall portion extending downwardly from said base portion to completely surround said endless vertical surface, the lengthwise sides of said endless wall portion extending downwardly beyond the lower edges of the transverse sides of said endless wall portion; and
- (D) means defining horizontal upwardly opening grooves along each lengthwise side of said column portion below said endless surface thereon for receipt of the extended lower edges of the lengthwise sides of said endless wall portion of said cap, whereby to maintain said cap in a sealing position overlying said column portion to preclude entry of water into said vertical bores.

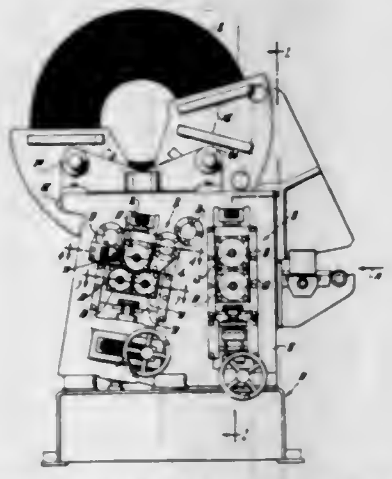


3,303,679
MACHINE FOR COILING STRIP METAL

Erman V. Cavagnero, Torrington, Conn., assignor to The Torrington Manufacturing Company, Torrington, Conn., a corporation of Connecticut

Filed Dec. 30, 1963, Ser. No. 334,239

13 Claims. (Cl. 72—35)



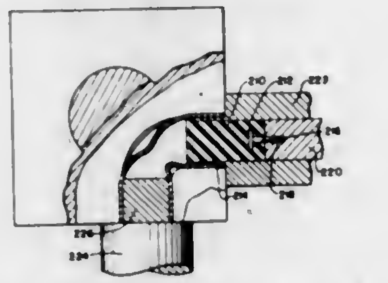
1. The combination in a machine for coiling strip metal comprising first, second and third coiling rolls rotatable about generally horizontal triangularly spaced parallel axes, said rolls being adapted to receive strip metal in continuous passage therebetween and arcuately to bend the same substantially in one direction such that it will coil upon itself, power operated means connected in driving relationship with the coiling rolls, coil support means adapted to receive the strip metal from the coiling rolls and to support the same in coil form, a recoil roll rotatable on an axis parallel with the axes of said coiling rolls, said recoil roll being disposed between the coiling rolls and the coil support means in engagement with the strip metal and being operable arcuately to bend the metal slightly in a direction generally opposite to said one direction at least during an initial part of the coil formation, and a means for adjusting the position of said recoil roll to vary the amount of bend effected thereby in said opposite direction.

3,303,680
METHOD AND MEANS FOR FORMING FITTINGS

Helmut John Thielsch, Cranston, R.I., assignor to Grinnell Corporation, Providence, R.I., a corporation of Delaware

Filed Mar. 28, 1963, Ser. No. 268,658

2 Claims. (Cl. 72—58)



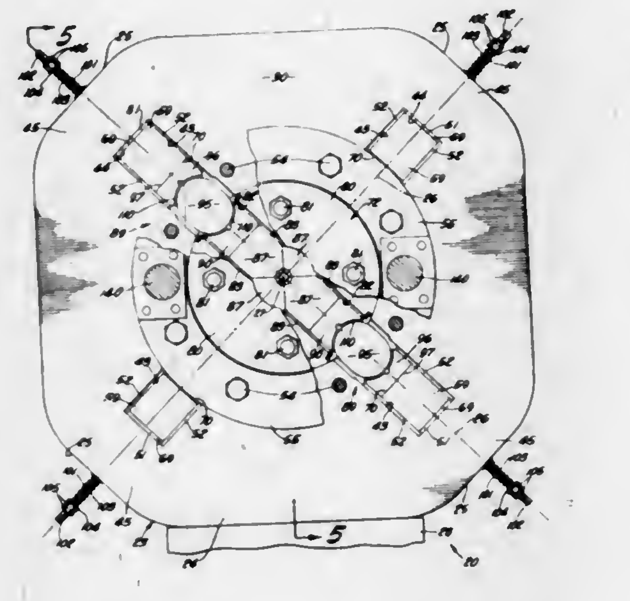
1. Apparatus for forming an elbow fitting from a tubular work piece having a bend between the ends thereof which partially collapses the piece and having each of these ends spaced a first predetermined distance from the center of such bend, said apparatus comprising:
- (I) a die having:
  - (A) an enclosed cavity having:
    - (1) a curved central tubular portion,
    - (2) a pair of tubular socket portions which:
      - (a) have diameters slightly larger than the diameter of said central portion,
      - (b) have inner ends fhich join the ends of said central portion,
      - (c) have outer ends which:
        - (i) are spaced from the center of said central portion a second distance which is less than said predetermined distance,
        - (ii) define the ends of said cavity,
  - (B) a pair of openings which:
    - (1) communicate with the said outer ends of said cavity socket portions,
    - (2) are aligned with said cavity socket portions,
- (II) a plunger which:
  - (A) is movable from a retracted position toward said die to an advanced position,
  - (B) has an end which:
    - (1) has a face,
    - (2) has cylindrical side walls, and has a passage which extends along said plunger end and opens through said plunger end face,
    - (3) in said advanced plunger position:
      - (a) lies concentrically in one of said cavity socket portions,
      - (b) defines with said cavity socket portion the limits of the interior and exterior surfaces of one socket portion of the elbow fitting,
    - (4) in said retracted position:
      - (a) lies outside said cavity,
      - (b) is spaced from said center of the cavity central portion a third distance greater than said first distance,
  - (C) has an annular shoulder which:
    - (1) is adjacent said plunger end,
    - (2) in said advanced plunger position:
      - (a) is at the said outer end of said cavity socket portion,
      - (b) closes said opening at the said outer end of said cavity socket portion,
  - (D) has a deformable solid mass which:
    - (1) is connected to said plunger end face,
    - (2) extends into said curved central die cavity portion when said plunger is in said advance position,
    - (3) is located in said passage and is movable along said passage,
    - (4) means for moving said mass along said passage to a position in which a portion of said mass extends from said plunger end face,
- (III) means for moving said plunger from said retracted position to said advanced position, whereby any portions of said bent work piece which extend through said opening are forced therethrough and into said cavity by said plunger shoulder, and whereby said partially collapsed work piece is expanded by said deformable solid means.

3,303,681
SWAGING MACHINE

Cecil K. Le Fiell, Whittier, Calif., assignor to Le Fiell Manufacturing Company, Santa Fe Springs, Calif., a corporation of California

Filed Feb. 19, 1964, Ser. No. 345,961

16 Claims. (Cl. 72—76)



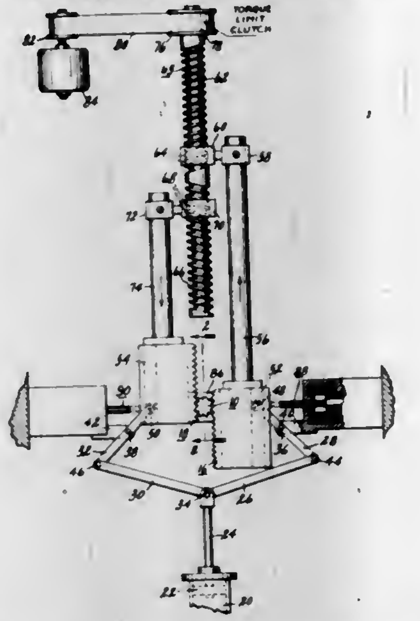
1. In a swaging machine, the combination of: a frame; an oscillating dial holder mounted on said frame for oscillation through a small angle about a central axis; a multiple of die guide means on said holder disposed in equi-angular radial relation with said axis; a multiple of dies having cooperative die faces and being guided by said guide means respectively whereby said dies, when moved inwardly, will converge on said axis to cause such die faces to cooperatively engage a piece of work centered on said axis; a multiple of toggle links one for each of said dies, for delivering compressive forces radially inwardly from said frame to said dies; means for maintaining outer ends of said links pivotally associated with said frame, and inner ends of said links pivotally associated with said dies respectively; means for oscillating said die holder about said axis to simultaneously and repeatedly reciprocate said dies into and out of a squeezing swaging relation with said work; and means for uniformly varying the distances which the pivotal associations of the respective links with said frame are spaced from said central axis, said means being operable during a swaging operation to vary the spacing, from said central axis, of said dies and their die faces when the latter are in their inwardmost positions relative to said axis.

3,303,682
METHOD AND APPARATUS FOR COLD FORMING TOOTHED ELEMENTS

Robert B. Allured, Rochester, Laurence R. Carver, Detroit, and Karl F. Stroms, Utica, Mich., and Wilbur L. Carlson, Rochester, N.Y., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Feb. 1, 1962, Ser. No. 170,438

14 Claims. (Cl. 72—88)



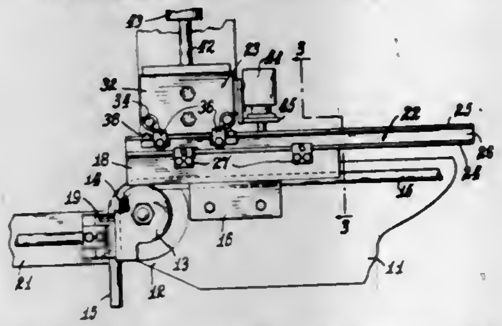
1. The method of cold forming teeth on a cylindrical member comprising the steps of, rotatably supporting a cylindrical member between a pair of tool racks reciprocating the tool racks in opposite directions, and simultaneously hammering the tool racks in a direction normal to the direction of reciprocation to cause the racks to gradually penetrate the cylindrical member by displacing material therefrom.

3,303,683
PRESS DIE ASSEMBLY FOR BENDING MACHINES

Hans Schmidt, Aurora, Ill., assignor to Pines Engineering Co., Inc., Aurora, Ill., a corporation of Illinois

Filed Nov. 27, 1963, Ser. No. 326,543

10 Claims. (Cl. 72—154)



1. In apparatus for bending tubular stock, a bending die and a wiper die associated therewith, a back-up block for the trailing end of the tubular stock, a press die movable into tight clamping engagement with the tubular stock in opposition to the back-up block, and means operable to advance the press die in the direction of the bending die during a bending operation.

3,303,684
FIXED DUMMY BLOCK FOR EXTRUSION PRESS

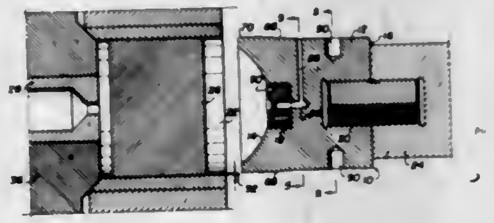
Leonard Starr, Elkins Park, and Richard Hays, Philadelphia, Pa., assignors to Michael Flynn Manufacturing Company, also known as Michael Flynn Manufacturing Co., Philadelphia, Pa., a corporation of Pennsylvania

Filed Dec. 9, 1963, Ser. No. 328,851

4 Claims. (Cl. 72—273)

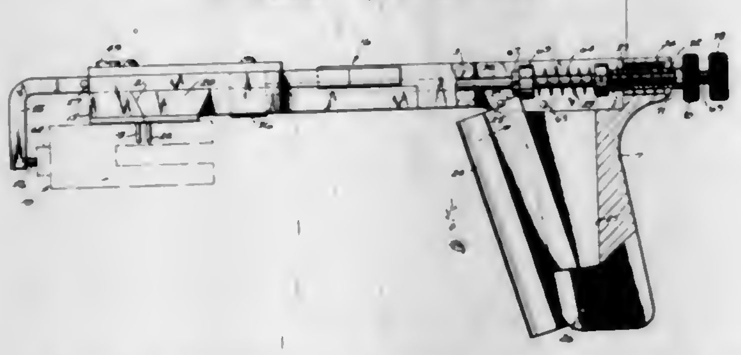
1. A dummy block movable within a container of an extrusion press, said container having a generally cylin-

drical inner surface, said dummy block being used in forwardly extruding a metal billet and being adapted to be urged in a forward direction against said billet by the forward stroke of a ram and to be returned to a rearward position by the rearward stroke of said ram to which said dummy block is attached, said dummy block comprising a metal block having a concave forward surface adapted to contact said billet and a rear surface adapted to be contacted by said ram, an exhaust port in said concave forward surface connecting to the atmosphere, said dummy block also having an outer surface extending between said forward and rear surfaces, said dummy block outer surface being of a diameter somewhat smaller than the diameter of the inner surface of said container, a substantial portion of said dummy block outer surface between said rear and forward surfaces tapering slightly outwardly in a forward diection and also toward the inner surface of said container, whereby when said dummy block is urged in a forward direction against said billet, the interaction of the dummy block concave forward surface with said billet causes the outwardly tapering outer surface of said dummy block to flex somewhat outwardly and toward said container inner surface to provide on the forward stroke a somewhat deep penetration into said billet, leaving a plastic metallic coating upon said container inner surface, but said dummy block will not be so flexed on the rearward stroke, with said tapering outer surface thereby on the rearward stroke smoothly ironing back said plastic metallic coating and eliminating the ironing back of excessive amounts of said metallic coating to greatly reduce the power required to return the dummy block to its rearmost position and to substantially eliminate fouling of the dummy block on the return stroke.



3,303,685
TOOLS FOR ADJUSTING RESILIENT CONTACT SPRINGS

James H. Conran, Blue Springs, Michael H. Fitzpatrick, Jr., Lee's Summit, and Arthur L. Stone, Grandview, Mo., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed July 22, 1964, Ser. No. 384,506
7 Claims. (Cl. 72—386)

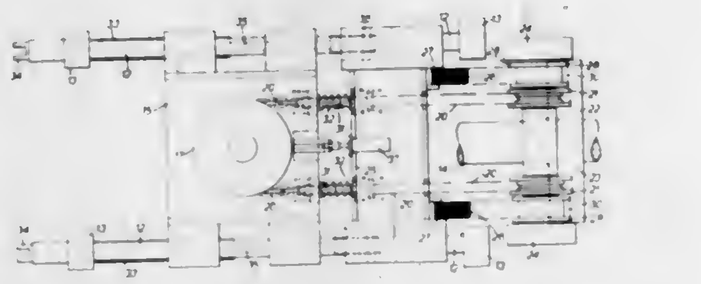


1. A tool for adjusting resilient contact springs of relays relative to their terminal springs comprising:

a head adapted to be located on a relay adjacent fixed ends of the contact springs and terminal springs,
a row of spaced first pins having like ends fixed to the head and adapted to be positioned on like sides of and adjacent to the contact springs of the relay near the fixed ends thereof,
an element supported by the head for movement transversely of the contact springs and longitudinally of the row of fixed pins,
a row of spaced second pins having like ends fixed to the element and adapted to be positioned on the opposing sides of the contact springs from the first pins and in advance thereof away from the fixed ends of the contact springs, and
operable means to move the element in one direction relative to the head to cause the second pins to create like flexing bends of predetermined degrees in their contact springs against their respective first pins.

3,303,686
MANIPULATORS

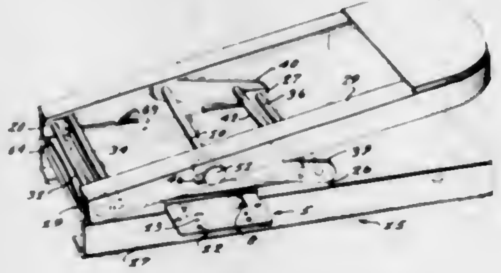
Jack Herbert Beard, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England
Filed Nov. 25, 1964, Ser. No. 413,862
9 Claims. (Cl. 72—420)



1. A manipulator comprising a carriage carrying a peel, a support structure mounted on the carriage, a peel end supporting device, in the form of an elongated flexible member, connecting the forward end of the peel and the support structure to support the main weight of the forward end of the peel, a driving chain passing round a sprocket secured to the peel, means for driving the driving chain in either direction to rotate the peel, and means for maintaining tension in the driving chain irrespective of the position of the forward end of the peel.

3,303,687
PHOTOGRAPHIC SLIDE MOUNT RIVETING PRESS

Stanley C. Kaiser, Quarters 6401–C, Air Force Academy, Colorado Springs, Colo.
Filed June 5, 1964, Ser. No. 374,231
7 Claims. (Cl. 72—452)

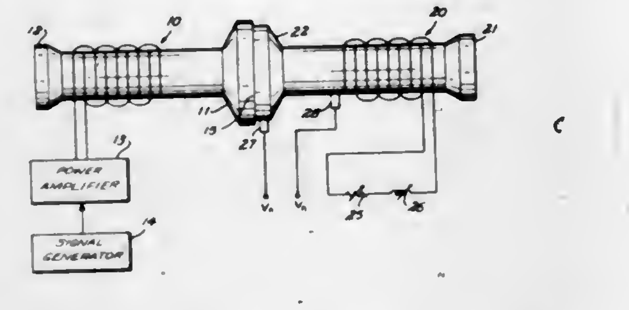


1. A press for holding and deforming a photographic slide mount including:

a base plate having lateral guides thereon for forming a receptacle for a pair of slide mount frames;
a riveting member disposed parallel to the base plate and superimposed over the said receptable; and
lever means operably interconnecting the base plate and riveting member and adapted to move the riveting member up and down with respect to the base plate along an axis normal to the plane of the base plate.

3,303,688
TRANSDUCER TEST EQUIPMENT AND METHOD

John S. Hickman, San Diego, Calif., and Gordon E. Martin, Austin, Tex., assignors to the United States of America as represented by the Secretary of the Navy
Filed Mar. 9, 1965, Ser. No. 438,431
6 Claims. (Cl. 73—1)

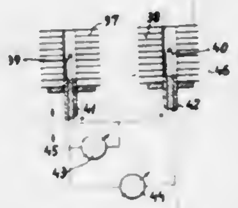


4. A system for testing an oscillatory mechanical energy source working into different complex mechanical impedances of said system comprising;

a mechanical-to-electrical energy converter having a power-handling capacity comparable to the magnitude of the energy of said source,
a coupling mechanism of predetermined mechanical impedance for feeding said energy so said converter, and
an adjustable resistive and reactive electrical load connected to the terminals of said converter for adjusting the mechanical load presented to said source, the resistance of said load being capable of dissipating the energy of said source and the reactance of said load being opposite the sign of the active component of said source.

3,303,689
SAMPLE HOLDERS FOR THERMOANALYTIC EXAMINATION

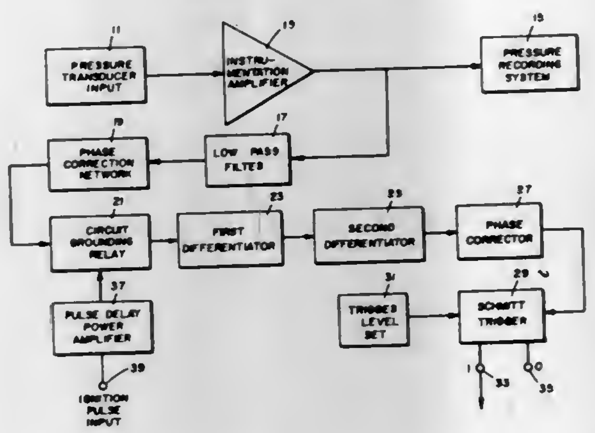
Ferenc Paulik, Jenö Paulik, and László Erdey, Budapest, Hungary, assignors to Magyar Optikai Müvek, Budapest, Hungary, a firm
Filed Mar. 26, 1964, Ser. No. 354,854
Claims priority, application Hungary, Apr. 6, 1963, PA–765
3 Claims. (Cl. 73—15)



1. A sample holder for use in a thermal testing apparatus to increase the selectivity of thermonalytic examinations, comprising a plurality of horizontally disposed trays of a material of high thermal conductivity, each adapted to hold a thin layer of sample to be tested; each of said trays having a central opening; said central opening of each of said trays being surrounded by a spacing flange; said trays being separably stacked coaxially one above the other, in such a manner that each tray is vertically spaced from the next adjacent tray by one of their spacing flanges so as to provide a central space defined by the openings in said trays and by said spacing flanges; and a thermocouple disposed in said central space to monitor the temperature thereof, said temperature being representative of the temperature of said thin layers of sample.

3,303,690
ELECTRONIC SOLID PROPELLANT BURN-UP DETECTOR

Benjamin Z. Meers, Jr., 25 Gabriel Drive, Byrans Road, Md. 20616
Filed Aug. 28, 1964, Ser. No. 392,971
7 Claims. (Cl. 73—35)

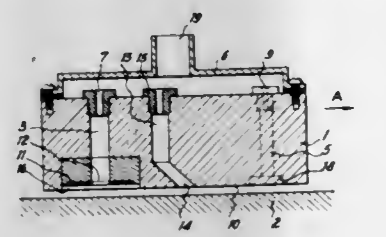


2. Electronic apparatus for determining the instant of burn-up of a solid fuel in the combustion chamber of a rocket motor comprising:

a pressure transducer located within the combustion chamber of a rocket motor,
first differentiator means,
second differentiator means,
a trigger circuit,
amplifier means connecting the output of said transducer to the input of said first differentiator,
means connecting the output of said first differentiator to the input of said second differentiator,
means connecting the output of said second differentiator to a first input of said trigger circuit,
a trigger level set connected to a second input of said trigger circuit whereby a pressure change from said pressure transducer will produce a second derivative of said voltage change in the output circuit of said second differentiator whereby a voltage pulse may appear at the output of said trigger circuit at the time of burn-up of a solid fuel propellant of the rocket motor.

3,303,691
ULTRASONIC INSPECTION METHOD AND APPARATUS

Louis Beaujard, Jacques Mondot, and Marian Kapluszak, Saint Germain-en-Laye, France, assignors to Institut de Recherches de la Sidérurgie Francaise, Saint Germain-en-Laye, France, a professional institution of France
Filed Feb. 19, 1963, Ser. No. 259,659
Claims priority, application France, Feb. 23, 1962, 888,981, Patent 1,323,002
10 Claims. (Cl. 73—71.5)



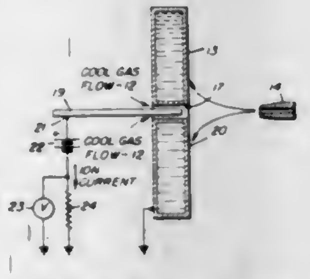
9. A method of ultrasonically inspecting a test piece having an elevated temperature which comprises:

(a) placing an eletromechanical transducer adjacent a surface portion of the test piece to be inspected in such a manner that a face of the transducer and said surface portion define a space therebetween;
(b) passing a stream of a liquid couplant through said space so as to fill the same,

(1) the boiling point of said liquid couplant being lower than said elevated temperature, and
(2) the rate of movement of said stream in said space being sufficient to hold the temperature of each portion of said couplant in said space below said boiling point; and

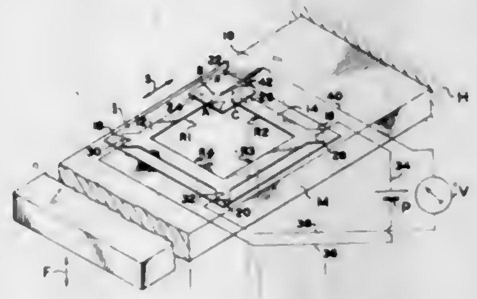
(c) passing an ultrasonic beam between said transducer and said test piece through the liquid in said space.

3,303,692
ABLATION RATE DETECTION SYSTEM AND METHOD
William J. McLean, Berwyn Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 30, 1964, Ser. No. 407,934
10 Claims. (Cl. 73—86)



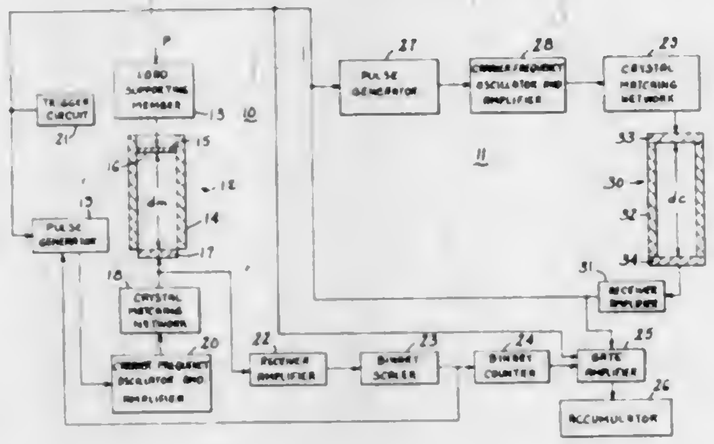
2. In a system for controlling the position of ablating materials in hot flowing fluids comprising:
- a rod having at least one end composed of material capable of ablating,
- a hot fluid source for supplying hot flowing fluid to one end thereof, causing said one end to ablate,
- a cool fluid source for supplying a cool, gently flowing fluid around and along the length of said rod such that a stable boundary region is formed at the ablating end thereof,
- means positioned near the said ablating end for detecting changes in said boundary positions with respect to said detecting means and,
- control means connected between the other end of said rod and said detecting means for controlling the position of said rod whereby said rod moves toward the hot fluid at a gradual and continuous rate.

3,303,693
ARM TYPE FILM BRIDGE WITH MINIMAL THERMAL ZERO SHIFT
Cecil K. Stedman, Enumclaw, Wash., assignor to Statham Instruments, Inc., Los Angeles, Calif., a corporation of California
Filed Mar. 23, 1964, Ser. No. 353,902
10 Claims. (Cl. 73—88.5)



3. A full bridge strain gage, comprising an insulating base member, and a strain sensitive electroconductive film in bonded relation to said base member, said film comprising a plurality of strain sensitive resistance arms forming a four-arm bridge pattern, with each end of each arm being composed of deposited electroconductive film and sharing a terminal with the end of the adjacent arm, the adjacent arms being arranged in respectively different attitudes with respect to the direction of stress applied to said base member, a voltage source connected to one opposed pair of terminals, and means sensing the output voltage at the other opposed pair of terminals, one portion of each of the pair of adjacent arms in the vicinity of the common terminal thereof being composed of an electroconductive material having a substantially different temperature coefficient of resistance than has the electoconductive material making up the remainder of the said adjacent bridge arms, such common terminal being placed at a point providing minimal variation in bridge output with variation in temperature.

3,303,694
LOAD MEASURING SYSTEM
Anthony D'Onofrio, West Hartford, Conn., assignor, by mesne assignments, to Fairbanks Morse Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 19, 1964, Ser. No. 353,065
5 Claims. (Cl. 73—141)

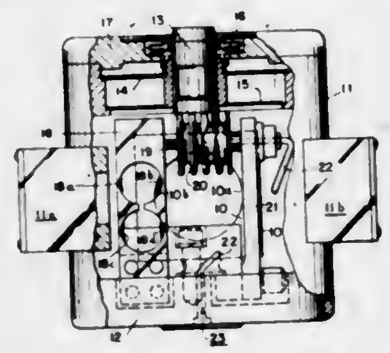


1. In combination, means defining a chamber, a wave propagation medium filling said chamber, an electroacoustic transducer in said chamber, means providing a wave reflecting surface in said chamber opposite said transducer, said surface and said transducer being movable relative to each other to vary the distance therebetween, load receiving means, said load receiving means being adapted to produce relative movement of said surface and said transducer toward each other upon application of load thereto a distance proportional to the magnitude of the load applied thereto, means for electrically exciting said transducer to transmit an acoustic wave toward said surface, whereby the wave is reflected from said surface toward said transducer, means for detecting when the reflected wave strikes the transducer and electrically excites said transducer in response thereto, and means for measuring the time required for a predetermined number of waves to be reflected from said surface to said transducer.

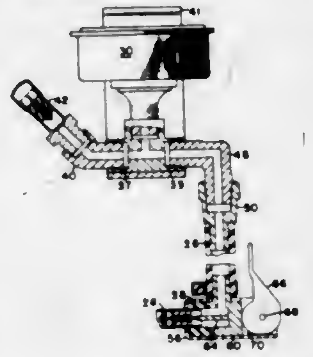
3,303,695
AMBIENT PRESSURE COMPENSATION OF LOAD CELLS
Eric Laimins, Cambridge, and Donald A. Senour, Carlisle, Mass., assignors to BLH Electronics, Inc., Waltham, Mass., a corporation of Delaware
Filed Jan. 13, 1965, Ser. No. 425,162
7 Claims. (Cl. 73—141)

1. Hermetically-sealed load cell apparatus compensated for effects of fluid pressure variations, comprising a load-responsive element having one load-transmitting end fixed in relation to a housing and another load-transmitting end movable in relation to said one end and sealed in relation to said housing by way of a flexible sealing member, a pressure-responsive unit sealed in relation to

said housing and including means deformable in response to differences between fluid pressures within said sealed housing and ambient fluid pressures external to said housing, main strain gage means responsive to surface strains exhibited by said load-responsive element, auxiliary strain gage means responsive to surface strains exhibited by said deformable means, said auxiliary strain gage means exhibiting predetermined variations in electrical characteristics with changes in said differences in fluid pressures, and said main gage means exhibiting predetermined variations in electrical characteristics with changes in said differences in fluid pressures, and means interconnecting said main and auxiliary strain gage means in an electrical circuit relationship wherein said variations in electrical characteristics thereof are mutually substantially offsetting with changes in said differences in fluid pressures and wherein substantially the only net changes in electrical characteristics thereof are those of said main strain gage means with changes in other forces applied between said ends of said load-responsive element.

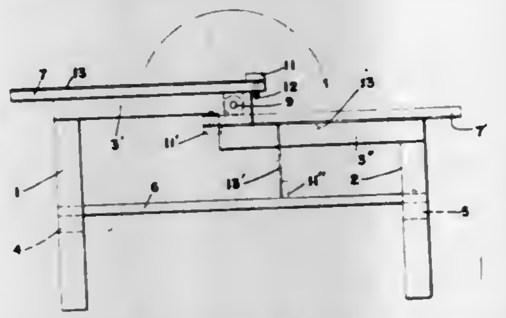


3,303,696
TIRE PRESSURE GAUGE
Carl R. Capparelle, Ardell Lane, Bellefonte, Pa. 16823
Filed June 3, 1964, Ser. No. 372,208
3 Claims. (Cl. 73—146.8)



1. In a tire pressure gauge removably attached to the rim of a vehicle wheel and in continuous communication with the tire valve stem of a pneumatic tire mounted upon said wheel, the combination comprising:
- a manifold member positioned upon said rim;
- a pressure gauge positioned on said manifold in an outwardly facing direction and in communication with said manifold;
- an outwardly facing readily accessible manifold valve stem member attached to said manifold and in communication therewith;
- a valve core member positioned within said manifold valve stem, said stem member oriented to withhold the outward flow of air through said manifold valve stem member, whereby the air pressure in said pneumatic time may be regulated by the release or addition of air through said valve core member;
- a flexible hose member, one end portion of which is attached to and in communication with said manifold member;
- a valve stem connecting member connected to and in communication with said flexible hose, said valve stem connecting member comprised of:
  - a valve stem receiving member having an opening therein for the reception of a valve stem;
  - a flexible gasket member circumferentially positioned within said receiving member about said opening;
  - a slideable piston member positioned within said receiving member adjacent to said gasket member, said piston member having an opening therein in communication with said flexible hose;
  - a pin member positioned upon said piston member and extending to said opening, said pin member adapted to open said valve core of said tire valve stem when said tire valve stem is inserted in said opening; and
  - a lever member rotably positioned within said valve stem receiving member in contact with said piston member, whereby when said lever member is rotated, it exerts pressure on said gasket member through said piston member causing said gasket member to seal said tire valve stem within said opening.

3,303,697
QUALITY CONTROL DEVICE FOR MEASURING CLING OF PLASTIC FILM
Franklyn H. Schroeder, Vincennes, Ind., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed July 8, 1964, Ser. No. 381,192
6 Claims. (Cl. 73—159)



1. A device for measuring the cling property of film, comprising the combination of a supporting table, a table top positioned on and supported by said supporting table and rotatable from a position substantially horizontal through 180° to a second substantially horizontal position in such a manner that the surface of said table top which, in its first position, is the upper surface of said table top, and is in its second position inverted to and becomes the lower surface of said table top, a weighted element adapted to be attached to one end of a sheet of plastic film placed on said table top in its initial position and free to fall away from said table top with said end of said sheet upon release after said table top has been inverted to its second position, a means adapted to hold said weight immobile during rotation of said table top and to release said weight after said rotation.

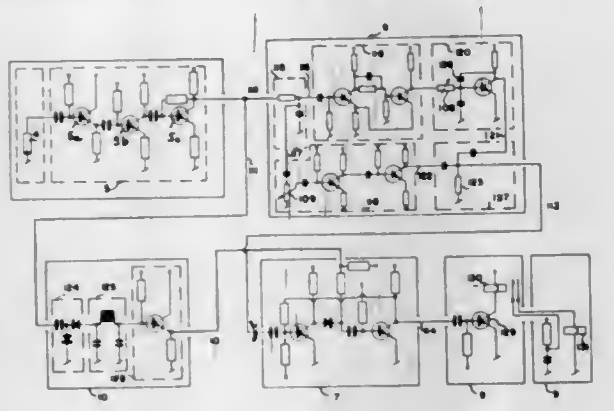
3,303,698
APPARATUS FOR SENSING YARN IRREGULARITIES AND PRODUCING A CONTROL SIGNAL
Erich Loepfe, Forch, Zurich, Switzerland, assignor to Aktiengesellschaft Gebrüder Loepfe, Zurich, Switzerland, a joint-stock company of Switzerland
Filed Dec. 16, 1963, Ser. No. 330,776
Claims priority, application Switzerland, Dec. 22, 1962, 15,076/62
27 Claims. (Cl. 73—160)

1. Apparatus for producing signals for yarn control comprising:
(a) means for generating time dependent input electrical signals varying in accordance with thickness of said yarn;

(b) first means receiving input signals from said generating means and producing first output signals from the input signals received thereby, which first output signals indicate the lengths of the yarn in which irregularities in the thickness are outside a given range;

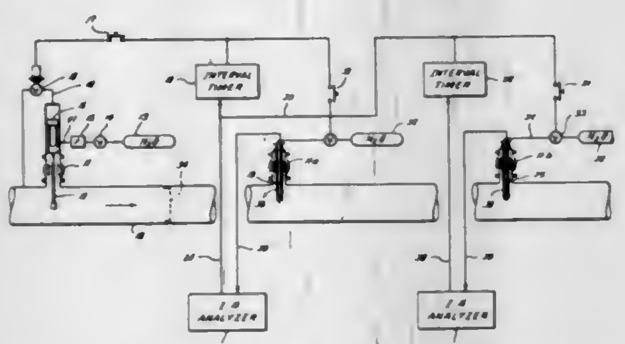
(c) second means receiving input signals from said generating means and producing second output electrical signals, which second output electrical signals indicate the thickness of irregularities in said lengths of yarn; and,

(d) means responsive to said first and second output signals for triggering a desired operation to be performed with respect to the yarn.



3,303,699
PROCESS FOR DETERMINING RATE OF FLOW OF GAS THROUGH PIPELINES

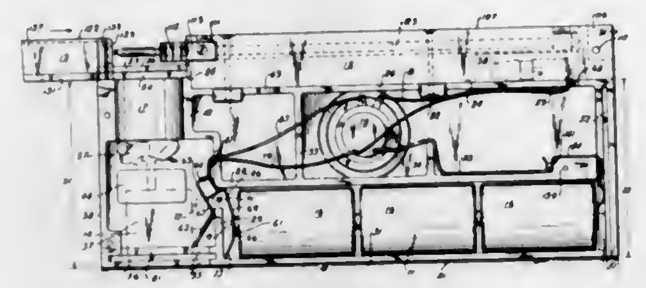
Vernon B. Scott, P.O. Box 13447,
Houston, Tex. 77019
Filed Apr. 30, 1964, Ser. No. 363,735
8 Claims. (Cl. 73—194)



1. A process for determining the rate of flow of gas through a pipeline or other conduit comprising the steps of: flowing the gas through the pipeline at a rate such that the Reynolds number exceeds 1.5×10^4; injecting a small amount of tracer material into the pipeline, said material comprising a detectable material which is gaseous under the conditions existing in the pipeline, is inert wth respect to other substances in the pipeline and has a molecular weight of at least twice that of said gas; detecting the arrival of the injected tracer material at each of two points spaced a known distance apart longitudinally along the pipeline downstream of the point of injection of the tracer material; determining the actual flight time of the injected tracer material between said two points by measuring the elapsed time between detection of arrival at the first point and the detection of arrival at the second point, measuring the apparent flight time of the tracer material from its point of injection to at least one of said points and comparing said apparent flight time with said actual time, taking into account respective flight distances involved, to obtain an actual flight time between said point of injection and at least one of said two points.

3,303,700
PORTABLE MOTOR-ASPIRATED PSYCHROMETER

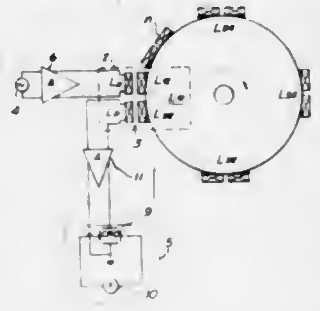
Joseph Kahl, 14 Horatio St., New York, N.Y. 10024
Filed May 9, 1963, Ser. No. 279,177
2 Claims. (Cl. 73—338.6)



1. A psychrometer arrangement comprising, in combination,
- a thermometer frame having substantially parallel top and bottom surfaces, substantially parallel side surfaces substantially perpendicular to said top and bottom surfaces, and substantially parallel end surfaces substantially perpendicular to said side and to said top and bottom surfaces;
- a pair of spaced grooves formed in the top surface of said frame and extending substantially parallel to the side surfaces of said frame and spaced therefrom, said grooves being open in the top surface of said frame and opening in an end surface of said frame;
- a lamp compartment formed in the bottom surface of said frame opposite a portion of each of said grooves;
- a wet bulb thermometer having a stem seated in one of said grooves, said stem having a nib projecting therefrom, and a bulb extending beyond said end surface of said frame;
- a dry bulb thermometer having a stem seated in the other of said grooves, said stem having a nib projecting therefrom, and a bulb extending beyond said end surface of said frame;
- a spring clip recess formed in each side surface of said frame adjacent said end surface thereof;
- a spring clip affixed to said frame in each of said spring clip recesses and extending beyond said end surface and substantially parallel to the side surfaces of said frame, each spring clip having undulations formed therein in the portion thereof extending beyond said end surface thereof;
- an air duct member having substantially parallel top and bottom surfaces, side surfaces substantially perpendicular to the top and bottom surfaces of said member, an end surface substantially perpendicular to the top and bottom surfaces of said member, and an open end spaced from and opposite the end surface of said member, each of said side surfaces being of substantially planar configuration and extending between said top surface and said bottom surface;
- a longitudinal divider extending substantially perpendicular to the top and bottom surfaces of said member substantially equidistantly from the side surfaces of said member, said longitudinal divider dividing said member into two substantially equal compartments;
- a pair of spaced apertures formed through the end surface of said member, each opening into a corresponding one of the compartments of said member;
- an aperture formed through the bottom surface of said member and opening into substantially the entire area of the compartments of said member;
- a lip extending from the side surfaces of said member substantially coplanarly with the bottom surface of said member; and
- a rib formed in and extending from each of the side surfaces of said member in proximity with the end surface of said member and substantially parallel to said end surface and substantially perpendicular to the top and bottom surfaces of said member, said air duct member being adapted to be positioned adjacent said thermometer frame with the end surface of said air duct member abutting the said end surface of said frame, with the bulb of the wet bulb thermometer positioned in one compartment of said air duct member and the bulb of the dry bulb thermometer positioned in the other compartment of said air duct member, and with the undulated portion of each of said spring clips clamping a corresponding one of the ribs of said air duct member.

3,303,701
NON-CONTACT TEMPERATURE MEASUREMENT SYSTEM

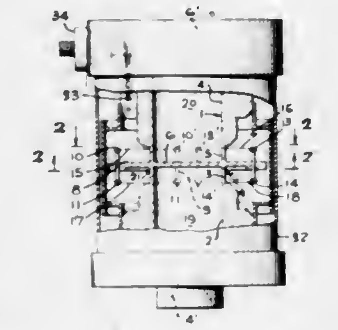
Kiyokata Matsuura, Nagoya, and Katsumi Takami, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Mar. 25, 1963, Ser. No. 267,501
Claims priority, application Japan, Mar. 27, 1962, 37/11,209; May 8, 1962, 37/18,829; June 15, 1962, 37/31,272, 37/31,273; Oct. 9, 1962, 37/43,579, 37/43,580, 37/43,581; Feb. 4, 1963, 38/4,495
16 Claims. (Cl. 73—351)



15. A temperature measurement system for measuring the temperature of an object, comprising; resonant circuit means mounted on said object, said resonant circuit means having a resonant frequency variable with temperature, amplifier means having an input and an output, intermittent coupling means connecting said resonant circuit means to said amplifier means, said resonant circuit means, intermittent coupling means, and amplifier means forming a variable oscillation means, and detection means for detecting the oscillation frequency of said variable oscillation means.

3,303,702
PRESSURE TRANSDUCERS

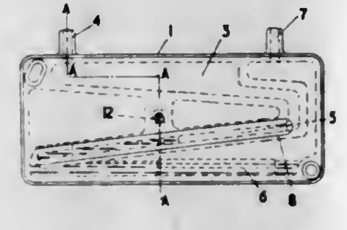
Peter R. Perino, Northridge, Calif., assignor to Statham Instruments, Inc., Los Angeles, Calif., a corporation of California
Filed June 7, 1965, Ser. No. 461,929
18 Claims. (Cl. 73—398)

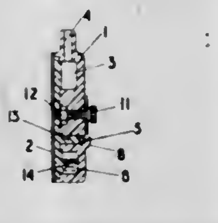


1. A differential transducer, a displaceable force responsive element responsive to the difference of two forces to be sensed by said transducer, variable impedance means, means to translate the deflection of said element to vary the impedance thereof, input connections and output connections to said impedance means, means to apply a voltage e to the input connections and to develop a voltage e_1 at the output connections on deflection of said force responsive means upon application of said two forces one of which has a force value of P and the difference between said two forces having a value ΔP, the output voltage e_1 being dependent on both ΔP and P, means for compensating for the effect of the value of P comprising means to algebraically add a compensating voltage to one of said voltages to obtain an output voltage e_1 substantially independent of the value of P and being substantially proportional to the product $\Delta P\times e$.

3,303,703
MANOMETERS

Alexander Connor Wilson, High Wycombe, England, assignor of one-half to Airflow Developments Limited, High Wycombe, England, a British company
Filed Aug. 19, 1963, Ser. No. 303,024
Claims priority, application Great Britain, Aug. 23, 1962,
2 Claims. (Cl. 73—401)

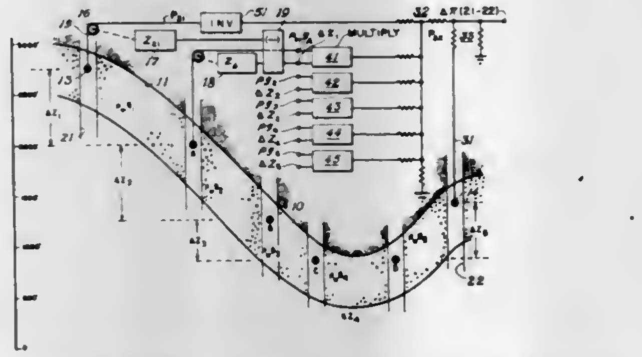




1. A manometer comprising a face plate at least partly composed of clear synthetic plastic material, and a backing plate opposed to said face plate and defining therewith a liquid reservoir, a pressure indicating tube and a liquid overflow chamber, pressure inlet means defined by one of said plates and connected to the overflow chamber, said backing plate having a portion projecting into the pressure indicating tube to reduce the cross-sectional area of said tube in relation to the cross-sectional area of the reservoir.

3,303,704
HYDRODYNAMIC EXPLORATION IN VARIABLE DENSITY ENVIRONMENTS

Charles W. Brown, Arlington, and Sidney M. Foulks, Irving, Tex., assignors to Mobil Oil Corporation, a corporation of New York
Filed Apr. 30, 1964, Ser. No. 363,784
9 Claims. (Cl. 73—432)



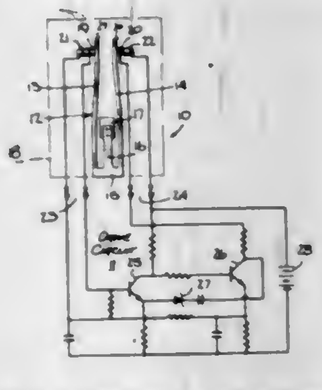
1. The method of exploration for location of deposits of liquid hydrocarbons in an aquifer which comprises:

(a) generating physical functions representative of the formation fluid pressure at each of a plurality of laterally spaced points in said aquifer,

(b) modifying said functions in dependence upon the relative elevations of said points and the variations in density of the fluid between said points,
(c) generating from selected pairs of the modified functions hydrodynamic flow-inducing pressure gradient functions, and
(d) registering said functions in correlation with the locations of the points from which said modified functions are derived.

3,303,705
ATTITUDE COMPENSATED ELECTROMECHANICAL OSCILLATOR

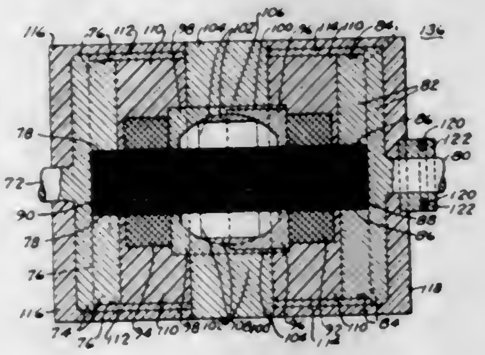
Frank Dostal, Elmhurst, N.Y., assignor to Bulova Watch Company, Inc., New York, N.Y., a corporation of New York
Filed Mar. 19, 1964, Ser. No. 353,144
13 Claims. (Cl. 73—505)



1. In an oscillator having a vibrating rod which acts to control the frequency thereof, a compensator constituted by a spring attached to one end of said rod, and a weight at the end of said spring which shifts in position relative to said rod to vary the frequency of said oscillator in a direction opposed to variations resulting from changes in attitude and acceleration.

3,303,706
GYROSCOPIC APPARATUS

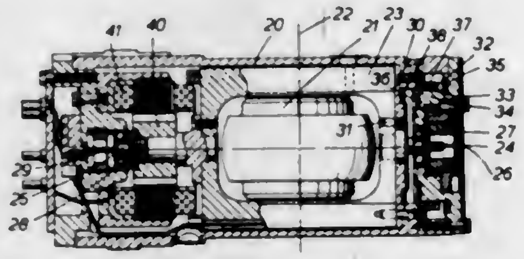
Allan W. Lindberg, Kirkwood, Mo., assignor to Universal Match Corporation, Ferguson, Mo., a corporation of Delaware
Filed Sept. 4, 1962, Ser. No. 221,229
17 Claims. (Cl. 74—5)



1. A rate gyroscope that comprises:
(a) a member which is mounted for rotation about a predetermined spin axis,
(b) a source of motive power to rotate said member about said predetermined spin axis,
(c) a recess within said member,
(d) an electrically-conductive liquid disposed within said recess,
(e) said liquid only partially filling said recess,
(f) said liquid responding to rotation of said member about said predetermined spin axis to form an annulus within said recess.
(g) said liquid responding to rotation of said member about said predetermined spin axis to tend to rotate about said predetermined spin axis,
(h) said member being adapted to serve as an outer rotor for said gyroscope,
(i) said liquid being adapted to serve as an inner rotor for said gyroscope,
(j) said liquid being adapted to rotate about said predetermined spin axis as long as said member rotates about said predetermined spin axis and tending to continue to rotate about said predetermined spin axis when said member is shifted to rotate about a further axis which is angularly displaced from said predetermined spin axis,
(k) said liquid being adapted, when said member shifts to said further axis, to move sinusoidally relative to said member, and
(l) means that can respond to said relative sinusoidal movement of said liquid and member to provide a signal,
(m) the rate of shift of said member determining the amplitude of said relative sinusoidal movement of said liquid and member, whereby said gyroscope can sense the rate of shifting of said member.

3,303,707
RATE GYROSCOPES

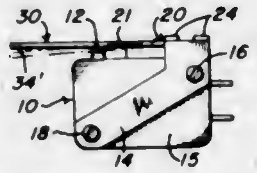
William Richard Simons, Cheltenham, England, assignor to S. Smith & Sons (England) Limited, London, England, a British company
Filed Apr. 6, 1964, Ser. No. 357,588
Claims priority, application Great Britain, Apr. 6, 1963, 13,728/63
8 Claims. (Cl. 74—5.5)



1. A rate gyroscope comprising a main casing, a gimbal structure mounted for rotation in the main casing about a first axis, means for exerting spring restraint acting against rotation of the gimbal structure about said first axis from a datum orientation, a gyroscope motor mounted within the gimbal structure and having a rotor mounted for rotation about a second axis at right angles to the first axis, a damping device for damping rotary motion of the gimbal structure about the first axis, the damping device being disposed in a plane at right angles to said first axis and spaced apart in one direction from said second axis and comprising a first member mounted on the gimbal structure and having a first cylindrical surface coaxial with said first axis, a second member mounted on the main casing and having a second cylindrical surface coaxial with said first axis, one of the first and second cylindrical surfaces being external and the other internal, the internal one being of greater radius than the external one and at least partially overlapping it axially, a body of liquid in the gap between the overlapping parts of the first and second surfaces, the liquid being provided to damp the motion of the gimbal structure about the first axis and being the only body of liquid provided for that purpose, and means for confining the body of liquid to said gap, said means comprising, on each of the first and second members, a pair of rings of a material which is not wetted by the liquid, the rings of a pair each surrounding the first axis and being spaced apart axially along the surface of the member concerned to include between them at least the overlapping part of the cylindrical surface and the first and second members being constructed of materials having different temperature coefficients of expansion, that of the member having the internal surface being smaller than that of the member having the external surface, the difference in said coefficients being related to the change of viscosity of the liquid with temperature, at least partially to compensate for any change in the characteristics of the device arising from the said viscosity variation at least within a predetermined range of temperatures, and a bearing which is disposed in a plane at right angles to said first axis and spaced apart in said one direction from said second axis, and surrounds but is normally spaced from a part of the gimbal structure so that it permits rotary motion of the gimbal structure about said first axis but limits motion of the gimbal structrue in directions normal to the first axis, and prevents the cylindrical surfaces of the damping device from coming into contact with each other.

3,303,708
BLADE ACTUATOR AND SUPPORTING BRACKET FOR SWITCHES AND THE LIKE

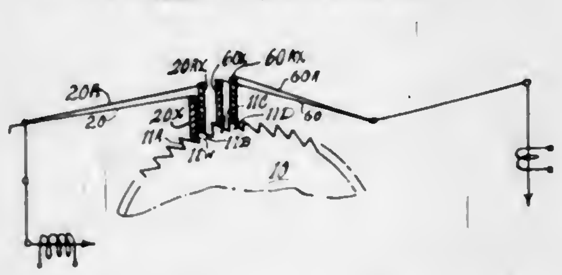
William E. Rhodes, Columbus, Ohio, assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Jan. 26, 1965, Ser. No. 428,173
17 Claims. (Cl. 74—104)



1. In combination, an actuator and a switch having a casing with two adjacent casing sides substantially at an angle to each other and with a switch actuating plunger outwardly extending from one of said sides, said actuator comprising: a flat, sheet metal supporting bracket rigidly attached to one of said casing sides; a sheet metal supporting side arm integral with said bracket to extend over the other casing side from which said plunger extends; and a separate actuating blade to extend over said other casing side and over said plunger and secured to said side arm.

3,303,709
STEP-MULTIPLYING RATCHET WHEEL DRIVE

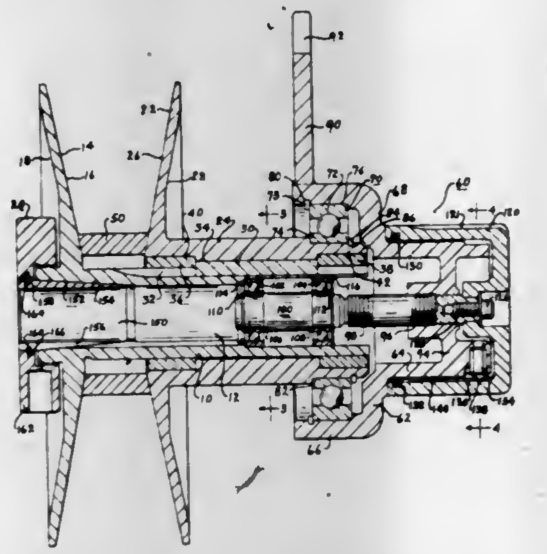
Roger T. Slisz, Schiller Park, and Herman L. Seiden, Chicago, Ill., assignors to Lion Manufacturing Corporation, Chicago, Ill., a corporation of Illinois
Filed May 18, 1964, Ser. No. 368,166
3 Claims. (Cl. 74—142)



1. In a step-by-step ratchet wheel advancing mechanism, the combination with a thin ratchet wheel having a given number of teeth and spring means for urging the wheel to a normal starting position, of a step-multiplying driving pawl and holding-dog means comprising: a lever oscillable to reciprocate a driving pawl; a first driving pawl pivotally mounted on said lever to pivot in a plane parallel to the plane of rotation of the wheel and having a laterally-offset driving dog of an order of thinness comparable to the thinness of the wheel and engageable in the wheel teeth; a second driving pawl copivotally mounted in side-by-side relation with said first pawl and having a similarly laterally offset and thin driving dog disposed close behind the first dog in a relationship thereto and to the wheel teeth in a manner to engage a wheel tooth at a point along the tooth configuration which is relatively different from the point simultaneously engaged by the first dog and contrived such that first one and then the other of said dogs will engage with a tooth at said point to drive the same in alternation responsive to oscillation of said driving lever, said dogs having a length in the direction of offset several times the thickness of the wheel so that critical alignment of the pawls and dogs with the plane of wheel movement is obviated to permit use of a relatively thin and light ratchet wheel; together with releasable holding dog means cooperable with said wheel and acting to hold the gain imparted thereto by either driving dog.

3,303,710
VARIABLE SPEED PULLEY DRIVE

John E Kowalski, Mishawaka, and Harold A. Nelson, South Bend, Ind., assignors to Dodge Manufacturing Corporation, Mishawaka, Ind., a corporation of Indiana
Filed Dec. 23, 1964, Ser. No. 420,689
6 Claims. (Cl. 74—230.17)



1. An adjustable pitch sheave for a V-belt, comprising a hub having a bore therethrough with one end tapered inwardly, a flange joined integrally with said hub at the end with the tapered portion of the bore and having a conical belt engaging surface, said hub having a longitudinal groove on its external surface, a sleeve slidably mounted on said hub and having a longitudinal groove on its inner surface, a flange joined integrally with the end of said sleeve adjacent said first mentioned flange and having a conical belt engaging surface facing the corresponding surface on said first mentioned flange, an anti-friction bearing interposed between said hub and sleeve, a key in said grooves, a shaft rotatably mounted in said hub bore and having a threaded portion extending from said bore in axial alignment with said hub, a body having a member with a threaded bore for receiving the threaded portion of said shaft and having an annular portion overlapping one end of said sleeve, a bearing means connecting said sleeve and said annular member, an arm on said body for preventing rotation thereof, an adjustment cap having an annular portion extending over a portion of said body and being connected to said shaft for rotating said shaft relative to said body to move said body along said threaded portion of the shaft and thereby to shift said sleeve and said second flange toward and away from said first flange,

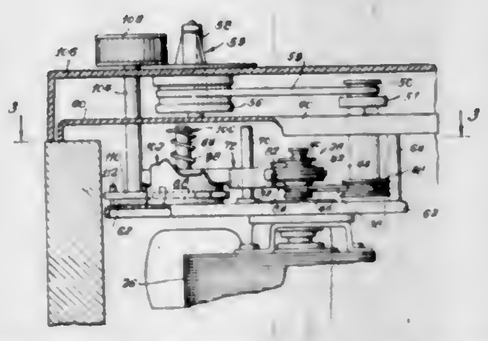
said adjustment cap having a detent for retaining a setting after an adjustment in the pitch of the sheave has been made, and a means mounted on said hub adjacent said first mentioned flange including a split tapered bushing for securing said sheave to a shaft.

3,303,711
SPEED CHANGE MECHANISM FOR BELT DRIVEN DEVICES

Marion R. Karecki and Alfred C. Ratter, St. Joseph, Mich., assignors to V-M Corporation, Benton Harbor, Mich., a corporation of Michigan

Filed Nov. 2, 1964, Ser. No. 407,997

13 Claims. (Cl. 74—242.3)



1. In a belt driven device of the type having a stepped motor pulley with a plurality of belt grooves of different diameters spaced along the axis of said pulley a driven member, and an endless belt extended over the stepped motor pulley and driven member for driving the latter from the motor pulley at a speed determined by the diameter of the groove in which the belt is located, the improvement comprising speed change mechanism including, in combination, belt lifter means movable in a direction generally parallel to said motor pulley axis and engageable with said belt for shifting the same from one of said belt grooves to another, guide means along which said belt lifter means is movable when shifting said belt, and movable cam means having two cam surface portions in engagement with said belt lifter means at respective spaced contact areas to move said belt lifter means along said guide means and control the orientation of said belt lifter means, said two cam surface portions having configurations different from one another to provide tilting of said belt lifter means as the latter is moved along said guide means.

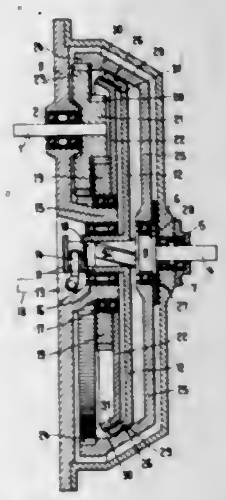
3,303,712
TOOTHED-WHEEL GEARING

Cato Normann, Fiskerkroken 8, Oslo, Norway

Filed June 15, 1964, Ser. No. 375,007

Claims priority, application Germany, June 26, 1963, 23,371

4 Claims. (Cl. 74—377)



1. A reversing gear assembly comprising, in combination,
- a casing having a wall and a cover, said wall having a collar projecting toward said cover,
- a drive shaft journalled in said wall in offset relation to said collar and extending into said casing,
- a gear-set fixed to said drive shaft within said casing and comprising a pair of pinions of different diameter,
- a gear journalled on said collar and meshing with the smaller of said pinions,
- a driven shaft journalled in said cover in axial alignment with said collar,
- a friction disk having a hub journalled within said collar and fixed for rotation with said driven shaft but axially slidable thereon,
- a dished wheel journalled on said driven shaft and having internal teeth meshing with the larger of said pinions,
- a second friction disk fixed to the gear journalled on said collar and lying on that side of the first friction disk opposite that facing the dished wheel,
- and means for shifting the first friction disk axially into engagement alternatively with said dished wheel and said second friction disk.

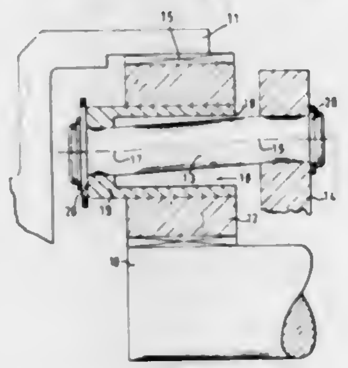
3,303,713
LOAD EQUALIZING MEANS FOR PLANETARY PINIONS

Raymond J. Hicks, Eckington, near Pershore, England, assignor to National Research and Development Corporation, London, England, a corporation of Great Britain

Filed Feb. 8, 1965, Ser. No. 431,033

Claims priority, application Great Britain, Feb. 7, 1964, 5,269/64

2 Claims. (Cl. 74—411)



1. An epicyclic gear set having a planet carrier provided with a plurality of spindles fast therewith, each spindle carrying a planet wheel rotatable thereon, said planet wheel and spindle making contact and being relatively rigid with one another at a position symmetrically located on the opposite side of the axial centre of the wheel teeth to the point at which the spindle is fast and rigid with said carrier, and being spaced apart between said points, whereby the spindle may flex under equal couples applied as a result of unequal loads on opposite points of the wheel, and assume a deflected position in which said loads are equalised.

3,303,714
AIRCRAFT FEEL SIMULATOR

Jean-Claude Fontaine, Morangis, Seine-et-Oise, France, assignor to Societe Anonyme des Ateliers d'Aviation Louis Breguet, Paris, France, a company of France

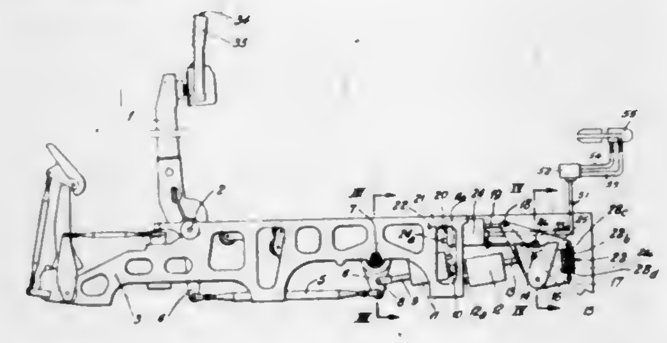
Filed Dec. 22, 1964, Ser. No. 420,391

Claims priority, application France, Dec. 27, 1963, 958,701

5 Claims. (Cl. 74—470)

1. An apparatus for the creation of artificial sensation in an aircraft, comprising in combination:
- a frame;

- a control member mounted on said frame;
- a first lever and a cam pivoted side by side on said frame;
- a transmission linkage pivoted at one end to said control member and at the other end to said cam;
- a pivot on said first lever;
- a second lever pivoted on said pivot;
- bearing means interposed between said second lever and said cam, said bearing means comprising a roller mounted on a pivot carried by a rod articulated to said frame;



- spring means for urging said second lever towards said cam;
- and variable length means connecting said pivot to a fixed point of said frame, and means for varying the length of said variable length means in dependence on the speed of said aircraft, whereby upon actuation of said control member an artificial sensation creating reaction is exerted on said member, the value of which depends on the amplitude of the action exerted on said member and on the speed of said aircraft.

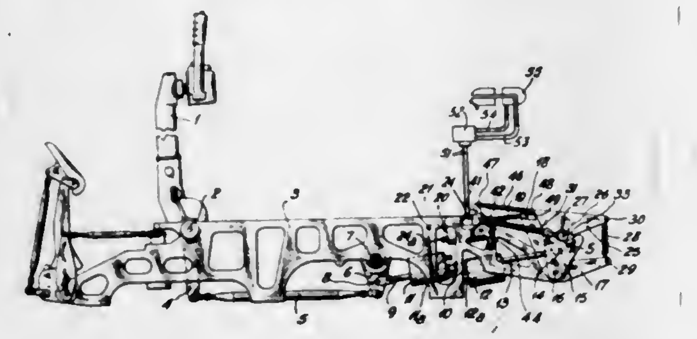
3,303,715
AIRCRAFT FEEL SIMULATOR

Joël Zimer, Paris, France, assignor to Societe Anonyme des Ateliers d'Aviation Louis Breguet, Paris, France, a company of France

Filed Apr. 6, 1965, Ser. No. 445,924

Claims priority, application France, June 12, 1964, 978,188

2 Claims. (Cl. 74—470)



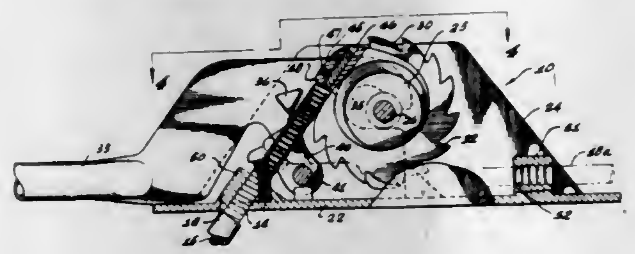
1. An apparatus for the creation of artificial sensations intended to be associated with a control member of an aircraft comprising in combination:
- a frame;
- a control member mounted on said frame;
- a first lever and a cam pivoted side by side on said frame;
- a transmission linkage pivoted at one end to said control member and at the other end to said cam;
- means operative for modification of the length of said linkage including a pivot on said first lever, a second lever pivoted on said pivot, a wheel interposed between said second lever and said cam, a spring device attached to said levers at points thereof remote from said pivot for urging said second lever towards said cam;
- means connecting said pivot to a fixed point of said frame, said means being such that the distance between said pivot and fixed point depends on the speed of the machine;
- and means the length of which depends too on the speed of the machine for connecting said wheel to a fixed point of said frame whereby the apparatus may react so as to improve the stability of the aircraft.

3,303,716
CABLE BRAKE OPERATOR FOR TRUCKS AND THE LIKE

Leslie E. Wolfe, Los Angeles, Calif.
(14646 Hawes St., Whittier, Calif. 90604)

Filed Feb. 15, 1965, Ser. No. 432,641

7 Claims. (Cl. 74—505)



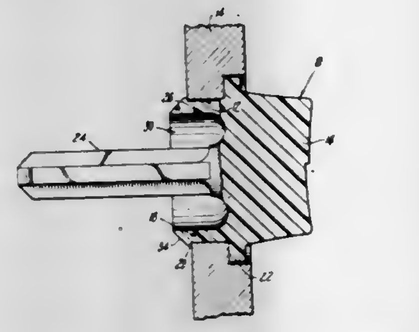
1. Cable tensioning mechanism, comprising:
- a stationary frame;
- a drum rotatably mounted on the frame;
- a cable attached at one end to the drum and wound around the drum;
- means to rotate the drum in a forward direction to wind a portion of the cable on the drum;
- releasable detent means engageable with the drum to prevent reverse rotation of the drum;
- a spiral wound flexible housing around the cable and terminating at one end at a position adjacent the drum;
- and cable anchor means including an internally threaded bore extending through a portion of the frame adjustably receiving the cable housing near said one end to connect the housing to the frame with the housing projecting a selected distance beyond the anchor means toward the drum, the distance being variable by rotating the cable housing in the threaded bore.

3,303,717
ROTARY CONTROL KNOB

Richard L. Valenti, Plainville, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Filed Jan. 15, 1965, Ser. No. 425,764

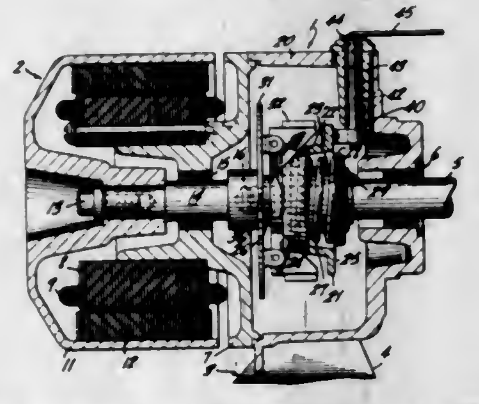
2 Claims. (Cl. 74—553)



1. A control knob adapted to be rotatably mounted in a circular opening in a wall member for angular adjustment of an associated device mounted inwardly thereof, comprising a body portion with an outer generally annular flange part, a generally annular skirt part projecting inwardly from said outer flange part for receipt with-

in said opening, and an axially extending handle part projecting outwardly of the outer flange part for manual angular adjustment of the knob; and a shank portion projecting inwardly from the outer flange part coaxially within the skirt part with means insertable within the associated device for angular adjustment thereof; the skirt part having a plurality of annularly arranged inwardly resilient skirt segments forming cylindrical journal elements coaxial with the shank portion in the unstressed condition thereof for rotatably supporting the knob within the opening, the skirt segments having at their inner ends annularly arranged radially outwardly projecting inner flange elements opposite said outer flange part for axially retaining the knob within the opening while at the same time permitting the knob to be rotatably supported with the journal elements for angular adjustment of said associated device.

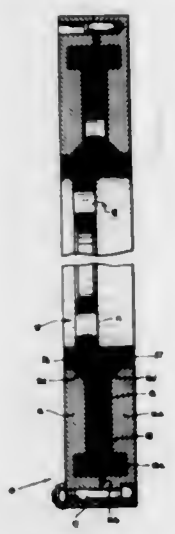
3,303,718
GOVERNOR
Albert K. Newman, Noroton, Conn., assignor to Textron Inc., Providence, R.I., a corporation of Rhode Island
Filed Oct. 21, 1964, Ser. No. 405,390
10 Claims. (Cl. 74—572)



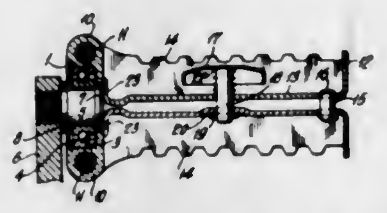
1. Speed control means comprising a rotating shaft, means for regulating the speed of rotation of said shaft, a control member on said shaft and rotatable therewith while being axially movable thereon, said control member having a surface of revolution with a radial component, first means for biasing said control member in one direction, said first means being rotatable with said control member, means responsive to the speed of rotation of said shaft for moving said control member proportionally in the opposite direction against said bias with increase of speed, rotatable cam means having a peripheral cam surface engaging said surface of the control member, said cam surface having a radius progressively increasing in the direction of movement of the portion of said control member adjacent said cam means, second means for torsionally biasing said cam means to turn in a direction opposite to the direction of movement of the adjacent portion of said control member and means connecting said cam means with said speed regulating means, whereby movement of said control member toward said cam means upon variation of shaft speed causes said surface of revolution to engage said cam surface with a wiping action to turn said cam means against its bias and thereby act on said speed regulating means to counteract said variation of speed.

3,303,719
VISCOUS TORSIONAL VIBRATION DAMPER WITH CENTERING AND SEALING MEANS
Kurt A. Beier, Morgantown, Ind., assignor to Schwitzer Corporation, Indianapolis, Ind., a corporation of Indiana
Filed Jan. 21, 1965, Ser. No. 426,760
5 Claims. (Cl. 74—574)

1. A torsional vibration damper assembly for mounting in operative relation to the crankshaft of an internal combustion engine comprising a generally annular driving hub or member having a radially inwardly extending surface for concentric attachment to a crankshaft and having a radially outwardly extending flange, a driven inertia member mounted concentrically of said driving member and having a central aperture therein accommodating said driving member, said driven member being provided with a radially outwardly extending cavity freely accommodating said outwardly extending flange of said driving member, the inner margins of said driven member adjacent said cavity being formed to provide an annular groove on each side of and adjacent to said outwardly extending flange, elastic rings interposed between said driving and driven members and disposed within said annular grooves under compressive stress both radially and axially, said elastic rings sealing said cavity to form a chamber, and a viscous fluid within said chamber, the axial and compressive load exerted on said rings serving to provide forces centering said outwardly extending flange within said cavity and establishing the thickness of the fluid film between said cavity faces and said outwardly extending flange.



3,303,720
FOLDING PEDAL FOR BICYCLES AND THE LIKE
Eric Jaulmes, Paris, France, assignor to Ateliers de la Motobecane, a corporation of France
Filed Nov. 17, 1964, Ser. No. 411,896
Claims priority, application France, Nov. 20, 1963, 954,343
11 Claims. (Cl. 74—594.7)



1. A folding pedal for bicycles and the like including a crank having a crank pin at the end thereof, to provide a supporting axle for said pedal, said pedal comprising in combination:

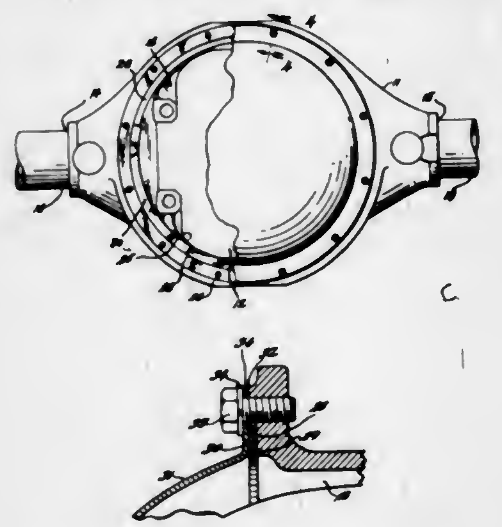
(1) a frame rotatively supported by said pin and having a width in the axial direction substantially equal to the length of said pin,

(2) a pair of identical pedal members,

(3) means rotatively supporting said members by said frame about a pair of axes disposed at right angle to and at equal spacing distances from the axis of rotation of said frame, whereby to enable said members to be swung in opposite directions from a closely spaced and parallel operative position of extension away from said crank to a retracted position of extension towards and beyond said crank, and vice versa, and

(4) releasable locking means operably connected with said members, to fix said members in the operative position.

3,303,721
AXLE HOUSING ASSEMBLY
Stanley V. Puidokas, Kenosha, Wis., assignor to American Motors Corporation, Kenosha, Wis., a corporation of Maryland
Filed Oct. 12, 1964, Ser. No. 403,046
2 Claims. (Cl. 74—607)



1. An axle housing assembly comprising:

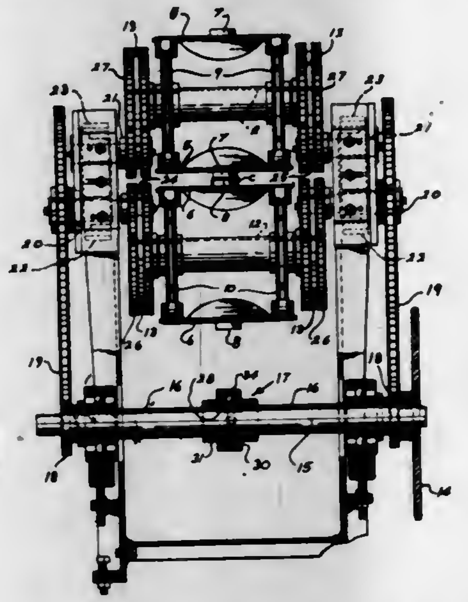
(a) a differential gear unit housing, said housing defining a chamber, said chamber having a pair of generally opposed entrances in each of which is integrally secured an axle tube, each of said axle tubes being adapted for the insertion therethrough of an axle shaft, said chamber having an aperture therein for the extension therethrough of the shaft of a pinion, said chamber also having an opening therein, said housing being adapted for the rotatable positioning in said chamber of the pinion and the associated axle drive differential gear unit installable through said opening, said housing having a circular mounting surface surrounding said opening, said housing having a peripheral, circular gasket seat surrounding said opening and surrounded by said mounting surface, said gasket seat being recessed inward toward said chamber from said mounting surface and substantially parallel thereto, said seat being the outermost housing surface between said opening and said mounting surface;

(b) a lathe cut precompression type gasket of generally rectangular cross section located in said gasket seat and projecting therefrom;

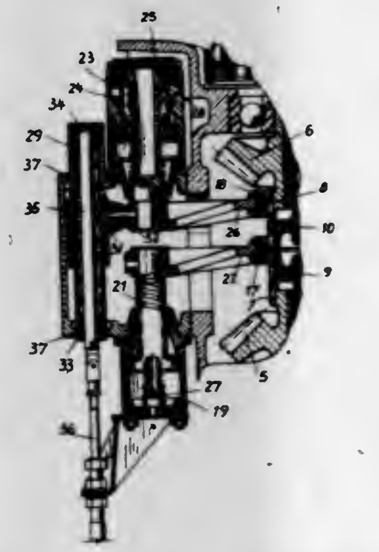
(c) and a generally circular cover fixedly mounted on said mounting surface and closing said opening, the surface of said cover in contact with said mounting surface also contacting and compressing said gasket against said seat to seal said opening to prevent the passage of grease therethrough.

3,303,722
LIMITED DIFFERENTIAL TRANSMISSION
Le Roy R. Boggs, Bristol, Tenn., assignor to Universal Moulded Fiber Glass Corp., Bristol, Va., a corporation of Delaware
Original application Sept. 18, 1961, Ser. No. 142,749, now Patent No. 3,151,354, dated Oct. 6, 1964. Divided and this application Dec. 17, 1963, Ser. No. 331,272
1 Claim. (Cl. 74—650)

A differential for use in a power transmitting device of the kind having a power shaft and two driving trains for receiving and transmitting power from said shaft, the power transmitting connection of said trains to said shaft including differential driving mechanism comprising a ball race connected with the shaft, balls in said race exposed at both sides of said race axially of the shaft, and a pair of driving parts connected respectively with said two driving trains and having a pair of opposed sockets for each ball in said race, said driving parts being rotative about the same axis as the shaft, each pair of opposed sockets having two opposed driving surfaces, one of said opposed driving surfaces being on each of said driving parts, said pair of sockets being large enough in relation to the diameter of the balls so that said driving surfaces are the only portions of said driving parts against which the ball therein abuts during transmission of power from the ball race to the driving parts, said race and driving parts being constructed and arranged to permit relative motion, axially of the shaft, between the balls and the driving parts, the diameter of the balls and the spacing of said opposed surfaces being interrelated so as to permit limited relative rotation of said driving parts while maintaining power transmission from the ball race through said opposed surfaces to the driving parts.



3,303,723
STEERING GEAR FOR TRACKED VEHICLES
Walter Ruf, Landhaus am See, Bottighofen, Thurgau, Switzerland
Filed Nov. 29, 1963, Ser. No. 326,950
Claims priority, application Germany, May 9, 1963, R 35,145
6 Claims. (Cl. 74—665)

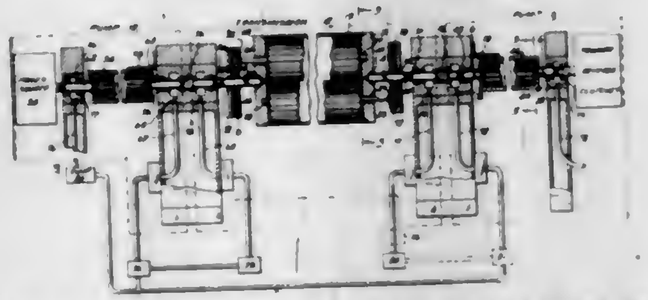


1. In a steering gear for tracked vehicles and tanks four coaxially arranged gear wheels, two output shafts,

each connected with one of said gear wheels, one input shaft, transmission means, so located between the input shaft and the two remaining of said four gear wheels that these last mentioned two gear wheels are driven by the input shaft in the opposite sense of rotation, two shift sleeves displaceable in the axial direction of said gear wheels into several engaging positions, in which they always positively connect two of said gear wheels, and an actuating device by means of which these two shift sleeves may be moved into their different engaging positions, and controlled by a pressure medium.

3,303,724
POWER TRANSMITTING APPARATUS

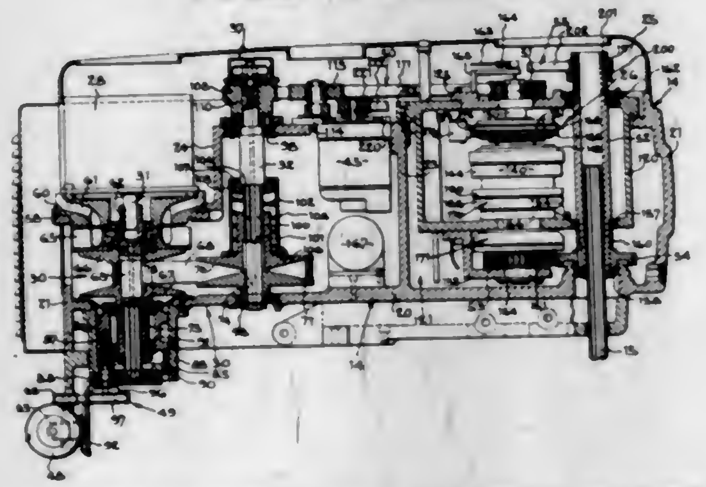
Carroll T. Reeves, Jr., P.O. Box 608,
East Setauket, N.Y. 11785
Filed Dec. 17, 1964, Ser. No. 419,123
8 Claims. (Cl. 74—687)



8. In a power transmission apparatus an input shaft, means for driving said input shaft in rotary motion, a first hydraulic pump mounted on said input shaft and driven thereby, an input internal gear mounted on said input shaft, an output shaft, a casing rotatably supported by said input and output shafts, an output internal gear mounted on said output shaft, input and output pinions engaging respectively with said input and output internal gears, first and second pinion shafts respectively projecting within said casing, first and second meshing gears within said casing mounted on said pinion shafts respectively, a sump, a first hydraulic conduit from said sump to said first hydraulic pump, a second hydraulic conduit from said pump, a third hydraulic conduit out of said casing to said sump, a fourth hydraulic conduit into said casing, a first control means for interconnecting said second and fourth conduits and for directing said second and fourth conduits to said sump and second control means for inhibiting flow of fluid in said fourth hydraulic conduit.

3,303,725
VARIABLE SPINDLE SPEED TRANSMISSION SYSTEM

Robert N. Knosp, Ludlow, Ky., assignor to The Fosdick Machine Tool Company, Cincinnati, Ohio
Filed May 22, 1963, Ser. No. 282,318
3 Claims. (Cl. 74—740)



1. A variable speed transmission system for rotating the spindle of a machine tool at selected speed rates and for imparting rotary jogging motion to the spindle comprising:

a power motor;

a driving system connected to the motor and adapted to provide individual spindle speeds;

a speed selector motor in driving connection with said driving system and adapted to adjust the driving system, thereby to provide a selected speed;

switch means for controlling the operation of said speed selector motor;

a back gear train having an input shaft connected to the driving system;

a rotatable gear housing adapted to be coupled to the input shaft;

an output shaft journalled in coaxial relationship to the input shaft, said back gear train journalled within the gear housing and interconnecting the input and output shafts;

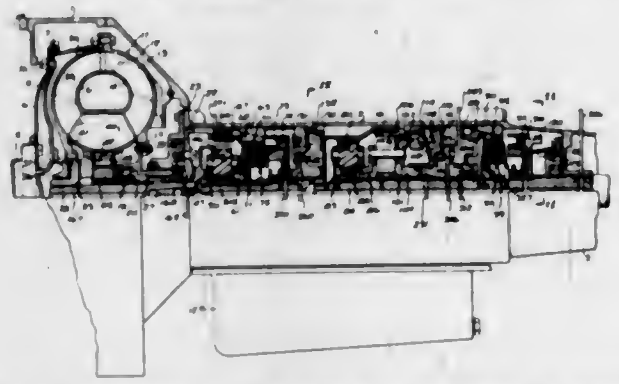
an electrically operated clutch for coupling the input shaft to the rotatable gear housing for rotating the housing in unison with the input shaft, whereby said back gear train provides a direct high range driving connection between the rotatable gear housing and output shaft;

an electrically operated brake for holding the rotatable gear housing in stationary position, whereby said back gear train provides a low range driving ratio between the input shaft and the output shaft, said output shaft being in driving connection with said machine tool spindle;

and means for holding said output shaft in stationary position, thereby to stop the spindle, said back gear train thereupon being converted into a planetary gear train adapted to impart rotary motion to the gear housing, thereby adapting the power motor to continue running, adapting the back gear train to impart jogging motion to the spindle by momentarily releasing the said holding means of the output shaft while the rotatable gear housing momentarily is braked by said electrically operated brake.

3,303,726
AUTOMATIC TRANSMISSION

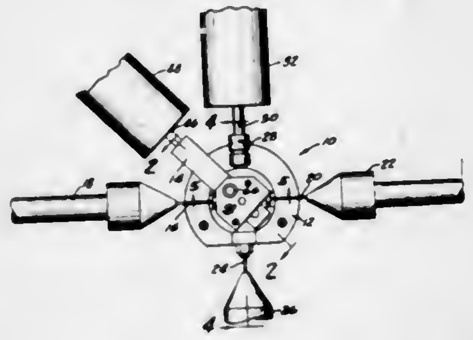
Howard W. Christenson, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Application Sept. 10, 1958, Ser. No. 761,664, now Patent No. 3,236,117, dated Feb. 22, 1966, which is a continuation of application Ser. No. 467,277, Nov. 8, 1954. Divided and this application Oct. 13, 1965, Ser. No. 495,558
8 Claims. (Cl. 74—751)



1. In a mechanism for the transmission of torque, a driving member, a driven member, planetary gearing interrelated with the driving and driven members and including a ring gear member, a sun gear member, a carrier member with planetary gears thereon, a shiftable brake member connected to one of the planetary gear members, a stationary brake member therefor, the gear members having helical teeth so arranged that when loaded by the transmission of torque the friction brake member is shifted thereby into engagement with the stationary brake member, a plate clutch for interconnecting two members of the planetary gearing, means for applying packing pressure on one side of the clutch to engage it, the shiftable brake member being positioned to take the reaction of the packing pressure to initially limit the reaction and packing pressures to limit clutch torque capacity proportional to load and being shiftable out of engagement with the stationary brake member by said packing pressure, means for releasing the packing pressure for the clutch, whereby the torque load on the helical gear teeth shifts the friction brake member into engagement with the stationary brake member during the releasing of the clutch, and additional means for applying pressure to the shiftable brake member urging it into engagement with the stationary brake member.

3,303,727
APPARATUS FOR DRILLING HOLES IN BALLS

Paul J. Hackbarth and Jacob S. Doty, both of Middletown, Ohio, assignors to Hoover Ball and Bearing Company, Saline, Mich., a corporation of Michigan
Filed Sept. 29, 1964, Ser. No. 400,089
7 Claims. (Cl. 77—21)

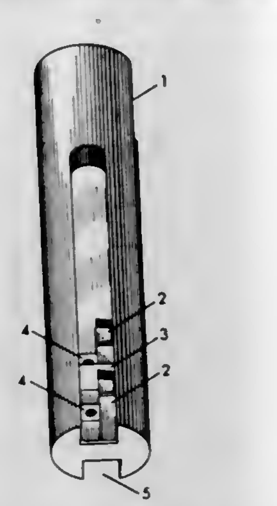


1. In apparatus for forming holes in balls, a body having a passage adapted to receive a ball to be formed with holes, a ball supporting member slidably supported on said body for movement in a direction transversely of said passage between a first position in said passage supporting a ball to be drilled and a second position to one side of said passage, clamp means movable transversely of the direction of movement of said ball supporting member and engageable with diametrically opposite sides of a ball supported on said ball supporting member and disposed in said passage, and axially aligned hole forming members disposed on transversely opposite sides of said passage and positioned for engagement with transversely opposite sides of a ball supported on said ball supporting member.

3,303,728
MULTIPLE BIT BORING BAR

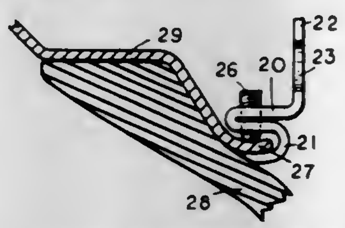
Ernest J. Testa, Santa Fe Springs, Calif., assignor to Tesan Tool Manufacturing Company, Santa Fe Springs, Calif.
Filed Apr. 27, 1965, Ser. No. 451,238
1 Claim. (Cl. 77—58)

A multiple bit boring bar comprising an elongated bar of circular or otherwise cross section, an open slot formed lengthwise on the surface of said bar, said slot having one wall square, or 90 degrees to its bottom surface, and the opposite wall formed somewhat less than 90 degrees to its bottom surface so that the width of said slot is smaller at its lengthwise opening than the width of said slot at its lengthwise bottom, cutting tool bits removably placed into said slot at desired positions within slot length, said tool bits locked into positions with tapered wedges, a set screw threadedly received in said wedge whereby said set screw is tightened in a clockwise direction causing contact of the said set screw end against said slot bottom and actuating said wedge into tight engagement between said tool bit and said tapered wall of said slot, supporting spacers removably placed into said slot adjacent to said tool bits, said spacers locked into position by said wedges in the same manner as the said tool bits.



3,303,729
NON-SKID TIRE CHAIN ATTACHMENT CLIP

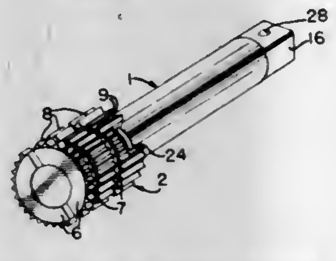
John E. Webb, 4747 46th Ave. SW., Seattle, Wash. 98106, and Elmer M. Scott, 7061 7th Ave. NW., Seattle, Wash. 98107
Filed July 1, 1965, Ser. No. 468,795
3 Claims. (Cl. 81—15.8)



1. A clip to facilitate attachment of a link of a non-skid tire chain to an outwardly extending flange of a wheel rim, comprising an intermediate shelf like part; a rim flange engaging member of hook shaped cross section rigid with an edge portion of said shelf like part and arching away from and over said shelf like part in opposed spaced relation therefrom; clamping means carried by said shelf like part adapted, when said clip is fitted over a rim flange, to be tightened against said rim flange and secure said clip to said rim flange; and a flat tire chain attachment plate rigid with an edge of said flat shelf like part outwardly from said clamping means and extending perpendicularly from said flat shelf like part in an opposite direction from said member of hook shaped cross section, said tire chain attachment plate having a notch in each of its two opposite edges shaping it to receive and be engaged by links of the side chains of a non-skid tire chain when the clip is applied to either side of a wheel rim.

3,303,730
PIPE TOOL

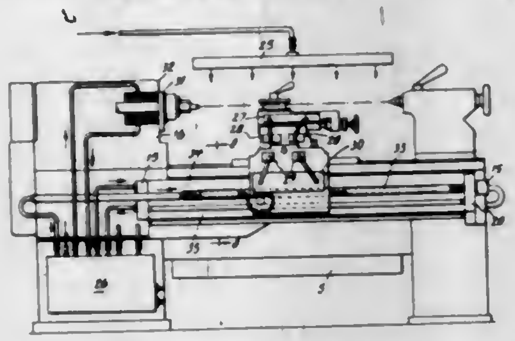
Dena G. Ellis, P.O. Box 985, Jacksboro, Tex. 76056
Filed July 2, 1965, Ser. No. 469,090
2 Claims. (Cl. 81—72)



1. An article of manufacture, a tool for rotating pipe, which tool comprises;

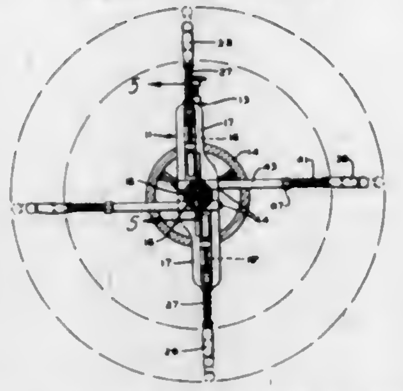
(a) a mandrel,
  (1) an externally screwthreaded end on said mandrel,
    (i) said externally screwthreaded end of said mandrel being tapered toward an apex,
  (2) a complementary, internally screwthreaded, segmental head fitted upon said tapered threads of said mandrel,
  (3) resilient means normally retaining said head in contracted relation on said screwthreads on said mandrel,
    (i) said head having serrations formed exteriorly around the periphery thereof for engaging the interior of a pipe,
  (4) means on said mandrel to operatively receive a torsion applying element,
  (5) said segmental head having a notch formed in the end thereof, adjacent said mandrel,
(b) a sleeve adapted to be slid over said mandrel in close fitting, guided relation,
  (1) said sleeve having a tang formed on an end thereof, adjacent said segmental head, to complementally engage said notch,
  (2) said sleeve having a counterbore formed therein, in the end thereof, adjacent said tang, which counterbore is of a size and depth to receive the larger end of said tapered threaded portion of said mandrel, when said mandrel is in one position, and
  (3) wrench receiving means on the distal end of said sleeve.

3,303,731
TEMPERATURE CONTROLLED LATHE
Ferdynand Zawistowski, Aviva St. 62,
Ramat Remes, Israel
Filed Aug. 17, 1965, Ser. No. 480,361
16 Claims. (Cl. 82—2)



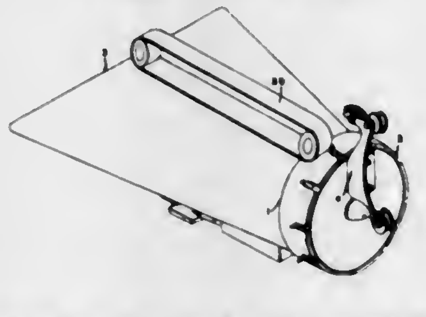
1. In a precision machine tool a system for maintaining uniform temperature of all essential parts of said tool and of the work which comprises a heat exchanger inlet, piping in said heat exchanger for the flow therethru of circulating fluid, an inlet into said heat exchanger for flow of coolant in contact with said piping, an outlet from said heat exchanger for the coolant extending to the work, a return duct from the work to said inlet for coolant, an outlet conduit from said piping, a plurality of fluid circulating conduits each of which is located in the body of a machine element, said fluid circulating conduits having one end in parallel connection to said piping outlet, the other end of said fluid circulating conduits being connected to said inlet piping, a temperature difference indicator in circuit with both of the outlets for the fluid and the coolant to detect temperature difference therebetween, a temperature control unit in said piping outlet, an electric heating element in said heat exchanger for heating both the fluid and the coolant, a switch, an electric connection from said temperature control thru said switch to said heating element, for controlling said heater in accordance with the temperature difference control indications to maintain the temperatures of coolant and of fluid in said heat exchanger at substantially the same point.

3,303,732
ADJUSTABLE PIPE MACHINING TOOL
John B. Gill, P.O. Box 2127, Torrance, Calif. 90503
Original application July 14, 1959, Ser. No. 827,043, now Patent No. 3,202,190, dated Aug. 24, 1965. Divided and this application July 12, 1965, Ser. No. 509,446
7 Claims. (Cl. 82—4)



1. In a pipe machining tool having an arbor positionable in concentric relation to the end of a pipe and an outwardly extending arm mounted to revolve and advance along the arbor, a quick adjusting machining device comprising a tool block mounted for sliding movement along said arm and having a blade assembly thereon, a threaded rod journaled against endwise movement in said arm with its axis disposed so as to feed said blade assembly radially with respect to said arbor, a first quick release connection between said arm and said rod and a second quick release connection between said tool block and said rod for selectively providing fine screw adjustment of the block on the arm when engaged and permitting free movement of the block along the arm when disengaged.

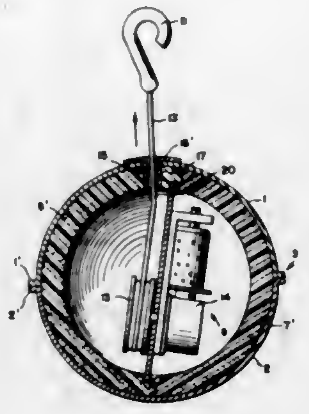
3,303,733
PRODUCTION OF STAPLE FIBRE FROM CONTINUOUS FILAMENTS
Lionel Sheffield Medlycott and Allan Gornall Cail, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Aug. 6, 1964, Ser. No. 387,909
Claims priority, application Great Britain, Aug. 6, 1963, 30,975/63
4 Claims. (Cl. 83—83)



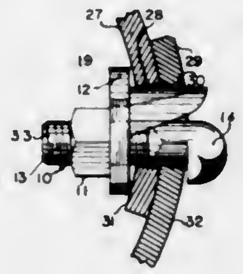
1. Apparatus for the production of staple fibres from continuous filaments comprising a filament supporting former of substantially round section at one end with its surface altering gradually along its length to a substantially horizontal flat section at the other end, and cutting means cooperating with said former for cutting continuous filaments on said former into staple fibres.

3,303,734
MUSICAL CHRISTMAS BALL
Guido Reuge, 21 Rue des Rasses, Sainte-Croix Vaud, Switzerland
Filed Oct. 25, 1963, Ser. No. 318,956
Claims priority, application Switzerland, Nov. 1, 1962, 12,820/62
2 Claims. (Cl. 84—95)

1. A Christmas ball comprising a thin external shell, an internal plastic supporting member, said external shell being formed of two transparent, inwardly metallized semispherical pieces of colored plastic material joined edge to edge to fit closely on said internal supporting member, said internal supporting member having a diaphragm, a musical movement mounted on said diaphragm, a winding mechanism for said movement, a tubular piece on said supporting member, a pulling winding cord for said movement passing through said tubular piece and serving also to hang the ball, said diaphragm acting as a resonance member.

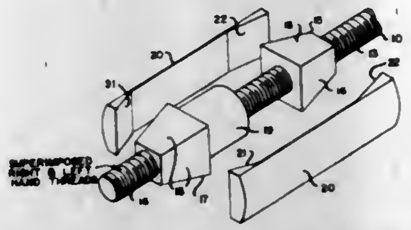


3,303,735
HOOK BOLT AND NUT ASSEMBLY
Roy Fisher, Winnipeg, Manitoba, Canada, assignor to Christopher L. Fisher, St. Boniface, Manitoba, Canada
Filed Feb. 1, 1965, Ser. No. 429,506
5 Claims. (Cl. 85—1)



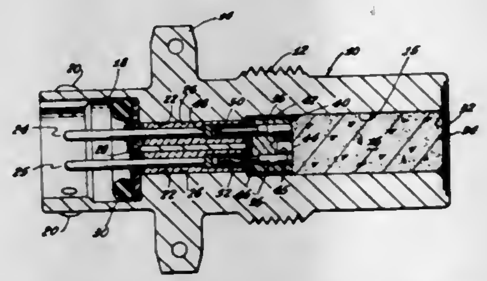
1. A hook bolt and nut assembly for engagement through a bolt aperture from one side of a member having said bolt hole aperture; comprising in combination a hook bolt having a hooked head at one end thereof insertable through said bolt aperture and engageable with the remote surface of said member forming the boundary of said bolt aperture and having an externally screw threaded shank portion at the other end thereof, a combination washer plate and wedge engageable over said bolt with said wedge entering said bolt aperture, and a nut engaging upon said threaded shank portion whereby said combination washer plate and wedge cooperates with said hooked head to secure said assembly to said member, said combination washer plate and wedge including an apertured plate, a wedge extending at right angles from the plane of said plate and upon one side thereof, said wedge having an arcuately curved outer surface and arcuately curved inner surface, said inner surface converging towards said outer surface from said plate towards the distal end of said wedge, the radius of curvature of said outer surface being similar to the radius of curvature of said bolt aperture wall, the aperture in said plate being of a diameter sufficiently greater than that of the bolt shank to permit said wedge to be pivoted until said inner surface contacts said bolt shank, thereby facilitating entry of said wedge into said aperture.

3,303,736
MINE ROOF BOLTS AND THE LIKE
George Raynovich, Jr., Pittsburgh, Pa., assignor to Edward M. Citron, Pittsburgh, Pa.
Filed Apr. 22, 1964, Ser. No. 361,859
3 Claims. (Cl. 85—67)



3. A mine roof bolt comprising an elongated bolt member having an enlarged head portion at one end and a threaded portion at the opposite end carrying superimposed right and left hand threads, a right hand thread nut and a spaced apart left hand thread nut on said threaded portion, a plurality of inclined planar faces on each of said nuts, the faces on each of said nuts converging toward the respective ends of the bolt, whereby the larger ends of the nuts are in facing relationship, an integral cylindrical shell on one of said nuts extending axially thereof around the bolt from the highest point of said inclined faces toward the other of said nuts, a plurality of wedge shell members equal in number to the inclined faces on each nut, said wedge shell members having inner inclined faces at each end thereof matching and bearing on the inclined faces of said nuts, said shell members being adapted to be forced radially outwardly from the axis of the bolt by longitudinal movement of the nuts on the bolt and resilient means surrounding the wedge shell means urging said shell means toward the inclined faces on the nuts, the inclined faces of the wedge shell members bearing on the inclined surfaces of the nut carrying the cylindrical shell being shorter than those on the opposite end of said members whereby said faces run off the inclined faces on the nut and bear on the cylindrical shell permitting the nut to turn with the bolt so that its position on the bolt remains stationary.

3,303,737
METHOD OF FABRICATING A DETONATION SQUIB
James C. Kyle, Glendora, Calif., assignor, by mesne assignments, to Physical Instruments Corp., Los Angeles, Calif., a corporation of California
Original application Apr. 11, 1963, Ser. No. 272,384. Divided and this application Apr. 19, 1966, Ser. No. 559,023
9 Claims. (Cl. 86—1)

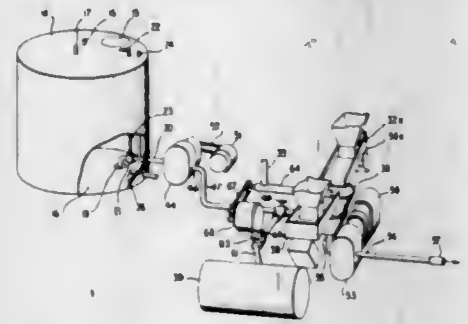


1. A method of fabricating a detonation device of the character described, including the steps of:
forming a first electrode with a socket in one end;
forming a second electrode of a cross section to telescope into said socket with radial clearance;
mounting the first electrode in a first mass of ceramic material and firing to fuse the ceramic mass to the electrode to form a first assembly;
mounting the second electrode in a second mass of ceramic material and firing to fuse the second ceramic

mass to the second electrode to form a second assembly;
forming a ceramic sleeve on said second electrode for snug fit of the second electrode into said socket with a circumferential gap in the sleeve;
abrading the second electrode at said gap to expose clean metal;
and then mating the two assemblies with said second electrode telescoped into said socket.

3,303,738
METHOD FOR MIXING AND PUMPING OF SLURRY EXPLOSIVE

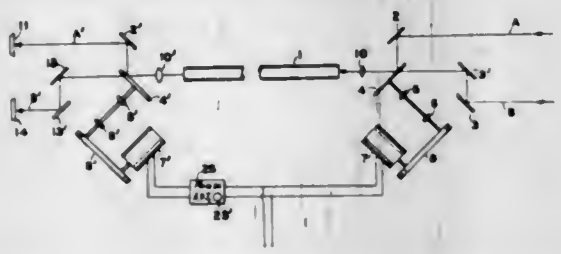
Robert B. Clay, Bountiful, and Melvin A. Cook, Lex L. Udy, and Douglas H. Pack, Salt Lake City, Utah, assignors to Intermountain Research and Engineering Company Inc., a corporation of Utah
Filed June 2, 1965, Ser. No. 460,792
25 Claims. (Cl. 86—20)



1. The method of preparing and placing an explosive gel or slurry in a blasting site, which comprises, in combination, the steps of feeding together simultaneously materials which when combined form a gel or slurry explosive composition and which include a liquid solution containing oxidizing salt and particulate matter including particles which are insoluble in said liquid and subject to oxidation by said salt and also normally subject to gravity separation from said liquid, including in said mixture a sufficient quantity of a delayed action thickening agent to prevent such separation when the agent becomes effective, continuously mixing the liquid and particulate matter together and forcibly pumping the resulting slurry mixture to the site while continuing the mixing, and timing the placement in the site so that substantial thickening takes place by the time said placement is accomplished, thereby to substantially inhibit said gravity separation of particulate matter in the site.

3,303,739
MEANS FOR TRANSMITTING PLURAL IMAGES THROUGH A FIBER OPTIC CABLE

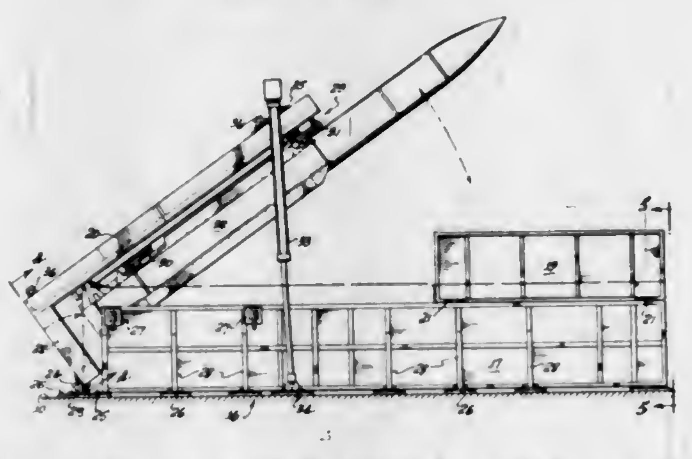
Anwar K. Chitayat, Plainview, N.Y., assignor to Optomechanisms, Inc., Plainview, N.Y.
Filed July 17, 1963, Ser. No. 295,679
2 Claims. (Cl. 88—1)



1. Means for transmitting a pair of images comprising, an image conducting fiber optic cable having first and second faces,
a pair of optical input means at one end of said cable, defining a pair of optical paths, one for each of said images,
a first rotatable half mirror disc, having one section fully reflective and the other fully transparent, located between said input means and said first face of said cable to alternately transmit said images onto said first face of said cable,
a pair of optical output means located adjacent said second face of said cable, defining a pair of optical paths, one for each of said images, a second rotatable half mirror disc, having one section fully reflective and the other fully transparent, located between said output means and said second face of said cable to alternately transmit said images from said cable to said output means, and means to rotate said first and second half mirror discs in phase synchronism.

3,303,740
TRANSPORTER-LAUNCHER

Lawrence E. Grayson, Glendora, Norman E. Maxwell, Ontario, and George H. Schillreff, Glendora, Calif., assignors to General Dynamics Corporation, Pomona, Calif., a corporation of Delaware
Filed Dec. 9, 1964, Ser. No. 417,017
7 Claims. (Cl. 89—1.815)

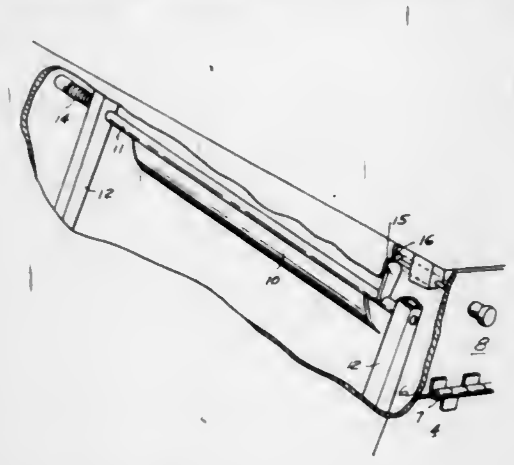


1. A transporter-launcher apparatus adapted for transporting, storing and launching a missile or the like comprising: a box-like container means, cover means located at one end of said container means and adapted to cover and uncover that end portion of the box-like container means, a cover member located at the other end of said container means and adapted to pivot with respect to said other end of said container means for covering and uncovering the said other end of said box-like container means, said cover member being provided with means adapted for releasably supporting an associated missile or the like on one side thereof, said cover member additionally provided with means mounted on the opposite side thereof for transporting the cover member, and actuator means for pivoting said cover member with respect to said container means.

3,303,741
CARTRIDGE MAGAZINE OF A GUN

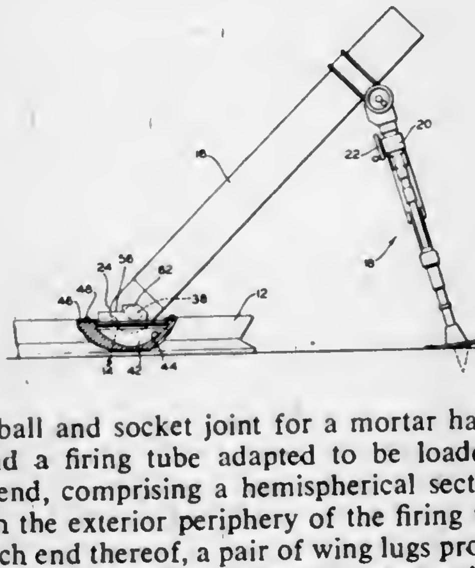
Carl Mauritz Christiansson, Bofors, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a corporation of Sweden
Filed Apr. 1, 1965, Ser. No. 444,628
Claims priority, application Sweden, Apr. 8, 1964, 4,360/64
2 Claims. (Cl. 89—34)

1. A cartridge magazine of a gun of the type comprising at least one compartment defining a vertical cartridge magazine shaft for receiving therein cartridges arranged in a vertical row on top of each other and being enclosed by a magazine enclosure having an inlet port located at the uppermost part of a vertical wall of the enclosure for introducing cartridges one by one in the longitudinal direction thereof to an essentially horizontal position within the compartment, the cartridge magazine comprising, in combination, a cartridge support means extending horizontally in the longitudinal direction of the cartridge compartment and located below the lower edge of the inlet port, said cartridge support means being movable between a first position to prevent a movement downwardly through the magazine of a cartridge introduced through the port, and a second position in which a cartridge deposited thereon is left free to move downwardly through the magazine; a directional force means tending to bring said cartridge support means to its said first position preventing a cartridge from moving downwardly in the magazine; a releasable retaining means having a member connected to the cartridge support means and a member displaceably attached to a stationary part of the magazine and arranged so as to occupy alternatively a first position to retain the cartridge support means in said first position thereof in which a cartridge is prevented from moving downwardly in the magazine, and a second position to release the support means to move into said second position thereof allowing the cartridge to move downwardly in the magazine; a door for the port; a releasing means co-operant with said displaceable member of the retaining means and with the door of the port to bring said displaceable member into said second position thereof to release the retaining means and leave the cartridge support means free to move out of the way of a cartridge resting thereon in the magazine in the closed position of the door.



3,303,742
FULL BALL AND SOCKET ASSEMBLY

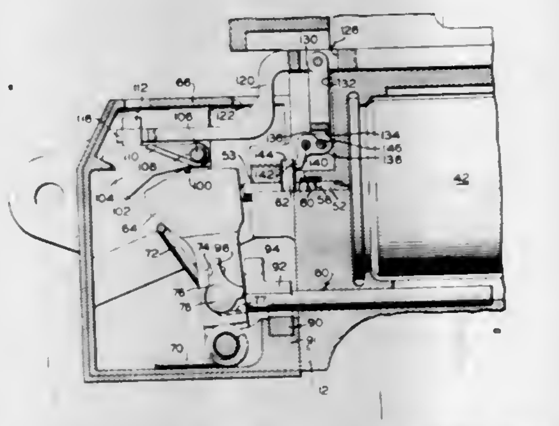
Robert J. Thierry, Averill Park, and Stephen C. Horvath, Troy, N.Y., assignors to the United States of America as represented by the Secretary of the Army
Filed May 18, 1965, Ser. No. 456,870
5 Claims. (Cl. 89—37)



1. A ball and socket joint for a mortar having a baseplate and a firing tube adapted to be loaded from the muzzle end, comprising a hemispherical section coextensive with the exterior periphery of the firing tube to form the breech end thereof, a pair of wing lugs projecting from diametrically opposed locations on the exterior periphery of said firing tube breech end, the exterior peripheries of said wing lugs being spherically contoured in concentric relation to said hemispherical breech end of the firing tube, a socket body in the baseplate having a spherical opening disposed for mating engagement with said firing tube breech end, and a pair of retaining blocks secured to diametrically opposed locations on said socket body and having spherically curved inner faces vertically coextensive with the interior periphery of said spherical socket opening for rotatable mating engagement with said exterior peripheries of said wing lugs whereby the firing tube is rotatably seated in the baseplate for elevational and azimuth movement and is retained therein until said wing lugs are rotated out of contact with said retaining blocks.

3,303,743
FIRING PIN SAFETY MECHANISM FOR AN EXTERNALLY POWERED AUTOMATIC GUN

Charles E. Lanizzani, Stafford, Conn., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 13, 1963, Ser. No. 265,593
6 Claims. (Cl. 89—149)



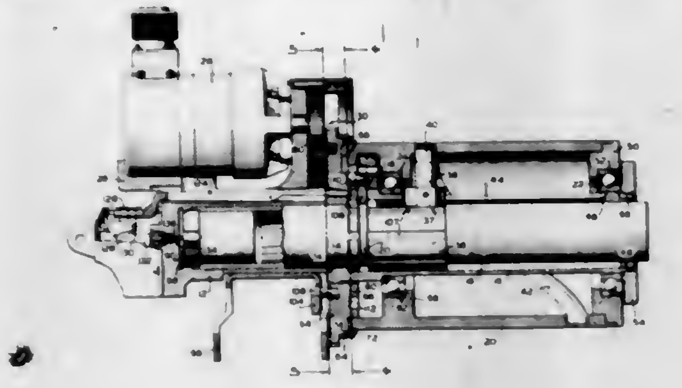
1. In an automatic gun having a receiver with a forwardly opening bore, a barrel slidably disposed in the bore, and an externally powered rotatable drum having cam means for reciprocating the barrel into and out of locked battery position, the combination of a firing pin slidably mounted in the receiver, a hammer mounted for pivotal impact with said firing pin, a pivotal sear for retaining said hammer in the cocked position thereof, a firing lever pivotally mounted in the receiver for disengaging said sear from said hammer for release thereof against said firing pin, a link secured to said firing lever to depend therefrom rearwardly of the pivotal engagement of the latter in the receiver, and means pivoted to the depending end of said link for blocking the firing movement of said firing pin during the interval in which the barrel is unlocked, said firing pin blocking means being rendered inoperative in response to the firing movement of said firing lever.

3,303,744
BARREL SURROUNDING MOUNT FOR OPERATING DRUM OF EXTERNALLY POWERED AUTOMATIC GUN

Charles E. Lanizzani, Stafford, Conn., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 14, 1962, Ser. No. 246,862
6 Claims. (Cl. 89—161)

1. In an automatic gun having a receiver with a forwardly opening bore in rearward communication with a transverse feedway for the passage of a linked belt of cartridges, the combination of a barrel slidably disposed in the receiver bore for reciprocal movement into and out of battery position, a tubular housing extending forwardly from the receiver to surround said barrel in spaced relation thereto, a hollow cylindrical drum rotatably mounted

on said housing in axial coincidence with said barrel therein, a follower projecting outwardly from said barrel, cam means in the interior of said drum engageable with said follower on said barrel, and means for continuously rotating said drum to reciprocate said barrel for successively chambering each cartridge in the belt during rearward movement of said barrel into battery position.



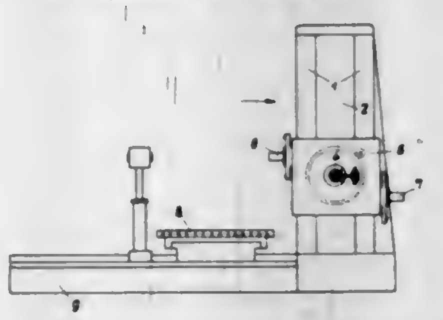
3,303,745
HORIZONTAL BORING AND CUTTING MILL

Hans Heinrich Moll, Essen-Bredeney, and Gert Dickore, Essen-Haarzopf, Germany, assignors to Beteiligungs- und Patentverwaltungsgesellschaft mit beschrankter Haftung, Essen, Germany

Filed Apr. 12, 1965, Ser. No. 447,390

Claims priority, application Germany, Apr. 18, 1964, B 76,400

4 Claims. (Cl. 90—11)



1. A horizontal boring and cutting mill, which includes: an upright stand, a carriage movable on said stand in upward and downward direction, a headstock supported by said carriage and rotatable about a horizontal axis, and two working spindles journalled in said headstock and having their axes located on opposite sides of said horizontal axis in parallel spaced relationship to each other and in a common plane perpendicular to said horizontal axis, each of said working spindles having a tool receiving section and being spaced from said horizontal axis by substantially the same distance and being movable into a substantially horizontal working position by turning said headstock about said horizontal axis, said tool receiving sections respectively being located on opposite sides of said headstock.

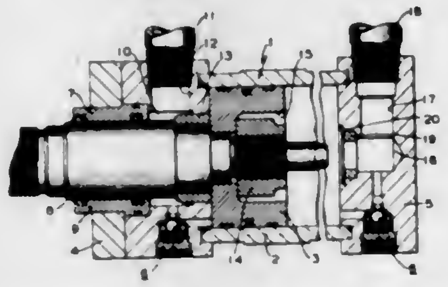
3,303,746
CUSHIONED CYLINDER ARRANGEMENT HAVING A COMBINED CHECK VALVE AND NEEDLE VALVE

Ralph F. Schmoeger, Lexington, Ky., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed Dec. 29, 1965, Ser. No. 517,290

4 Claims. (Cl. 91—26)

1. In a fluid pressure operated cylinder assembly comprising a cylinder, a head element attached to one end of said cylinder, a piston reciprocably disposed in said cylinder, a combination cylindrical air inlet and air exhaust cavity defined in said head element substantially concentric with said cylinder and opening centrally thereinto via which air in said cylinder displaced by said piston during its initial movement towards said element is exhausted and via which air under pressure may be admitted to the cylinder for movement of said piston away from said element, a cylindrical element substantially concentrically disposed to one side of said piston and movable therewith for telescopic insertion into said cavity with slight clearance serving to restrict the egress of fluid from said cylinder as the piston approaches the head, a bore in said head having one end opening exteriorly of said head and the other end opening in said cavity, and a first passage means in said head communicating said bore intermediate its ends with the face of said head and disposed interiorly of said cylinder, an adjustable cushion mechanism, comprising:



(a) a choke valve member disposed in said bore to close off communication between its ends and axially movable in said bore to open and close communication between said other end of the bore and said passage, the degree of communication therebetween depending upon the axial position of said choke valve member in said bore means,

(b) second passage means in said choke member communicating said other end of said bore with said first passage means, and

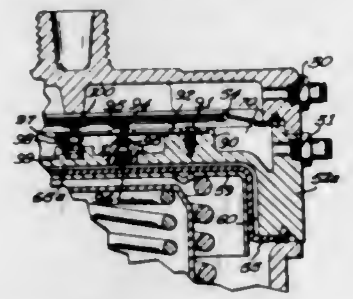
(c) a check valve member disposed in said choke valve member and biased to close said second passage in opposition to a predominant fluid pressure in said other end of the bore relative to pressure in said first passage.

3,303,747
PRESSURE DIFFERENTIAL RELAY

Peter P. Demay, Chicago, and Joseph E. Hogel, River Grove, Ill., assignors to Honeywell Inc., a corporation of Delaware

Continuation of abandoned application Ser. No. 348,235, Feb. 28, 1964. This application Mar. 4, 1966, Ser. No. 534,567

5 Claims. (Cl. 91—47)



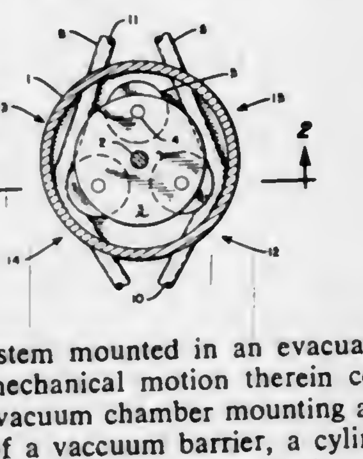
1. A device responsive to an operating pressure and to a differential pressure to provide a mechanical output from the device, including: housing means having a plurality of fluid chamber means; said housing means further having a fluid actuator portion including force output means to provide a mechanical force outside of said housing means; said actuator portion including a first of said fluid chamber means and said first chamber means being sealed by a flexible wall; said first chamber means further having a fluid inlet continuously connected to an operating fluid pressure and fluid outlet means; second fluid chamber means sealed by diaphragm means with said second chamber means adjacent said first chamber means; said outlet means including valve means connecting said first and said second chamber means with said valve means operated by said diaphragm means and sealed thereby; third chamber means adjacent said diaphragm means and sealed thereby; spring supported lever means attached to said housing means and biased against said diaphragm means; said lever means moving with said diaphragm means to in turn actuate said valve means to control said actuator portion of said device; and said second chamber means and said third chamber means each having port means; said port means provided to receive a differential pressure to operably move said diaphragm means to in turn actuate said valve means to control said actuator portion by bleeding said fluid pressure to the atmosphere.

3,303,748
MOTIVE DRIVE SYSTEM

John F. Duryee, Bloomington, and Raymond G. Lins, Minneapolis, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 27, 1964, Ser. No. 355,181

8 Claims. (Cl. 91—57)



1. A drive system mounted in an evacuated chamber for producing mechanical motion therein comprising in combination: a vacuum chamber mounting at one end as a portion thereof a vaccuum barrier, a cylindrical housing mounted within said chamber and disposed about an axis, a drive shaft on said axis and supported by said housing, a spider wheel fixed to said shaft, a plurality of rollers mounted around the periphery of said wheel, continuous flexible tubing arranged on the radially inner surface of said housing and intermediate said roller and said inner housing surface, the radially outermost portion of said rollers being spaced from said housing surface, but at a lesser distance therefrom than the undeformed diameter of said tubing, the tubing extending through and being sealed with respect to said barrier, where it traverses said barrier, said tubing transporting a pressurized fluid medium whereby said rollers partially restrict a portion of the tubing causing a pressure differential across said restriction resulting in a force component acting to drive said rollers and said spider wheel in opposite relative directions to exert a driving force on said drive shaft.

3,303,749
HYDRAULIC MOTORS

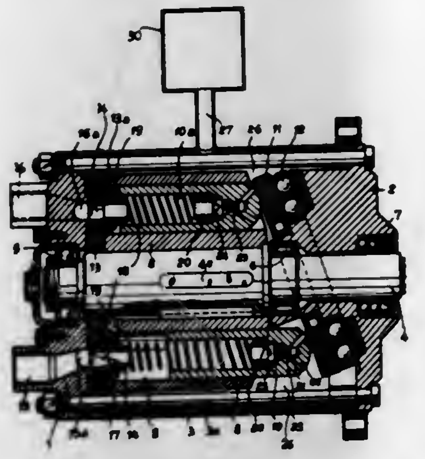
Oreste Ocule, Grugliasco, Turin, Italy, assignor to Simit S.p.A., Grugliasco, Turin, Italy

Filed Apr. 19, 1965, Ser. No. 449,185

Claims priority, application Italy, Apr. 24, 1964, 9,504/64

1 Claim. (Cl. 91—175)

A hydraulic motor of the type comprising a tubular body, a rotor rotatably mounted within said body so that a clearance is formed between said body and said rotor. and a swash plate situated on one side of the rotor supported by the body, a plurality of cylindrical recesses parallel to the rotational axis in said rotor, fluid inlet and outlet means disposed adjacent the side of said rotor opposite said swash plate, a piston freely slidably mounted in each recess, a compression spring mounted in each recess and urging the piston so that its head abuts said swash plate, a valve housing remote from said fluid inlet and outlet means, a conduit in continuous communication with said valve housing and with the clearance between the rotor and the body, a one-way valve opening towards the inside of the recess mounted in each valve housing and a conduit connecting the clearance between the body and the rotor with a reservoir containing fluid at atmospheric pressure.

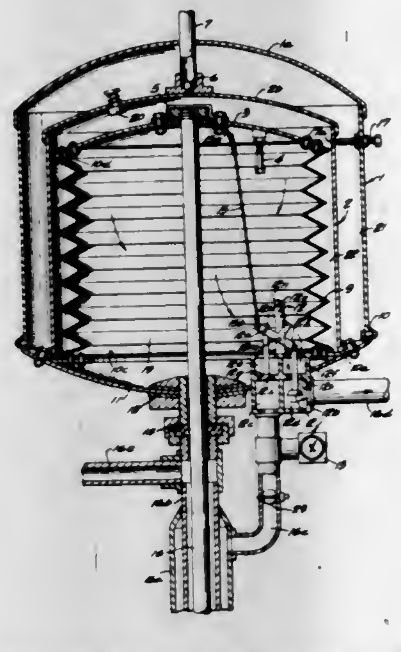


3,303,750
PUMP MOTORS

William S. Powell, R.F.D. 2, Granville, Ohio 43023

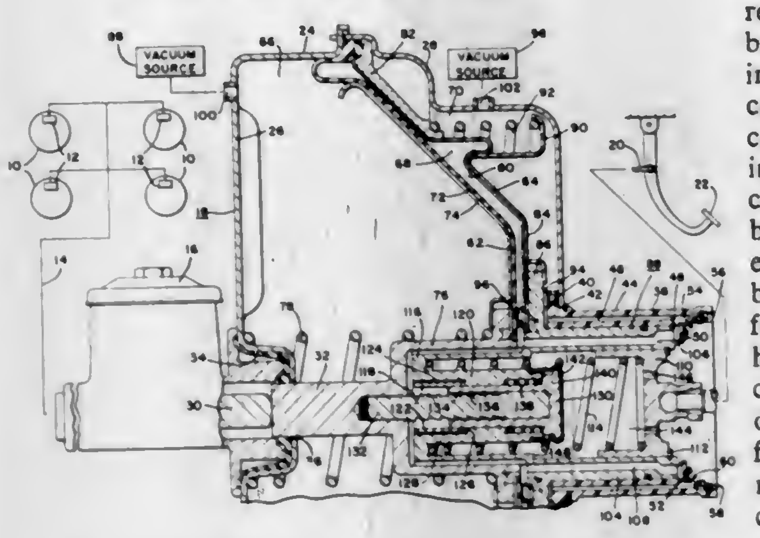
Filed Apr. 1, 1965, Ser. No. 444,698

12 Claims. (Cl. 91—273)



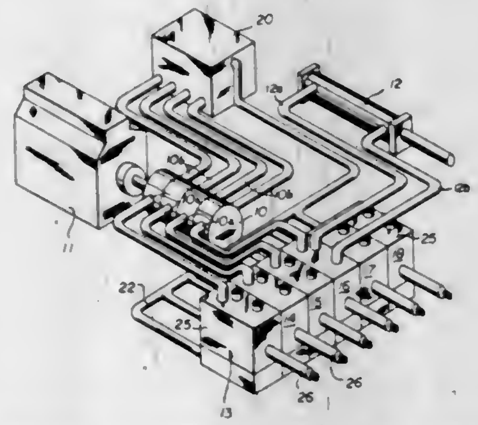
1. A well-pumping unit for use on a well head having a pump rod extending therefrom comprising a support adapted to be disposed at the well head, an expansible bellows mounted on said support and having a fluid-receiving expansion chamber therewithin, said bellows including means for connecting it to said rod, a fluid inlet for conducting actuating fluid into said chamber for expanding said bellows and a fluid outlet for exhausting fluid from said chamber to permit collapse thereof, a reversing valve means for alternately closing said inlet and opening said outlet and opening said inlet and closing said outlet, and control means operatively connected to said bellows for actuation thereby to control said valve in accordance with the expansion and collapse of said bellows.

3,303,751
POWER BRAKE BOOSTER
Thomas A. Bratten, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 13, 1965, Ser. No. 447,618
16 Claims. (Cl. 91—391)



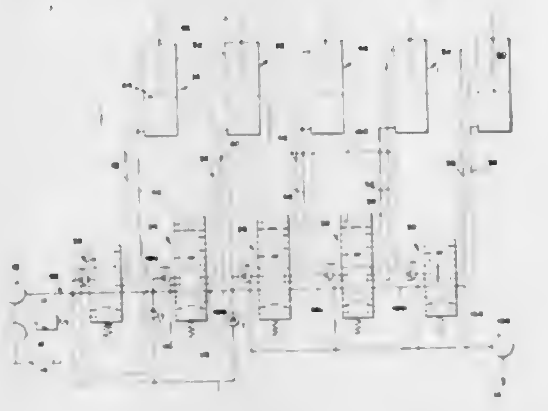
1. In a power booster,
a housing having a movable power wall therein dividing said housing into a variable pressure chamber and a constant pressure chamber,
a first source of constant first pressure and a second source of a second pressure different from the first pressure from the first source,
valve means for selectively admitting said first and second pressures into said variable pressure chamber to control booster power and including a normally seated first pressure first control valve and a normally unseated second pressure second control valve and valve seat means for said valves,
means for moving said first valve and said valve seat means relative to said second valve to seat said second valve on said valve seat means and for further moving said first valve relative to said valve seat means and said second valve to unseat said first valve,
said moving means comprising a manually movable member and a compression spring received in force transmitting relation between said manually movable member and said first valve.

3,303,752
HYDRAULIC VALVE SYSTEM FOR HYDRAULIC ACTUATORS
William M. Shook, New Philadelphia, and Lester H. Kline, Dover, Ohio, assignors to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 21, 1965, Ser. No. 426,792
15 Claims. (Cl. 91—414)



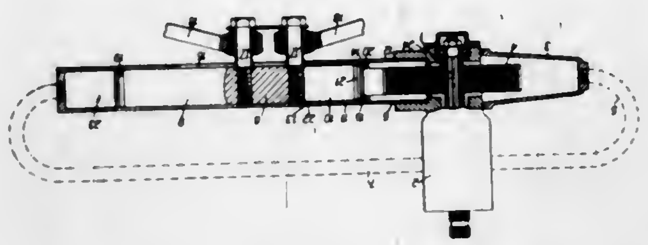
1. In a hydraulic system, a plurality of hydraulic actuators having opposite sides to be connected to different ones of pressure and return conduits, a respective control valve means for each of said actuators, each of said valve means being separate and comprising a valve body and valve spool with each of said valve bodies and valve spools being identical in construction to the other valve bodies and valve spools respectively and each valve body having a bore in which the corresponding valve spool reciprocates axially, the bore in each body having chambers along the length thereof and the spool therein having lands for controlling communication between adjacent chambers, the chambers including spaced cylinder chambers connected to opposite sides of the corresponding actuator and pressure and return chambers to be connected with respective ones of said cylinder chambers by the valve spool, the body having ports opening into each of the chambers and into one side of the valve body, each of said valve means including a passage plate for controlling flow through said ports, said plates each having passageways communicating with the ports of the corresponding valve body, the passageways and ports of different passage plates being different to provide different fluid paths for hydraulic fluid controlled by the respective valve means to provide different hydraulic circuits for corresponding positions of said valve spools.

3,303,753
PRESSURE LIQUID CONTROL SYSTEM
Frank V. McCay, Jr., Salt Lake City, Utah, assignor to The Eimco Corporation, Salt Lake City, Utah, a corporation of Delaware
Filed June 18, 1965, Ser. No. 464,955
2 Claims. (Cl. 91—414)



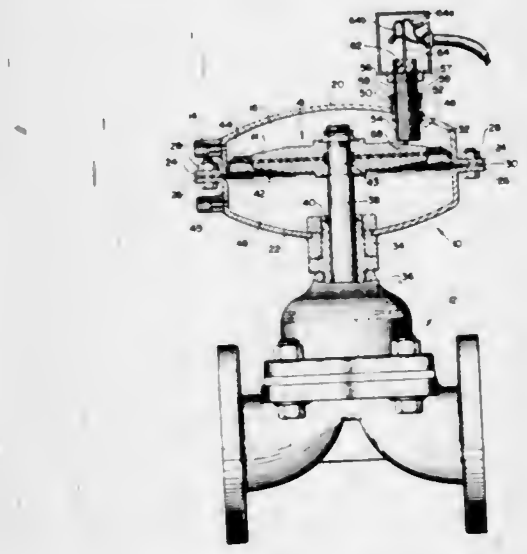
1. A pressure liquid control system comprising a source of pressure liquid; first and second sets of flow control valves; a flow control spool operatively associated with each of the flow control valves; conduit means serially connecting the source of pressure liquid and each of the first set of flow control valves under control of the flow control spools thereof, and connecting each of the second set of flow control valves in parallel with each other and in series with the first set of flow control valves; first and second sets of motion devices; pressure fluid and return lines connecting each motion device of the first and second sets of motion devices with their respective first and second flow control valve under control of the flow control spools thereof; passage means in each of the first set of valves cooperating with means on their respective flow control spool for selectively directing all of the pressure liquid from the conduit means to their motion device and from their motion device to the next in the series of the flow control valves; passage means in each of the second set of valves cooperating with means on their respective flow control spool for selectively directing pressure liquid from the conduit means to their respective motion device and from their motion device to exhaust, and pressure liquid relief valves in said passage means for each of the first set of valves.

3,303,754
POWER OPERATED STEERING GEAR
Frederick J. Adams, Houghton Regis, near Dunstable, England, assignor to Hydrosteer Limited, Bedfordshire, England
Filed Mar. 10, 1965, Ser. No. 438,646
11 Claims. (Cl. 91—462)



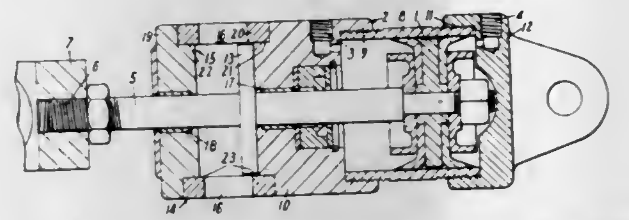
1. In a steering mechanism for vehicles, a cylinder having a wall formed with an opening extending longitudinally of the cylinder axis; a double acting piston unit mounted for reciprocation in said cylinder; fluid pressure seals between the inside of said cylinder wall and opposite end portions of said piston unit; means for increasing the operative length of the cylinder wall sealed between said seals when said piston unit moves in a given direction in a predetermined portion of said cylinder; a rack connected to said piston unit within said cylinder; a pinion meshing with said rack and being operable for moving said rack longitudinally in said cylinder, said pinion constituting the input component of a rack and pinion mechanism and said rack constituting the output component of said rack and pinion mechanism; means including conduit means for delivering fluid under pressure into said cylinder at opposite ends of said piston unit thereby to provide power assistance to movement of said rack; and steering motion transmission means connected to said piston unit and rack and extending through said cylinder wall opening and being movable in said opening longitudinally of the cylinder axis.

3,303,755
ACTUATOR POSITION INDICATORS
William L. Linker, Coventry, and Ronalds J. Platt, Jr., Providence, R.I., assignors to Grinnell Corporation, Providence, R.I., a corporation of Delaware
Filed Mar. 16, 1964, Ser. No. 352,198
4 Claims. (Cl. 92—5)



1. In combination with a fluid pressure actuator having:
(I) a fluid pressure chamber defined by:
(A) a first wall movable through a range of positions,
(B) a second wall which:
(1) is opposite said first wall,
(2) has an aperture,
(II) an actuator position indicator having:
(A) a hollow elongated housing which:
(1) is mounted in said second wall aperture,
(2) has one end extending into said chamber,
(3) has a portion extending from the side of said second wall which is opposite said chamber,
(B) a switch which:
(1) is located in said one housing end,
(2) has an armature which:
(a) is presented toward said first movable wall,
(b) is engaged by said first movable wall in one position within said range of positions,
(C) a body of potting plastic which:
(1) is in said housing,
(2) is hardened,
(3) secures said switch to said housing,
(4) seals the interior of said housing against the passage of fluid therethrough from said chamber,
(D) means associated with said extending housing portion and said chamber wall for adjusting the position of said housing with respect to said wall.

3,303,756
PNEUMATIC CYLINDERS
Robert Ernest Geeson, Croydon, England, assignor to The Metal Box Company Limited, London, England, a British company
Filed Dec. 4, 1964, Ser. No. 416,052
Claims priority, application Great Britain, Dec. 4, 1963, 47,966/63
11 Claims. (Cl. 92—85)



1. A pneumatic cylinder comprising an operating piston movable axially in a housing in response to air pressure admitted to the housing and having a stroke the length of which is less than the internal diameter of the housing, a piston rod movable axially with the operating piston and arranged for connection with a member to be operated thereby, and a cushioning device external of said housing and comprising a cushioning piston movable axially in a cushioning chamber in response to movement of the operating piston, said cushioning chamber being provided at each of the opposite ends thereof with a shallow recess into which the cushioning piston is moved as it approaches an end of the stroke thereof thereby to compress air in the recess to retard and arrest movement of the operating piston before it engages the end of the housing, and openings in the side of the cushioning chamber to maintain at atmospheric pressure that portion of the cushioning chamber which is behind the cushioning piston as it enters one of the shallow recesses.

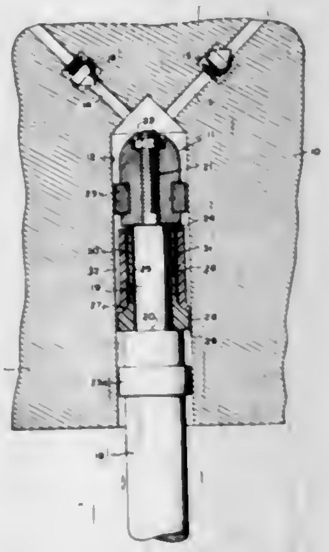
3,303,757
SLEEVE SEAL
John R. Ward, Owings, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 23, 1965, Ser. No. 489,771
9 Claims. (Cl. 92—201)

1. A seal comprising:
first and second members disposed for relative movement and defining a high pressure zone therebetween;

one of said member presenting a first cylindrical surface toward the other of said members;

said other member having an annular recess defined between axially facing shoulders;

an annular member disposed in said recess of said other member and having a second cylindrical surface spaced a first distance from said first cylindrical surface, said annular member having a curved surface extending from said second cylindrical surface toward said first cylindrical surface and terminating at a third cylindrical surface forming part of said annular member and spaced from said first cylindrical surface a lesser distance than said first distance, said third cylindrical surface being at an end of said annular member remote from said high pressure zone; and



an annular deformable sleeve comprising a cylindrical portion disposed in the space between said first and second cylindrical surfaces and having clearance with respect to each, said sleeve comprising an end portion engaging said curved surface and deformed thereby into sealing engagement with said first cylindrical surface, said sleeve bridging the space between said third cylindrical surface and said first cylindrical surface and thereby being urged by pressure from said high pressure zone axially away from said zone and along said zone and along said curved surface to maintain said sealing engagement.

3,303,758
TEAR TAPE APPLYING MECHANISMS FOR WRAPPING MACHINES

Ronald Holt, Battle Creek, Mich., assignor to Battle Creek Packaging Machines, Inc., Battle Creek, Mich.
Filed May 11, 1964, Ser. No. 366,349
14 Claims. (Cl. 93—1)

1. In combination with a wrapper feed and cutting machine having feed rolls and a cutter continuously driven to forward a web of wrapping material, tear tape applying mechanism comprising,

a support plate projecting from the side of said machine and transverse to the path of advance of said web,

a first lower drive shaft on the side of said plate connected to and driven in timed relation by said machine,

an upper cam shaft supported on the side of said plate and connected to said first shaft to be driven thereby,

a through shaft journaled in said plate perpendicular to said first shaft and driven thereby,

a supply roll of tear tape material supported on said plate,

a tape feeding roll mounted on said plate and having a continuous adjustable driving connection to said through shaft,

guide rollers arranged to direct a strand of tape material over said tape feeding roll from said supply roll,

a pressure roll holding said strand in feeding relation to said feeding roll,

a solenoid cennected to withdraw said pressure roll from strand feeding relation,

a slack take-up dancer roll rotatably and slidably mounted on said plate,

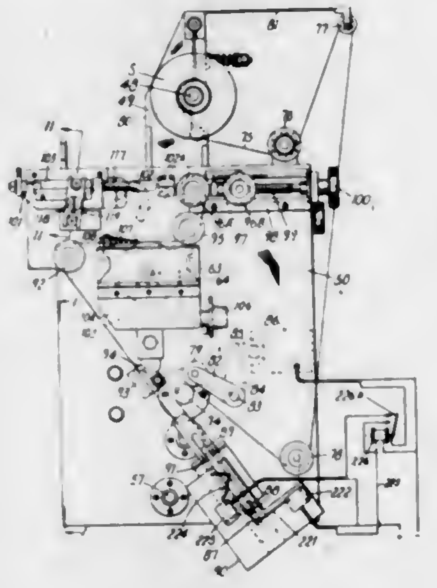
other guide rolls mounted on said plate and adapted to direct said strand around said dancer roll to a cut-off position,

one of said other guide rolls being adjustable to vary the length of said strand from said drive roll to said cut-off position,

switches actuated in lowered and raised positions of said dancer roll connected to activate said solenoid to move said pressure roll to stop and start feeding positions respectively,

an adhesive wax well supported on said plate,

an applicator wheel rotatably mounted on said plate with its lower side dipping into said well and its upper side in contacting relation to one side of said strand between said dancer roll and said adjustable guide roll,



another drive connection from said through shaft connected to rotate said applicator wheel with its upper strand contacting surface moving oppositely to said strand,

a lift element engageable with said strand to lift the strand off of said wheel,

a first carrier block slidably supported on said plate,

an axially variable cam on said cam shaft arranged to reciprocate said first carrier block toward and away from the web in said machine by means of a follower lever pivoted on said plate and connected to said carrier block,

a fixed shear on the outer end of said carrier block,

a holding block slidably supported on said carrier block and movable thereon in response to movement of the carrier block by means of a lever fixedly pivoted to said carrier block and having one end drivingly engageable with said holding block and one end engageable with a fixed pivot on said plate,

a vacuum chamber formed in said holding block and having strand securing openings formed in the upper side of the chamber,

a cut-off blade connected to a rock shaft slidable with said first carrier block and spring biased to open noncutting position of the blade,

a second radial cam on said cam shaft positioned to close said shear blade on said carrier block to sever a tear strip from said strand in the retracted position of said axial cam and said carrier block,

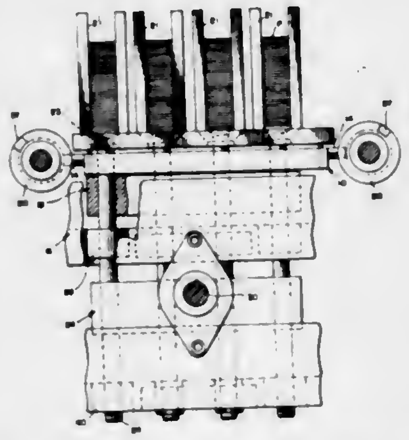
a third axial cam on said cam shaft having a lift positioned to raise said lift element prior to actuation of said shear blade,

a catch engageable with said raised lift element, a fourth angularly adjustable radial cam on said cam shaft having a lift positioned to disengage said catch,

and a conveyor extending transversely of said machine below said web and having a gripper arranged to grip the unwaxed end of said strand from the advanced position of said carrier block and slide block and pull a tear strip length of the strand from said dancer roll and holding block for application to the side of said moving web while said cam shaft is making a single rotation of said cams.

3,303,759
CONVERTING MACHINE FOR BUTTER PATTY PLATE

Albert P. Burke, Birmingham, Mich., assignor to Leo Peters, Chicago, Ill.
Filed May 11, 1964, Ser. No. 366,371
8 Claims. (Cl. 93—1)



1. Apparatus for assembling perimetric wing flange-equipped butter patty plates, comprising:

a frame providing a generally horizontally-extending guide,

a grill-like holder slidably mounted on said guide, said holder being equipped with a plurality of generally square, thin-walled pockets adapted to receive individual plates, with the perimetric flanges thereof upstanding,

a plurality of magazines positioned above said guide for dispensing said plates into said pockets,

a suction head positioned below each magazine for drawing said flanges into upstanding position and then moving said plates into said pockets, and

means for advancing said holder and reciprocating said suction heads in synchronism.

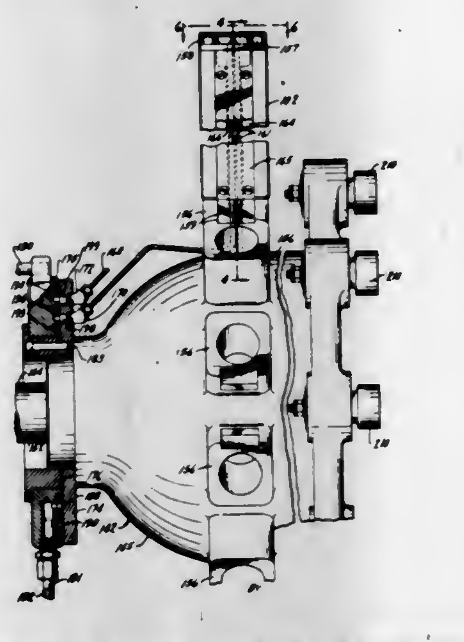
3,303,760
PROCESS FOR FORMING CARTON BOTTOM

Lawrence S. Tobias, Valley Stream, N.Y., assignor to International Paper Company, New York, N.Y., a corporation of New York
No Drawing. Filed Apr. 6, 1964, Ser. No. 357,786
2 Claims. (Cl. 93—44.1)

1. In the manufacture of paperboard cartons from flat carton blanks, a method comprising a first step of handling a blank to provide a carton having sides ending in a common edge, a second step of placing the carton on a mandrel with the common edge extending beyond the mandrel, a third step of rotating the mandrel to a carton bottoming station, and a fourth step of pressing a flat, heated blank made from a thermoplastic material against the common edge until it is embedded in the material.

3,303,761
MACHINE FOR FORMING, FILLING, CLOSING AND SEALING PLASTIC COATED PAPERBOARD CONTAINERS

Charles Z. Monroe, Detroit, and Harry B. Egleston, Livonia, Mich., assignors to Ex-Cell-O Corporation, Detroit, Mich., a corporation of Michigan
Original application June 7, 1961, Ser. No. 115,367, now Patent No. 3,239,995, dated Mar. 15, 1966. Divided and this application Apr. 7, 1965, Ser. No. 462,773
3 Claims. (Cl. 93—44.1)



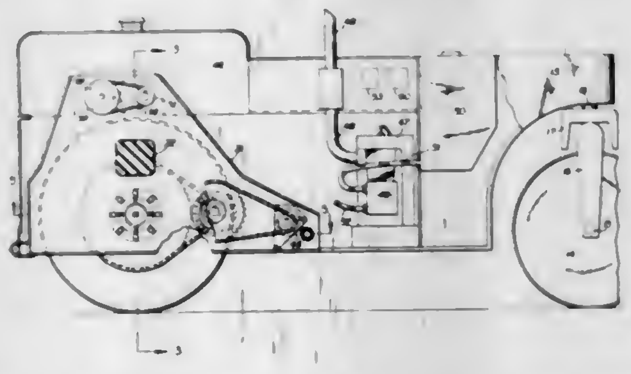
1. In a carton forming machine for thermoplastic coated blanks of paperboard or the like having end closure panels defined therein, the combination comprising, fixed support means, an assembly of mandrels journaled on said support means and movable about a fixed axis, each mandrel being adapted to carry a blank, said mandrels being radially disposed in a common plane axially spaced from said support means and normal to said fixed axis, a plurality of heaters disposed for registration sequentially with the end of each mandrel to heat the blank bottom closure panels on the mandrel, means defining a fluid coolant passage in each mandrel end face to preclude adhesion of the heated thermoplastic coated blank bottom closure panels, coolant circulating conduits carried by each said mandrel for conveying coolant to and from said mandrel passage, means for circulating fluid coolant from a source through said conduits and said mandrel passages comprising a fluid coolant slip-ring fixed between said support and said common plane of said mandrels, said ring having supply and return grooves connected to said coolant source, a plate engaging said ring adjacent said grooves and movable with said mandrel, and coolant connections from said supply and return grooves through said plate to said conduits respectively.

3,303,762
ROAD ROLLER

Charles E. Jennings, Jr., Youngstown, Ohio, assignor to The Renner Company, Youngstown, Ohio, a corporation of Ohio
Continuation of application Ser. No. 164,855, Jan. 8, 1962. This application Jan. 4, 1966, Ser. No. 530,750
6 Claims. (Cl. 94—50)

3. A road roller having a frame with a rearward steerable roller and means for steering the same and a forward compaction roller and means for driving the same so as to move said road roller forwardly and backwardly, said driving means comprising an internal combustion engine, a hydraulic pump driven by said engine, a source of hydraulic fluid, a line in communication with said hydraulic pump and a hydraulic motor positioned in said road roller adjacent said compaction roller, a compaction

roller mounting assembly including a pair of horizontally spaced vertical plates, resilient mounting members secured to the outer sides of said plates and to the inner sides of the frame of said road roller, journals on said plates below said resilient mounting members and in vertical alignment therewith, said compaction roller mounted in said journals, sprocket means on said compaction roller and secondary sprocket means rotatably mounted on one of said plates and flexible drive members interconnecting said sprockets and said hydraulic motor for imparting rotary motion to said compaction roller, a vibrating device for producing directed vibrations comprising in combination

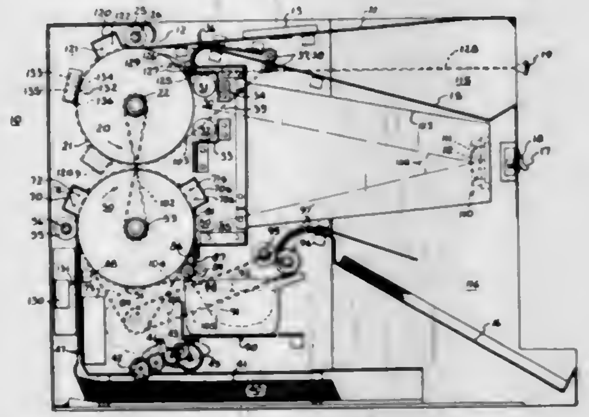


with said vertical plates at least two rods rotatably mounted transversely between said plates and equally spaced with respect to the vertical axis of said compaction roller and said resilient mounting members, the end portions of each of said rods being off center with respect to the remainder thereof, a secondary hydraulic motor mounted on one of said plates adjacent the ends of said rods, and flexible drive means interconnecting said rods and said secondary hydraulic motor and a flow divider valve in said hydraulic communication line arranged to selectively maintain a constant pressure and volume flow to said secondary hydraulic motor, and to said first mentioned hydraulic motor.

3,303,763
ELECTROSTATIC PHOTOCOPY MACHINE

George C. Kent, Highland Park, and Franklin R. Levine, Elk Grove Village, Ill., assignors to American Photocopy Equipment Company, Evanston, Ill., a corporation of Illinois

Filed May 4, 1964, Ser. No. 364,698
5 Claims. (Cl. 95—1.7)

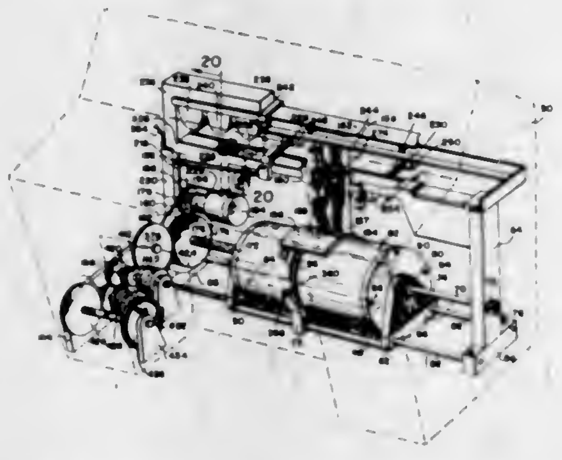


1. In an electrostatic photocopy machine the combination comprising a frame, an original drum and a copy sheet drum together with means for rotating them at the same peripheral speed, nip rollers associated with said drums for aligning and pressing the original and copy sheet against the surface of the respective drums, a source of copy sheets in the frame, means for feeding an original to the nip of the original drum, means for feeding a copy sheet to a ready position just short of the nip of the copy sheet drum, illuminating and exposing stations associated with the drums respectively and optically coupled together for the casting of the image of the original on the copy sheet, means triggered by the arrival of the leading edge of the original for advancing a copy sheet from the ready position to the nip of the copy sheet drum so that the original and copy sheet arrive at the illuminating and exposing stations in step with one another, means for developing the copy sheet, and means for discharging the original and copy sheet from the machine, said original drum having means for imparting an electrostatic charge to the original at the output of the original drum nip for achieving adherence of the original and said copy sheet drum having means for imparting an electrostatic charge to the copy sheet at the output of the copy sheet drum nip for preparing the copy sheet for receiving the image and for achieving adherence of the copy sheet.

3,303,764
PHOTO COMPOSING MACHINE

Richard C. Kudlicki and Roland W. Smith, Phoenix, Ariz., assignors of fifty percent to Richard C. Kudlicki and fifty percent to Max A. Wojton, both of Phoenix, Ariz.

Filed Dec. 24, 1963, Ser. No. 333,035
16 Claims. (Cl. 95—4.5)

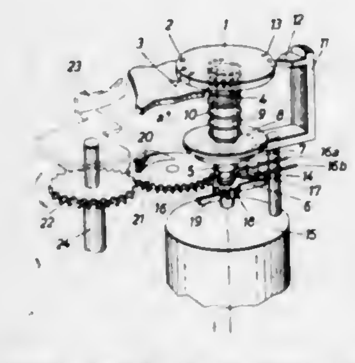


1. In a photo composing machine the combination of: a frame; a hollow circular in cross-section cylindrical drum assembly rotatable concentrically of its circular cross-section and movable axially relative to said frame; a light source supported stationarily relative to said frame and disposed adjacent said hollow drum assembly; a plurality of circular character supporting light transmitting portions on said drum; each character supporting adjacent the next character supporting portion longitudinally of the axis of said drum assembly; photographic means adjacent said drum and disposed to receive shadow images of characters by projection of light from said source through said light transmitting character supporting portions; first means for moving film relative to said photographic means; a substantially annular structure having an annular row of irregular portions comprising alternate projections and recesses, said irregular portions carried by said drum assembly; means indexing each one of said irregular portions with one of said character supporting portions; said irregular portions corresponding in magnitude with the required film movement distances with respect to characters on one of said character supporting portions; second means engageable with said irregular portions; a potentiometer operable by said second means and power operated means responsive to said potentiometer, whereby said power operated means is responsive to the magnitude of one of said irregular portions for operating said first means a predetermined amount to move said film a proper distance so that each character photographically reproduced thereon will be properly spaced relative to adjacent photographically reproduced characters.

3,303,765
AUTOMATIC ZEROING ASSEMBLY FOR CAMERAS

Franz Jakob, Unterhaching, and Karl Wagner, Munich, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 9, 1963, Ser. No. 314,988
Claims priority, application Germany, Oct. 16, 1962, A 18,969
8 Claims. (Cl. 95—10)



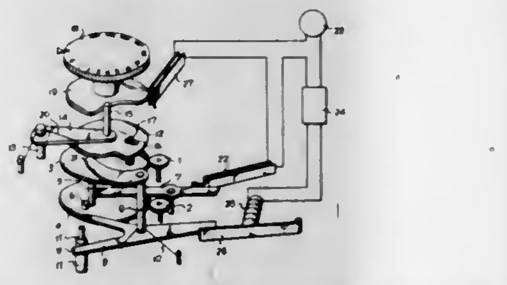
1. In a camera which is at least semi-automatic, in combination, manually operable correcting means movable from a zero position to a selected correction position for introducing a correction factor when photographing a subject of extreme contrast; holding means operatively connected to said correcting means for releasably holding the latter in a selected correction position; zeroing means including at least one spring which when said correcting means is placed in a selected correction position is stressed for urging said correcting means back to said zero position thereof, said holding means releasably holding said correcting means in a selected correction position in opposition to said zeroing means; manually operable moving means actuated by the operator preparatory to making another exposure immediately following the exposure for which said correcting means was placed in a selected correction position, said manually operable moving means forming part of a structure for moving the next film frame in position to be exposed, said moving means having a portion which engages said holding means, moves the latter to a position releasing said correcting means to said zeroing means to be returned thereby to said zero position, and then moves away from said holding means so that the latter will again releasably hold the correcting means in a selected correction position, whenever said moving means is actuated preparatory to making the next exposure; setting means for setting into the camera the factor of film speed; and clutch means interconnecting said setting means and correcting means, said clutch means when engaged transmitting movement of said setting means to said correcting means and when disengaged providing free movement of said correcting means relative to said setting means.

3,303,766
CAMERA SHUTTER ARRANGEMENT RESPONSIVE TO BOTH PHOTOELECTRIC AND MECHANICAL TIME CONTROL SYSTEMS

Toru Karikawa, Setagaya-ku, Tokyo-to, Kiyoshi Ito, Taito-ku, Tokyo-to, and Naoyuki Uno, Urawa-shi, Saitama-ken, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha (English name) Asahi Optical Industry Co., Ltd., Tokyo-to, Japan, a corporation of Japan

Filed Apr. 28, 1964, Ser. No. 363,152
1 Claim. (Cl. 95—10)

A photographic camera comprising shutter means successively movable to open and closed positions defining an exposure sequence and including leading and trailing shutter screens and drive means therefor, means for releasably locking said leading shutter screen in a retracted position, means for releasably locking said trailing shutter screen in a retracted position, a first manually adjustable timing means for effecting the closure of said shutter means a preselected interval following the opening thereof and including means for releasing said trailing shutter screen locking means said preselected interval following the release of said leading shutter screen locking means, a second, light responsive timing means including a photosensitive element for automatically effecting the closure of said shutter means an interval following the opening thereof responsive to the light incident on said photosensitive element and including a solenoid actuated member actuatable upon energization of said solenoid to release

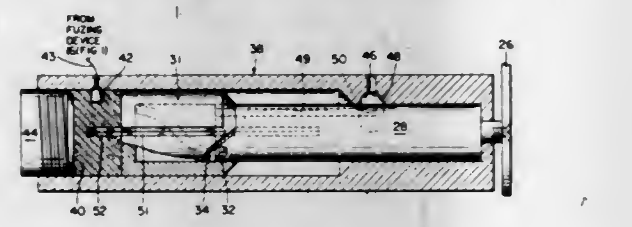


said trailing shutter screen locking means an interval following the release of said leading shutter screen locking means responsive to the light incident on said photosensitive element, selector means for alternatively actuating said first and second timing means and simultaneously deactuating said second and first timing means respectively, a mirror movable between an advanced and a retracted position, and means responsive to the retraction of said mirror for releasing said leading shutter screen, said second timing means including a timing initiating switch actuated in response to said movement of said mirror to said retracted position.

3,303,767
MISS-DISTANCE INDICATOR

Raymond C. Morton, 3030 Citrus, Oxnard, Calif. 95610

Filed Dec. 21, 1964, Ser. No. 420,230
7 Claims. (Cl. 95—12.5)



1. An optical unit designed to be carried by a target aircraft for the purpose of obtaining information as to the performance characteristics of a missile launched toward said aircraft with the object of impacting the latter, said optical unit comprising:

a pair of cameras each having a lens system and a photosensitive member associated therewith, each lens system being oriented to encompass a different field of view;

a single shutter arrayed upon actuation to expose in sequential fashion the respective photosensitive members of said cameras,

said shutter being in the form of a disc-shaped element mounted for rotation about an axis lying intermediate the said pair of photosensitive members, said disc-shaped element having a single opening therein arranged, upon rotation of said element, to permit passage of light therethrough sequentially to said photosensitive members from their respective lens systems,

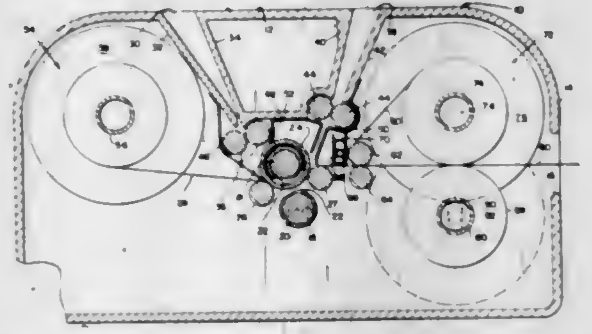
said shutter being mounted for rotary movement on a shaft the axis of which extends generally parallel to the respective optical axes of the said lens systems;

a cylindrical housing, said shaft lying partially within said housing and extending outwardly from one end thereof, a slidable piston also enclosed within said cylindrical housing, said piston being of cup-shaped configuration and designed to receive therewithin an end portion of said shaft, said piston normally lying essentially end-to-end with respect to said shaft and movable longitudinally within said housing;

means for creating a longitudinal movement of said piston with respect to said housing; and means responsive to such longitudinal movement of said piston to produce a rotation of said shaft as one end portion of the latter enters the cup-shaped recess in said piston, to thereby effect an angular displacement of said shutter in consequence of which the photosensitive members of said cameras are sequentially exposed.

3,303,768
PHOTOGRAPHIC APPARATUS

Edwin H. Land, Cambridge, Mass., and Arthur J. Sable, Riverside, Conn., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed May 25, 1966, Ser. No. 563,620
2 Claims. (Cl. 95—89)

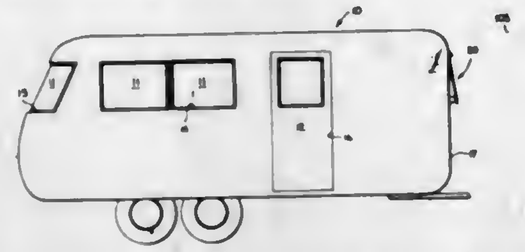


1. In photographic apparatus for exposing and processing an elongated photographic image-recording sheet, in combination, storage means for holding a first image-recording sheet and a second sheet, said storage means including a first rotatable spindle about which said second sheet is coiled; a second spindle mounted for rotation adjacent said first spindle with the axes of rotation of said spindles lying substantially in a plane; means for guiding said sheets from said storage means into superposition with one another, distributing a processing fluid between said superposed sheets to form a sandwich, and advancing said sandwich between said spindles, the last-mentioned means including a pair of juxtaposed pressure-applying members between which said sheets are advanced in superposition to form said sandwich; means for governing the speed of movement of said sandwich through said apparatus; means for biasing said spindles toward one another so that the outer convolutions of sheets coiled on said spindles engage said sandwich therebetween at a predetermined distance from said pressure-applying members; and means for rotating said second spindle to coil said first sheet on said second spindle and separate said first and second sheets comprising said sandwich as said sandwich is advanced between said spindles and said first sheet is coiled on said second spindle.

3,303,769
TRAILER VENTILATING ARRANGEMENT

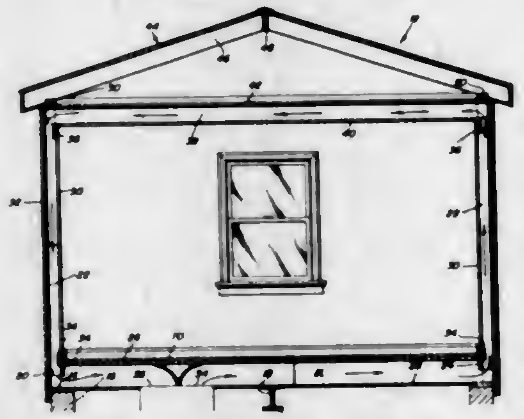
Wayne L. Williams, 4508 Northeastern Ave., Wanamaker, Ind. 46239
Filed Jan. 21, 1965, Ser. No. 429,202
10 Claims. (Cl. 98—2)

2. A trailer ventilating arrangement comprising a trailer having windows and doors mounted within openings in the trailer, said openings permitting passage of a certain amount of air even when the windows and doors are closed, said trailer having a forwardly facing window opening, a transparent window pivoted to said trailer at the upper edge of said window opening and swingable outwardly of the trailer, a sheet-like member mounted within said opening, said sheet-like member having a central rectangular aperture therein and a flange projecting inwardly of the window and spaced inwardly of the main body of said sheet so as to define a rectangular recess, a filter received within said recess abutting said flange, and means spacing said window away from said trailer.



3,303,770
BUILDING WITH INTERNAL AIR FLOW PASSAGES

Joseph G. Anthony, 19 E. Virginia Blvd., Jamestown, N.Y. 14701
Filed Nov. 25, 1964, Ser. No. 413,738
7 Claims. (Cl. 98—31)



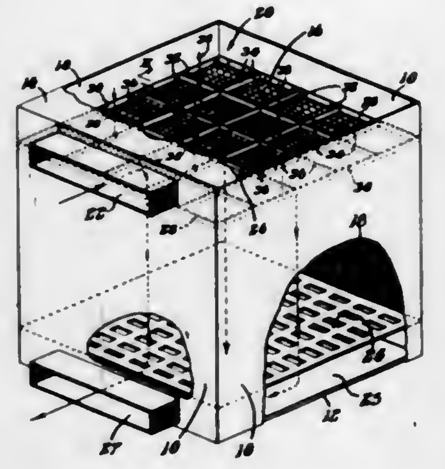
1. In a building construction, a floor system, a wall system, and a ceiling system, said systems being combined to form an enclosure having a floor unit, a ceiling unit, and at least two side wall units and two end wall units, said wall units comprising the wall system, said floor unit comprising the floor system, said ceiling unit comprising the ceiling system, a plurality of elongated chambers extending completely through said floor and ceiling units from one side wall unit to the other side wall unit, each side wall unit having a plurality of elongated chambers extending therethrough and communicating at one end with the floor chambers and at the other end with the ceiling chambers, thereby forming a plurality of passages surrounding said enclosure, and means for inducing a forced flow of air through each passage, said means for inducing a forced flow of air through each passage inducing the flow in opposite directions in adjacent passages.

3,303,771
VENTILATED CEILING CONSTRUCTION

Alexander Nesher, Rosemont, John K. Henderson, Villanova, and Robert J. Sigel, Narberth, Pa., assignors to Robert J. Sigel, Inc., Narberth, Pa., a corporation of Pennsylvania
Filed Feb. 11, 1965, Ser. No. 431,831
5 Claims. (Cl. 98—40)

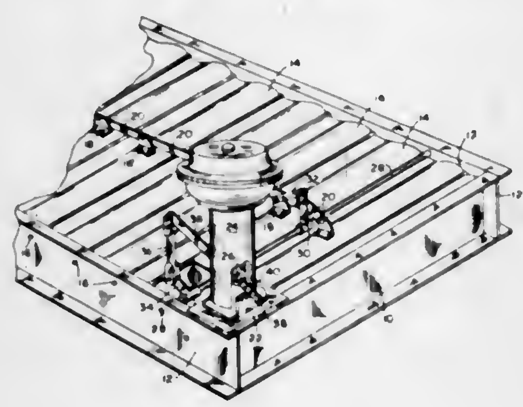
1. In a clean room, the combination comprising upper and lower ceilings forming an air supply upper plenum chamber, said lower ceiling including an open framework, and a plurality of air diffuser panels carried by said framework and covering the openings therein, each of said

panels having a planar peripherally extending rim, sections of the panel area within said rim raised above the plane of the rim thereby to provide panel stiffening corrugations, and nozzles depending from said raised sections of the panel area, said panels conjointly affording a maze of nozzles distributed over substantially the entire ceiling area, upper and lower floors forming an air discharge lower plenum chamber, said upper floor being of open grille type form, means for supplying comparatively large quantities of ventilating air at substantial overpressure to said upper plenum chamber for shower-like delivery thereof through said maze of nozzles to the room below in a uniform distribution pattern, the air being discharged from said room through said upper floor and lower plenum chamber.



3,303,772
LOUVERED SHUTTER HAVING IMPROVED CONTROL MEANS

John M. Wheatley, 1905 W. Independence, Tulsa, Okla. 74127
Filed Oct. 23, 1965, Ser. No. 503,024
4 Claims. (Cl. 98—41)



1. A louvered shutter having improved control means comprising:

a frame structure having vertical side walls;

a plurality of spaced louver blades each pivotally supported at each end between and to said frame side walls, said louver blades pivotal in one direction so that each blade overlaps the adjacent blades to substantially prevent air flow through the louver and pivotal in another direction so that each louver blade is substantially parallel each other permitting the free flow of air therethrough;

a pivot bracket affixed to each louver blade;

a blade actuator bar pivotally affixed to each of said pivot bracket whereby the louver blades are coupled for simultaneous pivotation;

an actuator uprightly supported to said frame structure, the actuator having a plunger which, upon activation of the actuator, moves linearly perpendicular to the plane of said frame structure;

a torque tube rotatably supported to said vertical side walls parallel to and above said louver blades;

a torque arm affixed at the inner end to said torque tube and extending perpendicularly therefrom;

a blade connector link pivotally connected at one end to the outer end of said torque arm and at the other end to said blade actuator bar whereby the rotation of said torque tube pivots said louver blades;

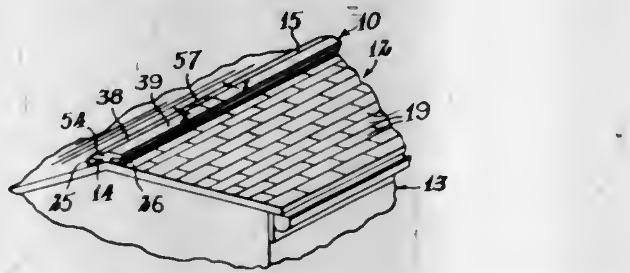
a torque lever affixed at one end to said torque tube and extending perpendicularly therefrom;

a rocker arm positioned beneath said actuator and pivotally affixed at a point intermediate the ends thereof to the lower end of said actuator plunger, one end of said rocker arm pivotally attached to said frame structure; and

a linkage yoke pivotally affixed at one end to the other end of said rocker arm, the other end of said yoke pivotally affixed to the outer end of said torque lever whereby linear movement of said actuator plunger pivots said rocker arm which in turn rotates said torque tube for the pivotation of said louver blades.

3,303,773
ROOF RIDGE VENTILATOR

Lester L. Smith, Peoria, Ill. (P.O. Box 68, Princeville, Ill. 61559), and Frank E. Randall, Peoria, Ill.; said Randall assignor to said Smith
Filed Feb. 18, 1965, Ser. No. 433,759
9 Claims. (Cl. 98—42)



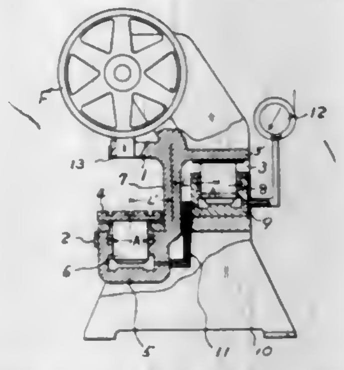
1. A roof ridge ventilator comprising, in combination, a flashing plate having integrally connected generally planar side portions in angular relationship to one another and having a segmented vent slot extending longitudinally of the mid-region thereof, retaining means extending longitudinally of the lateral mid-regions of the upper surfaces of said generally planar side portions of the flashing plate on opposite sides of the vent slot, an air vent part having top and base portions, said top portion having vent openings therein at positions providing weather protection, and said base portion including generally planar base flanges of a width to overlie portions of said flashing plate on opposite sides of said vent slot and projecting angularly away from one another, said base flanges having thereon return-bent marginal portions which co-act with said retaining means releasably to hold the air vent part in place on the flashing plate with said vent openings in communication with said vent slot.

3,303,774
OPEN-SIDED PRESS

Seiji Shiokawa, 6–142 Miyuki-cho, Numazu-shi, Japan
Filed May 14, 1965, Ser. No. 455,859
Claims priority, application Japan, May 20, 1964, 39/28,139
4 Claims. (Cl. 100—231)

1. A press including a C-frame with base and head sections integrally united with a back section, a reciprocating ram mounted in said head section, means to reciprocate said ram, a yieldable fluid supported lower table mounted in a cylinder in said base section, a fluid oper-

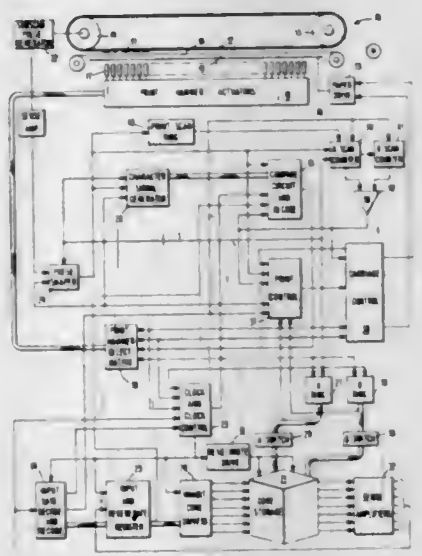
ated piston mounted in a cylinder in said back section, a common source of fluid for said table and said piston, one end of said piston being in contact with a portion of the back section of said frame, a conduit connecting the fluid supported table and said piston, said table being normally biased upwardly by said fluid and being adapted to yield when pressure is applied thereto by said ram so



as to force some of the fluid beneath said table through said conduit to said piston whereby the force exerted on the frame in one direction by said ram is counterbalanced by the force applied through said piston to said portion of the back section of said frame in an opposite direction so as to avoid harmful deflections in the press frame, and a fluid pressure gage in said conduit for indicating the pressure therein.

3,303,775
VARIABLE SPEED PRINTER APPARATUS AND TYPE CARRIER DEVICE THEREFOR

George A. Giannuzzi, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Sept. 20, 1963, Ser. No. 310,373
5 Claims. (Cl. 101—93)



1. In a printer apparatus, a print mechanism comprising a plurality of print positions having impact type print elements and a movable type carrier device having

a first and second group of type characters formed in an array for presentation at a print position,

said first group of type characters comprising a series of numeric characters,

said second group of type characters comprising a series of alphabetic and special symbol characters,

said second group comprising plural distinctive subgroups of characters,

said first group and said subgroups being combined in said array in a predetermined order to form a sequence of type characters,

said first group having a repetition rate at least equal to said number of said subgroups,

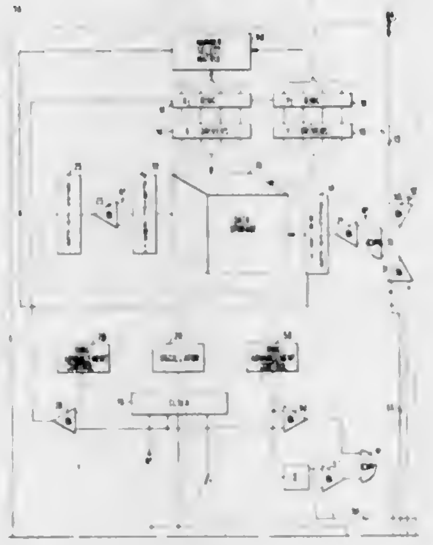
and means for moving said type carrier for cyclically presenting said sequence of type to said print position whereby said first group of type characters is presented each cycle to said print position at a rate equivalent to said number of subgroups of characters, carriage means for effecting movement of a print medium to present different portions thereof at said print positions,

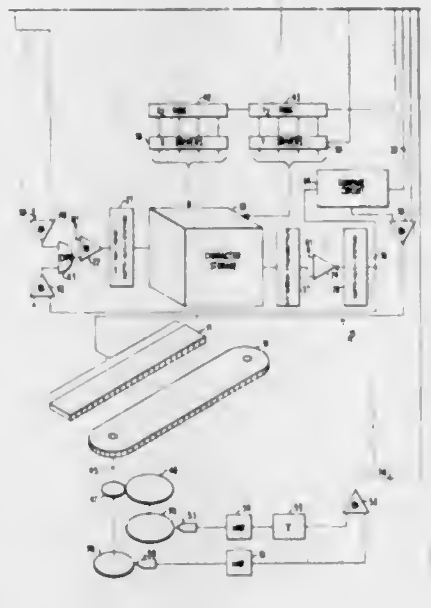
print control means for scanning the print positions to provide for operation of the associated print elements in accordance with data from a processor,

and means for controlling the carriage means including control means selectively operable in response to operation of said print control means for effecting operation of the carriage means to move the print medium.

3,303,776
SELECTIVE CHARACTER ARRANGEMENT OF THE PRINT MEMBER IN PRINTING DEVICES

Fritz Rausch, Boblingen, Wurttemberg, Germany, assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Sept. 15, 1964, Ser. No. 396,517
Claims priority, application Germany, Sept. 30, 1963, J 24,488
7 Claims. (Cl. 101—93)





1. In a high speed printing apparatus, the combination comprising

(a) a plurality of type carrier means,

(b) said type carriers having different arrangements of type characters,

(c) a plurality of impression devices for obtaining impressions of characters on a selected one of said plural type carrier means,

(d) means for effecting a relative movement of the selected type carrier means whereby the type characters thereof are cyclically aligned with said impression devices across a print line,

(e) a first means for storing coded data representing characters to be printed,

(f) a second controlled storage means for storing in coded data form and regenerating an image of all the characters and in accordance with their distribution on said type carrier means,

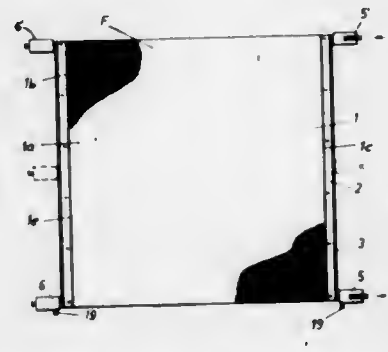
(g) said second storage means including controllable write means for altering the image of characters stored in said second storage means to conform to an interchange of said plural carrier means,

(h) means for cyclically comparing the coded data in said first and second storage means in synchronism with the relative movement of the selected type carrier means and said impression means,

(i) and means including means responsive to said comparison means for selectively operating said impression devices to obtain an impression of characters for which a comparison indicates an identity between coded data in said first and second storage devices.

3,303,777
PRINTING STENCIL AND PRINTING STENCIL HOLDER WITH TENSIONING MEANS

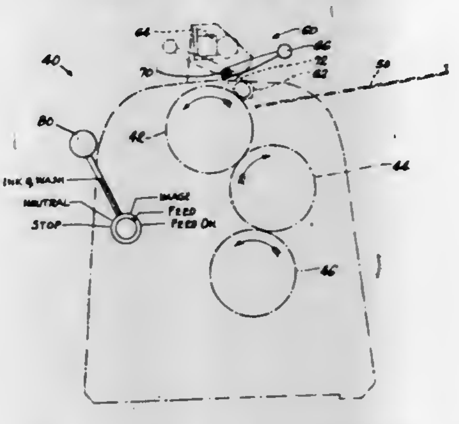
Kurt Feler, Riedholz, Solothurn, and Hans Werthmuller, Wiler, near Utzensdorf, Switzerland, assignors to Fritz Buser AG., Wiler, near Utzensdorf, Switzerland, a corporation of Switzerland
Filed Dec. 11, 1964, Ser. No. 417,687
Claims priority, application Switzerland, Dec. 13, 1963, 15,369/63
2 Claims. (Cl. 101—127.1)



1. Printing stencil assembly for a screen stencil printing machine comprising a printing stencil incorporating a stencil body member, support means to which is attached said stencil body member, said support means comprising two rail members which are resistant to bending in the plane of said stencil body member, said stencil body member including a pair of parallel lateral sides, one such rail member connected to each lateral side, at least one holder means operably connected with each rail member, at least one of said holder means at one lateral side of said printing stencil being provided with tensioning means enabling lateral displacement of the rail member associated with said last-mentioned holder means against the pre-stress of a spring, said last-mentioned holder means including a support provided with a blind hole, said tensioning means comprising a threaded spindle extending into said blind hole, a non-rotatable nut member mounted for axial movement disposed in said blind hole, said threaded spindle piercingly extending through said nut member, a spring member located within said blind hole and bearing against said nut member.

3,303,778
OFFSET DUPLICATING MACHINE HAVING UNIFIED CONTROL

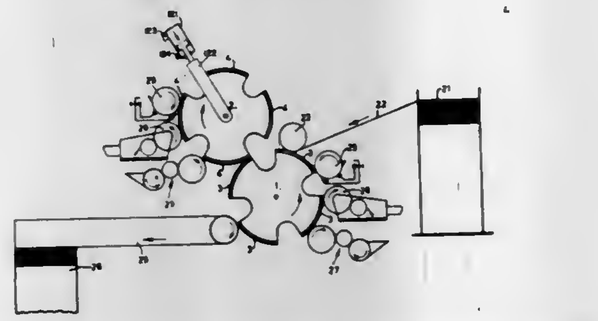
Kenneth J. Tonkin, Glenview, and John L. Swanson, Libertyville, Ill., assignors to A. B. Dick Company, Niles, Ill., a corporation of Illinois
Filed Aug. 10, 1964, Ser. No. 388,475
16 Claims. (Cl. 101—144)



7. In a printing machine, the combination comprising a rotatable master supporting member for carrying a printing sheet, a control member movable to a plurality of control positions from a neutral position, a cam operable by said control member, a movable follower engaging said cam, said cam having a first step for moving said follower a first distance and a second step for moving said follower an additional distance, means operable in response to movement of said follower through said first distance for causing the application of ink to the printing sheet, and means operable by movement of said follower through said additional distance for causing the application of water to said printing sheet.

3,303,779
ROTARY INTAGLIO PERFECTING PRESS

Gualtiero Giori, 4 Rue de la Paix, Lausanne, Switzerland
Filed Nov. 19, 1964, Ser. No. 412,352
Claims priority, application Germany, Feb. 4, 1964, G 39,768
1 Claim. (Cl. 101—152)



Device for producing sheets and web printed on both sides by single or multi-colour intaglio printing comprising

(A) a pair of coacting oppositely rotating cylinders facing each other at their peripheries and each carrying similarly dimensioned rigid intaglio printing plates,

(B) means for inking and wiping the surface of said intaglio plates on each of said cylinders,

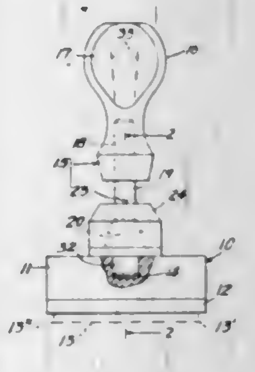
(C) means for guiding the material to be printed between said cylinders at their coacting area to thus simultaneously print both sides of said material,

(D) spindles carrying said cylinders, at least one of said spindles having means for moving perpendicularly to the longitudinal axis thereof for adjusting the pressure between said plates and thereby guiding the material to be printed under pressure between said plates,

(E) at least one of said cylinders having an elastically

yielding surface for supporting the said intaglio plates carried thereby,
(F) each of said rigid plates being sector-shaped and having bevelled leading and trailing edges,
(G) said plates on said coacting cylinders being oriented so that at least said bevelled leading edges of said cylinders coact to form an inwardly directed slope therebetween so that upon engagement between two cooperating printing plates carried by the two cylinders a gradual rise in pressure is obtained and similarly a gradual release of said pressure is ensured at the end of said engagement between said plates.

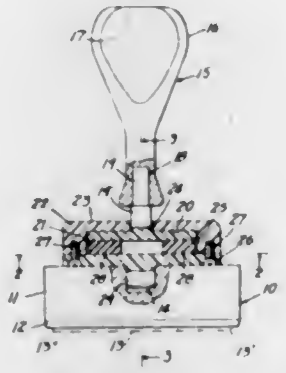
3,303,780
HANDGRIP UNIT FOR RUBBER STAMPS
Whitney K. Munson, Rumson, N.J.
(192 Comanche Drive, Oceanport, N.J. 07757)
Filed Oct. 8, 1965, Ser. No. 494,010
4 Claims. (Cl. 101—406)



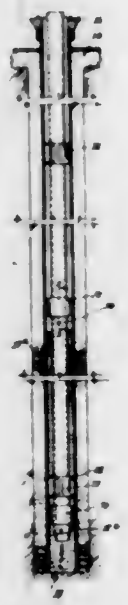
1. A rubber hand stamp of the character defined comprising a stamp body including a characterized rubber printing surface, a handgrip unit coupled with said body, said unit comprising a handgrip including an elongated plunger mounted on the handgrip and projecting therefrom, a universal socket spaced from said handgrip, the plunger comprising a rod having an enlarged head at its lower end, said head being mounted entirely within said socket, said head having a flat lower surface defining the largest diameter of said head and a rounded upper surface seating on a rounded bore of said socket, the upper portion of the socket having a perpendicular bore smaller in diameter than the diameter of said head and opening into said rounded bore, a plate fixed to said socket and closing the lower portion of said rounded bore and spaced with respect to the flat surface of said head, resilient means between said plate and the flat surface of said head for suporting said head normally in seated position in said rounded bore and said handgrip perpendicular with respect to said socket, means keying the socket and plunger against relative rotary movement about a vertical axis, means on said plate for coupling the socket with said stamp body, and the perpendicular bore of said socket being larger in diameter than the diameter of said plunger rod to provide a check in the universal swinging movement of the handgrip and plunger with respect to said socket and the stamp body coupled with the socket.

3,303,781
HANDGRIP UNIT FOR RUBBER STAMPS
Whitney K. Munson, Rumson, N.J.
(192 Comanche Drive, Oceanport, N.J. 07757)
Filed Oct. 18, 1965, Ser. No. 497,141
4 Claims. (Cl. 101—406)

1. A rubber hand stamp of the character defined comprising a stamp body including a characterized rubber printing surface, a handgrip unit coupled with said body, said unit comprising a handgrip including a projecting plunger, a socket including an elongated chamber having a flat top wall and perpendicular boundary walls, the plunger having an elongated crosshead arranged freely in said chamber, said crosshead having a flat upper surface and bevelled peripheral edges, a bottom plate closing said chamber, said plate having means for coupling the socket with the stamp body, resilient means between the bottom plate and said crosshead for normally supporting the flat upper surface of the crosshead on the flat top wall of said chamber and with the handgrip in perpendicular position with respect to said socket, the bevelled edges of the crosshead engaging the perpendicular walls of the chamber in controlling universal swinging movement of the crosshead in said chamber, said socket having an aperture larger in diameter than the diameter of the plunger to provide free controlled swinging movement of the plunger in the socket, and said controlled swinging movement of the plunger, in combination with the freely swinging movement of said crosshead, providing a check controlling universal swinging movement of the handgrip.



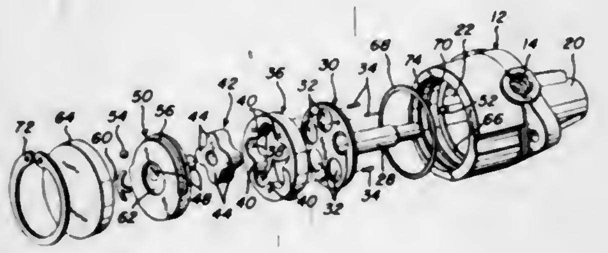
3,303,782
DEEP WELL SONIC PUMPING PROCESS AND APPARATUS
Albert G. Bodine, Jr., Los Angeles, Calif.
(7877 Woodley Ave., Van Nuys, Calif. 91406)
Filed Nov. 10, 1965, Ser. No. 507,205
9 Claims. (Cl. 103—1)



1. In the operation of a sonic deep well pump having a well fluid conduit with fluid-impelling means therein reciprocated by periodic longitudinal elastic strains in a distributed-constant sonic wave transmission line by propagation of a sonic wave along said line, with said line coupled to said fluid-impelling means, the method that comprises:

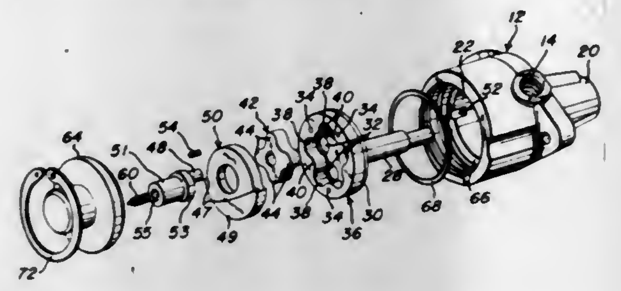
establishing sonic wave propagation along said transmission line at a frequency which is near a harmonic of the fundamental resonant frequency of said line, so as to cause said periodic elastic strains in said line at a resonantly magnified amplitude;
adjusting the frequency of said elastic strains to a frequency which is near to but under the frequency for maximum resonant amplitude of said strains at said harmonic; and
adjusting the amplitude of said elastic strains to a magnitude which is no greater than that for the endurance limit of said elastic transmission line in the environment of said well at said adjusted frequency.

3,303,783
FLUID PUMP APPARATUS
Emil T. Neubauer, Sidney, Ohio; Third National Bank and Trust Company, executor of the estate of said Emil T. Neubauer, deceased, assignor to Tuthill Pump Company, Chicago, Ill., a corporation of Illinois
Filed July 1, 1964, Ser. No. 379,447
1 Claim. (Cl. 103—3)



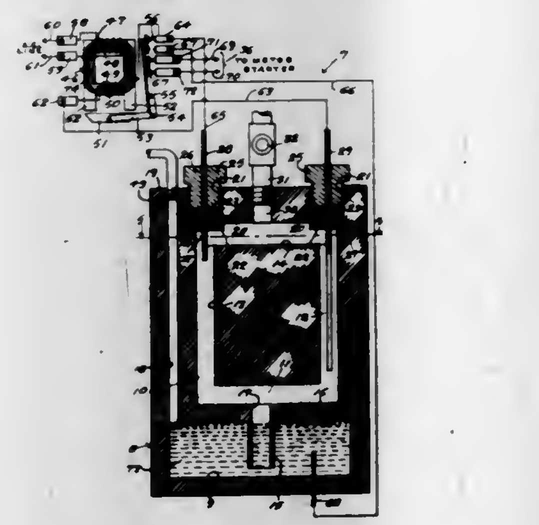
Reversible fluid pump apparatus comprising, a housing provided with a wall forming a cylindrical cavity therein, said cavity having a socket in which is disposed a ball to engage a groove in a support member hereinafter defined, said housing having spaced apart inlet and outlet passages leading to said cavity, a first annular, shaft-supported rotor within said cavity having a plurality of internal recesses and an end wall with apertures therethrough opening into communication with each of said internal recesses whereby rotative movement of said first rotor establishes communication between any one of said apertures and said inlet or outlet; a support member having an elongated peripheral groove extending around substantially one-half of the periphery of said support member, whereby engagement with said ball in said housing limits rotative movement thereof, said support member having a stud shaft extending into said first rotor and having an axis of rotation at a position spaced from the axis of rotation of the shaft supprting said first rotor; a second rotor carried by said stud shaft and rotatable within said first rotor, said second rotor having a plurality of radial lobes, the number of said plurality of lobes being one less than the number of recesses of said first rotor, each lobe being substantially the size and shape of each of the recesses of said first rotor, each lobe being movable into and out of the recesses of said first rotor with rotational movement of said first and second rotors; an internal shoulder on said housing; a cover disc within the cavity substantially parallel to the support plate and adjacent thereto, the cover disc engaging the shoulder, the cover disc enclosing the support plate and the rotors within the cavity of the housing; resilient means intermediate the cover disc and the support plate and urging separation thereof so that a space exists between the cover disc and the support plate; the housing having an internal annular groove adjacent the cover disc; an arcuate snap ring partially disposed within the groove and engaging the cover disc and urging the cover disc toward the shoulder.

3,303,784
FLUID PUMP APPARATUS
Emil T. Neubauer, Sidney, Ohio; Third National Bank and Trust Company, executor of the estate of said Emil T. Neubauer, deceased, assignor to Tuthill Pump Company, Chicago, Ill., a corporation of Illinois
Filed Mar. 4, 1965, Ser. No. 437,254
6 Claims. (Cl. 103—3)



1. In apparatus of the type described,
a housing provided with an internal wall forming a cavity, the internal wall having a notch therein,
a support member rotatably disposed within the cavity, the support member having a peripheral surface adjacent the notch, the peripheral surface having an abutment shoulder,
a limit member partially disposed within the notch and in juxtaposition with the peripheral surface of the support member, the limit member consisting of a helical strip of material, the limit member limiting the rotative movement of the support member as the shoulder of the support member engages the limit member.

3,303,785
ADJUSTABLE AUTOMATIC CONTROL FOR A PUMP
William H. Pearce, 465 Church St.,
Many, La. 71449
Filed June 8, 1965, Ser. No. 462,329
3 Claims. (Cl. 103—25)

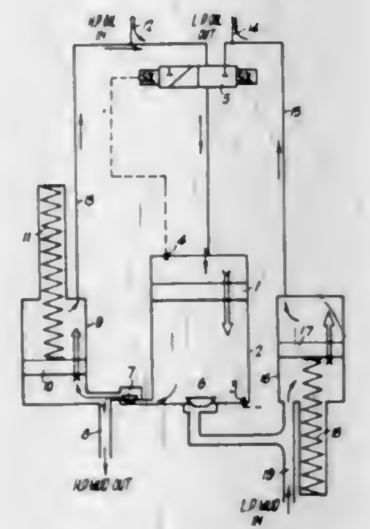


1. In combination with a liquid containing receptacle including a liquid inlet and an electric pump for extracting liquid from said receptacle and having an inlet opening into the receptacle; a pump control comprising a block of electrical insulating material, said block being internally recessed, an upper electrode and a lower electrode extending into the recess of the block, a liquid of electrical conducting material partially filling the recess and normally disposed below the electrodes, compressible pressure responsive means communicating with the bottom portion of the receptacle and with a part of the recess of the block for pressuring said part of the recess when the liquid level rises in the receptacle to cause the liquid in the recess to rise into engagement with the lower

electrode and thereafter into engagement with the upper electrode, and an electric system having a circuit including the pump motor and said electrodes and which is closed by the liquid of the recess contacting both electrodes, said electric system including a third electrode disposed in a bottom part of the recess and forming with said lower electrode a second holding circuit for retaining said first mentioned circuit closed, after the initial closing thereof, until the liqud of the recess moves out of contact with the lower electrode, said recess of the block having a vent opening to the atmosphere and disposed above the upper and lower electrodes, and means for selectively closing said vent for impeding the rise of the liquid in the recess or for impeding the fall of said liquid.

3,303,786
HYDRAULIC PUMPS

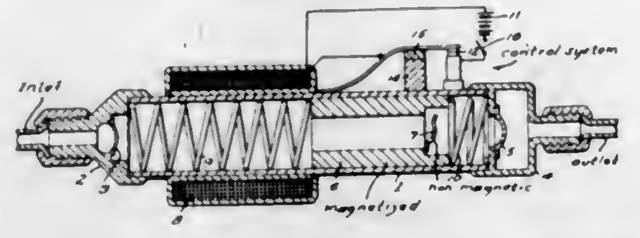
Hew Dalrymple Fanshawe, North Berwick, East Lothian, Scotland, assignor to F.N.R.D. Limited, London, England, a British company
Continuation of application Ser. No. 358,216, Apr. 8, 1964. This application Apr. 22, 1966, Ser. No. 545,230
Claims priority, application Great Britain, Apr. 8, 1963, 13,958/63
12 Claims. (Cl. 103—52)



1. A pumping arrangement for providing continuous delivery stroke is ejected into the medium delivery line one hydraulically-operated piston-type pump having a medium intake line, a medium delivery line, a line for supplying high pressure liquid and a line for discharging said liquid at low pressure, valve means associated with said high pressure and low pressure liquid lines for causing actuation of the piston of said pump, a non-return valve in the medium delivery line, an ancillary system including a biased piston means, said piston means being subject in one direction to the pressure of the medium in the delivery line on the outlet side of said non-return valve and subject in the opposite direction to the pressure of the liquid in said high pressure liquid supply line, and means for so biasing said ancillary system piston means that the pumped medium causes movement of the ancillary system piston means against the pressure of the liquid in the high pressure liquid supply line and the pumped medium flows into both the medium delivery line and the ancillary system during the delivery stroke of the pump piston, and at least some of the pumped medium taken into the ancillary system during said delivery stroke is ejected into the medium delivery line by the pressure of the liquid in the high pressure liquid supply line during the suction stroke of the pump piston, whereby the supply of pumped medium to the medium delivery line is substantially continuously maintained.

3,303,787
PUMP

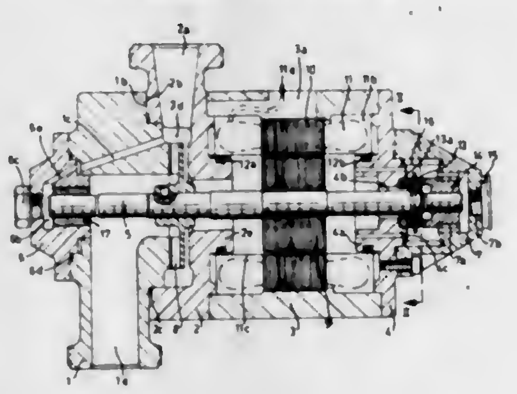
Fred Waldo Inman, P.O. Box 206,
Sierra Vista, Ariz. 85635
Filed Mar. 4, 1965, Ser. No. 437,324
1 Claim. (Cl. 103—53)



Pump and motor means comprising: a substantially cylindrical casing; means to close one end of said casing; fluid inlet means adjacent to said end; inlet valve means for said fluid inlet means; means to close the other end of said casing; fluid outlet means adjacent to said other end of said casing; an outlet valve for said pump and motor means; magnetized pump plunger means in said casing; means urging said plunger means in one direction; electromagnetic means urging said plunger means in the opposite direction when energized; and means to energize said electromagnetic means when said plunger means is moved to a position toward said outlet end; said electromagnetic means comprising a solenoid coil surrounding said cylindrical casing and said casing comprising a nonmagnetizable material whereby, upon energization of said solenoid coil, said magnetized pump plunger is attracted into said coil against the force of said means which urges the plunger means in said one direction; said means to energize said electromagnetic means comprising; a magnetizable member operable to close and open a circuit to said electromagnetic means; said magnetized pump plunger means serving to attract said magnetizable member as said plunger approaches said other end of said casing to thereby close said circuit to said electromagnetic means and move said magnetized pump plunger toward said one end of said casing; said means urging said plunger in one direction comprising a coil compression spring; and means adjacent to said other end of said casing to buffer movement of said plunger as it approaches said other end and to assist in returning said plunger toward said one end; and an additional outlet valve in the path of fluid flow past said plunger.

3,303,788
ROTARY MACHINES

André Miéville, Lausanne, Switzerland, assignor to Hydrolec S.A., Geneva, Switzerland, a firm
Filed Feb. 23, 1965, Ser. No. 434,360
Claims priority, application Switzerland, Feb. 25, 1964, 2,271/64
2 Claims. (Cl. 103—87)

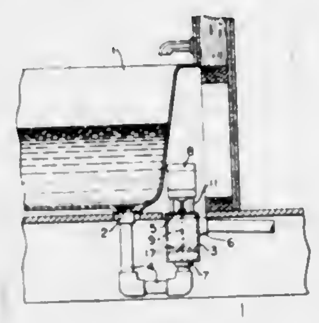


1. A horizontal pump having a frame and;
(A) a horizontal rotary shaft carrying a paddle wheel and a rotor for an electric motor, said shaft fitting in bearings on opposite ends of said frame;

(B) flanges securing said bearings to said frame; at least one of said flanges being removably secured to said frame;
(C) suction and discharge ducts transverse to said shaft and inwardly disposed in said frame with respect to said flanges, whereby said removable flange or flanges can be removed without complete disassembly of said pump.

3,303,789
DRAIN ATTACHMENT

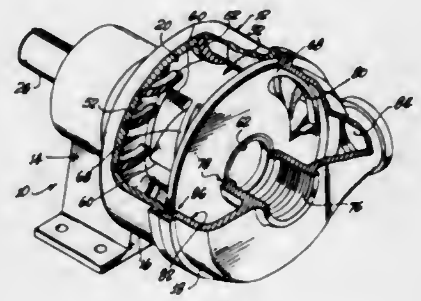
Abel F. Geisinger, 458 Molane Ave.,
Akron, Ohio 44313
Filed Mar. 23, 1965, Ser. No. 442,107
4 Claims. (Cl. 103—87)



1. An improved trap and drain assembly for use with a plumbing system between the plumbing fixture and the drain comprising a vertically extending fluid receiving chamber, an inlet opening adjacent the bottom of said chamber, an outlet opening on the side of said chamber above the inlet opening, the diameter of said inlet and outlet openings being substantially less than that of the fluid receiving chamber and the openings being connected to the fixture and drain respectively, a cover adapted to seal the top of said chamber, a shaft rotatably mounted on said top and extending vertically therethrough into said chamber, an impeller attached to said shaft with the impeller being positioned above the bottom of the chamber, and power means to rotate said shaft and impeller whereby faster flow of fluid through the drain and trap is effected with sufficient fluid remaining in the bottom of said chamber to effect a fluid seal between the inlet and outlet openings.

3,303,790
ROTATING-CAM VANE PUMP

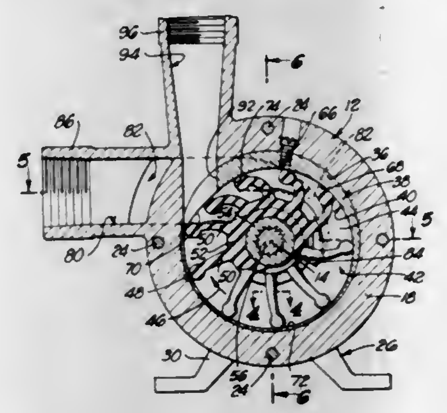
Richard A. McCray, Los Angeles, Calif., assignor, by mesne assignments, to International Telephone and Telegraph Corporation, a corporation of Maryland
Filed June 26, 1964, Ser. No. 378,150
7 Claims. (Cl. 103—117)



1. In a rotating-cam vane pump, the combination of:
(a) a housing provided therein with a cylindrical pumping chamber open at one end;
(b) a cam in and rotatable about the axis of said pumping chamber and having axially spaced end walls and a peripheral wall;
(c) a shaft rotatable relative to said housing about the axis of said pumping chamber and connected to said cam to rotate same;
(d) circumferentially spaced, displaceable vanes carried by said housing and extending inwardly into said pumping chamber and into engagement with said peripheral wall of said cam;
(e) said cam alternately increasing and decreasing the volumes of the spaces between said vanes as it rotates;
(f) inlet passage means in said cam for delivering fluid to be pumped to the intervane spaces as the volumes thereof are increased;
(g) said inlet passage means having an inlet end formed in one of said end walls of said cam, and having an outlet end in said peripheral wall of said cam;
(h) an outlet valve plate on one end of and extending radially outwardly from and rotatable with said cam;
(i) the periphery of said outlet valve plate closing said open end of said pumping chamber;
(j) an outlet opening in said outlet valve plate radially outwardly from said cam, said outlet opening receiving fluid being pumped from the intervane spaces as the volumes thereof are decreased;
(k) outlet passage means in said housing on the opposite side of said outlet valve plate from said pumping chamber and communicating with said outlet opening in said outlet valve plate;
(l) an inlet port in said housing and communicating with said inlet end of said inlet passage means; and
(m) an outlet port in said housing and communicating with said outlet passage means.

3,303,791
FLEXIBLE-VANED CENTRIFUGAL PUMP

Warren Doble, North Hollywood, Calif., assignor, by mesne assignments, to International Telephone and Telegraph Corporation, a corporation of Maryland
Filed Aug. 13, 1964, Ser. No. 389,445
2 Claims. (Cl. 103—117)



1. A flexible-vaned, combination positive-displacement and centrifugal pump including:
(a) a housing provided therein with an impeller chamber having an axis and having axially spaced end walls and a peripheral wall;
(b) an impeller in said chamber and rotatable therein about said axis in a predetermined direction and provided with circumferentially spaced, flexible, elastomeric vanes each having axially spaced edges respectively engaging said end walls and an outer end engaging said peripheral wall, the spaces between said vanes being unobstructed;
(c) said peripheral wall including an inlet cam surface of increasing radius relative to said axis in said direction of rotation, and including an outlet cam surface of decreasing radius relative to said axis in said direction of rotation;

(d) said housing being provided with a bifurcated inlet passage oriented generally tangentially of said chamber and having branches respectively terminating in circumferentially extending inlet ports in said end walls just radially outwardly from the inner ends of said vanes and spaced from the outer ends of said vanes, said ports being substantially coextensive, circumferentially, with said inlet cam surface, said branches having axially outer walls with terminal portions curving axially inwardly toward said impeller to smoothly impart axially inward components of motion to fluid passing therethrough to insure complete filling of the spaces between said vanes, said branches and said ports having substantial volume to minimize resistance to flow so that fluid enters said spaces with a circumferential component of motion approaching the speed of said impeller thereby insuring smooth, efficient flow;

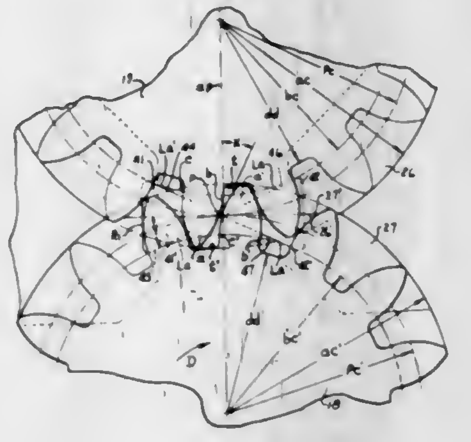
(e) said outlet cam surface being provided therein with an outlet port; and

(f) said housing being provided therein with an outlet passage oriented generally tangentially of said chamber and communicating with said outlet port, thereby insuring a smooth discharge and maintaining maximum energy in the discharged fluid.

3,303,792

GEAR PUMP WITH TRAPPING RELIEFS

Elroy G. Littlewood, Prophetstown, Ill., assignor to Roper Industries, Inc., Rockford, Ill., a corporation of Illinois
Filed Apr. 20, 1964, Ser. No. 360,854
2 Claims. (Cl. 103—126)

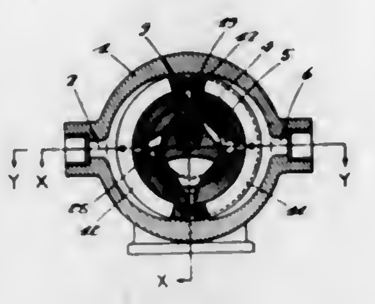


1. A fluid pump or motor comprising, a housing providing a pumping cavity having first and second flow passages communicating with the pumping cavity, a pair of meshing gears in said cavity supported for rotation about relatively parallel axes, said housing having end wall means disposed in close running fit with the ends of the gears, said gears having gear teeth in meshing engagement along one line of action when the gears are rotated in one direction and along a second line of action when the gears are rotated in the opposite direction, said end wall means having first and second trapping relief recesses located at relatively opposite sides of the pitch point of the gears and each communicating with a respective one of said flow passages, said relief recesses each having relatively converging side edges extending substantially along the first and second lines of action of the gears, said gears having backlash allowing communication between the roots of the gear tooth spaces and said relief recesses, said recesses having their adjacent ends spaced apart a distance at least as great as the backlash between the gears to prevent direct communication between the recesses.

3,303,793

ROTARY GEAR PUMP

Nobuo Morita, 535 Kawachimachi, Hiraoka, Japan
Filed Aug. 5, 1966, Ser. No. 570,539
Claims priority, application Japan, Aug. 17, 1965, 40/50,248
1 Claim. (Cl. 103—126)

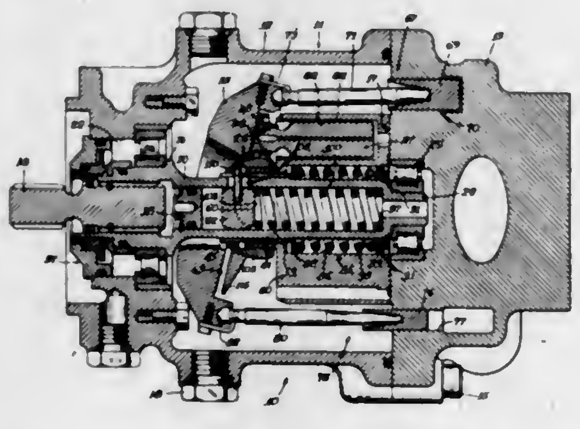


A rotary gear pump comprising a casing provided radially with a suction port and a delivery port, a cover closing said casing firmly, a shaft supported rotatably in said casing and said cover, an inner rotor fixed on said shaft, and outer rotor engaging with said inner rotor in an inscribingly slidable relation, a pair of discs embracing said outer rotor and said inner rotor in a slidable relation at the both sides of said rotors, a pair of annular spaces respectively provided on said casing and said cover in contact with said discs, a port ring embracing said outer rotor at the circumference of said outer rotor with oil wings respectively extending in the suction and in the delivery side around said outer rotor, and a pair of blocks with stems being in a slidable contact with said outer rotor respectively at the top and at the bottom of said outer rotor, said port ring being provided with a pair of narrow apertures respectively at the top and at the bottom thereof, each positioned between said oil wings in a normal direction to said oil wings and formed integrally with a wide aperture in the radial direction of said outer rotor so as to guide each of said blocks and stems therein, said annular spaces and said wide apertures being connected to the delivery side of said rotors, whereby said discs and said blocks are put into a contact with said rotors with even tightness in response to the pressure working in said delivery side.

3,303,794

PISTON RETURN MECHANISM

Donald W. Hagemann, Rockford, Ill., assignor to Sundstrand Corporation, a corporation of Illinois
Filed May 31, 1966, Ser. No. 553,861
11 Claims. (Cl. 103—162)

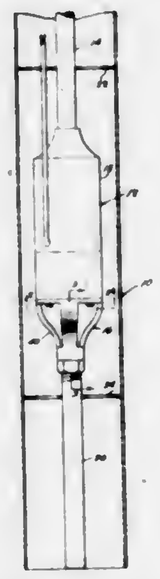


1. In an axial piston pump or motor device, housing means, a rotatable cylinder block in said housing means having a plurality of axial cylinders and a central recess, a drive shaft in said recess connected for rotation with the cylinder block, bearing means in said housing for constraining axial movement of said shaft, a plurality of pistons having ends reciprocable in said cylinders, a cam plate at one end of said cylinder block having a bearing face inclined to the end of the cylinder block, said drive shaft extending completely through said cylinder block and said cam plate, said bearing means supporting said drive shaft in said housing at both ends thereof, second bearing means on the outer ends of said pistons engaging said cam plate, ports communicating the cylinders with the opposite end of said cylinder block, a port member adjacent the opposite end of the cylinder block, and spring means wholly within said drive shaft for urging said second bearing means into engagement with said cam plate.

3,303,795

SUBMERSIBLE PUMP ADAPTER

William M. Slaughter, P.O. Box A–265, Fuquay-Varina, N.C. 27526
Filed Mar. 26, 1965, Ser. No. 442,937
4 Claims. (Cl. 103—202)



1. An adapter for connecting the casing of a submersible pump to an anchoring standpipe comprising a flat base ring conformably shaped to extend across and receive the lower end of said casing, a sleeve constructed so as to receive and have detachably secured thereto the upper end of said standpipe, said sleeve being disposed axially of and spaced from said ring, an open work cage extending from said sleeve to said ring and merging into said sleeve and ring, and fastening element-receiving means on said ring for securing the latter to said pump casing.

3,303,796

CONTINUOUSLY FORMING THREE-DIMENSIONAL SHAPES

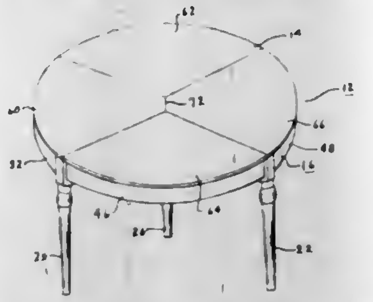
Alfred A. Novissimo, Jericho, N.Y., assignor to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware
Filed Oct. 23, 1964, Ser. No. 405,984
6 Claims. (Cl. 107—54)

1. A method for continuously forming three-dimensional confectionary shapes which comprises, forming confectionary dough having a density from about 1.15 to 1.40, kneading the confectionary dough through a series of kneading rollers having progressively increasing speed, passing the kneaded confectionary dough through a roll-forming unit wherein formed confectionary shapes are continuously molded, said confectionary shapes being maintained in sheet form by a thin webbing joining the formed confectionary shapes, said webbing being subsequently removed by tumbling the confectionary shapes in a rotating drum and thereafter separating the confectionary shapes from the surplus webbing.

3,303,797

FOLDING TABLE

Herman Mueller, 640 Beebe Road, Niles, Mich. 49120
Filed Jan. 24, 1966, Ser. No. 522,517
7 Claims. (Cl. 108—63)

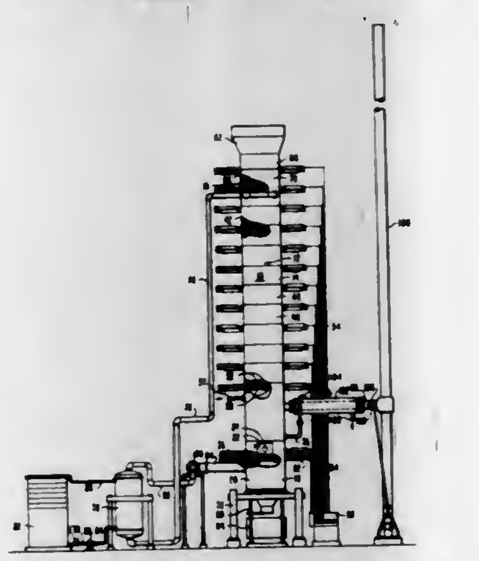


1. A folding table comprising two spaced peripheral legs, a center leg, said legs being held in spaced relation to one another, a first horizontally positioned top section of generally triangular shape being connected to said legs to form a rigid structure therewith, two horizontally movable peripheral legs, means pivotally connecting said movable legs to said center leg, two opposed top sections adjacent opposite sides of said first top section, means for pivoting said opposed sections to said first section for pivotal movement from a horizontal position downwardly to a vertical position, a last top section disposed between said opposed sections when said opposed sections are in their horizontal positions, and means for pivoting said last section to said first section for movement from a position opposite said first section to a position on top of said first section.

3,303,798

REFUSE INCINERATING PROCESS AND APPARATUS

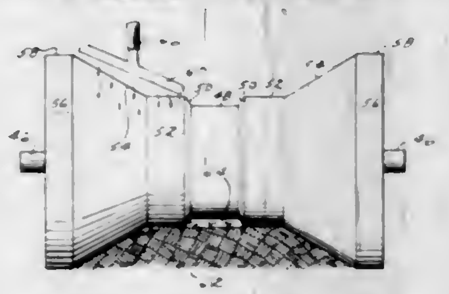
Ernest O. Kartinen, Long Beach, and Fred E. Akerlund, Hermosa Beach, Calif., assignors to Signal Oil and Gas Company, Los Angeles, Calif.
Filed Apr. 22, 1964, Ser. No. 361,836
14 Claims. (Cl. 110—11)



1. An improved incinerating apparatus, said apparatus comprising, in combination, a generally vertical hollow incinerator column, including a lower combustion chamber having refuse retaining means and a plurality of flameless treating chambers adapted to retain refuse for drying, distilling and carbonizing without combustion, and disposed in generally vertically stacked relation above said combustion chamber, horizontally retractable refuse holding means comprising the floor of each of said treating chambers, means for introducing refuse into the uppermost of said treating chambers while restricting gas flow thereto, means for withdrawing combustion gases only from said uppermost of said treating chambers, means for mixing said withdrawn combustion gases with a controlled concentration of oxygen-containing gas and for returning the resultant mixture to said combustion

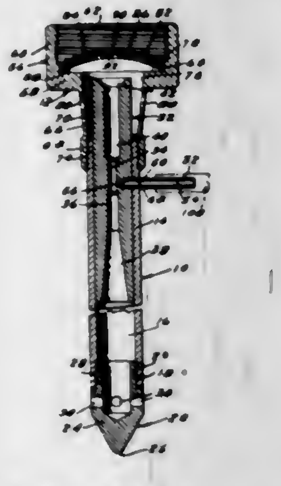
chamber below said refuse retaining means, and means for withdrawing a controlled concentration of excess combustion gases from said combustion chamber above said refuse retaining means and below said treating chambers and for passing said withdrawn excess combustion gases from said apparatus.

3,303,799
ROW SHAPER
Amos Edward Boyer Britt, Rte. 2,
Indianola, Miss. 38751
Filed Oct. 15, 1964, Ser. No. 404,090
3 Claims. (Cl. 111—6)



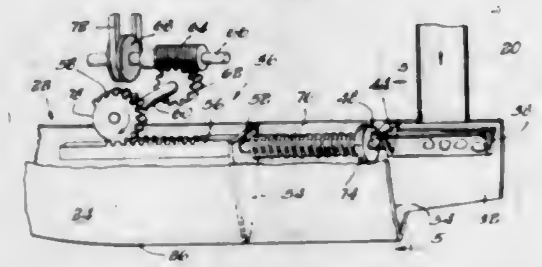
2. A device for applying an agricultural chemical to soil comprising a rectangular shaped frame having front, rear and side members, a pivotal carriage attached to said frame and means operatively connected to said carriage and said frame for raising and lowering said frame, an applicator roller carried by the frame between the front and rear members thereof and being rotatable about an axis parallel to said front and rear members, said applicator roller comprising a centrally disposed cylindrical member merging into outwardly flaring walls, each of said walls merging into an outer cylindrical member, each of said outer cylindrical members merging into a conical shaped member, means for dispensing said chemical to the peripheral surface of said outer cylindrical members and said conical members whereby passage of the applicator roller over the soil permits application of the chemical to the soil without substantial contact thereof with vegetation growing therein.

3,303,800
SOIL CONDITIONING APPARATUS
Donald E. Young, La Habra, Calif., assignor of one-half to Milton K. Stabe, La Habra, Calif.
Filed Mar. 12, 1964, Ser. No. 351,369
13 Claims. (Cl. 111—7.1)



4. In a soil conditioning device:
(A) an elongated element for insertion into the ground, said element having a longitudinally extending passage therein and outlet openings therefrom adjacent the lower end thereof;
(B) means defining a venturi at the upper end of said element, said venturi having a venturi throat and an inlet at the upper end defining a valve seat;
(C) a valve body having a recess therein having a wall at the lower end, said wall having a relatively large opening therein in alignment with the inlet end of the venturi;
(D) means extending from said wall, said means being removably attached to the upper end of said element and defining a chamber vented to atmosphere;
(E) a pair of flexible movable valve members in said recess, said valve members being adjacent each other one above the other, and a fixed valve disc having its under side concave, said disc having a plurality of annularly spaced openings therein between the center and periphery thereof, the central portion of said disc being solid, the upper movable valve member having an opening therein and the lower movable valve member being slitted to provide a normally closed opening defined by portions thereof movable between a closed position and an open position when subjected to pressure, the slitted portion of said valve member being in alignment with the central opening of the top valve member and operable by fluid pressure in the opening in the upper valve member, said movable valve members being movable between a position whereat they bulge upwardly so that the upper valve member engages the under side of said disc and closes the openings therein with the central opening of said valve member closed by the solid portion of said disc and the slitted portion of the lower valve member being in the closed position, and a position whereat the central portion of said valve members are bowed downwardly with the central portion of the lower valve member engaging the valve seat of the upper end of said venturi, the central opening of said upper disc being in register with the upper end of said venturi passage and the slitted portion of the lower valve member being in register with the opening in said upper valve member and also with the upper end of the venturi passage.

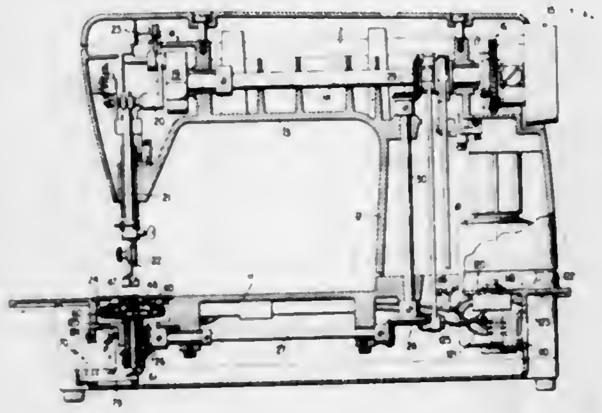
3,303,801
RUNNER APPARATUS FOR ORIENTATION PLANTING
Marlyn W. Reynolds, Grey Stone Acres,
Altona, Ill. 61414
Filed June 23, 1965, Ser. No. 466,243
5 Claims. (Cl. 111—86)



3. Apparatus for planting seeds with their flat sides disposed vertically, said apparatus comprising: ground-engaging means including furrow-forming blade means having a heel portion and having first and second wall members extending rearwardly of said heel portion in horizontally spaced, generally parallel relationship, said heel portion including aperture means opening into the space between said wall members and seed-stop means generally overlying said aperture means, one of said wall members including a lower portion extending vertically beyond the lower edge of the other wall member, said lower portion being relatively stationary with respect to seeds passing downwardly between said wall members, the earth exposed beneath said lower edge being relatively movable with respect to said seeds upon forward transport of said ground-engaging means, whereby the relative motion of said earth and said lower portion

orients said seeds generally with their flat sides disposed vertically; seed supply means, including a delivery chute aligned with said wall members to drop seeds therebetween; and seed-drop regulating means for controlling the passage of seeds from said chute to the space between said wall members, including a leaf element normally situated between said wall members to intercept seeds from said chute and horizontally slidably disposed in said aperture means, said regulating means further including periodic drive means connected to said leaf element and operative to pull said leaf element forwardly of said seed-stop means whereby to dump seeds previously collected on said leaf element into the space between said wall members.

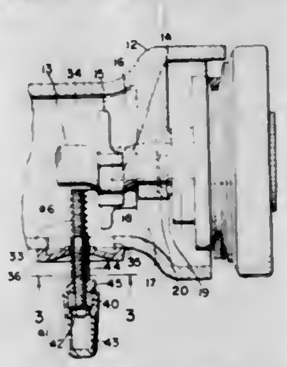
3,303,802
SOLENOID BOBBIN WINDERS
John W. Crawford, Neptune, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 19, 1964, Ser. No. 345,892
3 Claims. (Cl. 112—184)



1. In a lock stitch sewing machine having a frame, a thread carrying needle endwise reciprocable in said frame, a circularly moving loop taker journaled in said frame, a thread carrying bobbin journaled within said loop taker, actuating mechanism in said frame operatively connecting said needle and said loop taker for interrelated movements as are required for the formation of lock stitches, a bobbin winding member carried within said loop taker, and means shiftably supporting said bobbin winding member for movement axially of said loop taker into and out of operative engagement with said bobbin, means for at will shifting said bobbin winding member axially of said loop taker into operative engagement with said bobbin comprising a solenoid including a core provided with a solenoid coil, an armature shiftably supported relatively to said core, means operatively connecting said armature to said bobbin winding member, and means securing said solenoid core to said sewing machine frame with said solenoid armature in seated relation against said solenoid core in the operative engaged position of said bobbin winding member with said bobbin.

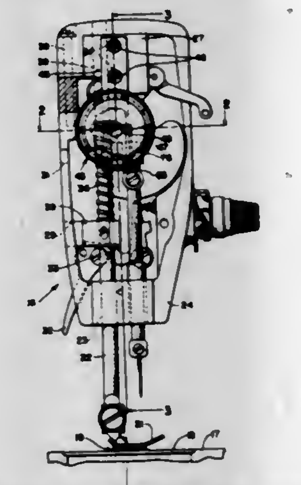
3,303,803
SEWING MACHINE STITCH LENGTH REGULATOR
Edward W. Bialy, Hillside, and Herbert J. Hurme, Elizabeth, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Jan. 28, 1964, Ser. No. 340,735
1 Claim. (Cl. 112—210)

A stitch length regulator for a sewing machine including a frame having an elongated rectangular slot, a work feed mechanism mounted in the frame, and shiftable means for changing the stitch length of the work feed mechanism shiftable in a direction parallel to the longitudinal edges of the slot in the frame, said stitch length regulator comprising a lever connected to the shiftable means and having external screw threads on its free end portion, an insert on the lever having internal screw threads mating with the external screw threads of the lever, retaining means on the free end of the lever for preventing the insert from being unscrewed from the lever, a knob connected to the insert and having housing means which completely enclose the retaining means to completely conceal the retaining means from view, an elongated sleeve having a longitudinal bore by which it is slidably mounted on the lever between the shiftable means and the knob and having a substantially rectangular cross section with opposite sides slidable against the longitudinal edges of the elongated rectangular slot in the frame to prevent rotation of the sleeve on the lever, a compression coil spring mounted on the lever between the shiftable means and the sleeve for biasing the sleeve



against the knob, and stitch length setting means projecting laterally from at least one of said opposite sides of the sleeve which slide against the longitudinal edges of the slot in the frame and having a triangular shape when viewed from a position substantially perpendicular to a plane described by shifting movement of the stitch length regulator with an apex of the triangle pointed toward the portion of the frame of the machine adjacent to the longitudinal edge of the slot in the frame, said stitch length setting means overlying the portion of the frame of the machine adjacent to the longitudinal edge of the slot in the frame to set the stitch length of the work feed mechanism when the lever is shifted to the desired position and the knob is turned so as to press the stitch length setting means against said portion of the frame of the machine adjacent to the longitudinal edge of the slot in the frame.

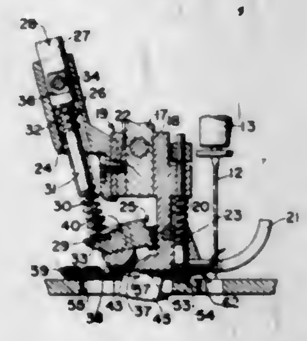
3,303,804
UNITARY PRESSER BAR SPRING REGULATING DEVICES
Paul Lesort, Freneuse, France, assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 15, 1964, Ser. No. 404,048
3 Claims. (Cl. 112—235)



1. A unitary regulating device for regulating the pressure which a presser bar spring applies to the presser bar of a sewing machine, said unitary regulating device com-

prising, an elongated apertured guide member provided at one end with an open ended slot, an adjusting knob, a cam track on said knob, means for pivotally mounting said knob on said guide member, an abutment bracket entirely supported by and slidably mounted on said guide member, an arm on said bracket adapted to engage said presser bar spring, a cam follower formed on said bracket and positioned to extend through the open ended slot in said guide member to engage the cam track on said knob, and means for securing said guide member to the said sewing machine.

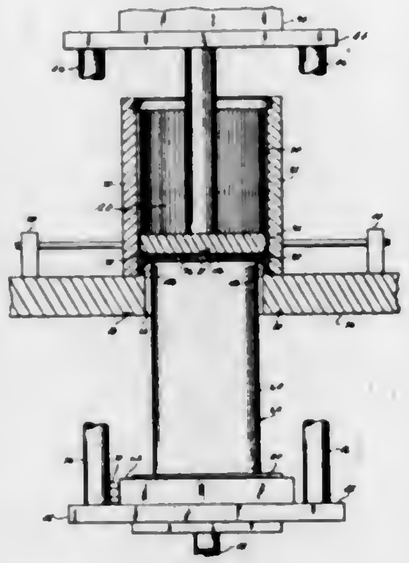
3,303,805
THREAD CUTTERS FOR SEWING MACHINES
Adam P. Steiner, Union, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Dec. 7, 1964, Ser. No. 416,260
4 Claims. (Cl. 112—252)



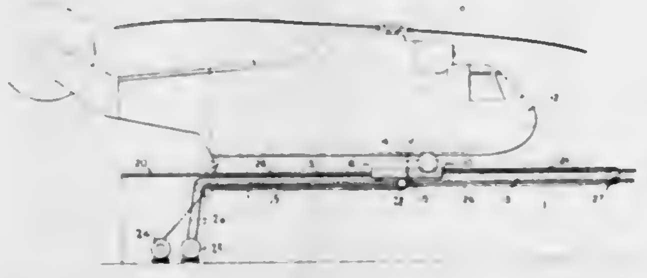
1. An automatic thread cutter in combination with a sewing machine having a work-supporting bed with at least one slot therein, a sewing head rising from the work-supporting bed, stitch forming means adapted to concatenate threads into stitches, a feed dog having at least one row of feed teeth and mounted in the work-supporting bed with the row of feed teeth in line with the slot in the work-supporting bed, said feed dog adapted to trace a cyclical path with the tops of the feed teeth above the top surface of the work-supporting bed during the upper work feeding portion of each cycle, and a presser foot mounted on the sewing head in opposition to the teeth of the feed dog, said automatic thread cutter comprising a leading edge formed on the feed dog in advance of the row of feed teeth and far enough below the plane defined by the tops of the feed teeth so that said leading edge can never be the highest portion of the feed dog during the time when any portion of the feed dog is above the top surface of the work-supporting bed, a first cutting edge formed on said leading edge, a ledger blade mounted on the presser foot, said ledger blade having a second cutting edge facing said first cutting edge and a bottom bearing surface extending forwardly from the second cutting edge, and means for moving the ledger blade downwardly to position said bottom bearing surface at such an angle that when any portion of the feed dog contacts said bottom bearing surface the leading edge of the feed dog must contact the bottom bearing surface.

3,303,806
METHOD FOR MAKING METALLIC CONTAINERS
Carlton L. Whiteford, New Canaan, Conn., assignor to Plastic Can Corporation, Springdale, Conn., a corporation of Connecticut
Filed May 17, 1965, Ser. No. 456,454
14 Claims. (Cl. 113—120)

1. In the method of forming hollow metal articles, the steps comprising: forming a preform of relatively ductile metal; clamping said preform about its periphery adjacent one end of a mold cavity of the desired sidewall configuration; displacing the center portion of said preform inwardly of said mold cavity relative to the clamped periphery thereof while simultaneously applying compressive pressure thereto to effect lateral flow of the metal in the center portion and provide metal in the wall portion being formed between said clamped periphery and displacing center portion during the formation of said wall portion; and applying pressure to the interior of said preform after said displacement of the center portion to expand the preform into conformity with the wall of said mold cavity to form a hollow article, said displacement and pressure applications being conducted below the recrystallization temperature of said metal to effect crystal orientation during said displacement, lateral flow and expansion of said metal of said preform.



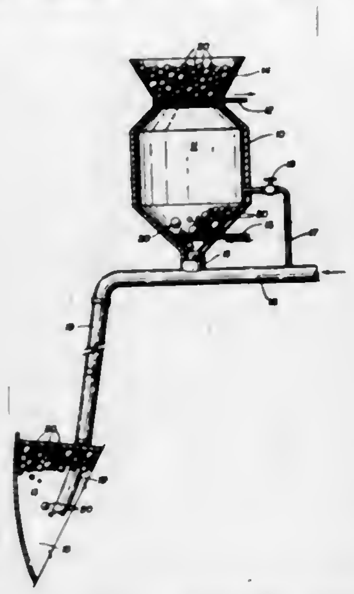
3,303,807
HELICOPTER RAPID SECURING DEVICE
William Gordon Stewart, Halifax, Nova Scotia, and Asbjorn Baekken, Dartmouth, Nova Scotia, Canada, assignors to Canadian Patents and Development, Limited, Ottawa, Ontario, Canada
Filed Oct. 16, 1964, Ser. No. 404,374
Claims priority, application Canada, Oct. 18, 1963, 887,011
14 Claims. (Cl. 114—43.5)



1. A device for landing and securing aircraft of the rotor sustaining or hovering type on a platform, said device comprising:

(a) a housing adapted to be secured to said aircraft and forming the female member of a coupling;
(b) a probe adapted to be telescopically received in and secured to said housing;
(c) a first winch adapted to be secured to said platform and having a first cable mounted thereon;
(d) means on the other end of said first cable forming the male portion of said coupling;
(e) a winch carried by said aircraft;
(f) a second cable secured to said second winch and adapted to be secured to said means for raising said means into said housing, and
(g) means adapted to be secured to said platform for grasping said probe.

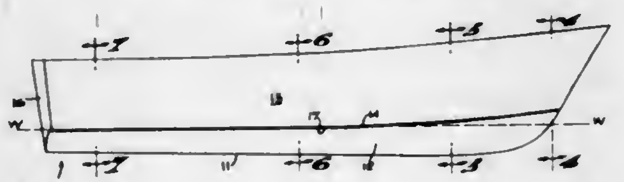
3,303,808
APPARATUS FOR RAISING SUBMERGED VESSELS
Jim D. Helbig, Brighton, Colo.
(3816 Dahlia St., Denver, Colo. 80207)
Filed Oct. 18, 1965, Ser. No. 496,851
6 Claims. (Cl. 114—52)



1. Apparatus for raising submerged vessels comprising

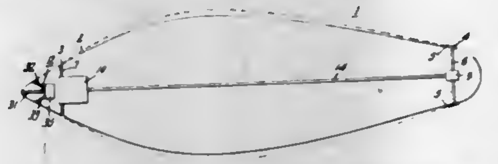
(a) a plurality of buoyant valveless hollow elements having walls impervious to air and water, each provided with a very small aperture through which air passes automatically into the elements when the air pressure is greater externally than internally of the elements and passes automatically out of the elements when the pressure is greater internally than externally of the elements, but through which water cannot pass when pressures internal and external of the elements are substantially equal,
(b) a walled pressure chamber containing said elements and air pressurized to a predetermined pressure at least equal to the water pressure at the depth of the submerged vessel to be raised for automatically causing said pressurized air to pass into the buoyant elements through said apertures until their internal and external pressures are approximately equal, and
(c) means conveying the buoyant elements into the submerged vessel while maintaining said pressures.

3,303,809
BOAT HULL
Leroy W. Ross, P.O. Box 96, Coconut Grove Station, Miami, Fla. 33133
Filed Oct. 12, 1965, Ser. No. 495,050
3 Claims. (Cl. 114—56)



1. A boat hull having a bottom, a keel extending centrally along said bottom from stem to stern, a first pair of chines extending one each along each side of said bottom, a second pair of chines outwardly spaced one each from each one of said first pair of chines and defining therewith substantially flat hull wing portions at each side of said bottom and lying in a common, horizontal, transverse plane, a pair of hull sides extending upwardly from one each of said second pair of chines and from stem to stern and symmetrically disposed with respect to said keel, said bottom being substantially V-shaped in vertical transverse section with an obtuse V-angle of substantially constant value from a point amidships to the stern of the hull, said wing portions increasing gradually in width from stem to stern.

3,303,810
ADDITIVE DRAG REDUCTION WITH RECIRCULATION
Walter B. Giles, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 29, 1965, Ser. No. 451,763
5 Claims. (Cl. 114—67)

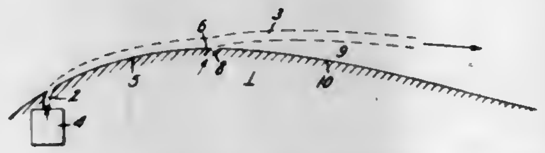


1. A method for reducing frictional drag on water vehicles comprising the steps of

adding a water soluble viscoelastic polymer, which has a high molecular weight, is highly polar and is linear, to form a laminar flow stream of additive and water in proximity with the surface of a water vehicle in the general direction of the flow stream for reducing drag thereon,

entrapping a substantial portion of the additive after it has flowed over the surface of the vehicle, and recirculating the entrapped additive again in the general direction of the flow stream over the same surface of the vehicle to continue to reduce drag thereon.

3,303,811
METHOD AND APPARATUS FOR DRAG REDUCTION
Walter B. Giles, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 29, 1965, Ser. No. 451,933
7 Claims. (Cl. 114—67)



1. A method of reducing drag on water vehicles comprising the steps of

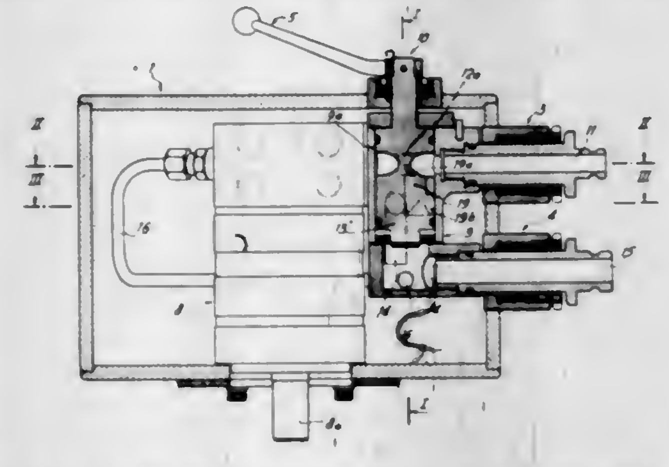
adding a drag reducing shear thinning additive proximate the surface of a water vehicle to reduce frictional drag thereon,

and injecting a liquid in the general direction of the flow stream to deflect the flow stream of said additive so that it passes through critical points of disturbance to thereby substantially eliminate the formation of a turbulent boundary layer proximate the surface of the water vehicle to substantially reduce frictional drag with a minimum use of the drag reducing additive.

3,303,812
UNDERWATER MECHANICAL BRUSH
Joseph Charles Sierra, 24 Square Belsunce, and Pierre Pince, 60 Blvd. Testaniere, both of Marseille, France
Filed Apr. 13, 1965, Ser. No. 447,728
Claims priority, appilcation France, Apr. 13, 1964, 20,545; Feb. 11, 1965, 5,184
11 Claims. (Cl. 114—222)

1. A unitary brushing device for underwater cleaning of the surface of an immersed structure, comprising a brush element and a shaft on which said element is mounted, a hydraulic motor for rotating the shaft, means for supplying the motor with a pressure liquid, means for withdrawing such liquid after its passage through the de-

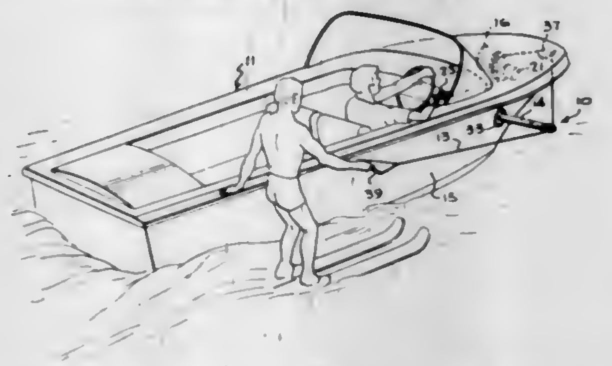
vice, means for controlling the liquid distribution conditions in the device to control the speed of rotation of the brush element, the last-mentioned means comprising a valve cooperating with the supply means and the discharge means to receive the supplied liquid and direct the same towards the discharge, the moving part of the valve being operable to a motor stop position without the flow of liquid between the supply and the discharge being interrupted, said valve being of the kind comprising a plug rotating in a bore in a casing, at least one supply line for the driving liquid to the device terminating in an orifice in the said bore, at least one discharge line for the driving liquid leaving the device communicating with at least one port in the bore periphery, said plug having, at



the level at which said supply line orifice is disposed, two channels separated by a partition and adapted to be selectively connected to the said supply line orifice in dependence upon the angular position of the plug in the casing, means enabling the liquid to pass through the valve without passing through the motor comprising at least one channel in that part of the partition which is opposite the said supply line orifice when the plug is in the motor stop position, said last-mentioned means also comprising at least one passage inside the plug and in communication at an inlet end with the said last mentioned channel, the said passage opening into the plug periphery by way of an outlet orifice, at least part of which is disposed opposite a port communicating with the discharge line when the plug is in the motor stop position.

3,303,813
WATER SKI LAUNCHING SYSTEM

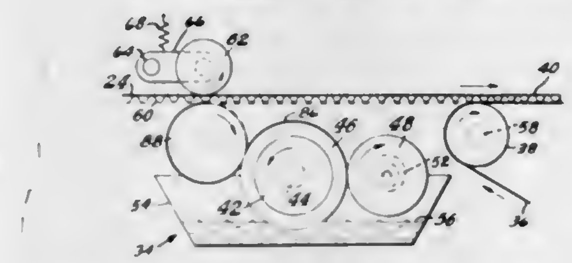
Franklin M. Collins, 140 Morgan Road, and Clarence H. Gilley, 141 Morgan Road, both of Winston-Salem, N.C. 27105
Filed Oct. 6, 1965, Ser. No. 493,499
6 Claims. (Cl. 114—235)



1. Water skier launching and retrieving apparatus for use in conjunction with a boat to selectively position a water skier from alongside the boat to the rear thereof comprising, a towline, a boom arm assembly mounted on the boat so as to project from the side of the boat at such distance forward of the transom to allow the skier to hold onto the side of the boat at desired times, the boom arm assembly including a support member affixed to the boat and a boom arm engaging the support member, the boom arm having a free end projecting outwardly from the boat to one side thereof, a reel means mounted upon the boat adapted to windably receive the towline, the towline being slidably engaged with the free end of the boom arm, means to transmit rotary energy to the reel means.

3,303,814
APPARATUS FOR APPLYING ADHESIVE TO A MOVING WEB

Charles D. Nitchie, Baltimore, Md., assignor to Koppers Company, Inc., a corporation of Delaware
Filed July 28, 1964, Ser. No. 385,628
2 Claims. (Cl. 118—249)

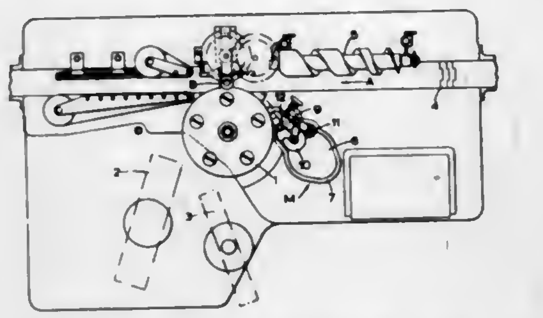


1. Apparatus for applying a thin coating of a liquid adhesive to the surface of a corrugated web to make corrugated board comprising,
a transfer roller rotatably mounted adjacent to said surface,
a coating roller rotatably mounted in juxtaposition with said transfer roller,
a pressure roller rotatably mounted in juxtaposition with said coating roller, said rollers having their axes in substantially the same plane,
said coating roller having a resilient peripheral surface,
said pressure roller having a rigid embossed peripheral surface defining a plurality of recesses therein,
said transfer roller having a relatively smooth metallic surface,
a container for said liquid adhesive positioned below said coating roller and said pressure roller,
said coating roller having its lower portion positioned to be submerged in said adhesive so that upon rotation of said coating roller an uneven film of said adhesive is picked up by said coating roller,
said pressure roller positioned with said embossed peripheral surface contacting said coating roller resilient peripheral surface and forming a nip between said rollers,
said pressure roller arranged upon contact with said coating roller with said nip to squeeze said uneven film of adhesive into a thin film having a surface of substantially the same configuration as said pressure roller embossed peripheral surface,
said coating roller arranged upon contact with said transfer roller to transfer said thin film of adhesive from said coating roller to said transfer roller, and
said transfer roller operable to transfer said thin film of said adhesive onto said surface.

3,303,815
MECHANISMS FOR COATING SURFACES WITH LIQUID

Dennis Stanley Silver, London, England, assignor to Purdy Machinery Company Limited, London, England
Filed July 27, 1964, Ser. No. 385,417
Claims priority, application Great Britain, Aug. 2, 1963, 30,818/63
6 Claims. (Cl. 118—262)

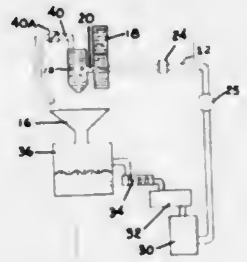
1. An apparatus for coating a travelling surface with liquid including, in combination, a transfer roller mounted to rotate about its axis, a coating means for coating said transfer roller with a liquid, said coating means including a pump, said transfer roller having a driving connection, said pump having a driving connection, a gear train permanently interconnecting said driving connections, a main drive shaft for driving said gear train, a unidirectional clutch interposed between said main drive shaft and gear train, an auxiliary drive shaft for driving said



gear train, and a second unidirectional clutch interposed between said auxiliary drive shaft and said gear train, whereby said transfer roller and said pump may be driven by either one of said shafts, whichever is actuated at the higher speed.

3,303,816
APPARATUS FOR CURTAIN COATING

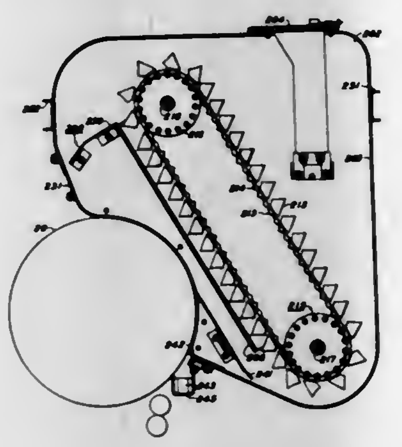
Edgar A. Lauring, International Falls, Minn., assignor to Boise Cascade Corporation, Boise, Idaho, a corporation of Delaware
Filed June 3, 1963, Ser. No. 284,971
1 Claim. (Cl. 118—603)



Apparatus for forming a vertical uniform liquid curtain through which an object to be coated is passed, comprising a coating head containing an elongated horizontal chamber the upper portion of which is closed, an inlet communicating with said chamber adjacent but spaced from the top thereof, and a discharge slot communicating with the bottom of said chamber and extending longitudinally substantially the length thereof, said head including also an outlet vent conduit communicating at one end with the top of said chamber, and one-way check valve means connected in said conduit to permit fluid flow in the direction away from said chamber;
normally closed adjustable lip means for controlling the flow of fluid through said discharge slot;
means for establishing a pressure head in said coating head and for removing gas bubbles from the coating fluid, comprising an open-topped housing defining a vertical column, said housing including opposed inlet and outlet openings at an elevation below the upper end of said vertical column;
flexible conduit means connecting the outlet of said vertical column housing with the inlet of said coating head;
means including a pump for supplying liquid to the inlet opening of said vertical column housing to fill said vertical column and the chamber of said coating head means, thereby causing discharge of the fluid from said coating head through said vent conduit and said check valve means;
means for opening said lip means to permit the gravity discharge of a curtain of uniform predetermined thickness of the coating fluid from said coating head; and
means for conveying an article to be coated through said uniform curtain.

3,303,817
XEROGRAPHIC DEVELOPING APPARATUS

John E. Cranch, Penfield, and Lyman H. Turner, Pittsford, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Dec. 23, 1963, Ser. No. 332,478
4 Claims. (Cl. 118—637)



1. A developing apparatus for use in xerographic reproducing apparatus wherein a xerographic plate in the shape of a drum is journaled for rotation about a horizontal axis in a frame element of the xerographic reproducing apparatus, the developing apparatus including
a casing having a lower sump portion for accumulating developing material; side walls having a concave edge portion in conformity with the shape of the xerographic plate, and a front wall means terminating in a curved chute with the trailing edge portion of the curved chute positioned along a line which is substantially vertically above the horizontal axis of rotation of said xerographic plate,
a bucket-type conveyor mounted within said casing to carry developing material to the upper portion of said casing,
and a hi-planar guide mounted in said casing said guide being positioned removed from said trailing edge portion of said curved chute and adjacent to the upper portion of said bucket-type conveyor to deflect developing material discharged by said bucket-type conveyor downward toward and into contact with said front wall means whereby developing material as it falls down said guide onto said curved chute accelerates so that the velocity of the developing material as it contacts said xerographic drum is slightly greater than the lineal surface speed of said xerographic plate.

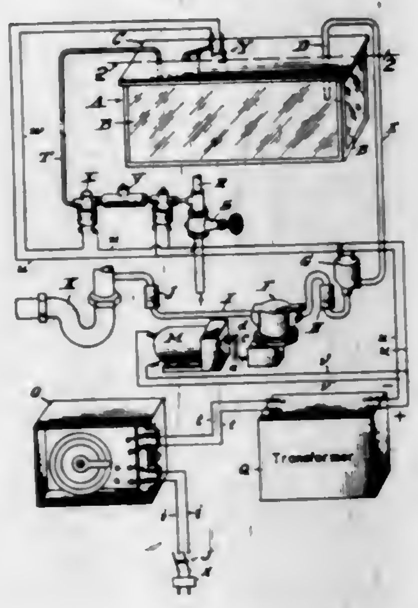
3,303,818
METHOD OF FREEING PIGS FROM SICKNESSES WHICH ARE TRANSFERRED TO THE PIGLETS FROM THE MOTHER SOW

Heinrich Biehl, Witzhave, near Trittau, Germany
No Drawing. Filed July 26, 1965, Ser. No. 474,937
Claims priority, application Germany, Dec. 21, 1964, B 79,833
5 Claims. (Cl. 119—1)

5. The method of selecting piglets for breeding purposes to prevent the transfer of particular, contagious diseases comprising the steps of slaughtering the mother sow upon giving birth to its first brood of piglets, examining the slaughtered mother sow for the presence of said particular, contagious disease, and raising for breeding purposes only those newborn piglets born to slaughtered sows free of said particular, contagious diseases.

3,303,819
APPARATUS FOR CONDITIONING AQUARIUMS

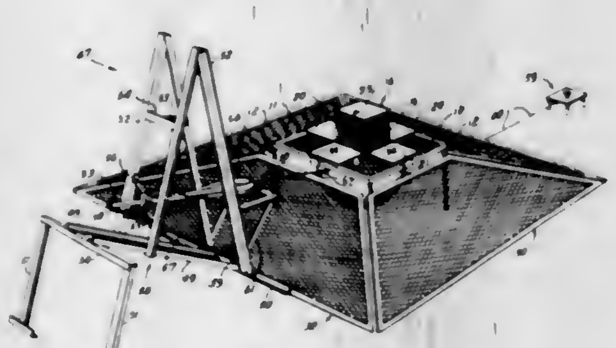
Mervyn S. Wade, 12942 Gilmore,
Los Angeles, Calif. 90066
Filed Aug. 2, 1965, Ser. No. 476,387
8 Claims. (Cl. 119—5)



2. In an aquarium, the combination of a tank for containing a volume of water, a water-feed-pipe leading into said tank from a source of water supply under pressure, a pressure regulator in said feed-pipe, a normally closed cut-off valve in said pipe between said pressure regulator and said tank, a solenoid for opening said valve when energized, a float in said tank, a normally open switch controlling a circuit through said solenoid, connections between said float and switch operable to close said switch to energize said magnet and open said valve when said float moves downward on lowering the level of the water in said tank, means for periodically evacuating a portion of the water in said tank; said last named means embodying a pump, a water discharge tube having one end thereof leading downwardly into the water contained in said tank and having its other end connected to the intake of said pump, said pump having an outlet conduit leading to discharge, a motor, means actuated by said motor for operating said pump, and a time-switch controlling said motor at periodic intervals.

3,303,820
AUTOMATIC DEVICE FOR CASTING SIMULATED BIRDS

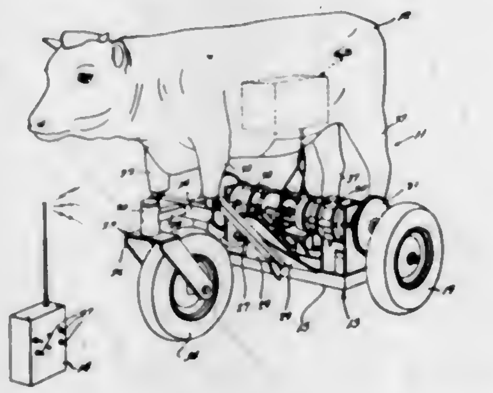
Fred O. Boyles, 2412 Queensbury Road,
Moore, Okla. 73060
Filed June 24, 1965, Ser. No. 466,562
5 Claims. (Cl. 119—15.6)



1. In an animated mechanical target device designed to simulate actual quail hunting conditions in small areas, for use in teaching and training bird dogs, and for controlled field trials under conditions simulating actual hunting conditions, the combination of a central table having an open screen top, said table top having an annular reinforced opening therein, centrally thereof, a vertically disposed pin slidably engaging said reinforced opening and movable reciprocally relative to said table top, a rectangular live bird cage above said table having open screen sides and having an opaque bottom removably connected to the upper end of said pin, resilient means surrounding said pin, between said table top and the bottom of said cage, acting on said cage to bias it upwardly relative to said table top, said cage having opaque false sides hinged thereto adjacent the bottom thereof and having individual springs acting thereon whereby said false sides are biased upwardly about said open screen sides to conceal a bird in said cage, individual magnets on said table top engageable with the upper edges of said false sides in their laterally outwardly extending positions relative to said cage, in the uppermost position of said cage relative to said table top, individual upstanding abutments on said table top engageable with said false sides intermediate their top and bottom edges, upon downward movement of said pin and said cage relative to said table top, whereby said false sides are disengaged from said magnets, and foot operable means, operable by the dog or his trainer, acting on said pin to move it downwardly relative to said table top.

3,303,821
MECHANICAL CUTTING CALF

Lee R. Harris, 3307 Larry Lane, Austin, Tex. 78722
Filed Sept. 24, 1965, Ser. No. 489,909
10 Claims. (Cl. 119—29)



1. A mechanical calf for use in training horses comprising a wheeled base provided with a pair of rear driving wheels and a freely vertically-pivoted front dolly-wheel assembly, a simulated calf body mounted on said base, respective motors drivingly coupled to said driving wheels, each motor having a forward winding and a reverse winding, means to energize the forward windings simultaneously, whereby to simultaneously drive the wheels forwardly in the same direction, and means to at times selectively energize the forward and reverse windings of the motors, whereby to selectively reverse the direction of operation of the motors, whereby to cause said wheeled base to execute right or left turns simulating the turning movements of a live calf.

3,303,822
AUTOMATIC ANIMAL SELECTIVE FEEDER

Ronald S. Cohen, Milwaukee, Wis., assignor to Modern Teaching Associates, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 2, 1965, Ser. No. 476,324
11 Claims. (Cl. 119—51)

8. An automatic selective feeder assembly for supplying food intermittently, comprising

a disc having a plurality of spaced apertures extending therethrough and spaced circumferentially thereof, said disc including an upstanding centrally located shaft,

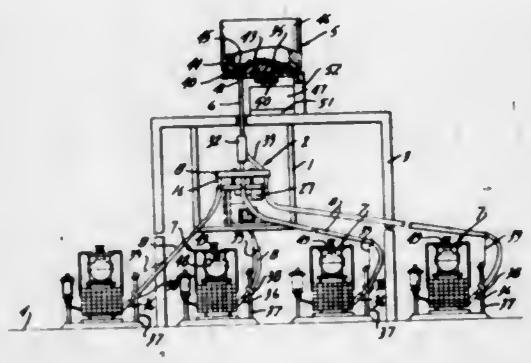
discharge conduit means connected to each of said apertures,

selector switches corresponding in number to the spaced apertures with said switches being secured to the disc and having switch arms disposed in a selected array,

a switch actuator mounted for relative traverse movement over the switches to intermittently engage and close each of the selector switches in sequence,

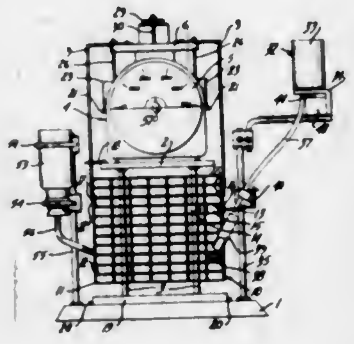
a food receiving tube secured to the shaft and extending upwardly therefrom and thence downwardly and outwardly at an angle to pass over selected apertures in said disc, and

electrical means connected to the selector switches and conditioned by the closing of a selector switch for controlling delivery of food to the receiving tube and thence downwardly through the receiving tube and through the aperture of the disc and discharge conduit.



3,303,823
WEIGHT CONTROL APPARATUS FOR ANIMALS

Ronald S. Cohen, Milwaukee, Wis., assignor to Modern Teaching Associates, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 2, 1965, Ser. No. 476,359
13 Claims. (Cl. 119—51.11)



1. Weight control apparatus for controlling the weight of an animal by providing restricted quantities of food in a first form and essentially unrestricted quantities of a second form, comprising

a scale having a movable portion and a readout coupled to and actuated by the movable portion,

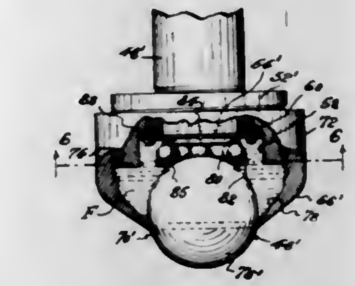
a cage suspended from the movable portion and defining a living area for an animal to be used for experimental purposes,

a source of the first form of food, and

means responsive to the position of the movable portion to deliver food from the source to the cage to control the feed intake and the weight of the animal and the readout correspondingly, whereby said animal remains in the cage until the desired experimental weight control phase is completed.

3,303,824
PRESSURIZED LIVESTOCK LIQUID FEED DISPENSER

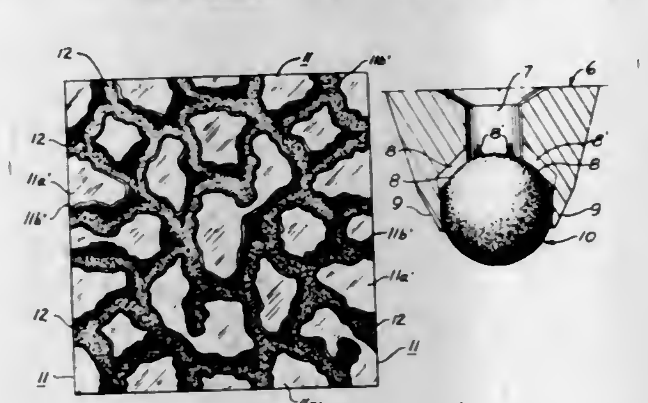
Philip C. Anderson, Crete, Nebr., assignor to Feed Service Corporation, Crete, Nebr., a corporation of Nebraska
Filed Apr. 13, 1965, Ser. No. 447,620
20 Claims. (Cl. 119—72.5)



17. Dispensing valve means, which comprises a cavitied body containing liquid and having a lower wall with a circular dispensing opening therein; a round feed ball of a diameter slightly larger than that of said opening rotatably disposed within the cavity in said body, resting on said lower wall and having a spherical portion projecting downwardly through said opening; and means for limiting the amount of upward movement of said ball a distance corresponding to the thickness of the coating of liquid dispensed and carried by said ball.

3,303,825
BALL POINT WRITING INSTRUMENTS

Robert Cowan Shuman, Janesville, and Francis John Meinhardt, Edgerton, Wis., assignors to The Parker Pen Company, Janesville, Wis., a corporation of Wisconsin
Continuation of application Ser. No. 655,623, Apr. 29, 1957. This application Sept. 21, 1961, Ser. No. 140,973
12 Claims. (Cl. 120—42.4)

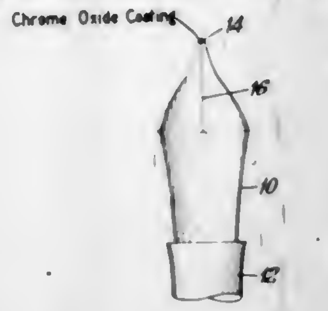


1. In a ball point writing instrument, a writing ball comprising a plurality of carbide particles sintered together to form a cemented carbide compact, said ball having a substantially true spherical surface except for pits which interrupt land areas on the ball surface, said surface having a substantially homogeneous texture formed by randomly distributed lands and pits, said lands being formed by carbide particles and said pits being the spaces between said lands.

3,303,826
FOUNTAIN PEN NIB

Lewis M. Cowden, Indianapolis, and William J. Roach, Brownsburg, Ind., assignors to Union Carbide Corporation, a corporation of New York
Filed Apr. 13, 1965, Ser. No. 447,621
1 Claim. (Cl. 120—109)

As an article of manufacture, a fountain pen nib comprising a base composed of metal selected from the class consisting of gold and stainless steel, said nib having an adherent plasmarc process applied hard lamellar chrome oxide coating at least on the writing tip thereof, which

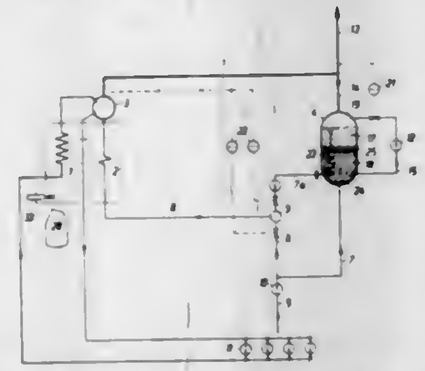


not only resists wear but is substantially scratch free in use.

3,303,827
METHOD AND APPARATUS FOR REMOVING STEAM PEAKS FROM A STEAM BOILER WHICH UTILIZES CYCLICALLY PRODUCED WASTE HEAT, PREFERABLY THE WASTE HEAT FROM CONVERTERS BLOWN BY OXYGEN

Roland Kemmetmuller, Vienna, Demeter Karl Markow, Graz, and Ingo Pascher, Graz-Kroisbach, Austria, assignors to Waagner-Biro Aktiengesellschaft, Vienna, Austria, a firm of Austria

Original application Jan. 15, 1962, Ser. No. 166,039, now Patent No. 3,234,920, dated Feb. 15, 1966. Divided and this application Dec. 16, 1965, Ser. No. 514,297
Claims priority, application Austria, Jan. 20, 1961, A 489/61, A 491/61, A 492/61
25 Claims. (Cl. 122—7)



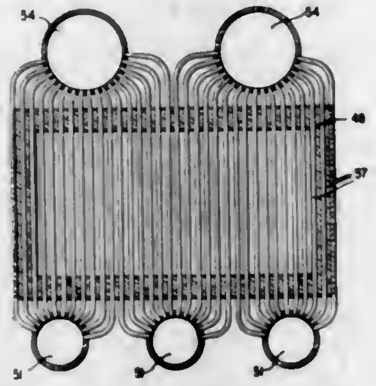
1. A method of equalizing steam peaks in a waste gas steam boiler using cyclically produced waste heat comprising the steps of feeding, during the period of the cycle in which waste heat is produced, the surplus steam produced in said boiler into heat exchanger means; supplying cold feed water to said heat exchanger means so as to at least partly condense the surplus steam while heating the cold feed water; feeding to said boiler, during the period of the cycle in which waste heat is produced as well as during the period in which no waste heat is produced, heated feed water from said heat exchange means mixed with cold feed water in such proportion as to supply the boiler with feed water of predetermined temperature; and heating the steam boiler during the period of the cycle in which no waste heat is produced by additional heating means.

3,303,828
HEAT EXCHANGER

Oliver F. Campbell, Chandler, Ariz., and Norman E. Pennels, Olympia Fields, Ill., assignors to Sinclair Research, Inc., Wilmington, Del., a corporation of Delaware

Original application Nov. 16, 1961, Ser. No. 152,733, now Patent No. 3,256,924, dated June 21, 1966. Divided and this application Sept. 24, 1965, Ser. No. 505,216
2 Claims. (Cl. 122—352)

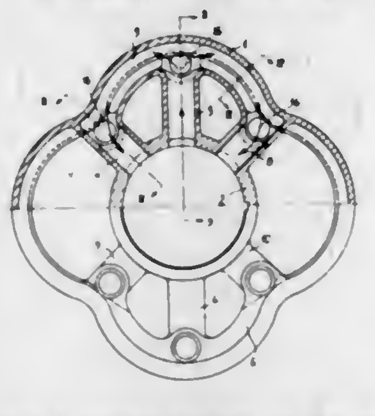
1. A heat exchanger comprising three water drums, two steam drums arranged above said water drums, a plurality of generally parallel heat exchange tubes providing interior communication between water and steam drums, said heat exchange tubes being enclosed within walls defining a chamber for flow of gases normal to the heat exchange tubes, a sufficient number of heat exchange tubes being provided to absorb enough heat from a gas having a heat value of about 15 to 35 B.t.u./cubic ft., and containing catalyst fines, to provide about 50,000 to 100,000 pounds per hour of steam at 600 p.s.i.g. and 750° F. while not reducing the cross-sectional area of said flow chamber enough to cause a gas velocity of greater than about 80 feet per second, said heat exchanger being no more than about 10 feet, 8 inches wide and about 12 feet, 3 inches high.



3,303,829
ROTORS FOR ROTARY ENGINES

Gaëtan de Coye de Castelet, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France

Filed Mar. 31, 1965, Ser. No. 444,135
Claims priority, application France, Apr. 3, 1964, 969,677, Patent 1,398,934
3 Claims. (Cl. 123—8)



1. A rotor for a rotary engine of the type having five working chambers in the stator and four lobes on the rotor, two of the said lobes working as hot lobes and the others as cold lobes, the said rotor comprising internal and external annular rims coupled together by radial arms, characterized in that two arms are arranged along the axes of two opposite lobes, the said arms each opening into a part of the peripheral circuit associated only with the same lobe, while two radial arms couple the extremities of the said circuit portion to the hub in order to ensure the return of the cooling liquid, the rotor being formed with openings in the zones between the arms.

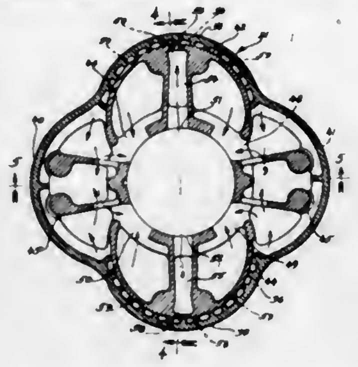
3,303,830
ROTOR FOR ROTARY COMBUSTION ENGINE

Max Fingeroot, Oak Park, and Paul L. Ulrich, Redford, Mich., assignors to American Motors Corporation, Kenosha, Wis., a corporation of Maryland

Filed Apr. 22, 1966, Ser. No. 544,465
10 Claims. (Cl. 123—8)

1. A rotor for a rotary combustion engine comprising:
(a) an outer peripheral rim;
(b) side walls extending inwardly from said rim;

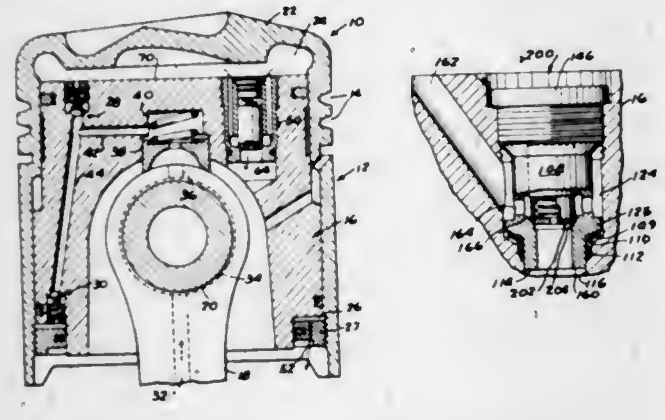
(c) an inner wall extending between said side walls inward of said rim;
(d) a series of spaced ribs with each rib extending from said rim inner surface to the outer surface of said inner wall and between said side walls, succeeding ribs of said series alternately extending from one side wall toward but not contacting the other and from the other side wall toward one side wall but not contacting the one side wall to form a labyrinth type passage for the flow of a liquid coolant between the inner surface of said rim and the outer surface of said inner wall.



3,303,831
VARIABLE COMPRESSION RATIO PISTON AND VALVE

Clarence A. Sherman, 31303 Churchill, Birmingham, Mich. 48009

Filed Sept. 2, 1964, Ser. No. 393,916
1 Claim. (Cl. 123—48)

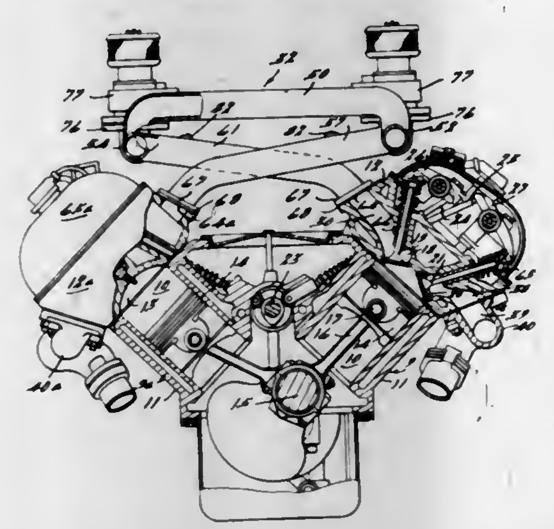


In an internal combustion engine piston having first and second parts movable relative to one another in response to reciprocation of the piston with respect to a combustion chamber of an engine and having a pressure fluid chamber within said piston which varies in internal volume in response to said relative movement and to variations in the quantity of pressure fluid therein, the combination therewith of means forming a fluid flow passage communicating with said chamber, a valve member carried by said piston movable to open and close said passage for controlling flow of fluid therethrough to thereby vary the quantity of fluid in said chamber, means for yieldably biasing said valve member toward closed position to thereby regulate the pressure of the fluid in said chamber, said valve member being oriented for movement parallel to the direction of reciprocation of said piston and being adapted to close in a direction opposite to the inertial forces acting on said valve member when said piston decelerates in approaching the combustion chamber, a casing for slidably supporting said valve member and having a valve seat engaged by one end of said valve member to close said passage, said passage means including a chamber in said casing adjacent said valve seat communicating with said first chamber, said valve member having a first working area of predetermined size exposed to the oil pressure in said casing chamber in both the open and closed positions of said valve member whereby the oil pressure tends to develop an unseating force on said valve, said valve member having a second working area exposed to oil only when said valve is unseated and adapted to augment said first area and increase the opening force exerted by the oil when said valve is unseated by the oil pressure, said valve seat comprising a conical surface of said casing, said one end of said valve member having a surface defining said second working area and being inclined at a greater angle to the axis of said valve member than said valve seat surface, said valve member further having a stepped shank comprising a constant diameter portion extending from an edge of said second working area surface of said valve member, a larger diameter portion slidably engaging said casing and a shoulder intermediate said portions having a radial face providing said first working area, said valve member seatably contacting said valve seat surface along said edge of said second surface of said valve member.

3,303,832
HIGH OUTPUT ENGINES

John B. Platner, Detroit, and Charles D. Moore, Birmingham, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Filed May 6, 1957, Ser. No. 657,153
45 Claims. (Cl. 123—52)



1. In an engine having two banks of cylinders arranged angularly about the crankshaft, cylinder head means on each bank providing a combustion chamber and an inlet opening and passage for each cylinder; intake manifolding means at least in part intermediate said heads and associated with sources of air and fuel for feeding said chambers, said manifolding comprising a pair of elongated runner passage means extending in the lengthwise direction of the engine each in juxtaposition to a different bank of the engine and a plurality of elongated transversely extending passage means one for each cylinder, each said passage means interconnecting the inlet passage of the cylinder which it is to feed and the runner passage means of said pair thereof in juxtaposition to the cylinder bank not containing this cylinder.

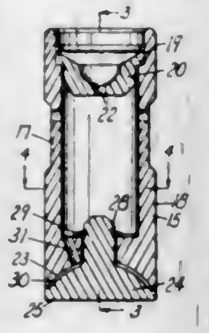
3,303,833
VALVE TAPPET

Aubrey B. Melling, 754 Bloomfield Blvd., Jackson, Mich. 49203

Filed Sept. 21, 1964, Ser. No. 398,019
11 Claims. (Cl. 123—90)

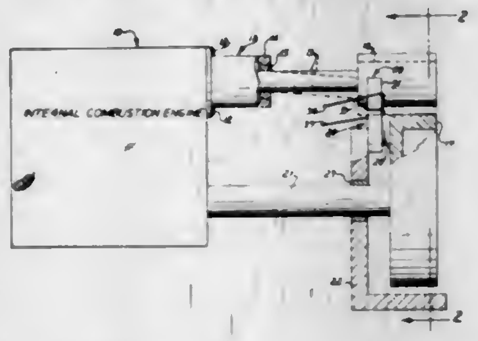
9. The combination of a body member, a valve and a valve actuating cam having a peripheral bearing portion of substantial width, said body member having a tappet holder operatively associated with said vave, a tappet body

member reciprocatingly mounted in said holder and operatively associated with said valve, said tappet body member having a concave outwardly facing cam engaging member seat at its outer end, a cam engaging thrust member having a spherically curved inner portion tiltably supported in said seat and in coacting relation with said cam, there being a lubricant supply connected for said tappet body member, one of said cam engaging member and seat having a lubricant passage therein opposed to the other, said cam engaging member having a planar cam engaging face spaced from the radial center of said spherically curved inner portion by a distance less than the radius of said periphery curved portion, the face portion of said cam throughout the rotating movement thereof having a portion of substantial width disposed in contacting relation to said planar face.



3,303,834
INTERNAL COMBUSTION ENGINE STARTING SYSTEM

Thomas H. Oster, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed May 28, 1964, Ser. No. 370,933
6 Claims. (Cl. 123—179)

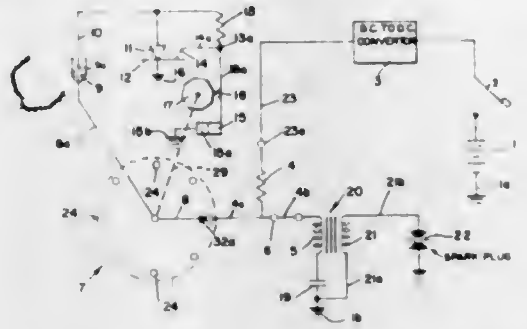


1. An internal combustion engine starting system comprising a starting motor, a friction driving member mounted upon the shaft of the starting motor, a friction driven member associated with the internal combustion engine and slightly removed from the friction driving member and means mounted in a stationary position with respect to said friction driven member and adjacent the shaft for bending the shaft of the starting motor to bring the friction driving member into contact with the friction driven member.

3,303,835
FUEL IGNITION SYSTEM PREVENTING RADIO FREQUENCY INTERFERENCE

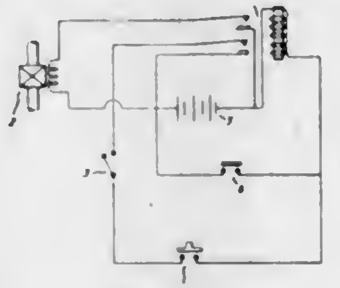
James R. Richards, 2813 63rd Ave., Cheverly, Md. 20785
Filed Oct. 22, 1965, Ser. No. 501,874
6 Claims. (Cl. 123—148)

1. In an ignition system for a multi-cylinder internal combustion engine, a distributor housing for connection with the crankcase of the engine, a shaft journaled in said housing and connectable with the camshaft of the engine for rotation in unison therewith, a breaker cam and a distributor arm fixed with said shaft for rotation as a unit therewith, normally-closed breaker points in said housing and periodically opened by and in response to rotation of said cam, a plurality of terminal segments carried by said housing in angularly-spaced relation about the axis of said shaft for contact in succession by said arm, a solid state switching device comprising an anode, grounded cathode, and control gate, a resistor connected between said anode and gate, a ground connection between said gate, through said points, a first circuit connection between said anode and said arm, a plurality of resistors carried by said housing, an electrical connection between one terminal of each of said plurality of resistors and a respective one of said terminal segments, a common terminal fixed to said housing, and an electrical connection between the remaining terminals of all said plurality of resistors and said common terminal.



3,303,836
THEFT-PREVENTION DEVICES FOR VEHICLES

David Samuel Burleigh, 20 Aylestone Ave., London, England
Filed Feb. 8, 1965, Ser. No. 431,111
5 Claims. (Cl. 123—198)



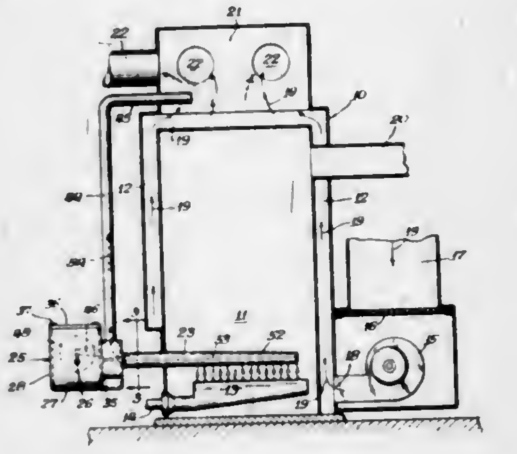
2. Theft-prevention apparatus in a vehicle having a driver-position, said apparatus comprising electrical circuit means, vehicle-immobilisation means operatively connected with said circuit means, a relay circuit breaker in said circuit means, said vehicle-immobilisation means being effective to immobilise the vehicle when said circuit breaker is open, a manual switch in said circuit means and operable to close said circuit breaker, an automatically-open switch in said circuit means, and means in said driver-position to close said automatically-open switch only when said driver-position is occupied, said automatically-open switch being connected to control said circuit breaker only through closure of said circuit breaker by operation of said manual switch.

4. Apparatus according to claim 2, said vehicle having an internal combustion engine, and said vehicle-immobilisation means comprising shut-off valve means in the induction means of said engine.

3,303,837
HUMIDIFIER FOR HEATING SYSTEMS

Lee S. Ritber, 321 Harding, Glen Ellyn, Ill. 60137
Filed June 23, 1965, Ser. No. 466,362
4 Claims. (Cl. 126—113)

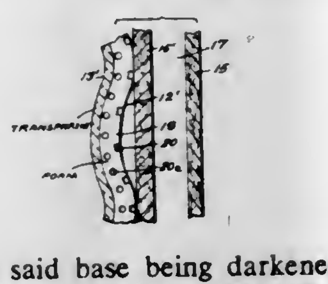
1. A furnace construction comprising a housing, a combustion chamber in said housing, said furnace housing having hollow walls surrounding said combustion chamber and defining an air passageway, a flue conduit passing through said hollow walls of said furnace housing and joining said combustion chamber, a burner in the lower portion of said combustion chamber, a warm air plenum chamber above said combustion chamber, a pair of generally horizontally disposed laterally spaced apart heat exchanger tubes lying in a common plane and extending into said combustion chamber in close proximity to and above said burner, means supplying water to some desired level in said heat exchanger tubes, said means supplying water including a tank positioned externally of said furnace housing, said tank having a generally vertical wall therein defining first and second side-by-side horizontally disposed chambers, a water supply line leading to the first of said side-by-side chambers in said tank, a combination float and valve means in the first of said side-by-side chambers arranged and constructed to automatically control the admission of water from said supply line to said tank, said generally vertical wall having a relatively small opening therein in a lower portion thereof providing communication between said first and second chambers, said laterally spaced apart heat exchanging tubes joining said second chamber at a position above the level of said relatively small opening, and said combination float and valve means arranged and constructed to provide a level of water in said tank above said relatively small opening and at a level between the bottoms and tops of both of said laterally spaced apart heat exchanger tubes, a vapor duct joined to the top of said second chamber at a position between the joining of said heat exchanger tubes with said second chamber, said vapor duct disposed generally vertically to a position above said combustion chamber, and said vapor duct having an outlet portion reentering said furnace housing at the plenum chamber whereby water vapor created in the pair of heat exchanger tubes near said burner is delivered to the plenum chamber for admixture with air which travels upwardly through the hollow walls around the combustion chamber and into the plenum chamber.



3,303,838
SOLAR HEAT COLLECTOR

Harry E. Thomason, District Heights, Md.
(7354 Walker Mill Road SE., Washington, D.C. 20027)
Original application Mar. 31, 1961, Ser. No. 108,227, now Patent No. 3,254,703, dated June 7, 1966. Divided and this application Oct. 22, 1965, Ser. No. 501,966
5 Claims. (Cl. 126—271)

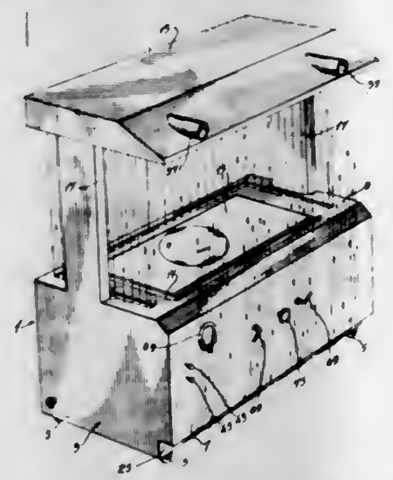
1. In a solar heat collector, a base which is resistant to fluid flow therethrough, a layer of foam-like material superimposed thereon and having passages therethrough adjacent to said base for the passage of fluid to be heated, and a transparent cover thereover for admitting solar energy to said layer and base and for minimizing heat losses therefrom so as to heat fluid passing through the heat collector, said layer of material being transparent or translucent to permit much of the solar energy to pass



to said base, and said base being darkened to intercept the solar energy and to heat the fluid flowing through the heat collector.

3,303,839
VENTILATED COOKING STOVE UNIT

Louis Tavan, 289 Bloomfield Ave., Outremont, Quebec, Canada
Filed June 1, 1965, Ser. No. 460,184
4 Claims. (Cl. 126—299)



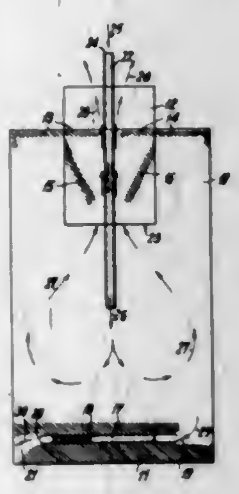
1. A ventilated cooking stove movable unit, comprising:
(a) a base;
(b) a horizontal cooking plate at the top of said base;
(c) a hood spaced above and over the top of said base;
(d) first duct means on said base having opening means through a wall thereof surrounding said cooking plate;
(e) second duct means on said hood having opening means of an outline generally corresponding to the outline of the opening means of said base and located thereover;
(f) forced air means to blow air into said lower duct means and to withdraw air from said upper duct means whereby to create an air stream flowing from said base to said hood;
(g) the size and location of said duct means being such as to create an air curtain around said hot plate to prevent heat generated thereby to escape away from said curtain;
(h) said hot plate being generally rectangular, and
(i) said first duct means comprising:
  a U-shaped conduit surrounding three sides of said hot plate at substantially the same level, and
  a straight conduit corresponding to the fourth side of said hot plate at the foot of said base.

3,303,840
APPARATUS FOR COLLECTING AND ANALYZING ALVEOLAR GAS FROM THE LUNGS

Lucien Etzlinger, 12 Rue de Hesse, Geneva, Switzerland
Filed July 7, 1964, Ser. No. 380,815
Claims priority, application Switzerland, July 12, 1963, 8,738/63
8 Claims. (Cl. 128—2)

1. Apparatus for collecting alveolar gas from the lungs for analysis, comprising an inflatable container of flexible

nonelastic material, means defining a filling orifice for directing a specimen of breath into the container, means defining an outlet orifice adjacent said filling orifice for discharging gas from the container in a direction opposite to the direction of entry of gas into the container so that gas introduced into the container first fills the container and then ejects from the container gas previously introduced into the container, whereby the gas that remains in the container is substantially the gas which



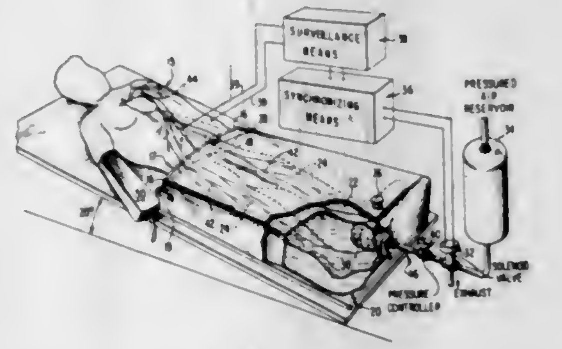
was last introduced into the container, a test tube containing a reagent and through which tube the contents of the container may be blown by exerting pressure on the container, said test tube being embedded in the flexible material of the container and communicating at one of its ends with the interior of the container, and means releasably closing the other end of the tube and adapted to be opened to open said other end of the tube to allow gas to pass through the tube.

3,303,841
PROCESS AND APPARATUS FOR PRESSURIZING LOWER EXTREMITIES OF A PATIENT DURING VENTRICULAR DIASTOLE

Clarence Dennis, Pelham Manor, N.Y., assignor to the United States of America as represented by the Secretary, Department of Health, Education and Welfare

Filed June 18, 1964, Ser. No. 377,178

9 Claims. (Cl. 128—24)



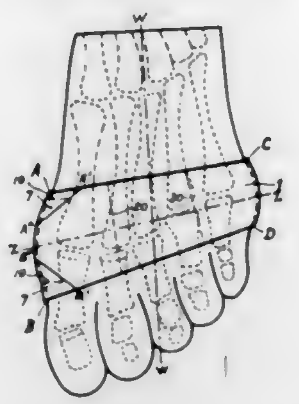
1. The process of reducing the work of the left ventricle in the heart comprising surveillance of the cardiac cycle to identify the opened condition and the closed condition of the aortic valve, externally compressing the body when the aortic valve is in the closed condition to force blood back into the aorta to establish a satisfactory perfusion pressure in the aorta and arterial tree, relieving the compression when the aortic valve is in the opened condition to permit contraction of the left ventricle against a lowered aortic pressure.

3,303,842
SPLAYFOOT BANDAGE

Heinrich Horlacher, Lutzenberg, Switzerland

Filed Jan. 29, 1964, Ser. No. 341,032

1 Claim. (Cl. 128—80)



In a splayfoot fabric bandage, a principal long part having two ends each having a transverse terminating central edge and slanting edges extending laterally from said central edge, said two ends being sewn together in a joint on said central edges to form a band, and an insert piece sewn to the ends of said principal piece on said joint, said principal piece being elastic across the short dimension laterally of the band and non-extensible along the long dimension of the band, and said insert piece being elastic in one given direction and non-extensible in a direction perpendicular to said one given direction, said insert piece being sewn to said principal piece in such a manner that the direction of elasticity of said insert piece is substantially perpendicular to the direction of elasticity of said principal piece, whereby said bandage is provided with a recess to take up the arched part of the foot near the joint of the great toe, said insert piece being cut from a substantially rectangular piece of fabric and having two notches cut in each of two opposite edges, said notches extending toward each other but not meeting and forming a diamond-shaped structure in the central portion of said insert piece, said insert piece being non-extensible in the direction of the two opposite sides in which said notches are cut, and elastic in the direction perpendicularly to said two opposite sides in which said notches are cut, the two adjacent edges of each of said four notches being sewn together separately for the respective notches, and said two sewn together central edges and said four slanting edges of said two ends of said principal long part being sewn centrally on to said insert piece.

3,303,843
AMPLIFYING CIRCUIT WITH CONTROLLED DISABLING MEANS

Joseph S. Apple, Canoga Park, Los Angeles, Calif., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif., a corporation of Maryland

Filed Apr. 20, 1964, Ser. No. 360,830

6 Claims. (Cl. 328—95)

1. An amplifying circuit having an input terminal, a control terminal and an output terminal and being responsive to a control signal applied to said control terminal for selectively coupling either a logical signal applied to said input terminal or its logical complement to said output terminal, said amplifying circuit comprising:

a first inverting amplifier stage having an input terminal and an output terminal;

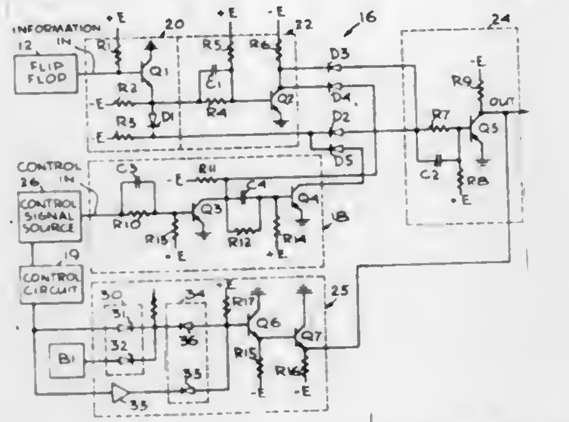
a second inverting amplifier stage having an input terminal and an output terminal;

means coupling said amplifying circuit input terminal to the input terminals of said first and second inverting amplifier stages;

means coupling said first inverting amplifier stage output terminal to said second inverting amplifier stage input terminal;

means coupling the output terminal of said second inverting amplifier stage to said amplifying circuit output terminal;

a source of first and second control signals; and



control circuit means responsive to said first control signal applied to said control terminal for disabling said coupling between said amplifying circuit input terminal and said second inverting amplifier stage input terminal;

said control circuit means responsive to said second control signal for disabling said coupling between said first inverting amplifier stage output terminal and said second inverting amplifier stage input terminal.

3,303,844
MOUTH GUARD

Peter L. Johnson, Newark, and Robert P. Ewing, Morristown, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

Filed Mar. 4, 1965, Ser. No. 437,086

10 Claims. (Cl. 128—136)

2. A mouth guard blank for use in preparing a protective mouthpiece of the type which is individually fitted to engage over and about the teeth of the upper jaw which comprises:

(A) A first layer of polysiloxane material having a thickness of about 0.8 mm. to about 1.5 mm. and characterized in the cured state by a tensile strength of about 775 p.s.i. and a tear strength of about 28 lbs./in.;

(B) A second layer of polysiloxane material having a thickness of about 1 mm. to about 3.5 mm. and characterized in the cured state by a tensile strength of about 1480 p.s.i. and a tear strength of about 150 lbs./in.;

(C) Said first and second layer materials being curable from a soft putty state to a tough elastic state by dry heating to a temperature of about 300° F. to about 400° F.

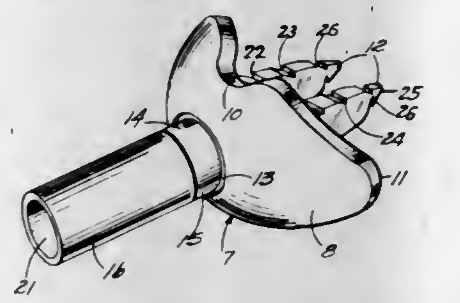
3,303,845
MOUTH-TO-MOUTH RESUSCITATOR

William J. Detmer III, Glendale, Calif., assignor to Gordon P. St. Clair, Rockford, Ill.

Filed Sept. 21, 1964, Ser. No. 398,125

6 Claims. (Cl. 128—145.5)

1. A mouth-to-mouth resuscitator comprising a tubular mouth piece providing an unobstructed opening longitudinally therethrough and having a smooth unobstructed exterior of substantially uniform diameter substantially the full length thereof, a pair of laterally spaced elongated teeth-separating projections rigid with and in spaced parallel substantially vertical planes on opposite sides of that end of said mouth piece remote from the end inserted in the rescuer's mouth and substantially parallel to the longitudinal axis of said mouth piece, said projections having teeth-engaging shoulders provided thereon in longitudinally spaced relation on the top and bottom edges of said projections to prevent slippage once the projections are entered between the upper and lower teeth of a victim requiring resuscitation, said projections' upper and lower edges including outwardly converging outer end portions terminating in points to facilitate entry of



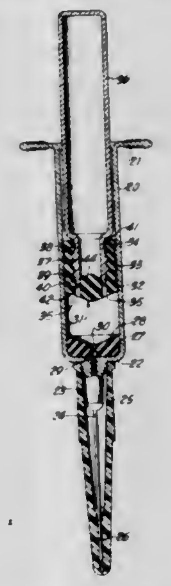
said projections between the victim's teeth, and a mouth-enclosing flexible shield of oblong shape for sealing around the mouth of the victim, said shield having a central opening receiving the tubular mouth piece with a close slidably adjustable fit on the smooth unobstructed exterior of the mouth piece, whereby to enable adjustment of the shield longitudinally with respect to said mouth piece and accordingly alter the longitudinally spaced relationship between the shield and teeth-separating projections to better adapt the device to the victim and better suit the needs of a given resuscitation, said shield including a flange on the outer rim thereof and projecting in the same direction as the first-mentioned projections to engage the face of the victim all around the mouth to provide an air-tight seal.

3,303,846
MIXING SYRINGE HAVING SEPARATE COMPARTMENTS FOR INCOMPATIBLE MEDICAMENTS

Robert W. Ogle, Phoenix, Ariz., assignor to Functional Container Corporation (N.A.), a corporation of Delaware

Filed Oct. 8, 1963, Ser. No. 314,674

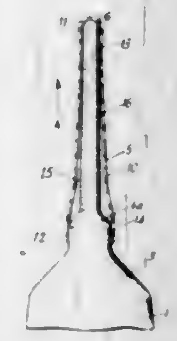
3 Claims. (Cl. 128—218)



1. A syringe comprising a barrel; an extension on said barrel; a needle mounted in said extension and com-

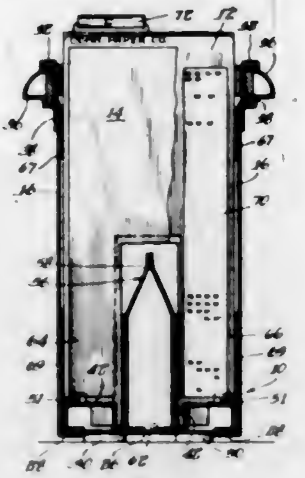
municating with said barrel; a needle cover connected to said extension and covering said needle and sealing the open end thereof; a resilient plunger mounted in said barrel for reciprocation longitudinally thereof; said plunger having a central opening therein having female threads extending for a portion of the length of said opening; connected to said plunger a generally cylindrical vial having male threads on the open end thereof which mate with said female threads; said resilient plunger having at least one passage therein adapted to communicate said barrel and said vial, the upper end of said passage being sealed by the end of said vial when said threads are made up; said passage being spanned by a thin resilient membrane having a narrow slit therein normally held closed by the resilient material.

3,303,847
DISPOSABLE CONTAINER AND APPLICATOR WITH LEAK PROOF COVER FOR DISPENSING CREAM AND LIQUID MATERIALS
Chester C. Eaton, 1338 Delta Ave.,
Cincinnati, Ohio 45208
Filed Sept. 9, 1963, Ser. No. 307,395
6 Claims. (Cl. 128—232)



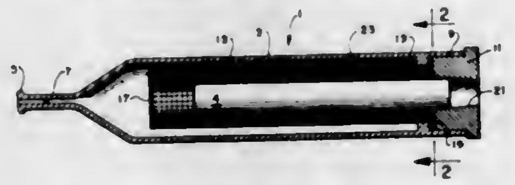
1. A disposable plastic container-applicator comprising a collapsible container portion, and a flexible elongated tubular catheter, said catheter located at one end of said container portion and forming a one-piece integral part thereof, said catheter having a smooth uninterrupted surface terminating in a rounded end, said container portion comprising a flexible, hollow member, said container portion having an open end for filling purposes, said open end capable of being fishtailed and sealed after said container is filled, the end of said container portion opposite said open end terminating in a hollow conical portion, a hollow cylindrical neck surmounting said conical portion, said neck terminating in said elongated tubular catheter, said neck being of greater diameter than said catheter, a shoulder formed at the juncture of said neck and said catheter, a hollow, removable, flexible cover member, said cover member enclosing said catheter and a portion of said neck, said cover member having a rounded end and an open end, the inside surface of said rounded end substantially conforming to the end of said catheter, a constricted portion near the rounded end of said cover member, the inside surface of said constricted portion having a diameter slightly less than the outside diameter of said catheter, said inside surface frictionally engaging said catheter near said rounded catheter end, a thin flexible skirt at said open end of said cover member, the inside diameter of said skirt being slightly less than the outside diameter of said neck, the said inside surface frictionally engaging and sealing against a part of the outside surface of said neck, and that part of said cover member between said constricted portion and said skirt having an inside diameter greater than the outside diameter of said catheter.

3,303,848
TAPE FILE APPARATUS
Ernest A. Dahl, Jr., 729 Greenwood Ave.,
Wilmette, Ill. 60091
Filed July 3, 1963, Ser. No. 292,650
4 Claims. (Cl. 129—16)



1. A file for holding machine-tapes, comprising: a box-like container having an open top and including two longitudinally extending sidewalls laterally spaced apart a distance greater than twice the width of folded-machine tapes filed therein; magnet means carried by each sidewall adjacent the top thereof; partition means extending longitudinally along the bottom of said container and spaced from each sidewall a distance greater than the width of a folded machine-tape to divide the lower volume of said container into a plurality of laterally spaced tape-receiving compartments, said partition means terminating substantially below the top of said sidewalls, a plurality of juxtaposed dividers extending laterally between said sidewalls, said plurality of juxtaposed dividers having a body portion and a plurality of depending leg portions, said body portion of each of said juxtaposed dividers being positioned between said sidewalls and above said partition means, said leg portions being positioned to divide each of said tape-receiving compartments into a plurality of tape filing locations for folded machine tapes, each location receiving a single tape, each tape filing location being positioned such that a folded machine tape filed in one of said filing locations contacts adjacent surfaces of the depending leg portions of two of said plurality of juxtaposed dividers, whereby adjacent dividers are positioned close together, said depending leg portions being wider than a folded machine tape to facilitate the filing of a folded machine tape in said file location in a spaced-apart relationship relative to said sidewalls and partition means, each of said juxtaposed dividers being equipped with a spaced pair of magnetically susceptible elements cooperable with said magnet means to magnetically repel adjacent dividers for permitting access to a folded machine tape filed between adjacent dividers in said tape filing locations.

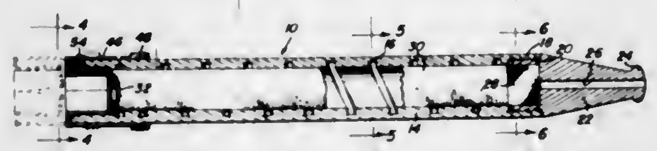
3,303,849
SMOKING APPARATUS
Albert E. Arnold, Jr., 1916 W. 38th St., Davenport, Iowa 52806, and Anthony R. De La Rosa, 705 21st Ave., East Moline, Ill. 61244
Filed Oct. 5, 1965, Ser. No. 493,105
6 Claims. (Cl. 131—175)



1. Smoking apparatus for tobacco products comprising an elongated hollow body member having one end

thereof apertured and defining a mouthpiece and the other end thereof open, and an end cap for closing said open end, said end cap having a central opening extending therethrough adapted to receive the unlighted end of a tobacco product for support with its lighted end within said body member in lateral spaced relation to the internal surface of said body member, said body member being provided with at least one opening connecting the interior thereof with the ambient atmosphere, said last mentioned opening being of a size and disposed in a position for closure by at least one finger of the user whereby withdrawal of air from the body member through the mouthpiece opening causes air to be drawn through the cigarette from the unlighted end toward and through the lighted end thereof.

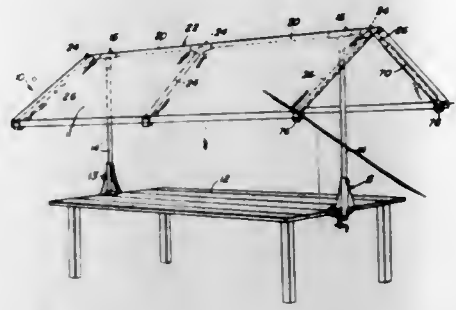
3,303,850
CIGARETTE HOLDER WITH SCREEN AND REPLACEABLE CORE
Frank S. Parrigin, Tompkinsville, Ky.
(162 St. Ann Drive, Lexington, Ky. 40502)
Filed June 9, 1964, Ser. No. 373,809
4 Claims. (Cl. 131—182)



1. A cigarette holder comprising an elongated tubular shell having a cylindrical bore extending therethrough, a mouthpiece mounted at one end of the shell and forming a closure for the bore, said mouthpiece having a longitudinal passage extending therethrough communicating with the bore through the shell, a cylindrical core of absorbent material disposed in said bore and having an exterior surface closely adjacent the interior surface of the bore, the interior surface of said bore having a spiral groove extending substantially throughout the length thereof, a cylindircal screen interposed between the mouthpiece and the core and communicating with the groove for transmitting smoke from the groove to the passage through the mouthpiece, a sleeve movably mounted on said shell remote from the mouthpiece, said sleeve telescoping exteriorly of the shell, a cylindrical socket attached to said sleeve and telescoping into the bore in the shell, said socket having openings in the inner end thereof for passage of smoke from the cigarette into the bore in the shell, and means interconnecting the sleeve and shell to limit relative longitudinal and rotational movement of the sleeve and socket in relation to the shell, said socket being longitudinally split and constructed of resilient material for radial expansion and contraction for frictionally gripping and releasing the end of a cigarette.

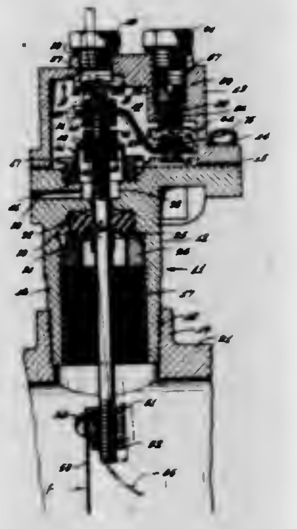
3,303,851
PROTECTIVE COVERING
Charles Grunfeld, Long Beach, N.Y.
(32 Corbin Place, Brooklyn, N.Y. 11235)
Filed Jan. 27, 1965, Ser. No. 428,335
4 Claims. (Cl. 135—7.1)

1. A protective cover assembly comprising:
first and second spaced standards, each of said standards comprising a single, vertically disposed rod,
first and second brackets respectively secured to the upper ends of each of said standards,
an elongated ridge unit extending between said standards,
said brackets including first means to removably secure the ends of said ridge unit to the upper ends of said standards,
a flexible cover, a middle portion thereof overlying said ridge unit,
a plurality of pockets formed in said cover on either side of said mid-section,
a rod-like rib in each of said pockets,



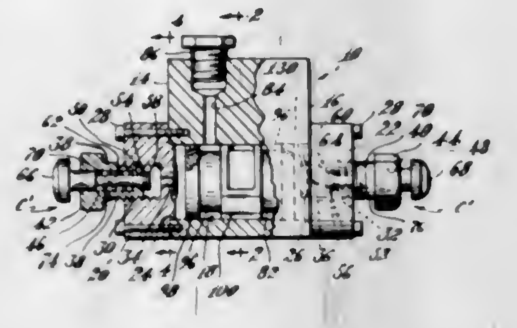
and a plurality of third bracket means disposed along the length of said ridge unit for removably securing said ribs to said ridge unit and at least one of said third bracket means located between said first and second brackets.

3,303,852
AUTOMATIC ACTUATED FLOW CONTROLLED VALVE
Avy L. Miller, 13246 Saticoy St.,
North Hollywood, Calif. 91605
Filed Feb. 6, 1962, Ser. No. 171,439
11 Claims. (Cl. 137—87)



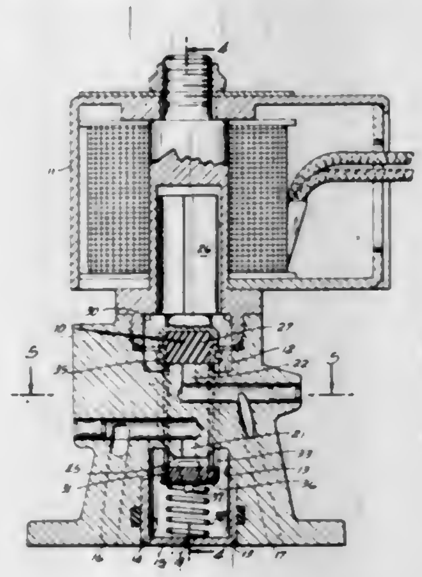
1. A fluid flow controlling valve comprising: an enclosure; a valve arm in said enclosure; valve opening and closing means moved by said arm; means biasing said arm to one control position; an actuator extending through the enclosure from the interior to the exterior of said valve and connected interiorly of the valve to move said valve arm to another control position; sealing means about said actuator providing a seal thereabout as it passes from the interior to the exterior of said valve, said sealing means being flexible and providing a pivotal axis at said passage point solely by its flexure about which said actuator rotates to effect movement of the valve arm from said one control position to the other control position; a permanent magnet member and a magnetic member cooperating therewith; means mounting one of said members on a fixed part; and means mounting the other of said members on said valve arm so as to effect movement of said valve arm in opposite directions with a snap action.

3,303,853
VALVE ASSEMBLY
Auguste J. Bouthiller, Worcester, Mass., assignor to Imperial Machine Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Jan. 28, 1964, Ser. No. 340,619
7 Claims. (Cl. 137—625.48)



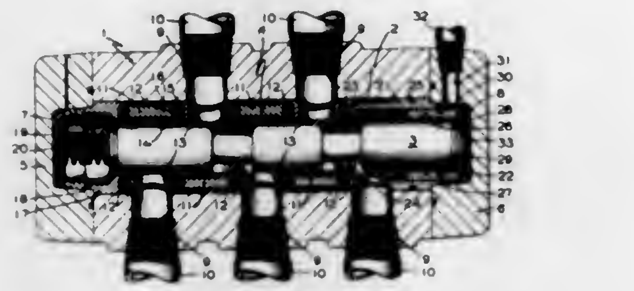
7. A hollow cylindrical part split transversely of its cylindrical wall, the opposed ends of the wall, where the split is located, containing pockets, springs disposed in the pockets operative to hold the cylindrical part expanded, a flat at each side of the split on the outer surface of the wall widthwise of the part, and circumferentially extending recesses in the wall commencing at one end adjacent the flats and terminating at their other ends in spaced relation, the portion of the wall between said ends being uniformly cylindrical widthwise of the part.

3,303,854
VALVE AND ACTUATOR THEREFOR
Alan W. Churchill, Caldwell, N.J., assignor to Automatic Switch Company, Florham Park, N.J., a corporation of New York
Filed Oct. 19, 1964, Ser. No. 404,780
8 Claims. (Cl. 137—625.65)



1. A solenoid valve having a one-piece valve body formed with two chambers in constant communication, an orifice leading into each chamber from the region of the body between the chambers, a port communicating with each of said orifices, a third port communicating with one of said chambers, a valve seat in each chamber surrounding said orifice, said valve seats facing in opposite directions, a valve member in each chamber movable into and out of engagement with said seat, a solenoid having an armature, one of said valve members forming part of said armature, and actuating means located outside the confines of said orifices and extending between said armature and the other of said valve members for transmitting the movement of the former to the latter.

3,303,855
PISTON AND SPOOL VALVE ASSEMBLY
Ronald C. Kurtz, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed Oct. 28, 1963, Ser. No. 319,367
2 Claims. (Cl. 137—625.66)

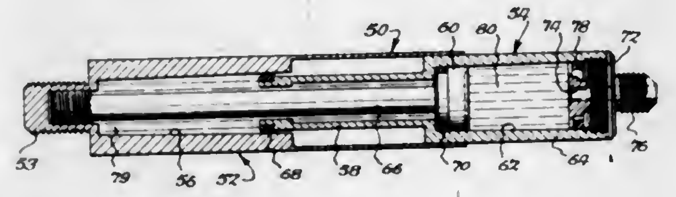


1. A spool valve device, comprising:
(a) a valve body having a bore therein and passage means communicating with said bore,
(b) liner means extending through said bore from one end to a point terminating substantially short of the other end to provide an unlined bore portion, said liner means being appropriately apertured to conduct fluid to and from said passage means,
(c) a spool valve member having alternate grooves and lands of uniform diameter reciprocably disposed in said liner for movement along a path extending from one end of the bore to the other end, and adapted to slide longitudinally in said liner means for interconnecting said passage means in a variety of combinations depending upon the axial position of the member in the bore along said path, one of said lands comprising one extremity of said spool valve member,
(d) said liner means being segmented longitudinally and including between the segments sealing means engageable with the lands on said spool valve member and engageable with said bore to confine the fluid flow to the passage means when said passage means are interconnected in accordance with the position of the spool valve member along said path,
(e) cylinder means disposed in said unlined bore portion in axial juxtaposition with said liner means, the inside diameter of said cylinder means being substantially larger than the diameter of said lands of said spool valve member,
(f) cylindrical sleeve means slidably installed on said one land of said spool valve member in tightly sealed relationship therewith and in slidable sealing relationship with the inside circumference of said cylinder means, and having an inwardly extending shoulder thereon axially engaging the outer end of said one land,
(g) passage means in said body by which to supply fluid under pressure within said cylinder means to the said outer end of said land and the outer end of said sleeve means to move said spool valve member in a first direction along said path to said one end of said bore, and
(h) spring means axially biasing said spool valve member to said other end of said bore in the reverse direction along said path.

3,303,856
CONTROLLED DIFFERENTIAL COMPRESSION DEVICE
Paul H. Taylor, Grand Island, N.Y., assignor to Tayco Developments, Inc., North Tonawanda, N.Y., a corporation of New York
Filed Sept. 16, 1963, Ser. No. 309,102
9 Claims. (Cl. 138—31)

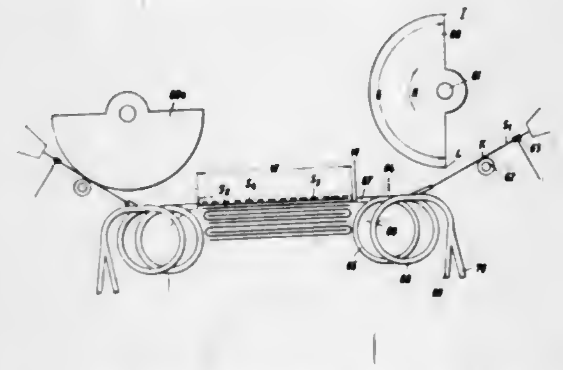
6. A compressible liquid accumulator comprising a casing, a tubular piston reciprocably disposed in said casing,

a piston head disposed for reciprocation in said tubular piston, said tubular piston and said piston head being movable in opposite directions, a male seal secured to said piston head and slidably disposed against the inner wall of said tubular piston, a male seal secured to said tubular piston and slidably engaging the inner wall of said casing to provide an effective piston displacement per unit of lineal movement of the tubular piston between the two male seals which is different from the correspond-



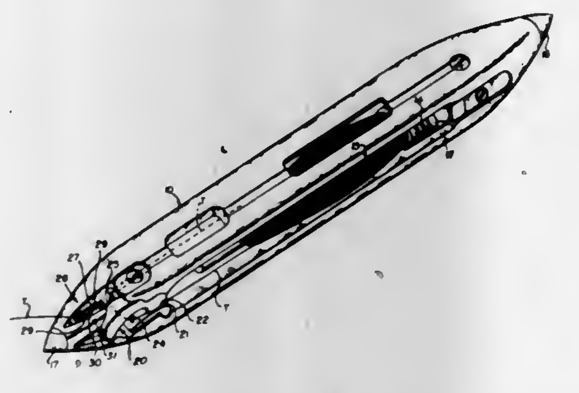
ing displacement volume of the tubular piston for the same lineal movement, a compressible liquid completely filling the space in said casing and said tubular piston between said male seals, said piston head and said tubular piston defining an accumulator chamber with said first-named seal excluding said compressible liquid from said chamber, and means accommodating introduction of fluid pressure into said accumulator chamber for causing relative movement between said piston head and said tubular piston to compress said compressible liquid.

3,303,857
LOOM WITH PNEUMATIC PICKING MEANS
Walter Scheffel, 53 Industriestrasse, Weissenburg, Bavaria, Germany
Original application Aug. 9, 1963, Ser. No. 301,068, now Patent No. 3,250,299, dated May 10, 1966. Divided and this application Dec. 8, 1965, Ser. No. 512,302
2 Claims. (Cl. 139—127)



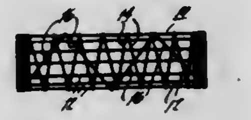
1. In a loom with pneumatic weft picking, the combination of, a storage tube comprising a slotted tube and a non-slotted tube on each side of a fabric being formed, the slotted and non-slotted tubes of each pair being interconnected and having a beginning facing the feed bobbin in manner whereby the total length of the slotted tube coincides in the same way as the total length of the non-slotted tube with the length of the weft thread portion of the actual weaving width, a thread cutter at the entrance end of each said storage tube, a semicircular roller disposed at each side of the fabric being formed for determining the length of a weft thread of double the weaving width to be drawn off, a pressure roller disposed opposite each said roller, the length of the half arc of said roller coinciding with the length of the thread portion of double the weaving width to be drawn off, the semicircular rollers of the pair being offset angularly by 90 degrees with respect to each other.

3,303,858
SHUTTLE THREAD CONTROL
Malcolm R. Livingston, Charlotte, N.C., Hugh A. Haynie, Ripplemead, Va., Francis R. Lowder, Lowell, N.C., and Alfred L. Cate, Somerset, N.J., assignors to Celanese Corporation of America, New York, N.Y., a corporation of Delaware
Filed Sept. 4, 1964, Ser. No. 394,535
5 Claims. (Cl. 139—212)



1. Shuttle having a battery end and a lever end corresponding to the battery side and lever side of a loom comprising means for retaining a pirn of weft yarn, means guiding said weft yarn from said pirn to the exterior of the shuttle, a first tension means for engaging said yarn as it is guided between said pirn and said shuttle exterior, said first tensioning means comprising a pair of pressure plates and being engageable with said yarn during both directions of movement of the shuttle in the loom, a second tensioning means for engaging said yarn, said second tensioning means being located between said first tensioning means and said shuttle exterior and comprising a pair of pressure plates adjustably mounted face-to-face and between which said yarn is engageable only during the movement of the shuttle from the battery side to the lever side of the loom to thereby provide equal tension on the yarn in both directions of travel of the shuttle.

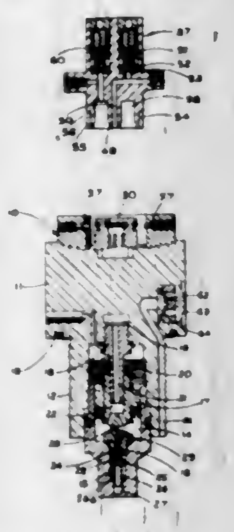
3,303,859
METHOD OF MANUFACTURE OF ELECTRON DISCHARGE TUBE GRID ELECTRODES
Walter T. Ackermann, Millington, and Charles W. Lindsley, Cresskill, N.J., assignors to Radio Corporation of America, a corporation of Delaware
Filed May 7, 1964, Ser. No. 365,596
5 Claims. (Cl. 140—71.5)



1. A method of fabricating a cylindrical grid having a lateral wire wound around a plurality of side rods and a truss wire wound over said lateral wire, said method comprising advancing said side rods in cylindrical array past a pair of winding heads, rotating said winding heads around said side rods at a constant rotational rate for winding a pair of helices around said side rods, and incrementally moving said side rods and one only of said winding heads relative to one another along the axis of advance of said side rods for changing the rate of advance of said side rods and said one winding head relative to one another while not changing the rate of advance of said side rods relative to said other winding head.

3,303,860
VALVES FOR CYLINDERS OF PRESSURISED FLUIDS

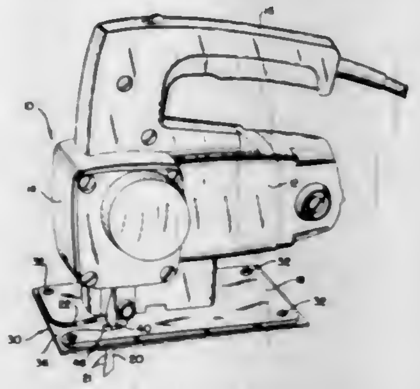
Gordon Reginald Godfrey, Carshalton, Roger James Langstone, Solihull, and Thomas Ronald Yates, Birmingham, England, assignors to Messenger & Sons (Birmingham) Limited, Birmingham, England, a British company
Filed May 8, 1964, Ser. No. 365,967
Claims priority, application Great Britain, Mar. 11, 1964, 10,229/64
9 Claims. (Cl. 141—21)



1. The combination of a cylinder valve comprising a main valve body having means whereby it may be connected to a compressed gas cylinder, a two-stage pressure reducing mechanism within said body, means defining a high pressure outlet and a lower pressure outlet coaxial therewith, said body having a primary chamber in communication with said high pressure outlet and a secondary chamber in communication with said lower pressure outlet, and a bayonet connector with means for attachment to said valve body and including the passageways for gas from both said high pressure and lower pressure outlets to an appliance having passageways in line with the passageways of said valve body, when said appliance is attached to said connector.

3,303,861
SAW STRUCTURE

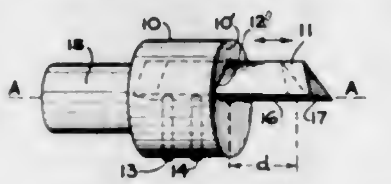
Robert A. Kane, Kirkville, N.Y., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 6, 1964, Ser. No. 380,364
11 Claims. (Cl. 143—68)



1. In a portable power operated saw having a blade with teeth adapted to cut through a workpiece in a direction toward the operator-visible side of the workpiece, transparent means closely encompassing the path of said saw teeth at the point where they emerge from the workpiece during the cutting action to prevent separation of portions of the workpiece along the saw kerf, said transparent means including a blade slot, the front end of which is closed and is in closely fitted relation with the front of the blade teeth at least during the cutting strokes of the blade and the front end of said blade slot is translucent to define a readily visible guide mark for the saw blade.

3,303,862
ROUTING TOOL

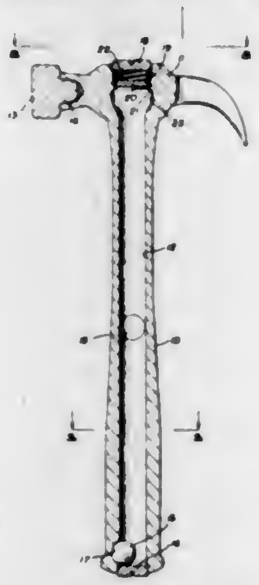
John H. Westenberger, Paramount, Calif., assignor to Industrial Tools Inc., a corporation of California
Filed Mar. 30, 1965, Ser. No. 443,897
7 Claims. (Cl. 144—218)



5. A routing tool comprising, in combination: a body member terminating at one end in a flat face having an off-center blade receiving opening therein, the other end of said body member being adapted to be secured to a vertical spindle for rotating said body member about an axis normal to said flat face; a router blade having at least two longitudinally extending cutting edges receivable in said opening; and locking means for temporarily securing said blade in said opening with one end extending beyond said flat face a given distance determined by the longitudinal positioning of said blade in said opening prior to securing said locking means, one of said cutting edges being spaced further from said axis of rotation than the other cutting edge as a consequence of said off-center positioning of said blade receiving opening whereby only said one cutting edge is effective to perform a routing operation, removal of said blade and reversing of its position end for end in said opening placing said other cutting edge in position for performing a routing operation.

3,303,863
MOMENTUM HAMMER WITH A HANDLE CARRIED SLIDABLE WEIGHT

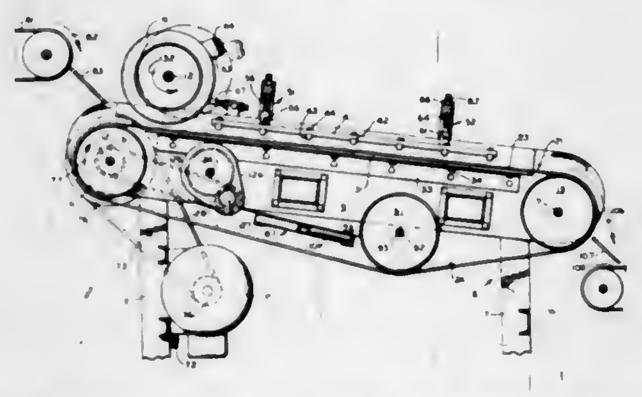
William M. Titchnell, P.O. Box 27066, Columbus, Ohio 43277
Filed July 9, 1965, Ser. No. 470,817
6 Claims. (Cl. 145—29)



1. An impact-applying device comprising an impact head, a handle connected to the head for swinging it into an impact position, a weight mounted on the handle for movement from a position along the handle remote from the head to a position at the head to increase the weight of the head as it is swung by the handle toward impact, and means for retaining the weight in said remote position until a predetermined centrifugal force is developed during swinging of the head toward impact.

3,303,864
ALMOND CRACKER

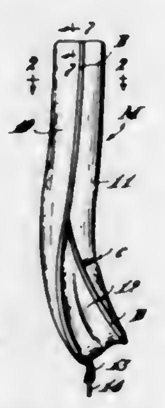
David R. Bailey, Jr., Sacramento, Calif., assignor to California Almond Growers Exchange, a non-profit corporation of California
Filed Mar. 26, 1965, Ser. No. 443,002
8 Claims. (Cl. 146—11)



1. An almond cracker comprising a frame, a driving drum, a driven drum, means for journalling said drums on said frame for rotation about parallel horizontal axes a fixed distance apart, a belt trained around said drums to provide an upper run and a lower run, an idler roll, means for mounting said idler roll on said frame to bear by gravity upon said lower run and for rotation by said lower run, a lower cracker plate fixed on said frame and disposed beneath and in substantial contact with said upper run, an upper cracker plate mounted on said frame for movable positioning spaced above said upper run, and means on said frame for rotating said driving drum to pull said lower run from said driven drum past said idler roll to said driving drum.

3,303,865
GOLF CLUB MITTEN AND METHOD OF MAKING THE SAME

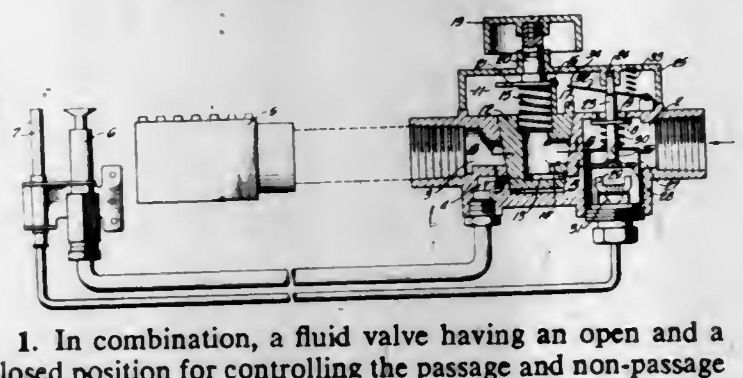
Emil R. Ouimet, 31 Country Club Drive, Brockton, Mass. 02401
Filed Feb. 4, 1966, Ser. No. 525,041
5 Claims. (Cl. 150—52)



1. A golf club mitten of the kind wherein pieces of leather, united by sewed seams, constitute the outside of the mitten and wherein at each seam the finished surfaces of the margins of the united parts are opposed to each other, with a narrow ribbon of a relatively stiff and hard material so interposed between said margins that one of its edges is substantially flush with the edges of said margins, said united margins and the ribbons of stiff material collectively constituting ribs which project into the interior of the mitten; characterized in that the mitten has a lining, attached to the outer elements of the mitten near the upper edge, only, of the latter, which bridges and conceals the ribs, said lining comprising a ply, exposed at the interior of the mitten, which has a low coefficient of friction thereby faciltating the introduction and withdrawal of the club head from the mitten and which is non-abrasive so that it does not scratch the club head, further characterized in that the lining comprises a ply of a foam material and a ply of textile fabric, the foam material contacting the unfinished inner surfaces of the leather pieces and the textile ply being exposed at the interior of the mitten, the textile ply consisting, in major part at least, of filament rayon and being smooth and slippery.

3,303,866
VALVE WITH INTERLOCKING GAS COCK

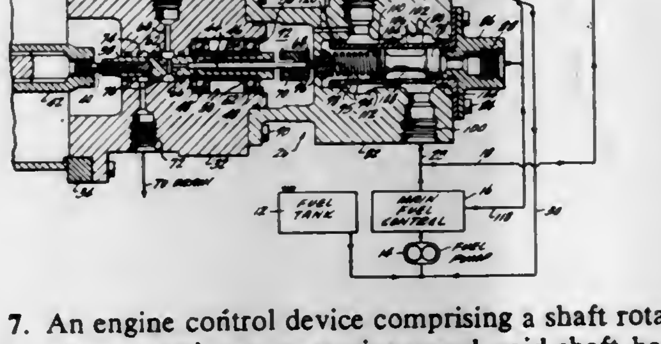
William A. Ray, North Hollywood, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed Nov. 4, 1964, Ser. No. 408,964
6 Claims. (Cl. 158—131)



1. In combination, a fluid valve having an open and a closed position for controlling the passage and non-passage of fluid from an inlet to an outlet through said valve, control means having a closed position and an open position for blocking and unblocking said fluid passage, means for operating the control means and the fluid valve to their open positions, and safety means operable responsive to the restoration of the control means to its closed position for precluding the re-operation of the control means to its open position during the time interval the fluid valve is in its open position.

3,303,867
GOVERNORS

Eugene T. Hill, Hamilton, and William R. Spencer, Cincinnati, Ohio, assignors to General Electric Company, a corporation of New York
Filed Jan. 27, 1965, Ser. No. 428,317
17 Claims. (Cl. 158—36.4)

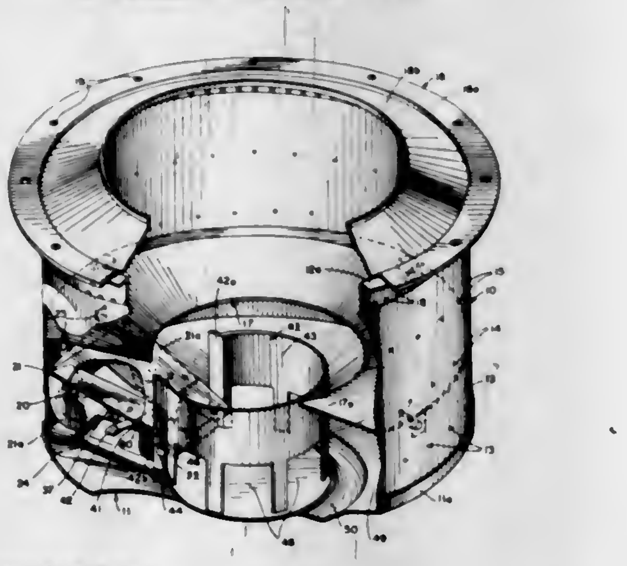


7. An engine control device comprising a shaft rotating at a rate proportionate to engine speed, said shaft having a cantilever mounted jet tube projecting axially therefrom and nominally disposed concentrically of the axis of rotation, means for discharging a fluid jet outwardly from the free end of the jet tube along the axis thereof, said tube having an unbalanced weight causing the free end of the

tube and the fluid jet discharged therefrom to be displaced from an axial to a conical path as the rate of rotation of said shaft increases, and means responsive to such displacement of said fluid jet for controlling the speed of the engine.

3,303,868
FLAME-HOLDING AND TRANSITION CONTROL MEANS FOR POT-TYPE OIL BURNER

Gerald L. Hershey and Frank A. Lowe, Wichita, Kans., assignors to The Coleman Company, Inc., Wichita, Kans., a corporation of Kansas
Filed July 9, 1965, Ser. No. 470,812
19 Claims. (Cl. 158—91)

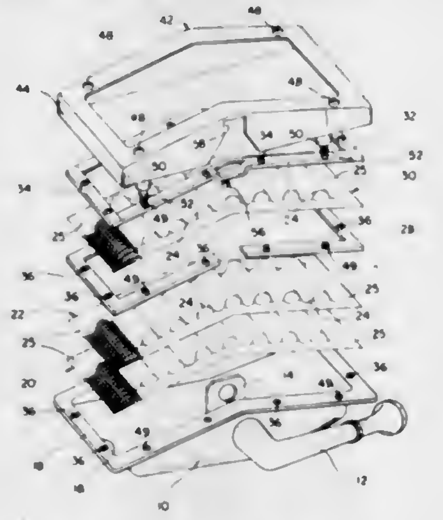


1. In combination:
(a) a burner pot for a pot-type oil burner,
  said pot having an open top, a closed bottom, and a circumferential side wall providing air inlet perforations at levels above the lower position thereof;
(b) a pilot fire zone located adjacent a side portion of said bottom,
  said pilot fire zone extending toward the center of said bottom and having its outer end enclosed by part of the lower portion of said side wall;
(c) a housing within the lower portion of said pot providing wall means enclosing the top and sides of said pilot fire zone,
  said housing having an open inner end of restricted cross section as compared with the cross section of said housing;
(d) vertically-extending baffle means within the outer portion of said pilot fire zone beneath said housing and dividing said outer portion into at least two inwardly-extending passages,
  one of said passages converging inwardly to an outlet within said housing of restricted cross section,
  the other of said passages enlarging inwardly to an outlet within said housing of enlarged cross section,
  the inner and outer end portions of said passages being in open communication; and
(e) separate oil and air inlet means communicating with the outer portion of said pilot fire zone.

3,303,869
RADIANT BURNER

Motoo Hayama, Tokyo, Japan, assignor to Caloric Corporation
Filed May 6, 1964, Ser. No. 365,281
1 Claim. (Cl. 158—116)

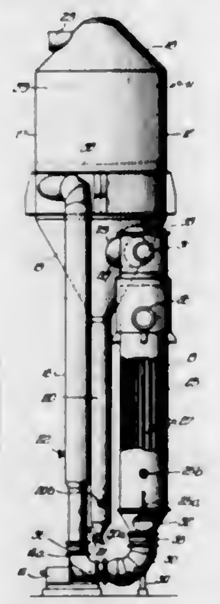
A gaseous fuel burner including:
a burner head adapted to receive a gaseous fuel mixture,
one side of said burner head having an opening therein,
a substantially flat rim surrounding said opening,
an inner screen overlying said opening with a peripheral portion thereof resting on the rim of said opening,
a spacer resting on the periphery of said screen,
an outer screen overlying said inner screen with a peripheral portion thereof resting on said spacer,
said inner and outer screens defining a combustion compartment therebetween,
a clamping frame resting on the periphery of the outer screen and overlying said spacer for clamping said screens and said spacer to said rim,



ferrules resting on said clamping frame,
a cover having a flat frame resting on said ferrules and spaced from said outer screen,
said cover also having a flange enclosing said ferrules, the edges of said clamping frame, the edges of said spacer and the edges of said screens,
and means for supplying a gaseous fluid mixture to said burner head and through said inner screen to said compartment where said fuel mixture is combusted on the outer surface of said inner screen, there being an ignition opening leading to said compartment for the admission of means for igniting the fuel in said compartment.

3,303,870
EVAPORATOR APPARATUS

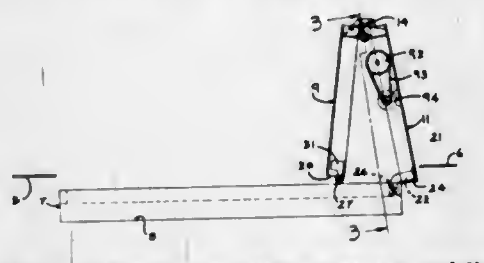
Hobart H. Newman, Palos Park, Ill., assignor to Whiting Corporation, a corporation of Illinois
Filed Mar. 18, 1965, Ser. No. 440,740
6 Claims. (Cl. 159—27)



1. In a forced circulation evaporator including an evaporating chamber having a recycle outlet and inlet formed therein, a mechanical pump and a heater having heat transfer tubes through which a liquid containing suspended solids is circulated, the improvement which comprises directly communicating said recycle outlet with the inlet of said heat transfer tubes, the outlet of said heat transfer tubes with the inlet of said mechanical pump and the outlet of said mechanical pump with said evaporating chamber inlet, whereby the erosive effect of said suspended solids on said heat transfer tubes is substantially reduced.

3,303,871
ELECTRO-MECHANICAL SELF-POWERED HATCH COVER

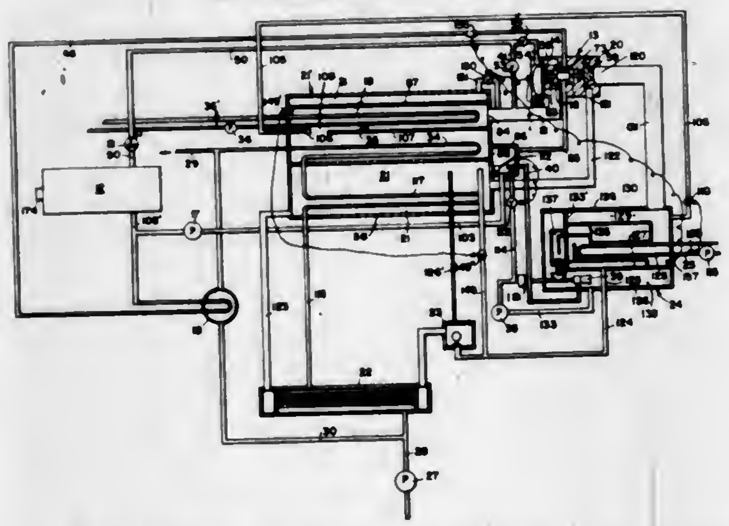
Richard E. Scholes, East Northport, N.Y., assignor, by mesne assignments, to Pneumo Dynamics Corporation, Cleveland, Ohio, a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,543
3 Claims. (Cl. 160—188)



1. An electro-mechanical self-powered folding cover for a ship hatchway comprising a pair of panels disposed in side-by-side relation and dimensioned to cover at least a portion of the hatchway, first hinge means coacting between the confronting marginal edges of said panels for relative rotation about the axis of said first hinge means between open and closed positions approximately 180° of relative rotation, second hinge means on the opposite marginal edge of one of said panels for pivotal anchoring coaction with the ship structure about the hatchway along an axis of said second hinge means parallel to said first hinge axis, support means for supporting the free edge of the second of said panels for movement across the hatchway, an actuating linkage assembly operatively connected to said first hinge means for actuating the panels between said open and closed positions, and drive means mounted on one of the panels including a reciprocating jack screw and a motor, the jack screw being connected to said actuating linkage assembly and drivingly coupled to said motor.

3,303,872
STEAM OPERATED REFRIGERATION SYSTEM

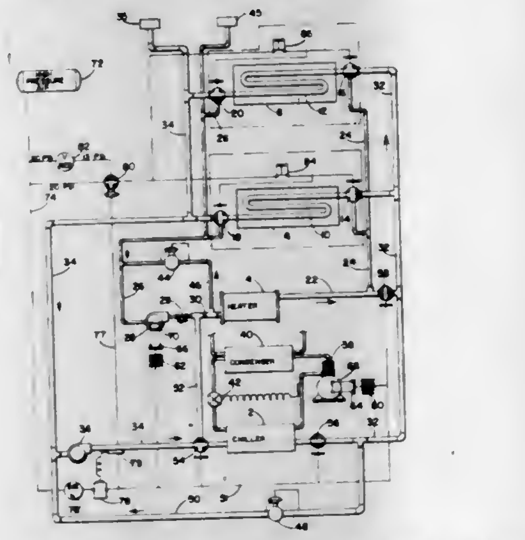
Louis H. Leonard, Jr., Dewitt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed June 23, 1964, Ser. No. 377,258
19 Claims. (Cl. 165—1)



1. In a method of separating fluids in a refrigeration system including a power fluid, a refrigerant fluid having a lower boiling temperature than the power fluid and wherein the fluids are mixed during normal operation of the system, and a cooler to place the refrigerant fluid in heat exchange relation with a load to be cooled, said cooler having a refrigerant chamber above a sump, the steps of passing power fluid and refrigerant fluid into the sump of the cooler, providing conditions in the cooler above the boiling temperature of the refrigerant and below the boiling temperature of the power fluid whereby the refrigerant is a vapor and collects in the refrigerant chamber and the power fluid is liquid and passes to the sump.

3,303,873
HEATING AND COOLING SYSTEM

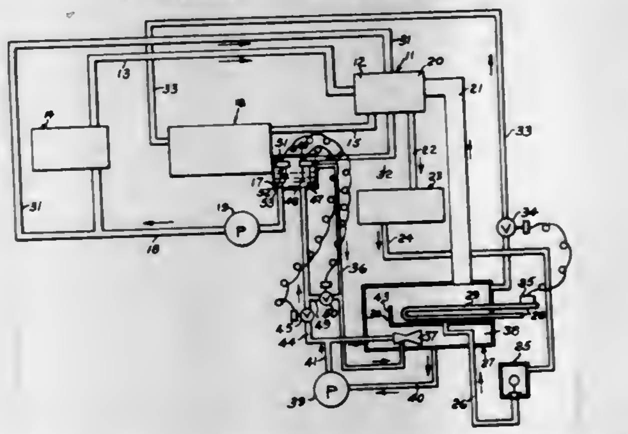
Clarence L. Ringquist and John W. Lorenz, La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed Mar. 29, 1965, Ser. No. 443,495
11 Claims. (Cl. 165—22)



1. In an air conditioning system consisting of a plurality of zones to be conditioned, a heat exchange unit in each of said zones, a hot water piping circuit including a water heater arranged to circulate hot water to and from each of said heat exchange units and a separate chilled water piping circuit including a water chiller arranged to circulate chilled water to and from each of said heat exchange units; the improvement comprising means placing said water heater in fluid communication with said chilled water piping circuit whereby said latter circuit may be utilized to circulate hot water during periods of high heat demand.

3,303,874
STEAM POWERED REFRIGERATION SYSTEMS

William T. Osborne, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Sept. 1, 1964, Ser. No. 393,575
4 Claims. (Cl. 165—32)



1. A fluid balancing system for a steam powered refrigeration system comprising a refrigerant side including a

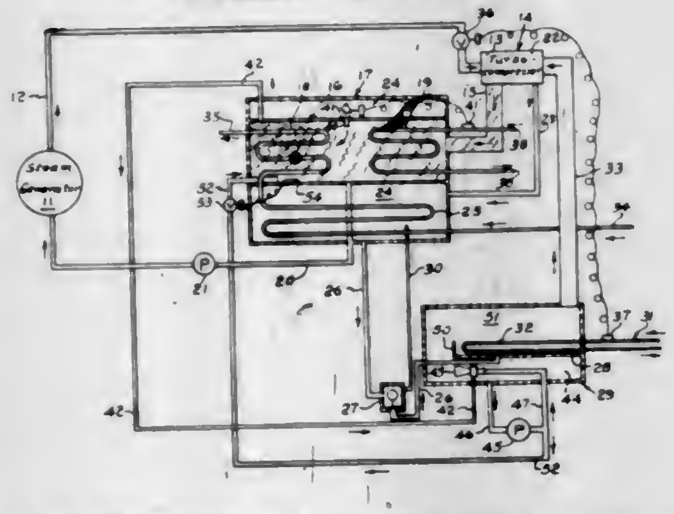
cooler having provision for storing water, a power side including a steam condenser, and a steam driven engine to operate the refrigerant side and in circuit for discharging steam into the steam condenser, and means for balancing water and refrigerant on the power and refrigerant sides and including, means for passing refrigerant vapor from the steam condenser to the cooler, and means for passing water between said cooler and said steam condenser to maintain a substantially predetermined water level on the power side of the system and including, conduit means including first valve means between said cooler and said steam condenser for passing water from said cooler to said steam condenser when said first valve means is open, and second valve means between said steam condenser and said cooler for passing steam condensate from said steam condenser to said cooler when said second valve means is open, first operating means for opening said first valve means responsive to a predetermined low water level in said steam condenser and closing said first valve means responsive to a higher water level in said steam condenser, and second operating means for opening said second valve means responsive to a predetermined high water level in said steam condenser and closing said second valve means at a lower water level above said low water level in said steam condenser.

3,303,875

HEATING AND COOLING SYSTEM

William T. Osborne, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Oct. 8, 1964, Ser. No. 402,602
5 Claims. (Cl. 165—39)



1. A steam powered heating and cooling system comprising a refrigerant side having means for providing cooling to a load to be cooled, a power side including means for supplying steam to operate the refrigerant side and means including a steam condenser for receiving steam and having a first condensing portion to condense the steam and a second condensing portion to condense the steam and supply heat to a load to be heated, and heating capacity control means for regulating the heating capacity of the system by regulating the condensing capacity of said first condensing portion responsive to the heating demand of the load to be heated.

3,303,876

FIN END FOR FIN-TUBE PANEL

Irwin Berman, New York, N.Y., and Pardhubhai Dahyabhai Patel, Carteret, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J., a corporation of New York

Filed Sept. 23, 1965, Ser. No. 489,605
3 Claims. (Cl. 165—81)

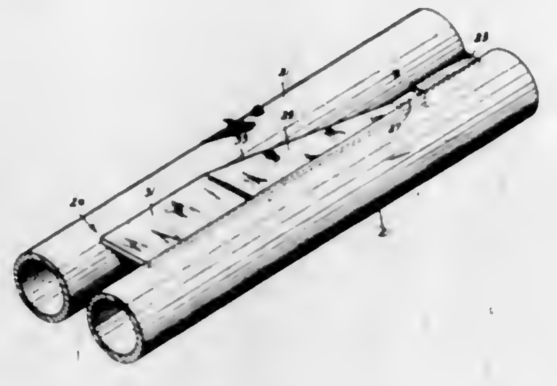
1. A fin-tube panel comprising:

at least two tubes located side by side in a parallel spaced relationship;

a main fin formed between each two adjacent tubes and lying in a plane common with the longitudinal axes of said tubes, said tubes extending beyond the end of said main fin;

a fin end extending from said main fin including a center means for redistributing transverse stresses to the outer surface of the tubes to eliminate bending, an inner means connecting the center means to the main fin to transfer transverse end stresses to the center means, an outer means to provide a flat sealing surface between the two tubes; and

means for securing the fin end of the two adjoining tubes.

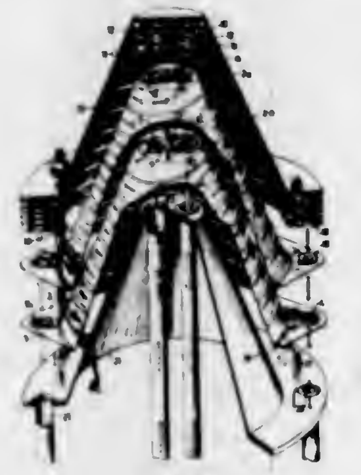


3,303,877

HEAT EXCHANGER

Torsten Ramén, Stockholm, Sweden, assignor to Ramén Corporation a.-b., Stockholm, Sweden, a corporation of Sweden

Filed June 1, 1964, Ser. No. 371,729
Claims priority, application Sweden, June 5, 1963, 6,227/63; Oct. 2, 1963, 10,774/63
3 Claims. (Cl. 165—154)



1. A heat exchanger comprising a plurality of superimposed frusto conical elements each having a frusto conical portion, a brim extending from the larger end of the frusto conical portion, and an end plate covering the smaller end of the frusto conical portion, the thickness of said brim and end plate being greater than that of said frusto conical portion, the outer surface of each of said frusto conical portions being provided with a helically extending ridge extending from the brim to the end plate and abutting the smooth inner surface of the frusto conical portion of an adjacent element to define a helical flow path between said elements; a first inlet and outlet conduit extending through the brim of the innermost element; a second inlet and outlet conduit extending through the end plate of said innermost element; a pair of openings formed in the brim and in the end plate of each of said elements, a series of said openings being aligned in registration with a corresponding conduit, a channel formed around said openings; a plurality of sealing rings disposed in a portion of said channels, said rings being shaped and arranged to direct fluid flow from said first inlet through alternate flow paths to said second outlet and from said second inlet through the other flow paths to said first outlet.

3,303,878

METHOD OF IMPROVING INJECTIVITY OF INPUT WELLS IN WATERFLOOD PROCESS

Carl Connally, Jr., Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Aug. 27, 1963, Ser. No. 304,971
8 Claims. (Cl. 166—9)

1. In the secondary recovery of oil from a subterranean formation penetrated by at least one input well and one output well wherein water is introduced into said input well and forced through said formation to displace oil from said formation through said output well, the step of increasing the injectivity of said water into said input well which comprises injecting through said input well into the portion of said formation surrounding said input well liquid ammonia in an amount ranging from about 1 barrel to about 10 barrels per foot of thickness of said formation to be treated, said ammonia being injected at a pressure in excess of the vapor pressure of said ammonia at the temperature of said formation.

3,303,879

STABLE AQUEOUS TREATING LIQUID FOR PERMEABLE EARTH FORMATIONS

Sherrod A. Williams, Jr., Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Sept. 28, 1964, Ser. No. 399,888
25 Claims. (Cl. 166—9)

1. In a method of treating a subterranean formation, the step comprising passing into said formation water having incorporated therein a quantity sufficient to provide a solution which is viscoelastic and is also a shear hardening, positive nonsimple liquid of an additive system selected from the class consisting of:

(a) alkali metal soap of tall oil acid and a salt which forms a strong electrolyte in water,
(b) ammonium soap of tall oil acid and a material which forms at least a weak electrolyte in water, and
(c) an amine soap of tall oil acid.

3,303,880

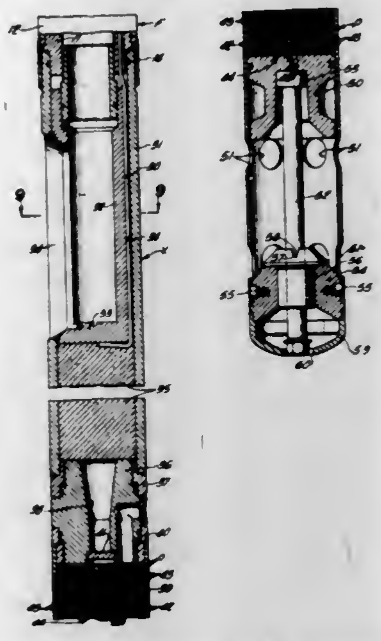
METHOD OF AND APPARATUS FOR ASSISTING IN THE INJECTION OF WELL TREATING FLUIDS

Lyle B. Scott, South Gate, Calif., assignor to Byron Jackson, Inc., Long Beach, Calif., a corporation of Delaware

Filed Sept. 3, 1963, Ser. No. 306,161
17 Claims. (Cl. 166—36)

1. Fluid injection apparatus insertable in a well bore and operable to generate a volume of gas in the well bore comprising: an elongated assembly having a central flow passage for injection of said fluid, an outlet assembly communicating said central flow passage with said well bore, a propellant container below said outlet assembly comprising an elongated tubular case filled with solid monopropellant, firing means, ignitor means operable by said firing means for igniting said propellant, and means at the lower end of said elongated assembly for liberating gas generated by said propellant upon ignition.

11. The method of fracturing earth formation into which or through which a well has been drilled comprising: injecting fluid under pressure into said well to force the same into said formation to fracture the same, liberating in said treating fluid adjacent said formation a large volume of gas to force the treating fluid into said formation, and responsive to the liberation of said gas releasing in said treating fluid adjacent said formation a quantity of propping elements adapted to be carried by said treating fluid into fractures formed in said formation.

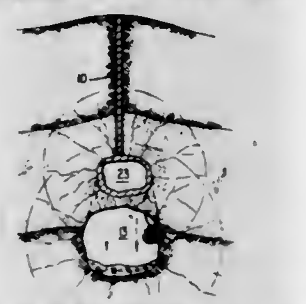


3,303,881

UNDERGROUND NUCLEAR DETONATIONS FOR TREATMENT AND PRODUCTION OF HYDROCARBONS IN SITU

Rod P. Dixon, Salt Lake City, Utah, assignor to Nuclear Processing Corporation, Salt Lake City, Utah, a corporation of Utah

Filed Nov. 22, 1963, Ser. No. 325,721
16 Claims. (Cl. 166—36)



9. A process for recovering useful hydrocarbons from a formation containing a stratum of oil shale which comprises emplacing in upward sequence a plurality of nuclear detonation charges, whereby each forms a cavity in said formation, each charge of nuclear fusion detonation being so spaced from the earth surface as to avoid venting into the atmosphere and each so spaced from the other so as to cave the portion of the stratum below a cavity into the next lower cavity formed by a preceding detonation, thereby forming a substantially vertical column of broken shale; drilling a well into said column, and withdrawing fluid hydrocarbons from said well, the energies in the cavities formed by the detonations plus the energy in the broken material therebetween being sufficient to destructively distill at least a major portion of the kerogen originally present therein.

3,303,882

PROCESS FOR SEALING POROUS EARTH FORMATIONS

William C. Browning, Alphonse C. Perricone, and Billy G. Chesser, Houston, Tex., assignors to Milchem Incorporated, Houston, Tex., a corporation of Delaware

No Drawing. Filed Mar. 12, 1964, Ser. No. 351,568
6 Claims. (Cl. 166—38)

1. The method of sealing porous earth formations, comprising, successively introducing into a porous earth

formation, first, an aqueous solution of an alkaline material selected from the class consisting of sodium hydroxide, sodium silicate and mixtures thereof; second, an aqueous slurry of a clay mineral of the acid three-layer, expanding lattice type characterized by the properties of (a) forming a readily pumpable slurry in high concentrations (from about 125 to about 200 pounds per barrel (42 gals.) of fresh water); and (b) of forming, when in aqueous slurry, an exceptionally high-strength, semi-hard gel upon admixture with said alkaline material; and causing intermixing of said solution and slurry, in situ, in said earth formations, the relative proportions of the inter-mixed materials being such as to render said slurry neutral to alkaline.

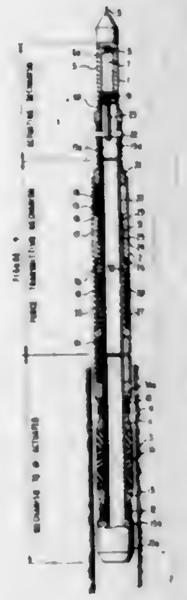
3,303,883
THERMAL NOTCHING TECHNIQUE

Marion L. Slusser, Arlington, Tex., assignor to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Jan. 6, 1964, Ser. No. 336,044
6 Claims. (Cl. 166—39)

1. A method of fracturing at least one selected low permeability zone within a subterranean formation penetrated by a well which comprises:
(a) locally heating said selected low permeability zone to a temperature of at least 1100° F. to a depth of at least one foot from the wall of the well into the subterranean formation to effect irreversible changes which weaken the structural strength of said formation in said zone, and
(b) subsequently applying hydraulic pressure to initiate a substantially horizontal fracture in said zone and to propagate said fracture to the desired depth into said subterranean formation.

3,303,884
MECHANISM FOR USE IN A WELL BORE

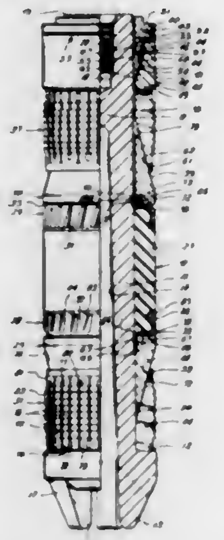
Erskin L. Medford, Jr., Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Oct. 19, 1964, Ser. No. 404,894
8 Claims. (Cl. 166—63)



1. An apparatus for use in a well bore, said apparatus comprising:
force generating means including an actuating means and operable within a well bore to move said actuating means;
a mechanism to be actuated within said well bore; and
force transmitting means operatively disposed between said actuating means and said mechanism and including
first means movable in response to movement of said actuating means,
second means movable in response to movement of said first means and adapted to actuate said mechanism, and
coupling means operably connecting said first and second means and adapted to cause said second means to initially move at a first rate more rapid than the rate of movement of said first means and thereafter move at a second rate slower than said first rate, said second means while moving at said second rate transmitting greater force to said mechanism than when moving at said first rate.

3,303,885
NON-RETRIEVABLE BRIDGE PLUG

James W. Kisling III, Houston, Tex., assignor to Schlumberger Technology Corp., Houston, Tex., a corporation of Texas
Filed Mar. 31, 1964, Ser. No. 356,110
16 Claims. (Cl. 166—134)

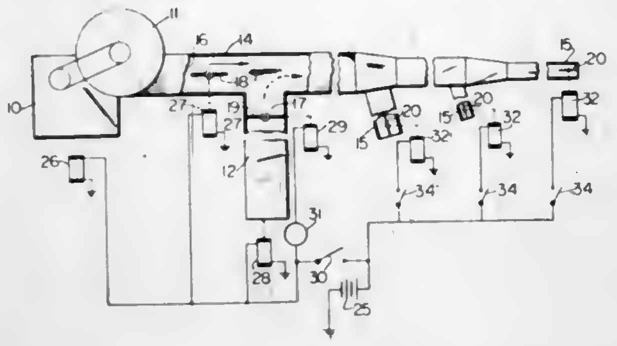


10. In a well tool having body means, expander means on said body means movable relative thereto responsive to longitudinally directed setting forces, slip means on said expander means movable relative thereto responsive to said setting forces, and elastomeric packing means movably mounted on body means and engageable with said expander means, the combination of stop means on said body means engageable with said expander means and said packing means, means coupling said stop means to said body means to prevent movement in one direction and permit movement in an opposite direction, and means for restraining movement of said stop means in said opposite direction until a force of predetermined magnitude is applied hereto.

3,303,886
COMBINATION AIR CONDITIONING AND FOAM PLUG FIRE EXTINGUISHING SYSTEM

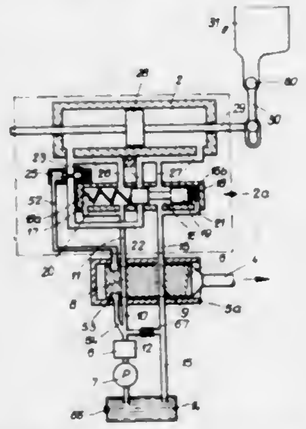
John Tattersall, Ridgewood, N.J., and Ernest A. Joerren, Brooklyn, N.Y., assignors to Specialties Development Corporation, Belleville, N.J., a corporation of New Jersey
Filed Mar. 24, 1965, Ser. No. 442,311
8 Claims. (Cl. 169—16)

1. In a fire extinguishing system, the combination of a trunk-line duct system having an upstream inlet and a plurality of downstream branch duct outlets, an air conditioning system having an outlet connected to said duct system inlet, a high expansion foam plug generator having an outlet connected between said duct system inlet and upstream of all of said branch duct outlets, a first closure in said duct system between its inlet and said foam plug generator outlet operable to prevent the foam plug from entering said air conditioning system outlet, and a second closure upstream of said foam plug generator outlet operable to prevent the conditioned air from entering said foam plug generator.



3,303,887
HELICOPTER ROTOR CONSTRUCTION

Kurt Pfleiderer, Munich, Germany, assignor to Bölkow Gesellschaft mit beschränkter Haftung, Ottobrunn, near Munich, Germany
Filed Jan. 18, 1965, Ser. No. 426,148
Claims priority, application Germany, Jan. 16, 1964, B 75,015

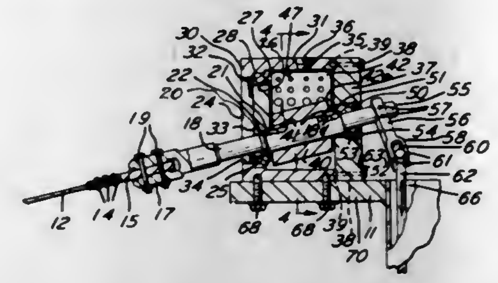


6. A rotary wing aircraft comprising a rotatable rotor, means for rotating said rotor, a plurality of blades pivotally mounted on said rotor at individually circumferentially spaced locations around the periphery of said rotor for pivotal movement about lead-lag axes substantially parallel to the axis of rotation of said rotor for pivotal lead-lag movement of the blades in the plane of rotation, including pump means carried by said rotor, an actuating cylinder carried by said rotor for each blade, a piston slidable in said actuating cylinder, and slide valve control means connected between said pump means and said actuating cylinder for supplying fluid under pressure to said actuating cylinder for displacing the piston therein to move said blades at predetermined locations of rotation of said rotor head, said slide valve means permitting the piston in said actuating cylinder to be moved freely at predetermined positions of said rotor head.

3,303,888
ROTOR HEAD

Jacob Wolf, 629 W. Moyamensing Ave., Philadelphia, Pa. 19148
Filed Mar. 21, 1966, Ser. No. 535,857
6 Claims. (Cl. 170—160.55)

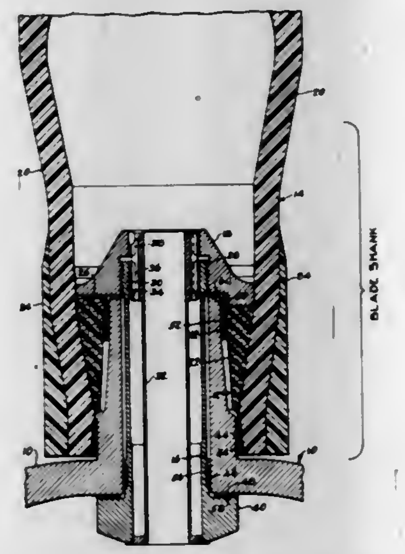
1. A rotor head for helicopter blades comprising
a hub,
an outer cylindrical housing for each of said blades carried by said hub,
said housing having an inner end closure plate fixedly mounted with respect to said housing, and
an outer end closure plate rotatably mounted with respect to said housing,
a blade carrying shaft extending through said housing and beyond said end plates,



members at the inner end of said shaft for controlling the angular positioning of said shaft,
a pivotal bearing member in said inner end closure plate for said shaft, and
bearing members in said outer end closure plate rotatably mounting said shaft.

3,303,889
PROPELLER BLADE AND HUB ASSEMBLY

William E. Bates, Towaco, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Feb. 15, 1966, Ser. No. 527,687
4 Claims. (Cl. 170—160.58)



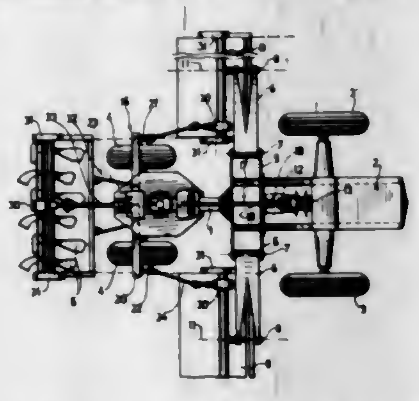
1. In combination, a propeller blade of reinforced plastic material having a hollow shank, a propeller hub including a generally radially extending hollow projection which extends into the shank of the blade, and a blade holding nut held against movement outwardly from said projection, the blade including a first shank portion which tapers inwardly toward the hub, a second portion within the first portion in engagement with the first portion and the nut for transferring centrifugal loads on the blade to the nut, and a third portion extending around the first portion to prevent the first portion from flaring outwardly from the hub projection.

3,303,890
SPADING MACHINE

Herbert Vissers, Nieuw-Vennep, Netherlands, assignor to Landbouwwerktuigenfabriek H. Vissers N.V., Nieuw-Vennep, Netherlands, a limited-liability company
Filed Apr. 9, 1965, Ser. No. 447,028
Claims priority, application Netherlands, Feb. 19, 1962, 274,972
9 Claims. (Cl. 172—56)

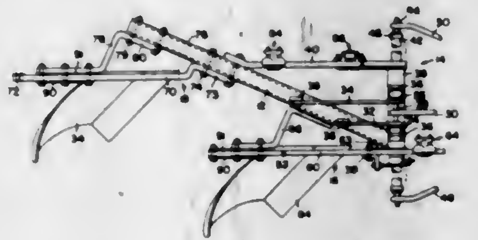
1. A spading machine comprising a tractor having front and rear wheels, an engine and a driven shaft, a plurality of spading units for traveling in spading contact with the

ground, a first transmission means connecting said spading units to said driven shaft, a second transmission means for driving at least two tractor wheels, at least two of said spading units being liftably mounted on opposite sides of the tractor forwardly of the rear wheels, each said side unit being suspended at its middle portion by a first pivot to an arm which in turn is connected to the tractor by a second pivot, the axes of both pivots being substantially parallel to the longitudinal axis of the tractor, both said side units when lowered being positioned completely outwardly of the rear wheels of the tractor, a third of said spading units being disposed symmetrically across the longitudinal axis of the tractor, rearwardly of the rear wheels and extending to a position outwardly of the rear wheels and offset laterally relative to both side units, each of said units having a number of spading blades disposed in a radial configuration around a hub, and said blades having portions transverse to the longitudinal axis of the tractor adapted to enter and dig clods of earth and simultaneously propel the machine forward while being driven by said driven shaft.



3,303,891
MOLDBOARD PLOW

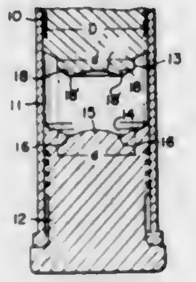
Bruno B. Johannsen, Moline, Ill., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed May 21, 1965, Ser. No. 457,666
2 Claims. (Cl. 172—254)



1. A tractor-drawn gang plow having a frame including a generally diagonally extending main frame member having a plurality of longitudinally spaced apart apertures, a plurality of standards each having in their upper ends a plurality of longitudinally spaced apart aperture means, a plurality of standard support means to which the standards are secured including front and rear standard support means, each of the standard support means being secured to the frame and including a bar having a longitudinally extending portion having an apertured rear end to which the upper end of a standard may be secured by means of bolts and a brace secured at its rear end to the rear end of the bar and extending forwardly and laterally outwardly to the diagonally extending main frame bar, the bar of the front standard support means having a forward portion which is secured to the frame and the rear end being provided with apertures in excess of the number in the upper end of the standards whereby the upper end of a standard may be longitudinally adjustably secured to the front standard support means, the outer end of the brace and the forward end of the bar of the rear standard support means being provided with diagonally extending apertured portions which may be secured to the diagonal member in a plurality of positions by bolts which are received within alined apertures, the rear end of the bar of the rear member having apertures in excess of the member in the upper end of the standards whereby the upper end of a standard may be longitudinally adjustably secured to the rear standard support means.

3,303,892
FUEL ATOMIZATION DEVICE IN DIESEL PILE DRIVER

Shojiro Nishimura, Ashiya-shi, Masao Ishizaki, Nada-ku, Kobe, and Hirotoshi Baba, Higashi-Nada-ku, Kobe, Japan, assignors to Kobe Steel Works, Ltd., Kobe, Japan
Filed June 23, 1964, Ser. No. 377,355
Claims priority, application Japan, June 24, 1963, 38/46,830
2 Claims. (Cl. 173—133)



1. A fuel atomization device and diesel pile driver, comprising a cylinder, a hammer disposed within said cylinder for reciprocal movement and having an impact surface at the lower end thereof, and an anvil fit in said cylinder at the lower end for a limited frictional movement and having an impact surface at the upper end thereof, said upper end impact surface of the anvil being opposed to said impact surface of the hammer and adapted to accumulate fuel thereon so that when said hammer drops and strikes against said anvil said fuel is atomized, said lower end impact surface of the hammer being provided with a centrally positioned concave circular groove and an annular ridge surrounding said groove, said upper end impact surface of the anvil being provided with a centrally positioned convexly shaped projection and an annular recess surrounding said projection whereby the fuel may be accumulated in the vicinity of the inner wall of said cylinder.

3,303,893
MEANS FOR CONTROLLING OPERATION OF TURBODRILL

Justin A. Varney, 7325 Ogelsby Ave., Los Angeles, Calif. 90045, and Frederick M. Varney, Rte. 1, Box 55, Oakton, Va. 22124
Filed Mar. 27, 1964, Ser. No. 356,019
22 Claims. (Cl. 175—26)

1. In an apparatus to carry out a mechanical operation in a well bore, the combination of:

a pipe string adapted for lowering into the well bore, the pipe string being longitudinally extensible and contractible;

a rotary processing tool in the lower end of the a pipe string to perform the mechanical operation;

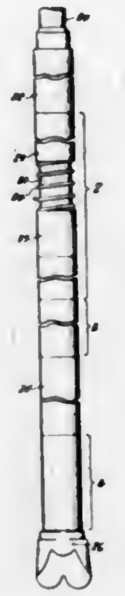
power means to rotate the processing tool relative to the pipe string;

means to vary the weight imposed on the rotary processing tool in response to extension and contraction of the pipe string whereby the weight imposed on the rotary tool may be varied by raising and lowering the upper end of the pipe string;

signal means responsive to extension and contraction

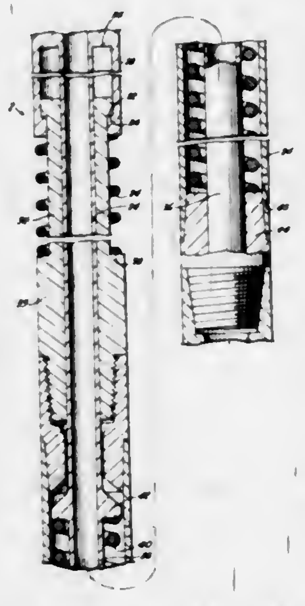
of the pipe string to indicate the magnitude of the weight imposed on the rotary processing tool;

signal means responsive to rotation of the cutting tool relative to the pipe string to indicate when the rate of rotation of the processing tool drops to a predetermined degree, whereby the two responsive means cooperate to indicate the critical magnitude of weight imposed on the processing tool at which the rotation of the processing tool drops to the predetermined degree.



3,303,894
MEANS AND METHOD FOR CONTROLLING THRUST OR WEIGHT ON DRILLING TOOL

Justin A. Varney, 7326 Ogelsby Ave., Los Angeles, Calif. 90045
Filed Mar. 27, 1964, Ser. No. 355,377
12 Claims. (Cl. 175—40)



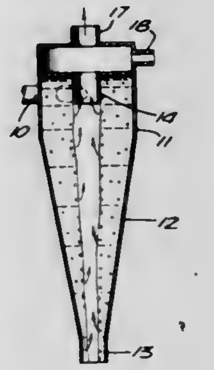
10. A method of controlling the thrust on a drill bit in a well bore characterized by the use of a drill string weight indicator and a drill string incorporating a pair of telescoping sections with resilient yielding means interposed between the two sections for compression progressively by progressive contraction of the pair of telescoping sections, said method including the steps of:

with the drill bit off bottom and the indicator indicating maximum weight, lowering the drill string until a drop in the indicated weight indicates bottoming of the drill string and the imposition on the drill bit of the weight of the drill string below the pair of telescoping sections,

and then lowering the drill string by a given amount within the range of contraction of the two telescoping sections to cause the weight of the drill string above the pair of sections to compress the yielding means to a given degree to impose a given magnitude of additional weight on the drill bit.

3,303,895
DEGASIFICATION OF DRILLING MUD

Ison G. Fontenot, 517 Laurence Ave., Lafayette, La. 70501
Filed Mar. 28, 1962, Ser. No. 183,245
8 Claims. (Cl. 175—66)



1. A process of treating drilling mud containing occluded gas so as to remove said gas from said mud which comprises forcing said mud into the inlet of a hydrocyclone having an underflow and an overflow and withdrawing at least a portion of said mud through said underflow, said inlet rate and said withdrawal being sufficiently great to permit the establishment of and maintenance of a liquid-free vortex centrally of said hydrocyclone and providing a liquid-free air conduit between said overflow and said underflow, said air conduit being conducted directly to the atmosphere.

3,303,896
PROCESS FOR DRILLING BOREHOLES IN THE EARTH UTILIZING AMINE OXIDE SURFACTANT FOAMING AGENT

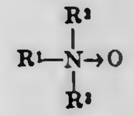
Charles C. Tillotson, Blue Ash, Ohio, and Keith E. James, Harris, Tex., assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Filed Aug. 17, 1965, Ser. No. 480,522
1 Claim. (Cl. 175—69)

A process comprising

(1) drilling a borehole with a rotary drilling bit through a strata selected from the group consisting of clay, shale and mixtures thereof which tend to hydrate and swell in contact with fresh water,

(2) supplying to the bottom of the borehole an aqueous solution containing brine and foaming agent and so formulated that, when it mixes with any aqueous intrusion fluid of subterranean origin in said borehole, the aqueous fluid which is in contact with said strata has a composition consisting essentially of:

(A) about 2% by weight of a foaming surfactant of the formula



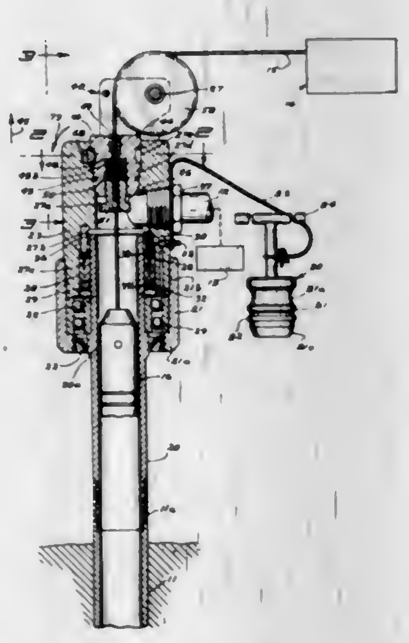
$$R^1\text{—}\overset{R^2}{\underset{R^3}{\overset{|}{\underset{|}{N}}}}\rightarrow O$$

wherein R^1 is a long alkyl chain group containing from about 10 to about 14 carbon atoms and R^2 and R^3 are each selected from the group

consisting of methyl, ethyl and 2-hydroxyethyl radicals;
(B) about 10% of the electrolyte sodium chloride;
(C) about 1.5% of the electrolyte calcium chloride;
(D) about 2% soda ash, and about 0.3% lime; and
(E) the balance, water, the pH of the fluid which is in contact with said strata being from about 8 to about 11;

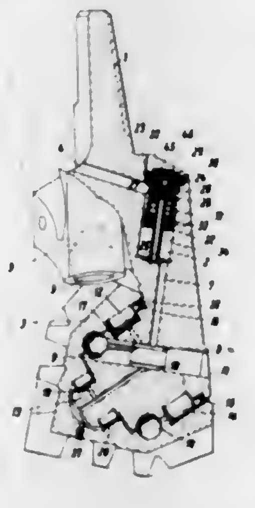
(3) injecting gas having a highly turbulent motion into said borehole and thereby agitating the surfactant-containing aqueous fluid, which is in contact with said strata and creating an aqueous foam; and
(4) removing the foam and suspended drill cuttings to the surface through the borehole by means of the upward movement of the gas.

3,303,897
UNDERGROUND WATER SWIVEL APPARATUS
Ray K. Casper, Minneapolis, Minn., assignor to E. J. Longyear Company, Minneapolis, Minn., a corporation of Delaware
Filed Aug. 21, 1963, Ser. No. 303,600
14 Claims. (Cl. 175—214)



1. For being mounted on the outer end of a drill stem to selectively have a core barrel assembly inserted therethrough, water swivel apparatus comprising a hollow spindle adapted to be attached at one end to the drill stem and having an outer diametrically enlarged flange inwardly of its outer axial end, a cap having a central bore, the inner diameter of said spindle and minimum diameter of said bore being sufficiently large to have a core barrel assembly inserted therethrough, means for cooperating with the cap to selectively close the outer end of said bore, means for rotatably retaining the cap on the spindle and releasably holding the cap against axial displacement relative to the spindle, the last mentioned means including annular bearing means located inwardly of the outer end of the spindle and having an inner race seated on said flange and an outer race seated against the inner end of said cap, annular means connected to the cap for holding said outer race in a seated position against said cap, and means mounted on the spindle for axially retaining the inner race against said flange, said bore having an axially enlarged diametric portion of a substantially larger diameter than the spindle into which the spindle is extended and packing means mounted on said spindle for forming a fluid seal with the enlarged diametric portion bore wall, said cap having a second bore opening to the central bore axially intermediate said packing means and the means cooperating with the cap for passage of drilling fluid to and from said central bore.

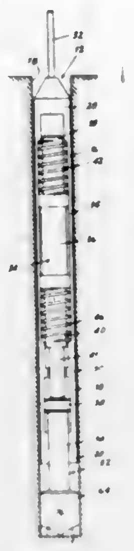
3,303,898
BEARING SEALING AND LUBRICATING DEVICE
Gheorghe Bercaru, Bucharest, Rumania, assignor to Ministerul Petrolului, a firm
Filed Oct. 28, 1963, Ser. No. 319,435
Claims priority, application Rumania, Nov. 9, 1962, 45,809
5 Claims. (Cl. 175—228)



1. In a drilling assembly, a bit body adapted to be attached to a drill pipe string, said body having a cutter-supporting pin, and a rotary cutter carried by said pin for rotation with respect thereto, said pin and cutter defining between themselves a space in which lubricant is adapted to be situated, and a sealing ring closing said space, said body being formed with an elongated lubricant-supply chamber and with passages providing communication between said chamber and the space between said pin and cutter, means carried by said body and communicating with said chamber for initially introducing lubricant into the latter and through said passages into the space between said pin and cutter under a predetermined initial pressure, a piston slidable in said chamber and a spring acting on said piston for maintaining the pressure of the lubricant in said space, and said body being formed with a bore communicating with one side of said piston and with the interior of the drill pipe string for providing communication between said one side of said piston and the differential pressure of the drilling mud in the drill pipe string, whereby the lubricant pressure in said space is maintained higher than the pressure outside of the drill.

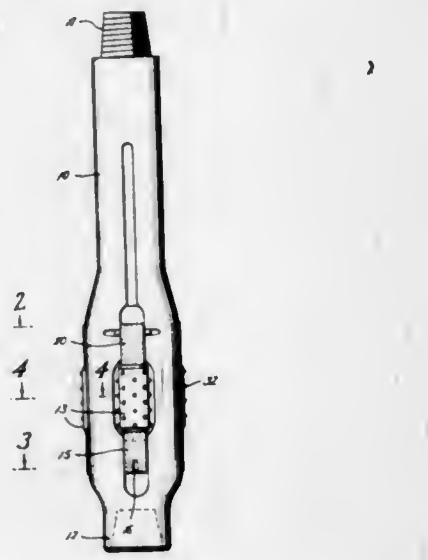
3,303,899
SYNCHRONOUS CHATTER PERCUSSION HAMMER DRILL
Grover Stephen Jones, Jr., Timonium, Md., and Allen E. Bardwell, East Brunswick, N.J., assignors to Trident Industries, Inc., Vincentown, N.J., a corporation of Delaware
Filed Sept. 23, 1963, Ser. No. 310,622
27 Claims. (Cl. 175—299)

1. In combination, a hammer drill comprising an elongated casing adapted to be raised and dropped in a drilling cycle, a hammer unit reciprocally mounted in operative relation with said casing, an anvil unit reciprocally mounted in operative relation with said casing, and spring means mounted in said casing in operative relation to said hammer unit which develops reciprocation thereof upon a raising and lowering of said casing, said hammer unit



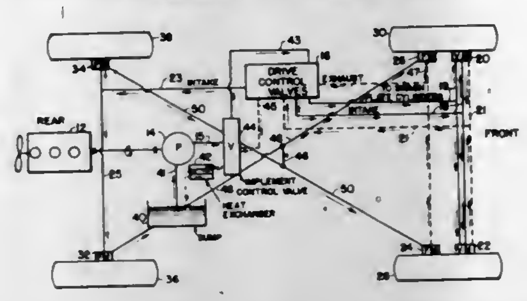
making striking engagement with said anvil unit following contact of the drill with a hole bottom and continued downward movement of hammer and casing in respect to said anvil unit.

3,303,900
BORE CONTROL DEVICE
Joseph A. Kloesel, Jr., Midland, Tex., and James W. Dixon, Laurel, Miss., assignors to Drilco Oil Tools, Inc., Midland, Tex., a corporation of Texas
Filed May 25, 1964, Ser. No. 369,801
12 Claims. (Cl. 175—339)



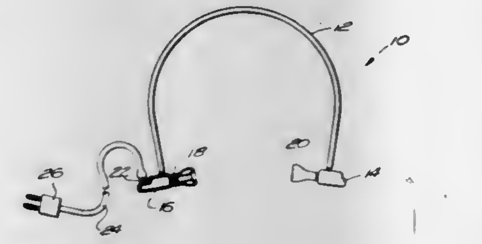
1. A bore control device adapted for use in an earth boring tubular drill string wherein compressed air flows down the drill string toward a drill bit at the lower end thereof and flows back up the annulus between the string and earth bore carrying away the cuttings, comprising
- a tubular body having means at its ends adapted for connection to other members of a drill string,
- a shaft mounted on the exterior of the body,
- a roller mounted on the shaft with clearance therebetween to permit the roller to rotate freely on the shaft, said roller being adapted to contact the sides of an earth bore, and
- air passage means connecting the interior of the tubular body with the space formed by the clearance between the roller and shaft, said air passage means terminating in a passage at the surface of the shaft extending from adjacent one end of the roller to adjacent the other end thereof, said terminal passage being formed by a substantially flat bevel on the shaft extending in a straight line along the length thereof.

3,303,901
HYDROSTATIC TRANSMISSION
Carl E. Schou, Bloomfield Hills, Mich., assignor to Rockwell-Standard Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Dec. 31, 1964, Ser. No. 422,652
15 Claims. (Cl. 180—23)



1. In a hydrostatic transmission system for a vehicle having a source of fluid pressure and provided with two longitudinally spaced sets of transversely aligned ground engaging drive wheels, individual fluid pressure motors at each of said wheels, conduit means between said source and said motors for supplying motive fluid to all of said wheel motors, and compensating means in said conduit means for maintaining substantially equal torque to each pair of transversely aligned ground engaging drive wheels.

3,303,902
EAR PIECE
James M. Knott, Wellesley, Mass., assignor to Coatings Engineering Corporation, South Natick, Mass.
Filed Dec. 20, 1965, Ser. No. 515,070
6 Claims. (Cl. 181—23)

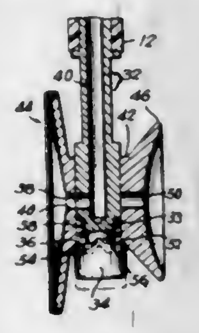


1. An ear piece for a headset having a tubular post defining a sound passage, comprising,
(a) a unitary body of a soft resilient material,
(b) said body being formed with inner and outer concentric tubular walls spaced from one another to define an annular volume therebetween extending from end to end of said body,
(c) the inner and outer wall being joined to one another at one end thereof and disconnected at the opposite end,
(d) the outside diameter of said body at said one end being enlarged to fit within the external ear of the wearer and over the ear canal opening, and,
(e) means mounting the opposite end of said body to the end of said post whereby only a minor portion of said body is telescoped over said post and the major portion of said body extends out from the end of said post to permit angular deformation of said major portion.

3,303,903
DUAL HEAD STETHOSCOPE
Irving A. Speelman, Roslyn Heights, N.Y., assignor to Propper Manufacturing Company, Inc., Long Island City, N.Y., a corporation of New Jersey
Original application Oct. 22, 1965, Ser. No. 501,490, now Patent No. 3,275,099, dated Sept. 27, 1966. Divided and this application July 27, 1966, Ser. No. 568,220
6 Claims. (Cl. 181—24)

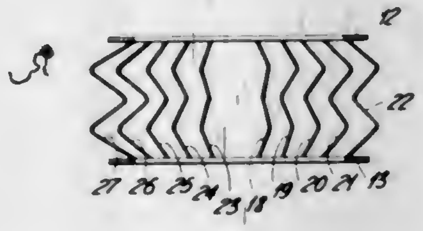
1. In a stethoscope, a tubular shaft having a closed enlarged end forming the width of the exterior surface of

said tubular shaft, a shoulder having an annular surface, the said tubular shaft being formed adjacent to said enlarged end thereof with an opening passing from the hollow interior of said tubular shaft to the exterior thereof, and a body formed with a bore through which said tubular shaft slidably passes with said enlarged end of said tubular shaft retaining said body on said shaft, said body having an annular surface directed towards said annular surface of said enlarged end of said tubular shaft, and one of said annular surfaces having a projection while the other of said annular surfaces is formed with a recess receiving said projection for providing a predetermined angular position of said body on said tubular shaft, a microphone carried by said body and the latter being formed with an aperture providing communication between said microphone and said opening of said tubular shaft when said body is in an angular position where said projection is received in said recess, to provide communication between said microphone and the hollow interior of said tubular shaft when said body is in said angular position thereof, and spring means engaging said body and tubular shaft for yieldably maintaining said projection in said recess so as to releasably retain said body in said angular position thereof.



3,303,904
LOUDSPEAKER HORNS

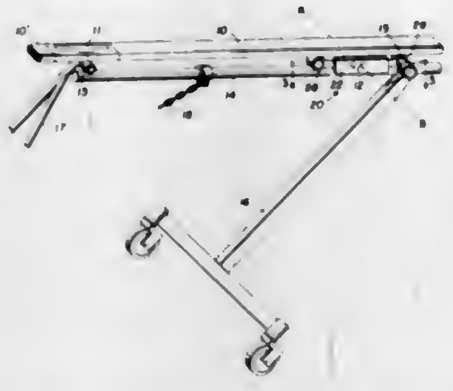
Stanley Kelly, Enfield, Middlesex, England, assignor to Decca Limited, London, England, a British company
Filed Feb. 1, 1966, Ser. No. 524,324
Claims priority, application Great Britain, Feb. 1, 1965, 4,280/65
6 Claims. (Cl. 181—31)



1. Sound distributing apparatus comprising two parallel spaced walls respectively defining first and second aligned apertures of similar shape and substantially equal area; side, top and bottom walls extending between said spaced walls to enclose a volume between said aligned apertures; a plurality of vertically disposed plates located in said volume between said apertures, said plates each having a zig-zag section in the horizontal plane together defining a plurality of zig-zag sound transmission paths between adjacent plates from said first aperture to said second aperture, said plates providing an acoustic delay in each zig-zag path, said delay increasing for each path successively nearer said side walls; whereby an acoustic wave travelling through said volume between said first and second apertures is dispersed in the horizontal plane.

3,303,905
HEIGHT ADAPTER FOR FOLDABLE TRAMPOLINES

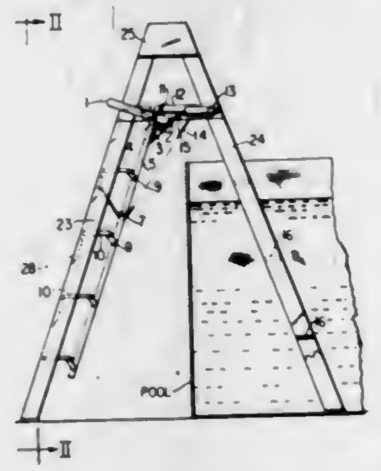
George P. Nissen and Harlan J. Kelly, Cedar Rapids, Iowa, assignors to Nissen Corporation, Cedar Rapids, Iowa, a corporation of Iowa
Filed Oct. 4, 1965, Ser. No. 492,512
6 Claims. (Cl. 182—137)



1. In a folding trampoline having a frame including laterally spaced side members, said side members having a pair of main pivot means disposed midway therealong for removably receiving the upper ends of a pair of roller stands of the kind described for carrying said trampoline when folded over a gymnasium floor, said main pivot means being effective when the folded trampoline is being carried by said roller stands to permit the folded trampoline to be rotated thereabout on a first axis extending centrally and transversely between said side members to an upright position wherein the lower end of the folded trampoline is spaced above the floor, the combination therewith of a pair of height adapters securable to said side members, said adapters including a pair of alternate pivot means carried thereby for removably receiving the upper ends of said roller stand for rotation of the folded trampoline thereabout on a second axis parallel to said first axis, said second axis being laterally disposed to one side of said first axis effective to lower the folded trampoline toward the floor when carried by said roller stands and alternate pivot means and rotated thereabout to an upright position in which said first axis is disposed below said second axis.

3,303,906
SAFETY LADDER

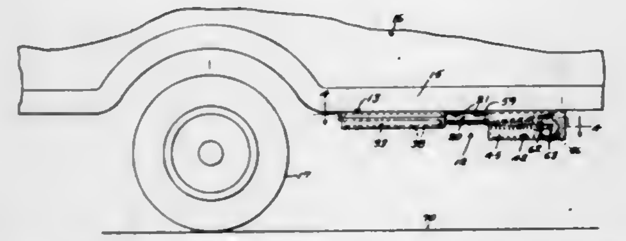
William Bouwmeester, 5 Juniper St., and Abraham Berg, 9 Ingram Drive, both of Hicksville, N.Y. 11801
Filed Oct. 7, 1964, Ser. No. 402,183
6 Claims. (Cl. 182—161)



1. In a safety ladder structure comprising a pair of opposed, longitudinal, supporting members, a set of movable steps in said pair of members, a linkage operatively connected to the movable steps to provide for movement of the latter between usable and inoperative positions, locking means connected to said linkage to lock said steps in inoperative position, and means manually actuated to simultaneously release the locking means and operate said linkage to place the steps in operative position.

3,303,907
SAFETY BRAKE FOR VEHICLES

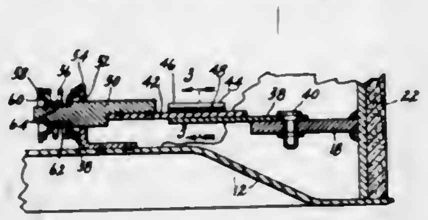
Harry J. Burtnett, 2438 Kanawha Blvd. E., Charleston, W. Va. 25311
Filed Mar. 19, 1965, Ser. No. 441,187
5 Claims. (Cl. 188—4)



1. A vehicle safety brake comprising a substantially flat rigid brake shoe, means supported by a motor vehicle frame part for supporting the brake shoe in an inoperative position in front of a wheel of the vehicle, means connected to said support means and operable to release the brake shoe from the support means to permit the brake shoe to drop by gravity to assume a position in front of said vehicle wheel, and tethering means connected to said brake shoe and anchored to the vehicle frame for limiting the extent of movement of the brake shoe toward said wheel whereby the vehicle wheel can assume a position on the brake shoe and is prevented from passing over the brake shoe, said support means comprising a slidably mounted rod and a pair of hooks depending from said rod, said brake shoe having openings through which said hooks extend, and said hooks having rearwardly projecting bill portions engaging the underside of the brake shoe when the rod is in a projected position for supporting the brake shoe.

3,303,908
BRAKE SHOE CENTRALIZING DEVICE

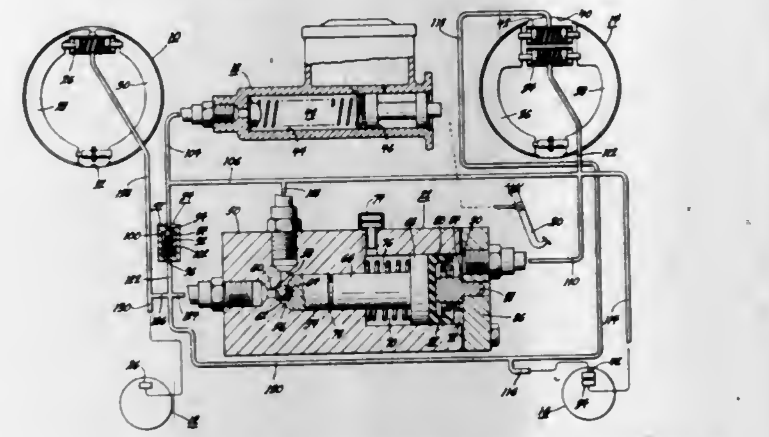
George P. Belrise, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 29, 1964, Ser. No. 421,888
5 Claims. (Cl. 188—79.5)



1. A brake shoe centering device for returning a brake shoe to a poised position away from a brake drum after a brake actuation, said device comprising: a link element including a first portion pivotally attached to the brake shoe and slidably carried by a relatively fixed member; biasing means engaging the relatively fixed member and said link element and arranged to permit a certain predetermined movement therebetween equal to the desired clearance of the brake shoe from the brake drum; and friction means establishing a variable engagement between said first portion of said link element and said relatively fixed member whereby a desired clearance established by said biasing means can be maintained between the brake shoe and the brake drum as wear occurs on a brake lining carried by the brake shoe.

3,303,909
SERVO ACTUATED BRAKE AND VALVE MEANS THEREFOR

Walter H. Zimmerman, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 1, 1965, Ser. No. 444,654
8 Claims. (Cl. 188—152)



1. In a brake system comprising a master cylinder, a first brake assembly having a servo action, a second brake assembly, a pressurizing cylinder actuated by the servo action of said first brake assembly, a primary fluid pressure circuit fluid connecting said master cylinder and said first brake assembly, and a second fluid pressure circuit fluid connecting said pressurizing cylinder and said second brake assembly,

a valve assembly having
- a normally open valve and pressure actuated valve closing means fluid connected to said primary fluid pressure circuit and closing said normally open valve at a predetermined master cylinder output pressure,
- a passage controlled by said normally open valve and having an inlet fluid connected to said primary fluid pressure circuit and an outlet fluid connected to said secondary fluid pressure circuit,

and a normally closed check valve interconnecting said primary and secondary fluid pressure circuits and operative to open when fluid pressure in said primary fluid pressure circuit exceeds fluid pressure in said second fluid pressure circuit by a predetermined amount,

said master cylinder thereby being operative to pressurize both of said fluid pressure circuits when said normally open valve is open or when said check valve is open to actuate both of said brake assemblies, and being operative to pressurize only said primary fluid pressure circuit when said normally open valve and said check valve are closed to actuate only said first brake assembly, the servo action of said first brake assembly then actuating said pressurizing cylinder to pressurize said secondary fluid pressure circuit to actuate said second brake assembly.

3,303,910
ANTI-THEFT ARRANGEMENT FOR POWER-DRIVEN VEHICLES

Jean-Louis Gavillet, 14 Ave. Floreal, Prilly-Vaud-Suisse, Lausanne, Switzerland
Filed Apr. 14, 1965, Ser. No. 448,036
Claims priority, application Switzerland, Apr. 28, 1964, 5,557/64
1 Claim. (Cl. 188—152)

In an anti-theft arrangement for a power-driven vehicle having a hydraulic brake controlling circuit:

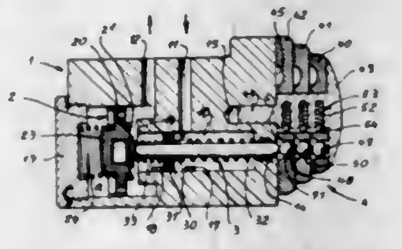
(A) a body having a chamber and an axial channel communicating therewith and channels communicating, respectively, with the brake controlling pedal circuit and with the circuit controlling the jaws of the vehicle brake;

(B) a locking valve slidingly mounted in said chamber said valve having a cylindrical bore surrounded by a seat, said valve having ports communicating with said channel communicating with the circuit controlling the jaws of the brake and a radial port in said bore;

(C) an annular elastic plug in said bore of said valve adapted to be elastically deformed by excess pressure of liquid flowing through said radial port from said brake controlling pedal circuit;

(D) a rod slidingly mounted on said axial channel, said rod being slidingly guided therein by a plug having ports, said rod having at one end thereof a head adapted to slide in said bore of said valve, and a ring;

(E) oppositely facing springs on said rod on either side of said guide plug, one of said springs urging said ring on said rod against said seat, said other spring urging said rod toward said valve;

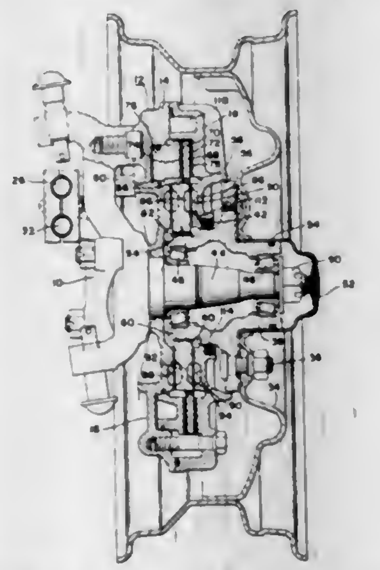


(F) a control member cooperating with said other end of said rod, said control member comprising three superimposed coaxial discs, said discs having annular grooves opening into recesses aligned with said end of the rod and containing balls;

(G) said discs being revolvably carried on said body, a member having three radial cylindrical recesses each carrying a spring and a ball in contact with the inner periphery of the corresponding disc, movement of said rod against said balls as a result of increased fluid pressure resulting from action exerted on the brake pedal urging one of said balls into the groove of the adjacent disc and thereby releasing the valve and shutting off communication between said brake controlling pedal circuits and with said circuits controlling the jaws of said vehicle brake.

3,303,911
FLUID COOLED BRAKE MECHANISM

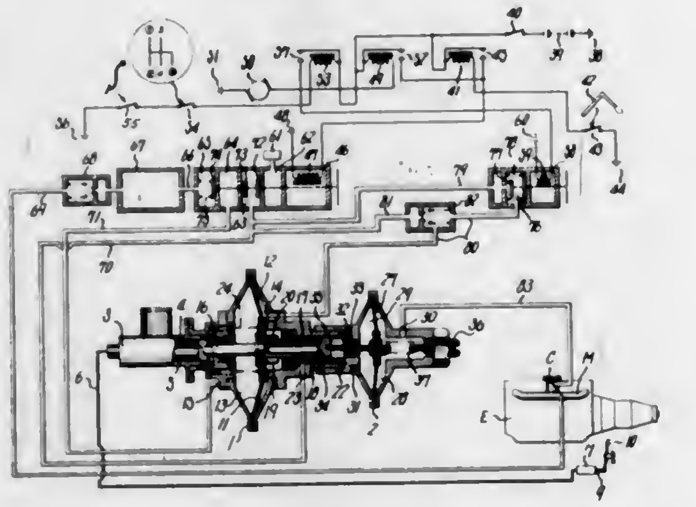
Gilbert K. Hause and George R. Smith, Bloomfield Hills, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 7, 1964, Ser. No. 416,291
1 Claim. (Cl. 188—264)



A liquid cooled brake comprising in combination: a static housing having a central opening, a rotatable member to be braked rotatably and sealingly mounted in said opening and extending outwardly therefrom, an annular chamber formed in said housing radially outward of and connecting with said central opening at the chamber inner annulus, an annular mounting disc splined to said rotatable member for rotary movement therewith and axially slidable movement thereon, a radially central section of said mounting disc having recessed pumping blades thereon in circumferentially spaced and axially recessed relation, pump recess means formed in said housing in axial alignment with said pumping blades and cooperating therewith to define pump chamber means, brake friction disc means splined to the outer periphery of said mounting disc for rotating movement therewith and axially slidable movement thereon, friction braking means mounted in said housing annular chamber and rotatably fixed relative to said housing and axially movable relative to said fraction disc means to frictionally engage said friction disc means and apply braking force thereto, liquid coolant inlet means radially inward of said pumping chamber means, said housing and said mounting disc being in axially spaced relation to provide liquid coolant radial passage pump inlet means radially inward of said pump chamber means and liquid coolant radial passage pump outlet means radially outward of said pump chamber means, said friction disc means and said friction braking means having generally radially extending liquid coolant flow passage means at adjacent surfaces thereof and connected in liquid coolant flow receiving relation with said radial passage pump outlet means, liquid coolant outlet means in said housing fluid connected radially outward of said friction disc means, seal means axially spaced from and radially inward of said pump chamber means and sealing said housing and said rotatable member, and passage means formed in said housing and connecting the liquid coolant side of said seal means with the radially inner portion of said pump chamber means whereby liquid coolant pressure on said seal means is reduced by the pumping action of said pumping blades.

3,303,912
AUTOMATIC CLUTCH CONTROLLING APPARATUS

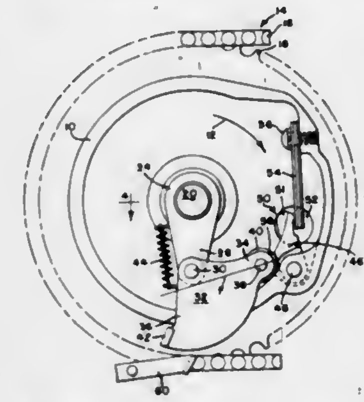
Keisuke Fujimoto, Hirakata, and Kiyoharu Murakami and Yoshihiro Okuno, Neyagawa, Japan, assignors to Kabushiki Kaisha Daikin Seisakusho, Neyagawa, Japan, a corporation of Japan
Filed July 22, 1964, Ser. No. 384,419
Claims priority, application Japan, Dec. 19, 1963, 38/68,665; Mar. 25, 1964, 39/16,576
10 Claims. (Cl. 192—.07)



1. An automatic clutch controlling apparatus principally for automobiles having an engine which produces negative pressure at predetermined locations when operating, the combination including an air controlled device which comprises a main valve body, the main valve body being compartmentized into a plurality of compartments, a first compartment being open to the atmosphere, an atmospheric air suction valve and a pressure equalizing valve being disposed in a second compartment which is in communication with the first compartment, a negative pressure valve disposed in a third compartment, means interconnecting said valves for concurrent movement upon negative pressure caused by running of the engine and by atmospheric pressure induced through the first compartment, said latter valve being coupled to a speed adjustment control, a free pass valve body having a valve operative in response to the speed adjustment control, a servo motor for controlling the clutch, the servo motor having a diaphragm dividing the servo motor into first and second chambers, said valves being in communication with selected chambers of the servo motor through fluid passages so that the main valve body and free pass valve body are adapted to actuate the servo motor, hydraulic means in communication with the clutch and being responsive to action of the servo motor to effect connection and disconnection of the clutch, the hydraulic means interconnecting with a control valve having a diaphragm, the control device dividing the control valve into a plurality of chambers, one of said last named chambers being open to the atmosphere and a second chamber being open to negative pressure from the engine, the diaphragm being adapted to be actuated by negative pressure produced by running of the engine, a valve chest interconnecting the servo motor and the control valve, the control valve diaphragm dividing the control valve into first and second chambers, an elongated rod means interconnecting the hydraulic means with the control valve diaphragm through the servo motor and the valve chest, air equalization passages so formed as to communicate the valve chest and the first chamber defined by the control valve diaphragm with said main valve body, said rod means being so constructed as to be more responsive to negative pressure proportional to the number of revolutions of the engine in the range from the position immediately before clutch connection to the position for complete connection of the clutch.

3,303,913
TORQUE-LIMITING CLUTCH

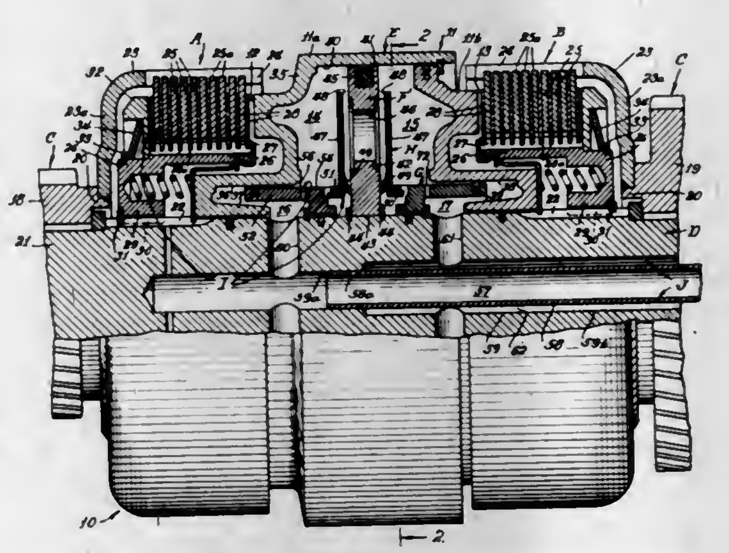
Theodore M. Barnes and Harold E. de Buhr, Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,354
11 Claims. (Cl. 192—56)



1. In a rotating clutch of the class described having a rotatable drum-like driving member, a rotatable driven member coaxially journaled for intermittent rotation with the driving member, a pawl pivotally connected to the driven member about an axis parallel to and spaced from the driven member axis and carrying a roller, said pawl being swingable into a driving position wherein the roller operatively engages the driving member for a rotation of the members in unison or into a position wherein the roller clears the driving member, and means for controlling the position of said pawl about its axis, the combination therewith of means for limiting the torque transmitted to the driving member comprising, an engaging member pivotally mounted on said driving member for limited movement relative thereto, extending from the inner periphery of the driving member and having a relatively flat cam surface on the advance side in relation to the direction of rotation of the driving member, the cam surface engaging the roller when the pawl is positioned for engagement, stop means associated with the engaging member for limiting the movement of said engaging member, the cam surface moving into roller engaging and disengaging angles with the limited movement of the engaging member, the driving force transmitted through the engaging member urging the engaging member toward a roller disengaging position, and spring means acting on the engaging member for biasing said member toward a roller engaging position, the spring means deflecting under said driving force a sufficient distance to allow the movement of the engaging member into a roller disengaging position when the driving force reaches a predetermined value.

3,303,914
DOUBLE MODULATED TWIN ACTING HYDRAULIC CLUTCH

Elmer A. Richards, Peoria, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 30, 1964, Ser. No. 422,369
2 Claims. (Cl. 192—87.17)

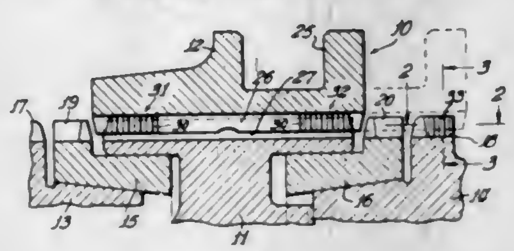


1. A double-acting hydraulic clutch, comprising: a pair of spaced clutch means having rotative input and output means; a hydraulic actuating assembly interposed between said clutch means and having a reciprocally moveable element provided with spaced pressure members each for engaging one of said clutch means, said assembly further having means defining a plurality of annular fluid chambers with two radially innermost chambers and two radially outermost chambers, barrier means including reaction means separating said radially outermost chambers from each other and the radially innermost chambers from each other, said assembly having means responsive to fluid in chambers disposed to one side of said reaction means for moving an associated pressure member toward one of said clutch means, one-way valve means effective to normally permit fluid communication between said radially outermost chambers and to prevent fluid flow in one direction upon the actuation of said fluid responsive means, fluid control means for maintaining all of said chambers normally full of low pressure fluid and having means for selectively introducing high pressure fluid to either of said

radially innermost chambers, modulating means comprising at least one restricted orifice communicating each of said radially innermost chambers with one of said radially outermost chambers to delay release of either clutch means, and resilient means interposed in said clutch means effective to be energized to delay complete clutch engagement of either clutch means, said barrier means has one or more transfer openings communicating opposite radially outermost chambers, and said one-way valve means comprising a pair of annular discs operably mounted upon opposite sides of said barrier means, each disc carrying at least one tang effective to close off said transfer opening when pressed against a side of said barrier means while permitting fluid flow in only one direction, said discs each carrying a plurality of radially inwardly extending fingers offset from the plane of said discs and effective to normally encourage said discs to a spaced position from the barrier means for providing a positive release of the fluid seal between the tang and barrier means.

3,303,915
AXIAL LOCKING CLUTCH

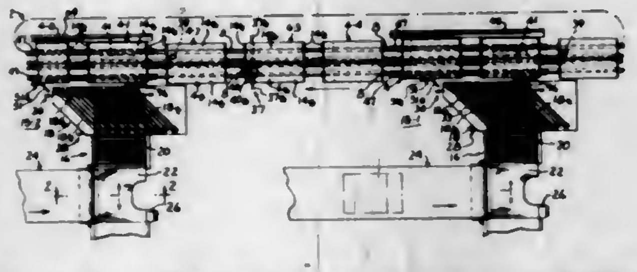
John C. Oesterle, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 11, 1964, Ser. No. 417,605
7 Claims. (Cl. 192—114)



1. In a clutch mechanism, a hub member with teeth thereon, a sleeve encircling said hub member having teeth meshing with the teeth on said hub, a rotary member adjacent said hub member, said sleeve being axially slidable with respect to said hub member to engage said rotary member, a first means formed on the teeth of said sleeve, a second means formed on one of said members, said first and second means adapted to cooperate when said sleeve is axially displaced to engage said rotary member to provide an axial lock of said sleeve to prevent disengagement of said sleeve from said rotary member when said mechanism is transmitting torque, said first and second means being operative to establish said axial lock and thereby prevent disengagement of said sleeve from said rotary member at a plurality of axial positions of said sleeve with respect to said hub rotary members.

3,303,916
AUTOMATIC LOADING AND CONVEYOR APPARATUS

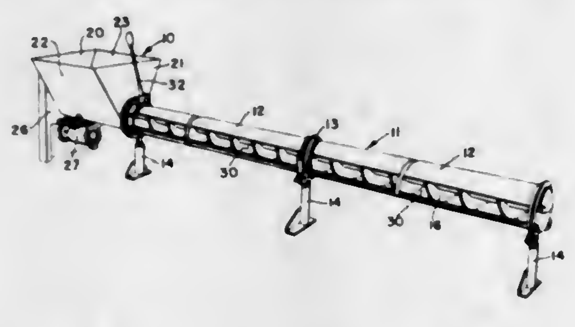
Harold S. Burt, Wilmette, Ill., assignor to Conveyor Systems, Inc., Morton Grove, Ill., a corporation of Illinois
Filed Dec. 30, 1964, Ser. No. 422,192
8 Claims. (Cl. 198—38)



7. In a loading and conveyor system including individual carrier units, means for moving the carrier units in succession in an endless path past at least one loading station and a number of discharge stations, the carrier units approaching the loading station being sometimes filled and sometimes empty, each of the carrier units having means for receiving information which identifies the discharge station at which the article on the carrier unit is to be discharged, erasing means positioned ahead of said loading station for erasing the information on the information receiving means of the carrier unit approaching the loading station when energized, and recording means adjacent said loading station for recording new information on the information receiving means of a carrier unit at the loading station when energized, the improviment comprising loading means for automatically loading an article onto an empty carrier unit at said loading station, said loading means including impelling means for impelling an article onto a carrier unit at said loading station when energized, and control means for controlling the energization of said impelling means, erasing means and recording means, said control means comprising condition sensor means located behind the erasing means, memory means for storing information on the full and empty conditions of the carrier units between and including said loading station and said carrier condition sensor means, said carrier condition sensor means being responsive to the full and empty conditions of the carrier units passing thereby by storing information in the memory means on the full and empty conditions thereof, means responsive to the information stored in said memory means indicating that the carrier unit opposite said loading station is an empty carrier unit for energizing said impelling means and said recording means, and means responsive to the information stored in the memory means indicating that the carrier unit opposite said erasing means is an empty carrier unit for energizing said erasing means.

3,303,917
MATERIAL CONVEYING AND DISTRIBUTING DEVICE

Raymond S. Wilkes and Arnold B. Skromme, Moline, Ill., assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Oct. 11, 1965, Ser. No. 494,777
2 Claims. (Cl. 198—64)

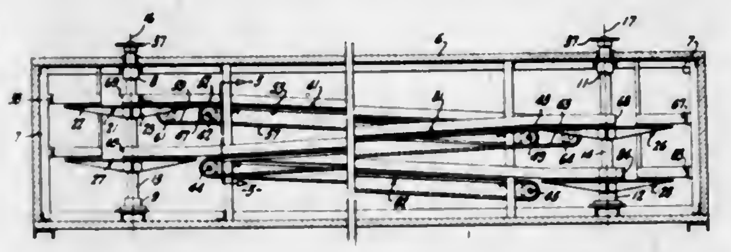


1. A bunk feeder comprising: an elongated, substantially horizontal auger housing having a material intake end and elongated side discharge opening means extending substantially the full length of the housing; a material hopper at the intake end of the auger housing with a wall extending upwardly at the end and having a material opening aligned with the end of the auger housing for permitting passage of material from the hopper into the auger housing; and continuous auger means extending through the opening and having a first part in and extending lengthwise of the base of the hopper to a second part retained in the auger housing for delivering material lengthwise of the housing and for discharging material through the side discharge means in substantially even quantities lengthwise of the housing, with said first part having a material capacity substantially less than the material capacity of the second part and the capacity of said first part being such

that the material will be substantially at the level of the elongated side discharge opening means to thereby automatically reduce the level of material in the auger housing to substantially the height of the opening means adjacent the intake end of the auger housing.

3,303,918
FREEZING CHAMBER CONVEYOR

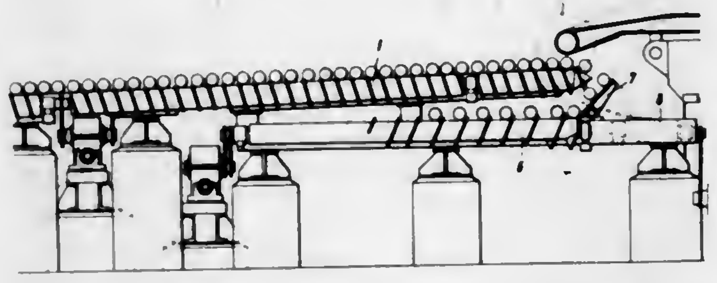
Eugene Larson, Millbrae, Calif., assignor to National Industrial Equipment Co., a corporation
Filed June 14, 1965, Ser. No. 463,536
8 Claims. (Cl. 198—103)



1. A freezing chamber conveyor comprising an elongated frame; vertically arranged journals on said frame adjacent the opposite ends thereof; a pair of upright shafts mounted in said journals for rotation about vertical axes; planar, circular platforms on said shafts extending perpendicularly to said axes, said platforms being at different levels on said shafts; a guide bar on said frame spaced from but approximately curved around said platforms and merging with said guide bar; a conveyor mounted at an inclination on said frame and extending between said platforms, said conveyor including a relatively long chain run adjacent said guide bar and a relatively short chain run remote from said guide bar; and means on said frame for simultaneously rotating said shafts and advancing said conveyor.

3,303,919
DISTRIBUTING ELONGATED ROLLED STOCK

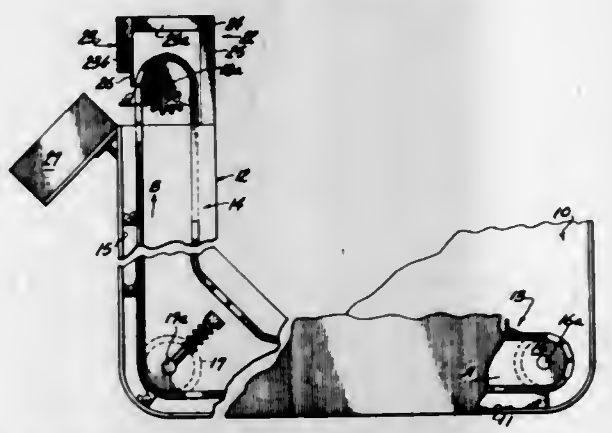
Otto Gerhardus, Dusseldorf-Heerdt, Germany, assignor to Mannesmann-Meer Aktiengesellschaft
Filed Nov. 17, 1964, Ser. No. 411,800
Claims priority, application Germany, Dec. 23, 1963, M 59,360
4 Claims. (Cl. 198—104)



1. A transport mechanism for elongated rolled stock comprising an upper transportation cooling bed, a lower transportation cooling bed disposed adjacent, though in a plane lower than that of, said upper cooling bed, and an elongated distributing machine disposed adjacent said lower bed at right angles to the transportation direction of both said beds, the lower of said beds and machine comprising a frame, a plurality of thread carrying screw conveyors and transport rolls journalled on said frame, the axes of rotation of said conveyors and rolls being parallel to each other and in the same horizontal plane, the threads of said conveyors having similar shape and twist, each transport roll being disposed between the two conveyors of each pair of conveyors and having at least one outer cylindrical surface, means operable for rotating said conveyors and rolls in the same direction of rotation, at least some of said transport rolls extending throughout a major portion of the length of said screw conveyors, whereby rolled stock supported on said screw conveyors will be moved in a composite direction composed of a first component in the longitudinal direction of the rolled stock and a second component at right angle thereto, the rolled stock upon making contact with the outer surface of a transport roll receiving additional acceleration in the direction of said first component, the screw conveyors of said machine having their axes of rotation parallel to the direction of transportation of said beds.

3,303,920
PRODUCT HANDLING APPARATUS

Robert W. Clyne, 5701 Sheridan Road, Chicago, Ill. 60626
Filed Oct. 21, 1965, Ser. No. 499,614
4 Claims. (Cl. 198—154)



1. A product handling apparatus comprising a vertical wall surface; a conveyor assembly having a section thereof disposed in spaced substantially parallel relation with respect to said surface and being movable upwardly with respect thereto; a plurality of vertically spaced product-contacting flights mounted on and movable with said conveyor section, each flight having an inner portion and an outer portion projecting therefrom for subtending and contacting the product while said flight is moving upwardly, the distal end of each flight outer portion being in substantial sliding contact with said surface while said flight is moving upwardly, the inner and outer portions of each flight defining an obtuse included angle; and an adjustable unit mounted adjacent the upper edge of said wall surface for initially contacting each flight upon the latter reaching a predetermined elevated position, said unit having a portion thereof in continuous engagement with said flight and being movable relatively toward the distal end of the flight outer portion as said flight continues its upward movement beyond said elevated position whereby the contacted product is stripped from said flight.

3,303,921
SINGLE DRIVE DISPENSING MECHANISM HAVING AUTOMATICALLY UNFOLDING PRODUCT CONVEYOR SHELVES

Le Roy D. Gore, Independence, Mo., assignor to The Vendo Company, Kansas City, Mo., a corporation of Missouri
Filed Oct. 20, 1965, Ser. No. 498,880
4 Claims. (Cl. 198—158)

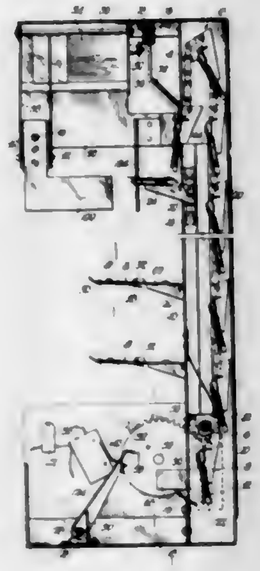
1. In a dispensing machine:

a conveyor having a transport member and a plurality of foldable, product-receiving shelves carried by the member,

each of said shelves having a first section coupled with said member and a second section normally folded on the first section;

drive means coupled with said conveyor for shifting

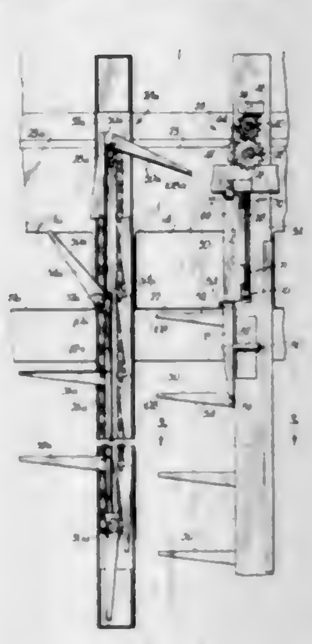
the latter to sequentially move said shelves to a product storage zone;
structure disposed to automatically unfold each shelf as the latter is moved toward said zone by said drive means;
said drive means being operable to move said shelves along a delivery path from said zone to a dispense



location, and thence along a return path to said zone;
means in said return path for automtaically refolding each shelf as the latter is moved away from said location by said drive means; and
said refolding means including a projection disposed for engagement by the second section of each shelf to effect said refolding thereof.

3,303,922
CONVEYOR MECHANISM FOR PRODUCT DISPENSING MACHINE

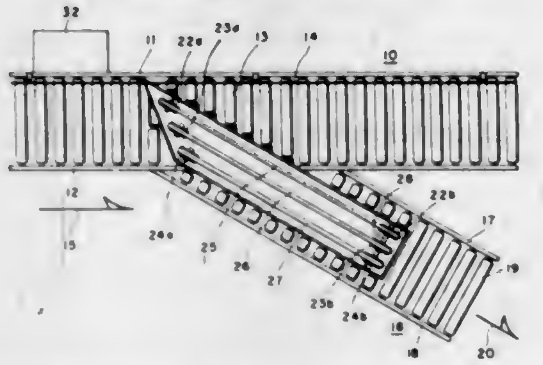
Le Roy D. Gore, Independence, Mo., assignor to The Vendo Company, Kansas City, Mo., a corporation of Missouri
Filed Oct. 20, 1965, Ser. No. 498,893
11 Claims. (Cl. 198—158)



1. A dispensing machine comprising:
a conveyor having a plurality of spaced-apart shelves, each movable from an extended, product-receiving position to a retracted disposition;
drive means coupled with said conveyor for shifting the latter in a direction to raise said shelves in the extended positions thereof from a product storage zone to a consumer access location, and then return said shelves from said location to said zone; and
means disposed to shift each shelf upwardly from its extended position to its retracted disposition and in a direction away from the next succeeding shelf during movement of a corresponding shelf away from said location thereof and after removal of its product therefrom, permitting ready consumer viewing of the product carried by the next shelf arriving at said location.

3,303,923
CONVEYOR DIVERTER MECHANISM

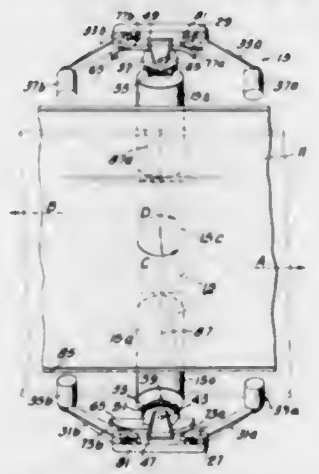
Joseph W. Davis, Chester Heights, Pa., assignor to General Atronics Corporation, Wyndmoor, Pa., a corporation of Pennsylvania
Filed Aug. 14, 1964, Ser. No. 389,735
7 Claims. (Cl. 198—185)



1. A mechanism for directing objects moving along the bed of a first conveyor onto the bed of a second conveyor, said mechanism comprising:
means for contacting said moving objects from below and impelling them in the direction of said second conveyor bed, said means having a plurality of discrete portions spaced from each other in a direction transverse to said second conveyor direction, each said portion having an upstream end for making initial contact with said objects, different ones of said upstream ends being positioned at progressively staggered points along both the width and length of said first conveyor bed; and means for reciprocating said portions to position them alternately above and below the bed of said first conveyor.

3,303,924
BELT TRAINING IDLER

Harry F. Hartzell, Jr., Allison Park, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
Filed Sept. 29, 1965, Ser. No. 491,098
11 Claims. (Cl. 198—202)

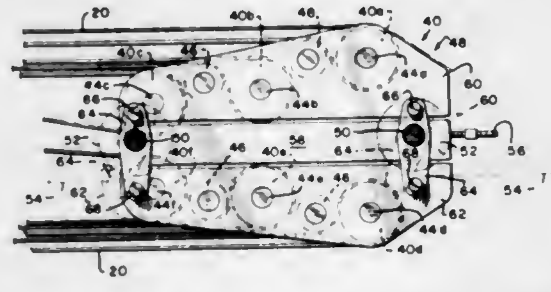


1. A training idler for use with a material conveyor belt comprising:
(a) a frame pivotal about an axis substantially normal to said belt;

(b) an idler roller rotatably supported on said frame for alignably supporting said belt;
(c) a guide arm pivotally mounted to said frame adjacent each end thereof on opposite sides of said belt;
(d) a guide roller rotatably mounted on each guide arm end portion;
(e) guide arm fixing members slidably mounted on said frame;
(f) means automatically operable in response to the rotation of said idler roller to move said guide arm fixing members in the direction opposite the movement of said belt and into fixable engagement with said guide arms; and
(g) means to fix said guide arms so that the rollers mounted thereon are disposed in a position relative to said frame that is opposite in direction to the direction of movement of said belt, whereby when said belt becomes misaligned and one edge thereof engages one of said fixed rollers, said frame and the idler roller mounted thereon are pivoted into a biased relation to said belt and said idler roller then exerts a force on said belt which urges said misaligned belt into alignment.

3,303,925
BELT TENSIONING APPARATUS

George Baechli, New Philadelphia, Ohio, assignor to Lee-Norse Company, Charleroi, Pa., a corporation of Delaware
Filed Nov. 16, 1965, Ser. No. 508,040
10 Claims. (Cl. 198—208)

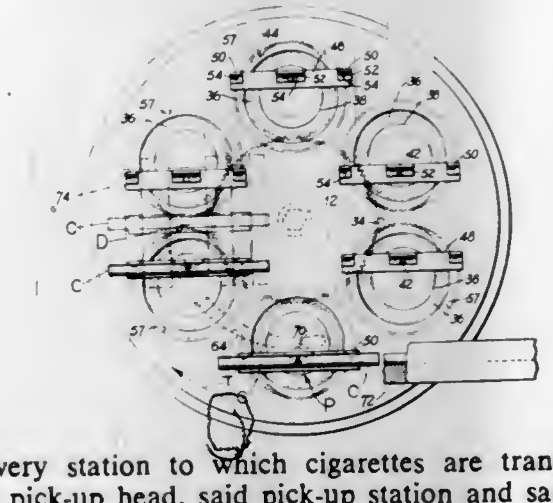


1. In combination with a longitudinally movable belt having a plurality of nonaligned runs and driving means operatively connected to said belt for longitudinally driving said belt:
first supporting means supporting a first of said runs of said belt;
second supporting means supporting a second of said runs of said belt; and
lever means connecting said first and second supporting means to make said first and second supporting means move in response to a tension differential between said first and second runs to increase the tension in the one of said first and second runs under the lower tension.

3,303,926
CIGARETTE COLLECTOR

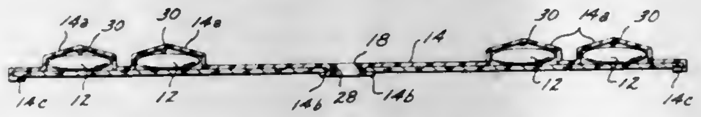
Ernest E. Pohl, Cape Coral, Fla., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed July 8, 1965, Ser. No. 470,406
8 Claims. (Cl. 198—211)

1. A cigarette collection and transfer mechanism comprising: a support; a stationary sun gear fixed to said support; at least one rotatable planetary gear in engagement with said sun gear; a crank pin rotatably journalled in said planetary gear eccentric to the axis thereof; a pick-up head on said crank pin; means for moving said planetary gear in an orbital path about said sun gear to advance said crank pin in an epicycloidal path; means to maintain the axial orientation of said pick-up head in space during movement of said crank pin in said path; means defining a pick-up station to which cigarettes are fed longitudinally in a linear path; and means defining a delivery station to which cigarettes are transferred by said pick-up head, said pick-up station and said delivery station being spaced along said epicycloidal path in a manner such that the linear velocity of said pick-up head exceeds the linear speed of cigarette feed at said pick-up station and slows down at said delivery station.



3,303,927
DISPENSING PACKAGE FOR MEDICATION

John W. Ballard, Laguna Beach, Calif.
(904 S. Minnie, Apt. 18, Santa Ana, Calif. 92701)
Filed Aug. 3, 1964, Ser. No. 387,023
3 Claims. (Cl. 206—42)



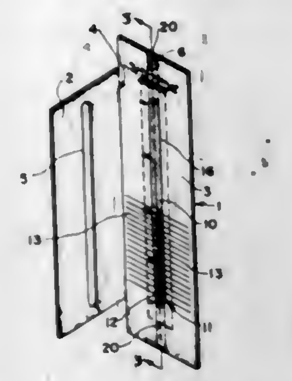
1. A dispensing package for solid form medication comprising in combination, a flat disc formed with a centrally located through circular opening, a circular peripheral outer edge, and a hole offset from said opening and of such size as to pass said medication, said opening and said circular edge being co-axially arranged, a base of transparent plastic material adjacent said disc and formed with a plurality of deformations extending away from said disc and being of such size as to individually retain said medication, and means for rotating said disc on said base and for effecting sealing engagement therebetween comprising a central portion of said plastic base extending through said opening in said disc and reversely bent about said disc thereat to simultaneously provide a rotational connection and seal therebetween and a peripheral portion of said plastic base reversely bent about the peripheral outer edge of said disc to simultaneously provide a rotational connection and seal therebetween, said central rotational connection preventing substantial radial relative movement between said disc and said base to thereby prevent binding of the peripheral portion of said base and the peripheral outer edge of said disc, whereby said disc can be freely rotated on said base to permit said medication to pass from said deformations through said hole in said disc.

3,303,928
PACKAGE

Paul G. Meilleur, Oconomowoc Lake, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed May 3, 1965, Ser. No. 452,825
6 Claims. (Cl. 206—65)

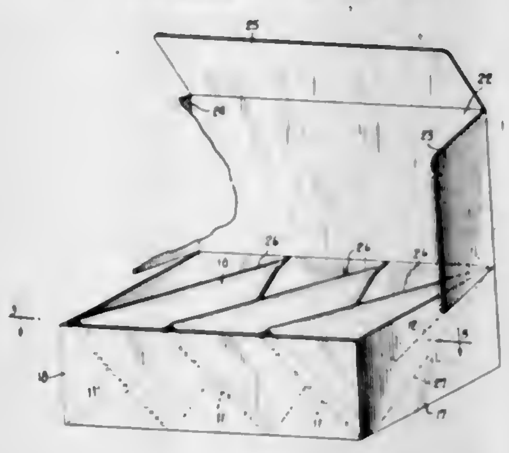
1. A package for a plurality of units including body portions with leads extending therefrom, said package

comprising panel means, adhesive means to retain said body portions as a part of said package, said adhesive means being a part of said panel means and said panel means including at least one score line means running substantially parallel with said adhesive means to permit folding at least a portion of said panel means back and away from at least the adhesive means.



3,303,929
MULTIPLE CONTAINER PACKAGE

Thomas M. Pace, Pensacola, Fla., assignor to St. Regis Paper Company, New York, N.Y., a corporation of New York
Filed May 19, 1965, Ser. No. 456,923
5 Claims. (Cl. 206—65)

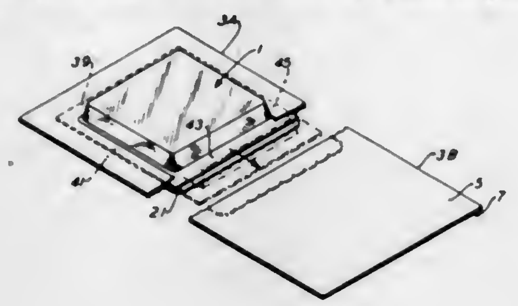


1. A package with a plurality of inner containers each of which comprises a length of tubing of sheet material collapsed flatwise at each end and sealed along linear seals which are perpendicular to the axes of the containers, and the seals at opposite ends of each container being in positions extending in directions at right angles to each other, said package comprising in combination a generally rectangular carton containing at least one row formed of a plurality of said inner containers arranged side by side, the linear seals of one end of each of which engage a wall of the carton along spaced-apart parallel lines extending diagonally across such wall, the seals at the opposite ends extending in parallel spaced-apart diagonal relation with respect to and in a plane opposite to said wall, and each container having areas at its mid-portion which are rounded in cross-section and which engage in crossed relation with like rounded areas on the next container or containers.

3,303,930
CARD SUPPORTED TRANSPARENT PACKAGE

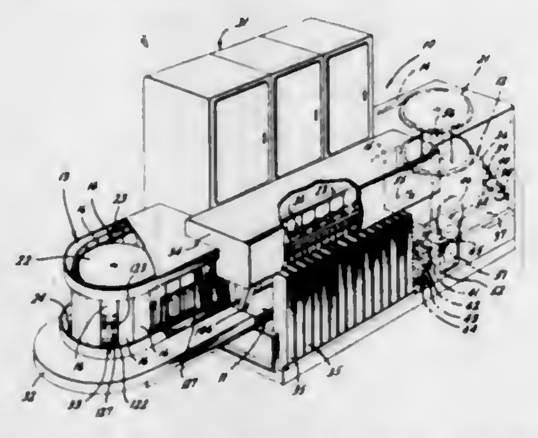
Charles F. Hyland, Waverly, Pa., assignor to Eureka-Carlisle Company, Scranton, Pa., a corporation of Delaware
Filed May 9, 1966, Ser. No. 548,615
1 Claim. (Cl. 206—78)

A display package comprising a substantialy flat card having first and second plies which are secured together by a continuous adhesive strip extending along the entire periphery of one of said plies, said first ply having a rectangular opening therethrough, a hollow rectangular receptacle, flanges projecting outwardly from the peripheral portion of the receptacle, said receptacle extending through said rectangular opening, said flanges lying between said plies, said first ply having first and second perforated portions which extend from opposite edges of said card along paths axially aligned with one side edge of said opening, said second ply including a U-shaped cut defining a ramp portion extending outwardly from said opening coextensive with and supporting one of said flanges, said second ply including third and fourth perforated portions underlying said first and second perforated portions, respectively, and extending between the extremities of said U-shaped cut to opposite edges of said second ply.



3,303,931
ELECTRICAL TEST APPARATUS

Robert T. Vaughan, Cheltenham, Willard H. Moll, Lansdale, Stuart L. Parsons, Gwynedd Valley, and William H. Scott, Sellersville, Pa., assignors to Philco Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Feb. 14, 1963, Ser. No. 258,433
15 Claims. (Cl. 209—74)

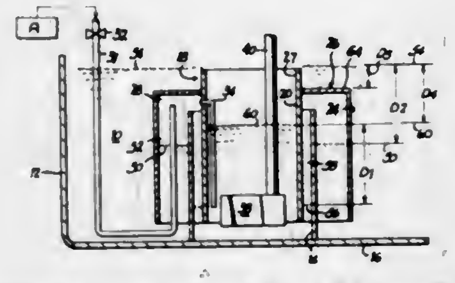


1. In apparatus for the automatic testing of electrical component means at predetermined test station areas, each said means comprising a housing having lead wires extending unindirectionally therefrom, the combination of: a plurality of individual supporting means for each said component means; means defining a path along which said supporting means may be sequentially transferred between said test station areas; a plurality of test probe devices each disposed at a test station area and comprising a resiliently mounted set of test probes disposed to one side of the lead wires of component means carried by said supporting means; means mounting said test probe devices for reciprocable movement to move said test probes into and out of engagement with lateral portions of the lead wires of said component means, as they are sequentially transferred by said supporting means along said path, the recited reciprocable movement being effected transversely of both said path and the direction of extension of said lead wires; prime moving means operable to effect the recited reciprocable movement of said test probes and to transfer said supporting means along said path; and indexing means disposed in driven engagement

with said prime moving means and operable to effect intermittent transfer of said supporting means to provide a pause period at each of said station areas, said indexing means further being operable electrically to energize said test probes in synchronism with the recited intermittent transfer of said supporting means, and to effect the recited reciprocable movement of said test probe devices during each of the pause and transfer periods of operation of said supporting means.

3,303,932
LEVEL SEEKING SKIMMER

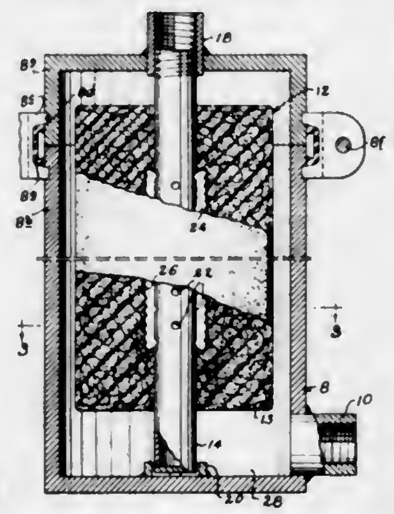
Gene Hirs, Birmingham, and John A. Newman, Farmington, Mich., assignors to Hydromation Engineering Company, Livonia, Mich., a corporation of Michigan
Filed June 27, 1966, Ser. No. 560,610
5 Claims. (Cl. 210—65)



4. The method of skimming liquid from the surface of a body of liquid comprising the steps of establishing a pump well within said body of liquid wherein the liquid level may be maintained at a substantially lower level than the surface of said body of liquid, isolating the pump well from the body of liquid with a flotation chamber having a first chamber portion exposed to the static head of liquid in said pump well and and a second chamber portion in direct communication with said first chamber portion and exposed to the static head of liquid in said body of liquid, maintaining a substantially constant pressure in said flotation chamber to maintain said chamber at a selected depth in said body of liquid when the level of liquid in said pump well is at a preselected level, and controlling flow from said body of liquid into said pump well over the top of said flotation chamber by varying the depth of said flotation chamber in accordance with the level of liquid in said pump well.

3,303,933
REINFORCED FILTER WITH REPLACEABLE CARTRIDGE

Jon O. Huff, P.O. Box 235, Wichita Falls, Tex. 76307
Filed July 23, 1963, Ser. No. 297,032
2 Claims. (Cl. 210—441)

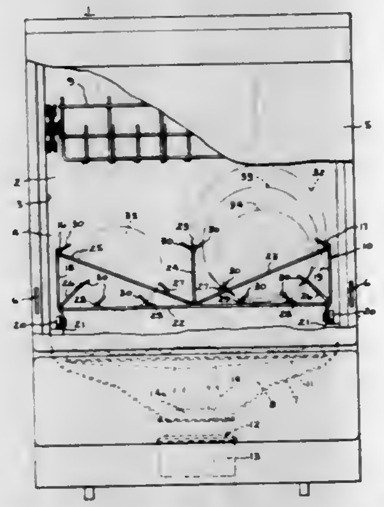


1. A filter for filtering unwanted particles from liquid as the liquid flows therethrough, which filter comprises:

(a) a hollow casing having a top and bottom wall,
  (1) said hollow casing having an inlet opening formed by a pipe coupling secured therein,
  (2) said hollow casing having an outlet opening formed by a pipe coupling secured to said top wall,
(b) a pipe extending from said outlet coupling into said casing, which pipe has a closed inner end secured to said bottom wall,
  (1) said pipe having lateral openings formed therein for a portion of the length thereof intermediate the length of said pipe,,
(c) a filter mass surrounding said pipe and having a corrugated inner hollow portion receiving said lateral openings within the length thereof and a corrugated outer portion,
  (1) said filter comprising a mixture of sand, fiberglass, bonded together by epoxy resin so as to form a rigid permeable mass having voids between the individual sand particles for the flow of liquid therethrough,
(d) the wall thickness of said filter mass being approximately uniform.

3,303,934
RACK STRUCTURE FOR DISHWASHER

Robert C. Pressley, Jr., Anchorage, Ky., assignor to General Electric Company, a corporation of New York
Filed Oct. 22, 1965, Ser. No. 501,682
7 Claims. (Cl. 211—41)



1. A rack for articles, such as dishes, including:
(a) a frame defining an article receiving space,
(b) said frame including a plurality of article support bars extending across said article receiving space in parallel relationship with each other,
(c) a pair of said bars being positioned adjacent opposite upper edges of said space with additional ones of said bars being positioned inwardly and downwardly of each of said bars in said pair, the positioning of said additional bars being varied from side to side of said space, and
(d) means associated with each of said bars forming article positioning notches in alignment with corresponding notches of the others of said bars.

3,303,935
HANGER BRACKET AND SUPPORT BAR COMBINATION FOR MERCHANDISE RACK

George E. Briggs, Rockford, Ill., assignor to The Boye Needle Company, Chicago, Ill., a corporation of Illinois
Filed June 22, 1965, Ser. No. 465,962
6 Claims. (Cl. 211—57)

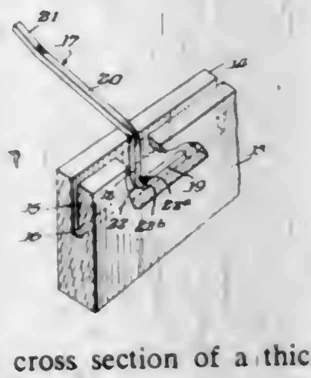
1. In combination:
(a) an elongated horizontally aligned support bar for a merchandise display rack,
said bar providing a top surface having a longi-

tudinal groove running therealong and extending downwardly into said bar,

said grove being of uniform width and having vertically extending side walls; and

(b) a hanger bracket cooperating with said support bar to provide a readily removable, longitudinally positionable holder for individual items of merchandise,

said bracket being formed of metal rod stock of



rectilinear cross section of a thickness slidably receivable in said groove,

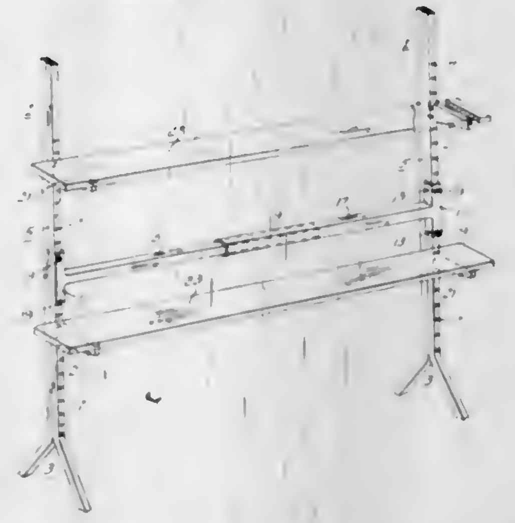
said bracket having an angular section received within said groove including a leg extending downwardly from said top surface toward the bottom of said groove and a foot extending longitudinally from the lower end of said leg along the bottom of said groove,

said bracket also providing a hanger section extending forwardly from the upper end of said leg over a portion of said top surface and projecting outwardly beyond said bar.

3,303,936

ROOM DIVIDER AND THE LIKE

Earl B. Barnawell, 1332 Ordway St., Berkeley, Calif. 94702
Filed July 23, 1964, Ser. No. 384,732
2 Claims. (Cl. 211—134)



1. A room divider comprising a pair of standards,

each of said standards including an inverted V-shape base and a hollow upright having a series of holes along opposite surfaces thereof in substantially the plane of said base,

an adjustable brace bar extending between said standards,

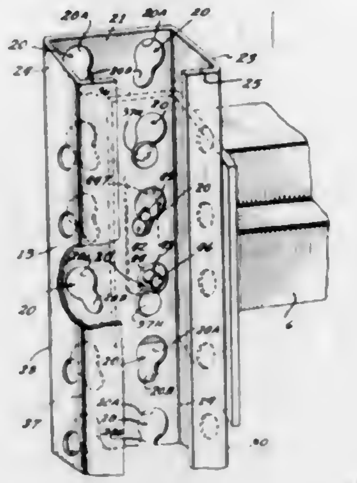
said brace bar including a pair of slidably related telescoping components, each terminating in a fastening flange substantially normal to said brace bar components and of right angled cross section, and having openings in planes substantially 90 degrees to each other to permit of fastening said brace bar to such a standard in either the plane of said pair of standards or in a plane normal thereto, and

means for fastening said brace bar to said standards.

3,303,937

PALLET RACK

Kennedy McConnell, Riverdale, Ill., assignor to Interlake Steel Corporation, a corporation of New York
Filed Sept. 9, 1964, Ser. No. 395,135
8 Claims. (Cl. 211—148)

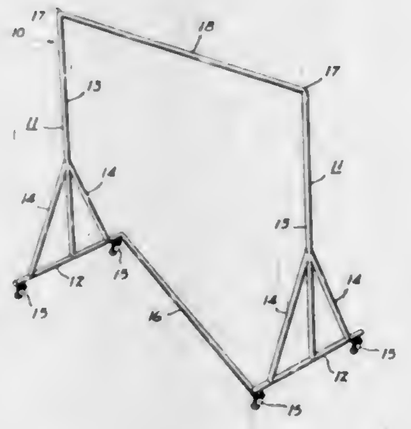


7. In a pallet rack comprised of spaced uprights, horizontal beams bridged between adjacent uprights and equipped with end plates removably engaged in supported relation on said uprights by means of headed posts carried on said endplates and each retained in generally upright keyhole slots in the corresponding upright, the improvement comprising a separate removable one-piece spring clip lock for securing each mounting plate against dislodgment from its corresponding upright by limiting upward movement of said posts relative to said upright, wherein each plate has a pair of holes smaller than and fully registrable with a pair of said keyhole slots when such plate is supported from an upright by the action of said posts, said lock comprising a unitary element having first means received and confined in swingable relation in one of said holes and having second means for entry through the other hole upon swinging movement of said element about said first means, with said second means thereafter reacting against said plate to fix said lock relative to said plate and said second means projecting into said registering keyhole slot in sufficient proximity to upper edge regions thereof to engage said upright and limit vertical movement of said plate before said posts shift free of said upright.

3,303,938

GARMENT RACK

Archie Solomon, 2320 Canterbury, University Heights, Ohio 44106
Filed Jan. 17, 1966, Ser. No. 521,038
2 Claims. (Cl. 211—182)

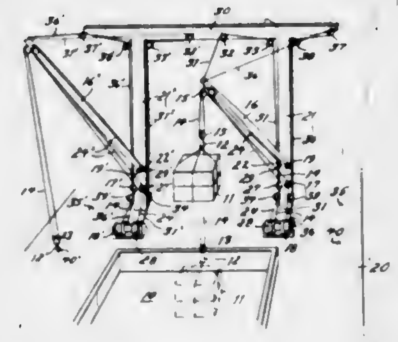


1. A garment rack comprising a pair of spaced apart, parallel, substantially vertical, opposed end frames connected at their apexes by a straight substantially horizontal hanger rod joined to the end frames at substantially right angles, and connected at their bases by a rail, said garment rack characterized in that the rail is connected to diagonally opposed extremities of said end frames and that said rail is of such shape that any point on said rail proceeding from the first end frame to the second end frame is closer to the second end frame than any preceding point on said rail.

3,303,939

CARGO TRANSFERRAL

Virgil H. Trevisan, 825 Lincoln Ave., Pitman, N.J. 08071
Original application Mar. 17, 1964, Ser. No. 352,560, now Patent No. 3,249,234, dated May 3, 1966. Divided and this application Oct. 21, 1965, Ser. No. 545,177
6 Claims. (Cl. 212—3)

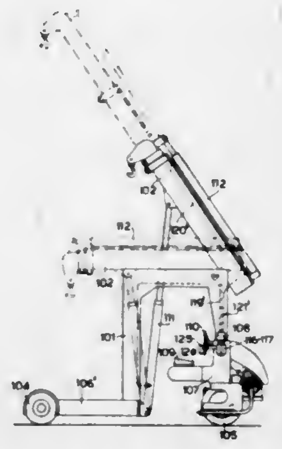


1. In a cargo-transferring system, a boom universally mounted at its foot, a pair of topping lifts having lines independently variable in length to control the location of the boom head, a pair of cables independently variable in length depending from the boom head, separate winch drums for each of the topping lift lines and each of the depending cables, drive means for the winches, and clutch means for connecting either of the winch drums for the depending cables separately to the drive means and clutch means for connecting the winch drums for the topping lift lines to the drive means.

3,303,940

MOBILE CRANE

Gian Edoardo Valla, Milan, Italy, assignor to Antonio Valla & C.—S.p.A., Milan, Italy, a company of Italy
Filed Sept. 8, 1965, Ser. No. 485,765
Claims priority, application Italy, Aug. 6, 1965, 7,866/65, Patent 17,830
4 Claims. (Cl. 212—8)

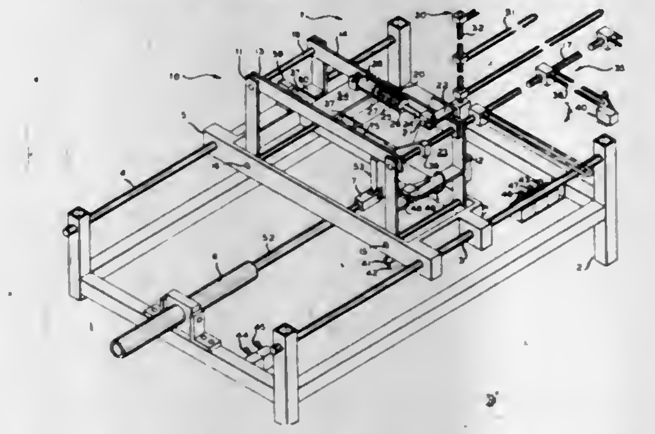


1. A crane comprising a mobile frame; a jib mounted on said frame for movement about a substantially horizontal axis and including a plurality of relatively movable sections; first and second jacks provided on said frame for respectively moving the jib about said axis and for moving said sections with reference to each other; a self-powered driving unit supportingly connected with and rotatable relative to said frame about a substantially vertical axis, said driving unit comprising road wheel means arranged to swivel about said vertical axis, steering means for rotating said wheel means through 360 degrees, and a source of pressurized hydraulic fluid; first conduit means connected with said jacks; second conduit means connected with said source; coupling means connecting said first and second conduit means and means to rotate said driving unit about said vertical axis without interferring with the flow of fluid between said conduit means; control valve means provided in said second conduit means to regulate the flow of fluid to and from said jacks; and actuating means for said control valve means provided on said driving unit within reach of the person supported by said self-powered driving unit and manipulating said steering means.

3,303,941

FEEDING APPARATUS

Lewis F. Hanes, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 12, 1965, Ser. No. 479,191
9 Claims. (Cl. 214—1)

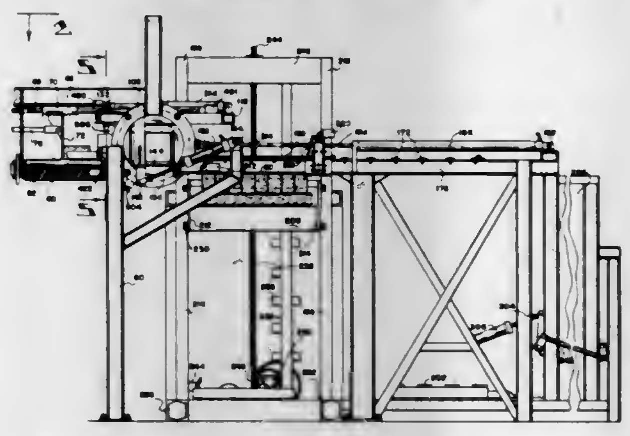


1. In an article feeding apparatus, a movable first clamping means, a movable and tiltable frame adjacent said first clamping means and adapted to move away from said clamping means, a second clamping means rotatably carried adjacent said first clamping means by said movable frame in a manner such that moving of said frame moves said second clamping means away from said first clamping means, and means for moving said frame and said first clamping means together and for moving said frame and rotating said second clamping means sequentially.

3,303,942

CONCRETE BLOCK STACKING MACHINE

Paul M. Thomas, 5630 E. Edgewood Road, Phoenix, Ariz., and Lawrence W. Wright, Scottsdale, Russell W. Burge, Glendale, and Eugene E. Crile, Phoenix, Ariz.; said Burge, Wright, and Crile assignors to said Thomas
Filed Feb. 19, 1964, Ser. No. 345,956
23 Claims. (Cl. 214—6)



21. In an article stacking machine, the combination of: a main frame; a conveyor adjacent said main frame and

adapted to deliver articles to be stacked by said machine; a roller platform disposed adjacent a delivery end of said conveyor and disposed to receive articles delivered from said conveyor; rollers rotatably mounted on said platform and having peripheries disposed to receive articles from said conveyor; said roller having axes disposed laterally with relation to a direction in which said conveyor delivers articles onto said rollers; first means disposed to push articles off from said roller platform in a direction parallel to the axes of said rollers; an article turning device adjacent ends of said rollers; bearing means on said main frame rotatably mounting said turning device on a horizontal axis disposed at substantially right angles to the axes of said rollers; a plate of said turning device rotatable about said horizontal axis and alternately disposable in substantially horizontal and vertical planes; a sliding deck having receiving edge near said article turning device; said plate of said turning device disposed to be located on substantially a common plane with said roller platform and said sliding deck when in a horizontal disposition, said edge of said sliding deck disposed substantially parallel to said horizontal axis of said turning device; an elevator vertically movable below said sliding deck to receive layers of articles when said deck is slid from beneath said articles; said article turning device disposed between said roller platform and said sliding deck and disposed to receive articles from said roller platform and to tip articles over ninety degrees about said horizontal axis from said roller platform onto said sliding deck; a cushion roller disposed between said turning plate and said receiving edge of said sliding deck whereby articles tilted from said turning plate when moving from a horizontal plane to a vertical plane are received on said cushion roller as they slide downwardly on an incline from said turning plate as it rotates about a horizontal axis so that the articles are gently handled as they are tilted over onto said sliding deck plate; means for moving said plate of said article turning device in a direction toward said sliding deck to slide articles thereon when said plate is pivotally disposed about said horizontal axis into a substantially vertical position; and means for accummulating blocks from said conveyor and disposing a single row of said blocks on said turning means in a position wherein said blocks are disposed with their vertical core openings aligned vertically; said turning means having a length along said horizontal axis, which length is coextensive with one dimension of a cube of blocks to be formed; said turning means having a width transversely relative to said horizontal axis, which width is only sufficient to receive said single row of blocks.

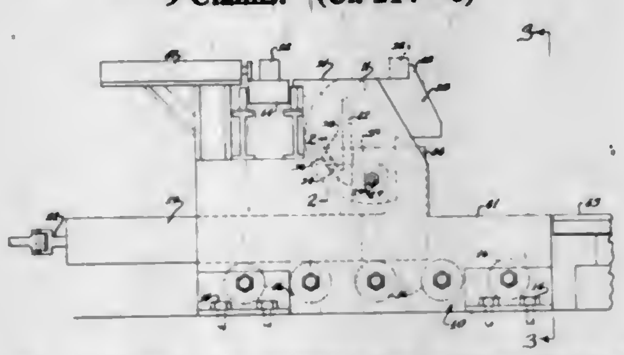
3,303,943

APPARATUS FOR TRANSFERRING ARTICLES FROM ONE LOCATION TO ANOTHER LOCATION

Gordon L. Lambert, James T. Black, Jr., and Lionel V. Chafin, Jr., Birmingham, Ala., assignors to H. K. Porter Company, Inc., a corporation of Delaware

Filed Jan. 18, 1965, Ser. No. 426,344

9 Claims. (Cl. 214—6)



1. In apparatus for transferring articles from a first support to a second support,

(a) a supporting frame,

(b) a movable member mounted for pivotal movement on said frame and having a supporting surface in position to receive an article to be transferred from said first support,

(c) there being a cam follower groove in said movable member,

(d) a cam driving member within said cam follower groove disposed to move said movable member from a first position to a second position,

(e) an outwardly projecting support member carried by said movable member in position to support said article as said movable member moves from said first position to said second position,

(f) another supporting surface carried by said frame in position to support said article after the article is moved to said second position,

(g) there being a rectilinear groove in said movable member in communication with said cam follower groove for receiving said cam driving member after said cam driving member rotates said movable member to said second position whereby said cam driving member then moves relative to said movable member for a predetermined distance without rotation of said movable member,

(h) an actuating member operatively connected to said cam driving member for moving the same and disposed to engage and move said article along said another supporting surface from said second position to said second support, and

(i) means to move said actuating member whereby said cam driving member moves relative to said cam follower groove to rotate said movable member and then travels in said rectilinear groove as the actuating member moves the article from said second position to said second support.

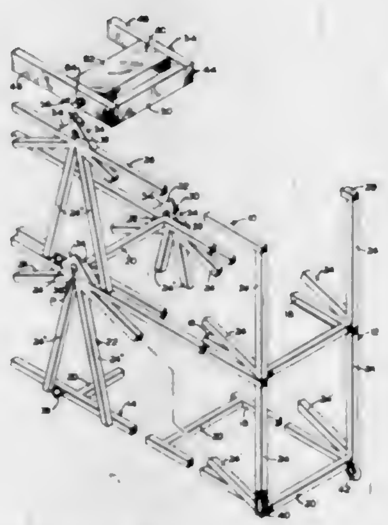
3,303,944

MATERIALS-HANDLING STACKABLE RACK AND SELF-ENGAGING GRAB HOIST THEREFOR

John T. Parsons, Traverse City, Mich., assignor to Parsons Corporation, Traverse City, Mich., a corporation of Michigan

Filed Apr. 15, 1964, Ser. No. 359,940

2 Claims. (Cl. 214—8)



1. A materials rack suited for stacking vertically and in sidewise and endwise contact with similarly constructed racks, comprising

a rack bed having horizontal longitudinal outer side edges defining inner vertical planes,

sidewall posts affixed thereto and extending upwardly therefrom leaving portions of the bed outer side edges exposed,

the inner sides of said sidewall posts coinciding with said inner vertical planes and their outer sides defining outer vertical planes,

horizontal top rail members secured to said posts, the inner and outer sides of said top rail members coinciding with said inner and outer vertical planes respectively, and

a plurality of stacking guides secured to and projecting above the horizontal top rail members in longitudinal registration with such exposed portions of the bed edges therebeneath, and spaced longitudinally from the rail member midpoints,

each stacking guide having a lateral guiding surface sloping downwardly and inwardly from such outer vertical plane to said inner vertical plane and intersecting same at a level above the top rail, and a vertical inner abutment surface extending from said level downward to the top rail,

whereby to guide downward laterally to centered position and then hold abuttingly the exposed side edge portions of the bed structure of a similar rack when superimposed thereon,

each stacking guide further having a longitudinal guiding surface sloping from its uppermost projection longitudinally downward to the top rail member,

together with stacking guide follower members affixed to and projecting outwardly from the exposed outer side portions of the bed structure toward said outer vertical planes, said follower members having a longitudinal spacing complementary to that of the stacking guides,

whereby to cooperate with the longitudinal guiding surfaces of the stacking guide of a similar rack positioned therebeneath to achieve longitudinal alignment thereon.

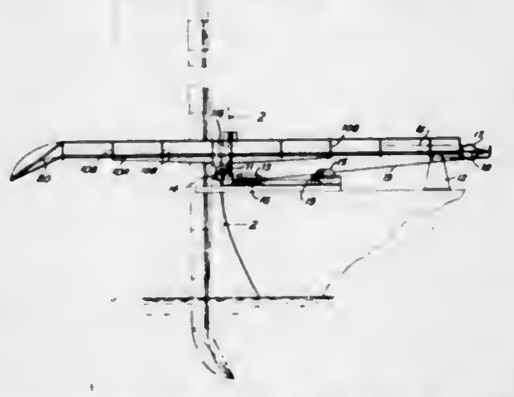
3,303,945

MARINE EQUIPMENT LAUNCHER AND RETRIEVER

William C. Hubbard, Lemon Grove, and Nicholas Nicoloff, San Diego, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Mar. 16, 1965, Ser. No. 440,332

1 Claim. (Cl. 214—15)



A maneuverable slip for shipboard mounting comprising;

an elongated trough-like chute, said chute being pivotally supported near the center of gravity of the chute and tiltable from a substantially horizontal on-deck position to an inclined over-the-side position with the lower end of the chute in the sea;

a deck-mounted cable reeling winch, a first pulley attached adjacent the pivot of said chute and a second pulley attached to the inboard end of said chute, and a cable threaded from said winch over said first and second pulley and longitudinally along the axis of said chute for dragging objects to be retrieved along said chute, and

means coupled to said chute to tilt said chute to any pivotal position.

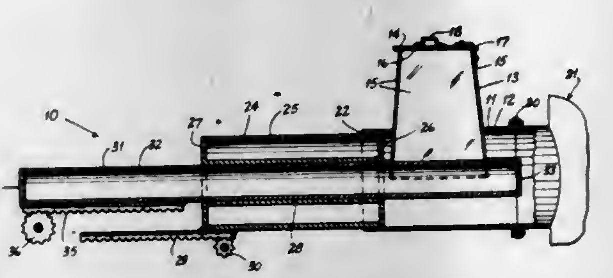
3,303,946

FEEDING MECHANISM FOR CHARCOAL MAKING RETORT

John Riley Wilkins, Steelville, Mo., assignor to Harwood Charcoal Company, Steelville, Mo., a corporation of Missouri

Filed Sept. 18, 1964, Ser. No. 397,387

3 Claims. (Cl. 214—23)



1. A solid fuel loading and charging system adapted to be connected to a retort comprising a hopper for receiving pieces of solid fuel, a housing below the hopper, the housing having a hollow chamber communicating with the hopper and having diametrically opposite open ends, and with a substantially constant cross section between the ends, one end being connected to the retort, a clearing piston having a substantially constant cross section substantially equal in size and shape to that of the housing chamber, the clearing piston being slidable within the housing chamber from the end opposite the one connected to the retort, and a charging piston of smaller cross sectional area than that of the housing chamber and the clearing piston, the charging piston being slidable within the clearing piston, the charging and clearing pistons being connected for independent reciprocation.

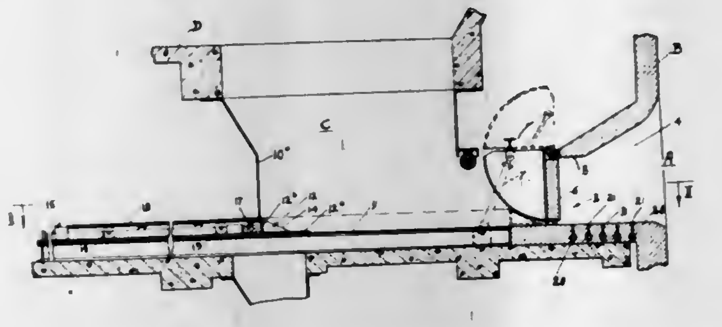
3,303,947

FEEDER FOR MOVING REFUSE AND LIKE COMPACTABLE MATERIALS

Bertram B. Reilly, 17 Briar Cliff Road, Pittsburgh, Pa. 15202

Filed Mar. 3, 1965, Ser. No. 436,822

4 Claims. (Cl. 214—23)



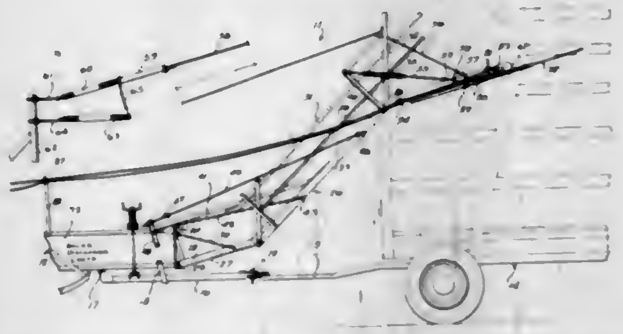
1. The combination with a bin having bottom, side and end walls for retaining a supply of compactable material, said bin having a discharge opening in one end wall thereof leading into a passageway having a bottom and sides with the bottom of the opening and of the passageway being flush with the bottom of the bin, a pusher at the bottom of the bin movable from a retracted position adjacent the other end wall of the bin toward and through said discharge opening into said passageway, the pusher being arranged to support the overlying mass of material in the bin as the lowermost mass at the bottom is pushed through the opening into the passageway, the walls of the bin extending above the level of the pusher so that the bin may retain substantially more material than the pusher can move in a single operation, one wall of the passageway having means therein to blow air therein at numerous locations against and into the mass of material which has been pushed through said opening and compacted by such

pushing, thereby aerating the same and reducing its resistance to further movement along the passageway and the compacting effect which it exerts against a succeeding mass similarly pushed from the bin through the discharge opening.

3,303,948

HAY BALE LOADER

Henry C. Peruski, Ubly, Mich. 48475
Filed June 4, 1965, Ser. No. 461,454
10 Claims. (Cl. 214—42)

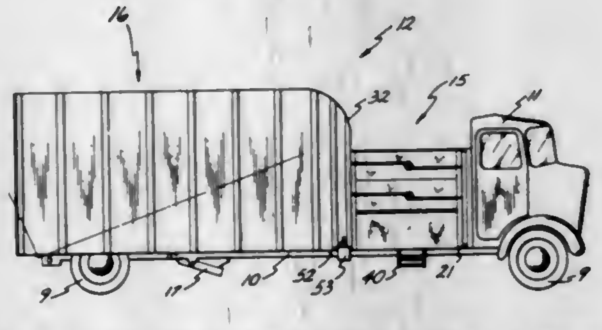


1. In combination, a hay baler having a bale discharge chute, means to connect a receiving vehicle to said chute forwardly of the outlet thereof, an upwardly and forwardly-inclined guide ramp connected to the outlet end of the chute and being provided with enclosure means to guide bales therealong as they are pushed out from said outlet end of the chute, a discharge platform hinged to the top end of said guide ramp and located to overlie the body of a receiving vehicle connected to the chute, an auxiliary supporting frame longitudinally slidably engaged with said platform and being longitudinally extensible forwardly of said platform, and resilient supporting means connecting said discharge platform to the baler and being yieldable under the weight of a bale to allow the bale to be discharged forwardly off said discharge platform.

3,303,949

REFUSE TRUCK

Ronald W. Nickel, 131 N. Locust St., Oconomowoc, Wis. 53066; Donald J. Whiteaker, 2860 Interlaken Drive, Oconomowoc, Wis. 53066; and Dennis D. Nickel, Wood St., Delafield, Wis. 53018
Filed Dec. 23, 1964, Ser. No. 420,744
2 Claims. (Cl. 214—83.3)

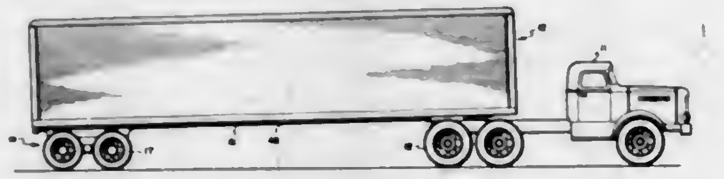


1. In a motor truck for hauling refuse; a chassis; a loading compartment on said chassis for receiving the refuse to be hauled; a storage compartment on said chassis and in communication with said loading compartment; transfer means mounted in said loading compartment and actuatable for transferring the refuse from said loading compartment into said storage compartment; a power actuator mounted in said loading compartment; a movable housing mounted to overlie said power actuator for protecting it from the refuse in the truck; said movable housing being connected to said power actuator and to said transfer means for transmitting the power from said actuator to said transfer means for actuating the latter in its transfer operation; a fixed plate covering a portion of the top of said loading compartment; a top door plate covering the remaining portion of the top of said loading compartment and being hingedly connected to said fixed top plate to enable it to be pivoted into everlying relationship with said fixed top plate to expose a portion of the top of said loading compartment; and a side door plate hingedly connected to said top door plate to normally depend therefrom for enclosing the side of said loading compartment but pivotable upwardly therefrom relative to said top door plate into overlying relationship with said top door plate for exposing the side of said loading compartment.

3,303,950

LOAD TRANSPORT VEHICLE

Ronald K. Jones, 1884 West 14400 South, Riverton, Utah 84065
Filed Dec. 29, 1964, Ser. No. 421,894
4 Claims. (Cl. 214—505)

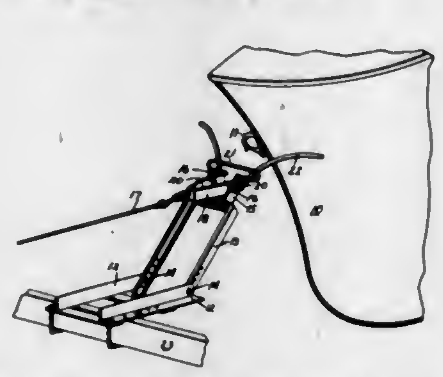


1. A load transport vehicle, comprising a semitrailer supported at its front end by connection to a wheeled prime mover, a ground engaging wheel assembly supporting the rear of said semitrailer; means mounting said wheel assembly under said semitrailer for longitudinal movement relative thereto between a load carrying rear position and a forward inoperative position in which the bottom of its wheels are spaced above the bottoms of the wheels of said prime mover, said means comprising tracks extending longitudinally of and under said semitrailer and complemental hangers mounted on said wheel assembly and in engagement with said tracks; extensible jack means mounted on said semitrailer adjacent its rear and of extended length sufficient to reach below the bottoms of the wheels of said wheel assembly; means for extending said jack to elevate said wheels off the ground; means for pulling said elevated wheels along said track to said forward inoperative position; and means for retracting said jack to lower the rear of said trailer toward the ground whereby the bed of said trailer forms an incline ramp extending downwardly from said prime mover over said wheels toward the ground.

3,303,951

BOAT TRAILER HITCH

Ernest E. Baldwin, N. 1303 Monroe St., Spokane, Wash. 99201
Filed Jan. 22, 1965, Ser. No. 427,358
6 Claims. (Cl. 214—517)



1. A boat trailer hitch for attaching to the prow of a boat the rear end of a tow line leading to a forward winch on the trailer, comprising:

a trailer frame;

a rigid member pivotally connected to the frame about a transverse axis adjacent the rear end thereof, said member being pivotable from a first position wherein it extends upwardly and rearwardly from its frame connection to a second position folded forwardly within said frame;

releasable means on the outer end of said member for holding the rear end of the tow line;

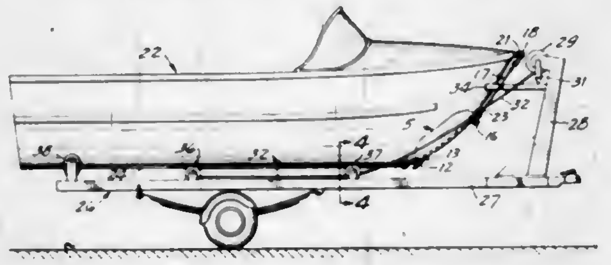
rearwardly diverging guide means mounted on said member to center a boat in contact therewith;

and complementary securing means provided at the rear end of the tow line and on the prow of the boat, said securing means being operative to automatically attach the rear end of the tow line to the prow of the boat following centering of a boat prow between said guide means and continued forward motion of the boat prow relative to the trailer frame, causing pivotal motion of said rigid member between its first position and a position perpendicular to said frame.

3,303,952

BOAT LAUNCHING ACCESSORY

Harry Gerard Bissinger, Maine Township, Ottertail County, Minn. (Underwood, Minn. 56586)
Filed Feb. 8, 1965, Ser. No. 430,894
10 Claims. (Cl. 214—517)

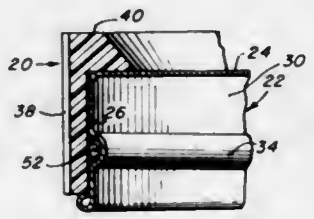


2. An adjuvant device when unloading boats from trailers having a forwardly disposed winch including a rotatable drum, a length of cable attached to said drum, and a crank, said device comprising an elongated body member having an arcuate configuration adapted to conform to and fit symmetrically over at least a portion of the prow of the boat, means defining an eye at each end of said body member, the eye at one end being adapted to receive the free end of a said cable after the cable is drawn from a said drum under and around a roller positioned rearwardly on the trailer, and a length of rope connected to the eye at the other end of said body member affording means to connect said body member to the bow of the boat such that upon reception of the cable and connection of the body member, rotation of a said crank to wrap the cable upon the winch drum will move the boat rearwardly off the trailer.

3,303,953

CAP SKIRT

Walter R. Frank, Elmhurst, Ill., assignor to W. R. Frank Packaging Engineers, Inc., a corporation of Illinois
Filed Oct. 22, 1965, Ser. No. 501,582
12 Claims. (Cl. 215—38)



1. A closure for containers comprising in combination a cap having a generally planar container-covering top portion, a container-engaging flange portion longitudinally depending from the periphery of the top portion; a substantially rigid cap skirt including a flange-surrounding skirt portion fitted to the outside of said cap flange and provided with an inner surface with minimum dimensions no less than the maximum outer dimensions of said cap flange portion, and an outer surface differently shaped than and with dimensions larger than said inner surface, and a lip portion integral with said flange-surrounding skirt portion disposed at an angle to and extending inwardly from one edge of said skirt portion to overlap and rest on said cap top portion; and means associated with the inner surface of said skirt portion and the outer surface of said cap flange portion for rotatively and longitudinally locking said cap skirt and said cap relative to each other.

3,303,954

BONDING FOAMED POLYSTYRENE TO METAL

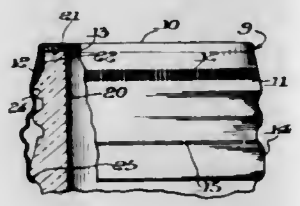
Hermas N. Beaudet, West Acton, and David G. Greenlie, Weston, Mass., assignors to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
No Drawing. Filed Mar. 30, 1962, Ser. No. 183,710
7 Claims. (Cl. 215—39)

7. A crown closure comprising a metal crown having a non-blocking polymeric closure coating formed from a member of the group consisting of varnishes and lacquers, said coating having a film weight in the range of about 2.5 to 4.5 milligrams per square inch, on its internal surface, and a seal comprised of a foamed polystyrene disc having an annular elastomeric ring, said polystyrene disc having a roughened surface of ruptured cells bonded to the coated metal surface by means of heat and pressure and in the absence of an external adhesive.

3,303,955

CONTAINER CLOSURE

Andrew G. Osborne and Edward A. Stassin, Richmond, Ind., assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 1, 1965, Ser. No. 510,855
4 Claims. (Cl. 215—39)



1. A container-closure combination for packaging materials which develop pressures substantially above atmospheric pressures comprising,

a container having an upper open end presenting a top sealing surface and an exterior finish including an annular recess extending downwardly from and adjacent to the open end and presenting a side cylindrical sealing surface, an annular outwardly extending shoulder below said side sealing surface, a screw thread formation below said shoulder, and an annular inwardly directed shoulder below said thread formation, and

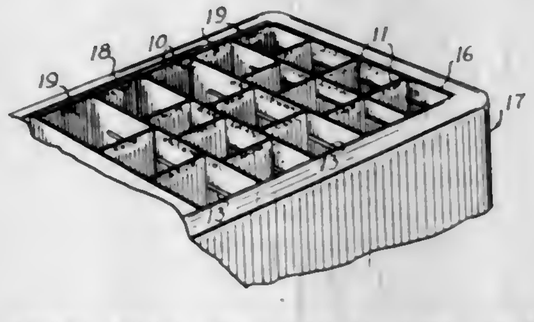
a closure having a metal thickness between 0.008 and 0.0095 inch composed of an aluminum base alloy in the extra hard temper, said closure including a top panel and depending skirt, the upper portion of the skirt being of lesser diameter than the portion immediately therebelow, a portion of the skirt below the lesser diameter portion conforming to the thread formation on the container and a band integrally connected with the skirt by frangible bridges around the skirt, said band having a crimped margin turned inwardly under said inwardly directed container shoulder, and

a sealing liner of resilient deformable material underlying the top panel of the closure and bearing on the top sealing surface contact with the cylindrical side sealing surface on the container by said lesser diameter portion of the closure skirt,

said lesser diameter portion of the closure skirt and said depending marginal portion of the liner being deformed from horizontal plane positions.

3,303,956
DISPLAY DEVICE FOR SUB-DIVIDING A LARGE COMPARTMENT

Andrew J. Curry, Jr., Decatur, Ga., assignor to Curry Brothers, Inc., Atlanta, Ga., a corporation of Georgia
Continuation of application Ser. No. 364,436, May 4, 1964. This application Mar. 28, 1966, Ser. No. 538,101
1 Claim. (Cl. 217—7)

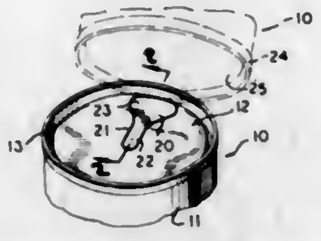


In a display device comprising an outer container defining an open top compartment having a bottom and substantially parallel front and back walls joined to substantially parallel side walls that are disposed in planes substantially normal to said front and back walls, the combination therewith of a plurality of vertical support members extending between said front and back walls so as to form a plurality of elongated parallel compartments, each of said support members having a pair of longitudinally extending parallel slots positioned normal to said front and back walls, a plurality of divider members slidably mounted on said vertical support members by means of a tab portion that is in adjacent relation to said associated vertical support member, and carries thereon a pair of spaced stud members that are slidably received within said slots, each of said divider members associated with a given vertical support member being equal in width so as to divide a given elongated compartment into a plurality of sub-compartments of equal width, each of said vertical support member and divider combinations being positioned with respect to each other so as to provide a freedom of selective arrangement of vertical dividers of adjacent vertical support members, each of said longitudinally extending parallel slots being intermittently interrupted in vertically aligned areas providing thereby uninterrupted vertical sustaining areas throughout the length of said parallel slots.

3,303,957
CAN END

Charles T. Walter, Lemont, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Dec. 18, 1964, Ser. No. 419,457
11 Claims. (Cl. 220—48)

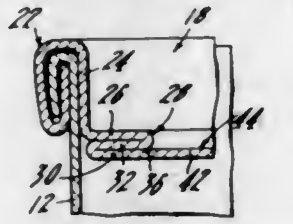
1. An easy opening can end of the type conventionally secured to a can body by means of a folded seam, said can end including an end panel, an upstanding chuck wall surrounding said end panel and projecting thereabove, a depending shock absorbing bead intermediate said end panel and said chuck wall and defining a groove, and a score line formed in said can end defining a removable portion for facilitating the opening of a can of which said can end is a part, said score line having a starting portion extending along a portion of said bead spaced from said chuck wall whereby the can end may be readily initially ruptured by a prying device positioned within said



groove and pivoting generally on said chuck wall, the entire score line being formed along a portion of said bead for the removal of the entire end panel with the score line being disposed in a curved upper portion of said bead connecting the main portion of said bead to said end panel.

3,303,958
CONTAINER CONSTRUCTION

William Edward Taylor, Fairfield, Conn., assignor to American Can Company, New York, N.Y., a corporation of New Jersey
Filed Dec. 23, 1963, Ser. No. 332,362
3 Claims. (Cl. 220—54)



1. A container end comprising a center panel,

said panel being formed integral with and merging into an inwardly extending two-layered horizontally extending fold which is disposed in vertical alignment with and lies flatly against a marginal edge portion of said center panel,

said center panel containing a removable section,

said removable section being encircled by an outer score which is formed in said marginal edge portion of said center panel in vertical alignment with said fold,

an inner score formed in said center panel inwardly of said first score and defining therewith a tear strip which extends around the periphery of said removable section,

and means secured to said tear strip to facilitate its removal to thereby release said removable section,

the raw edge which is produced in the said marginal edge portion of said center panel when said outer score is ruptured during removal of said tear strip being shielded by said fold.

3,303,959
CAN TOP

Omar L. Brown, Dayton, Ohio, assignor to Dayton Reliable Tool and Mfg. Co., Dayton, Ohio, a corporation of Ohio
Filed Nov. 2, 1964, Ser. No. 408,239
24 Claims. (Cl. 220—54)

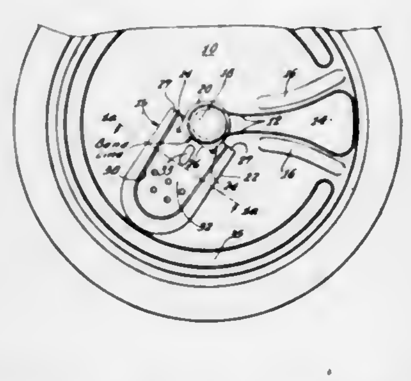
1. In a container structure having a wall the combination of:

tear line means forming a tear strip in the wall of the container and having a leading end;

a tab having a lever portion and an end portion, said lever portion defining a fulcrum end adjacent said end portion and a handle portion;

means for securing said end portion of said tab to said tear strip with said handle portion extending generally along the container wall and said fulcrum end spaced from the container wall; and

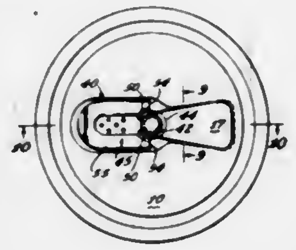
said tab being pliable at the juncture of said lever and said end portion to allow a predetermined amount of hinged movement of said fulcrum end and said handle portion toward and away from the container wall, respectively, without substantially stressing said tear



line means whereby a minimum force can cause said predetermined amount of hinged movement, said fulcrum end being engageable with the container wall and substantially rigidly supported thereby upon said predetermined amount of hinged movement of said handle portion away from the container wall whereby additional hinged movement of said handle portion away from the wall of the container lifts the tear strip to initiate severance thereof.

3,303,960
CAN TOP HAVING AN EASY OPENING MEANS

Ermal C. Fraze, 355 W. Stroop Road, Dayton, Ohio 45429
Filed Feb. 4, 1965, Ser. No. 430,253
10 Claims. (Cl. 220—54)



1. In the construction of the top of an easy opening can of sheet material wherein the sheet material of the can top is weakened to form a tear strip and a tab is connected to the tear strip, the improvement to reduce the extent to which the tear strip, tab and the connection therebetween extend above the level of the can top inside the rim of the can top and to reduce the hazard to the user created by the raw edge of the opening that results from severance of the tear strip and to reduce the hazard of the tear strip being propelled away from the can top at high velocity by the pressure of fluid inside the can, comprising:

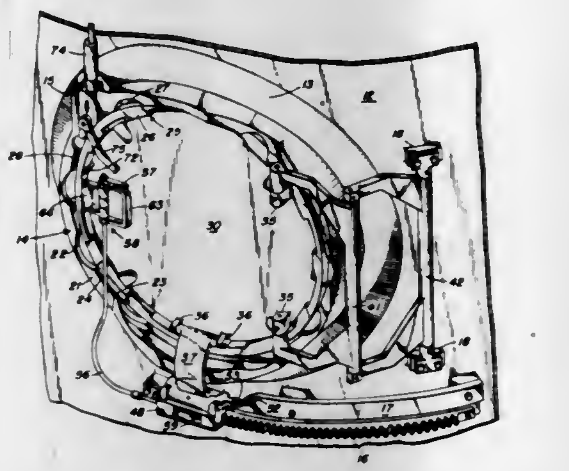
sheet material of the can top being offset inwardly of the can and thus forming a first recess for the tear strip and a second adjoining recess for the tab;

the bottom wall of the first recess being scored to define the tear strip with the line of scoring following the margin of the bottom wall of the recess; and

the opposite side walls of the first recess overhanging the edges of the tear strip, with the gap between the opposite side walls less than the width of the tear strip.

3,303,961
LAUNCHER TUBE ACCESS DOOR

John F. Witherspoon, Mountain View, and Earnest R. Foreman, Saratoga, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 9, 1964, Ser. No. 395,342
8 Claims. (Cl. 220—40)



1. An access door mechanism for a missile launching tube, comprising:

a door frame formed as an integral part of the missile tube;

a door fitting said door frame;

hinge means mounted on the tube supporting said door so that in the opening operation the door will follow a path which, at first is substantially normal to the longitudinal axis of the tube and then along a path substantially parallel to the cylindrical surface of the tube;

sealing means carried by the door;

clamping means mounted for arcuate motion on said door frame engaging said door and said door frame to insure the sealing of said door with said door frame;

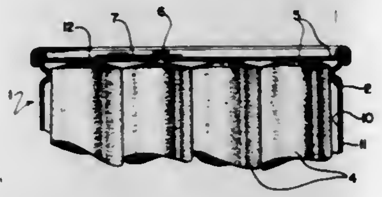
manually operated means for turning said clamping means;

safety means for indicating the release of said clamping means during the door opening operation; and

guide means attached to said door to insure the door following a predetermined path during the door opening operation.

3,303,962
CONTAINER

John A. Lake, Murrysville, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 20, 1964, Ser. No. 412,640
3 Claims. (Cl. 220—54)



1. In a sealed container assembly,

a container body

having an internal bead disposed in the container body wall and the portions of said wall immediately above and below said bead being of substantially equal diameter,

a container end

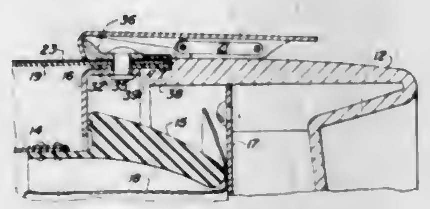
having a peripheral score line,

said container end being sealingly joined to said container body, and having a tear strip opening device adapted to remove substantially the entire container end panel within said peripheral score line, leaving a residual flange extending radially inwardly beyond said body wall,

said internal bead being disposed in the upper part of said container wall spaced a relatively small distance below said container end and being of such depth that its innermost portion extends further toward the longitudinal central axis of said container body than does said overlying peripheral score line.

3,303,963
COVERING OF PARTS

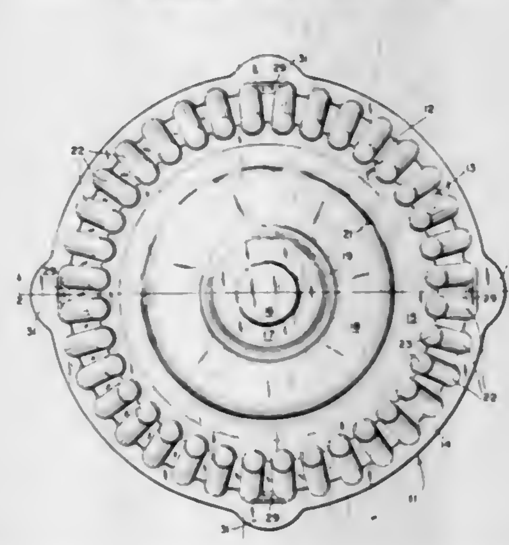
Edward George Grinyer, Pinner, England, assignor to The Hoover Company, North Canton, Ohio, a corporation of Ohio
Filed Feb. 4, 1965, Ser. No. 430,446
Claims priority, application Great Britain, Feb. 26, 1964, 8,044/64
5 Claims. (Cl. 220—63)



1. In a canister type suction cleaner, a body including an elongated annular shell, a sleeve of flexible material stretched over and surrounding said shell, a retaining member at opposite ends of said sleeve forming a part thereof for attaching the latter to the opposite ends of said shell, said sleeve being of less length than said shell when said sleeve is in unstretched condition separated from said shell, whereby said retaining members when attached to the opposite ends of said shell retain said sleeve on said shell in longitudinally tensioned condition and said tensioned sleeve exerts a force on said retaining members to assist in maintaining the latter attached to the opposite ends of said shell.

3,303,964
PLASTIC CONTAINER FOR CAKES AND THE LIKE

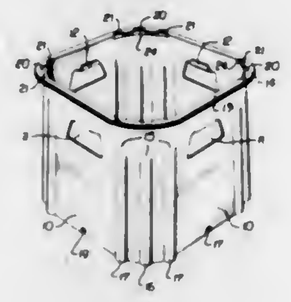
Jackson M. Luker, 307 W. Oregon St., Urbana, Ill. 61801
Filed Mar. 19, 1964, Ser. No. 353,043
5 Claims. (Cl. 220—97)



1. An integral thin walled lightweight container member made of relatively fragile crushable material having an end wall and an annular side wall extending outwardly to an open end, said side wall being formed with a plurality of longitudinal internal flutes extending from said end wall toward said open end, the outer ends of most of said flutes terminating in a plane substantially adjacent said open end, and with remaining few flutes being shorter and disposed in selected circumferentially spaced relation and terminating in axially facing external ledges each located circumferentially between two adjacent longer flutes and disposed substantially in a plane that is closer to said end wall than the plane containing the outer ends of the longer of said flutes.

3,303,965
PLASTIC CONTAINERS ADAPTED FOR STACKING

George K. Parker, Woodside, and Gerald W. Neese, Compton, Calif., assignors to Purex Corporation, Ltd., Lakewood, Calif., a corporation of California
Filed Jan. 13, 1965, Ser. No. 425,691
7 Claims. (Cl. 220—97)



1. A plastic load carrying case of generally polygonal horizontal cross-section and having vertically extending sides below an outwardly projecting flange means at the top of the case, each corner of the case being formed with vertically disposed ribs concave to the inside of the case throughout their length and commencing below the flange and extending to the bottom of the case at downward and outward angularity relative to the case sides between the ribs, the top surface of said flange being downwardly recessed at the case corners to present a load bearing surface to receive the rib bottom of another corresponding case, said surface being greater in area than said rib bottoms whereby a pair of the cases may have stacked alinement and load transmission by way of the alined ribs.

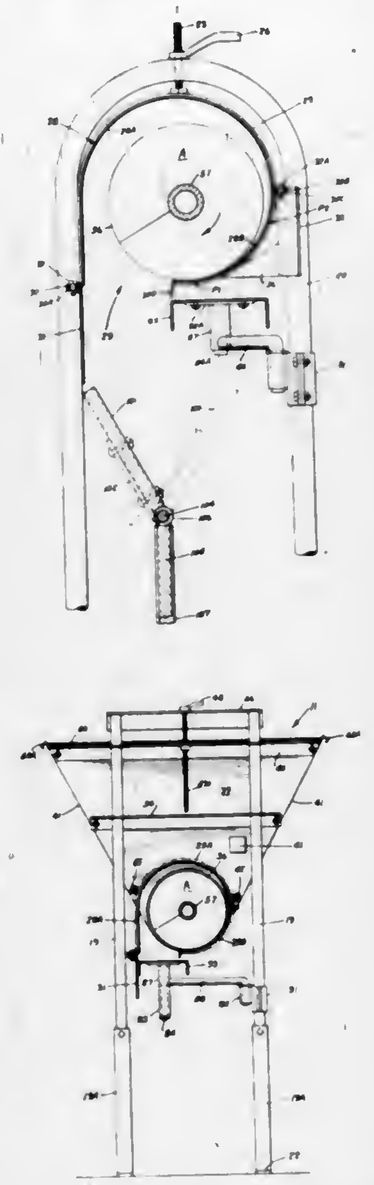
3,303,966
BUNK FEEDER OR THE LIKE

Floyd E. Buschbom, Long Lake, Minn., assignor to Vandale Corporation, Long Lake, Minn., a corporation of Minnesota

Original application June 8, 1962, Ser. No. 201,052. Divided and this application Mar. 24, 1965, Ser. No. 442,434

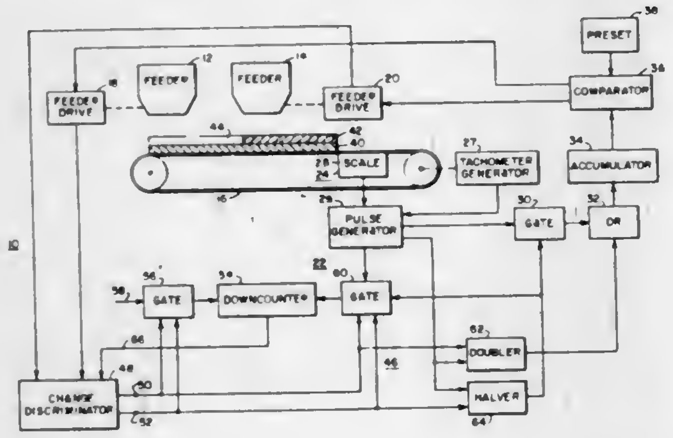
6 Claims. (Cl. 222—1)

5. A method of feeding livestock from a feed bunk comprising the steps of providing a feed bunk, extending a substantial mass of feed in an elongated path over a substantial length of said feed bunk, during the extending of feed progressively storing part of the feed in the elongated path by moving feed over an elongated edge forming a continuous ribbon of feed and stored feed and moving the remainder of the feed in the elongated path, actuating a dump control in response to pressure of feed in the elongated path, and dumping in response to the actuation of the dump control a substantial portion of the ribbon of feed and stored feed into the feed bunk.



3,303,967
FEEDBACK CONTROL FOR A MATERIAL HANDLING SYSTEM PROVIDING AUTOMATIC OVERSHOOT CORRECTION

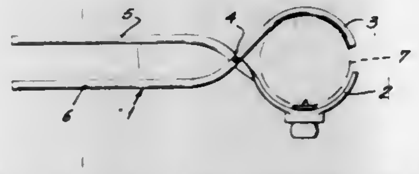
William A. Munson, Amherst Township, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 28, 1965, Ser. No. 490,825
10 Claims. (Cl. 222—14)



1. A feedback control for a material handling system having at least two feeders from which material is transferred to a conveyance device for movement to a delivery point, said feedback control comprising means responsive to the amount of material flow and spaced from the feeders along the delivery path, means preset for an expected material overshoot based on the number of feeders in service and responsive to said flow responsive means to stop the feeders when the total amount of detected material flow reaches a predetermined value equal to the desired value less the preset overshoot value, and feedback means responsive to a change in the number of feeders in service for automatically modifying the operation of said stop means so as to correct for the resultant change in overshoot from the expected value.

3,303,968
TOOL FOR PIERCING AEROSOL CONTAINERS

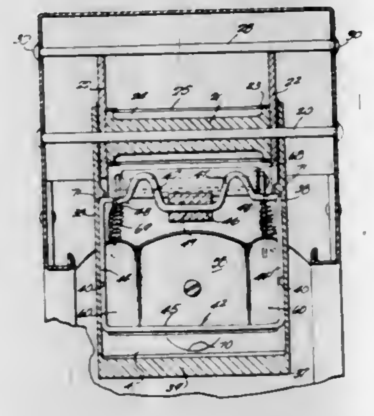
Alphonse Compère, 11946 Depatie St., Montreal, Quebec, Canada
Filed June 21, 1965, Ser. No. 465,312
7 Claims. (Cl. 222—82)



1. A tool for piercing spent containers of a fluid under pressure comprising a pair of pliers having curved jaws firmly encircling the container, a container-piercing member mounted in the centre portion of one of said jaws and directed towards the other jaw, said piercing member having a through bore for the discharge of fluid under pressure in said container, said piercing member having a substantially conical external shape and said through bore extending longitudinally of the same and opening at its inlet end in a zone laterally offset with respect to the apex of said conically shaped piercing member, to define a tip on one side of said inlet opening and bevelled side cutting edges, the through bore of said piercing member having an elbow near its outlet end whereby said outlet end opens laterally of said piercing member at an angle relative to said through bore, and a deflector member secured to said jaw and extending opposite the outlet end of said bore.

3,303,969
EXTRUDER FOR COLLAPSIBLE TUBES

William Kahlow, 521 Waubun Ave., Waupun, Wis. 53963
Filed Feb. 25, 1966, Ser. No. 530,198
9 Claims. (Cl. 222—98)

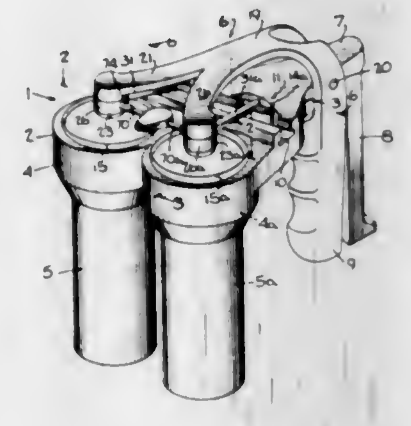


1. A dispensing holder for a paste tube comprising a support, a first roller journaled in said support, a ratchet wheel coaxially-secured to said roller, first pawl means on the support engaging said ratchet wheel and limiting rotation of the roller to one direction, said first pawl means comprising a rod extending parallel to said first roller, and means slidably supporting said rod for movement in a plane which is inclined downwardly toward

and intersects the cylindrical surface containing the periphery of said ratchet wheel, whereby the rod is biased by its weight against the periphery of the ratchet wheel, means to secure the crimped sealed end of a paste tube to said roller, a generally U-shaped operating lever having side arms pivoted coaxially to said roller with the roller received between the side arms and having a transverse bight portion substantially parallel to said first roller, second pawl means slidably mounted on the operating lever and being drivingly-engageable with said ratchet wheel, whereby said first roller can be rotated in steps responsive to corresponding successive driving strokes of said operating lever, a second roller extending parallel to and adjacent to said first roller in a position to exert squeezing force on a paste tube being wrapped around said first roller responsive to repeated steps of rotation of said first roller, means rotatably connecting said second roller to said support and supporting said second roller in said position, and means biasing said second roller toward said first roller.

3,303,970
DEVICE FOR SIMULTANEOUSLY DISPENSING FROM PLURAL SOURCES

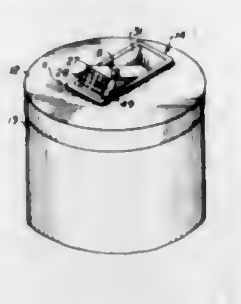
Alan J. Breslau, 11 Rust Hill Road, Levittown, Pa., and Jerrold I. Kurtz, deceased, late of Harrison, N.Y., by Constance Kurtz, administratrix, Harrison, N.Y.; Constance Kurtz, administratrix of Jerrold I. Kurtz, deceased, assignor of sixteen and two-thirds percent to Jerome Marrow, New York, N.Y., and thirty-three and one-third percent to Constance Kurtz, Harrison, N.Y.
Filed July 14, 1964, Ser. No. 382,674
9 Claims. (Cl. 222—134)



1. A dispensing mechanism for dispensing a plurality of fluids from a plurality of sources comprising a plurality of conduits each having one end connected to one of said sources, a valve in each conduit for controlling the flow of fluid therethrough, each of said valves comprising a valve body and a valve plug movable relative to each other, said valve body and said valve plug each having an orifice therein, means for moving said valve plugs relative to said valve bodies simultaneously to control the alignment of said orifices relative to each other thereby increasing the flow through one conduit and proportionately decreasing the flow through another conduit, said moving means comprising a movable control slide and a trigger connected to the control slide and mounted for movement in a direction normal to the direction of movement of said control slide on a plane substantially parallel to the control slide, said control slide being operatively connected to said valve plugs for moving the valve plugs relative to said valve bodies, and the other ends of said conduits beyond said valves being arranged to direct fluids discharged therefrom into admixing relationship with each other.

3,303,971
PIVOTED SPOUT DISPENSER

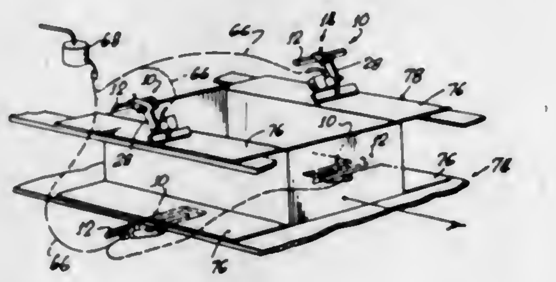
Peter P. Stevens, Jr., Point Reyes Station, Calif., assignor to Walter Landor, San Francisco, Calif.
Filed Jan. 21, 1965, Ser. No. 426,963
13 Claims. (Cl. 222—153)



1. A dispenser for a container having a wall with an aperture for receiving said dispenser within the container, said dispenser comprising a dispensing body with an upper wall having a flat exterior surface to cover said wall aperture and be substantially flush with the surface of said wall of said container, said body having opposed end walls projecting from said upper wall, each of said end walls having at least one dispensing aperture therethrough and being adapted to extend inwardly of said wall of said container when the exterior surface of said upper wall is substantially flush with the surface of said container wall, and said body being pivotable on a single axis transverse to the longitudinal axis thereof to allow selective pivoting of each of said end walls from a position within to a position exterior of said container.

3,303,972
DISPENSER MOUNTING ASSEMBLY

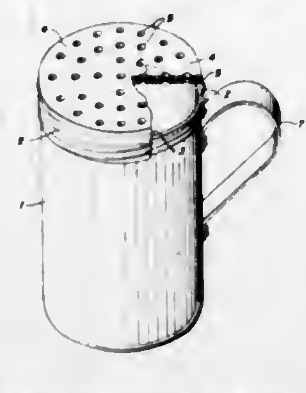
Peter J. Van Loben Sels, 11838 Cherrylee Drive, El Monte, Calif. 91732
Filed Oct. 23, 1965, Ser. No. 502,902
7 Claims. (Cl. 222—181)



5. A dispenser comprising:
a supporting member,
an arm extending from said member,
means pivotally mounting one end of said arm on said supporting member,
means operatively connected between said supporting member and arm for urging said arm in one direction about its pivot axis,
a dispensing head pivotally mounted on the other end of said arm on a second pivot axis parallel to the pivot axis of said arm,
said dispensing head including a dispensing port having a central axis normal to a plane parallel to said pivot axes and being angularly adjustable about said second pivot axis relative to said arm to adjust the angular position of said central axis relative to said plane, and
means for releasably securing said dispensing head in a fixed angular position relative to said arm, thereby to retain said dispensing port central axis in a fixed angular position relative to said plane to dispense material to a surface within said plane.

3,303,973
CHEF'S SALT SHAKER

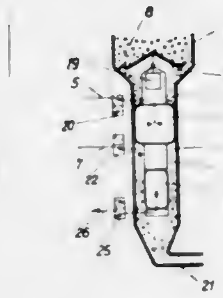
Norman L. Dootson, San Francisco, Calif., assignor to Winifred M. Colombo, Mill Valley, Calif.
Filed May 27, 1966, Ser. No. 553,539
4 Claims. (Cl. 222—190)



1. A chef's salt shaker comprising a container for the salt, and a perforated sprinkler cap of a non-moisture absorbent material on said container, and including an outer layer of a readily moisture absorbent material provided with a plurality of matching sprinkler perforations of substantially the same size as the perforations of said cap.

3,303,974
CHARGING AND/OR DISCHARGING DEVICE

Willy Bleuler, 1 Witellikerstrasse, Zollikon, Zurich, Switzerland
Filed Apr. 21, 1965, Ser. No. 449,724
Claims priority, application Switzerland, May 19, 1964, 6,459/64
7 Claims. (Cl. 222—445)

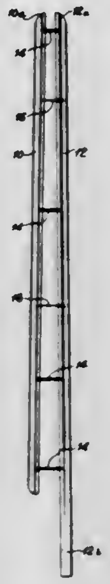


1. A device for the conveying of granular or papescent material comprising a tube, a plurality of resilient bladders arranged in series in said tube and being inflatable for engagement with the tube and deflatable independently from one another, a coaxial carrier arranged in the interior of said tube, said bladders being attached to the outer surface of said carrier, said carrier comprising first and second spaced bodies in the region of each bladder, a supporting ring mounted on one of the bodies, each said bladder including at either end thickened portions having opposed projections thereon which positively engage in corresponding recesses provided in said carrier and said supporting ring.

3,303,975
TIE STRETCHER

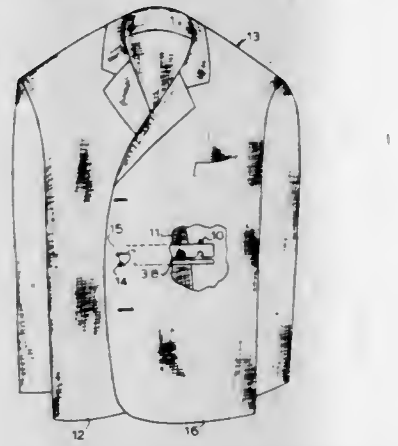
Tibor F. Sebestyen, 25 Pine St., New York, N.Y. 10005
Filed June 9, 1965, Ser. No. 462,527
2 Claims. (Cl. 223—65)

1. A device for stretching a necktie comprising a pair of elongated members, a plurality of guide elements spaced along the members and connecting the members for preventing longitudinal displacement of the members but allowing lateral displacement of the members, a plurality of resilient elements spaced along the members arranged to separate the members by expansive force of the resilient elements, and means for limiting the lateral displacement of said elongated members by said resilient elements, said limiting means including said guide elements, comprising a pin rigidly connected to one of said members, a cavity in the other of said members enlarged toward the outer edge to form a shoulder, said pin extending into said cavity to allow, by longitudinal movement of the pin within the cavity, the members to be laterally separated and in which said limiting means comprises a head on said pin positioned to engage said shoulder.



3,303,976
COAT FORM RETAINER

Jerome A. Scheuer, 2255 Lindmont Circle NE., Atlanta, Ga. 30324
Filed Feb. 5, 1964, Ser. No. 342,737
2 Claims. (Cl. 223—71)

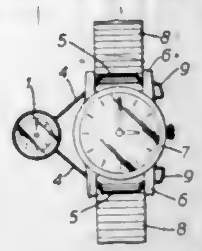


1. A form retainer for a coat comprising an elongated body portion having a hooked tab member for insertion into a buttonhole extending outwardly from one end thereof, said body portion defining an elongated rectilinear slot which is open at that end of said body opposite to said tab member and having a plurality of thread receiving notches communicating with said slot whereby said body portion may be slidingly and adjustably hooked onto the thread securing a button to said coat.

3,303,977
MEANS FOR ATTACHING ANCILLARY ARTICLES TO WRIST WATCHES AND THE LIKE

Sidney Ernest Coppen, 14 Norfolk Square, Brighton, Sussex, England
Filed July 26, 1965, Ser. No. 474,929
Claims priority, application Great Britain, Aug. 8, 1964, 32,383/64
3 Claims. (Cl. 224—4)

1. In combination, a wrist watch and wrist strap therefor; an ancillary article having a peripheral groove;

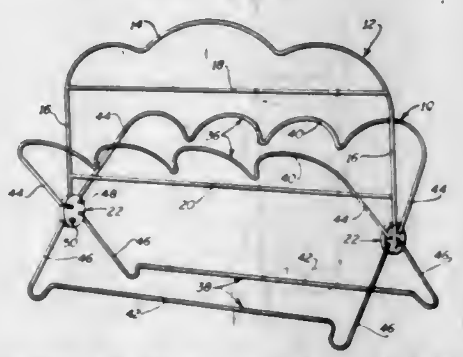


and means for connecting said article to said wrist watch and its strap, said means comprising a length of resilient wire-form material formed midway between its ends with a loop dimensioned to spring into said groove and firmly grip said article, said length of wire-form material including a pair of opposed spaced arms extending from opposite ends of said loop and across and being detachably connected to said wrist strap.

3,303,978

COLLAPSIBLE ARTICLE CARRIER

Roy C. Brown, Rte. 169, Canterbury, Conn. 06331
Filed Nov. 15, 1965, Ser. No. 507,813
4 Claims. (Cl. 224—45)

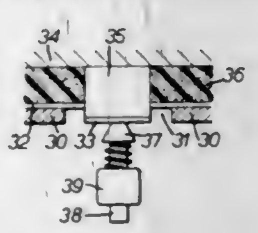


1. A collapsible carrier of the type having opposed article-supporting side and base members disposed on opposite sides of an intermediate handle member, each of said side and base members being of generally U-shaped configuration having spaced apart opposed legs joined by a body member extending therebetween, each of said opposed legs having inwardly directed terminal portions, socket means carried by said intermediate handle member arranged to receive said inwardly directed terminal portions to support the side and base members therefrom in article-receiving position extending outwardly from said intermediate handle member, and means associated with said socket means to releasably retain said side and base members in article-receiving position and operative to permit said members to be rotated out of article-receiving position and into storage position whereby the said side and base members are disposed adjacent to the plane containing said intermediate handle member.

3,303,979

METHOD AND DEVICE FOR REMOVING PIECES FROM SHEET MATERIAL

Pierre Lang, 33b Chemin de la Foret,
Renens, Switzerland
Filed Sept. 7, 1965, Ser. No. 485,465
10 Claims. (Cl. 225—1)



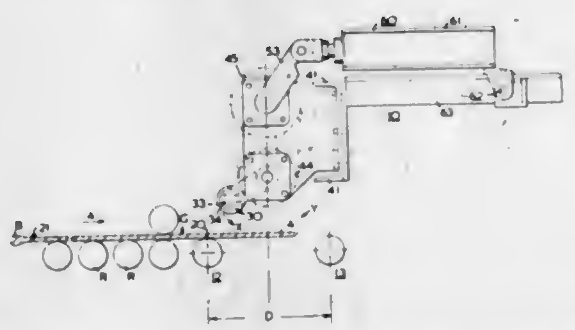
9. A method of removing at least one piece from already punched sheet material which comprises:

(a) clamping said sheet material between a resilient support member on one side thereof and a rigid support member on the other side thereof, such support members having apertures at least in the region of said piece;
(b) gripping said piece between a removing member disposed on the same side as said resilient support member and occupying said aperture in said resilient support member, and a gripping member on the same side as said rigid support member, the profile of said removing member conforming to the shape of said piece;
(c) effecting relative movement between, on the one hand said removing and gripping members and said gripped piece, and on the other hand said rigid support member and said clamped sheet material, to force said removing member together with said gripped piece through said clamped sheet material while compressing said resilient support member;
(b) separating said gripping member and said removing member to release said removed piece while the same is displaced from said clamped sheet material; and
(e) effecting opposite relative movement between, on the one hand said removing member, and on the other hand said rigid support member, to permit said resilient support member to expand and strip said sheet material from said removing member.

3,303,980

EDGE SNAPPING DEVICE

Wendel Offenbacher, St. Laurent, Quebec, Canada, assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa.
Filed June 28, 1965, Ser. No. 467,221
Claims priority, application Canada, May 11, 1965, 930,365
10 Claims. (Cl. 225—2)



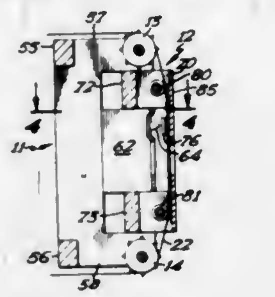
9. The method of removing an edge portion from the leading and trailing edges of glass sheet having a score line in the surface adjacent each such edge to be removed while said sheet moves linearly past a glass edge snapping station comprising striking the leading edge portion a blow having a component of force in the direction of travel greater than the rate of travel for separating the adjacent severed edges and subsequently striking the trailing edge portion with a blow having a horizontal component of reverse direction for separating the latter severed edges.

3,303,981

POSITIONING APPARATUS FOR INTERMITTENTLY OPERATED STRIP FILM PROJECTOR

Harold H. Wiese, Davenport, Iowa, assignor to Mast Development Company, Davenport, Iowa, a corporation of Iowa
Filed Jan. 19, 1965, Ser. No. 426,586
9 Claims. (Cl. 226—56)

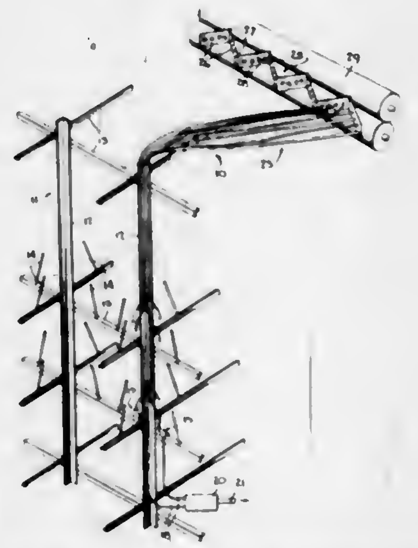
7. In film positioning apparatus for strip film having periodically spaced sprocket apertures therein,
a pair of relatively movable members,
a first of said members having film sprockets thereon to drive the film and a film locating projecting member adapted to enter a sprocket aperture in the film when the latter is stopped at a desired location,
a second of said members having an inner film guiding means and an outer aperture plate, the film being adapted to pass between said film guiding means and said aperture plate,
means for normally maintaining said relatively movable members in a position in which said film guiding means urges the film away from said film locating member,
and means effective when the longitudinal movement of the film is stopped to move said members relative to each other to shift the film guiding means and cause said aperture plate to force the film against the film locating member to cause the locating member to enter the sprocket aperture which is adjacent said film locating member when the film is stopped.



3,303,982

FILAMENT FEEDING

Ralph H. Balch, Charlotte, N.C., assignor to Celanese Corporation, a corporation of Delaware
Original application May 13, 1959, Ser. No. 812,954, now Patent No. 3,151,021, dated Sept. 29, 1964. Divided and this application Apr. 29, 1964, Ser. No. 368,438
11 Claims. (Cl. 226—97)



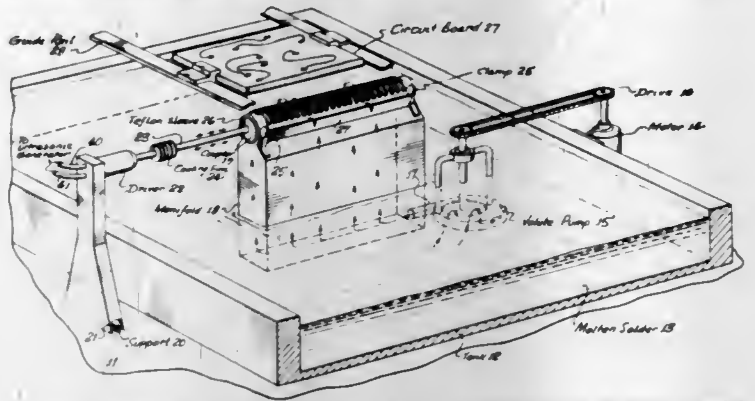
1. Means implementing the continuous feeding of a plurality of spaced filaments, said means comprising filament supply means, filament end pick-up means adjacent said supply means, filament guiding means coupled to said pick-up means, and adjustable spacing means supporting the delivery end of said guiding means to permit the selective spacing of the delivered filaments.

3,303,983

ULTRASONIC SOLDERING APPARATUS

George D. Patrick, San Diego, and Kenneth S. Archibald, La Mesa, Calif., assignors to General Dynamics Corporation, Pomona, Calif., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,594
9 Claims. (Cl. 228—37)

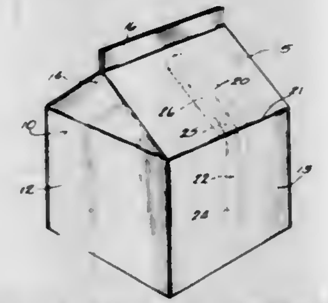
1. A soldering device comprising a base, a tank mounted on the base, a manifold extending from the tank and in communication with solder within the tank, a coupler unit operatively mounted on said manifold and having a plurality of spaced ribs operatively connected thereto, said coupler unit having a horizontally-disposed elongated orifice opening above the manifold for attaining a vertical sheet-like fountain of solder above the surface of said spaced ribs, pump means positioned within said tank and connected to said manifold for forcing solder through the elongated orifice in said coupler unit, and a high frequency transducer unit operatively connected to said coupler unit for producing standing waves in said vertical sheet-like fountain of solder.



3,303,984

BEVERAGE CARTON WITH STRAW

Prokop J. Jurena, 1128 S. 12th St.,
Milwaukee, Wis. 53204
Filed Apr. 12, 1965, Ser. No. 447,207
5 Claims. (Cl. 229—7)



1. A paper beverage carton provided with a tubular paper straw therein and accessible through a carton wall opening for drinking by a person through the straw, the carton having a generally vertical side wall and a top wall extending at an angle thereto, the top wall being scored to define one end and two side edges of an elongated flap attached to the carton at another end as a hinge and to be lifted for providing an opening in the top wall, the straw having smooth relative rigid end lengths and a circumferentially corrugated flexible intermediate length, the top wall opening being of a length for radially swinging therethrough of one end length of the straw for retention between the lips of a person while drinking therethrough, the other rigid end length of the straw being attached to the inside surface of the carton side wall and extending adjacent to the hinged end of the flap and the remainder of the straw being unattached and having its intermediate length bent from below the hinge end of the flap to extend along the inside surface thereof with the said one rigid straw length extending substantially to the said one end of the opening upon lifting of the flap.

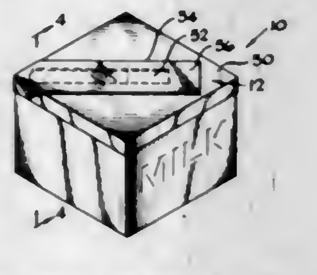
3,303,985

BEVERAGE CONTAINER

Irvin J. Prokes, 22 Northgate Road, Riverside, Ill. 60546, and Thomas M. Dwyer, 10747 Mason, Chicago Ridge, Ill. 60415
Filed July 6, 1965, Ser. No. 469,445
4 Claims. (Cl. 229—7)

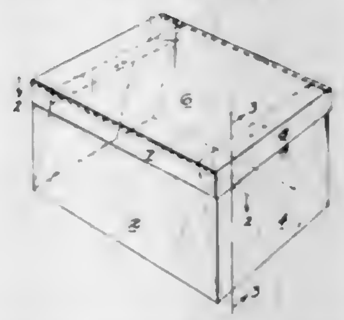
1. A two piece container having side walls, a bottom wall and straw retainer means formed from a single

blank of sheet material, said blank being folded along score lines formed thereon to form said straw retainer means in one corner of said container, said straw retainer means having four walls, one of which is secured to a side wall of said container so as to form a substantially square shaped straw receiving aperture between said four walls, and folded along score lines to form at least four side walls for said carton, one of which is secured to a second one of said walls of said straw retainer means, said side walls being folded along score lines to form a closed bottom wall; and a top cover having a top wall and side walls adapted to be secured to the side walls of said container to form a closed container adapted to retain a quantity of liquid, said top wall having an elongated slot formed therein which extends diagonally from one corner thereof, a removable tear strip secured to said top wall overlying said slot, a drinking straw having a portion thereof secured to said tear strip and a second portion retained within said straw retaining means, said tear strip upon being pulled toward one end of said slot partially removing said drinking straw from within said container, whereby said drinking straw is usable to remove said liquid from said container.



3,303,986
MERCHANDISE BOX

Joseph K. Tanaka, St. Louis, Mo., assignor to Trimfoot Company, Farmington, Mo., a corporation of Missouri
Filed Dec. 30, 1964, Ser. No. 422,319
1 Claim. (Cl. 229—43)

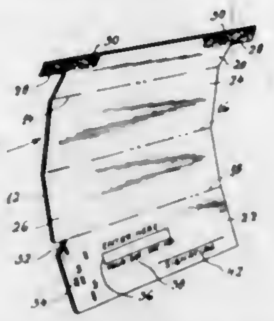


A merchandise box comprising a body with a rectangular bottom and generally upright side and end walls, and a rectangular lid corresponding in length and width to the body bottom and having a shallow depending rim overlying the upper exterior portions only of said box walls, the upper portion only of at least one of said walls being offset inwardly of the box from the corresponding portion of the lid rim to provide a downwardly opening recess between the rim and wall for insertion of a human finger behind the rim.

3,303,987
FLIP FOLD MAIL

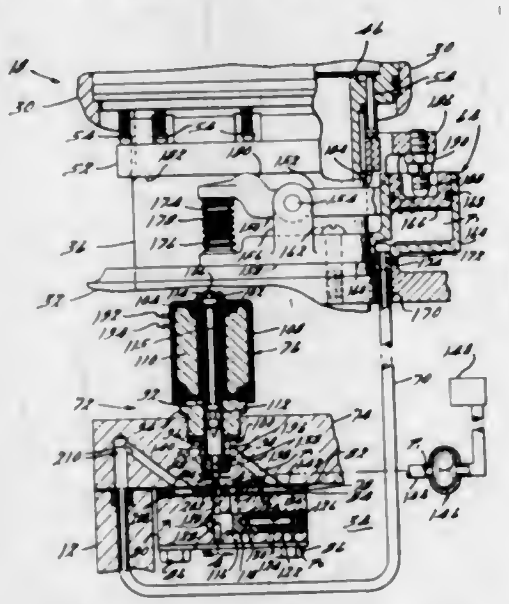
Milton Caine, 83—35 139th St., Kew Gardens, N.Y. 11415
Filed Dec. 13, 1965, Ser. No. 513,229
5 Claims. (Cl. 229—92.8)

1. A mailing card, comprising a rectangular body of cardboard having transverse fold lines dividing the body into a pair of end panels and a plurality of intermediate panels, one end panel having surface portions at lateral ends thereof coated with adhesive for sealing said end panel to one intermediate panel, tabs for holding the panels in folded condition for mailing, said tabs extending laterally of opposite lateral ends respectively of said one end panel, said tabs having adhesive on one surface thereof forming continuations of the adhesive on the lateral ends of said one end panel, said tabs being adapted to extend across the ends of the panels to be fastened to the outer surface of a second intermediate panel, said one end panel being at least one-half the width of the other panels, whereby the tabs extend across the ends of the other panels midway of the widths of the other panels.



3,303,988
COMPRESSOR CAPACITY CONTROL

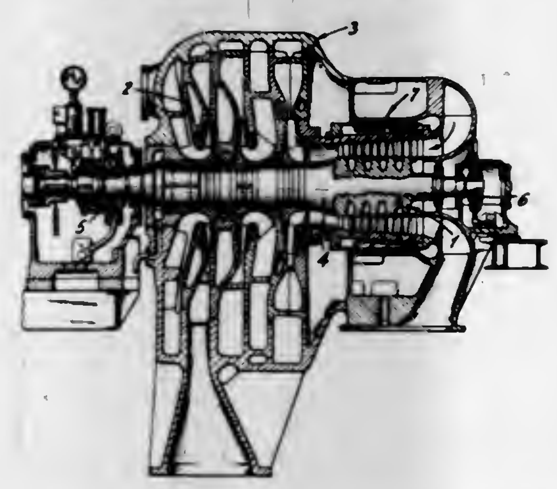
Herman R. Weatherhead, Dayton, Ohio, assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Jan. 8, 1964, Ser. No. 336,543
4 Claims. (Cl. 230—31)



1. Unloader means for varying the capacity of a reciprocating compressor having a casing, a first partition in the casing for dividing the compressor into a compression portion and a crankcase portion, a second partition means in the compression portion of the compressor for dividing the same into a suction chamber and a discharge chamber, means forming a cylinder in the compression portion of the compressor, a piston slidably disposed in the means forming a cylinder, a suction inlet for the means forming a cylinder in communication with the suction manifold, a discharge outlet for the means forming a cylinder in communication with the discharge chamber, suction and discharge valve means movably mounted on the suction inlet and discharge outlet to control fluid flow into and out of said cylinder, said unloader means comprising an unloader yoke and body assembly, and an unloader control assembly, said unloader body comprising a generally semicircular arcuate base portion secured to said first partition so as to be located generally within said suction chamber and disposed in general straddling fashion about said means forming a cylinder, pivot support members carried by said base in a manner so as to be generally oppositely disposed about said means forming a cylinder, a second cylinder having an open end and being carried by said base, a second piston received in said second cylinder, said yoke comprising arm portions respectively pivotally supported on said pivot support members so as to generally straddle said means forming a cylinder, a bridge-like portion connecting said yoke arm portions and carrying an adjustably positioned motion transmitting member, at least one spring contained between said yoke arm portions and said base continually urging said yoke to rotate in a direction resulting in said motion transmitting member abutting against said second piston, an annular member closely received about said means forming a cylinder and being continually urged into engagement with said yoke arm portions, second means interposed between said annular member and said suction valve, said unloader control assembly comprising a cover member detachably secured to said casing, a port plate secured to said cover, a first gasket interposed between said port plate and said cover, a valve housing secured to said port plate and said valve housing, a second gasket interposed between said port plate and said valve housing, a source of pressurized hydraulic fluid, a cavity formed in said cover, a valve seat having a passageway formed therethrough received in said cavity, an elongated valve housing having an open end closely engaging said valve seat so as to generally circumscribe said passageway, a flange carried by said elongated valve housing, means urging said flange into sealing engagement with said cover, a plunger valve slidably received within said elongated valve housing, a second spring received within said elongated valve housing continually urging said plunger valve into sealing engagement with said valve seat and passageway, a first conduit communicating between said source of fluid and said cavity, a second conduit formed in said elongated valve housing enabling communication of said fluid from said cavity to one end of said passageway, a third cylinder formed in said first-mentioned valve housing, a regulator valve slidably received in said third cylinder, a groove formed in the periphery of said regulator valve, a third conduit formed in said regulator valve having one end in open communication with said crankcase portion, a fourth conduit formed in said regulator valve interconnecting said groove and said third conduit, a third spring received in said third cylinder continually urging said regulator valve into one of two regulator valve operating positions, a fifth conduit interconnecting said third cylinder and said passageway, a sixth conduit including restriction means interconnecting said crankcase portion and said fifth conduit, a seventh conduit interconnecting said third cylinder and said second cylinder, said regulator valve being effective upon movement by said third spring to said one position to terminate communication between said third cylinder and said seventh conduit and to complete communication between said second cylinder, seventh conduit, groove, fourth conduit, third conduit and crankcase portion, and solenoid means energized in accordance with indicia of compressor operation for at times moving said plunger valve against said second spring to permit communication between said passageway and said first conduit, said hydraulic fluid being effective whenever said communication between said passageway and said first conduit is permitted to move said regulator valve to the other of said two operating positions, said regulator valve being effective upon being moved to said other operating position to terminate said communication between said seventh conduit and said crankcase and to complete communication between said fifth conduit and said seventh conduit in order to admit said hydraulic fluid to said second cylinder to force said second piston to rotate said yoke against the resisting force of said first spring thereby allowing said annular member to move toward said base in order to seat said suction valve and load said compressor.

3,303,989
AXIAL- AND RADIAL-FLOW, MULTISTAGE CENTRIFUGAL COMPRESSOR

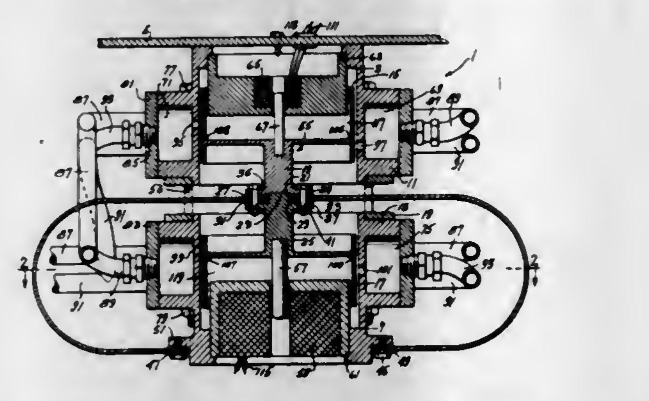
Josef Rurik, Oberhausen-Sterkrade, and Hellmut Weinrich, Heidenheim (Brenz), Germany, assignors to Gutehoffnungshutte Sterkrade Aktiengesellschaft, Oberhausen-Sterkrade, Germany
Filed Mar. 2, 1964, Ser. No. 348,729
Claims priority, application Germany, Mar. 2, 1963, G 37,187
4 Claims. (Cl. 230—45)



1. A multi-stage centrifugal compressor comprising, in combination, a common drive shaft extending between a pair of axially spaced bearings; two serially connected multi-stage sections supported on said common drive shaft between said bearings; a common housing enclosing both multi-stage sections between said bearings; each multistage section comprising plural axial flow fluid inlet stages and at least one radial flow fluid outlet stage, the axial flow stages being at the axially outer end of each section and the radial flow stages being disposed axially between the two sets of axial flow stages; the fluid flowing serially through the two sections in respective opposed axial directions; at least one axial stage of each section having adjustable guide vanes; adjusting means operable to adjust said guide vanes; and a cooler connected to the outlet of at least one radial stage.

3,303,990
RESONANT PISTON COMPRESSOR

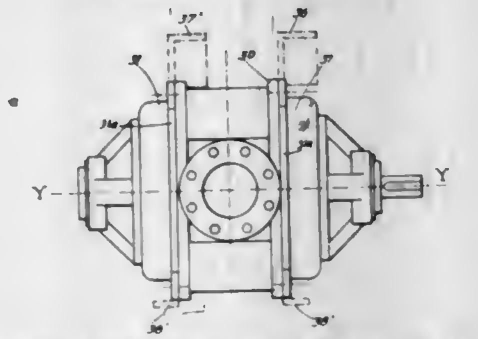
Peter W. Curwen, Burnt Hills, Ballston, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y., a corporation of New York
Filed Feb. 11, 1964, Ser. No. 344,039
28 Claims. (Cl. 230—55)



1. A resonant piston compressor comprising, a piston assembly consisting of biasing means and a piston, a cylinder housing said piston, intake and discharge ports in said

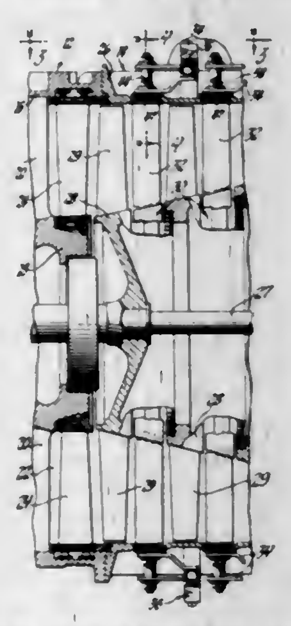
cylinder for supplying gas for compression and subsequent delivery to a point of use, said cylinder further having inlet and discharge chambers respectively communicating with said intake and discharge ports, said biasing means connected at one end to a stationary member and at its other end to said piston, drive means coupled with said piston assembly, the arrangement being such that the separate forces imparted to said piston by the drive means and biasing means causes it to reciprocate in said cylinder at a resonant frequency, and fluid lubricating means comprising gas under pressure in the clearance space between said piston and cylinder.

3,303,991
GAS PUMPS AND COMPRESSORS OF THE LIQUID RING TYPE
Robert Léon Dardelet, La Detourbe, Meylan, France
Filed Dec. 23, 1964, Ser. No. 420,688
Claims priority, application France, Jan. 2, 1964, 959,129, Patent 1,388,967
4 Claims. (Cl. 230—79)



1. In a liquid ring pump of the class of gas pumps and compressors, having a pump casing comprising a main casing and end-plates provided with flanges for the purpose of securing said end-plates to the lateral faces of the main casing and separate lugs fixed to said pump casing and belonging to the class of mounting brackets for fixing the machine on a support and for mounting a motor on said machine, the fact that said flanges comprise recessed portions in the place occupied by the said lugs which are fixed to said lateral faces of the main casing.

3,303,992
VARIABLE VANE STATOR RING
Kenneth O. Johnson, Camby, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 3, 1965, Ser. No. 436,733
9 Claims. (Cl. 230—114)



1. In a variable vane stator ring, an inner shroud band comprising an outer annular channel having a plurality of circumferentially spaced circular apertures,

circular metallic shims having a pair of diametrically opposed slots disposed in said circular apertures,

circular, low-friction shims having diametrically opposed slots disposed in said circular apertures inwardly of said metallic shims,

an inner channel having a circumferential surface abutting the inner surface of said outer channel,

said inner channel having a plurality of diametrically opposed pairs of arcuate slots,

low-friction washers concentric with said pairs of arcuate slots abutting the inner surface of said inner channel and having diametrically opposed slots,

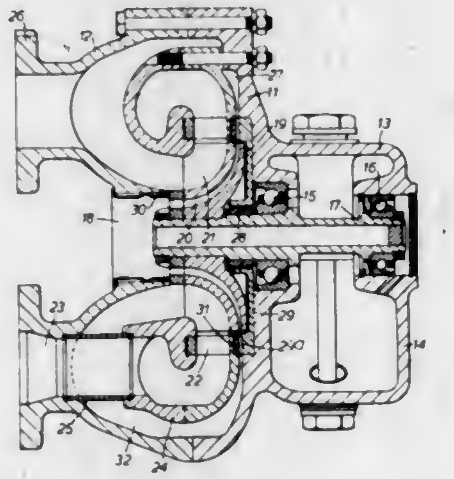
cup-like retainers abutting the inner surface of said washers and having diametrically opposed slots;

a plurality of vanes having a pair of spaced tangs depending from the inner edge thereof and extending through said slots in said shims, said inner channel, said washers and said retainers, said inner edges having a convex surface between said tangs contacting said metallic shims, a shoulder on the inner end of each tang facing the other tang of each of said pairs of tangs,

a plurality of inwardly bowed leaf springs having their ends abutting the inner surface of said retainers and their middle portions contacting said shoulders of said tangs whereby said vanes are journaled in said inner shroud bands, and biased inwardly,

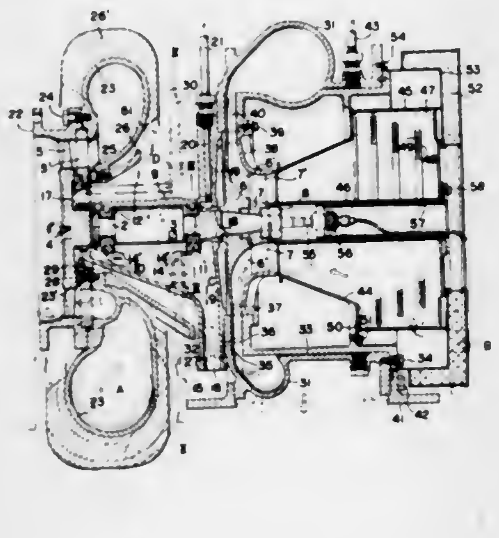
an outer annular support member, discs at the outer ends of said vanes, said discs being journaled in said outer support member, washers adjacent the outer surface of the support member, said washers having an aperture wall in the shape of a truncated conical section, stub shafts extending from said discs through said washers, said stub shafts having a flat portion, sleeves having a flat on their inner surface mounted on said sub shafts with said flats abutting the flats on said shaft, an inner end on said sleeves in the shape of a truncated conical section, said inner ends mating with said aperture walls, an inner portion on said sleeves having an axial slit, fastening means to wedge the inner ends of said sleeves within said washers, crank arms extending from sleeves and actuating means to rotate said crank arms whereby said vanes are rotated to change their angles of attack.

3,303,993
ROTARY FLUID-FLOW MACHINES
Thomas D. H. Andrews and Peter Spence, Cheltenham, England, assignors to Dowty Technical Developments Limited, Brockhampton, England, a British company
Filed Nov. 12, 1964, Ser. No. 410,461
Claims priority, application Great Britain, Nov. 19, 1963, 45,614/63
3 Claims. (Cl. 230—116)



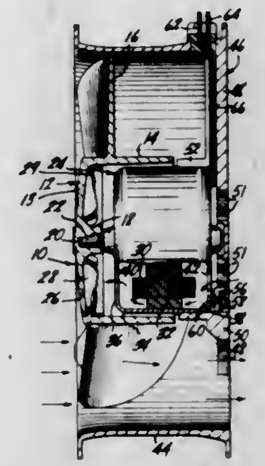
1. A rotary fluid-flow machine including a turbine and compressor, the rotors of which are integrally formed as a single rotatable member of wholly centrifugal type having two separate sets of flow-defining vanes, the first set being turbine vanes and the second set being compressor vanes, the casing of the machine in which the member is rotatable being so shaped as to provide an entry to the first set of vanes and also to provide a further entry to the second set of vances, and the casing being shaped also to provide two separate channels respectively in registry with the exits of the sets of vanes, said separate channels so opening into each other that the fluids discharged by the compressor and the turbine are mixed together downstream of the turbine vanes but before discharge from the machine through a mixed fluid outlet, the said casing having an inner portion through the interior of which the exhaust gases leaving the turbine pass, and around the outside of which the fluid delivered by the compressor passes, so that an insulating air envelope is provided around that portion of the casing.

3,303,994
EXHAUST GAS TURBINE SUPERCHARGER
Masashi Morooka, Nagasaki-shi, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 5, 1965, Ser. No. 437,435
Claim priority, application Japan, Mar. 16, 1964, 39/14,513
15 Claims. (Cl. 230—116)



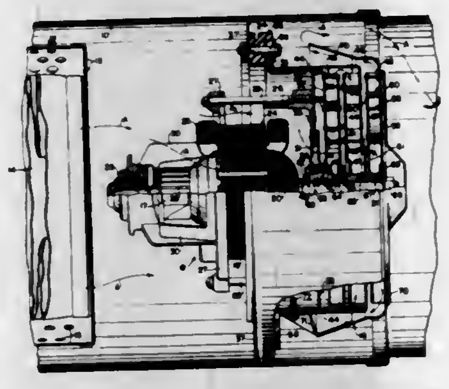
1. An exhaust gas turbine supercharger comprising, in combination, a turbine casing; a compressor casing; a bearing stand intermediate said casings and having at least one upwardly facing substantially semicylindrical bearing support section; bearing stand being secured at one end to one end of said compressor casing and said support sections extending, in cantilever fashion, from said one end of said bearing stand; a first semicylindrical bearing supported in said support section; a substantially semicylindrical bearing stand cover complementary to said support section and disengageably secured to said stand; a second semicylindrical bearing nested in said cover and complementary to said first semicylindrical bearing to form a complete bearing; a shaft rotatably supported in said bearing and extending into each of said casings; a turbine rotor secured to said shaft within said turbine casing; a compressor rotor secured to said shaft within said compressor casing; and an intermediate frame interconnecting said casings and formed with access openings providing access to said cover and said bearing for removal, replacement and repair thereof without removal of said intermediate frame.

3,303,995
FAN MOTOR COOLING ARRANGEMENT
John W. Boeckel, Woodstock, N.Y., assignor to Rotron Manufacturing Company, Inc., Woodstock, N.Y., a corporation of New York
Filed Sept. 8, 1964, Ser. No. 394,729
6 Claims. (Cl. 230—117)



1. A fan comprising a motor, a hub member substantially surrounding said motor including a hollow sleeve portion closed at one end by an end wall provided with a plurality of apertures adjacent its circumferential edge, a plurality of propeller blades on said sleeve portion, means coupling said hub member to one end of said motor for rotation therewith, said propeller blades thereby creating an air flow moving in a direction from said end wall to the other end of said sleeve portion, and centrifugal impeller means on the interior surface of said end wall for creating an air flow across said motor and within said hub member moving in a direction opposite to that of the air flow created by said propeller blades, said impeller means discharging its air flow through the apertures in said end wall.

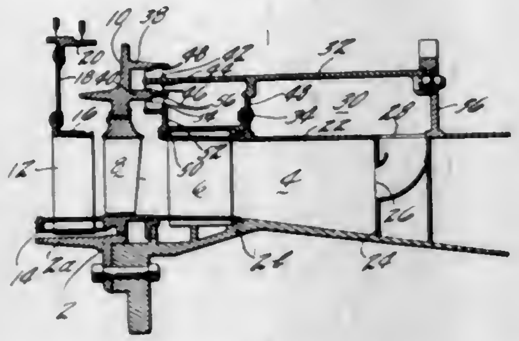
3,303,996
FAN HAVING ANNULAR FRUSTRO-CONICAL DIFFUSER SPACE
Frank K. Bayless, Darien, Conn., assignor to Electrolux Corporation, Old Greenwich, Conn., a corporation of Delaware
Filed Apr. 28, 1965, Ser. No. 451,535
5 Claims. (Cl. 230—130)



1. In combination with a centrifugal fan having an impeller wheel which discharges air from its periphery, first wall means forming an annular frustro-conical diffuser space which has its smaller cross sectional area positioned to receive the air discharging from the periphery of the impeller wheel, second wall means coaxially encompassing said first wall means and forming therewith another diffusion space for guiding the air exiting from the annular frustro-conical diffusion space in a direction which is axially opposite to the axial direction of the air diffusing through said annular frustro-conical space.

3,303,997
COMPRESSOR AIR SEAL

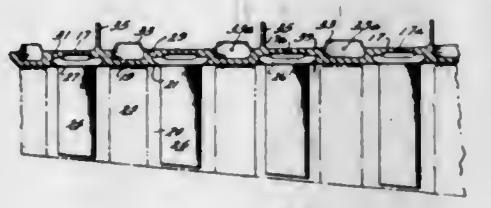
Joseph J. Welch, Thompsonville, and John D. Rosenthal, West Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 21, 1965, Ser. No. 449,738
5 Claims. (Cl. 230—132)



1. A sealing and metering device for a compressor including a rotor having a row of blades thereon, a stator having a row of vanes thereon cooperating with the blades, and defining an annular duct for air through the compressor, said rotor having inner and outer radially spaced axially extending flanges thereon, and said stator having a cooperating axially extending ring located between said flanges, said ring having peripheral sealing flanges on its inner and outer surface extending substantially into engagement with the inner and outer flanges respectively on the rotor, and means for removal of air from substantially the midpoint radially of the duct for metering past said sealing flange.

3,303,998
STATOR CASING

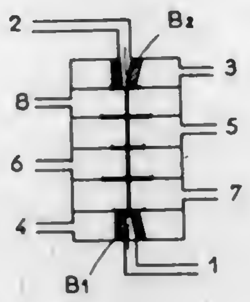
Bernard L. Koff and Joseph C. Burge, both of Cincinnati, Ohio, assignors to General Electric Company, a corporation of New York
Filed July 18, 1966, Ser. No. 565,980
7 Claims. (Cl. 230—133)



1. In a turbomachine, a stator casing comprising:
a corrugated wall including a first plurality of annular, axially spaced-apart shells, a second plurality of annular, axially spaced-apart shells alternating with said first plurality of shells, each of said second plurality of shells being of smaller diameter than the adjacent shells of said first plurality, and a plurality of radial wall members interconnecting adjacent shells,
axially extending and peripherally spaced ribs each rigidly interconnecting a pair of adjacent shells of said first plurality and the intermediate shell of said second plurality,
said rib extending radially outward of said pair of shells a distance sufficient to substantially align radially the centroid of said rib and the associated portion of said intermediate shell with the centroids of said pair of shells so that loads may be transmitted between said pair of shells through said rib without exerting substantial bending moments on the interconnecting radial walls,
whereby said corrugated wall may be of relatively lightweight construction.

3,303,999
PNEUMATIC SWITCHING MEMBER

Marcel Mamy, 11 bis, Rue Roquepine, Paris, France
Filed Sept. 16, 1963, Ser. No. 309,079
Claims priority, application France, Sept. 18, 1962, 909,775
10 Claims. (Cl. 235—201)

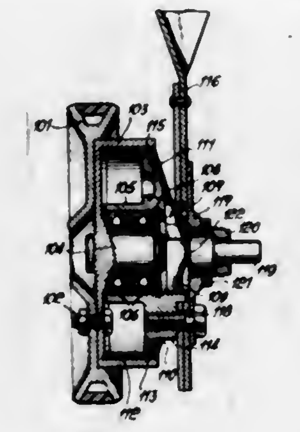


1. In a pneumatic logical circuit including bias means for supplying a fluid with a constant selective biasing pressure and control means for supplying fluids at signal pressures,
a logical cell, comprising:
a series of six chambers disposed contiguously, consecutive chambers having common partition means including diaphragm means therebetween, said diaphragm means of first alternate ones of said partition means having active areas of a first size and the diaphragm means of the remaining ones of said partition means having active areas of a second size larger than said first size in a predetermined ratio,
a movable substantially rigid element mechanically connecting together said active areas of the diaphragm means and having a first end part and a second end part extending respectively into the first and the last of said series of chambers,
said first chamber in said series including first nozzle means and said first end part including closing means operable to close said first nozzle means upon displacement of the movable element toward said first nozzle means,
said last chamber in said series including second nozzle means forming an output and said second end part including closing means operable to close said second nozzle means upon displacement of the movable element toward said second nozzle means,
the chambers having a smaller active area diaphragm means forming a partition thereof facing said first nozzle means being called "even chambers," the other chambers being called "odd chambers," at least one odd chamber having an input connection supplied with said fluid at said biasing pressure,
at least one odd chamber having a signal input connection supplied with one of said fluids at signal pressures,
at least one chamber other than said first chamber being open to the atmosphere and said first chamber being connected with said output.

3,304,000
FRICTION CLUTCH

Siegfried Möbius, Schweinfurt (Main), Germany, assignor to Fichtel & Sachs A.G., Schweinfurt (Main), Germany, a corporation of Germany
Filed Apr. 23, 1965, Ser. No. 450,548
Claims priority, application Germany, Apr. 25, 1964, F 42,720
12 Claims. (Cl. 236—35)

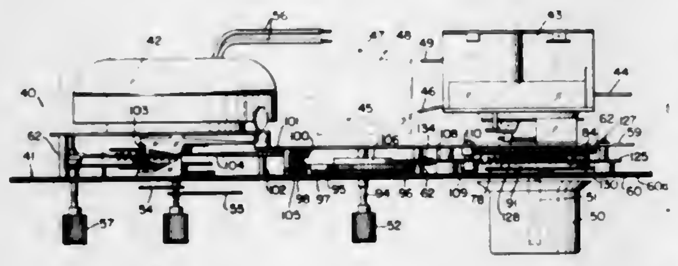
1. Friction clutch comprising
(a) first or driving clutch means having an axis and a friction face circumferentially extending about said axis,
(b) second or driven clutch means,
(c) at least a single resilient member constituted by a hollow and deformable body having a side wall, a longitudinal portion of said side wall extending circumferentially about said axis and being provided with a circumferential friction lining, another portion of said side wall tapering to an apex in said axis, said apex being axially movable so as to have said friction lining move radially toward and from, and engage and disengage, said friction face,



(d) means operatively connecting said resilient member and said second clutch means,
(e) heat-responsive means mounted to act upon said apex of the resilient member and to cause said friction lining to effect said engagement and disengagement, and
(f) fan means connected with said second clutch means for common rotation.

3,304,001
TIMER ADJUSTED TEMPERATURE CONTROLLING MEANS FOR OVENS AND THE LIKE

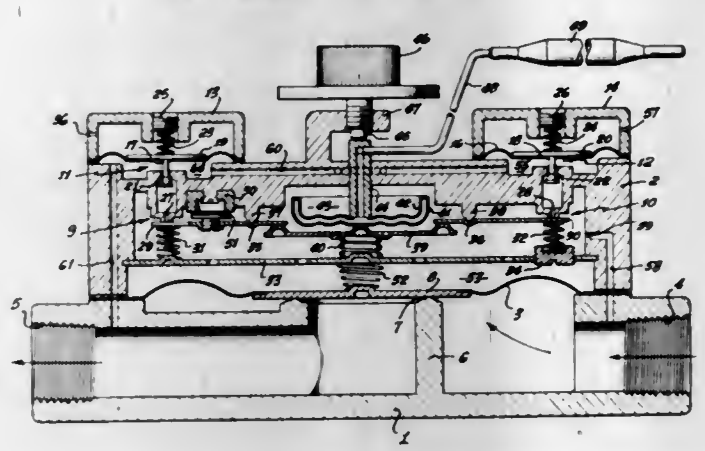
Francis J. Forte, Waterbury, Conn., assignor to Robertshaw Controls Company, a corporation of Delaware
Continuation of application Ser. No. 186,909, Apr. 12, 1962. This application July 21, 1965, Ser. No. 480,227
22 Claims. (Cl. 236—46)



1. In combination, frame means provided with a control panel having an opening passing therethrough, an oven thermostat having a control shaft, a rotatable collar rotatably mounted to said frame means and being disposed in said opening thereof, said collar being interconnected to said control shaft of said oven thermostat whereby said collar and control shaft rotate in unison, said control shaft being telescopically received through said collar and passing through said frame means and control panel so that said thermostat is on one side of said control panel and the free end of said shaft is on the other side of said control panel, a control knob connected to said free end of said shaft for rotating said shaft and collar relative to said control panel, and means carried by said frame means and interconnected to said collar to automatically move said collar from a high temperature setting thereof to a predetermined low temperature setting thereof after a selected time interval, said last named means including a spring means wound by rotation of said control shaft in an on direction.

3,304,002
DUAL-PILOTED THERMOSTATICALLY CONTROLLED DIAPHRAGM VALVE

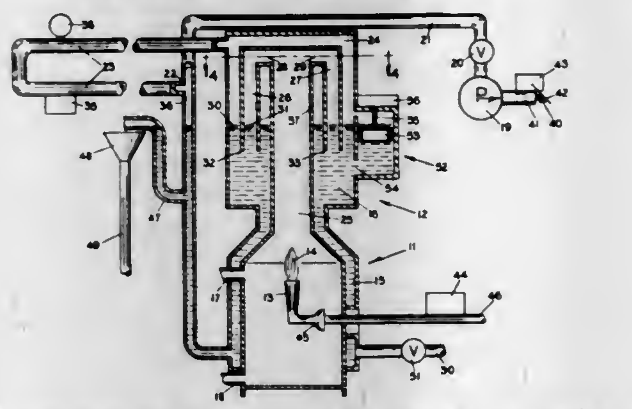
Richard D. Grayson, Arcadia, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed Jan. 18, 1965, Ser. No. 426,263
8 Claims. (Cl. 236—80)



1. A fluid valve for controlling the flow of fluid from an inlet to an outlet in response to the operation of a normally closed pressure responsive diaphragm positioned between a main chamber and said inlet, conduit means interconnecting said main chamber with said inlet to establish a pressure equilibrium therebetween, first and second auxiliary chambers each including passage means interconnecting said auxiliary chambers with said main chamber, a pair of sequentially operable control valves including a pair of unequally biased valve closures for controlling the passage of fluid from said main chamber to said auxiliary chambers through said passage means, conduit means interconnecting said auxiliary chambers with said outlet, pressure regulator means included with each of said auxiliary chambers to control the pressure in said outlet through the last said conduit means, the pressure regulating means for said second chamber being set to provide a higher pressure in said outlet than the pressure regulating means for said first chamber, thermostatically controlled actuator means linked to said control valve closures and operable responsive to temperature variations to sequentially operate said control valves, whereby first and second pressure differentials between said inlet and said main chamber are sequentially established by the passage of fluid from the main chamber to said auxiliary chambers, the establishment of said pressure differentials moving said diaphragm from said closed position to first and second operated positions sequentially.

3,304,003
HEATING SYSTEM

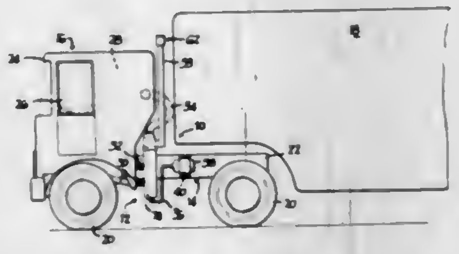
Maurice E. Phillips, 1909 Knight Road,
Akron, Ohio 44306
Filed June 15, 1965, Ser. No. 464,071
4 Claims. (Cl. 237—9)



2. In combination a combustion chamber in which a fuel is burned, an absorption chamber partially filled with

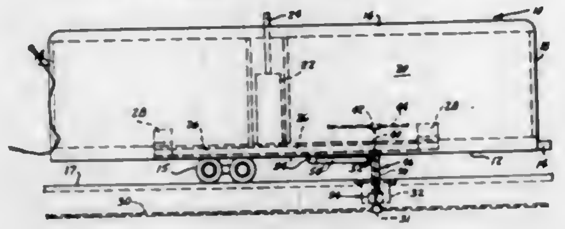
water, a flue surmounted by one or more superheater tubes within said absorption chamber, said superheater tubes rising above the surface of said water and terminating below the surface of said water, a vacuum pump connected through heat absorbing devices to a point above the level of said water in said absorption chamber and drawing flue gases resulting from the combustion of said fuel through said flue, said superheater tubes or tube, said water, said heat absorbing devices and discharging to the atmosphere.

3,304,004
VEHICLE HEATING METHOD AND APPARATUS
Mykola Hraboweckyj, 9037 Danzig,
Livonia, Mich. 48150
Filed May 24, 1965, Ser. No. 457,927
5 Claims. (Cl. 237—12.3)



1. In a gas heater adapted to be carried by an automotive vehicle to jointly (1) heat the vehicle engine to operating temperature while the engine is inactive and (2) warm the vehicle passenger interior: a burner including a pressure nozzle, hydrocarbon fuel being supplied to the nozzle from a reservoir, a generally cylindrical combustion chamber open at the bottom to accommodate (a) free draft ingress of air from combustion and (b) releasable placement of the burner within the combustion chamber, said combustion chamber communicating at the top with an exhaust chimney terminating in an exhaust cap inhibiting backdraft and entrance of precipitation, a burner protector partially enclosing said burner having both means to accommodate free draft ingress of air for combustion and means shielding the burner to prevent extinguishment of the flame by the wind, a retainer interposed between the burner protector and the interior of the combustion chamber to accommodate (a) ready removal of the burner protector and the burner from the combustion chamber to facilitate (1) ease of initiating of combustion and (2) use of the burner independent of the heater, and (b) secured retention of the burner protector within the combustion chamber when there-positioned, an engine coolant heating reservoir disposed within the combustion chamber and constituting part of a closed circulation system having reservoir inlet and outlet ports providing communication with the engine block, and a generally cylindrical outer shell circumscribing the exterior of the combustion chamber in spaced relation to form an air heating chamber therebetween segregated from said exhaust, said outer shell being open at the bottom to accommodate free draft ingress of air to be heated and communicating the heated air out the top of the outer shell via convectional currents through a conduit into the vehicle interior, said combustion chamber and said outer shell comprising concentric tubular shells extending vertically and spaced radially from each other to provide a straight-through passage for heated air to flow upwardly between said shells and also a straight-through passage for products of combustion to flow wholly upwardly within said combustion chamber from said open bottom thereof in a straight-line path upwards to said exhaust chimney, whereby said heater has no moving parts and relies wholly upon natural upward convection of air for circulation of air through the same.

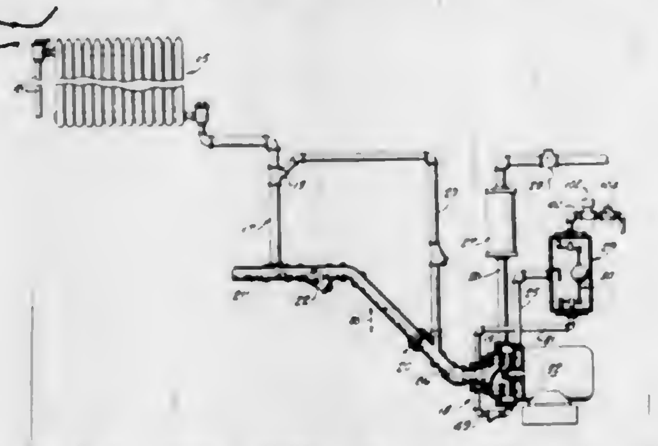
3,304,005
PIPE HEATING SYSTEM FOR TRAILERS
Donald E. Lytle, Sr., and Frank A. Wallace, both of 4037 Lockbourne Road, Columbus, Ohio 43207
Filed Mar. 12, 1965, Ser. No. 439,188
4 Claims. (Cl. 237—30)



1. In combination with a mobile trailer including an interior area having a floor, an internal forced air heating system including a furnace contained in the trailer, at least one heated air conduit, and an internal water distribution system including a pipe adapted to be connected to a fitting leading from an external source of water supply,

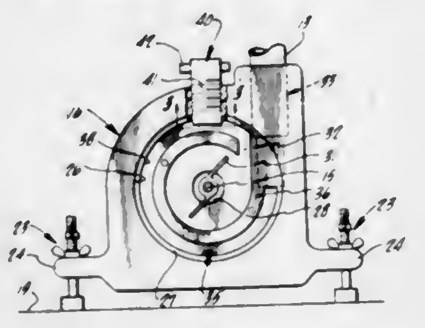
the improvement which consists in providing an extensible hollow covering enclosing said pipe and adapted to enclose said fitting and providing a connecting conduit from said one conduit to said covering to provide heated air from said internal forced air heating system around said pipe and the fitting to prevent freezing thereof.

3,304,006
SYSTEM FOR HANDLING FLUIDS IN BOTH LIQUID AND GASEOUS PHASES
Harold E. Adams, Norwalk, Conn., assignor to The Nash Engineering Company, South Norwalk, Conn., a corporation of Connecticut
Continuation of application Ser. No. 275,459, Apr. 24, 1963. This application Aug. 13, 1965, Ser. No. 483,007
29 Claims. (Cl. 237—67)



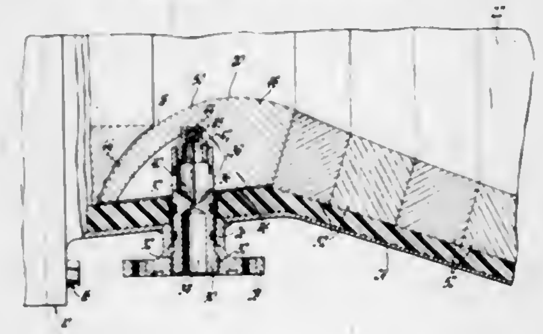
1. A flow control system for directing mixed phase fluids in both liquid and gaseous phases in predetermined ratio to pumping means comprising, in combination, single pump means for pumping fluids in liquid and gaseous phases, said pump means having an inlet and a pair of outlets through which liquids and compressed gases are respectively discharged from said pump means; main conduit means communicating with said inlet of said pump means and being adapted to contain upstream of said pump means fluids in liquid and gaseous phases for directing the fluids toward said inlet of said pump means; orifice means carried by said main conduit means and reducing the cross section thereof for limiting the flow of liquid to said pump means, said orifice means building up a head of liquid on the upstream side of said orifice means, with respect to said inlet of said pump means, so that only liquid flows through said orifice means downstream thereof along said main conduit means toward said inlet of said pump means, whereby said orifice means maintains a substantially continuous flow of liquid to said inlet of said pump means irrespective of variations in the movement of the liquid in said main conduit means upstream of said orifice means; and bypass conduit means communicating with said main conduit means upstream of said orifice means for receiving fluids in the gaseous phase from said main conduit means, said bypass conduit means also communicating with said inlet for delivering thereto the gases received in said bypass conduit means from said main conduit means upstream of said orifice means.

3,304,007
FLOW REGULATING TURBULENCE ARRESTOR FOR CENTRIFUGAL PUMPS
John O. Hruby, Jr., Burbank, Calif., assignor to Rain Jet Corporation, Burbank, Calif., a corporation of California
Filed Mar. 11, 1965, Ser. No. 438,846
8 Claims. (Cl. 239—23)



1. In a centrifugal pump having an impeller chamber, an inlet to the chamber, and an outlet of selected cross-sectional area from the chamber, apparatus for regulating the pump discharge flowrate and for arresting turbulence in the pump discharge comprising a substantially smooth-walled duct having a cross-sectional area at any point therealong substantially equal at least to the area of the impeller chamber outlet, the duct extending from the impeller chamber outlet a selected distance around the impeller chamber to a pump discharge outlet, and an infinitely adjustable valve locally in the duct substantially closer to the impeller chamber outlet than to the pump discharge outlet.

3,304,008
TEMPERATURE RESPONSIVE ROCKET NOZZLE COOLING SYSTEM
Paul E. Beam, Jr., Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 24, 1963, Ser. No. 290,886
2 Claims. (Cl. 239—127.3)



1. A temperature-responsive cooling system for a rocket engine nozzle comprising:

a porous liner for said nozzle;

a coolant chamber surrounding said nozzle liner;

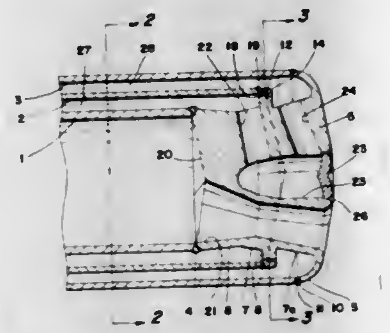
a valve body providing a coolant passage into said coolant chamber including a coolant inlet, a coolant outlet, and a valve seat therebetween, said coolant outlet opening into said coolant chamber;

a valve body cap threadingly attached to said valve body and positioned adjacent to said nozzle liner;

a pin means having one end thereof seated in said valve seat to restrict the flow of coolant through said valve body;

a block of meltable material disposed within said valve body cap, said meltable material holding said pin means in its seated position to restrict the flow of said coolant through said valve body, and said meltable material melting when the valve body cap reaches a predetermined temperature to release said pin means from its seated position thereby facilitating the flow of coolant through said valve body into said cooling chamber.

3,304,009
OXYGEN LANCE CONSTRUCTION
Leland H. Hutton, 2518 Claver Road,
University Heights, Ohio 44106
Filed July 1, 1964, Ser. No. 379,576
10 Claims. (Cl. 239—132.3)

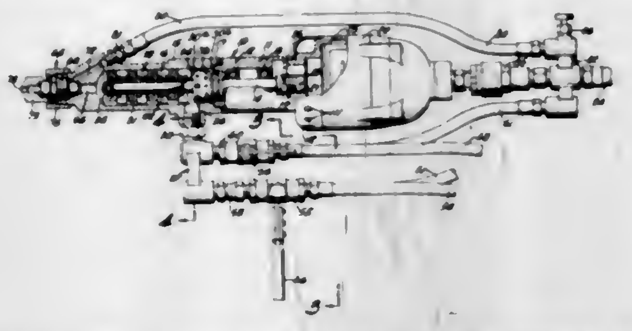


1. In a device of the character described, three concentrically spaced tubular members, a nozzle or tip supported by the innermost of said members, said nozzle or tip made as a one-piece member of copper having a series of passageways consisting of circumferentially spaced inclined bores diverging downwardly and outwardly through said nozzle or tip for the passage of oxygen therethrough, said nozzle or tip having a second series of passageways consisting of cylindrical bores arranged circumferentially alternately with said first-named passageways and extending upwardly and outwardly from a region within the nozzle or tip to the outer surface of the nozzle or tip, said nozzle or tip having a third series of passageways consisting of cylindrical bores arranged circumferentially alternately with said first-named passageways and disposed above said second-named passageways and extending upwardly and outwardly from a region within said nozzle or tip to the outer surface of the nozzle or tip, but at an angle to the axis of the nozzle different from that of said second-named passageways, the inner ends of said second and third series of passageways having fluid communication with each other, whereby a cooling fluid passing through said second or third-named passageways passes through the other of said series of second or third-named passageways.

3,304,010
MIXING AND SPRAYING APPARATUS
James H. Cantrell and Charles Faro, Riverside, Calif., assignors to The Flintkote Company, New York, N.Y., a corporation of Massachusetts
Filed Aug. 12, 1964, Ser. No. 389,174
7 Claims. (Cl. 239—142)

1. Mixing and spraying apparatus comprising a housing having a cylindrical bore defining a mixing chamber, a mixer rotor mounted coaxially within said bore, the rotor comprising a plurality of axially spaced rings each having a series of wedge-shaped blades fixed on the periphery thereof, the blades having running clearance within said bore, the blades on adjacent rings being circum-

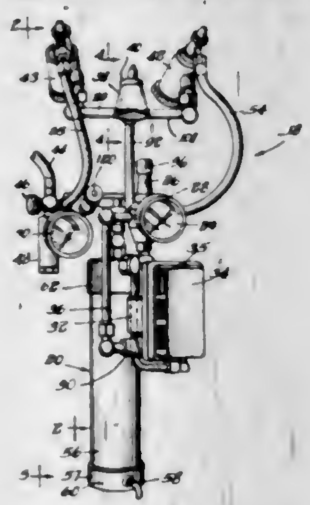
ferentially staggered, a power driven shaft projecting into the bore for rotating the rotor, means for introducing liquid materials under pressure into the mixing chamber,



a spray nozzle assembly mounted on the housing, and a discharge passage in the housing connecting the mixing chamber to the nozzle assembly.

3,304,011
PORTABLE HUMIDIFIER UNIT

Jens A. Paasche, 1909 Diversey Parkway, Wilmette, Ill. 60091
Filed Sept. 28, 1964, Ser. No. 399,681
5 Claims. (Cl. 239—305)

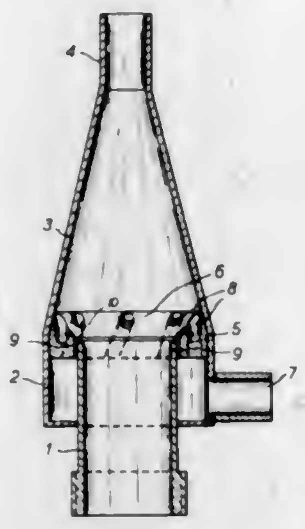


5. Automatic humidifying apparatus comprising: a base; an air valve supported by said base, said air valve being connected to a source of air under pressure; a solenoid supported by said base and operatively connected to said air valve to open and close said air valve; a humidistat supported by said base connected to said solenoid to actuate said solenoid to open and close said air valve in response to changes in humidity from a predetermined humidity; an air manifold connected to said air valve to distribute air from said air valve to a plurality of atomizer guns, said plurality of atomizer guns being supported by said base and each of said atomizer guns having a central passageway connected to said air manifold, said atomizer guns each having an atomizer nozzle to entrain fluid in air; water valve means mounted in said passageway and connected to a source of water to control the entraining of the water in the air as a function of the flow of air through said passageway; and a deodorizer supported by said base, said deodorizer comprising an automatic spray brush in communication with said manifold, said brush having a spray nozzle to atomize a liquid deodorant contemporaneously with an atomizing of water by said atomizer guns.

3,304,012
SPRAY NOZZLE

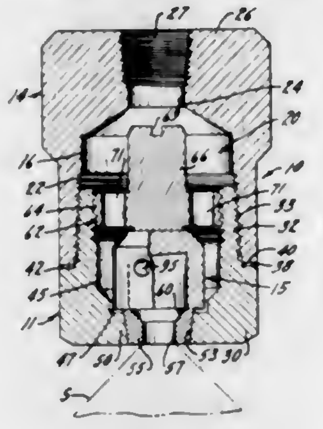
Bjarne Sem, Skadalsveien 2A, Vettakollen, Oslo, Norway
Filed Nov. 27, 1964, Ser. No. 414,343
1 Claim. (Cl. 239—400)

A nozzle for spraying material under the influence of compressed air, the nozzle having an outlet opening and a tapering cross section that converges toward said outlet opening, an annular ring within a relatively wide portion of the nozzle, the ring having a plurality of openings therethrough whose axes are inclined at a substantial angle to the axis of the nozzle, a material inlet conduit disposed within the ring and spaced from the ring by an annular thin-walled cylindrical slot, the inlet conduit having an internal diameter a number of times greater than the width of the slot, the inlet conduit having an outer surface that defines the radially inner side of the slot and that terminates forwardly in a sharp edge adjacent the forward end of the slot, and means for introducing compressed air into the nozzle behind said ring thereby to force compressed air through said plurality of openings and through said slot toward said outlet opening.



3,304,013
SPRAY NOZZLES

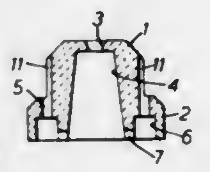
Edward J. O'Brien, Glen Ellyn, Ill., assignor to Spraying Systems Co., a corporation of Illinois
Original application May 1, 1963, Ser. No. 277,269. Divided and this application June 3, 1965, Ser. No. 461,049
7 Claims. (Cl. 239—468)



1. In a spray nozzle, comprising a spray head assembly removably fitted to an inlet body, said spray head defining with said inlet body a relatively large cylindrical space, and having an outlet orifice disposed in one end thereof, a cup-shaped member adapted to be removably secured within said space with the open end thereof disposed about said orifice in overlapping relation, said cup-shaped member and spray head together defining a generally cylindrical whirl chamber co-axial with said orifice, having side walls, and an integral bottom wall opposite said orifice, the plane of said bottom wall being oblique to the axis of said whirl chamber, an inlet passage formed through the wall of said cup member generally transverse to the axis of said chamber and terminating in said chamber adjacent to the intersection of the side wall and said bottom wall so that fluid under pressure disposed in the portion of the space about said up member is forced into said chamber through said passage and against the side wall and sloping bottom adjacent thereto, causing a whirling helical movement of said fluid as the same passes through said orifice, in an evenly dispersed conical fan.

3,304,014
GAS JETS OR BURNERS

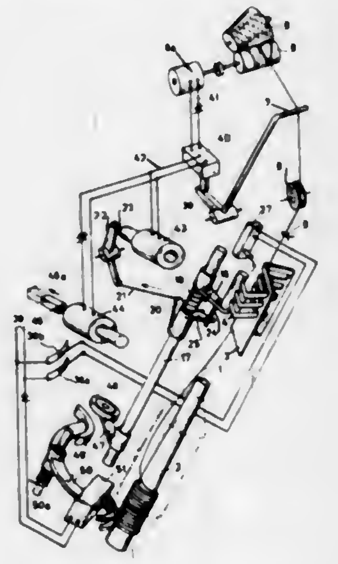
John Hancock, Leeds, and Albert Westerman, Normanton, England, assignors to Geo. Bray & Co. Limited, Leeds, England, a British company
Filed Sept. 4, 1964, Ser. No. 394,580
Claims priority, application Great Britain, Sept. 13, 1963, 36,188/63
7 Claims. (Cl. 239—548)



1. A non-aerated gas burning jet having a cylindrical body portion provided with a main orifice means which is rectangular in plan and is disposed at the upper end of the body portion at the apex of a substantially wedge shaped cavity formed within the body portion, said cavity being adapted and arranged to produce a fan shaped flame at the main orifice means, and in which the body portion is formed with an annular shoulder in which are formed a plurality of auxiliary orifice means providing, in operation of the jet, flames which serve to maintain ignition of the gas issuing from the main orifice means.

3,304,015
METHOD AND APPARATUS FOR THE PROCESSING OF UNDESIRED YARN CONDITIONS APPEARING AT AN AUTOMATIC WINDING MACHINE

Rudolf Jenny, Thalwil, Zurich, Switzerland, assignor to Schweiter Engineering Works Ltd., Horgen, Switzerland, a corporation of Switzerland
Filed Apr. 16, 1964, Ser. No. 360,226
Claims priority, application Switzerland, Apr. 19, 1963, 4,969/63
14 Claims. (Cl. 242—35.6)



1. Method for processing faulty yarn conditions appearing at automatic yarn winders of the type provided with a plurality of yarn winding locations and a unit for correcting such occurring faulty yarn conditions, which comprises the steps of: supervising yarn travel at the individual yarn winding locations, upon appearance of a faulty yarn condition at a given yarn winding location such as absence of the yarn at any point between the delivery bobbin and wind-up bobbin of said given yarn winding location always positively triggering at least one further yarn supervising activity upon the yarn at such given yarn winding location in response to the sensing of said faulty yarn condition in order to determine significant information as to the amount of yarn remaining at the delivery bobbin, obtaining significant information as to the amount of yarn remaining at the delivery bobbin due to such further yarn supervising activity when the yarn possesses a given condition which is to be corrected by the unit and prior to such unit beginning correction of the faulty yarn condition.

7. In combination with an automatic yarn winder of the type provided with a plurality of yarn winding stations, each having a delivery bobbin and a wind-up bobbin and a unit for correcting faulty yarn conditions which may appear at the individual yarn winding stations, an apparatus for processing such faulty yarn conditions comprising yarn feeler as well as at least one further yarn supervising element, said unit cooperating with said yarn feeler and yarn supervising element for response to an error signal from said yarn feeler denoting a faulty yarn condition appearing at a given yarn winding station for initiating a knotting operation and for response to an error signal from said further yarn supervising element denoting a faulty yarn condition at such given yarn winding station for initiating a delivery bobbin exchange operation when such unit and given yarn winding station assume a relative position permitting removal of the faulty yarn condition, means normally inoperative located between said yarn feeler and said further yarn supervising element for operating said further yarn supervising element to perform a checking operation at the yarn, said yarn feeler when denoting a faulty yarn condition positively operating said normally inoperative means to cause said further yarn supervising element to perform said checking operation at the yarn whenever said yarn feeler responds to a faulty yarn condition and prior to said given yarn winding station arriving at a position to be serviced by said unit, said further yarn supervising element carrying out a yarn checking operation which is triggered by said yarn feeler and whenever yarn is absent at any point between the delivery bobbin and wind-up bobbin of said given yarn winding station, signal means cooperating with said further yarn supervising element in order to transmit information about the faulty yarn condition determined by said further yarn supervising element to said unit.

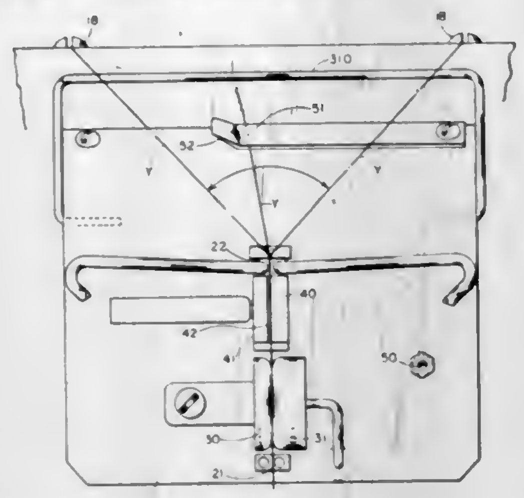
3,304,016
STOPPING WINDING OF YARN HAVING ENLARGEMENTS

Samuel L. Abbott, Wilton, N.H., assignor to Abbott Machine Co., Inc., Wilton, N.H., a corporation of New Hampshire
Filed May 13, 1965, Ser. No. 455,391
3 Claims. (Cl. 242—36)

1. In a yarn winding machine including yarn traversing means and a slub catcher,

means responsive to tension in the yarn which has passed the slub catcher, said tension responsive means deflecting the course of normally tensioned yarn between the slub catcher and the traversing means and responding to increase in tension by allowing the course of the yarn to be less deflected, and

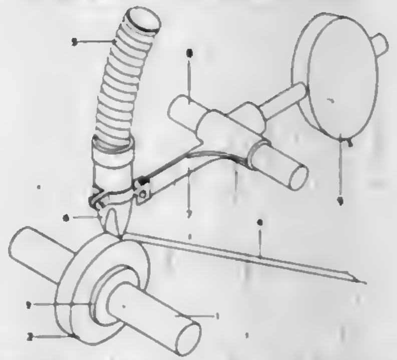
a snagging device positioned to catch traversing yarn arriving thereat when in such less deflected course but clearing the more deflected normally tensioned traversing yarn, the snagging device having a mouth adapted to receive laterally moving traversing yarn,



whereby a brief increase in tension caused by passage of a short enlargement through the slub catcher will usually not cause the yarn to be caught by the snagging device.

3,304,017
WEB WINDING APPARATUS

Richard Harold Barclay Buteux, Welwyn Garden City, and Charles Hampden Crooks, Welwyn, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Dec. 14, 1964, Ser. No. 418,208
Claims priority, application Great Britain, Dec. 13, 1963, 49,337/63
5 Claims. (Cl. 242—55)

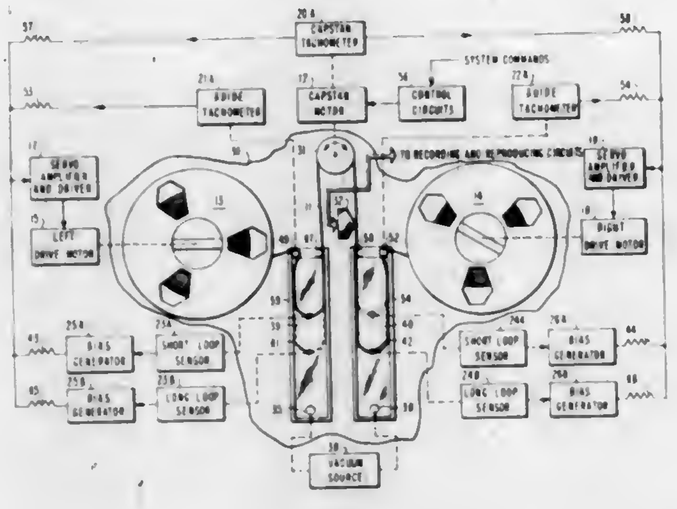


1. Apparatus for winding up a continuous length of web material which comprises a core member, means for feeding the web material to said core member, means for supporting and rotating said core member whereby web material fed thereto may be wound up on said core member and further means including a gas orifice positioned to direct a stream of gas across the width of the web material at the point where said material makes contact with the outermost layer of material wound on the core member, means for mounting said further means so that said orifice is normally urged towards said web, said further means including means for connection to a source of gas under pressure whereby gas issuing from said orifice provides a force sufficient to maintain said orifice at a substantially constant distance from the web material being fed to said core member.

3,304,018
WEB TRANSPORT SYSTEM

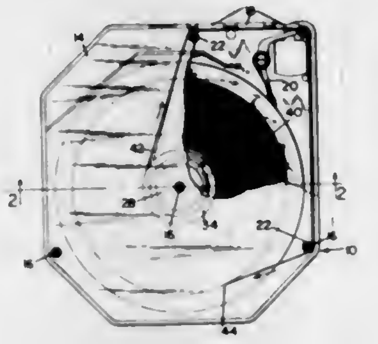
Harold A. Kurth, Woodland Hills, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Sept. 6, 1963, Ser. No. 307,124
9 Claims. (Cl. 242—55.12)

1. In a web transport system having low inertia web buffering means disposed in a path between a web storage reel and a single drive capstan, a servo system comprising: means for sensing the position of said web in said low inertia web buffering means and providing a position signal indicative thereof; tachometer means mechanically coupled to said capstan for providing a command signal representing the speed and direction of said capstan for all operating conditions thereof; means for sensing the speed and direction of said web on the side of said low inertia web buffering means opposite said capstan and providing a feedback signal indicative thereof; and means for algebraically adding said position signal, said command signal and said feedback signal to provide a speed signal to drive said web storage reel to maintain the web in oscillation about a desired position in said low inertia buffering means at a variety of driving speeds.



3,304,019
SINGLE REEL ENDLESS TAPE OR FILM CARTRIDGE

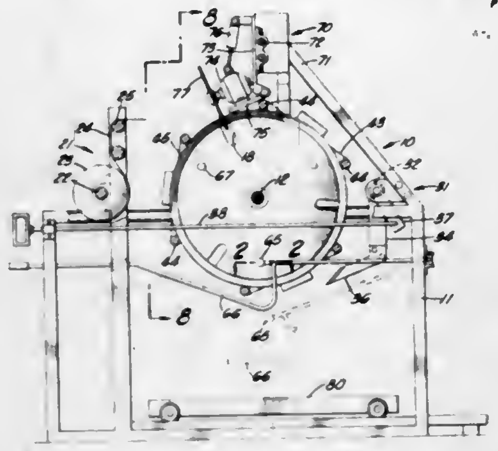
Richard D. Myers, Worcester, Mass., assignor to Marathon Products Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Nov. 22, 1963, Ser. No. 325,650
1 Claim. (Cl. 242—55.19)



A single reel cartridge for holding and feeding tape-like material in endless form and wound in a coil of many convolutions, comprising a housing having spaced top and bottom walls, a generally central spindle extending transversely with respect to said walls, a generally flat free reel disc mounted to rotate on the spindle adjacent to said bottom wall, hub rotatably mounted on said spindle to rotate thereabout, and a ring rotatable on and in generally closely associated relation with respect to the periphery of said hub, the tape being wound directly on the periphery of said ring in a plurality of convolutions and being led directly from the periphery of the ring to a point outside the periphery of the coil and back to the periphery of the coil, the disc, hub and ring being concentric, the hub and the ring resting on the disc, and the hub and ring being freely rotatable relative to the disc.

3,304,020
CONTINUOUS WEB SECTIONAL CUTTING APPARATUS

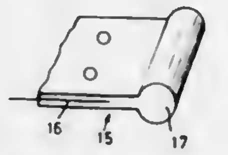
Chester F. Fleenor, Goleta, Calif., assignor of twenty-five percent to William H. Drake, Santa Barbara, Calif.
Filed July 27, 1964, Ser. No. 385,118
9 Claims. (Cl. 242—56.6)



1. An apparatus for sectioning a continuous web, comprising a cylindrical drum, means for rotating said drum for wrapping the web thereon, means for clamping the wrapped web to the drum, and means for longitudinally cutting the wrapped web at plural circumferentially spaced locations for creating plural web sections, said clamping means encircling and concentrically rotatable with said drum, said clamping means including separate longitudinally extending means for clamping each said web section in at least two places circumferentially between each pair of said locations of longitudinal cutting, each said separate longitudinally extending means selectively operable to clamp or release one of said plural web sections.

3,304,021
WEB FASTENER

André Quenot, Besancon, France, assignor to the firm of Etablissements Quenot & Cie, Besancon, France
Filed Mar. 22, 1965, Ser. No. 441,533
Claims priority, application France, Nov. 21, 1964, 995,884
1 Claim. (Cl. 242—74.1)

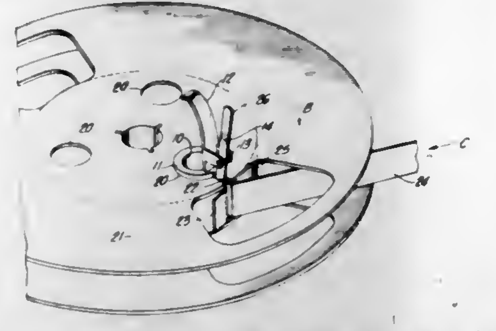


A device for fastening the extremity of a measuring-tape to a winding drum having an inner surface and an outer surface, said device comprising a cylindrical recess tangential to said inner surface, a slit connecting said inner surface to said outer surface, two jaws formed by said slit on said outer surface and a flat peg of the same width as said tape and comprising, at one of its ends, a median slit for the fixation of said tape, and, at the other end thereof, a cylindrical bulge of the same width, adapted to be introduced into said recess.

3,304,022
WEB FASTENER

Edwin N. Caffe, Hollywood, Calif., assignor of fifty percent to Roman A. Di Meo, Alhambra, Calif.
Filed Mar. 15, 1965, Ser. No. 439,902
10 Claims. (Cl. 242—74.2)

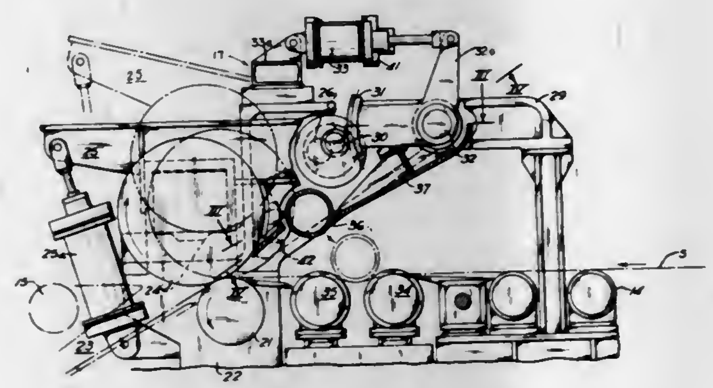
1. In a web fastener for securing a tape end to a reel, the combination comprising: a body for positioning the fastener in said reel; a lever arm pivotally secured to said body, said lever arm being initially maintained with the lower end thereof in predetermined spaced relation to said body; means attached to said lever arm for maintaining and returning said lever arm to its



original position in spaced relation to said body; and means provided by said body for providing constant vertical location of said body in said reel.

3,304,023
METHOD AND APPARATUS FOR COILING STRIP

Jeremiah Wagner O'Brien, Mount Lebanon, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 18, 1964, Ser. No. 368,197
Claims priority, application Great Britain, June 4, 1963, 22,142/63
7 Claims. (Cl. 242—80)



1. In a method of coiling strip-like material in a strip winding machine after the strip issues from a processing apparatus, including a strip tensioning device comprising the steps of:

conveying in a first direction of travel the leading end of the strip from said processing apparatus to said tension device,

positioning said tension device to deflect the leading end of the strip into a second direction of travel and to urge it toward said winding machine,

creating a tension on the strip between the winding machine and the processing apparatus after the leading end of the strip is in said winding machine, and

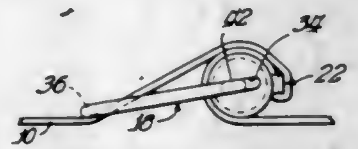
positioning said tension device to impose a tension on the trailing end of the strip while tending to urge the trailing end in said first directon of travel.

3,304,024
BELT RETRACTING MEANS

Herbert A. McAninch, Auburn, Ind., assignor to Borg-Warner Corporation, a corporation of Illinois
Filed Apr. 19, 1963, Ser. No. 274,271
2 Claims. (Cl. 242—107.11)

1. A retractor device for vehicle seat belts comprising a first larger generally U-shaped bail having its cross bar portion adapted to engage the web of a cooperative seat belt, a second smaller generally U-shaped bail

coaxially mounted in respect to said first bail and having its middle portion adapted to engage the opposite face of said seat belt web when the belt is in extended condition, a cylindrically wound spring having its opposite ends operatively connected between said bails to resist relative rotation therebetween in one direction, said second bail including a cylindrical tube portion encompassing said spring, and a pair of bearing flange members disposed at the opposite ends of said tube portion providing bearings between said bails during the relative rotation thereof.



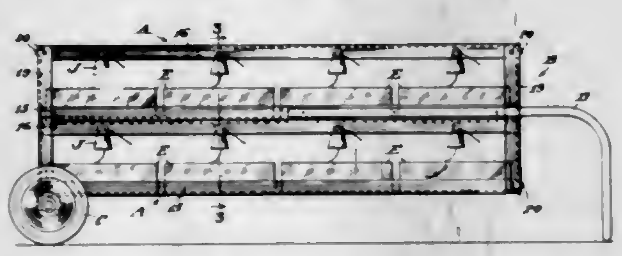
3,304,025

RACK FOR BOXED COILED WIRE

Leon Zerg, Venice, Calif. (8583 Venice Blvd., Los Angeles, Calif. 90034), and Jack Webster, Venice, Calif.; said Webster assignor to said Zerg

Filed Aug. 17, 1965, Ser. No. 480,408

4 Claims. (Cl. 242—129)



1. In a holder and conveyor for a plurality of rectangular boxes each containing a coil of wire, a multiple of racks each having a support for a plurality of such boxes arranged in a row, said racks being assembled one upon another to provide a multiple of superimposed rows of such boxes, and tubular means on said racks for guiding lengths of wire outwardly from said boxes free thereof.

3,304,026

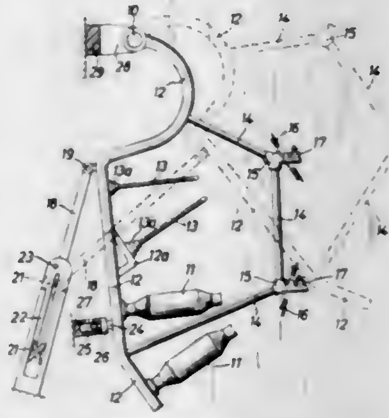
CREEL FOR TEXTILE MACHINES

Geoffrey E. Bucklow, Leek, and John Knowles, Alderley Edge, England, assignors to Ernest Scragg & Sons Limited

Filed Jan. 20, 1964, Ser. No. 338,699

Claims priority, application Great Britain, Jan. 29, 1963, 3,594/63

7 Claims. (Cl. 242—131)



1. In a yarn processing machine having a yarn processing station, creel means secured to said machine and carrying bobbin means supplying filamentary material to said processing station, said creel means being movable with reference to said machine between a first position in which it is located close to said processing station whereby access to said creel means and bobbin means is obstructed by said processing station, and a second position in which said creel means and bobbin means are readily accessible; and combined guiding and locating means operatively connected with said machine and creel means for guiding the latter during movement from said first to said second position and for locating said creel means in said first position in a predetermined relationship with respect to said machine, said locking means comprising an elongated sleeve member having a free first end and a second end secured to said machine, said sleeve member having an elongated first passage extending from said second end toward said first end but terminating short thereof, and a second passage intermediate said first passage and said first end, said second passage having a cross-section larger than said first passage, said locking means further comprising an elongated arm pivotally secured at one end to said frame-shaped member and having its other end slidably received in said passages through said first end of said sleeve member, and a locking member carried by said other end of said arm, said locking member being movable with respect to said arm between one position in which it extends substantially parallel to the latter and is receivable with the same in said first passage, and another position in which it extends transversely of said arm and is prevented from entry into said first passage, and actuating means adapted to bias said locking member from said one to said other position whereby, when said other end of said arm is withdrawn from said first passage into said second passage of said sleeve member during movement of said frame-shaped member from said first to said second position, said locking member will pass from said first passage into said second passage and said actuating means will bias said locking member into said other position so that reinsertion of said other end of said arm into said first passage is blocked and said frame-shaped member is locked into said second position.

3,304,027

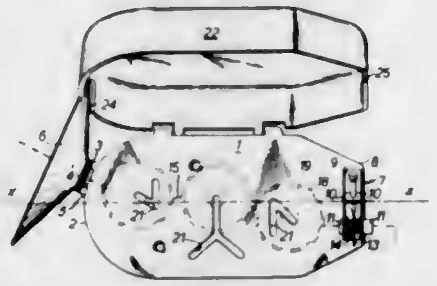
YARN TENSION CONTROL DEVICE

Harold Stanier, Upton House, Upton Bishop, Ross-on-Wye, England

Filed Sept. 8, 1964, Ser. No. 394,722

Claims priority, application Great Britain, Sept. 7, 1963, 35,413/63

2 Claims. (Cl. 242—150)



1. In a yarn tension control device, an elongated baseplate with a medial longitudinal axis, a yarn inlet guide mounted at one end of the baseplate to one side of said axis, a yarn outlet guide mounted at the other end of the baseplate to the other side of said axis, said baseplate having three slots therethrough for the reception of disc-type tensioning means so that yarn pass through the tensioning means during passage between said inlet guide and said outlet guide in the general direction of said axis and so that the tensioning means can be adjustively moved along the slots, one of said slots adjacent the inlet guide lying to said one side of said axis and the other two slots lying to said other side of the axis, said one slot and one of said two slots adjacent the outlet guide being V-shaped each with an apex approximately on said axis, and the remaining intermediate slot being Y-shaped with the free end of the central limb of the Y approximately on said axis.

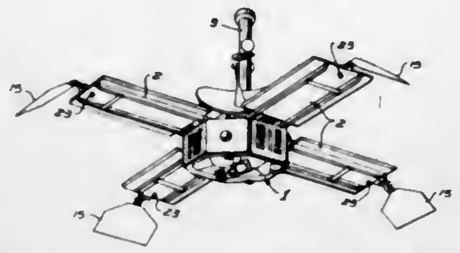
3,304,028

ATTITUDE CONTROL FOR SPACECRAFT

Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of John C. Nicklas, James D. Acord, James O. Lonborg, and James C. Randall

Filed Aug. 11, 1964, Ser. No. 388,966

6 Claims. (Cl. 244—1)



1. An attitude control for spacecraft having a central mass and radiating arms, said control comprising:

(a) angularly movable control surfaces at the extremities of said arms responsive to solar pressure;
(b) bimetallic elements engageable with said control surfaces to vary the angular positions of said control surfaces thereby to vary the exposure of said control surfaces to the sun;
(c) and means interposed between each of said bimetallic elements and the sun for varying the exposure thereof to the sun on change in attitude of the spacecraft thereby to cause said responsive means to vary the angular positions of said control surfaces in directions tending to move said spacecraft toward a preselected attitude relative to the sun.

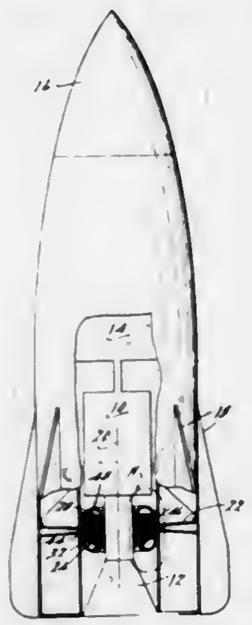
3,304,029

MISSILE DIRECTIONAL CONTROL SYSTEM

Norman F. Ludtke, Washington Township, Macomb County, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Filed Dec. 20, 1963, Ser. No. 332,127

18 Claims. (Cl. 244—3.20)



1. A directional control system for maintaining a missile on a launch predetermined path comprising a gyroscope mounted with its spin axis and rotor aligned with the longitudinal axis of the missile at launch, said missile movable transaxially relative to said rotor, at least three substantially equally spaced and radially aligned jet nozzles mounted on the missile, a source of pressurized fluid operatively connectible to said nozzles, said gyroscope having said rotor operatively connected between said source and said nozzles for providing a variable fluid flow therethrough to provide balancing forces to the missile responsive to its movement relative to said rotor.

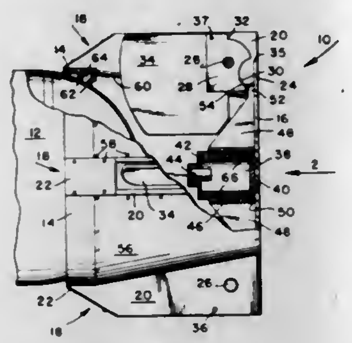
3,304,030

PYROTECHNIC-ACTUATED FOLDING FIN ASSEMBLY

James E. Weimholt and Lawrence M. Biggs, Jr., China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Sept. 24, 1965, Ser. No. 490,143

6 Claims. (Cl. 244—3.28)



1. An unitary folding fin assembly comprising:
a circular plate;
a plurality of radially extending tabs on said plate arranged equi-angularly around the periphery thereof;
a plurality of fin housings, each comprising a pair of parallel mounting plates having rear ends disposed on either side of one of said tabs and secured thereto;
an attaching band disposed generally parallel to said circular plate and secured to the front portions of said mounting plates;
a plurality of pivot pins, one per fin housing supported in the mounting plates thereof adjacent the associated tab;
a plurality of cam blocks, one per pivot pin and supported thereon for swinging from a folded position to an erect position in which swinging is limited by engagement of the block with the end of the associated tab;
a plurality of fins, one per cam block and secured thereto for swinging therewith from folded to erect position; and
means engaging said cam blocks for swinging the same and the fins to erect position.

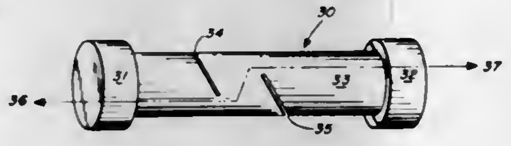
3,304,031

CATAPULT DELAYED RELEASE ELEMENT

James J. Mulquin, Rockville, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Apr. 30, 1965, Ser. No. 452,410

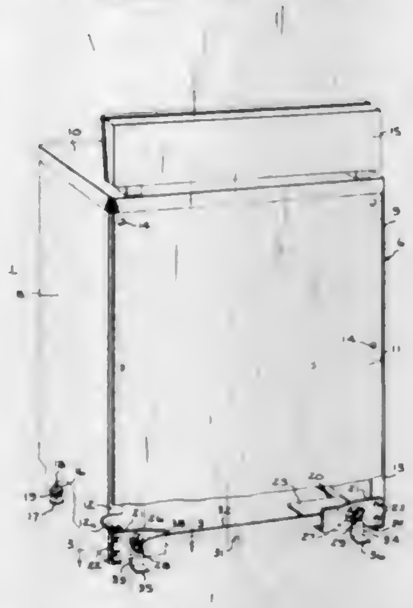
7 Claims. (Cl. 244—63)



1. A frangible tension bar comprising:
a first connecting portion;
a second connecting portion;
a shank portion extending axially between said first and second connecting portions; and
at least two axially displaced notches in substantially opposite surfaces of said shank, said notches extending radially into said shank to a depth greater than half the shank thickness to define an offset load axis whereby the application of a tensile load to the bar creates a couple tending to straighten said effective load axis and elongate said tension bar, prior to failure.

3,304,032
SELF-BALANCING SUPPORT MECHANISM

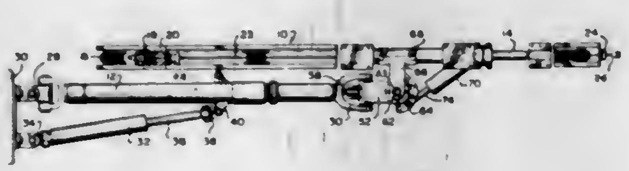
Roy K. Yates, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Jan. 13, 1965, Ser. No. 425,143
4 Claims. (Cl. 248—2)



1. In a machine subject to vibration during operation in response to an unbalanced weight distribution, a support mechanism including a cabinet to receive the machine, one side of said cabinet including a strap member extending across the lower end thereof, said strap member including a pair of spaced, upwardly diverging slots, a mounting leg for operative attachment to said strap member, said mounting leg including an elongated, generally horizontal central portion with a downwardly extending support foot formed at each end thereof, and a pair of spaced attachment studs, each of said studs being securely attached to said mounting leg and extending through a corresponding one of said slots with a close sliding engagement.

3,304,033
BOOM MOUNTED DRILL SUPPORT

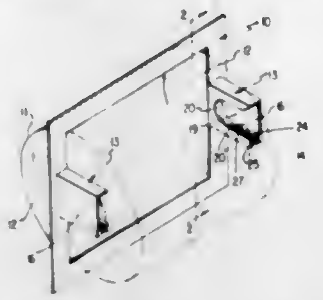
Robert L. Thompson, Westfield, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Mar. 12, 1965, Ser. No. 439,411
8 Claims. (Cl. 248—16)



1. An apparatus for mounting a rock drill comprising:
a boom;
a supporting member adapted for carrying a rock drill;
connecting means carried by said boom;
means for pivotally connecting said supporting member to said connecting means;
said connecting means including a plurality of attachment points separate from said means for pivotally connecting said supporting member to said connecting means;
motor means connected to said supporting member for pivoting said supporting member relative to said boom; and
means for connecting said motor means to said connecting member alternatively at each of two of the plurality of attachments points on said connecting means.

3,304,034
PAPER ROLL HOLDER

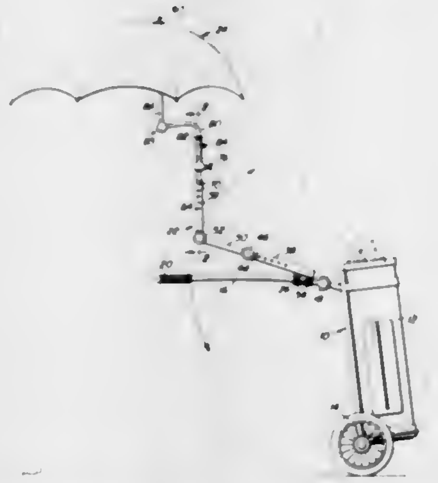
Ned L. Jones, 3209 Butterfield Road, Yakima, Wash. 98901
Filed Mar. 16, 1965, Ser. No. 440,182
3 Claims. (Cl. 248—27)



1. In a holder for paper rolls and the like, a bracket arm, means connected with said bracket arm for mounting the same on a vertical supporting wall, said bracket arm comprising a generally rectangular body portion having a recess in one side thereof and opening through its forward end, said recess having vertically spaced substantially parallel horizontal walls and a rear curved wall whose radius establishes the distance between said top and bottom walls, said bottom wall having an elevated ledge extending therealong and having a notch in its end, a leaf spring monuted upon the bottom wall inwardly of said ledge and having a downturned extension in said notch, a fastener anchoring said extension in said notch, said leaf spring having a curved crowned part intermediate its ends projecting above said ledge and spaced forwardly of said curved wall and below and forwardly of the radial center of the curved wall, said crowned part adapted to yieldingly engage a supporting tube while an end portion thereof is within said recess and engaging the curved wall.

3,304,035
GOLF CART UMBRELLA ATTACHMENT

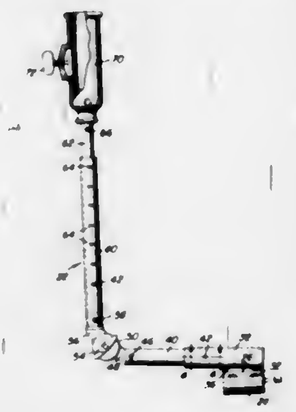
Claude R. Davis, 233 Dunlap Court, Jacksonville, Ill. 62650
Filed Dec. 29, 1964, Ser. No. 421,930
1 Claim. (Cl. 248—40)



A combination golf cart umbrella and umbrella attachment comprising complementary saddle clamp members for embracing a golf cart handle, a telescopic sleeve secured to one of said clamp members, a telescopic rod adjustably securable within said sleeve, adjustable coupling means secured to said rod, a second telescopic sleeve secured to said adjustable coupling means, a ball and socket coupling telescopically secured to said second telescopic sleeve, an umbrella having an umbrella shaft and shaft end, a shaft end receiving sleeve mounted on said ball and socket coupling, said umbrella shaft end being mounted in said umbrella shaft end receiving sleeve, said umbrella shaft end being polygonal in cross section and said umbrella shaft end receiving sleeve being complementary thereto, manually operable set screw means for securing said umbrella shaft end in said umbrella shaft receiving sleeve, said umbrella being eccentric and the polygonal cross section of said umbrella shaft end being regular, whereby the umbrella may be set at different angles of rotation to cover different areas adjacent the golf cart, said adjustable coupling means comprising a connecting rod and an adjustable coupling at each end of said connecting rod, said umbrella shaft comprising an umbrella supporting portion and an elbow-shaped mounting portion, one end of said elbow-shaped portion extending into said umbrella shaft receiving sleeve, the other end of said elbow shaped portion having an adjustable coupling connection to said umbrella supporting portion for supporting said umbrella supporting portion in either a straight angle or a right angle relation to said other end of said elbow-shaped portion.

3,304,036
GOLF CART UMBRELLA MOUNTING ATTACHMENT

Claude R. Davis, 233 Dunlap Court, Jacksonville, Ill. 62650
Filed July 19, 1965, Ser. No. 473,136
1 Claim. (Cl. 248—41)

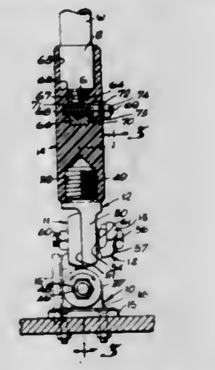


A golf cart umbrella attachment comprising a saddle clamp means for attachment about a golf cart handle, a telescopic sleeve secured to said clamp means, a telescopic rod detachably secured to said telescopic sleeve, a swivel coupling portion secured to said telescopic rod, a second swivel coupling portion, bolt means adjustably securing said swivel coupling portions in desired adjusted position, a telescopic sleeve secured to said second swivel coupling portion, a telescopic rod adjustably mounted in said second mentioned telescopic sleeve, an umbrella shaft end receiving socket secured on said second mentioned telescopic rod and an umbrella shaft securing thumb set screw threaded through a side of said socket, said telescopic rods being hollow, and bullet catches in said hollow telescopic rods securing said sleeves to said rods, said saddle clamp means being a saddle member secured to said first mentioned sleeve, a saddle clamp member, said members being internally serrated, and complementary apertured ears on said members for securing said clamp members in clamping position on the golf cart handle, said swivel coupling portions being complementarily serrated.

3,304,037
MOUNTING BASE FOR MARINE ANTENNAS

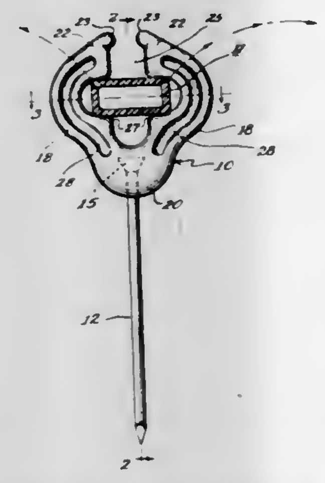
Frank Candela, Hialeah, Fla.
(3635 S. Dixie Highway, Miami, Fla. 33133)
Filed May 21, 1965, Ser. No. 457,590
4 Claims. (Cl. 248—44)

1. A mounting base for marine whip antennas comprising, in combination, a pedestal member adapted to be fixed to a supporting structure, an intermediate joint link member, means adjustably interconnecting one end of said intermediate joint link member with said pedestal member for swinging motion with respect thereto in a first plane, an upper joint member, means adjustably interconnecting one end of said upper joint member with the other end of said intermediate joint member for swinging motion with respect thereto in a second plane perpendicular to said first plane, and an electrically-non-conductive support post connected to the other end of said upper joint member, said support post having a socket for receiving seated therein the cylindrical base of a whip antenna and including means for making the electrical connection to the base of a whip antenna secured in said socket, said socket comprising a first cylindrical opening in said support post, and said means for making electrical connection comprising a cylindrical metal bushing secured in a second cylindrical opening in said support post extending from the bottom of said first cylindrical opening and coaxial therewith, said second opening being of lesser diameter than first opening to define an annular seat therewith, the outer end of said bushing having an internally-threaded axial bore for receiving the threaded stud of a whip antenna received in said socket, and an electrically-conductive terminal stud member secured in said support post and extending transversely into said bushing for making electrical contact therewith and for securing said bushing in place.



3,304,038
SUPPORT FOR TENUOUS ARTICLE

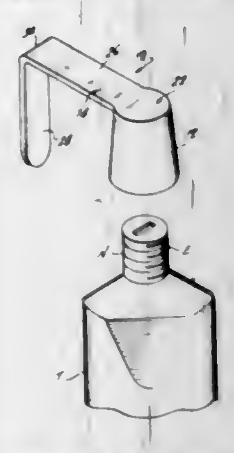
Foster H. Guthrie, Newark, Ohio, assignor to The Larsan Manufacturing Co., Newark, Ohio, a corporation of Ohio
Filed Mar. 14, 1966, Ser. No. 533,956
3 Claims. (Cl. 248—71)



1. A device adapted to be disposed in a spaced series for supporting an extended, tenuous article, comprising
(a) a bifurcated member having arms joined at one extremity by a web portion and spaced apart at their other free extremity defining a passage therebetween, for engaging such tenuous article, and
(b) an attaching member fixed to and projecting from said web portion, said bifurcated member being generally U-shaped, having a cross-shaped passage therein to seat such tenuous article.

3,304,039
COMBINED CLOSURE AND SUPPORT CONSTRUCTION

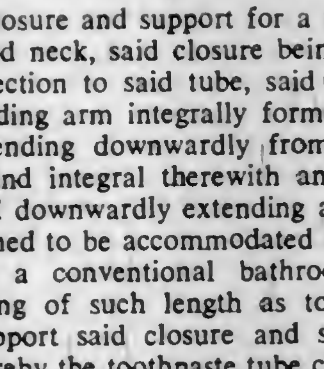
Barry Edelman, 2811 Gravesend Neck Road, Brooklyn, N.Y. 11229, and Andrew Perez, 2011 18th St., Astoria, N.Y. 11102
Filed June 23, 1965, Ser. No. 466,227
1 Claim. (Cl. 248—108)



A combined closure and support for a toothpaste tube having a threaded neck, said closure being threaded for detachable connection to said tube, said closure having a laterally extending arm integrally formed therewith, a second arm extending downwardly from said laterally extending arm and integral therewith and spaced from said closure, said downwardly extending arm being sufficiently dimensioned to be accommodated in a toothbrush slot formed in a conventional bathroom toothbrush bracket and being of such length as to extend below such slot to support said closure and support in said bracket slot whereby the toothpaste tube can be separated from said closure and its contents dispensed.

3,304,040
MORTAR BOX STAND

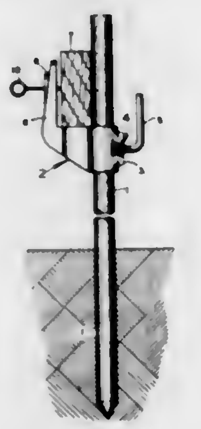
Werner E. Lomker, East Orange, N.J., assignor to James J. Boyle, Caldwell, N.J.
Filed Sept. 1, 1964, Ser. No. 393,497
3 Claims. (Cl. 248—150)



1. A mortar box stand comprising a generally rectangular frame adapted to be horizontally disposed, measuring about 21" long by 21" wide, formed of metal strips, a U-shaped metal strip member at each of opposite ends of said frame, each member comprising arms extending in the same direction from opposite ends of a connecting portion, ¼" metal rivets pivoting the free end portions of said arms to opposite side members of said frame, so that said U-shaped members are swingable to and from outer supporting positions from and to inner positions in close proximity to the frame, adapting the stand for convenient carriage when the U-shaped members are in said inner positions, and lugs slit from said arms and adapted to engage the frame at the extreme outer supporting positions for limiting swinging of said U-shaped members outwardly beyond desired supporting positions, the connecting portion of one U-shaped member corresponds with the outside dimension of the frame while the connecting portion of the other U-shaped member corresponds with the inside dimension thereof, so that the arms of said U-shaped members may fold into interleaved relationship with the frame and one another, said U-shaped members having their arms about 15¾" long below the axes of said rivets whereby, when in supporting position, said U-shaped members hold the frame with its top surface about the same distance off the ground, the lugs on the first-mentioned U-shaped member being bent toward one another, those on the other U-shaped member being bent away from one another, and each having its free end lying about ⅜" from the corresponding rivet axis and bent beyond the outer edge of the carrying arm about ⅜".

3,304,041
ADJUSTABLE SUPPORT FOR EXCAVATION BATTER BOARDS

Daniel Priore, 2265 SW. 15th St., Miami, Fla. 33145
Filed Jan. 13, 1966, Ser. No. 520,472
1 Claim. (Cl. 248—156)



In combination support means; plural mensuration batter boards and at least two like straight round metal stakes of predetermined length and uniform cross section, which are adapted to be driven into the earth in predetermined spaced vertical relation, said support means comprising

a body member comprising an elongated cylinder having a coaxial cylinder bore therethrough for a slidable linear and rotational movement on each of said stakes including a vertical arm extending upward from said cylinder with the inner surface thereof in predetermined parallel spaced relation to the axis of said bore and a vertical web integral with said cylinder and said arm and having an upper surface on said inner surface for supporting and reinforcing the vertical arm,

a first boss extending outward from said cylinder and including a first threaded hole through said boss and said cylinder substantially normal the axis of said bore,

a first hand screw threaded into said first hole for end engagement with each of said stakes for securing said cylinder in a predetermined vertical and azimuthal position thereon,

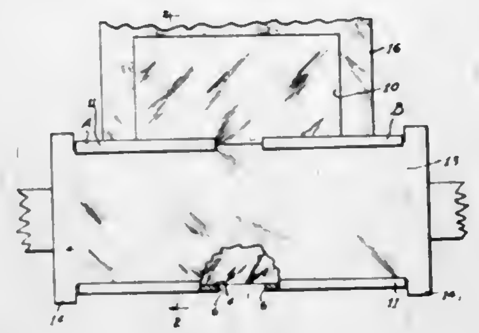
a second boss projecting from the outer side of said arm and integral therewith and including a second threaded hole therethrough substantially normal the axis of said bore,

a batter board supported at opposite end portions thereof by each said body member and resting on said upper surface of said web between each of said stakes and each corresponding said vertical arm,

a second handscrew threaded through said second hole for engaging and clamping a batter board against the side of each of said stakes in predetermined relation to the surface of said earth whereby mensuration lines may be attached to any position along said batter board for mensuration purposes.

3,304,042
HORIZONTALLY ADJUSTABLE CARD HOLDER

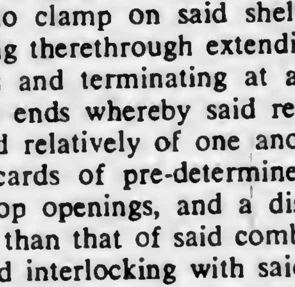
Tony J. Ivandick, 5412 College Ave., Jennings, Mo. 63136
Filed Dec. 29, 1965, Ser. No. 517,322
5 Claims. (Cl. 248—314)



1. A holder for successive withdrawal of individual cards therefrom, and adapted to be suspended by a horizontally projecting shelf, comprising a pair of like opposed hollow box-like receptacles laterally adjustably movable relatively of one another, each receptacle having substantially parallel front and rear walls, a top and a bottom wall and open at one end, and legs carried by said rear walls to clamp on said shelf, said top walls having an opening therethrough extending from said opposed open ends and terminating at a spaced distance from their other ends whereby said receptacles may be adjustably moved relatively of one another to receive a supply of said cards of pre-determined width through said combined top openings, and a display card whose length is greater than that of said combined top opening and engaging and interlocking with said pair of receptacles for detachably maintaining the latter in their spaced apart adjusted relation.

3,304,043
RESILIENT MOUNTING

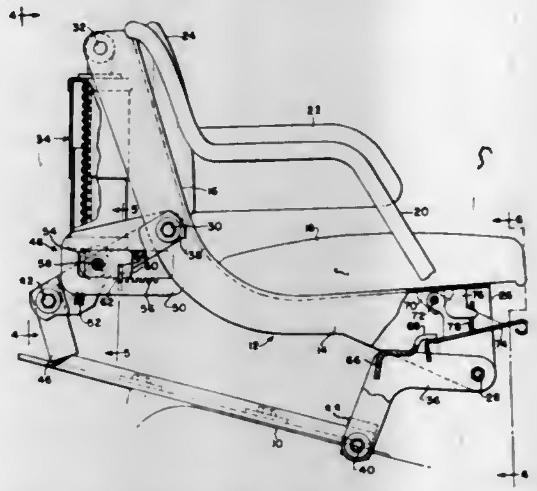
Merrill G. Beck, Erie, Pa., assignor to Lord Corporation, a corporation of Pennsylvania
Filed Mar. 2, 1965, Ser. No. 436,590
1 Claim. (Cl. 248—358)



In a resilient mounting, a supporting member having a socket with side walls converging toward a bottom wall at its lower end, said bottom wall having a central opening providing a seat around the opening, a body of elastomer in the socket mating with and unbonded to the side and bottom walls and having bonded in its lower end a rigid ring of larger inside diameter than said opening, said ring resting on the upper surface of said seat adjacent the outer part of said seat and holding the elastomer in engagement with the side walls, a supported member at the upper end of the socket, a connecting member fixed to the center of the elastomer and connected at its upper end to the supported member and having its lower end extending through said opening, a part fixed to said connecting member having a surface spaced below and underlying and in opposed relation to the supporting member, and a section of elastomer between said surface and the supporting member.

3,304,044
VEHICLE SEAT STRUCTURE

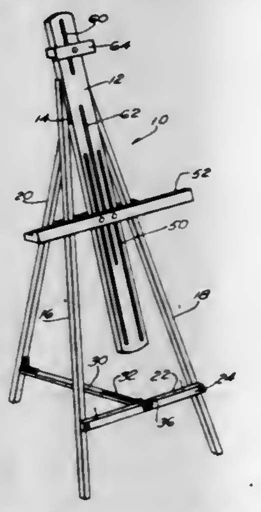
Gary L. Campbell and Ardis D. Herring, Waterloo, Iowa, assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Mar. 29, 1965, Ser. No. 443,510
12 Claims. (Cl. 248—399)



1. Vehicle seat structure, comprising: fore-and-aft support means; a seat including a lower part and a rear part rising from said lower part; mounting means connected between the support means and the seat and mounting the seat above the support means for up-and-down movement of said seat relative to said support means in a rider-carrying range and for upward and rearward movement to a rear position out of said range, said mounting means including a first set of front and rear transverse pivots spaced apart fore and aft on the support means, a second set of front and rear transverse pivots spaced apart fore and aft on the lower seat part and spaced respectively ahead of the front and rear pivots of said first set when the seat is in its rider-carrying range and front and rear link means connected respectively between the two front pivots and the two rear pivots; and means for yieldingly supporting the seat in said rider-carrying range, including an expansible and contractible device biased against contraction and having an upper end including a connection to an upper portion of the seat rear part and a lower end including a connection to a portion of the rear link means intermediate the rear pivots.

3,304,045
EASEL

John Joseph Bethoney, 109 E. Canton St., Boston, Mass. 02118
Filed Feb. 23, 1965, Ser. No. 434,521
1 Claim. (Cl. 248—451)



An artists' easel for supporting a canvas frame or the like, comprising

(a) a generally rectangular center board having flat front, rear and side faces,

(b) said center board being formed with a plurality of spaced parallel slots extending lengthwise of said center board,

(c) a pair of elongated members slideably and detachably connected to said center board through said slots and normally oriented in spaced parallel relation to one another and perpendicularly to the length of said center board, said members being adapted to engage the upper and lower edges of a canvas frame laid against said center board,

(d) a leg hinged to each of said side faces and to the rear face of said center board, the hinged ends of said legs being beveled to bear flush against said center board when said legs are extended, said side hinged legs being partially braced by one of said members when said side hinged legs are extended,

(e) a brace mounted parallel to said lower member and rearwardly of said board and said side hinged legs for partially bracing said side hinged legs when extended,

(f) a pair of spaced parallel chocks mounted to the rear face of said board for engaging the sides of the upper end of said rear leg when extended,

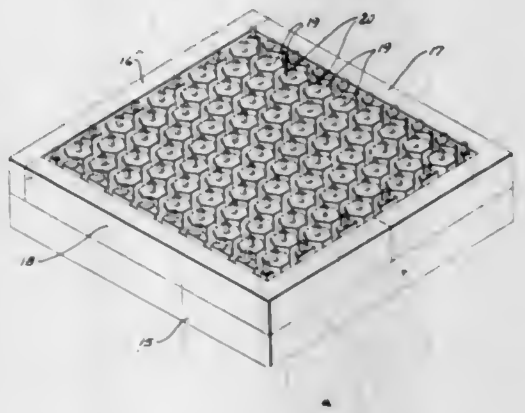
(g) a cross brace mounted to the upper rear face of said board extending beyond the sides thereof to partially brace the upper ends of the side hinged legs when extended,

(h) a cross-piece detachably connected between the lower portions of said side hinged legs and,

(i) a strut hinged at one end to said rear leg and slideably connected to said cross-piece at its other end.

3,304,046
MANUFACTURE OF CERAMIC OBJECTS AND THE LIKE

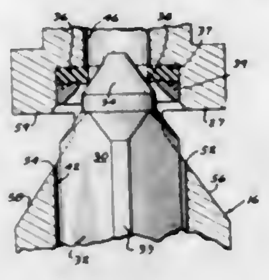
Eldon D. Miller, Jr., Bridgeville, Pa., assignor to Harbison-Walker Refractories Company, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Apr. 13, 1964, Ser. No. 359,145, now Patent No. 3,290,421, dated Dec. 6, 1966. Divided and this application May 31, 1966, Ser. No. 566,454
6 Claims. (Cl. 249—142)



1. In a moisture-absorbent multi-component mold suitable for casting complex ceramic and refractory materials consisting of a base having an upper surface and sidewalls releasably affixed thereto to provide a cavity, a plurality of undirectional, noncircular mold components extending vertically from the upper surface of the base within the cavity in an accurate pattern, each of said mold components being frictionally engaged with and removably secured to the base by means of complementary polarizing keying means attached to the base and mold components, one of said keying means being flexible and the other rigid.

3,304,047
CARBURETOR

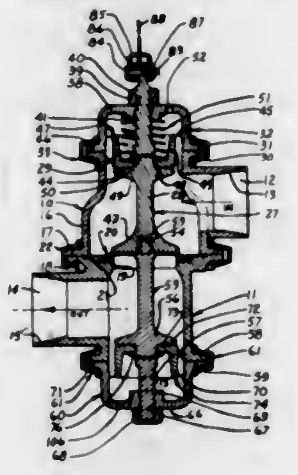
Charles L. Martin, St. Louis, Mo., assignor to ACF Industries Incorporated, New York, N.Y., a corporation of New Jersey
Filed May 22, 1964, Ser. No. 369,369
5 Claims. (Cl. 251—118)



1. A carburetor for an internal combustion engine having a fuel inlet, a valve structure for controlling the flow of fuel through the inlet, said valve structure including a valve body having a fuel passage therethrough connected to the fuel inlet and an annular valve seat formed within the fuel passage, a valve needle mounted for longitudinal movement within the fuel passage, a conical tip on one end of the valve needle adapted to engage the valve seat to block the flow of fluid through the valve, at least one pair of outwardly diverging substantially planar surfaces formed intermediate the length of the valve body and defining at least one outwardly diverging passage which communicates with the fuel passage through an opening having a greater area than the area defined by the annular valve seat.

3,304,048
BALANCED VALVE

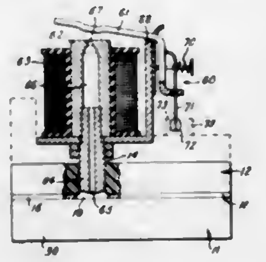
Simon Roberts, 20177 McIntyre, Detroit, Mich. 48219
Filed Oct. 14, 1963, Ser. No. 315,985
9 Claims. (Cl. 251—138)



1. A balanced fluid flow control valve comprising: an outlet housing having an open lower end and an outlet port; an inlet housing having an open upper end and an inlet port; said inlet housing being disposed in vertical alignment on the outlet housing; an integral wall on the upper end of the outlet housing between said inlet and outlet housings having a flow passage opening formed therethrough with a valve seat formed therearound in said inlet housing; a stem movably mounted in said housings and having the lower end thereof extended through said opening into said outlet housing and out of said open lower end; a valve on said stem in said inlet housing normally seated on said valve seat for closing said opening and blocking the flow of fluid therethrough; said stem extending upwardly from said valve and through the open upper end of the inlet housing; an upper end cap mounted on the upper end of said inlet housing for enclosing the open upper end; a lower end cap mounted on the lower end of the outlet housing for enclosing the lower open end of the same; clamping means for securing said end caps on said housings; spring means in said upper end cap and engaged with the upper end of said stem for biasing the same downwardly to move said valve into closing engagement with said valve seat; a first rolling diaphragm having the periphery sealingly secured to the upper end of said inlet housing and a central portion sealingly secured to the valve stem; a second rolling diaphragm having the periphery thereof sealingly secured to the lower end of said outlet housing and a central portion sealingly secured to the valve stem; the effective operating areas of said rolling diaphragms and said valve being substantially equal; and, means for moving said stem and valve upwardly against the action of said spring means for opening the valve to permit fluid flow from said inlet housing into said outlet housing for discharge through said outlet port.

3,304,049
FLUID CONTROL DEVICES

Robert B. Wilkerson, Bloomington, Ill., assignor to General Electric Company, a corporation of New York
Original application Jan. 9, 1963, Ser. No. 250,448. Divided and this application Sept. 1, 1965, Ser. No. 493,605
3 Claims. (Cl. 251—139)

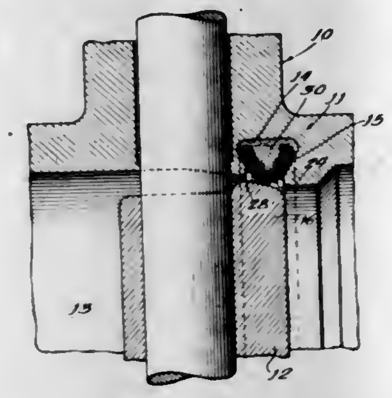


1. A self-mounting fluid control device for controlling the flow of fluid from a passage comprising an elongated retaining member having an opening extending therethrough, said retaining member being adapted for reception within the passage to be supported thereby, a generally L-shaped support frame having a pair of legs, one of said legs having an aperture therein through which passes said retaining member, a magnetic core having an opening extending therethrough, said opening being formed as a bleeder orifice at one end and receiving said retaining member at the other end so that said core is fixedly supported by said retaining member, a coil surrounding said core, a magnetic armature pivotally supported at the free end of the other of said legs of said support frame which other leg extends generally parallel to said core, and resilient means biasing said armature with respect to said support frame whereby said armature is normally biased to uncover said orifice, and is pivoted to cover said orifice when said coil is energized to stop the flow of fluid from the passage through said orifice.

3,304,050
VALVE SEAT

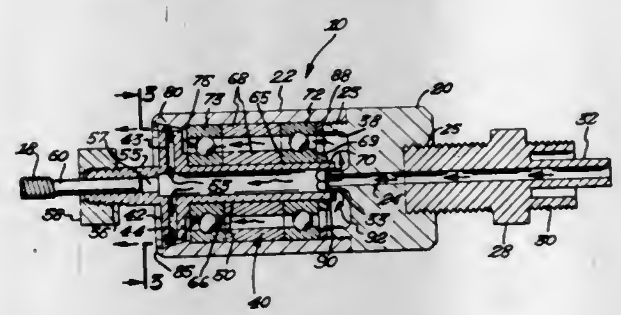
Donald G. Fawkes, Chicago, Ill., assignor to Henry Pratt Company, a corporation of Illinois
Filed Apr. 1, 1963, Ser. No. 269,527
9 Claims. (Cl. 251—306)

1. Structure for sealing a first valve member to an adjacent sealing surface of a second valve member, comprising: means on the first valve member defining a channel having side walls, an opening confronting said sealing surface of the second valve member, and a bottom surface; a seal on said first member in adjusted fixed position formed of a resiliently distortable material having an inner portion disposed in contact with said side walls, and an outer portion in contact with said sealing surface, said seal having a configuration permitting movement of the entire seal bodily relative to said channel to said adjusted position; and a set mass of plastic material in the channel between said seal and said bottom surface bodily positioning the seal to engage said sealing surface and compressing the seal against said sealing surface to have uniform sealing engagement therewith, said seal being confined only by said sealing surface, said side walls of said channel means and said set mass, the outer surface of said set mass behind said outer portion of the seal being spaced from said sealing surface at each point along the channel a distance equal to the thickness of the uncompressed seal between said outer surface of the set mass and said sealing surface minus a preselected dimension thereby providing a uniform compression of said outer portion of said seal at each said point.



3,304,051
AIR MOTOR

J. Thomas Calhoun, 3305 Shores Blvd., Wayzata, Minn. 55391
Filed Oct. 8, 1964, Ser. No. 402,438
6 Claims. (Cl. 253—3)

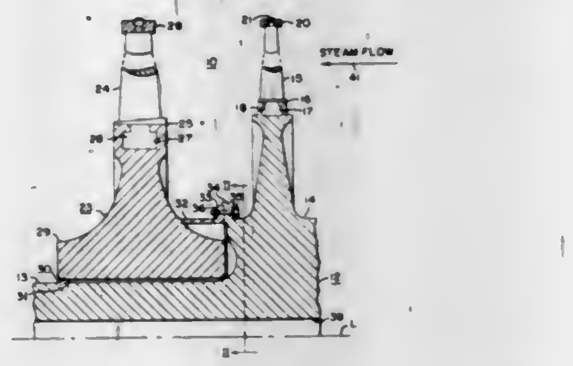


1. An air motor comprising, a casing means including an input end section and a cylindrical casing section with an open extremity, a rotor section for the motor including a cylindrical impeller section and a pair of concentric transverse tubing portions extending to either side thereof, spaced bearing means mounted on one of said tubing portions, output shaft coupling means mounted on and connected to other of said tubing sections, a tubular extension included in the input end section of said casing means and positioned in one end and spaced from said one of said transverse tubing portions of the rotor section to provide a tubular passage from said input end section of the casing means through said one of said tubing portions to said cylindrical impeller section, coupling means connecting the input end section and the cylindrical casing section of said casing means and positioning the bearing means on said one of said tubing portions of said rotor section to mount said rotor section within said casing means and space the impeller section from the cylindrical casing section, and means including shoulder means within said cylindrical casing section for positioning said bearing means therein, the input end section and said one of said tubing portions of said impeller section defining an air passage for a main air supply to said im-

peller section for rotating the motor, the spacing between the tubular extension of said input end section and said one of said tubing portions of said rotor section and the spacing between the impeller section and the cylindrical casing section together with said open extremity of the cylindrical casing section providing a second passage for the air supply, said air supply being adapted to have oil therein such that air movement through the second passage will cause oil to move along the tubular extension and on surfaces defining the second passage through the bearing means to lubricate and cool the same, said open extremity of said cylindrical casing section having a tapered surface adjacent the impeller section of the rotor section to facilitate air flow through the second passage and said bearing means.

3,304,052
ROTOR STRUCTURE FOR AN ELASTIC FLUID UTILIZING MACHINE

Ronald E. Warner, Media, and Ivar Johnsson, Newtown Square, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 30, 1965, Ser. No. 443,864
7 Claims. (Cl. 253—39)

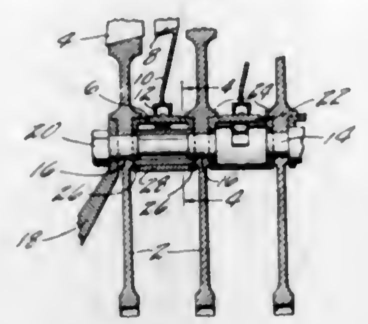


1. An elastic fluid utilizing machine rotor structure comprising
  a rotor shaft having a portion of circular cross-section,
  a disc member having a wide base provided with a circular bore freely encompassing said circular shaft portion and jointly therewith defining an annular clearance space,
  said disc member having an annular row of blades, and
  means for drivingly connecting said disc member to said shaft, said means including a radially flexible yet torsion resistant tubular member disposed in spaced concentric relation with said shaft portion and having one end portion securely connected to said disc member and another end portion securely connected to an integral portion of said shaft,
  said tubular member having a width less than half the width of said base portion.

3,304,053
BALANCING WEIGHTS FOR A MULTISTAGE FLUID MOTOR

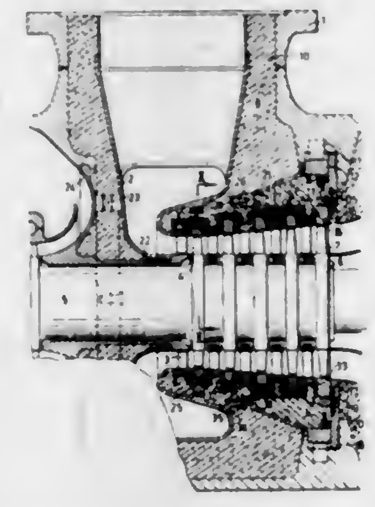
Gino J. Pagluica, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 12, 1965, Ser. No. 447,242
9 Claims. (Cl. 253—39)

1. In a rotor construction for a multistage compressor or turbine including a plurality of discs, spacing means between the discs for holding them in spaced relation, and a row of bolts arranged in a ring around the axis of the discs and extending through the discs to hold them together, the combination of a weight in the form of an arcuate clip positioned over one of the bolts between adjacent discs, said clip being substantially the same length as the spacing between the discs and having flanges thereon for engagement with the spacing means.



3,304,054
HOUSING FOR A GAS OR STEAM TURBINE

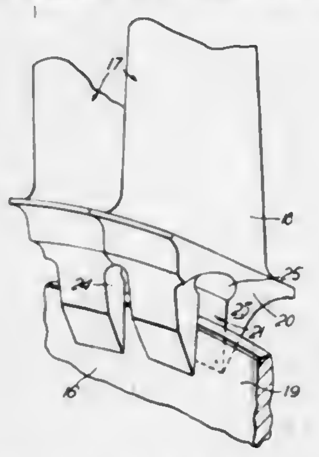
Konrad Oechslin, Zurich, and Paul Moser, Winterthur, Switzerland, assignors to Escher Wyss Aktiengesellschaft, Zurich, Switzerland, a corporation of Switzerland
Filed Dec. 27, 1965, Ser. No. 516,538
Claims priority, application Switzerland, Jan. 12, 1965, 372/65
16 Claims. (Cl. 253—39)



1. In an axial flow gas or steam turbine, an outer housing and an inner housing, said housings confining an intermediate space; heat insulating material disposed in said intermediate space; a plurality of axially spaced circular series of inwardly extending guide blades arranged over an axial portion of said inner housing; said axial portion of said inner housing and said guide blades thus forming a stationary guide apparatus; a partition separating said intermediate space into an inlet-side intermediate space and an outlet-side intermediate space; means for connecting axially fast in a sealing manner and for centering said partition non-rotatably relatively to said outer housing; means for centering and for connecting in a sealing manner said inner housing to said partition to be axially displaceable relatively to the latter; a supporting element for supporting said inner housing, having a thin-walled frusto-conical shell consisting of material of low thermal conductivity, arranged in said inlet-side intermediate space, co-axial with said inner housing, its wider end facing said partition, and means for connecting axially fast and for centering non-rotatably said wider end of said frusto-conical shell relatively to said outer housing, and a substantially cylindrical supporting ring, co-axial with said inner housing and surrounding the latter at least over part of said guide apparatus, the inlet-side end of said supporting ring being rigidly connected to the narrower end of said frusto-conical shell, and means for connecting axially fast and for centering non-rotatably the outlet-side end of said supporting ring relatively to said inner housing; and openings in the portion of the walls of said supporting element lying within said inlet-side intermediate space.

3,304,055
ROTOR

Jack Britt, Ambergate, England, assignor to Rolls-Royce Limited, Derby, England, a company of Great Britain
Filed Aug. 19, 1965, Ser. No. 480,984
Claims priority, application Great Britain, Mar. 3, 1965, 9,171/65
2 Claims. (Cl. 253—39.15)



1. A rotor for an axial fluid flow machine comprising a rotor disc, a plurality of radially extending blades which are bonded to said disc, said blades having root portions abutting one another, upstream and downstream wall members at the radially inner end of each blade defining therebetween a slot within which the periphery of the disc is disposed, the periphery of said disc extending for less than the full radial depth of said slot to thereby define an annular cooling air channel between the periphery of the disc and the slots in said blades, the downstream wall members of adjacent blades abutting to seal said cooling air channel and the upstream wall members of adjacent blades defining therebetween axial flow apertures which lead cooling air into said cooling air channel, said root portions of the blades having ports therein communicating with said channel and by which the cooling air may leave said channel.

3,304,056
TURBINE BLADES

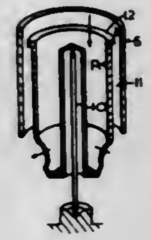
Akio Sohma, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Nov. 16, 1965, Ser. No. 508,116
Claims priority, application Japan, Mar. 19, 1965, 40/15,659
6 Claims. (Cl. 253—76)

1. A turbine blade including an erosion resistant alloy plate having a plurality of generally parallel grooves and being rigidly attached by fusion to the upstream end radially outward portion of the turbine blade so that the grooves extend in the radial direction of the turbine blade.

3,304,057
ROTARY FLUID MOTOR

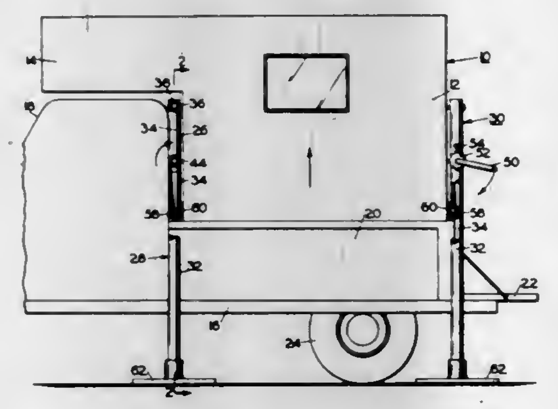
Robert Henry Burgess, 259 Hume Highway, South Strathfield, New South Wales, Australia
Filed May 18, 1964, Ser. No. 368,096
9 Claims. (Cl. 253—96)

1. A rotary device, utilizing the kinetic energy of a fluid, comprising, in combination, a circular cross section stator element having an axial extent; a circular cross section rotor element having an axial extent; said elements having a common axis of relative rotation and one of said elements being disposed within the other of said elements in such manner that said elements define, between their facing, substantially uninterrupted circular surfaces, when said axis is concentric with both elements, an annular space whose radial width is restricted over a portion of its axial length; means mounting said rotor element for tilting, relative to said axis, into engagement of an edge thereof with said stator element to deform said annular space into a crescent-shape space; said rotor element being freely rotatable about said axis; and means directing a fluid under pressure to flow axially between said elements through said crescent-shape space; whereby the decrease in fluid pressure on the downstream side of said restricted portion at the radially widest portion of said crescent-shape space will tend to tilt said rotor element away from said stator element, causing a progressive angular shift of said crescent-shape space with rolling of the edge of said rotor element about said stator element.



3,304,058
WINCH FOR INSTALLING AND REMOVING CAMPER HOUSINGS

Joseph Cheadle, Weatherly Bldg., Portland, Oreg. 97214
Filed Jan. 25, 1965, Ser. No. 427,817
2 Claims. (Cl. 254—47)

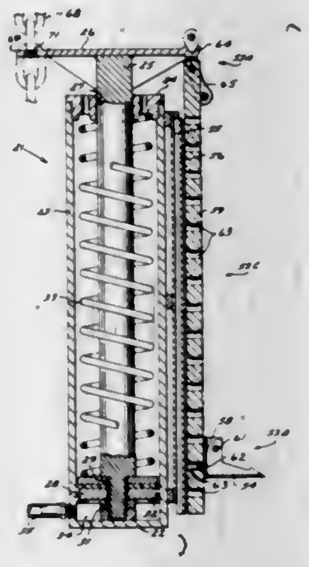


1. A winch assembly for installing and removing a camper housing which is separable from a vehicle and which is of a type having a main body portion arranged to ride on a vehicle bed in rearwardly spaced relation from the cab of the vehicle and also having an upper, forwardly projecting portion: comprising a pair of end frames one of which is arranged to be disposed adjacent the front end of a camper housing and the other of which is arranged to be disposed adjacent the rearward end of the camper housing, said front frame comprising an upper portion arranged to extend laterally through the space between the camper housing and the cab of the vehicle, winch means mounted on the upper portion of said front frame and arranged for connection to the camper housing for raising and lowering the latter upon operation of the winch means, and a pair of posts on each side of said front frame for supporting the upper

portion of the latter in the space between the camper housing and the cab, one of said posts being detachably connected to the upper portion of said front frame to facilitate insertion of said upper portion into the space between the camper housing and the cab.

3,304,059
FORCE-APPLYING MEANS HAVING ADJUSTABLE COUPLING MEANS FOR ADJUSTABLY COUPLING THE SAME TO AT LEAST TWO OBJECTS TO BE FORCIBLY RELATIVELY MOVED

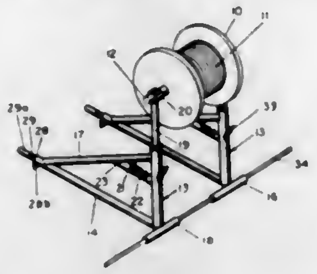
John W. Siliznoff, 4636 W. Ave. L, and Howard W. Snapp, P.O. Box 1, both of Lancaster, Calif. 93534
Filed Apr. 6, 1965, Ser. No. 445,967
8 Claims. (Cl. 254—93)



1. An adjustably couplable force-applying means for effectively adjustably applying force to at least two objects which are to be forcibly relatively moved, comprising a translatory motion extension actuator means having a base portion and a controllably extendable connecting rod portion, said actuator means being provided with longitudinal position-adjustable coupling means having a force-applying portion effectively coupled with respect to said connecting rod portion and being initially longitudinally positionally adjustable with respect to the base portion of said actuator means, said actuator means being provided with connection means for connecting same with respect to a source of energy and having manually adjustably operable control means in circuit therewith in a position adapted to be between said actuator means and said source of energy for controlling the extension and retraction of said connecting rod portion and said force-applying portion in accordance with manual operation of said control means, said coupling means comprising a head member carried by said connecting rod portion and providing said effective coupling of said connecting rod portion to said force-applying portion of said coupling means and further comprises adjustment means positionally adjustably connectable between said force-applying portion and said head member, said coupling means comprising first and second longitudinal members which are longitudinally slidably effectively telescopically engaged with respect to each other, with said first longitudinal member being rigidly fastened with respect to the side of said actuator means and parallel to said connecting rod portion thereof and with said second longitudinal member of said coupling means being provided with a controllably operable connection member positioned for controllable engagement and disengagement with respect to said head member of said actuator means.

3,304,060
REEL LIFT

William F. Wanless, Oregon, and Harland A. Davenport, Brooklyn, Wis.; by court decree, said William F. Wanless, deceased, assignor to Bea Wanless, Oregon, Wis.
Filed Feb. 11, 1965, Ser. No. 431,938
2 Claims. (Cl. 254—131)

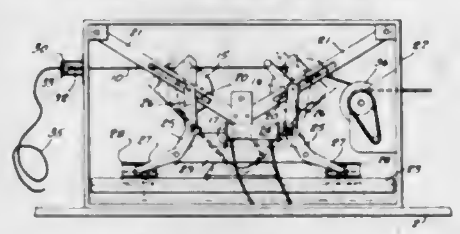


2. Apparatus for lifting and rotatably supporting an axially journaled reel, said apparatus comprising a pair of rigid frame units, one of said frame units being adapted to be positioned on each side of the reel, said frame units comprising:

(a) a longitudinal base member,
(b) an upstanding leg rigidly attached at its bottom end to one end of said base member, said upstanding leg telescopingly receiving an elongated arm having a generally upwardly-open transverse cradle at its upper end for receiving the journal of said reel,
(c) a means for locking said arm in a selected extended position with respect to said upstanding leg,
(d) a transverse tubular stabilizing pivot foot at the intersection of said base member and said leg, and
(e) an elongated rigid member removably received in said tubular feet for releasably connecting said frame units together for increased stability.

3,304,061
HOISTING DEVICE

Edgar C. Seward, 2008 S. Randolph St., Arlington, Va. 22204
Filed July 23, 1965, Ser. No. 474,528
3 Claims. (Cl. 254—189)

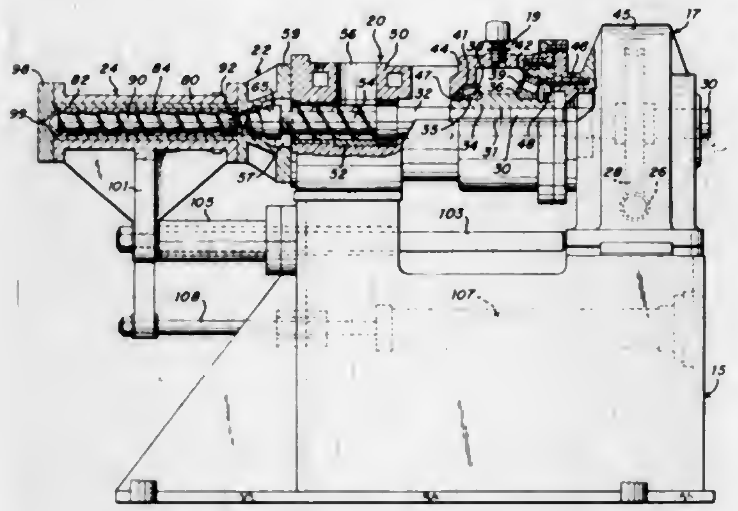


1. In a material handling system including a boom, a material handling line having a free end and a fixed end, said line being movably attached to and depending from said boom, and hoisting means for drawing in and letting out said line with respect to said boom to raise or lower material attached to said line, an improvement in said hoisting means wherein said hoisting means comprises:

(a) a frame, the fixed end of said material handling line being fixed to said frame;
(b) a plurality of sheaves mounted on said frame, said material handling line being threaded about said sheaves and said sheaves being movable with respect to one another in both the horizontal and vertical directions;
(c) means for moving said sheaves with respect to one another, the free end of said line being drawn toward and away from said hoisting means as said sheaves are moved further apart and closer together;
(d) shock absorber means between the fixed end of said material handling line and said frame; and
(e) means for drawing said material handling line off of said sheaves when the line is not in a cargo loaded state so as to draw itself from the sheaves as the sheaves are moved closer together.

3,304,062
APPARATUS FOR MIXING AND COMPACTING MATERIAL

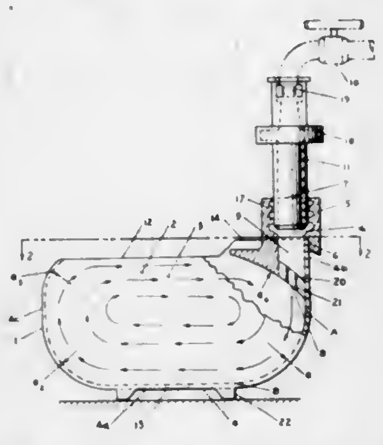
Walton Hermann Frechtling, Hamilton, Ohio, assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio
Filed Sept. 23, 1964, Ser. No. 398,724
7 Claims. (Cl. 259—10)



1. Apparatus for mixing and compacting material, comprising a housing having in inlet end and a discharge end and a continuous helically formed internal working surface radially disposed about a central axis and extending between said ends, said working surface within said housing being no greater in diameter at said discharge end of said housing than at said inlet end, said surface being adjoined by a generally axially extending spiral face to define a step-like cross-sectional configuration, an impeller rotatably mounted within said housing and including an external helical working surface generally radially extending and adjoined by a generally axially extending spiral face to define a step-like configuration formed substantially the same as but in the reverse sense from said working surface within said housing, corresponding said working surfaces and said faces within said housing and on said impeller cooperating to form substantially a triangle in axial cross-section with the shear line defined by said impeller and said housing, and power means for driving said impeller within said housing.

3,304,063
FRUIT AND VEGETABLE WASHING DEVICE WITH VERTICAL CIRCULATIVE FLOW AND TANGENTIAL INLET

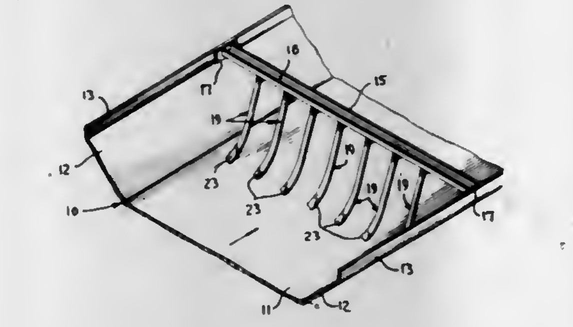
Charles W. Ranson, 7906 Agnew Ave., Los Angeles, Calif. 90045
Filed Mar. 29, 1965, Ser. No. 445,857
8 Claims. (Cl. 259—18)



8. A washing device comprising two side walls extending longitudinally and vertically and spaced apart, a lateral wall extending between said side walls to provide a bottom wall and two opposite end walls and connecting with said side walls in unitary relation to provide a container cavity, and the inner surface of said bottom wall and the inner surface of at least one of said end walls substantially faired to provide a substantially curved inner surface at the region of juncture, and a liquid inlet portion normally positioned substantially above said curved inner surface and substantially adjacent to said end wall, and said inlet portion including a substantially straight and substantially vertically extending duct portion having an upper admission port portion open upwardly to the atmosphere and a lower normally submerged exit port portion.

3,304,064
SHAKER MIXING CONVEYOR

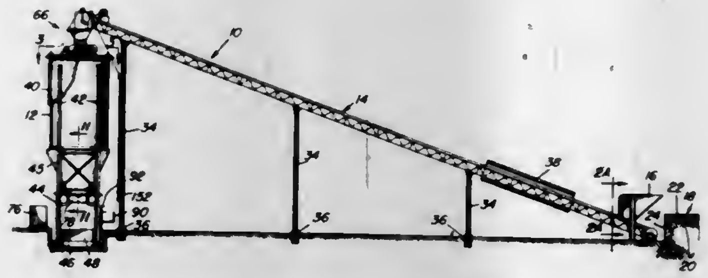
Donald H. Busam, Hometown, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 11, 1965, Ser. No. 494,362
9 Claims. (Cl. 259—94)



1. A shaker conveyor trough reciprocably movable to convey molding sand and the like having,
  a bottom and side walls extending upwardly therefrom,
  and having means for upheaving the sand from the bottom of said trough as conveyed therealong by the reciprocable action of said trough comprising:
    a series of laterally spaced plow-like vanes mounted on said trough for reciprocable movement therewith and extending angularly downwardly into said trough into facing relation with respect to the material flowing therealong and pitched to effect the lifting and dropping of the sand as conveyed along said trough.

3,304,065
PORTABLE HEATED STORAGE AND DISPENSING PLANT MIX ASPHALT UNIT

Jay S. Eaton, P.O. Box 6308, West Palm Beach, Fla. 33405
Filed Nov. 26, 1965, Ser. No. 509,964
20 Claims. (Cl. 259—154)



1. A heated plant mix asphalt storing and dispensing silo unit comprising a silo substantially circular in horizontal cross-section, means for mounting said silo in upstanding position, means for uniformly feeding asphalt into said silo through its top end through a radial opening therein, a conical base section on the bottom of said

silo, a circular discharge opening in the bottom of said conical base section, controllable gate means for said discharge opening, means for heating said conical base section, and circular asphalt flow control baffle means in said base section above said circular discharge opening.

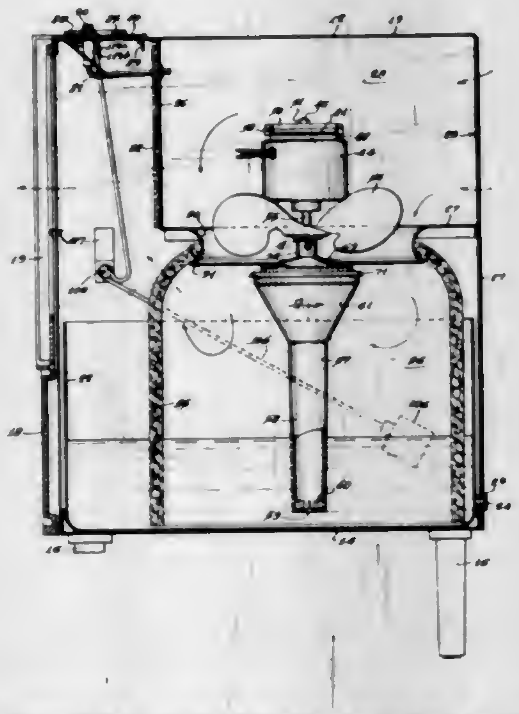
3,304,066

AIR CONDITIONING DEVICE

Joseph L. Vieceli, La Grange, and Robert H. Rayfield, Hinsdale, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois

Filed July 6, 1964, Ser. No. 380,573

12 Claims. (Cl. 261—29)



1. A humidifier comprising a housing, a cup-shaped reservoir with the opening facing upwardly disposed within said housing, wall means forming a chamber within said housing above said reservoir, an air inlet opening defined by said housing into said chamber and a circular throat formed in said wall means above said reservoir, a frame member in said chamber supporting a motor above said circular throat so that a rotatable motor shaft depends downwardly toward said throat and is concentric therewith, means on said frame member resiliently supporting said motor only at the center of the end remote from said shaft, fan means attached to said shaft slightly above said throat, a porous sheet attached to said wall means surrounding said throat and extending downwardly into said reservoir, a centrifugal pump enclosed by said sheet and secured coaxially to said shaft and extending into said reservoir for dispersing liquid from said reservoir onto said sheet, and said housing defining a discharge opening remote from said chamber for allowing the moisture laden air which is forced through the sheet by said fan means to egress therefrom.

7. In a humidifier having a cup-shaped reservoir with the opening facing upwardly and adapted to receive liquid therein, a motor vertically disposed over said reservoir with a shaft extending downwardly, an elongated hollow centrifugal pump connected to said shaft and the longitudinal axis of said pump being coaxial with said shaft, said pump comprising a lower tubular portion defining a liquid opening at the bottom thereof, a plurality of ribs radially spaced along the inside of said tubular portion near the bottom for assisting the upward flow of liquid when said pump is rotated by said shaft, a conical portion disposed above said tubular portion for acceleration of the flow of liquid, a relatively short cylindrical section positioned immediately above said conical portion, a plurality of spaced discharge recesses defined in said cylindrical section with the bottoms thereof inclined outwardly and upwardly to form discharge edges along the outside of said cylindrical section, and a cover for said pump provided with an outwardly extending flange having an annular depending lip positioned below and spaced outwardly from said discharge edges to receive the liquid egressing from said discharge edges and to release the liquid uniformly in a horizontal plane.

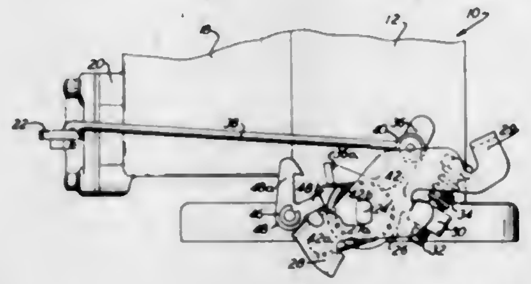
3,304,067

ENGINE CHARGE FORMING DEVICE HAVING A THERMOSTATICALLY CONTROLLED ACCELERATING PUMP

Clarence C. Hebert, Allen Park, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Feb. 28, 1966, Ser. No. 530,288

9 Claims. (Cl. 261—34)



1. A charge forming device for an internal combustion engine including a main body having a longitudinal passage extending therethrough, a rotatable shaft mounting a throttle valve plate in said passage, and a variable stroke pump for forcing fuel into said passage, the improvement comprising a throttle lever mounted on said shaft for unitary rotation therewith between a closed and a fully opened position, said throttle lever being resiliently biased towards the closed position, lever means mounted on said shaft and rotatable relative thereto, said lever means operatively connected to said pump to contral the stroke of said pump, resilient means yieldably connecting said throttle lever for rotation with said lever means, latch means movable for engagement and disengagement with said lever means, latching means forcing said latch means into engagement with said lever means when said throttle lever approaches the closed position, unlatching means forcing said latch means out of engagement with said lever means when said throttle lever approaches the fully opened position, and choke means preventing said throttle lever from approaching the closed position when the engine is cold.

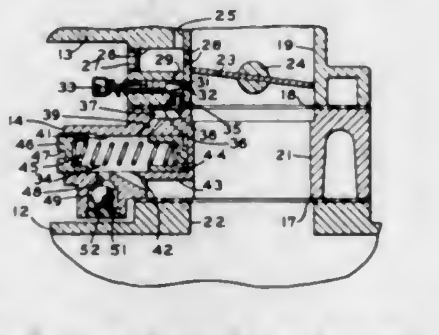
3,304,068

AUTOMATIC IDLE SPEED-UP DEVICE

Michael J. Thomas, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Aug. 13, 1964, Ser. 389,322

6 Claims. (Cl. 261—41)



1. A charge forming device for an internal combustion engine comprising an induction passage, a throttle valve

for controlling the flow through said induction passage, an idle discharge circuit for discharging fuel into said induction passage at a point contiguous to the idle position of said throttle valve, an idle speed-up discharge circuit communicating with said idle discharge circuit for discharging additional fuel into said induction passage at a point posterior to said throttle valve, an air passage communicating with said idle speed-up discharge circuit for bleeding air into said circuit for mixture with the fuel discharged into said induction passage, and pressure responsive valve means for controlling the air and fuel flowing into said induction passage through said idle speed-up discharge circuit, said pressure responsve valve means being responsive to the pressure in said induction passage posterior to said throttle valve and being adapted to open when the induction system vacuum fails to exceed normal idle vacuum, said pressure responsive valve means comprising a first valve member for controlling fuel flow and a second valve member for controlling air flow.

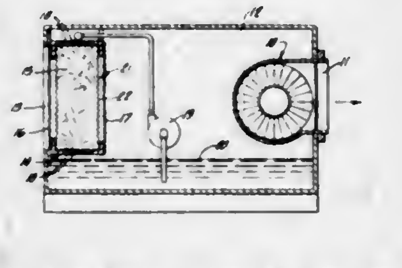
3,304,069

EXPANSIBLE COOLER PAD

Oscar C. Palmer, Sr., 2235 W. McDowell Road, Phoenix, Ariz. 85009

Filed Dec. 16, 1963, Ser. No. 331,055

10 Claims. (Cl. 261—94)



1. In a water-absorbent material for use in evaporative coolers having an air inlet and discharge outlet, the combination comprising a quantity of absorbent material shaped into a pad to conform to the configuration of the air inlet, and a water soluble envelope enclosing said pad and retaining it in said configuration.

3,304,070

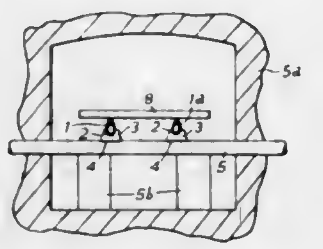
WATER COOLED SKID RAILS

John Frederick Robert Jones, Neston, England, assignor of one-third to John Summers & Sons Limited, Shotton, England, a company of Great Britain, and one-third to Stein Atkinson Stordy Limited, a company of Great Britain

Filed Oct. 30, 1961, Ser. No. 148,648

Claims priority, application Great Britain, Oct. 28, 1960, 37,204/60

2 Claims. (Cl. 263—6)



1. A water cooled furnace skid rail comprising a tube having such a transverse cross-sectional shape that its vertical height is greater than its horizontal width measured at the mid point of its height, a plurality of supporting rails extending at spaced apart locations transversely of and below said skid rail, support means welded to the support rails to project upwardly therefrom, upwardly facing slots in the support means, and said skid rail being disposed in the slots so that turning movement of the skid rail about its longitudinal axis is prevented.

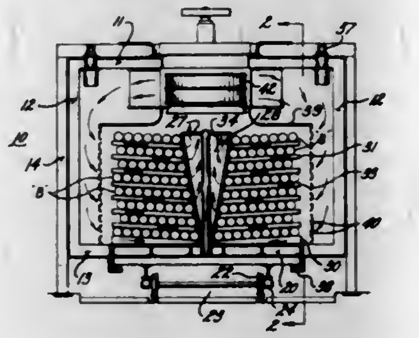
3,304,071

METAL BILLET HOMOGENIZING FURNACE

Charles B. Gentry, Mayfield Heights, Ohio, assignor to Sunbeam Equipment Corporation, Meadville, Pa., a corporation of Delaware

Filed Jan. 5, 1965, Ser. No. 423,423

4 Claims. (Cl. 263—28)



2. A conveyor for use in a homogenizing furnace comprising a movable bottom car, a plurality of relatively thin triangularly shaped spacers centrally disposed on said car and spaced in alignment with the direction of car movement, the narrow end of said triangularly shaped spacers facing downwardly toward said car, a plurality of wedge-shaped members transversely positioned on said car and sloping downwardly toward said spacers, said members adapted for receiving a charge thereon to form a first row which slopes downwardly toward said spacer and lies thereagainst to form a continuous surface, a plurality of separators adapted for being positioned transversely to said car between rows of charge to form passageways therebetween, said spacers cooperating with said charge rows to form a vertical flue having a larger volume at the top in order to afford uniform flow of hot gases through said passageways.

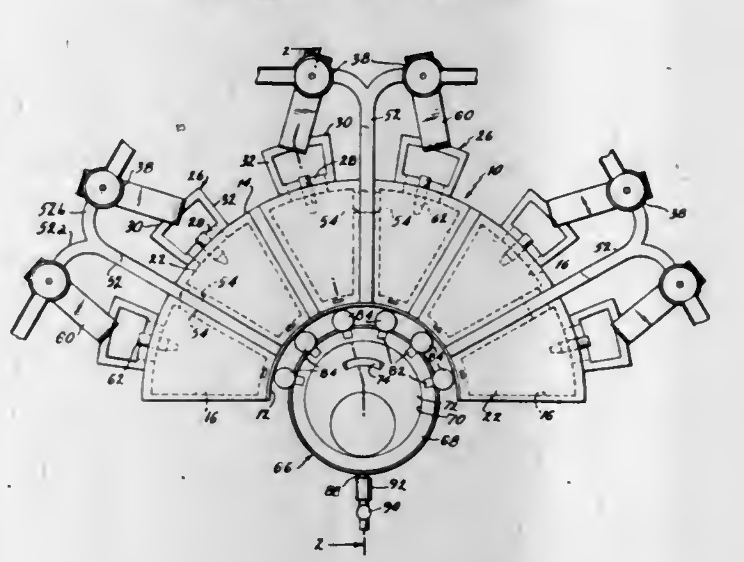
3,304,072

METAL SCRAP SMELTING APPARATUS

Hershell R. Tkatch, 7 Norfolk St., Hartford, Conn. 06112

Filed June 1, 1964, Ser. No. 371,442

8 Claims. (Cl. 266—13)

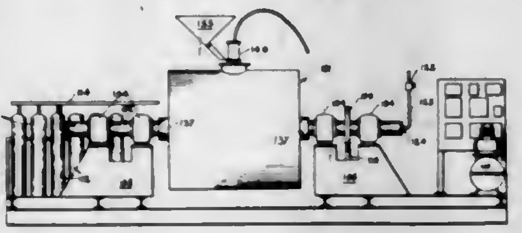


1. A furnace for smelting and fusing metal scrap of different grades into a homogeneous mass of controlled consistency comprising a plurality of open top smelting chambers each of quadrilateral shape having a bottom wall, a first end wall, a second end wall of greater width than said first end wall, and side walls connecting said end walls to form a chamber of tapered shape, said chambers juxtaposed with their narrow walls contiguously disposed to thereby form a concave recess at one end of said juxtaposed chambers, means associated with each of said smelting chambers for introducing fuel under

pressure thereinto, an outlet opening formed at the bottom of the narrow wall of each of said chambers, a mixing ladle disposed below and opposite the concavity formed by said contiguously disposed narrow chamber walls, the upper end of said ladle being disposed below said outlet openings, said ladle including a thick wall portion in proximity to said narrow end walls, said thick ladle wall portion having a substantially horizontally disposed recess formed therein adjacent its upper end and opening into the interior of said ladle, said recess forming a mixing chamber, upwardly extending passageways formed in said wall portion connecting said mixing chamber with the exterior of said ladle, conduit means connecting the outlet openings of each of said smelting chambers with one of said passageways, an adjustable control valve provided in each of said conduit means, an outlet opening at the bottom of said ladle, and an adjustable control valve associated with said ladle outlet opening.

3,304,073
APPARATUS FOR DIRECT REDUCTION OF METAL OXIDES

Charlton A. Taylor, P.O. Box 435,
Garrettsville, Ohio 44231
Original application Sept. 27, 1960, Ser. No. 58,671, now Patent No. 3,157,488, dated Nov. 17, 1964. Divided and this application Sept. 19, 1962, Ser. No. 271,532
4 Claims. (Cl. 266—18)

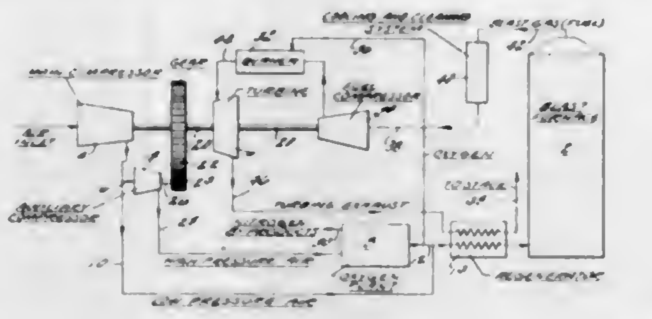


4. Apparatus for batch reduction of finely divided metal oxides to metal by means of gaseous reductant, comprising
- (a) means, including a horizontally elongated enclosure rotatable about its longitudinal axis, for receiving and heated a measured body of finely divided metal oxides,
- (b) means engageable with each end of said elongated enclosure for supporting same during rotation and for selectively admitting a gaseous reductant to and withdrawing the reaction gases from said enclosure,
- (c) means disposed in spaced relation about the inner periphery of said enclosure for lifting, spreading and tumbling said oxides in the presence of said gaseous reductant during said rotation of said enclosure,
- (d) means on the outer periphery of said enclosure for selectively admitting, retaining and discharging said metallic oxides and resulting metal from said enclosure, and
- (e) means associated with said elongated enclosure supporting means for selectively imparting reciprocal rotary motion to said enclosure and selectively stopping same with the said oxides admitting and discharging means in position to receive and discharge said oxides and/or metal.

3,304,074
BLAST FURNACE SUPPLY SYSTEM

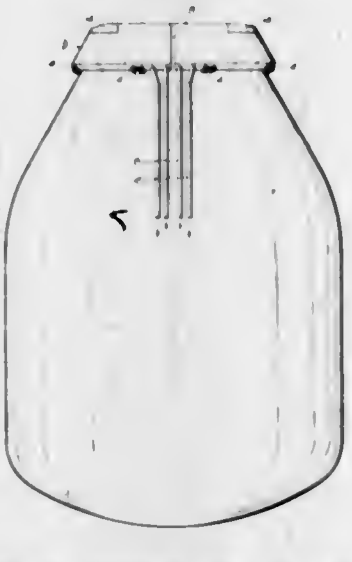
Robert R. Atherton, North Palm Beach, Fla., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Oct. 31, 1962, Ser. No. 234,372
9 Claims. (Cl. 266—30)

1. The combination with a blast furnace or the like having air inlets to which gas under pressure is admitted, and an exhaust stack, and an oxygen producing plant, of a gas turbine engine having a main compressor and turbine, said turbine driving said compressor, means for delivering air from said main compressor to the blast furnace inlets, an auxiliary compressor driven by the turbine and supplying air to the oxygen producing plant, means for combining a part of the oxygen from the oxygen producing plant with the air from the main compressor upstream of the furnace air inlets, means including a combustion chamber to which additional oxygen from the oxygen producing plant is delivered for supplying hot gas under pressure to the turbine, and means for delivering fuel to said combustion chamber to burn with the oxygen for heating the fuel and the additional oxygen to power the turbine.



3,304,075
CRUCIBLE OR CONVERTER

Peter Puxkandl, Linz, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria, a company of Austria
Filed Dec. 10, 1963, Ser. No. 329,452
Claims priority, application Austria, Dec. 14, 1962, A 9,800/62
7 Claims. (Cl. 266—36)

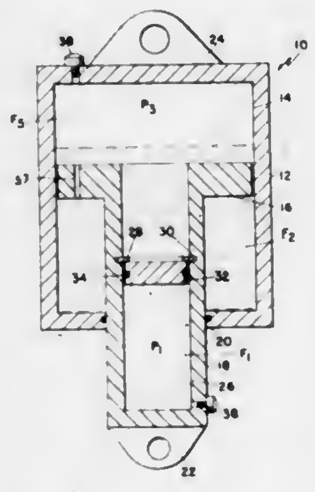


1. A crucible for carrying out top-blowing processes and having a wall and a mouth, comprising a hollow protective ring to be supplied with a coolant fixed to and surrounding at least part of the crucible mouth and means supporting said ring in spaced relation to said crucible wall and said mouth of the crucible to provide an air gap between said ring and said wall and said mouth.

3,304,076
SUSPENSION UNIT

Richard A. Doversberger, Peoria, Ill., assignor to LeTourneau-Westinghouse Company, Peoria, Ill., a corporation of Illinois
Filed Dec. 31, 1964, Ser. No. 422,714
3 Claims. (Cl. 267—64)

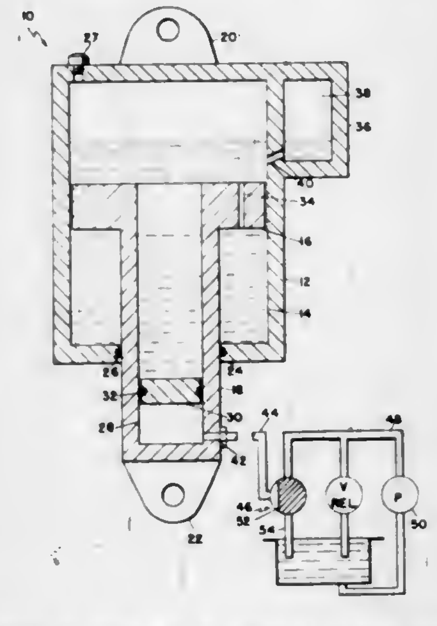
1. A suspension unit for a vehicle comprising
a cylinder,
a piston, having a rod portion reciprocably retained within said cylinder and defining therewith a head chamber and a rod chamber,
a floating piston reciprocably retained in one of said piston and said cylinder, and defining therewith a third chamber,
said rod chamber being filled with a non-compressible fluid,
said head chamber being filled with a non-compressible and compressible fluids under pressure,
means for permitting the flow of non-compressible fluid between said head and rod chambers,



said third chamber being filled with a compressible fluid under a pressure greater than that in said head chamber,
and stop means limiting the movement of said floating piston under the force of said greater pressure,
whereby collapse of said unit results in compression of said compressible fluid in said head chamber only until the pressure therein equals the pressure in said third chamber, whereafter further collapse of said unit results in further compression of compressible fluid in both said third chamber and said head chamber.

3,304,077
SUSPENSION UNIT

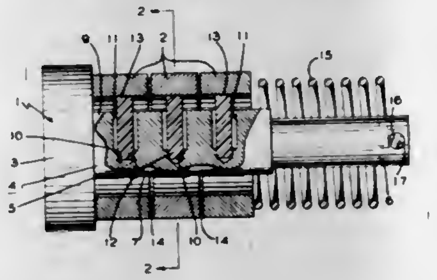
Lyle E. Eaton, Pekin, Ill., and John M. Dickerson, Media, Pa., assignors to LeTourneau-Westinghouse Company, Peoria, Ill., a corporation of Illinois
Filed Dec. 31, 1964, Ser. No. 422,715
9 Claims. (Cl. 267—64)



1. A suspension unit for a vehicle comprising:
a cylinder,
a first piston having a rod portion reciprocably retained in the cylinder,
the first piston and the rod portion defining with the cylinder a head chamber and a rod chamber,
orifice means providing fluid communication between the head and rod chambers,
a floating piston reciprocably retained in one of said first piston and said cylinder and forming a third chamber therewith,
the rod chamber being filled with a non-compressible fluid,
the head chamber being filled with a non-compressible fluid,
a compressible fluid under pressure,
a source of variable fluid pressure, and
means connecting said source of variable fluid pressure to the third chamber, whereby the length of said unit can be increased and decreased by respectively increasing and decreasing the volume of fluid admitted to the third chamber.

3,304,078
MEANS FOR ALIGNMENT OF COMPONENTS OF A FABRICATED ARTICLE

Carl G. Hoge, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed Apr. 22, 1964, Ser. No. 361,780
7 Claims. (Cl. 269—52)



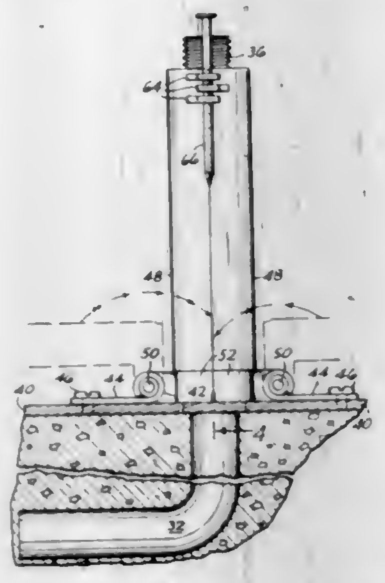
7. A mandrel for coaxially aligning thereon a plurality of annular segments having internal bores of the same size, comprising:
- (a) an elongated body having spaced parallel ridge means extending longitudinally thereon for aligning the segments;
- (b) finger means spaced along said body in opposition to said ridge means for extending laterally of said body into engagement with the inner periphery of said segments and for effecting engagement of said ridge means with said inner periphery of said segments when the temperature of said finger means and said body is increased, and
- (c) said finger means being comprised of a material having a coefficient of linear expansion greater than that of said body.

3,304,079
ANCHOR BOLT HOLDER FOR CONCRETE FORMS

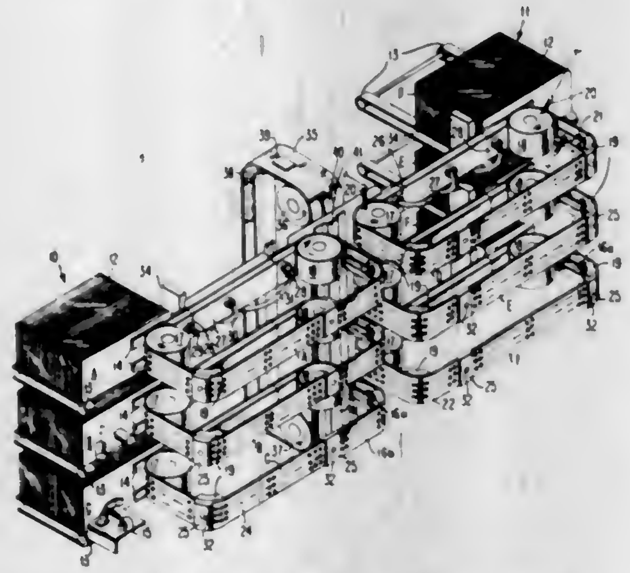
Forrest H. Jones, P.O. Box 67, Rufus, Oreg. 97050
Filed Nov. 9, 1964, Ser. No. 409,816
8 Claims. (Cl. 269—287)

1. An anchor bolt holder for a concrete form having therethrough at predetermined locations openings for the reception of anchor bolts including a shank portion and a threaded outer end, the holder comprising:
- (a) a base having a central opening,
- (b) means for mounting the base on the outside face of the form with the central opening of the base overlying a selected one of the openings through the form,
- (c) a pair of spaced standards extending upwardly from the base,
- (d) hinge means separately hinging the inner ends of the standards to the base on opposite sides of the

opening and arranged to permit angular movement of the standards toward and away from each other,
(e) an internally threaded collar formed in two complementary parts, one of the parts being mounted on the outer end of each of the standards in collar-forming relation to the other part, the collar being dimensioned to receive the threaded end of the anchor bolt, and
(f) lock means for releasably locking together the two parts of the collar in their collar-forming relation.

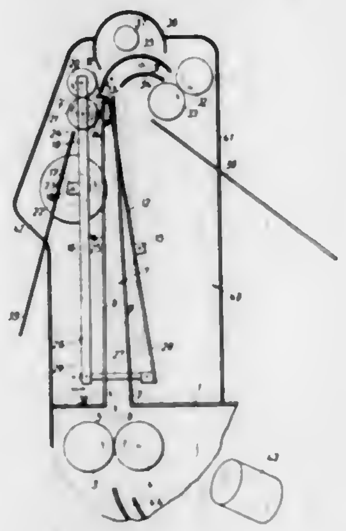


3,304,080
DOCUMENT SORTING APPARATUS
Bernard J. Greenblott, Pleasantville, N.Y., David R. McCormick, Westwood, N.J., and John M. Scalone, Vestal, and Wendell J. Wheeler, Endwell, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 24, 1964, Ser. No. 420,986
15 Claims. (Cl. 271—3)



1. Apparatus of the class described comprising:
a plurality of magazines each adapted to hold a stack of documents therein;
reversible document transport means adjacent each of said magazines being operable in one direction to remove a document from its said magazine and operable in an opposite direction to enter a document thereinto;
document transfer means associated with each of said transport means and operable to move a document from one to another of said transport means;
operating means connected to each of said transport means for simultaneously operating one of said transport means in said one direction and another of said transport means in said opposite direction; and
control means connected with said transfer means and said operating means for operating said transfer means for a predetermined time after said transport means have concluded operation.

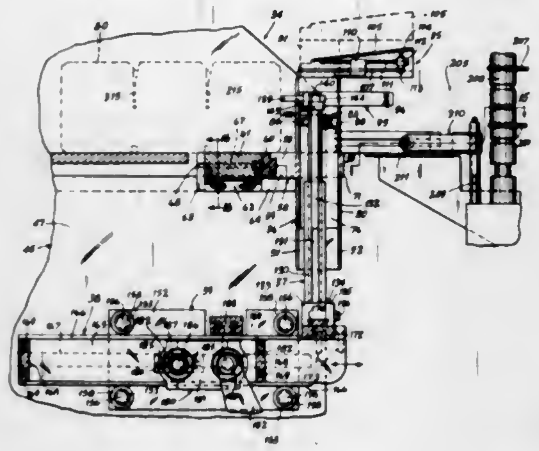
3,304,081
APPARATUS FOR SEPARATING TWO SHEETS
Walter Limberger, Hamburg-Poppenbuttel, Germany, assignor to Lumoprint Zindler K.G., Hamburg, Germany
Filed Oct. 23, 1964, Ser. No. 406,031
Claims priority, application Germany, Oct. 30, 1963, L 46,214
10 Claims. (Cl. 271—18)



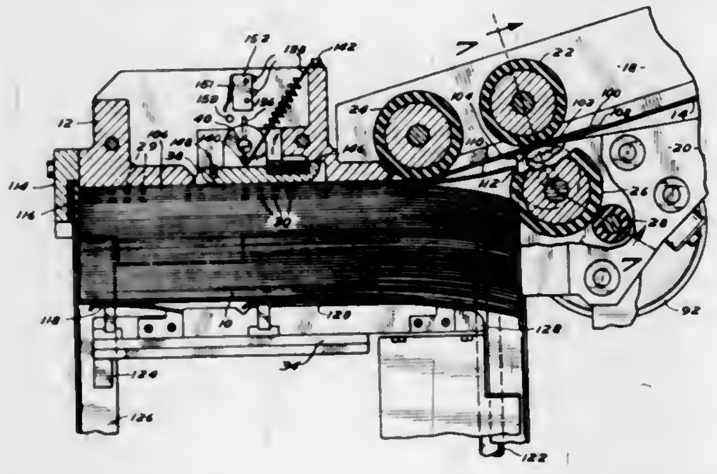
7. A device for producing copies by means of a transfer method, comprising a frame, means forming a first conveyor path within the frame through which conveyor path are guided two laminar layer carriers in order to initiate a transfer process, a pair of squeeze rollers arranged in said frame at one end of the first conveyor path and between which rollers the superimposed layer carriers are carried in close contact, a driving arrangement for driving the said pair of squeeze rollers, a pair of guide members defining a second conveyor path downstream of the said pair of squeeze rollers, said guide members having such a length as to permit an image transfer between the laminar layer carriers after being pressed together by the said pair of squeeze rollers, means forming an opening in one of the said guide members at that end of the second conveyor path remote from the said squeeze rollers, and a deflecting member movable between a first position wherein an end portion thereof extends across the second conveyor path to deflect an edge of one of the advancing layer carriers through the said opening to a second position wherein it lies outside of the second conveyor path.

3,304,082
STEP-BY-STEP PARTITION STRIP FEEDING MECHANISM
Donald F. Cunningham, Milwaukee, Wis., assignor to U.S. Partition & Packaging Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed July 20, 1964, Ser. No. 383,680
7 Claims. (Cl. 271—42)

1. In combination, a step-by-step partition strip feeder mechanism comprising means for guiding a partition strip into an assembly zone, means supporting said guiding means for adjustment vertically, laterally and along the path of travel of a partition strip, means mounted on said guiding means for biasing a partition strip into predetermined position as it is guided into the assembly zone, means mounted on said guiding means for engaging a partition strip to prevent back-up thereof following a forward movement, means for moving a partition strip step-by-step through said guiding means including partition strip engaging means and reciprocatable supporting means for said partition strip engaging means, said partition strip engaging means including a partition strip engaging push finger and a support therefor disposed adjacent said guiding means, said reciprocatable supporting means including a transversely disposed member receiving said finger support for adjustment therealong, a reciprocatable carriage receiving each end of said transversely disposed member, a roller support for each carriage, means for mounting each roller support on a partition strip assembling machine, and means for reciprocating said carriages simultaneously.

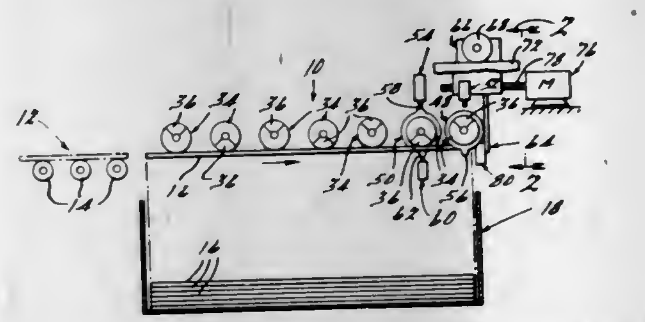


3,304,083
HIGH SPEED CARD STACKING DEVICE
Donald C. Rasmussen, Minnetonka, Walter Rohrbach, Minneapolis, and Charles Enmurian, St. Paul, Minn., assignors to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Sept. 3, 1964, Ser. No. 394,212
10 Claims. (Cl. 271—71)



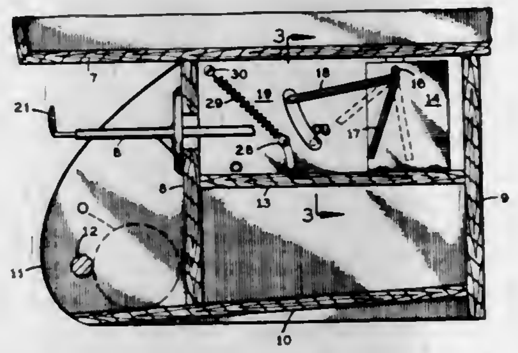
9. A method for stacking cards at a high speed having means to advance a card on edge along a predetermined path, comprising,
(a) receiving and advancing a card by a pair of oppositely rotating rollers;
(b) guiding the card through a throat formed by a guide member and one of the oppositely rotating rollers;
(c) guiding the leading edge of the card into a stack having stop member which contacts the leading edge of the card being stacked to slightly rebound back toward the throat;
(d) flexing the trailing edge of the card transversely to the predetermined path;
(e) snapping the flexed trailing edge of the card away from the throat due to the card's tendency to straighten itself relative to the predetermined path; and
(f) urging he trailing edge of the rebounded card away from the throat by means of a rotatable stacking roller positioned such that the distance between the stacking roller periphery and the stop member is less than the peripheral dimension of the card, the trailing edge of the rebounded card being urged away from the throat to prevent impact between the trailing edge of the stacked card and the leadng edge of a subsequent card being stacked.

3,304,084
RELEASABLE CONVEYOR
Harry M. Ashton, Birmingham, Mich., assignor to Ashton Automation International, Inc., Detroit, Mich., a corporation of Michigan
Filed June 4, 1965, Ser. No. 461,384
17 Claims. (Cl. 271—74)



1. In an apparatus for conveying para-magnetic materials, a plurality of rotatable members, at least some of said members being provided with magnetic segments for securing materials thereto and with non-magnetic segments for facilitating release of the materials therefrom, and means for selectively preventing rotational movement of a predetermined number of said members provided with said segments when said non-magnetic segments thereof are in contact with the material.

3,304,085
COIN OPERATED POOL TABLE
Harvey Heiss, North Miami, and David H. Braun, Miami, Fla., assignors to All Tech Industries, Inc., Hialeah, Fla., a corporation of Florida
Filed Apr. 14, 1964, Ser. No. 359,593
1 Claim. (Cl. 273—11)



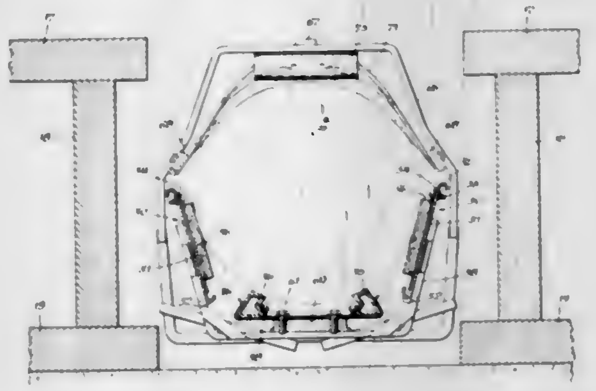
In a pool table of the character described, a passage means for sequentially gravitating a predetermined number of object balls and a cue ball having a diameter larger than said object balls in a downward path when conducted thereto,
a tiltable hopper means positioned a predetermined distance under said passage for movement from a receiving to a discharge position,
said hopper means constructed and adapted to form a row of only said number of object balls descended in said downward path from said passageway,

deflecting means in said passage for engaging and deflating said cue ball in a return path,

an open compartment means communicating with said return path and said hopper means for receiving and retaining said balls whereby said cue ball descended in said passageway will be deflected into said return path and gravitate into said compartment when less than said number of object balls are in said hopper means and whereby said cue ball descended in said passage will come to rest on one of said object balls and remain in said passage when said number thereof are in said hopper and whereby the tilting of said hopper will release said object balls and said cue ball to gravitate into said compartment when said hopper is tilted.

3,304,086
CUSHIONED RAILS FORMING BALL RETARDER AND CLEANER

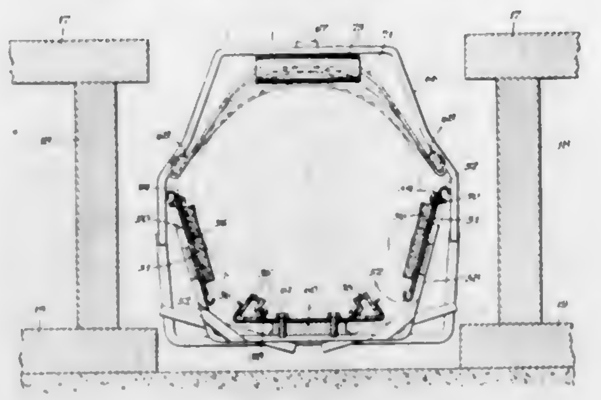
Martin M. Schankler, Muskegon, Mich., assignor to Brunswick Corporation, a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,767
3 Claims. (Cl. 273—47)



1. In a bowling ball return system having means providing a pair of ball engaging rails spaced apart less than the diameter of a ball to provide a return track, a ball retarder at one end of the track for slowing the velocity of rolling balls of different diameter and comprising: a trough-like structure including a pair of fixed spaced apart, elongate, generally horizontally extending rigid supporting rails of substantial height on edge inclined only slightly from vertical with lower portions spaced apart a distance only slightly less than the diameter of the smallest ball used and having upper portions spaced apart a distance approximately equal to the diameter of the largest ball used; and an elongate ball retarding member on the inwardly facing surface of each rail, said members each having a surface of substantial height substantially one-third a ball diameter facing one another to provide ball supporting surfaces for accommodating balls having different diameters, said members being formed of a cushion-like material of substantial thickness to provide ball engaging cushions, such that the weight of each ball causes it to sink into the material and the ball tends to wedge between the rails, whereby the cushions make greater than line contact with the ball adjacent its diameter to convert rolling advance to primarily spin and to exert a frictional drag on the ball due to its weight, the coefficient of friction between said cushions and the ball being sufficiently high to retard movement of the ball, but being sufficiently low so that there may be rolling slippage of the ball relative to the cushions and to insure discharge of balls from the retarder at a controlled velocity, said members including a plurality of flexible ball engaging finger means for effecting a cleaning action on the ball.

3,304,087
BALL RETARDER

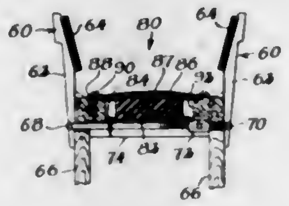
Miles E. Untiedt, Muskegon, Mich., assignor to Brunswick Corporation, a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,781
6 Claims. (Cl. 273—47)



4. A bowling ball retarder track adapted for use in a ball return system in series with a ball return track, comprising, a pair of ball-supporting rails, each of substantial width, arranged on edge inclined slightly toward each other in trough-like fashion, with upper portions of the rails spaced apart a distance approximately equal to the diameter of balls so that each is engaged adjacent its horizontal axis transverse to the rails, and an elongate flexible wiper spanning the ball rails, said wiper being permanently bowed transversely upwardly to provide a tunnel-like ball passage having an open entrance end sufficiently large to facilitate ball entry and of diminishing cross section from the entrance end toward an exit end so as to engage balls rolling along the rails, means mounting said wiper for vertical movement relative to said ball rails, means restraining longitudinal movement of the wiper, means extending along the length of the wiper restraining lateral movement of the lateral edges of the wiper, and means weighting the wiper at the lateral edges thereof so that the wiper slows balls passing along the rails as the wiper is lifted by balls passing therethrough.

3,304,088
BALL RETARDER

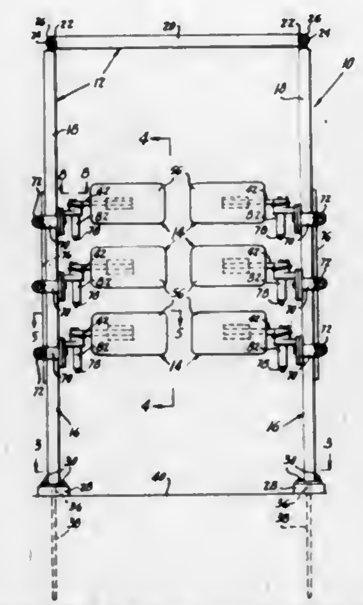
Robert M. Conklin, Muskegon, Mich., assignor to Brunswick Corporation, a corporation of Delaware
Filed June 22, 1964, Ser. No. 376,797
8 Claims. (Cl. 273—47)



4. Return track apparatus for returning a bowling ball from the pit end of a bowling lane, comprising: an elongate track for guiding and supporting a bowling ball at its lowermost portions; and a combined ball return riser and ball retarder at the end of said track and including a pair of elongate rails having portions for supporting lower portions of a bowling ball along laterally wider spaced areas than said track, and resistive means spaced below said rails including a layer of deformable material for providing frictional resistance on the lower portions of said ball and retarding the progress thereof, said material being arranged to at least partially support a bowling ball guided by said rails such that the center of a relatively lighter bowling ball will have a higher attitude with respect to said pair of rails than the center of a relatively heavier bowling ball to thereby impose a greater retarding effect on a heavier ball than a lighter ball.

3,304,089
FOOTBALL PRACTICE DEVICE

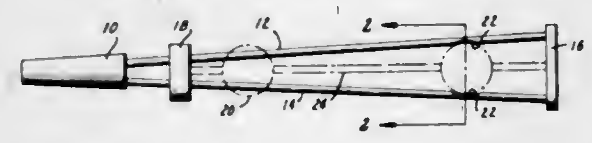
Warren G. Smith, 805 Burkwood Drive, Urbana, Ill. 61801
Filed Mar. 13, 1964, Ser. No. 351,731
15 Claims. (Cl. 273—55)



1. A football practice device comprising a frame means, said frame means including at least two laterally spaced frame members, at least one impact arm assembly carried by each frame member, said impact arm assemblies each including an impact arm carrying an impact plate and pivot means to allow said impact arm to be moved between a first position wherein said impact plate extends in a first plane passing between said frame members and a second position wherein said impact plate extends in a second plane at least approximately 90° offset from the first plane, biasing means operatively carried by each impact arm to normally retain said impact plate in said first position and hinder movement away from said first position, and lock means operatively carried by each impact arm assembly, said lock means selectively retaining said impact arm assembly in said second position.

3,304,090
BALL AND RACEWAY AMUSEMENT DEVICE

Louis Morris, P.O. Box 23356, Los Angeles, Calif. 90023
Continuation of application Ser. No. 140,978, Sept. 25, 1961. This application Oct. 22, 1965, Ser. No. 506,445
13 Claims. (Cl. 273—109)



11. A toy comprising:

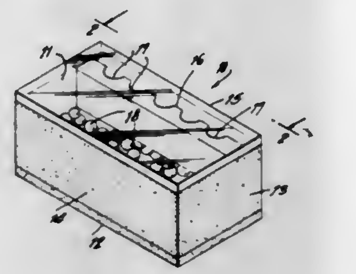
(a) first means for providing a pair of guideways against which a ball can roll to develop a rolling movement;

(b) second means associated with the guideways of said first means comprising guideways at least one of which includes a portion separated sufficiently to permit the ball to pass therebetween;

(c) said second means permitting the points of contact of the ball with said guideway having said separated portion to shift towards the spherical diameter of the ball while said ball remains in contact with said guideway whereby the rolling movement of said ball on one of said guideways is converted into spinning movement and then rolling movement on the other guideway of said second means.

3,304,091
CHANCE DEVICE FOR RANDOM CHUTED STACKING OF LOOSE ELEMENTS FOR VIEWING

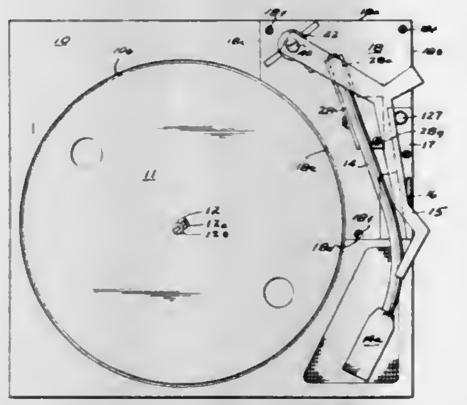
Seymour R. Bittner, 613 Myrtle Ave., Brooklyn, N.Y. 11205
Filed Oct. 27, 1964, Ser. No. 406,736
5 Claims. (Cl. 273—144)



1. A game device comprising a box-like container having a top wall, a bottom wall, opposing front and rear walls and opposing end walls, a planar partition member disposed in off-center parallel relation to said front and rear walls and extending from said top wall to terminate short of said bottom wall whereby to define a pair of chambers between said front and rear walls and said planar partition member interconnected by a passageway, said partition having a plurality of chutes defined therein, said chutes facing the front wall and a plurality of balls disposed within said container, said balls being movable between said chambers through said passage into alignment with said chutes below said partition, whereby reversal of said container by 180° will cause said balls to enter said chutes and one of said walls having means whereby at least some of the balls which have entered said chutes may be viewed.

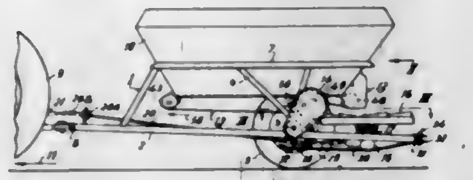
3,304,092
PHONOGRAPH RECORD CHANGER

Willard J. Faulkner, 621 Linden, Glen Ellen, Ill. 60137
Filed Feb. 24, 1964, Ser. No. 346,602
28 Claims. (Cl. 274—10)



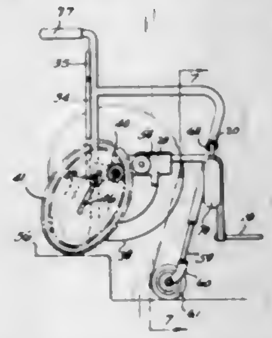
11. A record player including a base having a tone arm supported at one side of the base and a turntable for supporting and rotating records to be played, said tone arm being pivotally mounted on the base to one side of the turntable and movable by virtue of the pivot vertically and horizontally, means to raise said tone arm comprising a rotatable cam member supported below the base, said cam member having a cam surface extending coaxial with the axis of the cam and having portions of different height, a lifter supported for vertical reciprocation below the base and having a portion for engagement with the tone arm and a follower part engaged with said cam surface, said cam surface arranged to raise said lifter and said lifter to raise said tone arm.

3,304,093
IMPLEMENTS FOR SPREADING MATERIALS
Cornelis van der Lely, Zug, Switzerland, assignor to Patent Concern N.V., Willemstad, Curacao, Netherlands Antilles, a limited-liability company
Filed Apr. 20, 1964, Ser. No. 361,043
Claims priority, application Netherlands, May 7, 1963, 292,455, 292,456
28 Claims. (Cl. 275—8)



1. An implement for spreading material, said implement comprising a frame, a container and a rotary spreader, an outlet in said container and said spreader being positioned beneath said outlet, a support for said spreader pivotably connected to said frame, said support having two ends, one end of said support being pivotably connected to said frame about a substantially vertical axis, the other end of said support being releasably fixed to said frame whereby said spreader can be laterally swung about said axis to several positions.

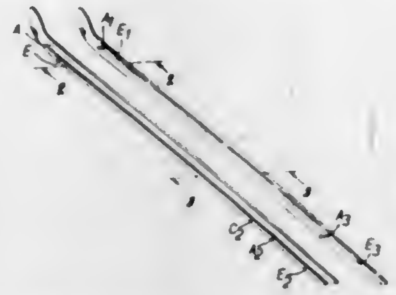
3,304,094
CLIMBING WHEEL CHAIR
Richard B. Wenger, 260 Main St., Saugerties, N.Y. 12477
Filed Dec. 22, 1964, Ser. No. 420,266
10 Claims. (Cl. 280—5.2)



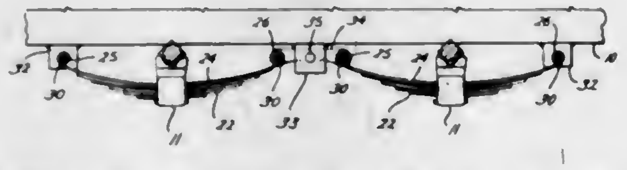
1. A wheel chair comprising a seat frame having depending rear supporting leg means and depending front supporting leg means, supporting wheels connected to the seat frame at its opposite sides, respective elliptical wheels slidably and pivotally connected to the opposite sides of the seat frame at the rear portion thereof and arranged in vertical longitudinal planes, means to rotate said elliptical wheels into engagement with a rearwardly adjacent stair step, whereby to elevate the rear portion of the seat frame, respective caster assemblies slidably connected to the front supporting leg means at the opposite sides of the seat frame, and means to at times extend said caster assemblies downwardly so that the seat frame may be levelled and when the rear portion thereof is raised or lowered.

3,304,095
PAIR OF SKIS
William Charles Carlton, Fitches, Finchingfield, England
Filed Jan. 6, 1965, Ser. No. 423,766
4 Claims. (Cl. 280—11.13)

1. A pair of skis for a left and right foot, each ski having an inside edge, an outside edge, an upper surface and an under surface, a first portion of each said under surface adjacent the inside edge being inclined towards the upper surface from said inside edge at an angle of from 2° to 10° to the horizontal when the ski is disposed on level ground, a second portion of said under surface adjacent said first portion being inclined away from said upper surface and from said first portion at an angle of from 45° to 90° to the horizontal, and a third portion of said under surface between said second portion and the outside edge being inclined towards said upper surface from said second portion at an angle of not more than 10° to the horizontal, the intersection between said second and third portions of said under surface lying at a position from 60% to 90% of the distance between the inside and outside edges measured from said inside edge.



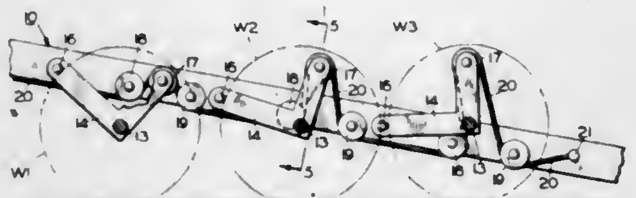
3,304,096
WHEEL SUPPORT
Edward H. Hanover, Bryan, Tex., assignor to Ed Hanover Trailers, Inc., Bryan, Tex.
Filed Nov. 16, 1964, Ser. No. 411,344
5 Claims. (Cl. 280—104.5)



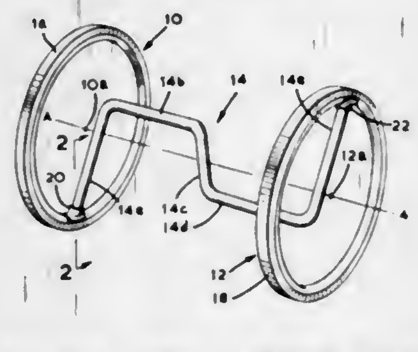
1. Wheel mount and spring holding apparatus for use in supporting a wheeled vehicle, comprising body means having an opening therethrough for receiving an elongate spring disposed longitudinally of said vehicle at one side thereof, tapered wedge means receivable in said opening and wedged against said spring for holding said spring fixedly in place therein, said body means including upwardly facing receptacle means disposed above said opening and at a side of said vehicle for receiving a wheel shaft means, said spring being a multiple leaf spring, said opening having an upper portion adapted to confine the midsection of said spring received therethrough, said opening having inclined shoulder means as its lower portion adapted to direct said wedge means toward said spring, said wedge means comprising a wedge element at each end of said opening and means biasing said wedge elements each toward the other, and against the spring, said receptacle comprising an upwardly open V-shaped slot laterally across the upper end of said body means, adapted to receive a wheel shaft of any size therein.

3,304,097
ADJUSTABLE COMPENSATING TANDEM WHEEL SUSPENSION FOR VEHICLES
Orval M. Lewis, 1118 Main St., Sweet Home, Oreg. 97386
Filed July 2, 1965, Ser. No. 469,131
3 Claims. (Cl. 280—104.5)

1. In a vehicle having a pair of longitudinal-extending side frame members, a pair of adjustable compensating wheel suspension assemblies located on opposite sides of the vehicle respectively, each assembly comprising a plurality of identical wheel-carrying knees spaced longitudinally along the side frame member, the forward end of each knee in the direction of normal travel of the vehicle pivotally mounted on said side frame member for up and down movement, the pivotal mounting for each knee so arranged as to provide a spacing of a few inches between the knee and said side frame member, a pulley on the rear end of each knee mounted on the face of the knee opposite said side frame member, a pair of cooperating pulleys for each knee mounted on said side frame member in the same plane with said first mentioned knee pulley, said cooperating pulleys located below said end pulley and positioned respectively on opposite sides of the arcuate path determined by said pulley with the pivotal movement of the knee, a ground wheel mounted on the knee between the forward and rear ends of the knee, a non-elastic flexible element engaging said end pulley and said pair of cooperating pulleys for each successive knee, one end of said flexible element secured to the vehicle frame, and length adjusting means for said flexible element mounted at the front of said vehicle, the forward end of said flexible element secured to the said length adjusting means.

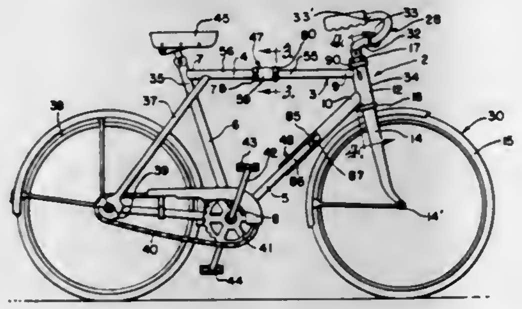


3,304,098
OCCUPANT-PROPELLED AMUSEMENT VEHICLE
Charles William Sloan, 35 Marbury Crescent, Don Mills, Ontario, Canada, and James D. Orr, 1261 Stavebank Road, Port Credit, Ontario, Canada
Filed July 16, 1965, Ser. No. 472,633
10 Claims. (Cl. 280—221)



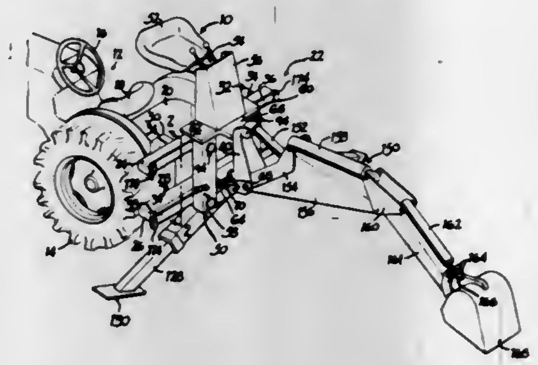
1. An amusement device adapted to support and be propelled by a standing person; said device comprising a pair of ground engaging wheels arranged in side-by-side spaced apart relationship, said wheels having substantially the same diameter and consisting of hoop-like elements having no internal support, a crank mechanism extending between and interconnecting said wheels, said crank mechanism serving to support a person standing on the device and also serving as propelling means for the device when actuated by a person supported thereon, said crank mechanism comprising a unitary structure fixed at its ends to said hoop-like wheels; said structure having a first part extending from the point of attachment to one of said wheels in a direction forming an angle with the plane of said one of said wheels and with the axis defined by the points about which said hoop-like wheels are generated, said first part extending through said axis and terminating at a point to one side of said axis but within the cylindrical space defined by said wheels, a second part extending from the end of said first part in a direction parallel with said axis and towards the other of said wheels, said second part terminating at a point short of a theoretical plane positioned midway between said wheels and parallel to the planes of said wheels, a third part extending from the end of said second part through the point at which said theoretical plane intersects said axis and connecting with a fourth part similar to but on the opposite side of said axis from said second part, and a fifth part similar to said first part but connected to the other of said wheels, said second and fourth parts each being positioned substantially the same distance from said axis but on opposite sides thereof and each having a length adapted to accommodate a foot of a person supported thereon.

3,304,099
KNOCKDOWN BICYCLE FRAME
Stanley H. Jankowski, 8201 N. Milwaukee Ave., Park Ridge, Ill. 60648
Filed Mar. 30, 1965, Ser. No. 443,845
7 Claims. (Cl. 280—287)



1. A collapsible bicycle having a frame comprising a front part and a rear part including truss bars having bar portions disposable in end to end relation in the assembled position of the bicycle, means affording a connection between said front and rear parts and accommodating limited movement therebetween and comprising at least the portions of one of said bars having transversely extending wedge surfaces in wedging engagement with each other, said portions of said one bar having ends formed to have limited movement toward each other in the assembled and connected position of said parts, and quick-releasable rigid means embracing said portions about said wedge surfaces for holding the portions in assembled end to end relationship and in wedging engagement, said means comprising elastomer material stressed between said rigid means and said portions and yieldably accommodating relative movement of said portions longitudinally and transversely of the bar to absorb such movement producing shocks imposed upon the frame.

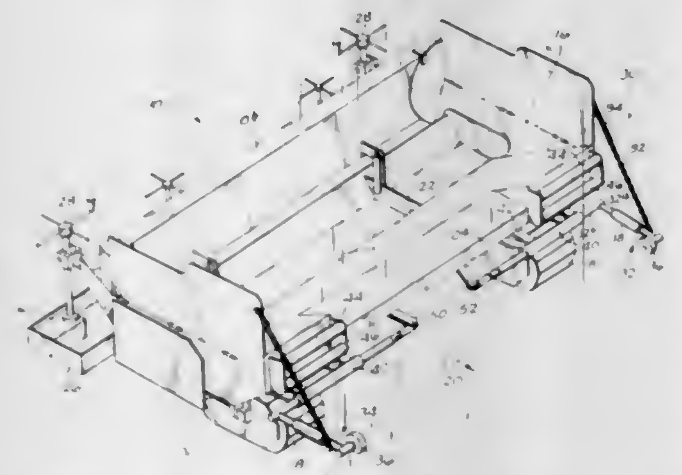
3,304,100
HYDRAULIC APPARATUS FOR LOCKING A SIDE SHIFTABLE EXCAVATOR
Elton B. Long, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed Apr. 22, 1965, Ser. No. 450,114
3 Claims. (Cl. 280—456)



1. In an excavating device having a side shiftable frame slidably carried by use of slide rail guides along at least upper and lower slide rails of a stationary frame, the im-

provement comprising means for hydraulically locking the side shiftable frame in any one of an infinite number of positions along the stationary frame including at least one hydraulic cylinder having a ram at the distal end of the piston accommodating surface-to-surface pressurized engagement between the ram and stationary frame so that the side shiftable frame may be rapidly relocated with respect to the stationary frame in any desired position merely by hydraulic actuation without requiring the operator of the excavating device to leave his seat and dismount the excavating device.

3,304,101
COUPLING MECHANISM FOR TRAILERS
Jack D. Layton, 4725 Turner Road, Salem, Oreg. 97302
Filed May 11, 1965, Ser. No. 454,906
13 Claims. (Cl. 280—460)



1. Means for connecting one vehicle to another disposed in front of it comprising

a pair of forwardly projecting laterally spaced elongated arms pivoted adjacent their rear ends to said one vehicle for lateral movement of their forward ends,

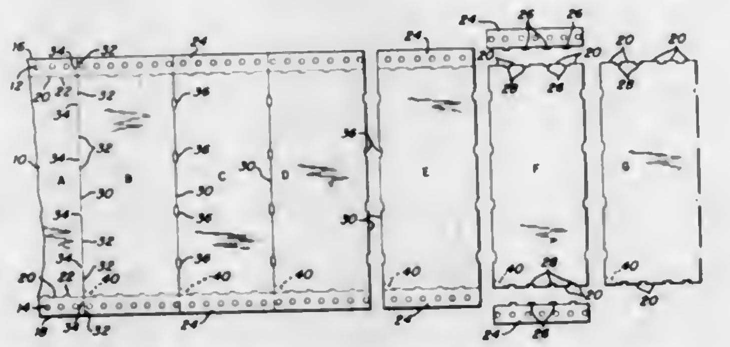
a pair of opposed biasing springs, one being connected to each arm, urging the forward ends of the arms apart, and tending to hold the arms in a predetermined position relative to the longitudinal axis of said one vehicle,

an extensible motor carried between the arms extending transversely across said one vehicle, with ends of the motor operatively connected to the arms at points located forwardly of their pivotal connections with the vehicle, said motor being movable as a unit from side to side of the vehicle with swinging of said arms, and being operable upon contraction to draw the forward ends of said arms together, and

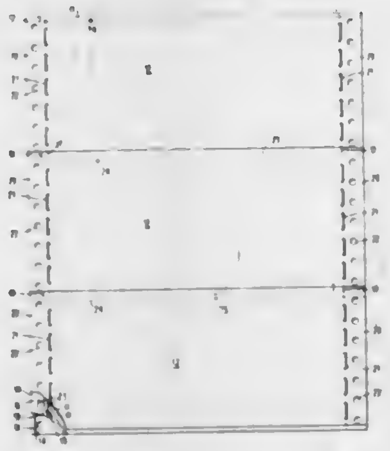
a pair of connecting devices, one connected to the forward end of each arm for lateral movement with the arm, each of said devices extending laterally outwardly and thence forwardly from the arm to which it is connected, and being mounted for movement transversely of said one vehicle, each of said devices having means adapted to engage said other vehicle.

3,304,102
DATA CARD
Harold W. Huffman, Hamilton, Ohio, assignor to The Hamilton Tool Company, Hamilton, Ohio, a corporation of Ohio
Original application Jan. 14, 1965, Ser. No. 425,417, now Patent No. 3,268,136, dated Nov. 15, 1966. Divided and this application Feb. 18, 1966, Ser. No. 541,053
3 Claims. (Cl. 281—5)

3. A precision data card which is struck from a traveling web of card stock having opposite side margins perforated along straight lines extending in the direction of web travel; said data card defined by opposite end edges in parallelism, and opposite side edges in parallelism, arranged to encompass a rectangle; the end edges each comprising two adjacent straight parallel lines of slits in the web spaced inwardly of and in parallelism with a line of the marginal perforations, the slits of each line of slits having opposite ends spaced from one another to provide uncut connecting ties of card stock therebetween, with the slits of one line of slits overspanning the ends of the slits of the other line of slits; the opposite side edges of the card being each defined by a single straight line of transverse slits in the web, having opposite ends of successive transverse slits spaced from one another to provide uncut connecting ties of card stock therebetween, and spaced slits inwardly of and parallel to said transverse slits and each overspanning the adjacent ends of said transverse slits, said spaced slits being shorter in length than said transverse slits, with certain ones of the transverse slits intersecting a slit in one of the lines of slits defining an end edge of the card.



3,304,103
CUT CARD CONTINUOUS FORMS
Richard A. Bensler, Sr., Vestal, and Robert W. Mitchell, Binghampton, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Dec. 22, 1965, Ser. No. 515,556
7 Claims. (Cl. 282—11.5)



1. A continuous form assembly comprising,

a plurality of superposed continuous paper webs having detachable marginal carrier strips, each provided with a longitudinal row of pin feed perforations to facilitate machine processing of the form;

a plurality of continuous carbon webs interleaved with said paper webs and extending longitudinally between the marginal rows of pin feed perforations;

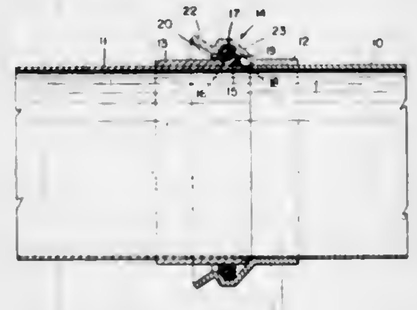
a line of weakness extending along one margin of each carbon web to define a detachable strip;

a series of precut spaced apart non-joined record cards comprising the top layer of said assembly, each record card having a pair of detachable end stub portions provided with pin feed perforations which coincide with the pin feed perforations in the marginal carrier strips of said paper webs;

means for fastening together along one margin of said assembly one detachable carrier strip of each paper web, one detachable end stub portion of each card and the detachable strip of each carbon web; and

transverse lines of weakness spaced along said carbon and paper webs and positioned in registry between successive record cards to enable said assembly to be separated into individual multi-part assemblies.

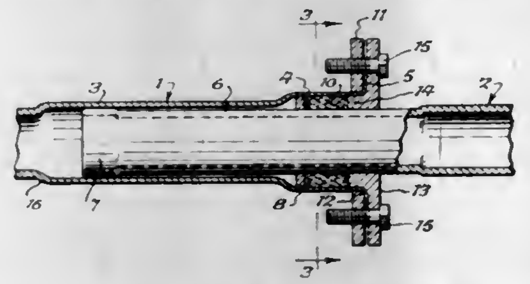
3,304,104
TUBE COUPLING
Sumner D. Wiltse, Detroit, Mich., assignor to Vibraseal Corporation, Detroit, Mich., a corporation of Michigan
Filed May 4, 1964, Ser. No. 364,403
6 Claims. (Cl. 285—5)



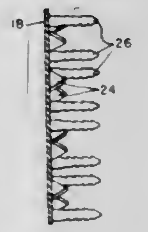
1. A tube coupling comprising two tubes arranged in end-to-end abutting relationship, a sleeve secured to each of said tubes adjacent their ends, one of said sleeves having an enlarged annular portion provided with a three-sided inwardly opening annular groove and having at the outer and inner sides respectively of said annular groove outwardly flaring annular portions, the other of said sleeves having an outer cylindrical surface extending into said enlarged annular portion, said other sleeve having a segmental circumferentially extending inclined flange disposed substantially parallel to one side of said three-sided annular groove, said inclined flange and said one side of said three-sided annular groove having at least portions thereof in spaced opposed relation, and a combined sealing and retaining ring having an elastomeric exterior surface and a reinforcing means imbedded therein, said ring having a hexagonal radial cross section and disposed within and having sealing engagement with the three sides of said three-sided annular groove and having sealing engagement with said outer cylindrical surface and with the outer side of said flange, the outwardly flaring annular portion upon the outer side of said annular groove being operable to facilitate insertion of said ring into engagement with said annular groove and operable to facilitate insertion of said segmental flange into engagement with said ring, the outwardly flaring annular portion upon the inner side of said annular groove being operable to limit insertion of said segmental flange relative to said ring.

3,304,105
EXPANSION JOINT
Robert B. Hill, Buffalo, N.Y., assignor to Yuba Industries, Inc., a corporation of Delaware
Filed June 4, 1964, Ser. No. 372,596
2 Claims. (Cl. 285—302)

1. A slip-type expansion joint comprising telescoping inner and outer joint members each of one-piece unitary construction, said outer joint member being formed to provide a guide section having an inner and an outer end and an enlarged stuffing box section at said outer end of said guide section, means forming an internal shoulder at said inner end of said guide section, said stuffing box section terminating at its outer end in an external lateral flange, said inner joint member having a slip portion telescoping within said guide and stuffing box sections and being enlarged adjacent the inner end of said slip portion to a dimension providing a close fitting sliding engagement within said guide section, said enlarged inner end thereby being guided by said guide section, a packing ring encircling said slip portion adjacent the inner end of said stuffing box section, said packing ring having an inner diameter less than the outer diameter of said enlarged inner end of said slip portion to engage said enlarged inner end of said slip portion and limit outward movement of said inner joint member relative to said outer joint member, said shoulder being engaged by said enlarged inner end of said slip portion to limit inward movement of said inner joint member relative to said outer joint member, packing encircling said slip portion within said stuffing box section, a gland encircling said slip portion in close fitting sliding engagement therewith adjacent said outer end of said stuffing box section, said slip portion thereby being guided by said gland, said gland having an axial extension entering said stuffing box section and compacting said packing to provide a fluid tight joint between said members, a locking ring encircling said stuffing box section and engaging said flange on the side thereof opposite said gland, and fastening means extending between said gland and said locking ring for drawing the same together, said locking ring and said gland being generally rhomdoidal with rounded corners, having opposite side portions only slightly wider than said flange and opposite end portions projecting well beyond said flange to receive said fastening means, thereby enabling said joint to be positioned in close proximity to other structures by rotation of said locking ring and gland assembly to position said side portions adjacent such structures.



3,304,106
TRUSS AND CONNECTOR PLATES THEREFOR
Gerald M. McCormack, Lake Oswego, Oreg., assignor, by mesne assignments, to Automated Building Components, Inc., Miami, Fla.
Filed Sept. 30, 1963, Ser. No. 312,436
12 Claims. (Cl. 287—20.92)



1. A toothed connector plate for fastening together and transmitting loads between abutting structural wooden members, said plate comprising:

(a) a flat, metal plate member,

(b) a plurality of integral, spaced apart fastening means extending unidirectionally from and in a direction substantially normal to said plate member for imbedding into said abutting members,

(c) said fastening means including a plurality of relatively short tooth means having broad sides and straight edges so as to have a high resistance to shear in wood and a low resistance to withdrawal therefrom,

(d) said short tooth means being distributed substantially uniformly throughout at least one-half the surface area of said plate member,

(e) others of said fastening means including a plurality of elongate tooth means of considerably greater length than said short tooth means so as to have a higher resistance to withdrawal from wood,

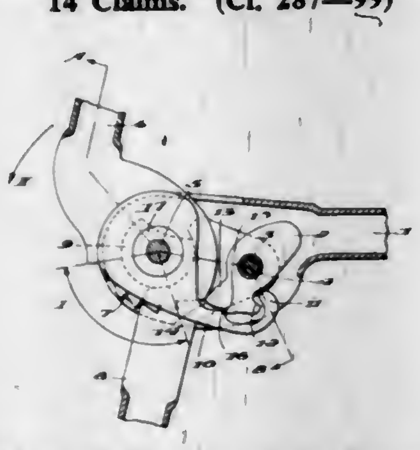
(f) said elongate tooth means being distributed throughout at least the other half of said surface area of said plate member,

(g) said elongate tooth means being distributed over only about one-half the surface area of said plate member, beginning at one end thereof, so that said elongate teeth become embedded in only one of two abutting wood members joined by said plate member, the other half of said plate member having nail holes punched therein at intervals between said short tooth means.

3,304,107

ADJUSTABLE JOINT, ESPECIALLY FOR CHAIRS, BEDS, COTS, AND THE LIKE

Wilhelm Bahmüller, Pluderhausen, Wurttemberg, Germany
Filed Aug. 6, 1962, Ser. No. 214,959
Claims priority, application Germany, Aug. 5, 1961, B 63,536
14 Claims. (Cl. 287—99)

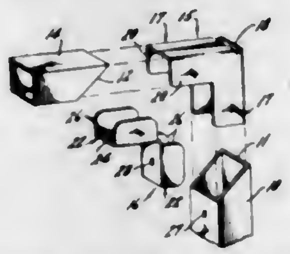


14. An adjustable joint, especially for reclining chairs, folding cots, and the like, having two arms pivotably connected to each other, the first of said arms having a locking member toward its inactive position, said hooking member pivotably connected to the second arm and adapted to be moved to an active position in locking engagement with said locking part and to an inactive position in which it is substantially disengaged from said locking part, a control lever pivotably mounted on said first arm and having a hook-shaped part extending partly around said locking member, continuously engaged friction means operatively connecting said lever to said first arm to exert a force on said lever tending to take along said lever with said first arm when said first arm is pivoted relative to said second arm, said hook-shaped part of said lever being adapted to engage with said locking member in one position when said arm with said locking part is pivoted in the locking direction so as to press upon said locking part with a certain locking range thereon, a lock-shaped part being adapted to engage with said locking member in another position when said arm with said locking part is pivoted in the direction opposite to said locking direction so as to press upon said locking member toward its active position, and associated holding means on said lever and said locking member comprising an abutment on said lever and a first point on said locking member adapted to engage with each other for maintaining said locking member in said inactive position when said first arm is pivoted in the locking direction, said abutment being further adapted, when said first arm is pivoted in the locking direction after being previously pivoted in the opposite direction whereby said abutment is released from said first point of said locking member, to exert a pressure upon the back of said point of said locking member spaced from said first point for moving said member in the direction toward its active position before said hook-shaped part of said lever acts upon said locking member to move the same in the direction toward its inactive position.

3,304,108

TUBE CONSTRUCTION

Earl F. Hamilton and Ralph B. Lay, Columbus, Ind., assignors to Hamilton Cosco, Inc., Columbus, Ind., a corporation of Indiana
Filed Dec. 18, 1963, Ser. No. 331,511
1 Claim. (Cl. 287—189.36)

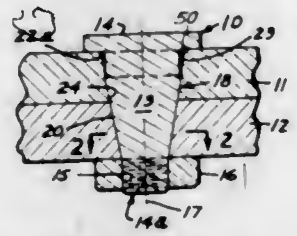


A tube construction, comprising a first tube having a beveled end, a second tube at an angle to said first tube, the edges on the beveled end on said first tube and the adjacent end of said second tube abutting each other substantially continuously around the peripheries of said ends, a first bifurcated channeled bracket having a pair of arms angularly oriented with respect to each other at the same angle as said tubes and received in said tubes, a second bifurcated channeled bracket having a pair of arms angularly oriented with respect to each other at the same angle as said tubes and interfit the arms of said first bracket and received in said tubes, each of the arms on said first and second brackets comprising a web interconnecting a pair of fingers, the webs on said brackets abutting diametrically opposed sections of the inner wall of each of said tubes, the fingers on said second bracket abutting the fingers on said first bracket in face to face relationship, and the arms on said brackets bindingly engaging the inner walls of said tubes for rigidly retaining said tubes in interconnected end to end relationship.

3,304,109

JOINT INCLUDING TAPERED FASTENER

Michael M. Schuster, Inglewood, Calif., assignor to Hi-Shear Corporation, Torrance, Calif., a corporation of California
Filed Apr. 21, 1965, Ser. No. 449,748
4 Claims. (Cl. 287—189.36)

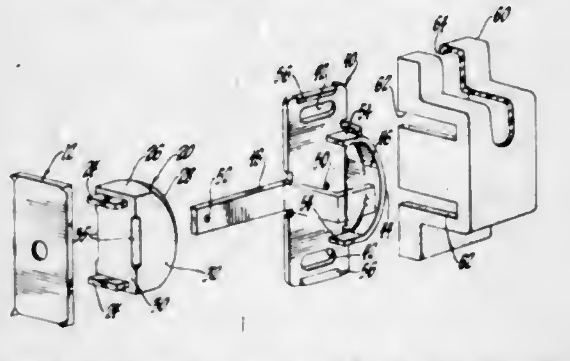


1. A joint comprising a plurality of overlapping plates and a headed bolt, said plates including a continuous conical tapered hole extending therethrough with the bolt being disposed therein and with the bolt being seated against the outermost plate, said hole having a central axis and reference lateral dimensions, said bolt having an axis and including a shank having a conical tapered portion and a second portion lying closer to the axis than would a continuation of the tapered portion, the second portion being adjacent to the head and spacing the conical tapered portion therefrom, the lateral dimensions of the conical tapered portion having been, when out of the hole, greater than the reference lateral dimensions of the hole at the axial locations which will be axially contiguous thereto when the bolt is seated with its head against the outermost plate, whereby in the joint the bolt forms with the plates an interference fit in which the axially aligned lateral dimensions of the hole and of the tapered portion of the bolt are equal, at least a part of said second portion being spaced throughout its periphery from the sidewall of said hole to form a void adjacent to the head and within the hole, a wave of material displaced by the bolt when the interference fit was formed, said wave projecting into the void, and engagement means on the end of the shank opposite from the head.

3,304,110

MAGNETIC CATCH ASSEMBLY

Robert R. Triplette, P.O. Box 4508, Winston-Salem, N.C. 27107
Filed Jan. 15, 1965, Ser. No. 425,908
9 Claims. (Cl. 292—251.5)



4. A magnetic catch for use with a door provided with a magnetic striker plate comprising; means magnetically engageable with the magnetic striker plate including, a magnet, a pair of metal pole pieces disposed at opposite poles of said magnet, a mounting plate including means for movably supporting said magnet and said pole pieces, a plastic casing having slots therein for receiving said pole pieces and an opening for placement in a position contiguous with the periphery of said mounting plate, and means for removably securing said plastic casing to said mounting plate.

3,304,111

MAGNETIC CHOPSTICK CONSTRUCTION

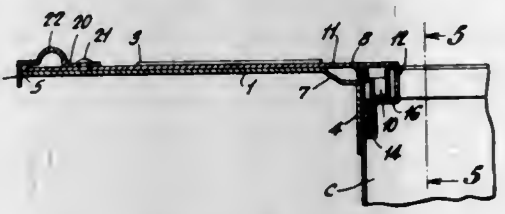
Jae S. Kauh and Angela M. Kauh, both of 149 Shepard Ave., Kenmore, N.Y. 14217
Filed Apr. 9, 1965, Ser. No. 447,025
6 Claims. (Cl. 294—16)

1. A chopstick construction comprising a first chopstick, a second chopstick, food carrying ends on said first and second chopsticks, clip means for fastening said first and second chopsticks together, a pivotal connection on said clip means for permitting said food carrying ends of said first and second chopsticks to move toward and away from each other while said clip means maintains said first and second chopsticks fastened to each other, and magnetic means mounted on said chopsticks for causing said food carrying ends of said first and second chopsticks to be urged to a spaced apart position in the absence of forces tending to bias said food carrying ends together.

3,304,112

DETACHABLE HANDLE FOR RECEPTACLES

Edward L. Elliott, 9119 Manchester Road, Silver Spring, Md. 20901
Filed Apr. 13, 1965, Ser. No. 447,794
3 Claims. (Cl. 294—34)

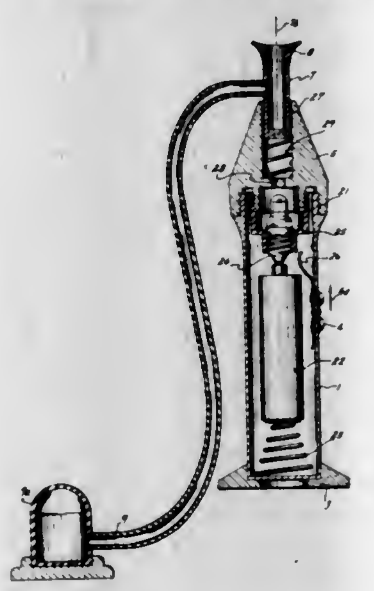


1. A detachable handle for a receptacle having an open top and a lateral cylindrical wall wherefrom a rim extends inwardly, said handle formed of a pair of juxtaposed plate members reciprocably movable with respect to each other, the lower one of said members having a downwardly extending arcuate flange at one end thereof for contacting the outer wall of said receptacle adjacent to the upper edge thereof and a rounded end at the opposite end thereof, the upper one of said members having a re-entrant channel at the end thereof adjacent to said first-mentioned end and terminating in a downwardly extending arcuate flange for contacting the inner wall of said receptacle opposite said first-mentioned arcuate flange, guide means on the edges of said lower member for confining the reciprocating movement of the upper member thereon, and a pivoted latch on the end of said upper member remote from the arcuate flange for engaging the rounded end of said lower member and thereby locking said members against movement in the engaging position of said handle with the receptacle, the pivotal axis of said latch being so displaced from said rounded end as to exert a locking camming action when the latch is turned into locking position.

3,304,113

INSTRUMENT FOR MANIPULATING CONTACT LENSES

William R. Hutchison, 10821 Fairway W., Sun City, Ariz. 85351
Filed Apr. 22, 1966, Ser. No. 544,584
3 Claims. (Cl. 294—64)



1. In an instrument for manipulating contact lenses comprising a tubular body portion having an upper end and a lower end, a light source disposed within said

tubular member adapted to direct light upwardly therefrom, and hollow means for supporting a contact lens above said tubular member, whereby said light directed upwardly from said tubular member passes through said hollow lens supporting means and through the lens supported thereon, the improvements in combination therewith comprising

- (a) a cap member affixed to the upper end of said tubular member and having an axial lens support well therein, and a light transmitting aperture communicating between the light source in said tubular member and the lens support well, and
- (b) a lens support adapted to remove a contact lens from the eye including
  - (1) a tubular support adapted to be inserted within said lens support well and extend upwardly therefrom, having an open upper end and a closed light transmitting lower end,
  - (2) a resilient cup member affixed to the upper end of said tubular support and adapted to engage a contact lens along its periphery, said cup member having a central aperture communicating with the interior of said tubular support, and
  - (3) means for creating a partial vacuum within said tubular support after a contact lens is sealingly engaged by the periphery of said cup member.

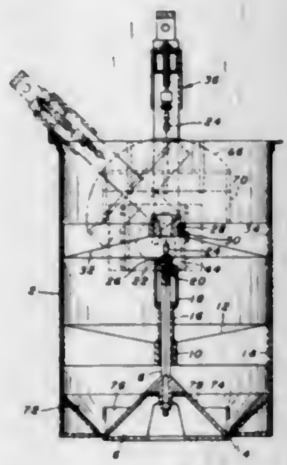
3,304,114

APPARATUS FOR APPLYING COKE BREEZE ON THE BOTTOM OF AN INGOT SOAKING PIT

Frank C. Gonos, West Mifflin Borough, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed July 2, 1965, Ser. No. 469,297

8 Claims. (Cl. 294—72)



1. Apparatus for applying coke breeze on the bottom of an ingot soaking pit which comprises a tank for containing said coke breeze and adapted to be lowered into said soaking pit, said tank having an outlet port through the bottom thereof, a valve displaceably seated in and normally closing said port, said valve being displaceable outwardly of said tank to open said outlet port, slotted guide plates on opposite sides of said tank, a bail having trunnions thereon pivotally connected wih said guide plates, said trunnions being slidably fitted in the slots of said guide plates for movement between one tank-lifting position at one end of said slots and a second tank-lifting position at the opposite end of said slots, means connecting said valve with said bail whereby said valve is maintained substantially seated in said port when said tank is lifted by said bail with said trunnions in one of said positions and said valve is displaced by gravity outwardly from said outlet port to open the same when said tank is lifted by said bail with said trunnions in the other of said positions.

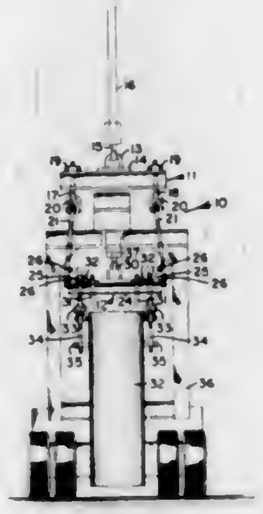
3,304,115

HOISTING APPARATUS

William B. Brooks, Guntersville, and Samuel L. Champion, Huntsville, Ala., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

Filed Dec. 28, 1964, Ser. No. 421,495

3 Claims. (Cl. 294—81)



1. A hoisting apparatus, comprising a first and second transfer lifting beam, quick detachable means for connecting said transfer lifting beams in spaced parallel relation to each other, means for connecting a load to said second transfer lifting beam, means for connecting said first transfer lifting beam to a first crane for applying lifting tension to said load, means for connecting said second transfer lifting beam to a second crane whereby when the lifting tension is transferred to said second crane said quick detachable means will disconnect said first transfer lifting beam from said second transfer lifting beam without releasing the lifting tension on said load.

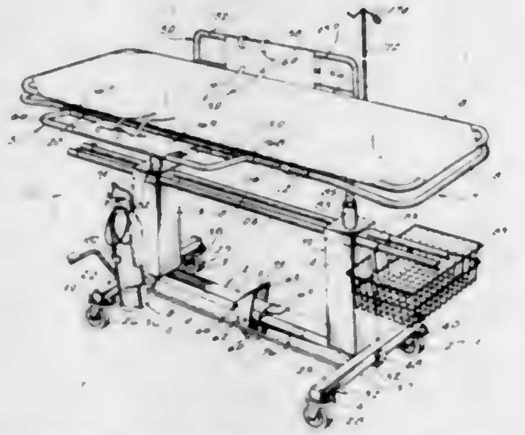
3,304,116

MECHANICAL DEVICE

Homer H. Stryker, Kalamazoo, Mich., assignor to Stryker Corporation, Kalamazoo, Mich., a corporation of Michigan

Filed Mar. 16, 1965, Ser. No. 440,093

6 Claims. (Cl. 296—20)



1. A wheeled carriage for supporting a patient in a substantially horizontal position, comprising:

- an undercarriage having four castered wheels substantially arranged in a rectangle for engagement with a flat supporting surface;
- a fifth wheel mounted upon said undercarriage for movement into and out of engagement with said supporting surface;
- a substantially flat and rectangular frame;
- a pair of spaced, fluid pressure actuated means mounted upon said undercarriage and connected to said frame for supporting said frame in a position substantially parallel with said undercarriage;

- operating means for energizing said fluid pressure actuated means to move said frame upwardly with respect to said undercarriage;
- control means for de-energizing said pressure fluid actuated means, whereby said frame can be lowered; and
- an elongated and substantially flat patient support means mountable on said rectangular frame.

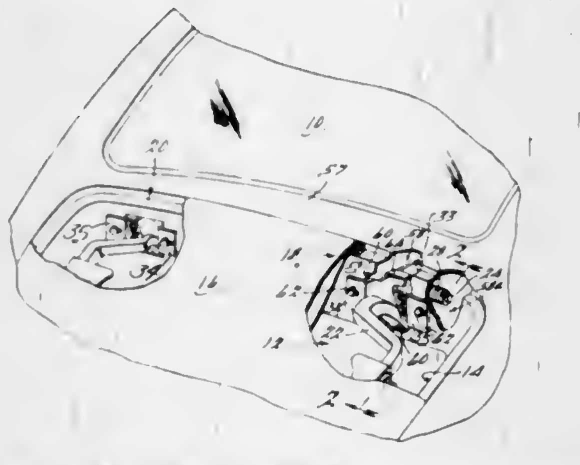
3,304,117

DECK LID HINGE ASSEMBLY

Gerald C. Harris, Roseville, and Edward Goralewski, Bloomfield Hills, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Filed Jan. 12, 1965, Ser. No. 425,009

9 Claims. (Cl. 296—76)



1. A motor vehicle comprising:

- (A) a rear luggage compartment having an access opening;
- (B) a rear deck lid adapted to close said compartment;
- (C) a hinge strap fixed at one end thereof to said lid;
- (D) a hinge pin fixed to said strap adjacent the other end of, and in substantially perpendicular relation to, said strap and including an elongated portion extending to one side of said strap;
- (E) means mounting said hinge pin on a fixed portion of said vehicle immediately forwardly of said opening for rotation about a substantially horizontal axis, whereby to mount said lid for pivotal movement between a down position closing said opening and an open position allowing access to said compartment;
- (F) a coiled helical spring fixed at one end to the free end of said elongated pin portion and winding therefrom about and progressively along said pin portion toward said strap to a free end generally adjacent said strap; and
- (G) means on said fixed body portion engaging one end of said spring and restraining that end from movement in an unwinding direction.

3,304,118

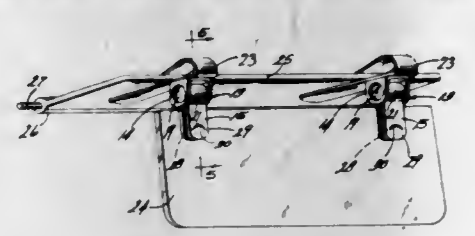
ANTI-GLARE SHIELD ATTACHMENT FOR SUN VISORS AND FRICTION HINGE THEREFOR

Clarence F. Jonas, 518 Market St., Rockford, Ill. 61107

Original application Nov. 9, 1961, Ser. No. 151,340, now Patent No. 3,226,763, dated Jan. 4, 1966. Divided and this application Oct. 22, 1965, Ser. No. 502,203

4 Claims. (Cl. 296—97)

2. A glare shield attachment for a sun visor having a longitudinal edge portion, the said attachment comprising a generally rectangular transparent glare shield panel having two longitudinally spaced openings provided therein in inwardly spaced relation to one longitudinal edge thereof, and a pair of spaced hinges for hingedly mounting said panel by said longitudinal edge portion on one longitudinal edge portion of said visor, each of said hinges comprising an inner hinge member made of spring steel bent to a generally U-shaped form providing a bight portion and two arms that are normally disposed in closely spaced parallel relation, the bight portion of the U being defined by a generally cylindrical knuckle portion parallel to the longitudinal edge portion of said panel and open at both ends, one of said arms having integral therewith an inwardly inclined projection flexible relative thereto, which, when the edge portion of said panel is thrust between said arms causing the arms to be spread apart and said projection to be flexed as it rides over the edge portion of said panel, finally snaps down into place in one of said openings in the edge portion of said panel to retain the panel against displacement from said inner hinge member, and an outer hinge member made of spring steel bent to generally U-shape providing spaced substantially parallel arms at least one of which has a circular indentation to enter one end of said knuckle portion when the two arms are disposed in tight engagement with opposite ends of said knuckle portion for pivotally mounting the inner hinge member on the outer hinge member, and means attached to the cross-portion of said outer hinge member for mounting the same on the longitudinal edge portion of said visor.



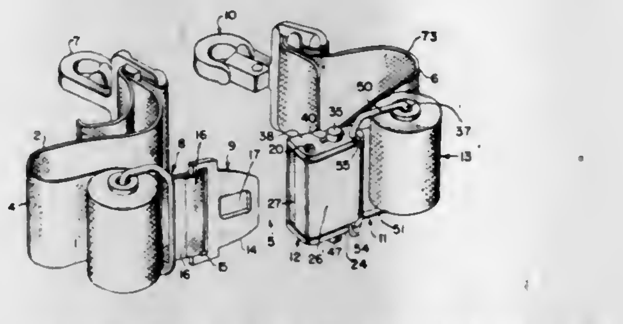
3,304,119

SEAT BELT ADJUSTOR

Raymond J. Boedigheimer, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed July 13, 1964, Ser. No. 382,301

9 Claims. (Cl. 297—388)



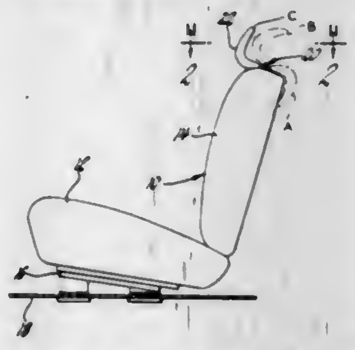
1. The combination of a buckle and retractor for a seat belt comprising a buckle having a seat belt locking structure for adjusting a belt length in a first fixed and a second belt releasing position, a seat belt retractor of the reel type for mounting on the belt length and adaptable to coil said length about the reel portion of the retractor in superimposed coiled layers by the winding action of the energy storing means of the retractor, said belt locking structure comprising a locking element and slot means in the buckle receiving portions of the locking element and allowing movement of the locking element relative to the buckle, a belt abutment mounted on the buckle in fixed relation to said slot means and defining with the locking element a belt path, said element being provided with surface for receiving a looped portion of the belt length connectable with the belt coil about the reel, said retractor having a reaction member pivotally connected with the buckle for swinging movement of the retractor from a first position generally in the plane of the buckle to a second position in a plane transverse to the plane of the buckle, said reaction member having cam surfaces and said locking element having surfaces engageable with surfaces of the reaction member and movable away from

the buckle abutment upon engagement of the reaction member surfaces with the locking element surfaces whereby in the first position of the retractor the locking element presses against the belt length for locking the belt against the buckle abutment and in the second position of the retractor the belt path is enlarged by the movement of the element away from the buckle abutment.

3,304,120

ADJUSTABLE HEADREST FOR A SEAT

Frank Norbert Cramer, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 30, 1965, Ser. No. 517,693
1 Claim. (Cl. 297—403)



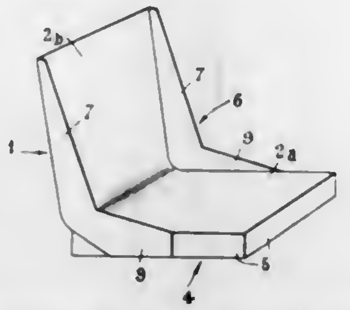
In combination on a seating unit having a seat and a seat back, a headrest unit secured to the seat back, said headrest unit including a hinge plate secured to said seat back, a hinge pintle, said hinge plate having a pair of integral portions wound about said hinge pintle for supporting the latter for rotation and axially slidable movement, an adjustable headrest secured to said pintle for movement therewith, said headrest having a stored position adjacent the top and rear of said seat back and a plurality of head supporting positions above and forward of said stored position and being movable therebetween by the pivotal action of said pintle, a brake for holding said headrest in the selected position of adjustment including a fixed brake member secured to said hinge plate, said fixed brake member located between said pair of integral portions and serving as a bushing for rotatably supporting the pintle, a movable brake member secured to said pintle for movement therewith, a compression spring having one end bearing against the hinge plate and the other end bearing against said movable brake member for urging said movable brake member and said pintle axially toward said fixed brake member for engagement therewith, said members having teeth for coacting when said members are engaged for restricting rotational movement of said headrest toward said stored position, said teeth allowing rotation of said headrest in the direction from stored position to the head supporting positions by sliding contact between the teeth whereby the biasing action of the compression spring is overcome and the movable brake member moves axially away from the fixed brake member a sufficient distance for the teeth on said members to clear each other for allowing relative movement therebetween.

3,304,121

METAL CHAIRS

René Vincens and Francois Lemaire, Neuville-les-Dieppe, France, assignors to Societe Civile de Recherches et d'Etudes Industrielles, Neuville-les-Dieppe, France
Filed Aug. 10, 1965, Ser. No. 478,640
Claims priority, application France, Aug. 11, 1964, 984,832, Patent 1,411,823; Oct. 6, 1964, 990,474; Apr. 17, 1965, 13,738
7 Claims. (Cl. 297—445)

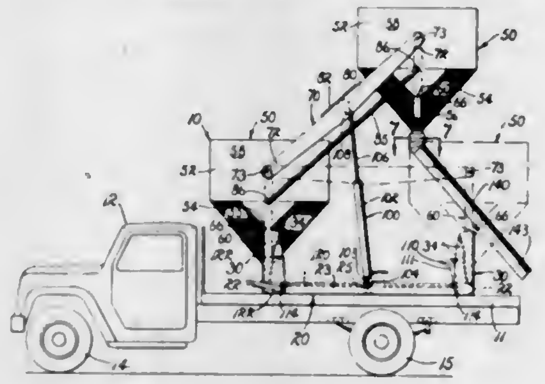
1. Metal chair comprising a seat consisting of a plane metal sheet bent to more than 90 degrees approximately in its median portion to constitute the seat and back, of a frame made of metal sections having welded thereon said seat surface along its four sides and said back along its lower horizontal edge, of a pair of plane metal uprights each in the form of a metal plate cut to a substantially L-shaped configuration, the horizontal portion of each upright being adapted to be welded to the sides of said frame each upright having at its upper end a portion bent at right angles and adapted to be welded to the edges of said back, of four legs made of metal section, of a leg assembling frame adapted to be secured to said seat frame, and of a pair of arm-rests consisting of metal section elements secured to said seat frame and to said uprights.



3,304,122

MOBILE STORAGE AND DISPENSING DEVICE

David P. Smith, 2606 Christmas Tree Lane, Bakersfield, Calif. 93306
Filed May 10, 1965, Ser. No. 454,428
7 Claims. (Cl. 298—7)



1. A mobile storage and dispensing device for bulk material comprising a frame adapted to be mounted on a mobile vehicle; a pair of hoppers for such material providing separate material discharge means; lock means selectively releasably latching said hoppers to said frame; and link means pivotally interconnecting said hoppers in spaced relation on the frame including an expandable member for raising a selected one of said hoppers to a position elevated from the frame to insure free gravitational descent of said material from the selected hopper, and the other of said hoppers being releasable and elevationally positionable upon the return of said selected hopper to a locked position on the frame incident to a subsequent actuation of said expandable member.

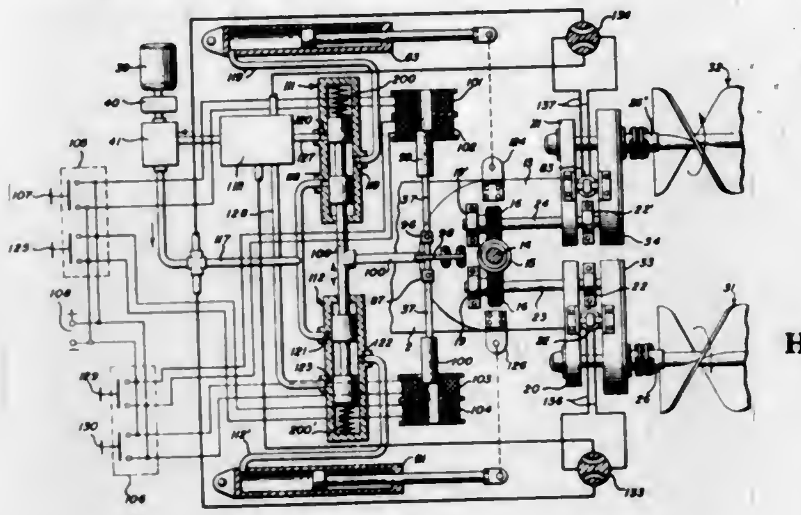
3,304,123

SIDE CUTTING MINING MACHINE HAVING SWINGABLE AUGERS

Myron T. Coffman, Ellamore, W. Va. (French Creek, W. Va. 26218)
Filed July 20, 1965, Ser. No. 477,344
10 Claims. (Cl. 299—45)

1. A mining machine comprising a frame having a skidable base, means for progressively moving said base horizontally in a direction transverse thereof, conveyor means mounted on said base and extending longitudinally of said frame, a turntable pivotally mounted adjacent the front of said frame and movable in a horizontal plane, hydraulic control means mounted at opposite sides

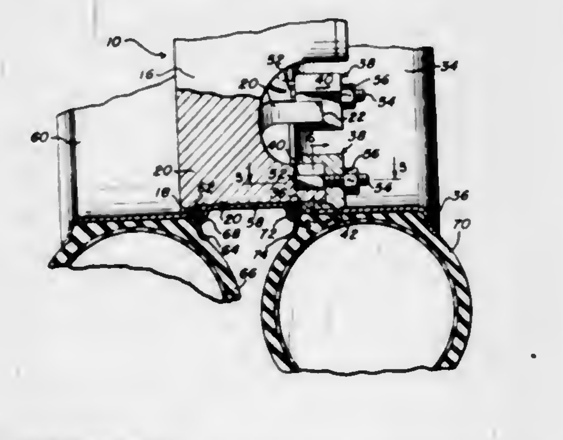
of said frame and connected with said turntable for controlling the orientation of said turntable, a set of arms mounted adjacent the front of said turntable, a cutter head journaled in each of said arms on axes substantially parallel with the longitudinal axis of said turntable, means carried by said arms for rotatively driving said cutter heads and means carried by said frame for driving all of the aforesaid means.



3,304,124

TIRE RIM MOUNTING MEANS AND METHOD

Junior M. Brown, 4319 Queens Ave., Dayton, Ohio 45406, and George E. York, Madison Township, Montgomery County, Ohio (634 N. Union Road, Dayton, Ohio 45427)
Filed Apr. 29, 1965, Ser. No. 451,840
9 Claims. (Cl. 301—12)



1. In combination:

a hub to be attached to an axle construction of a vehicle and having a central cylindraceous portion with a central axis and having radial spokes extending from said cylindraceous portion, said spokes having individual axially outward fingers on the radially outer ends of said spokes, said fingers having transverse finger end surfaces, said fingers having radially inwardly open axially tapered bolt receiving finger slots with tapered side walls, said slots having axially inner relatively broad slot ends and having axially outer relatively narrow slot ends, said fingers having tire rim receiving arc-shaped radially outer finger felly surfaces;

a tire rim having one rim end extending around said fingers closely adjacent said outer finger felly surfaces;

tire rim U-shaped clamps each having radially inner and radially outer legs straddling a respective finger and having an axially extending clamp base having a transverse axially inner clamp surface engaging a respective finger end surface and having a bolt hole axially aligned with a respective said finger slot;

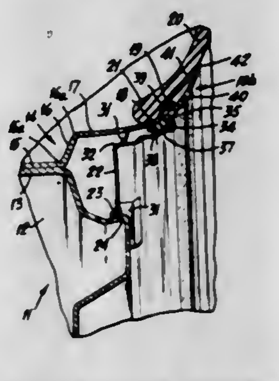
axially directed bolts each having a wedge-shaped bolt head in a respective said finger slot, each said bolt extending axially through a said respective bolt hole and having a respective bolt end extending axially beyond a respective clamp base, said bolt head being laterally and radially insertable into and removable from said respective finger slot;

and bolt end fasteners each fastened to a respective said bolt end and securing a respective said bolt end and securing a respective said clamp on a respective said finger.

3,304,125

WHEEL TRIMS FOR VEHICLE WHEELS WITH TIRES

Herbert Buerger, Walton, N.Y., assignor to Del Krome Corp., Walton, N.Y., a corporation of New York
Filed May 11, 1965, Ser. No. 454,834
7 Claims. (Cl. 301—37)



1. A member adapted to be attached to the tire rim of a wheel comprising an annular wall extending substantially axially outwardly, a plurality of gripping fingers extending radially and axially outwardly of said axially extending wall, said fingers having outer edge portions, and fingers being cut from said axially extending wall to form openings in said wall and said fingers overlying said openings, means forming an axially inwardly opening channel, which channel is located at the axially outer end of said axially extending annular wall, and is disposed radially outwardly of and surrounds said axially extending wall, and said channel forming means having an axially inwardly extending end edge, and a white wall tire simulating ring of rubber-like material having an annular bead portion gripped and secured within said channel by said channel forming means, and an annular portion extending axially inwardly from the gripped portion of said ring and overlying said axially extending wall, and an annular portion extending radially and axially outwardly from between said gripped portion and overlying portion, and forming with said gripped portion, an annular outwardly opening wedge shaped groove, and said annular end edge of said channel forming means projecting into said wedge shaped annular groove, said channel forming means comprising an axially outer annular wall extending radially outwardly from the axially outer end of said axially extending wall, a cylindrical wall extending axially inwardly from said radially extending wall and said annular end edge being formed on the axially inner end of said cylindrical wall.

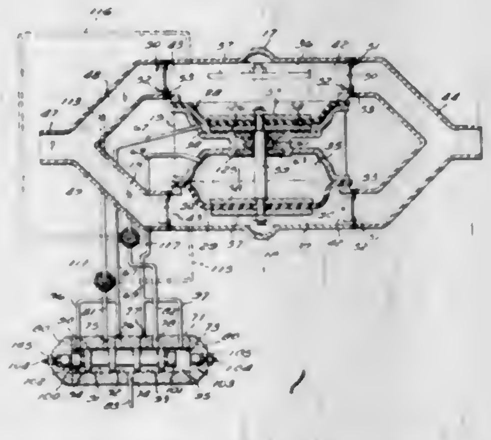
3,304,126

MATERIAL HANDLING APPARATUS AND METHODS

Warren E. Rupp and Frank T. Sakraida, both of Mansfield, Ohio, assignors to The Gorman-Rupp Company
Filed Feb. 15, 1965, Ser. No. 432,729
22 Claims. (Cl. 302—21)

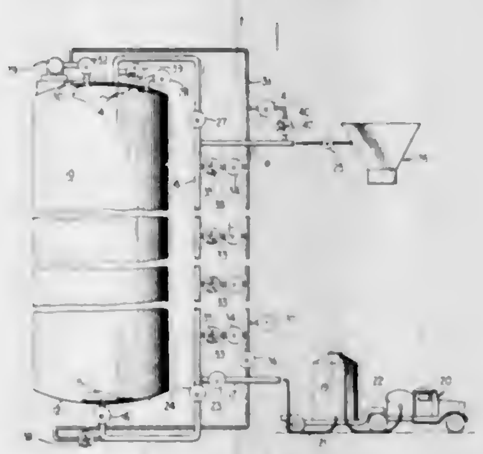
1. Pumping apparatus comprising:
(a) housing means,
(b) first and second pumping means in said housing means,

- (c) said pumping means cooperating with said housing means to define first and second pumping chambers,
- (d) said pumping chambers having intake and discharge openings,
- (e) a first fluid system operatively connected to said first pumping means for applying fluid pressure thereto and causing material to be pumped from said first pumping chamber,
- (f) a second fluid system operatively connected to said second pumping means for applying fluid pressure thereto and causing material to be pumped from said second pumping chamber, and,



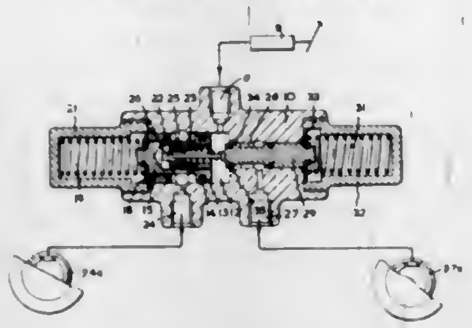
- (g) pressure sensitive control valve means for selectively energizing said fluid systems,
- (h) said control valve means including a valving member which is operatively disposed between said fluid systems and which is movable between two positions in response to a fluid pressure differential between said systems, said valving member being operable in one position to energize said first fluid system and in another position to energize said second fluid system.

3,304,127
MATERIAL HANDLING APPARATUS
Walter D. Huffaker, Atlanta, Ga., assignor to Ma-Tran Corp., Atlanta, Ga., a corporation of Georgia
Filed Aug. 20, 1965, Ser. No. 481,374
18 Claims. (Cl. 302—28)



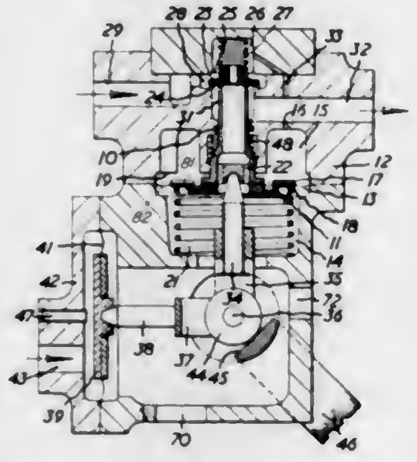
1. A pneumatic material handling system including a storage container, a discharge line communicating with said storage container, means to simultaneously supply material at full flow to said storage container and said discharge line from a source of material, said simultaneous supply means supplying material directly to said discharge line from the source of material without passing through said storage container, and means to supply material from said storage container to said discharge line when said simultaneous supply means is inactivated.

3,304,128
HYDRAULIC BRAKING SYSTEMS FOR VEHICLES
Glyn Phillip Reginald Farr, Kenilworth, England, assignor to Girling Limited, Birmingham, England, a British company
Filed Aug. 17, 1964, Ser. No. 390,138
Claims priority, application Great Britain, Aug. 20, 1963, 28,825/63
3 Claims. (Cl. 303—6)



1. Means for controlling the ratio of the braking efforts applied to different pairs or sets of wheels of a vehicle comprising a chamber or housing adapted to be connected to a master cylinder and to the slave cylinders of the brakes on two pairs or sets of wheels respectively and incorporating means for applying an intensified pressure to the slave cylinders of the brakes on one pair or set of wheels when the master cylinder pressure exceeds a predetermined value and further means for cutting off communication between the master cylinder and the slave cylinders of the brakes on the other pair or set of wheels when the master cylinder pressure exceeds another predetermined value.

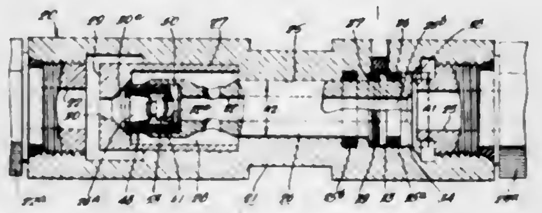
3,304,129
LOAD ADJUSTED BRAKE CONTROL MEANS FOR VEHICLES
Alexander John Wilson, Sutton Coldfield, England, assignor to Girling Limited, Birmingham, England, a British company
Filed Dec. 30, 1964, Ser. No. 422,186
Claims priority, application Great Britain, Dec. 31, 1963, 51,292/63
7 Claims. (Cl. 303—6)



1. Brake control means comprising:
a housing;
an inlet and an outlet for fluid in said housing;
a valve assembly actuable to control fluid flow between said inlet and outlet;
pressure-responsive means within said housing comprising first and second relatively movable parts actuable, in response to the pressure of outlet fluid, to exert a first and second force on said valve assembly;
variable mechanical advantage mechanism;
means operable to vary the mechanical advantage of said mechanism in accordance with changes in the loading on a vehicle axle;

a member actuable by signal pressure to exert on said valve assembly a third force in opposition to said first and second forces, said third force acting through said variable mechanical advantage mechanism;
abutment means;
and resilient means biasing said second part of said pressure-responsive means in opposition to said outlet pressure towards a first configuration in engagement with said abutment means in which only said first part of said pressure-responsive means acts on said valve assembly, said resilient means being yieldable to allow said second part of said pressure-responsive means to move to a second configuration in which said second part of said pressure-responsive means acts on said valve assembly.

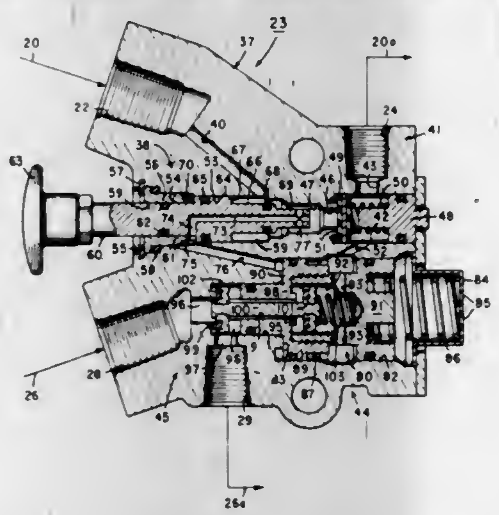
3,304,130
HYDRAULIC VALVES
Roger E. Doerfler, Baltimore, Md., assignor to Hydrasearch Co., Inc., Annapolis, Md., a corporation of Maryland
Filed July 2, 1965, Ser. No. 469,271
25 Claims. (Cl. 303—6)



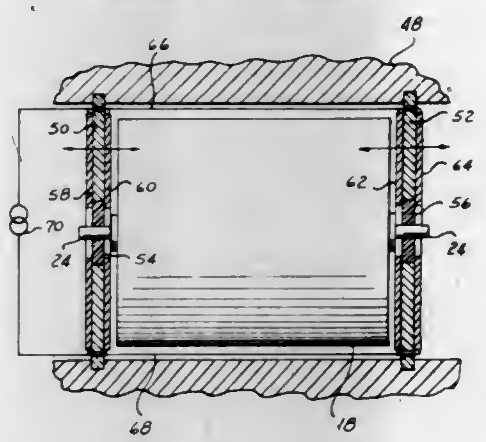
1. A hydraulically operated metering, proportioning and delay valve; said valve comprising: a body having a hydraulic fluid inlet means and at least two hydraulic fluid outlet means; at least one spool means movable between a first position adjacent said first outlet means and a second position adjacent said inlet means; connecting means interiorly of said spool to provide hydraulic communication between said first outlet and said inlet when said spool is in its first position and means to seal said connecting means when said spool is in the second position, said spool having a proportioning ratio between the end thereof exposed to said first outlet and the end thereof exposed to said inlet such that the hydraulic force exerted on said spool at said first outlet is greater than the hydraulic force exerted upon said spool at said inlet; and check valve means between said first outlet and said inlet; said check valve normally closed when pressure is applied to said inlet and open upon release of pressure at said inlet; conduit means between said inlet means and said second outlet means; and means in said conduit responsive to the inlet pressure to delay the pressure communication between said inlet and said second outlet until a predetermined pressure is applied to said inlet.

3,304,131
PROTECTOR VALVE FOR A TRAILER BRAKE SYSTEM
Richard C. Bueler, Glendale, Mo., assignor to Wagner Electric Corporation, St. Louis, Mo., a corporation of Delaware
Filed Aug. 27, 1964, Ser. No. 392,459
5 Claims. (Cl. 303—29)

1. A trailer protector valve having emergency inlet and reservoir ports adapted to be connected to main and auxiliary pressure fluid sources, service inlet and outlet ports adapted to be connected to application and brake actuating means, emergency control means movable between first and second positions for controlling pressure fluid communication between said service outlet port and said service inlet and reservoir ports in response to increase and reduction of fluid pressure above and below a predetermined magnitude acting on a pressure responsive area of said emergency control means, and release control means interposed between said emergency inlet and reservoir ports and including a stepped first chamber connected to said emergency inlet port, plunger means slidable in said first chamber and including a large diameter piston member, an intermediate diameter member on one side of said large piston member forming a small area therebetween in communication with said pressure responsive area of said emergency control means, and a small diameter piston member on the other side of said large piston member forming a large area in communication with said first chamber, manual means extending from said intermediate member externally of said trailer protector valve, a second chamber adjacent to said first chamber and connected therewith by first passage means co-axially aligned with said plunger means, said second chamber being connected to said reservoir port, extension means on said small piston member and extending into said first passage means, second passage means in said plunger means extending between said extension means and said small area, said plunger means being movable between a first position connecting said emergency inlet port through said second passage means to communicate with said predetermined area of said valve means and a second position connecting said reservoir port through said second chamber and passage means to communicate with said pressure responsive area and sealing off said emergency inlet port and first chamber therefrom.



3,304,132
LOW FRICTION BEARING
John E. Broeze, Norwalk, Conn., William J. Laubendorfer, Alamogordo, N. Mex., and David W. Bott, Beverly, Mass., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Original application Oct. 20, 1961, Ser. No. 146,509. Divided and this application Dec. 18, 1964, Ser. No. 435,764
3 Claims. (Cl. 308—1)

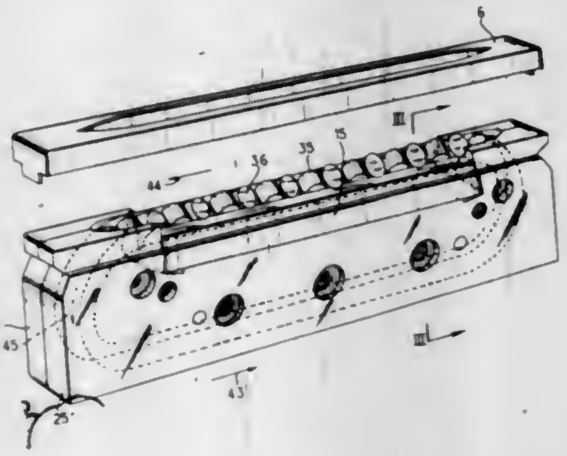


1. A low friction bearing assembly including in combination, a stationary support, a disc carried by said sup-

port, a bearing element mounted on said disc, a shaft supported on said bearing element for rotary movement around an axis, an annular region of piezoelectric material on said disc surrounding said axis and means for applying an alternating voltage to said piezoelectric material to reciprocate said bearing in the direction of said axis.

3,304,133
GUIDING DEVICE

Maximilien Strassberg, 4 Rue de Volze,
Neuilly-Plaisance, France
Filed July 30, 1965, Ser. No. 476,023
Claims priority, application France, May 24, 1962,
898,587, Patent 1,331,533
7 Claims. (Cl. 308—6)



2. A guide shoe for carrying a continuous train of roller bearings, said shoe comprising:

(a) a unitary elongated sole plate having an inner longitudinal surface and an outer longitudinal surface in which is formed a longitudinal groove having a triangular cross section, the longitudinal extremities of said sole plate being defined by a pair of end faces; and

(b) two flat plates joined to each other along the plane bisecting said longitudinal groove and each fitted around said sole plate in contact with said inner surface and said end faces of said sole plate, said flat plates being each provided with a groove forming a loop passing from one of said sole plate end faces to the other of said sole plate end faces, and being oriented so that, when said two flat plates are assembled together, the grooves therein cooperate to form a roller bearing recovery channel;

(c) wherein the contact between each of said end faces and the corresponding faces of said flat plates is defined by at least two contact planes which are oblique to one another and to said longitudinal groove bisecting plane.

3,304,134
CRANKSHAFT SUPPORTING ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Donald C. Allen, Dearborn, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 26, 1964, Ser. No. 370,312
7 Claims. (Cl. 308—23)

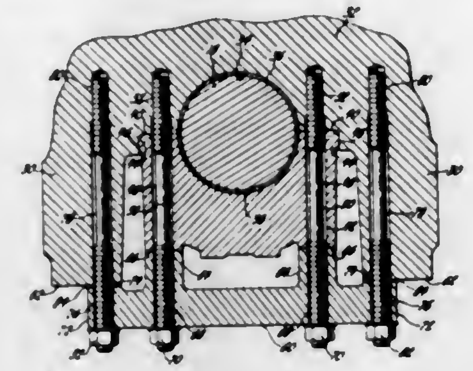
1. Crankshaft supporting means comprising;

a block having a crankshaft receiving portion;

a crankshaft retaining cap engaging the block on opposite sides of and adjacent the crankshaft receiving portion;

securing means engaging the block adjacent the crankshaft receiving portion and exerting a force holding the cap against the block;

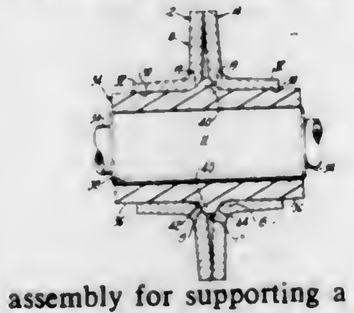
a resilient beam extending between and secured to spaced portions of the block outboard of the cap and clamped against the cap at a point generally between the spaced portions; and



means resiliently deforming said beam so as to exert an additional force on said cap additive to that of said securing means to thereby assist in holding the cap in engagement with the block.

3,304,135
BEARING FOR TROLLEY ROLLER SUPPORTING FRAME AND METHOD OF MAKING

Carl G. Hasselmark, New Britain, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Jan. 8, 1963, Ser. No. 250,044
2 Claims. (Cl. 308—30)



1. A frame assembly for supporting a roller axle of a trolley and the like which comprises a pair of plates positioned in back-to-back relationship, each plate having an annular flange extending laterally outwardly from the plate and defining an aperture therein, said aperture of one plate being in axial alignment with said aperture of the other plate, a plastic bearing sleeve received in the apertures and having a through bore defining a bearing surface for rotatably supporting the roller axle, the sleeve including on its outer surface intermediate the ends thereof a circumferentially extending annular rib engageably received between the plates, at least one projection on the inner surface of at least one plate axially directed parallel to the bearing surface of the sleeve in biting engagement with its rib, and clamping means in the plates forcing the plates together and compressing the material of the rib in a direction parallel to the bearing surface to rigidly fix the sleeve between the plates against relative movement.

3,304,136
ELASTIC BEARING STRUCTURE

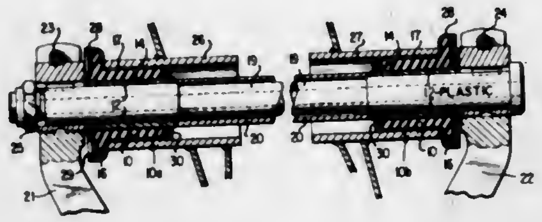
Alf John Müller, Stuttgart-Bad Cannstatt, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Dec. 21, 1962, Ser. No. 246,429
Claims priority, application Germany, Dec. 23, 1961,
D 37,769; Oct. 5, 1962, D 39,983
3 Claims. (Cl. 308—36.1)

1. A rubber bearing for joints, especially for the guide members of wheel suspensions, comprising:

rubber bushing means provided with sliding surface means and including flange means having axially projecting sealing lip means,

metal flange means for axially supporting said rubber bushing means,

said sliding surface means comprising relatively frictionless synthetic material and being at least at one of said sliding surface means of said bushing means

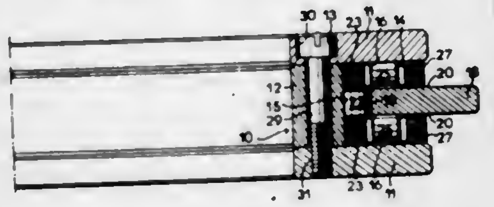


and at said flange means and effectively forming thereat a sliding layer having a low coefficient of friction,

said sealing lip means at least partially surrounding said synthetic material layer and said metal flange means.

3,304,137
DOUBLE-THRUST BEARINGS

Maximilien Strassberg, 4 Rue de Voize, Neuilly-Plaisance, Seine-et-Oise, France
Filed Sept. 8, 1964, Ser. No. 394,771
Claims priority, application France, Sept. 10, 1963,
947,015; July 29, 1964, 983,420
4 Claims. (Cl. 308—174)

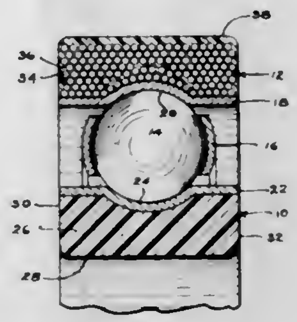


1. A double-thrust bearing unit comprising a spacing washer, two end plates arranged on each side of said spacing washer, each end plate having an inner flat face which constitutes one of the lateral faces of a radially opening groove of U-section the bottom of which is constituted by a periphery of said spacing washer, a ring which is coaxial with said spacing washer and which has two transverse faces disposed respectively opposite the two lateral faces of the groove, at least one series of cylindrical radial-support rollers with axes parallel to that of said ring disposed in contact with the bottom of said groove and in contact with the adjacent peripheral edge of said ring, two first washers adjacent the bottom of said groove and each disposed on one side of said rollers, said rollers having axial play between said first washers, at least one series of cylindrical axial support rollers having their axes convergent on the axis of said ring and disposed in contact with each of the lateral faces of said groove and with the associated transverse face of said ring, and second washers housed with play between each lateral face of said groove and the associated transverse face of said ring, said axial support rollers being housed with axial play between said first and second washers, and screws securing said end plates to said spacing washer.

3,304,138
ANTIFRICTION BEARING

Peter M. Sampatacos, Cheshire, Conn., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 14, 1964, Ser. No. 389,574
5 Claims. (Cl. 308—195)

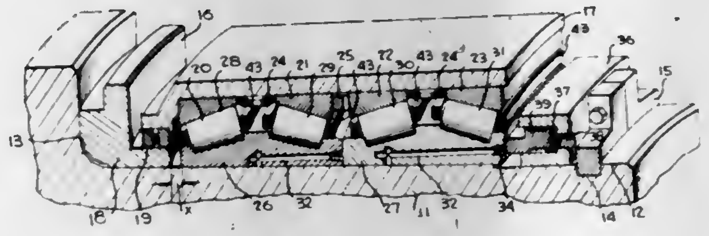
1. In an antifriction bearing having a pair of coaxial relatively rotatable annular race members spaced by intervening rolling elements, one of said members including a relatively thin-walled metal race ring having a circumferentially extending rolling element-receiving raceway therein, an elongated strip of flexible material wound in overlying convolutions about the periphery of the race



ring, and a backing ring molded about the periphery of said race ring and containing said flexible strip, said backing ring being bonded to the race ring and to the flexible strip to form a rigid backing ring.

3,304,139
MOUNTING FOR MULTIPLE-ROW ROLLER BEARINGS

John A. Toth and Stuart A. Hansen, South Bend, Ind., assignors to The Torrington Company, Torrington, Conn., a corporation of Maine
Filed June 22, 1964, Ser. No. 376,887
9 Claims. (Cl. 308—207)



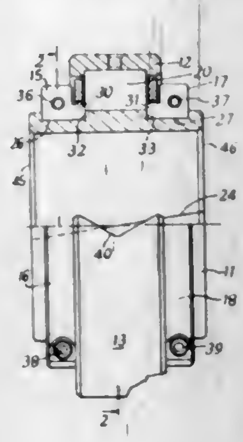
1. A multiple-row roller bearing comprising two adjacent race members each having two oppositely inclined race-ways, a series of tapered rollers in each race-way, an outer housing, an individual outer race member in the housing opposite each series of rollers, each said race member being spaced apart from an adjacent race member, and means for holding said race members together.

3,304,140
ROLLER BEARINGS

Charles W. Hornigold, King's Lynn, Norfolk, England, assignor to Cooper Roller Bearings Company Limited, Norfolk, England, a British company
Filed Dec. 2, 1964, Ser. No. 415,272
Claims priority, application Great Britain, Dec. 4, 1963,
47,908/63
4 Claims. (Cl. 308—236)

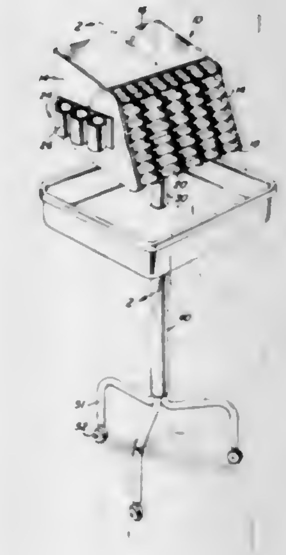
1. A roller bearing comprising an inner race split into two approximately semi-circular parts, an outer race split into two approximately semi-circular parts, rollers located radially between the races, a cage for locating the rollers in spaced relationship circumferentially of the races, and annular clamping rings similarly split into ring parts and located on each side of the inner race, screw means for clamping the ring parts together tightly on the inner race, abutment parts of the ring parts, extending through the cage into contact with the rollers, annular grooves in the outer surface of the inner race receiving the inner peripheral margins of the clamping rings, the

clamping rings having their largest axial width at their internal peripheries and extending inwardly (towards the rollers) to the same extent as the roller-engaging abutment parts.



3,304,141
ROLLER RACK

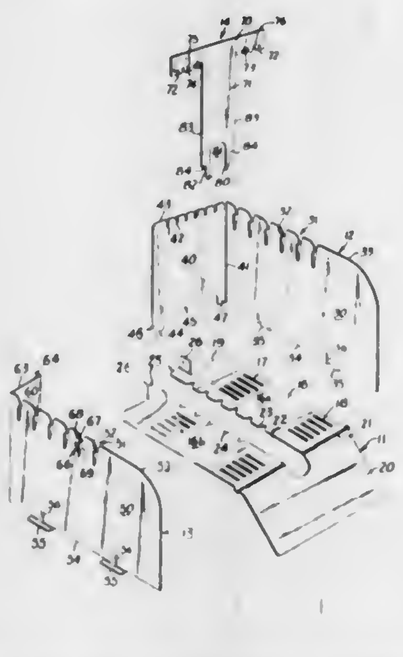
Kenneth Rogers, 312 Yosemite St.,
Roseville, Calif. 95678
Filed Feb. 4, 1965, Ser. No. 430,428
5 Claims. (Cl. 312—45)



1. A cabinet for vending hair rollers or the like, including a series of inclined supporting shelves for the rollers to be dispensed, said supporting shelves having a forward edge below a rear edge so that rollers placed on said shelves will be gravitated toward said forward edge to a dispensing position, upwardly curved detents on said forward edge for retaining said rollers in a dispensing position when said rollers are so gravitated, a stand for said cabinet, said cabinet being secured to said stand in an inclined manner so that said shelves are inclined for vending rollers positioned therein, a tray on said stand for receiving used rollers, a retaining means on one side of said cabinet and a receptacle secured to the other side of said cabinet for containing accessories therein.

3,304,142
COMPARTMENT MEANS

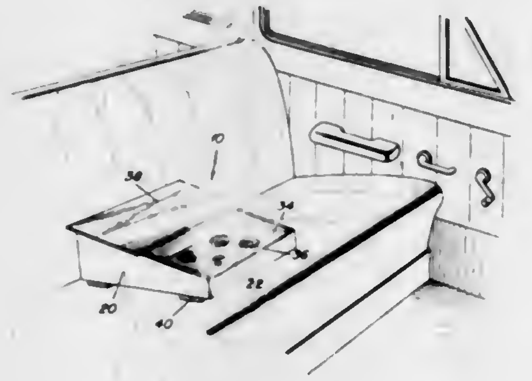
David C. Rockola, Chicago, Ill., assignor to Rock-Ola Manufacturing Corporation, Chicago, Ill., a corporation of Delaware
Filed Oct. 21, 1965, Ser. No. 500,026
7 Claims. (Cl. 312—205)



1. Compartment means comprising a substantially planar bottom wall portion, a pair of planar side wall portions, means detachably connecting each said side wall portion to said bottom portion at plural selected mounting locations on the latter, said side wall portions being disposed in parallel spaced relation when both are operatively mounted on said bottom portion, the spacing and positioning of said side wall portions being determined by their selected mounting locations, plural detent means formed in said side wall and bottom portions, and a locking member mounted transversely between said side wall portions and forming a rear wall portion for the compartment means, said locking member having means detachably interlocking with said detent means thereby to positively interlock said bottom rear and side wall portions in all selected mounting locations of the latter.

3,304,143
SEAT MOUNTED CONTAINER

Clyde A. Connell, Tyler, Tex., assignor to James W. Fair, Tyler, Tex.
Filed Aug. 10, 1965, Ser. No. 478,686
3 Claims. (Cl. 312—231)

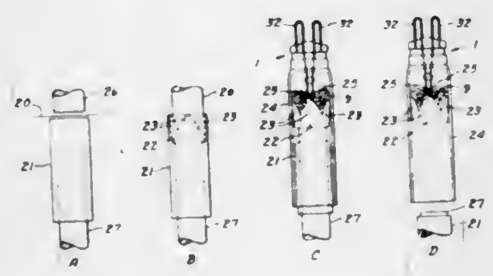


1. A seat mountable accessory comprising front and rear compartments, a common partition wall located therebetween and defining said compartments, said compartments opening upwardly, removable lid means selectively closing solely the rear compartment, the front compartment having food retaining means incorporated therein, a bottom within said compartments, said food retaining means comprising a platform positioned in spaced relation over the front compartment bottom, and at least one receptacle receiving opening defined in said platform,

said rear compartment lid means being, in its closed position, inclined downwardly and forwardly toward the front compartment, said accessory including parallel laterally spaced side walls, a front wall extending between the forward ends of the side walls, a rear wall of greater height than said forward wall extending between the rear ends of the side walls, the bottom edges of said walls being substantially coplanar, the upper edges of the side walls being inclined upwardly from generally the upper edge of the front wall to the upper edge of the rear wall, said platform paralleling the bottom of the front compartment and being substantially coplanar with the upper edge of the front wall, said partition wall extending between and engaging the side walls, the upper edge of said partition wall being generally coplanar with the upper edges of the side walls at the point of engagement therewith, said lid means being, in its closed position, engaged with the upper edges of the side and partition walls, at least the walls of said accessory being constructed of reinforced cardboard, said rear wall having an integral tongue portion extending from the upper edge thereof, a flexible area defined at the juncture of the tongue and back wall, said lid means being intimately affixed to said tongue portion and thereby hingedly secured to the rear wall.

3,304,144
FLASH LAMP MANUFACTURE

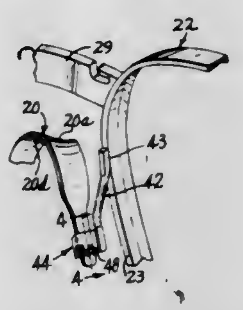
Robert M. Anderson, Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed Apr. 30, 1965, Ser. No. 452,190
7 Claims. (Cl. 316—20)



1. The method of making a flash lamp comprising the steps of sealing a lamp mount structure comprising a pair of lead-in wires into one end of a glass lamp tube to form a sealed end thereon, applying through the open other end of said lamp tube a quantity of primer material onto a portion of said lead-in wires within said lamp tube to form an ignition means, forming a foil cup of sheet foil combustible material outside of said flash lamp by pushing a foil blank into a first end of a thin wall forming tube in one direction, said foil blank having dimensions in the plane of said foil substantially greater than the inside dimensions of said forming tube so that said foil blank is folded into a generally cup-shaped configuration on being pushed into said forming tube, said forming tube having transverse inner dimensions no larger than the transverse inner dimensions of said flash lamp, positioning the first end of said forming tube at least as close as adjacent to and aligned with said lamp tube, and causing said foil cup to move in the direction opposite said one direction out of said first end of said forming tube and through the open end of said lamp tube to a position proximate to the sealed end of said lamp tube so that said foil cup opens toward said ignition means, exhausting and introducing into the said lamp tube through its said open end a combustion-supporting gaseous medium, and then heating and sealing off said lamp tube at an area further from said sealed end than is said foil cup.

3,304,145
OPHTHALMIC MOUNTING WITH ADJUSTABLY MOUNTED PLIABLE BRIDGE

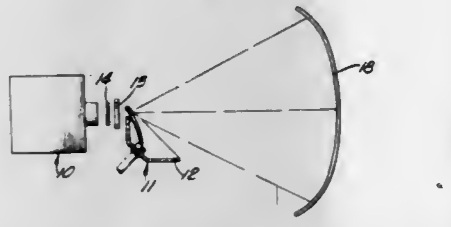
Ralph J. Hamm, North Woodstock, Conn., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts
Filed Apr. 5, 1960, Ser. No. 20,044
2 Claims. (Cl. 351—130)



1. A bridge of relatively thin essentially non-elastic pliable material carried by a pair of relatively rigid arms for supporting a spectacle frame in a position of use upon the nose wherein the improvement comprises said bridge having an arched relatively wide intermediate nose engaging section and depending leg portions of considerably reduced substantially uniform width one at each of opposite sides of said intermediate section, a connection box fixed to one end of each of said arms, said connection boxes each having a slideway into which one of said leg portions is longitudinally slidably extended whereby the height of said intermediate section of said bridge relative to said supporting arms may be adjusted according to the extent to which said leg portions are moved into said connection boxes and said connection boxes incorporating releasable clamping means for fixedly securing said leg portions in preselected longitudinally adjusted positions therein.

3,304,146
APPARATUS FOR PROJECTING MOTION PICTURES

Robert E. Gottschalk, Los Angeles, Calif., assignor to Panavision Incorporated, Los Angeles, Calif., a corporation of California
Filed Aug. 28, 1964, Ser. No. 392,719
1 Claim. (Cl. 352—208)



A rotary shutter for use with a motion picture projector in which planar film frames are advanced intermittently past a stationary beam of light to project an image beam of images on said frames toward a curved viewing screen, the improvement comprising: shutter means for blocking all but a limited substantially vertical portion of said image beam and being movable to continuously scan said limited portion of said image beam in a moving band across said curved screen to prevent the image beam from said frame from impinging simultaneously on both ends of said curved screen, said shutter means comprising a substantially opaque member having at least one slot opening therein which extends in generally spiral form from the periphery toward the hub of said member, said slot being smaller than the width of a frame.

CHEMICAL

3,304,147

METHOD OF MAKING CELLULOSIC MATERIALS WITH OXIDIZING POWER

Robert M. Reinhardt, New Orleans, Russell M. H. Kullman, Metairie, and John G. Frick, Jr., New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 24, 1963, Ser. No. 290,262

16 Claims. (Cl. 8—116.3)

1. A process for preparing a chemically modified cellulosic textile that exhibits oxidizing power and resists autodegradation comprising:
   - (a) etherifying the cellulose hydroxyl groups with a radical containing a carboxylic acid substituent and selected from the group consisting of carboxymethyl, 1 - carboxyethyl, 2 - carboxyethyl, and carboxymethylene to a degree of substitution of about from 0.03 to 0.15 of said radical per anhydroglucose unit of the cellulose;
   - (b) resin-treating the resulting etherified cellulosic textile with an amide-formaldehyde condensate which retains chlorine when treated with a chlorinating agent, by impregnating the etherified cellulosic textile with an aqueous solution containing a sufficient quantity of the amide-formaldehyde condensate to give a 0.1% to 3.0% nitrogen content on the etherified cellulosic textile, followed by heating the impregnated cellulosic textile to dry and cure it;
   - (c) converting the carboxylic acid substituents of the resin-treated, etherified cellulosic textile to the alkali metal salt form by washing the textile with an alkaline solution containing an alkali metal base; and
   - (d) treating the resulting cellulosic textile with a chlorinating agent selected from the group consisting of an alkali metal hypochlorite, an organic hypochlorite, and a chloramine which introduces positive chlorine into the amide-formaldehyde condensate.

9. A process for preparing a chemically modified cellulosic textile that exhibits oxidizing power and resists autodegradation comprising:
   - (a) etherifying the cellulose hydroxyl groups with a radical containing a carboxylic acid substituent and selected from the group consisting of carboxymethyl, 1 - carboxyethyl, 2 - carboxyethyl, and carboxymethylene to a degree of substitution of about from 0.03 to 0.15 of said radical per anhydroglucose unit of the cellulose;
   - (b) resin-treating the resulting etherified cellulosic textile by impregnating it with an aqueous solution containing a quantity of an amide-formaldehyde condensate, which retains chloride when treated with a chlorinating agent, sufficient to give a 0.1% to 3.0% nitrogen content in the etherified cellulosic textile, followed by heating the impregnated cellulosic textile to dry and cure it; and
   - (c) treating the resin-treated, etherified cellulosic textile with an alkaline solution containing an alkali metal hypochlorite which thereby converts the carboxylic acid substituents of the resin-treated, etherified cellulosic textile to the alkali metal salt form and introduces positive chlorine into the amide-formaldehyde condensate.

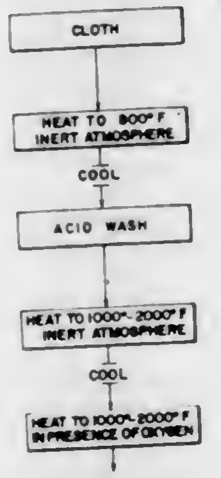
3,304,148

CARBON CLOTH ANNEALING PROCESS

John B. Gallagher, Newark, Del., assignor, by mesne assignments, to Haveg Industries, Inc., a wholly owned subsidiary of Hercules Powder Company, New Castle, Del., a corporation of Delaware

Filed June 17, 1963, Ser. No. 288,085

11 Claims. (Cl. 8—140)


CLOTH
HEAT TO 800° F INERT ATMOSPHERE
COOL
ACID WASH
HEAT TO 1000°-2000° F INERT ATMOSPHERE
COOL
HEAT TO 1000°-2000° F IN PRESENCE OF OXYGEN

1. A process of improving the burst strength of carbon fibers which had been prepared by carbonizing cellulose fibers in a non-oxidizing atmosphere at elevated temperatures, said process comprising treating the carbon fibers at a temperature of at least 800° F. in the presence of an atmosphere containing at least 5% oxygen.

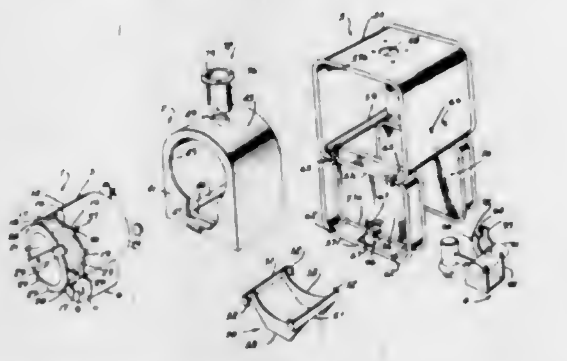
3,304,149

FIELD STERILIZER

Benjamin D. Pile, Bayside, N.Y., assignor to the United States of America as represented by the Secretary of the Army

Filed June 24, 1963, Ser. No. 290,265

3 Claims. (Cl. 21—98)



1. A field sterilizer comprising:
   - (a) a carrying case including a body portion open at opposite ends and at the bottom thereof and having a fume opening in its top surface and a pair of end covers, each cover hingedly attached to said body portion at the bottom edge of one of the open ends, the said end covers being pivotable through an angle of about 180° between their closed positions and their open positions in which they serve as a stand for the sterilizer;
   - (b) a chamber unit mounted within the body portion of said carrying case including a sterilizer chamber having an access opening at one end and a sealing door for selectively closing said access opening and a steam generator chamber affixed to the bottom surface of said sterilizer chamber;
   - (c) heating means comprising a burner unit disposed in heat transfer relationship with said steam generator chamber for producing steam therein;
   - (d) a flue-like fume hood intermediate said chamber unit and said carrying case substantially encasing the sides and top of said chamber unit and communicating with the opening in the top of the body portion of said carrying case;
   - (e) means including a valve, interconnecting said generator chamber and said sterilizer chamber, for selectively admitting steam from said generator chamber into said sterilizer chamber;
   - (f) a trap connected to said sterilizer chamber for allowing air and condensate to escape from said sterilizer chamber when steam is admitted thereto; and
   - (g) a valve connected to said sterilizer chamber for selectively permitting steam to escape from said sterilizer chamber.

3,304,150

METHOD OF TREATING EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

William A. Stover, Pitman, N.J., John L. Warthen, Baltimore, and Warren S. Briggs, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

No Drawing. Filed Sept. 5, 1963, Ser. No. 306,713

1 Claim. (Cl. 23—2)

A method for treating exhaust gases of internal combustion engines to oxidize the air pollutants therein which comprises mixing an oxygen containing gas with said exhaust gases and passing said mixture through a bed of a catalyst comprising 0 to 4 weight percent CoO. 0 to 4 weight percent CuO, about 12 weight percent MnO_2, about 0.02 weight percent Pd and 2 to 10 weight percent Fe_2O_3 on a nodular gamma alumina support and passing the thus treated gases to the atmosphere.

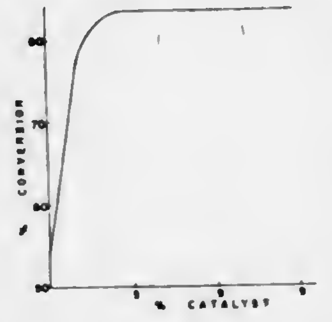
3,304,151

PROCESS OF ABSORBING GASEOUS CARBON DIOXIDE INTO AQUEOUS SOLUTIONS OF INORGANIC ALKALI

William J. Gaiser, Portland, and Dale J. Hohbach, Hillsboro, Oreg., assignors to Pacific Adhesives Company, Inc., Hillsboro, Oreg., a corporation of Oregon

Filed May 28, 1965, Ser. No. 467,161

8 Claims. (Cl. 23—2)



1. The process of absorbing carbon dioxide gas into aqueous alkaline solutions which comprises:
   - (a) providing an aqueous solution of an inorganic alkali material, the solution having a pH of at least 9,
   - (b) dispersing in the solution from 0.25 to 10.0% by weight, based on the weight of the alkali material, of hydrolyzed animal blood catalyst having a carboxyl content of from about 20 to about 40 mg. titratable carboxyl per gram of hydrolyzed blood,
   - (c) and contacting carbon dioxide gas with the hydrolyzed blood-containing alkaline solution, thereby forming a water soluble alkaline salt of carbonic acid.

3,304,152

METHOD FOR DIRECTLY PREPARING GRANULAR URANIFEROUS MATERIAL HAVING DEFINITE PARTICLE SIZE

Marie E. A. Hermans and Theo van der Plas, Arnhem, Netherlands, assignors to Reactor Centrum Nederland, The Hague, Netherlands, an institute of the Netherlands

No Drawing. Filed May 19, 1964, Ser. No. 368,734

4 Claims. (Cl. 23—34.6)

1. A method for directly preparing granular uraniferous material of definite uniform particle size, comprising the following steps: thoroughly agitating a seed-free hot aqueous solution containing an amount of the order of 0.2 to 0.6 gram ions of uranyl ions per liter in the presence of nitrate ions and urea having a concentration lying in the range from 110 to 200 grams per liter said agitating being performed under an atmosphere of gaseous carbon dioxide having a pressure of a head of water of substantially 2 meters, maintaining the temperature of the solution below 100° C., said agitating serving to bring about after some time a slowly proceeding homogeneous precipitation, quickly separating the solids from the liquid when still hot and sintering the individual solid particles in a water containing hydrogen atmosphere.

3,304,153

METHOD OF PREPARING MAGNESIA SPINEL

Wate Thewis Bakker and James Gordon Lindsay, Arvida, Quebec, Canada, assignors to Aluminium Laboratories Limited, Montreal, Quebec, Canada, a corporation of Canada

No Drawing. Filed Nov. 12, 1965, Ser. No. 507,568

15 Claims. (Cl. 23—52)

1. A method of preparing a magnesia spinel which comprises preparing a homogeneous admixture consisting essentially of a finely-divided alumina-contributing component and a finely-divided magnesia-contributing component, said alumina-contributing component and said magnesia-contributing component being present in said admixture in substantially stoichiometric amounts, said alumina-contributing component being selected from the group consisting of alumina hydrate, lightly calcined alumina and alpha-alumina, and said magnesia-contributing component being selected from the group consisting of magnesium hydroxide, magnesium carbonate, basic magnesium carbonate and lightly calcined magnesium oxide, said admixture additionally containing a minor amount of a fluorine-containing material in the range 0.2–4.0% by weight, oxide basis, when said alumina-contributing component is substantially free of alpha-alumina, calcining said admixture at a temperature in the range from about 850° C. to about 1250° C. and recovering the resulting calcined reaction product consisting chiefly of magnesia spinel, said fluorine-containing material being capable of liberating hydrogen fluoride during the calcining operation.

3,304,154

PROCESS FOR PRODUCING SPHEROIDAL ALKALINE EARTH METAL CARBONATES

**Dimitrios Kiouzes-Pezas, 1D Santarosa St.,
Athens, Greece**

Filed Feb. 17, 1964, Ser. No. 345,175

14 Claims. (Cl. 23—66)

9. A method for producing a non-colloidal alkaline earth metal carbonate in finely divided, generally spheriodal form comprising the steps of introducing carbon dioxide under pressure into a reaction vessel containing an aqueous suspension of an alkaline earth metal hydroxide and rotating the vessel until the pressure stabilizes above the zero gauge.

3,304,155
PROCESS FOR THE PRODUCTION OF BARIUM CARBONATE FROM BARIUM SULFATE

Eberhard Zirngiebl, Cologne-Flittard, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Mar. 12, 1964, Ser. No. 351,566

Claims priority, application Germany, Mar. 28, 1963, F 39,348

5 Claims. (Cl. 23—66)

1. Process for the continuous production of barium carbonate by decomposing barium sulfate under pressure with excess dilute sodium carbonate solution, the steps which comprise mixing the barium sulfate with an aqueous solution of sodium carbonate using a 2 to 10 molar excess referred to the barium sulfate, feeding the mixture continuously into a heating zone, wherein said mixture is boiled under a pressure of 1 to 10 atmospheres with an average residence time of the reaction mixture in the heating zone of about 5 to 20 minutes, withdrawing said mixture continuously from said heating zone under expansion and introducing into water, whereby said reaction mixture is cooled to temperatures below 100° C. and separating off the barium carbonate formed from the aqueous suspension.

3,304,156
CATALYTIC CHLORINATION OF BERYLLIUM FROM THE ORE

Hung Kei Henry Lam, San Pablo, and Harold T. Fullam, Oakland, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 27, 1962, Ser. No. 219,766

10 Claims. (Cl. 23—87)

1. A method of catalytically chlorinating a beryllium containing ore selected from the group consisting of beryl, bertrandite and phenacite comprising: forming an intimate mixture of ore and carbon containing a catalytic amount of a dual catalyst comprising a material selected from the group consisting of alkali metal chlorides and the alkaline earth chlorides and a material selected from the group consisting of alkali metal fluorides and alkaline earth fluorides, heating said mixture to a temperature in the range of 520° C. to 1500° C. and then contacting said heated mixture with a chlorinating agent and collecting the $BeCl_2$ so formed.

3,304,157
PROCESS FOR THE RECOVERY OF PHOSPHORIC ACID FROM AQUEOUS REACTION MIXTURES PRODUCED BY THE DECOMPOSITION OF TRICALCIUM PHOSPHATE WITH HYDROCHLORIC ACID

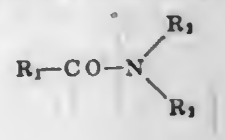
Avraham M. Baniel, Haifa, and Ruth Blumberg, Mount Carmel, Haifa, Israel, assignors, by mesne assignments, to Israel Mining Industries for Research and Development, a company of Israel

No Drawing. Filed Aug. 13, 1962, Ser. No. 216,322

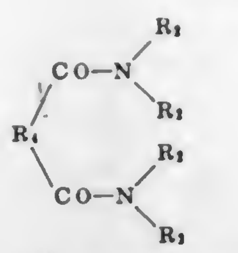
Claims priority, application Israel, Aug. 20, 1961, 15,920

14 Claims. (Cl. 23—165)

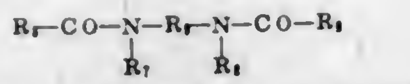
1. A process for the recovery of phosphoric acid, comprising the steps of extracting phosphoric acid by means of an organic solvent from an aqueous reaction mixture produced by the decomposition of tricalcium phosphate with hydrochloric acid in an aqueous reaction system, said extractant solvent being selected from the group consisting of amides of the following general formulae



$$R_1-CO-N\begin{array}{l}R_2\\R_3\end{array} \qquad (I)$$



(II)



$$R_5-CO-\underset{R_7}{N}-R_9-\underset{R_8}{N}-CO-R_6 \qquad (III)$$

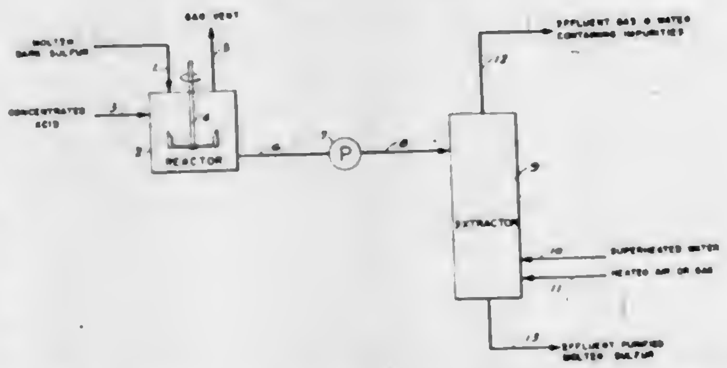
in which R_1, R_5, R_6, R_7 and R_8 are selected from the group consisting of hydrogen and hydrocarbon radicals; R_2 and R_3 are selected from the group consisting of hydrogen, hydrocarbon radicals, and hydrocarbon radicals forming part of an heterocyclic ring system which includes the nitrogen atom to which said R_2 and R_3 radicals are attached; R_4 is a hydrocarbon radical and R_9 is a divalent hydrocarbon radical; and separating the solvent extract layer from the aqueous reaction mixture.

3,304,158
PURIFICATION OF DARK SULFUR

John M. Dale, San Antonio, Tex., assignor to Pan American Sulphur Company, Houston, Tex., a corporation of Delaware

Filed Aug. 18, 1964, Ser. No. 390,337

16 Claims. (Cl. 23—224)



10. A method of removing impurities from dark sulfur, thereby lightening the color, which comprises mixing and reacting molten dark sulfur having from about 0.05% to 1% by weight of carbonaceous impurities with from about 1% to 5% by weight of concentrated sulfuric acid having a concentration of at least about 95% by weight of H_2SO_4 at a temperature sufficient to maintain the sulfur in the molten state and below about 150° C. and then flowing the mixture countercurrently in contact with a flowing stream of water maintained at a temperature above the melting point of sulfur and below about 150° C., the volume of water employed being at least about 30% of the volume of molten sulfur, whereby impurities of the sulfur are extracted by the water.

3,304,159
GAS CHROMATOGRAPHIC ANALYSIS METHOD FOR C, H, AND N CONTENT IN SOLID ORGANIC COMPOUNDS

Orville N. Hinsvark, Wilmington, Del., assignor, by mesne assignments, to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Jan. 28, 1963, Ser. No. 254,220

4 Claims. (Cl. 23—230)

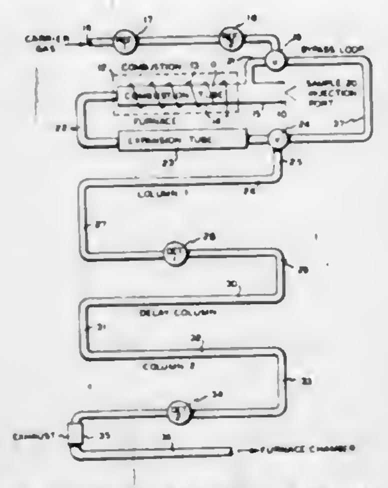
1. A method for determining at least the elemental carbon, hydrogen, and nitrogen content of an organic compound by combustion, comprising:

mixing a solid sample of known mass of said compound with a solid metal oxide, as an oxidizing agent, to form a combustion mixture,

introducing said combustion mixture into a closed, heated combustion chamber,

permitting the combustion mixture in said closed, heated combustion chamber to thermally decompose said oxidizing agent, thereby forming oxygen to produce reaction products including carbon dioxide, water and nitrogen,

retaining the reaction products in gaseous state in said closed, heated combustion chamber until combustion of the sample is substantially complete,



then sweeping substantially all of the reaction products from said combustion chamber with helium,

passing said reaction products and said helium through a gas chromatographic separating column whereby the reaction products are separated respectively into carbon dioxide, water, and nitrogen, and

separately determining the quantity of carbon dioxide, water, and nitrogen from which the quantities of elemental nitrogen, hydrogen, and carbon content of the organic compound may be calculated.

3,304,160
DEHYDROFLUORINATION OF INORGANIC COMPOUNDS

James J. Harris, Pittsburgh, Pa., assignor to Koppers Company, Inc., a corporation of Delaware

No Drawing. Filed June 25, 1963, Ser. No. 290,307

7 Claims. (Cl. 23—367)

1. A method of simultaneously making salts of fluorinated protonic acids and condensation products characterized by at least one Y—Z bond, wherein Y is a member selected from the group consisting of boron, silicon, tin, nitrogen, phosphorus, arsenic, antimony, bismuth, and sulfur and Z is a member selected from the group consisting of boron, silicon, titanium, zirconium, tin, phosphorus, arsenic, antimony, and sulfur, comprising reacting under substantially anhydrous conditions and at a temperature of −20 to 250° C.

(a) a Lewis acid of the formula:

$$MF_m$$

wherein M is a member selected from the group consisting of zinc, boron, silicon, titanium, zirconium, germanium, tin, phosphorus, arsenic, antimony, and molybdenum; and *m* is an integer equal to the valence of M, and

(b) an organic Lewis base of the formula:

$$R_3Q$$

wherein Q is a member selected from the group consisting of nitrogen and phosphorus; each R taken individually is independently selected from the group consisting of hydrogen, alkyl having 1–18 carbon atoms, alkenyl having 2–18 carbon atoms, cycloalkyl having 3–7 annular carbon atoms, phenyl, halophenyl, and lower alkoxyphenyl; and R and at least one more R, taken collectively with Q, form a heterocyclic ring system containing up to 18 carbon atoms with not more than two rings each having 4 to 6 annular carbon atoms with

(c) a reactive hydrogen containing compound of the formula:

$$R'_{y-1}YH$$

wherein Y is defined as above; *y* is an integer equal to the valence of Y; each R′ taken individually is independently selected from the group consisting of alkyl having 1–18 carbon atoms, alkenyl having 2–18 carbon atoms, cycloalkyl having 3–7 annular carbon atoms, aryl having 6–12 carbon atoms, phenyl lower alkyl, phenylamino, dialkylaminophenyl, carbalkoxyphenyl, phenylazophenyl, and hydrogen; and when *y* is equal to at least 3, R′ and at least a second R′ taken collectively with Y form a heterocyclic ring system containing up to 18 carbon atoms and not more than two rings each having 4 to 6 annular carbon atoms, and

(d) a fluorine-containing compound of the formula:

$$R''_{z-1}ZF$$

wherein Z is as defined above; and *z* is an integer equal to the valance of Z; each R″ taken individually is independently selected from the group consisting of alkyl having 1–18 carbon atoms, alkenyl having 2–18 carbon atoms, cycloalkyl having 3–7 annular carbon atoms, phenyl, nitrophenyl, halophenyl, lower alkylphenyl, phenylazophenyl, lower alkoxyphenyl, and fluorine; and when *z* is equal to at least 3, R″ and a second R″ taken collectively with Z form a heterocyclic ring containing 3 to 5 annular carbon atoms; and recovering said salts and said condensation products.

3,304,161
SPONTANEOUSLY COMBUSTIBLE CHARCOAL BRIQUETTE

Miles J. McGoff, Warrendale, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Dec. 28, 1964, Ser. No. 421,646

2 Claims. (Cl. 44—17)

1. A spontaneously combustible briquette consisting essentially of a compact of an intimate mixture of about 63 to 67% charcoal, 11 to 12% sugar, 6 to 7% starch and 16 to 18% potassium permanganate and having a surface to volume ratio of at least about 7 square inches to each cubic inch, charred under an inert atmosphere.

3,304,162
STABILIZED FUEL OIL COMPOSITIONS

Harry D. Marvel, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed June 25, 1963, Ser. No. 290,447

5 Claims. (Cl. 44—66)

1. A fuel oil composition comprising a petroleum distillate fuel oil and a minor amount of a mixture of linoleic acid dimer and N-(3-dimethylaminopropyl) oleamide sufficient to stabilize said fuel oil against deterioration, said dimer and said oleamide being present in the mixture in a respective weight ratio of about 1:1 to about 1:20.

3,304,163
APPARATUS FOR THE PRODUCTION OF CONTINUOUS GLASS FIBERS

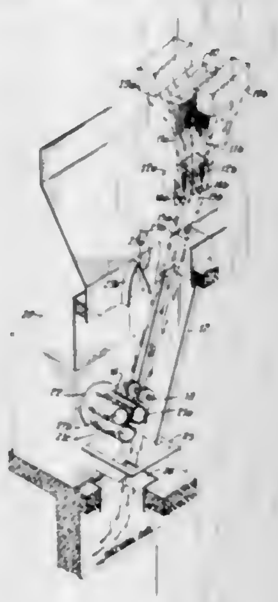
Jerry B. Holschlag, Greenwood, S.C., assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Continuation of abandoned application Ser. No. 113,525, May 29, 1961. This application Mar. 10, 1966, Ser. No. 541,883

3 Claims. (Cl. 65—11)

1. In apparatus for the production of continuous fibers of molten heat fiberizable materials comprising a feeder supplying streams of such material, means for

attenuating and collecting said streams of material in the form of continuous fibers, means for supplying air conditioned at a desired temperature in the form of air streams projecting generally downward on opposite sides of said feeder and generally parallel to the path of movement of said fibers toward said collection means, a fluid cooled member on at least one side of said feeder having an exposed cooled surface extending for a substantial portion of the length of said feeder between said feeder and at least one of the downwardly projecting air streams, and means for establishing a zone of reduced pressure opposite said attenuating and collecting means from said feeder, said pressure reducing means being adapted to withdraw air from the general vicinity adjacent said attenuating and collecting means away from the path of said fibers.



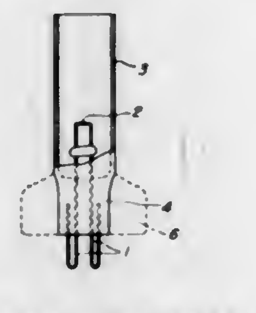
3,304,164
APPARATUS FOR PRODUCING FINE GLASS FIBERS

Maurice Charpentier, Rantigny, and Daniel J. Brossard, Sarcelles, France, assignors to Compagnie de Saint-Gobain, Seine, France, a corporation of France
Filed Dec. 16, 1963, Ser. No. 330,683
Claims priority, application France, Feb. 27, 1963, 926,268
13 Claims. (Cl. 65—14)

1. Apparatus for producing fine fibers from viscous thermoplastic material comprising a hollow centrifuge body having a peripheral wall provided with a plurality of superposed rows of orifices therein and adapted to receive at its interior portion a supply of the thermoplastic material in the viscous state, said body being rotatable at a speed sufficient to project the viscous material outwardly through said orifices in the form of streamlets, a combustion chamber surrounding said body and provided with discharge means to direct gases from said chamber at high temperature and high velocity in a ring-like blast across said rows of orifices, said gases travelling transversely to the planes of projection of said streamlets whereby said streamlets of viscous material issuing from the orifices of the rotating body are turned, entrained and drawn out into an annular curtain of fine fibers by said gases, means for maintaining the peripheral wall at a substantially uniform temperature along the entire height thereof, and said orifices in said plurality of rows adjacent to the edge of said wall remote from said combustion chamber being of reduced diameter relative to those in the rows adjacent to the edge of said wall proximate to said combustion chamber, to compensate for the reduction in temperature and velocity of the gaseous blast adjacent to the former, and thereby to attain fibers of substantially uniformly fine diameter.

3,304,165
METHOD OF SEALINGLY SECURING LEAD-IN WIRES TO GLASS TUBES

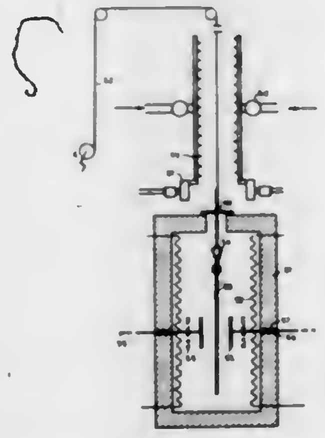
Eizo Goto, Chigasaki-shi, Namio Iwata, Odawara-shi, and Hidehiro Shinada, Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., a corporation of Japan
Filed Jan. 30, 1963, Ser. No. 254,942
Claims priority, application Japan, Jan. 31, 1962, 37/2,843
1 Claim. (Cl. 65—54)



A method of sealingly securing lead-in wires to a glass tube of a type adapted to have a terminal sealing portion accurately shaped and dimensioned to fit sockets and the like comprising the steps of: inserting an electrode to be supported by integral lead-in wires in the glass tube so that the wires extend outwardly of the glass tube through the open end portion of the glass tube, heating the tube open end portion to a glass softening temperature, flattening the tube open end portion to a flattened end portion of predetermined thickness by use of a press mold to effect simultaneously sealing of the tube completely across the flattened end portion with the lead-in wires sealed therein, heating the flattened end portion to a glass-softening temperature, trimming only the flattened end portion substantially axially of the tube without cutting into the tube to determine the amount of glass remaining as the trimmed flattened end portion, and then shaping the remaining trimmed flattened end portion into the desired terminal end portion to fit a socket or the like by use of a shaping mold.

3,304,166
FLUID QUENCHING APPARATUS FOR PRODUCING A DIFFERENTIALLY TOUGHENED ZONE IN A TOUGHENED GLASS

Roger Yvonne Hubert Henri Bolland, Jemeppe-sur-Sambre, Belgium, assignor to Glaceries Reunies, Societe Anonyme, Jemeppe-sur-Sambre, Belgium
Filed Jan. 17, 1963, Ser. No. 252,182
Claims priority, application Belgium, Jan. 19, 1962, 612,835
2 Claims. (Cl. 65—273)

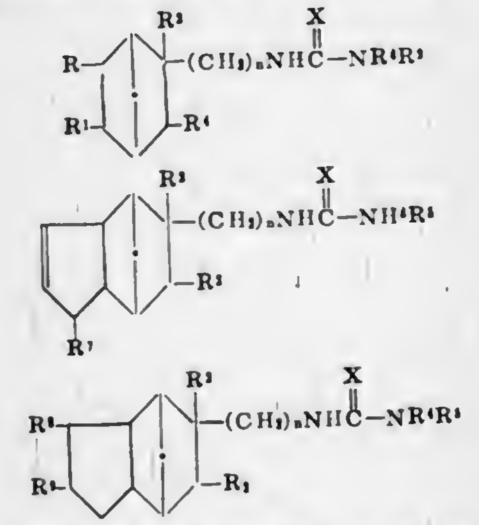


1. Apparatus for the manufacture of objects of tempered glass comprising an annealing furnace including walls, heating elements arranged alongside the walls, means whereby a sheet of glass is adapted to be suspended in the furnace and held along its upper edge, means to raise the glass sheet from the furnace and to introduce into the furnace a blowing unit mounted above the furnace and into which the heated sheet is directly lifted as the sheet is raised from the furnace, the said blowing unit comprising two grids provided with air nozzles, means to supply air to said nozzles, means to move the blowing unit in its own plane so that air jets on the unit follow an orbital path while blowing cooling air onto the surface of the glass, two perforated wind boxes in the annealing furnace placed at a variable distance from each of the surfaces of the glass sheet, air supply pipes in communication with boxes to supply air thereto to cause air to be ejected from the box and contact the glass being heated to cool the same locally.

3,304,167
NORBORNYL AND SUBSTITUTED NORBORNYL UREAS AND THIOUREAS, WEED CONTROL COMPOSITIONS AND METHODS

George A. Buntin, Wilmington, and William R. Diveley, Newark, Del., assignors to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed Dec. 15, 1960, Ser. No. 75,917
16 Claims. (Cl. 71—2.6)

1. A herbicidally active composition of matter of the formula selected from the group consisting of:



in which the R and R¹ substituents on the norbornyl ring represent radicals selected from the combinations consisting of

R and R¹

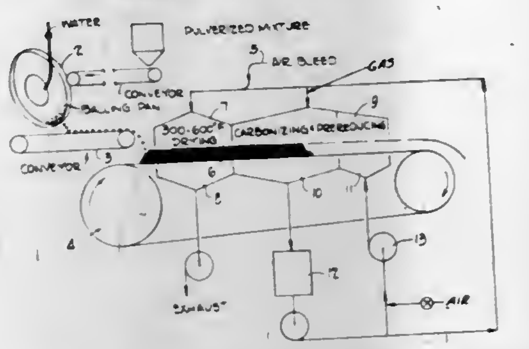
$-H$	$-H$
$-Cl$	$-H$
$-CH_3$	$-H$
$-CH_3$	$-CH_3$
$-C_2H_5$	$-CH_3$
$-OC_4H_9(n)$	$-H$
$-C_6H_5$	$-H$
$-C_2H_5$	$-H$
$-Cl$	$-Cl$
$-C_3H_{7-n}$	$-H$
$-Cl$	$-CH_3$
$-OCH_3$	$-H$
$-OC_2H_5$	$-H$
$-CH_2Cl$	$-H$
$-H$	$-CN$

R^7 is selected from the group consisting of hydrogen and methyl, R^8 and R^9 are selected from the group consisting of hydrogen and chlorine, *n* is selected from the group consisting of zero and one, X is selected from the group consisting of oxygen and sulfur, and R^2, R^3, and R^4 are selected from the group consisting of hydrogen and alkyl radicals, and R^5 is selected from the group consisting of OR^6 and R^6 and R^6 is an alkyl radical, said alkyl radicals having 1–4 carbon atoms, such that the total number of carbon atoms in R^2 and R^3 does not exceed 4 and the total number of carbon atoms in R^4 and R^5 is in the range of 1 to 8.

14. A method of killing plants which comprises contacting said plants with a toxic amount of a dispersion of a compound of claim 1.

3,304,168
SYSTEM FOR PRODUCING CARBONIZED AND PREREDUCED IRON ORE PELLETS

Thomas E. Ban, Cleveland Heights, Ohio, assignor to McDowell-Wellman Engineering Company, a corporation of Ohio
Filed Feb. 11, 1966, Ser. No. 526,879
7 Claims. (Cl. 75—3)



1. The process of making hardened prereduced discrete unclinkered pellets of iron ore in a deep, high capacity, moving bed which contains from 15% to 40% of the available iron values in the metallic state, and which includes the steps of:

(a) forming a particulate mixture of substantially uniform composition and consisting essentially of iron ore, a carbonaceous material, and a fluxing material, the amount of carbonaceous material including fixed carbon in an amount at least sufficient to reduce 100% of the iron oxide in said ore to free metal and not in excess of 120% of such amount;

(b) forming moistened pellets of said mixture, said pellets having an average diameter of about minus 1.5 inch plus 0.5 inch;

(c) charging said moistened pellets to a traveling grate to form a deep bed having a top and bottom surface and a depth of from 10 inches to 20 inches;

(d) drying said bed in a drying zone by passing heated gases therethrough at a temperature of from about 300° F. to about 600° F., and at a rate of from about 200 to about 300 s.c.f.m./sq. ft. of windbox area;

(e) conveying the resulting dried pellet bed to a carbonizing and prereducing zone;

(f) heating said bed to carbonize and prereduce said pellets by passing gases through said bed from one surface to the other to raise the temperature of the bed at the heat front moving therethrough to from 1800° F. to 2200° F., the extent of prereduction of iron oxide to metallic iron being from about 15% to about 40% by weight of the iron values in the pellets, said gases passing through said bed at a rate of from about 100 to about 200 s.c.f.m./sq. ft of windbox area; and

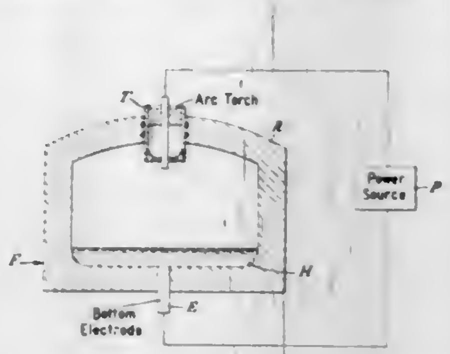
(g) before the heat front completely traverses the bed from one surface thereof to the other passing gases through the bed from one surface to the other in a direction opposite to the direction of the gases in the next preceding step to initiate an oppositely directed and moving carbonizing and prereducing heat front, whereby the extent of carbonization and prereduction of the pellets throughout the bed is substantially the same and reoxidation of metallic iron is maintained at a minimum.

3,304,169
METHOD OF DEOXIDIZING METALS

Frank S. Death, Tonawanda, N.Y., and Bruce C. Whitmore, Morris Plains, N.J., assignors to Union Carbide Corporation, a corporation of New York
Filed Oct. 1, 1963, Ser. No. 312,999
5 Claims. (Cl. 75—10)

1. Method of deoxidizing metals taken from the group

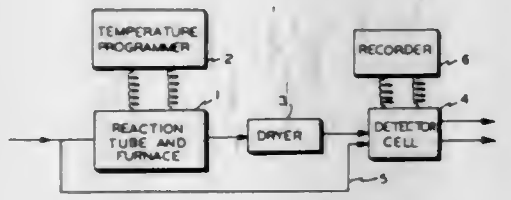
consisting of copper, silver and gold which comprises providing and maintaining a molten metallic bath containing said metal to be deoxidized, establishing an electric arc between a non-consumable electrode and said molten metallic bath, supplying an arc gas into said arc, flowing a hydrocarbon contaning gas through a nozzle



having at least a central bore, the longitudinal axis of which is aligned with the arc column, and introducing said hydrocarbon containing gas into said arc column, directing said hydrocarbon gas containing arc column directly onto the surface of said molten metallic bath, whereby the carbon deoxidizes the metal being treated.

3,304,170
METHOD FOR THERMAL REACTION ANALYSIS

Orville N. Hinsvark, Wilmington, Del., assignor, by mesne assignments, to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Dec. 27, 1962, Ser. No. 247,560
15 Claims. (Cl. 75—34)

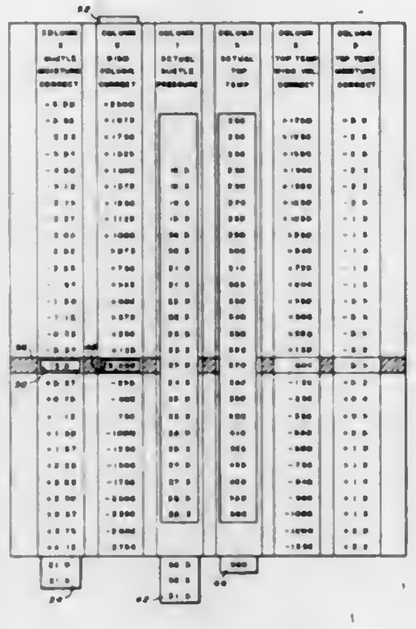


1. The method of determining incipient and optimum reaction temperatures of test materials in contact with a chemically reactive gas, which comprises progressively changing the temperature of said materials in accordance with a known function of time while continuously passing a mixture of known constant constituency of said reactive gas and an inert carrier gas of different thermal conductivity from said reactive gas through a reference gas thermal conductivity detector, then into contact with said test material, and finally through an effluent gas thermal conductivity detector, and sensing and recording the temperature points at which significant changes in concentration of said effluent reactive gas relative to said inert carrier gas occur.

3,304,171
METHOD OF CONTROLLING THE OPERATION OF A BLAST FURNACE

George H. McCleskey, Ingomar, Pa., assignor to United States Steel Corporation, a corporation of New Jersey
Filed June 26, 1963, Ser. No. 290,783
5 Claims. (Cl. 75—41)

3. The method of controlling the operation of a blast furnace which comprises determining the optimum blast pressure and top gas condition for operation of the furnace with a given burden and operating practice, determining the actual blast pressure and top gas condition at intervals, decreasing the wind rate and increasing the moisture content of said wind when the determined blast pressure is higher than the said optimum, increasing the wind rate and decreasing the moisture content of said wind when the determined blast pressure is lower than the said optimum, decreasing the wind rate and increasing the moisture content of said wind when the determined top gas condition is greater than the said optimum, and increasing the wind rate and decreasing the moisture content of said wind when the determined top gas condition is less than said optimum.



3,304,172
PROCESS FOR THE MANUFACTURE OF LOW PHOSPHORUS PIG IRON

Erik Anders Åke Josefsson, Erik Axel Bengtsson, and Kurt Karl Axel Almqvist, Borlange, Sweden, assignors to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden, a Swedish company
No Drawing. Filed Feb. 3, 1964, Ser. No. 343,181
Claims priority, application Sweden, Feb. 7, 1963, 1,359/63
9 Claims. (Cl. 75—52)

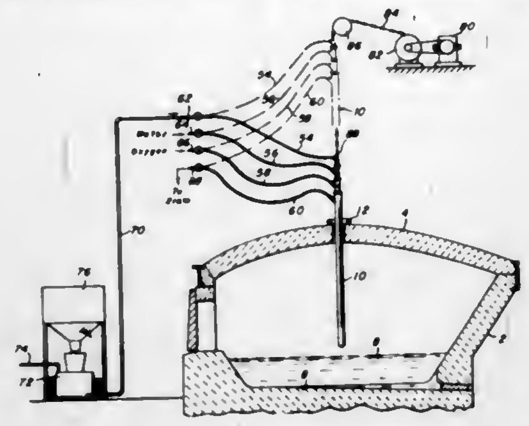
1. Process for the dephosphorization of pig iron containing phosphorus while maintaining a high percentage of carbon therein, comprising charging a melt of said pig iron into a basically lined vessel, vigorously stirring said melt, introducing into said vessel from above an oxidizing gas richer in oxygen than is air, and supplying to said melt from above iron oxide containing material, a carbonaceous material and slag formers with high contents of lime in proportions to form and maintain a basic slag layer located on said melt having a FeO content within the range 3.5–10% and a layer of solid carbonaceous material on top of said slag layer.

3,304,173
METHOD OF ADDING SOLIDS AND OXYGEN TO AN OPEN HEARTH FURNACE

Robert W. Smith, Birmingham, Ala., assignor to United States Steel Corporation, a corporation of Delaware
Original application July 27, 1961, Ser. No. 127,184, now Patent No. 3,240,481, dated Mar. 15, 1966. Divided and this application Aug. 2, 1965, Ser. No. 476,505
4 Claims. (Cl. 75—52)

1. A method of operating a steel producing open hearth furnace having therein a bath of molten metal and slag on top thereof which comprises delivering gas borne solids from the bottom of a conduit located a maximum of 12 in. above the top of said slag downwardly into said bath at a relatively low velocity, delivering oxygen from

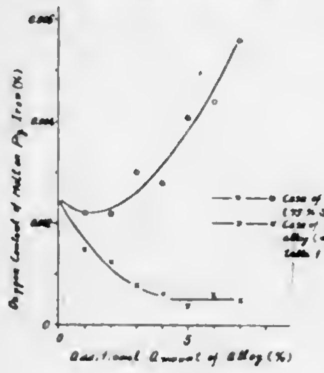
the bottom of a conduit located adjacent the gas borne solids a maximum of 12 in. above the top of said slag



downwardly into said bath at a relatively high velocity with respect to the velocity of the gas borne solids.

3,304,174
LOW OXYGEN-SILICON BASE ADDITION ALLOYS FOR IRON AND STEEL REFINING

Tohei Ototani, Masuteru Maruyama, Yasuhiko Morooka, Jiro Matsumoto, Sumio Izumi, and Koyo Kashiwabara, all of Sendai, Japan, assignors to The Research Institute for Iron, Steel and Other Metals of the Tohoku University, Sendai, Japan, a research institute organized by the Government of Japan
Filed Aug. 17, 1964, Ser. No. 389,883
3 Claims. (Cl. 75—122)



1. Low oxygen-silicon base addition alloys for refining iron and steel consisting essentially of 50 to 97% silicon, 0.1 to 30% manganese, 0.1 to 10% calcium and the remainder iron, the oxygen content being less than 0.04%.

3,304,175
NITROGEN-CONTAINING ALLOY AND ITS PREPARATION

Stanley W. Madsen, Haddonfield, and Edward L. Payer, Wenonah, N.J., assignors to Shieldalloy Corporation, Newfield, N.J., a corporation of New York
No Drawing. Filed July 14, 1964, Ser. No. 382,632
16 Claims. (Cl. 75—134)

1. A nitrogen-containing alloy consisting essentially of from about 50 to about 75% of vanadium, from about 5 to about 30% of manganese and from about 6 to about 17% of nitrogen.

3,304,176
NICKEL BASE ALLOY

Stanley T. Wlodek, Forest Park, Ohio, assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 26, 1963, Ser. No. 333,619
2 Claims. (Cl. 75—171)

1. A nickel base alloy of improved oxidation resistances and good fabricability consisting essentially of, by weight: 20–23% Cr; 8–10% Mo; 17–20% Fe; 0.05 to less than 0.3% La; up to 2.5% Co; up to 0.15% C; up to 2% W; with the balance Ni and incidental impurities.

3,304,177
METHOD OF PRODUCING La CONTAINING ALLOYS

Stanley T. Wlodek, Forest Park, Ohio, assignor to General Electric Company, a corporation of New York
No Drawing. Original application Dec. 26, 1963, Ser. No. 333,619. Divided and this application Nov. 12, 1964, Ser. No. 416,671
2 Claims. (Cl. 75—171)

1. In a method of making an alloy including a base and alloying elements one of which is the element La, the steps of:

heating to melt the base and alloying elements except La;

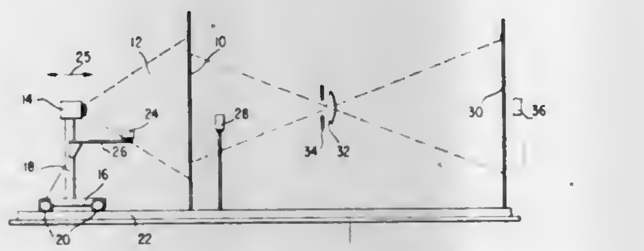
intermixing with the heated melt a La-bearing material selected from the group of materials consisting of Ni_5La, $LaFe_5$, $LaCo_5$, $LaAl_2$, $LaSi_2$ and $LaCu_6$; and then

casting the melt to make the alloy.

2. The method of claim 1 in which the base in nickel and the La-bearing material is Ni_5La.

3,304,178
COLOR AND TONE CORRECTION METHOD FOR PHOTOGRAPHIC COLOR REPRODUCTIONS

Edward R. Atkinson, 366 S. Troy St., Aurora, Colo. 80010
Filed July 6, 1966, Ser. No. 565,345
5 Claims. (Cl. 96—23)



1. A method of producing a series of improved color photo reproductions having identical color contrast and density range comprising the steps of: directing light from a constant temperature, constant intensity light source through a series of original color transparencies at the object plane to respective photosensitized surfaces at the image plane, measuring the light intensity of the transmitted light from each transparency, adjusting the position of said light source with respect to said transparency and adjusting the diaphragm opening of a lens system to further control the transmission of light from the transparency to the image plane to maintain said transmitted light constant regardless of the interference factor of each original transparency so processed and exposing said photosensitized surfaces under controlled constant conditions.

3,304,179
DIGLYCOLALDEHYDE HARDENING AGENT FOR GELATIN

George Terence James Field, Chadwell Heath, Essex, and Patrick Robinson Huddleston, Ilford, Essex, England, assignors to May & Baker Limited, Essex, England, a British company
No Drawing. Filed Nov. 4, 1964, Ser. No. 408,775
Claims priority, application Great Britain, Nov. 8, 1963, 44,262/63
10 Claims. (Cl. 96—61)

1. A method of hardening gelatin which comprises incorporating a member of the class consisting of diglycolaldehyde and alkali metal bisulphite derivatives thereof with the gelatin.

3,304,180

GRAFTED PAPER AND GRAFTED CELLOPHANE COMPOSITIONS CONTAINING PHOTOCHROMIC MATERIALS

George Henry Dorion, New Canaan, Kay Oesterle Loeffler, Norwalk, and David Henry Rakowitz, Cos Cob, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Mar. 1, 1963, Ser. No. 262,246

9 Claims. (Cl. 96—90)

1. A base material selected from the group consisting of grafted, fibrous, cellulosic paper, and grafted, non-fibrous, regenerated cellulose film having intimately and uniformly dispersed throughout the body thereof at least about 0.1%, by weight, based on the weight of the base, of a photochromic material which functions photochromically in solution.

3,304,181

PHOTOGRAPHIC MATERIALS FOR THE SILVER DYESTUFF BLEACHING PROCESS

Walter Anderau, Aesch, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a company of Switzerland

No Drawing. Filed Mar. 29, 1963, Ser. No. 269,199

Claims priority, application Switzerland, Apr. 10, 1962, 4,367/62

8 Claims. (Cl. 96—99)

1. Photographic material for the silver dyestuff bleaching process that contains on a support a silver halide emulsion layer having at least one dyestuff of the formula

$$R_1—N=N—D—N=N—R_2$$

in which D represents a diphenyl radical bound to the azo groups in 4-position and 4′-position, which radical contains a carboxy-alkoxy group in 3-position and in 3′-position, R_1 represents the radical of a 1-amino-8-hydroxynaphthalene sulfonic acid bound to the azo group in 7-position and R_2 represents a hydroxynaphthalene radical bound to the azo group in a position vicinal to the hydroxyl group, the dyestuff molecule containing at least 2 sulfonic acid groups.

3,304,182

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC LAYERS

Alfred Froehlich, Marly-le-Grand, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed June 11, 1963, Ser. No. 286,941

Claims priority, application Switzerland, June 14, 1962, 7,213/62

12 Claims. (Cl. 96—100)

1. A silver halide light-sensitive photographic layer for use in the color coupling development process, containing as the color former for the magneta dye a quinoline which contains a cyanacetyl group in 4-position of the quinoline radical and in at least one of the 2- and 3-positions a substituent selected from the group consisting of a cyanacetyl radical, a hydrocarbon radical with at least 3 carbon atoms, an acylaminobenzene radical the acyl group of which contains at least 3 carbon atoms and an alkoxybenzene group the alkyl group of which contains at least 3 carbon atoms.

3,304,183

ASCORBIC ACID AND AN OXIDIZING AGENT IN CONTINUOUS BREAD PROCESS

William R. Johnston, Wayzata, and Robert E. Mauseth, Minneapolis, Minn., assignors to International Milling Company Inc., Minneapolis, Minn., a corporation of New York

No Drawing. Filed Aug. 18, 1965, Ser. No. 480,797

10 Claims. (Cl. 99—90)

1. In a process for making bakery goods comprising admixing dough ingredients including a yeast fermentation brew, flour and shortening to a viscous batter, transferring the batter to an enclosed continuous developer stage, mixing the batter at a high speed in the developer stage to form a dough, depositing the dough in pans, and baking the deposited dough to form the bakery goods, the improvement comprising the steps of adding an effective amount of ascorbic acid to at least one of the dough ingredients prior to transferring the batter to the developer for substantially reducing the mixing speed requirements in the developer stage needed to develop the dough from that required without the ascorbic acid and adding at least a conventional amount of an edible oxidizing agent to at least one of the dough ingredients prior to transferring the batter to the developer for rendering the final bakery goods of a satisfactory quality, the amount of ascorbic acid being at least 10 p.p.m. on a flour basis.

3,304,184

BREADSTUFF FLAVORING COMPOSITIONS AND METHODS OF MAKING THEM

Lazare Wiseblatt, Chicago, Ill., assignor to Research Corporation, New York, N.Y., a corporation of New York

No Drawing. Original application Oct. 10, 1962, Ser. No. 229,748, now Patent No. 3,268,555, dated Aug. 23, 1966. Divided and this application June 7, 1966, Ser. No. 535,628

8 Claims. (Cl. 99—90)

1. A method of imparting flavor to breadstuffs which comprises incorporating in the breadstuff a compound selected from the group consisting of pyrrolidine and proline and an aliphatic ketol selected from the group consisting of 1,3-dihydroxyacetone, glyceraldehyde, acetylmethylcarbinol, 1-hydroxy-2-propanone and 1-hydroxy-2-propanone acetate and thereafter heating the breadstuff.

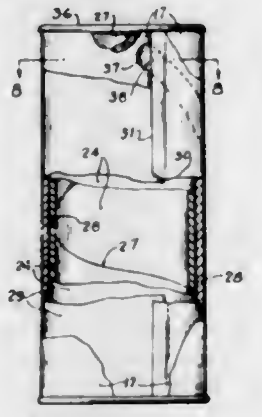
3,304,185

PRESSURE CARTON

Maurice W. Fortney, Compton, Calif., assignor, by mesne assignments, to General Mills, Inc., Minneapolis, Minn., a corporation of Delaware

Filed June 20, 1952, Ser. No. 294,631

24 Claims. (Cl. 99—172)



11. A cylindrical container, comprising a cylindrical wall, end closures for said container mounted one on each end of said wall, said end closures being clinched over said wall, said wall comprising an outer helically wound layer and an inner helically wound layer, said layers being adhesively secured together, two spaced helical lines of weakness on said outer layer extending substantially 360° around said cylindrical wall from a point in said outer layer adjacent and spaced from one of the closures to a point adjacent and spaced from the other closure, the helical line juncture of said inner layer extending from a point in said inner wall adjacent one closure to a point adjacent the other closure lying between the said parallel lines of weakness of said outer layer, and said layers being in non-adherent contact between said lines.

3,304,186

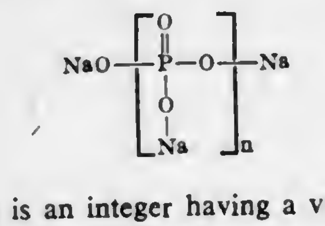
CARBON-BEARING REFRACTORIES

Robert W. Limes, Cleveland, and Robert O. Russell, Rocky River, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Mar. 1, 1965, Ser. No. 435,863

21 Claims. (Cl. 106—58)

1. A refractory mixture consisting essentially of
(a) granules of an aggregate containing at least 5% by weight of magnesia,
(b) 6–18 parts by weight per 100 parts by weight of aggregate, of pulverized high-melting pitch,
(c) a chemical bonding agent consisting essentially of 0.5–6 parts by weight per 100 parts by weight of aggregate of a sodium polyphosphate of the formula



$$\mathrm{NaO}-\left[\begin{array}{c}\mathrm{O}\\ \| \\ \mathrm{P}-\mathrm{O}\\ | \\ \mathrm{O}\\ | \\ \mathrm{Na}\end{array}\right]_n-\mathrm{Na}$$

wherein *n* is an integer having a value of at least 4 and no more than 100, and
(d) sufficient water to give the mix the desired degree of lubricity.

3,304,187

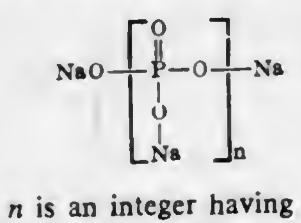
BASIC REFRACTORY COMPOSITIONS

Robert W. Limes, Cleveland, and Robert O. Russell, Rocky River, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

No Drawing. Filed Mar. 1, 1965, Ser. No. 436,345

11 Claims. (Cl. 106—58)

1. A refractory mixture consisting essentially of
(a) granules of an aggregate containing at least 5 percent by weight of magnesia,
(b) 0.5–6 parts by weight per 100 parts by weight of aggregate of a sodium polyphosphate of the formhula



$$\mathrm{NaO}-\left[\begin{array}{c}\mathrm{O}\\ \| \\ \mathrm{P}-\mathrm{O}\\ | \\ \mathrm{O}\\ | \\ \mathrm{Na}\end{array}\right]_n-\mathrm{Na}$$

wherein *n* is an integer having a value of at least 4 and no more than 100, and
(c) sufficient water to give the mix the desired degree of lubricity.

3,304,188

PROCESS FOR DEAD-BURNING DOLOMITE

Vaughn V. Hughey, Tiffin, Ohio, assignor to Basic Incorporated, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed May 18, 1965, Ser. No. 456,844

11 Claims. (Cl. 106—58)

1. A process for producing a dead-burned dolomitic refractory comprising calcining dolomitic stone to produce dolomitic quicklime, hydrating said quicklime under pressure to hydrate fully the calcium and magnesium content thereof, forming a refractory from said hydrated lime, and subsequently sintering said refractory.

3,304,189

SYNTHETIC PLASTER SET RETARDER

Richard A. Kuntze, Toronto, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Canada, a corporation of Canada

No Drawing. Filed Oct. 18, 1965, Ser. No. 497,544

18 Claims. (Cl. 106—111)

1. An improved plaster composition comprising calcined gypsum plaster and as a plaster set retarder from about 0.025 to about 0.5% based on the weight of the plaster in the mix, of a water-soluble compound selected from the group consisting of aliphatic polyamino polycarboxylic acids of the general formula

$$R_2N—(X)—NR_2$$

where X is an aliphatic chain containing at least 3 but not more than 9 carbon atoms between the terminal amino groups, and at least two R's are selected from the group consisting of lower carboxy acid groups, and the alkali metal, akaline earth metal, ammonium and triethanolamine salts thereof, while the remaining R's are selected from the group consisting of lower alkyl groups and hydrogen atoms.

3,304,190

PLASTICIZED PARTIALLY ESTERIFIED REGENERATED CELLULOSE FILM

Edward A. Wielicki, Philadelphia, Pa., and Anthony Labriola, Pennsville, N.J., assignors, by mesne assignments, to FMC Corporation, San Jose, Calif., a corporation of Delaware

No Drawing. Filed June 13, 1963, Ser. No. 287,506

5 Claims. (Cl. 106—189)

1. A partially esterfied regenerated cellulose film having incorporated therein, in a plasticizing amount, a compound selected from the group consisting of diethylene glycol, dipropylene glycol, triethylene glycol, 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 2-methyl-2,4-pentanediol and polyethylene glycol having an average molecular weight ranging from 200 to 600.

3,304,191

COAL TAR PAVING COMPOSITIONS AND PROCESS FOR PREPARING THEM

Richard C. Barrett, New Milford, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed May 21, 1963, Ser. No. 282,143

5 Claims. (Cl. 106—279)

1. A paving tar composition consisting solely of coal tar derived products, said composition consisting essentially of a mixture of (1) between about 25% and about 75% by volume of a standard coal tar derived road tar as defined in A.S.T.M. standard specification D–490, and (2) between about 75% and about 25% by volume of a pitch-like oxidized aromatic coal tar flux oil residue obtained by contacting, with an oxygen-containing gas at temperatures between about 200° C. and about 500° C., a coal tar distillate boiling above about 250° C. selected from the group consisting of light and heavy coal tar oil fractions and residues from redistillation of lighter coal tar distillates and mixtures thereof, said contacting being continued for a time sufficient to provide a residue having a ring and ball softening point between about 40° C. and about 135° C. and containing between about 15% and about 45% of benzol insoluble compounds and not more than about 5% of quinoline insolubles, and having a penetration index between about 0 and about −1.5, said mixture being blended with (3) a minor amount of a coal tar distillate fluxing oil of which at least about 90% boils between about 210° C. and about 355° C., sufficient to bring the consistency of the resulting composition to within the viscosity requirements of road tar grade tar as specified in ASTM D–490.

3,304,192

IMPROVED COAL-TAR PITCH COMPOSITION

Richard C. Barrett, New Milford, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

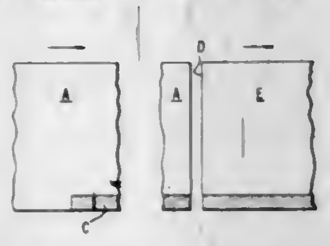
No Drawing. Filed May 21, 1963, Ser. No. 282,142

5 Claims. (Cl. 106—280)

1. An improved coal-tar pitch composition consisting solely of coal-tar derived products, said composition consisting essentially of a homogeneous blend of (1) be-

tween about 20% and about 80% by weight of a coal-tar pitch having a ring and ball softening point between about 50° C. and about 80° C. and (2) between about 80% and about 20% by weight of a pitch-like residue obtained by contacting, with an oxygen containing gas at temperatures between about 200° C. and about 500° C., a coal-tar distillate boiling above about 250° C. selected from the group consisting of light and heavy tar oil fractions, and residues from redistillation of lighter distillates, and mixtures thereof, said contacting being continued for a time sufficient to provide a pitch-like residue containing between about 15% and about 45% of benzol insoluble compounds, and not more than about 5% quinoline insolubles; said blend having a ring and ball softening point between about 50° C. and about 90° C. and having a penetration ratio (a) 115/50/5 divided by 77/100/5 of between about 5 and about 10 when the blend has a softening point between about 50° C. and about 75° C.; and (b) having a penetration ratio 140/100/5 divided by 115/100/5 below about 5 when the blend has a softening point between about 75° C. and about 90° C.

3,304,193
METHOD AND APPARATUS FOR MAKING BLANKS FOR CONTAINERS AND THE LIKE
Franz Dollheimer, Valdosta, Ga., assignor to Owens-Illinois Inc., a corporation of Ohio
Filed Oct. 9, 1963, Ser. No. 315,000
6 Claims. (Cl. 117—4)



1. A method of cutting rectangular blanks of material from a continuous web by severing selected lengths of the material from the web to define one end of the blank, with the leading end and side edges of the web defining the other end and side edges, respectively, of the blank, and applying a relatively narrow, longitudinal strip of adhesive throughout the length of the blank, comprising the steps of;

precutting the web along a line defining said one end of the blank for a distance slightly greater than the width of said adhesive strip and less than the width of the blank,

applying said strip of adhesive between the precut and the leading end of the web with the adhesive strip intersecting said precut,

and thereafter cutting the remainder of the blank from the web along that portion of said line that is free of adhesive.

3,304,194
NON-WOVEN FABRICS OF RESIN-BONDED REGENERATED CELLULOSE
Jan Dabrowski, North Augusta, S.C., assignor to United Merchants and Manufacturers, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 4, 1962, Ser. No. 242,088
7 Claims. (Cl. 117—10)

1. The process of producing non-woven fabrics of regenerated cellulose which comprises saturating the unsaturated non-woven fabric with an aqueous solution containing a water-soluble salt of deacetylated chitin, an amino-formaldehyde resin precondensate in water-soluble form and a small amount of acid catalyst to uniformly distribute throughout the non-woven fabric, from about .5% to 4% of the water-soluble salt of deacetylated chitin, approximately the same weight of aldehyde precondensate, and a small amount of acid catalyst, and thereafter heating the saturated fabric to a temperature of from 275° F. to 350° F. for from 1 to 5 minutes, and thus reacting the deacetylated chitin and aldehyde precondensate to form a water-insoluble reaction product uniformly distributed throughout the non-woven fabric.

3,304,195
PROCESS FOR TONAL COLORING OF FABRICS
Joseph I. Ackerman, Jr., Arlington, Mass., assignor to United Merchants and Manufacturers, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 11, 1963, Ser. No. 272,203
15 Claims. (Cl. 117—37)

1. A process for coloring fabrics having loosely and tightly constructed areas which comprises

(1) treating the fabric with liquid to substantially completely saturate the capillaries, interstices and surface active areas of the fabric;

(2) treating the fabric from step 1, while still wet with the liquid applied in step 1, with a dispersion consisting essentially of dispersed pigment particles having a particle size of from 1 to 1500 microns, while maintaining the dispersed pigment particles and the fabric effectively electrically neutral, and padding the thus treated fabric to remove excess liquid which excess liquid washes over the fabric entering the padder thus removing pigment particles from the tightly constructed areas while leaving said pigment particles trapped within the loosely constructed areas; and

(3) applying a binder for the pigment to the thus treated fabric to bond the pigment particles to the loosely constructed fabric area.

3,304,196
MAR-RESISTANT PRODUCTS AND PROCESS FOR PRODUCING SAME
William George Deichert, Flushing, N.Y., and Richard Lansing Webb, Darien, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Sept. 28, 1965, Ser. No. 491,003
13 Claims. (Cl. 117—76)

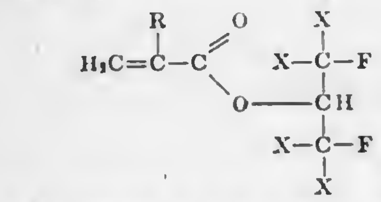
1. A process for improving the mar-resistance of a rigid plastic sheet and also improving the bonding of the surface layer to said sheet comprising contacting a rigid plastic sheet of a polymer selected from the group consisting of polyacrylates, polystyrenes, polyvinyl halides, polyvinyl acetates and polycarbonates with a solution of a polycarbonate resin, evaporating off the solvent, coating the thus treated sheet with a substantially linear, water-insoluble, non-gelled, unsaturated polyester resin composition consisting essentially of a blend of (1) the esterification reaction product of fumaric acid and a glycol selected from the group consisting of polyethylene glycol and polypropylene glycol wherein said glycol has between 6 and 39 carbon atoms, said reaction product having an acid number below about 35 and (2) from about 10% to about 40%, by weight, based on the total weight of (1) and (2), of at least one monomer copolymerizable therewith and curing said polyester resin.

3,304,197
COMPOSITION CHARACTERIZED BY UNIFORMLY DISTRIBUTED INORGANIC ADDITIVES
Frederick L. Pundsack and George P. Reimschussel, Middlesex Boro, N.J., assignors to Johns-Manville Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Dec. 9, 1959, Ser. No. 858,341
16 Claims. (Cl. 117—126)

1. The process of forming an organophilic product with an inorganic composition compressing a substrate having basic surface metal cation hydroxyl groups comprising treating the basic surface metal cation hydroxyl groups, of the inorganic composition with an organic composition having acidic functional groups in a substantially water-free medium and reacting the said basic surface metal cation hydroxyl groups of the inorganic composition with the acidic functional groups of the organic composition forming a chemical bond therebetween.

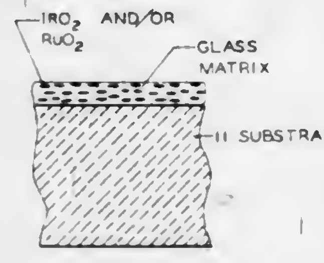
3,304,198
PROCESS FOR PREPARING OLEOPHOBIC AND HYDROPHOBIC FIBER AND FIBER PREPARED THEREWITH
Cyril Woolf, Morristown, and Jerome Hollander, Parsippany-Troy Hills Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Oct. 28, 1963, Ser. No. 319,514
16 Claims. (Cl. 117—161)

1. A process for the preparation of an oleophobic and hydrophobic fiber which comprises impregnating a fiber with a fluorinated acrylic polymer of a compound having the formula:



wherein R is a member of the group consisting of hydrogen and methyl and X is a halogen selected from the group consisting of chlorine and fluorine.

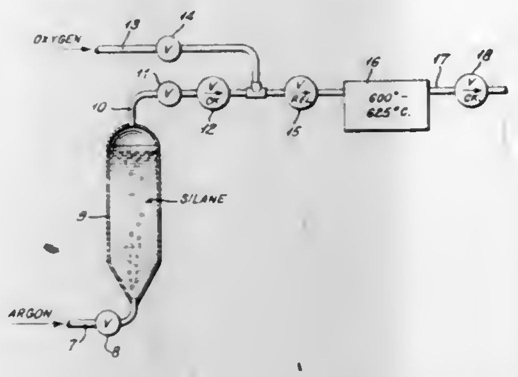
3,304,199
ELECTRICAL RESISTANCE ELEMENT
William M. Faber, Sr., Elkhart, Gaylord L. Francis, Berne, and Curtis L. Holmes, South Bend, Ind., and Otis F. Boykin, Chicago, Ill., assignors to CTS Corporation, Elkhart, Ind., a corporation of Indiana
Filed Nov. 12, 1963, Ser. No. 322,702
11 Claims. (Cl. 117—201)



1. A composition adapted to be applied onto a high-temperature-resistant, electrically nonconductive substrate and fired to form an electrical resistance element comprising 2–70 percent by weight of a finely divided metal oxide selected from the group consisting of RuO_2 and IrO_2, and 98–30 percent by weight powdered glass frit.

3,304,200
SEMICONDUCTOR DEVICES AND METHODS OF MAKING SAME
Kenneth E. Statham, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Continuation of application Ser. No. 94,244, Mar. 8, 1961. This application Feb. 23, 1965, Ser. No. 440,340
6 Claims. (Cl. 117—201)

1. The method of making a semiconductor device including the steps of placing a semiconductor substrate in a reaction zone, introducing a vaporous mixture of oxygen and an organic oxy compound of silicon into said reaction zone, heating said reaction zone to an elevated temperature less than about 950° C., and maintaining said temperature for a period of time sufficient to deposit

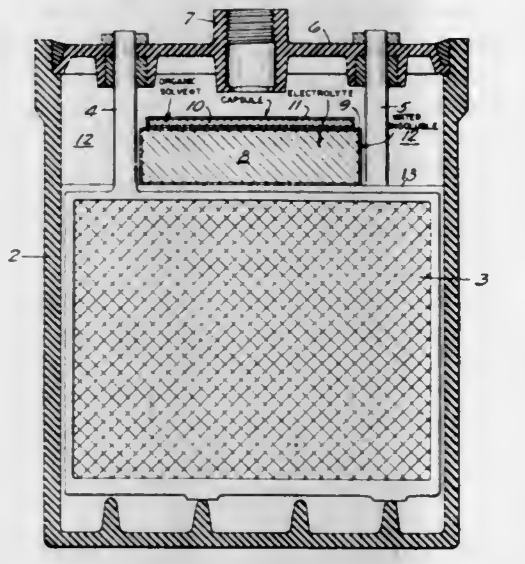


silicon dioxide on the surface of said semiconductor substrate.

3,304,201
ACYLOXY ENDBLOCKED ROOM TEMPERATURE VULCANIZABLE SILOXANE RUBBER FOR WIRE COATING
Arthur Bruce Boehm, Jr., Moorestown, N.J., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Apr. 8, 1963, Ser. No. 271,495
6 Claims. (Cl. 117—232)

1. In the process of insulating and coating wires, rods, conductors and the like materials wherein a saturated fiber braid is used as part of the insulation and coating, the improvement comprising employing an acyloxy endblocked room temperature vulcanizable siloxane rubber as the braid saturant.

3,304,202
WATER ACTIVATABLE DRY CHARGED BATTERY
Ahmad Sam, Circle Pines, Minn., assignor to Gould-National Batteries, Inc., a corporation of Delaware
Filed June 26, 1963, Ser. No. 290,850
3 Claims. (Cl. 136—6)



1. In combination in a lead-acid storage battery having a casing enclosing electrode plates and defining a space for electrolyte extending above said plates, a charge of electrolyte concentrate confined in said space in a sealed container, the material of said container being insoluble in water and non-reactive with said concentrate and soluble in an organic solvent, and a capsule containing said organic solvent for said container in said casing and disposed adjacent to said container, the material of the walls of said capsule being water-soluble.

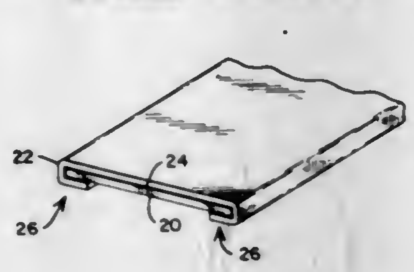
3,304,203

BATTERY HAVING SEPARATOR BONDED TO AT LEAST ONE ELECTRODE

Donald T. Nordvik, Brooklyn Park, Minn., assignor to Gould-National Batteries, Inc., a corporation of Delaware

Filed Aug. 8, 1963, Ser. No. 300,859

2 Claims. (Cl. 136—6)



1. In a battery having oppositely polarized electrodes which have generally coextensive, parallel, spaced-apart, facing surfaces the improvement in combination therewith comprising: a porous insulative separator layer between said facing surfaces and coextensive therewith contoured in general conformance to said surfaces, said separator overlapping at least one of the electrodes along at least one edge thereof, with the overlap folded back over the electrode; and a layer of inert adhesive material between the electrode and the overlap for bonding the separator to the electrode.

3,304,204

CHEMICAL FORMATION OF POSITIVE NICKEL ELECTRODES

Claude J. Menard, St. Paul, Minn., assignor to Gould-National Batteries, Inc., a corporation of Delaware

No Drawing. Filed Oct. 2, 1963, Ser. No. 313,173

11 Claims. (Cl. 136—29)

1. A process for chemically forming a porous nickel electrode, the pores of said electrode containing bivalent nickel hydroxide and impurities, which comprises:

(a) soaking said electrode in an alkaline aqueous hypochlorite oxidizing solution whereby the bivalent active material is converted to trivalent nickel hydroxide;

(b) soaking the electrode which has been subjected to said oxidizing treatment in a reducing alkaline-alcohol solution whereby said trivalent nickel hydroxide is reduced to nickel hydroxide, and

(c) washing and drying the electrode so formed.

3,304,205

THERMOELECTRIC GENERATOR

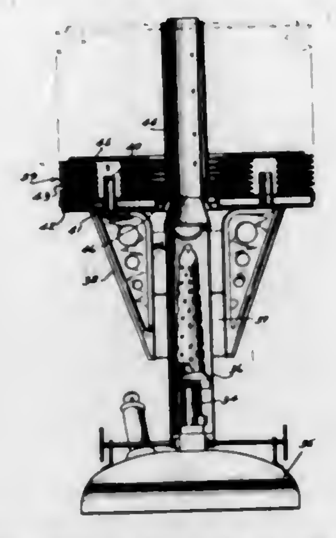
Albert M. Lord, Olmsted Falls, Stephen H. Fairweather, Lyndhurst, and Ralph Finello, Cleveland Heights, Ohio, assignors to TRW Inc., a corporation of Ohio

Filed Mar. 21, 1961, Ser. No. 97,228

10 Claims. (Cl. 136—208)

1. A portable unit electrical generator comprising a burner, a fuel supply for the burner having fuel flow controls, a boiler for heat transfer fluid, a condenser connected to the boiler to condense and cool the fluid and return it to the boiler, heat radiation fins connected to the condenser for dissipating heat to the ambient surroundings, and means for supporting a thermoelectric generating unit having a hot junction surface in heat transfer relationship with said burner and having a cold junction surface in heat transfer relationship with said boiler.

8. A thermoelectric cell comprising a sealed casing, a thermoelectric member in the casing having a hot junction end and a cold junction end, hot and cold electrodes in contact with the ends of said member, and a fluid pressure chamber in the casing with at least one of said electrodes exposed to the chamber and held in engagement with said member by the pressure of fluid in the chamber.



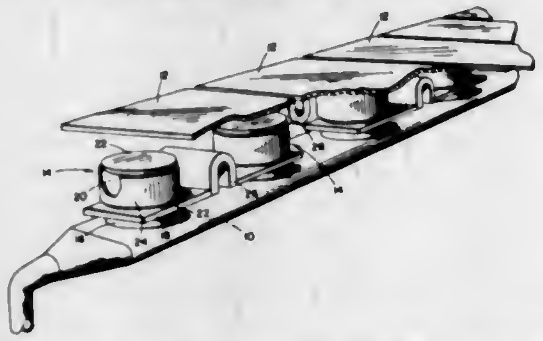
3,304,206

THERMOELECTRIC CONVERTER MODULE

Robert E. Burdick, Chatsworth, and Sol R. Rocklin, Pacific Palisades, Calif., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed May 22, 1961, Ser. No. 111,573

2 Claims. (Cl. 136—211)



1. A thermoelectric converter module comprising a plurality of thermoelectric assemblies, each of said assemblies including a semi-metallic thermoelectric material, means encapsulating said material, means for generating an electrical current across said material including a heat source thermally connected to said assemblies and an electrically conducting heat sink thermally and electrically connected to said material, and means for expansibly interconnecting said assemblies in an electrically continuous circuit, said heat source being electrically insulated from said thermoelectric assembly, said heat sink including an individual radiator element for each of said assemblies and said expansible means including electrical connections alternately between adjacent hot junctions and cold junctions to form a serially connected circuit of thermoelectric elements.

3,304,207

THERMOELECTRIC GENERATOR

Robert P. Kolb, Severna Park, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 16, 1963, Ser. No. 281,072

8 Claims. (Cl. 136—211)

1. A thermoelectric generator comprising a heated face;

a plurality of thermoelectric elements adapted to receive heat from said heated face;

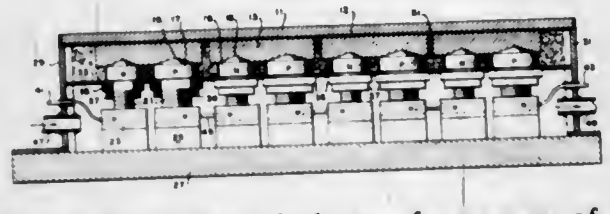
a plurality of walls, said walls and said heated face forming a chamber;

cooling means in said chamber for carrying heat away from said thermoelectric elements;

a single flexible, electrically insulating diaphragm interposed between said thermoelectric elements and said cooling means; said diaphragm being spaced from said heated face;

said cooling means including means providing a metallic path extending from each of said thermoelectric elements, said metallic path means being immersed in a cooling fluid;

said diaphragm forming a fluid-tight seal across said chamber to prevent said cooling fluid from contacting said thermoelectric elements;



holes provided in said diaphragm for passage of said metallic path means therethrough;

each of said metallic path means including a threaded stub electrically connected to one of said thermoelectric elements;

a gland ring on said stub; and

a gland nut threaded on said stub for forcing said gland ring into contact with said diaphragm to form a fluid-tight seal around each of said holes.

3,304,208

PRODUCTION OF FINE GRAIN ALUMINUM ALLOY SHEET

Albert Jager, Rome, N.Y., assignor to Revere Copper and Brass Incorporated, New York, N.Y., a corporation of Maryland

No Drawing. Filed Aug. 3, 1964, Ser. No. 387,169

5 Claims. (Cl. 148—11.5)

1. A method for producing a uniformly fine grained sheet product from a chill cast ingot of an aluminum alloy in which there is present a non-primary manganese-containing phase and which is processed by homogenizing, hot rolling, cold rolling and annealing by means of the inter-related control of the thermal aspects of homogenizing, hot rolling and annealing so as to induce proper precipitation of the non-primary phase, said method comprising (a) homogenizing the ingot at a temperature just below the solidus temperature for the alloy for a period not in excess of about 10 hours, (b) slowly cooling the ingot at a rate less than 50° F. per hour to a temperature which is not in excess of 100° F. above the initial hot rolling temperature, (c) hot rolling at the lowest practical temperature, (d) cold rolling the resulting sheet to final gage, and (e) annealing following cold rolling at the annealing temperature of the aluminum sheet so as to continue the aforestated phenomena of proper precipitation of the non-primary phase.

3,304,209

ALUMINUM BASE ALLOY

William A. Anderson, Verona, and William D. Vernam, New Kensington, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Feb. 3, 1966, Ser. No. 524,822

4 Claims. (Cl. 148—32.5)

1. A copper-free aluminum base alloy consisting essentially of aluminum, 3.5 to 8% zinc, 0.75 to 4.3% magnesium, wherein the zinc content always exceeds the magnesium content, 0.05 to 0.75% manganese, 0.06 to 0.30% chromium, 0.06 to 0.30% zirconium and 0.01 to 0.15% titanium, the iron impurity not exceeding 0.4% and the silicon impurity not exceeding 0.35%, said manganese, chromium, zirconium and titanium being employed in amounts within the foregoing ranges such that the sum of percent chromium + percent zirconium + 1.23 × percent titanium + 0.19 × percent manganese does not exceed 0.6%, said alloy being characterized by substantial freedom from segregation of said manganese, chromium, zirconium and titanium components.

3,304,210

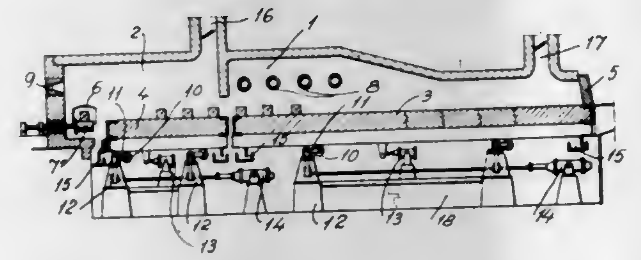
PROCESS IN THE HEATING OF METAL BILLETS AND AN ARRANGEMENT FOR CARRYING OUT THE PROCESS

Per Orvar Löfström, Bromma, Sweden, assignor to Svenska Metallverkens Ugns Aktiebolag Vasteras, Sweden, a joint-stock company limited

Filed Oct. 18, 1963, Ser. No. 317,263

Claims priority, application Sweden, Oct. 20, 1962, 11,279/62

2 Claims. (Cl. 148—134)



1. A method of heating steel billets to a desired high temperature in an oxygen-containing atmosphere comprising passing the billets through a preheating zone to heat the billets uniformly to a moderate temperature below which no substantial surface reaction occurs, immediately transferring the billets to a final heating zone, and passing the billets through said final heating zone rapidly to further heat the billets uniformly to the desired high temperature in the shortest possible time so that surface reactions are minimized.

3,304,211

PELLETIZED EXPLOSIVE OF TRINITROTOLUENE PRILLS COATED WITH SODIUM AND AMMONIUM NITRATE IN AN ORGANIC BINDER

Robert J. Anderson, Toronto, Ontario, and John F. Short, Willowdale, Ontario, Canada, assignors to Union Carbide Canada Limited, Toronto, Ontario, Canada, a corporation of Canada

No Drawing. Filed Mar. 30, 1965, Ser. No. 444,047

5 Claims. (Cl. 149—11)

3. A pelletized explosive composition having a density greater than that of water comprising from about 25 to about 40% by weight trinitrotoluene, from about 2 to about 10% by weight of a binder consisting essentially of calcium ligna sulfate and polyethylene oxide and from about 50 to about 75% by weight of an oxidant portion consisting essentially of at least 50% by weight based upon the oxidant portion of sodium nitrate, and ammonium nitrate, said explosive constituting a pellet wherein said binder and oxidant portion are adhered around said trinitrotoluene prill to form a pellet.

3,304,212

PROPELLANT POLYMERIC COMPOSITIONS CONTAINING BERYLLIUM

Gaetano F. D'Alelio, South Bend, Ind., assignor to Dal Mon Research Co., Cleveland, Ohio, a corporation of Delaware

No Drawing. Continuation of applications Ser. No. 751,567, July 28, 1958, Ser. No. 761,484, Sept. 17, 1958, and 762,227, Sept. 22, 1958. This application Sept. 27, 1961, Ser. No. 141,012

20 Claims. (Cl. 149—19)

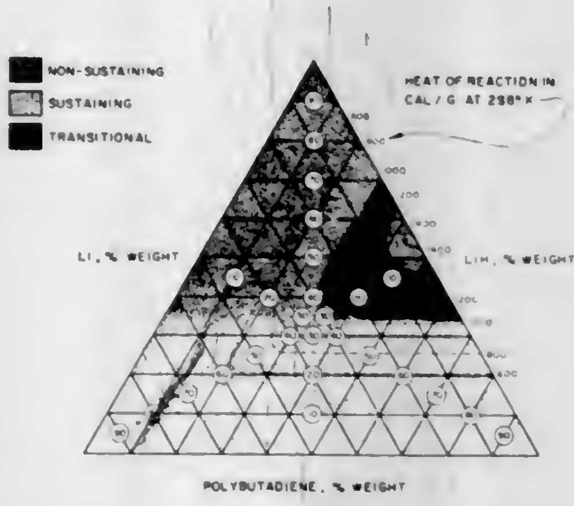
1. A polymeric composition useful as a solid propellant fuel consisting essentially of 5–95 percent by weight of an oxidizer selected from the class consisting of (1) solid,

inorganic oxidizing salts and (2) compounds having the formula $ArClO_3$, wherein Ar is a mononuclear aromatic hydrocarbon radical, and 95–5 percent by weight of a polymer having a plurality of repeating units in the polymer molecules thereof of the formula —Be—Y—, in which Y is a polyvalent hydrocarbon radical having each of its valencies attached to a beryllium atom.

3,304,213
HIGH REGRESSION RATE PROPELLANT CONTAINING LITHIUM, LITHIUM HYDRIDE, AND POLYBUTADIENE

Peter L. Stang, San Jose, Calif., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Apr. 3, 1963, Ser. No. 270,322
12 Claims. (Cl. 149—19)



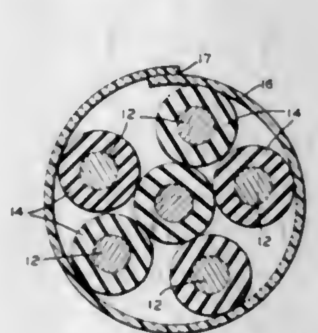
3. An exothermic mixture consisting essentially of lithium and polybutadiene in the ratio by weight of one part lithium and from about 0.25 to 4 parts polybutadiene with up to about 50 percent lithium hydride as a substitute for said lithium and polybutadiene.

4. An oxidizer-free hybrid grain consisting essentially of lithium and polybutadiene in the ratio by weight of one part lithium and from about 0.9 to 1.6 parts polybutadiene wherein up to about 8 percent by weight lithium hydride is substituted for said lithium and polybutadiene.

3,304,214
METHOD FOR MAKING ELECTRICAL CABLE

Christian A. Alm, Cheshire, Conn., assignor to The Whitney Blake Company, New Haven, Conn.

Filed June 7, 1963, Ser. No. 286,221
6 Claims. (Cl. 156—54)



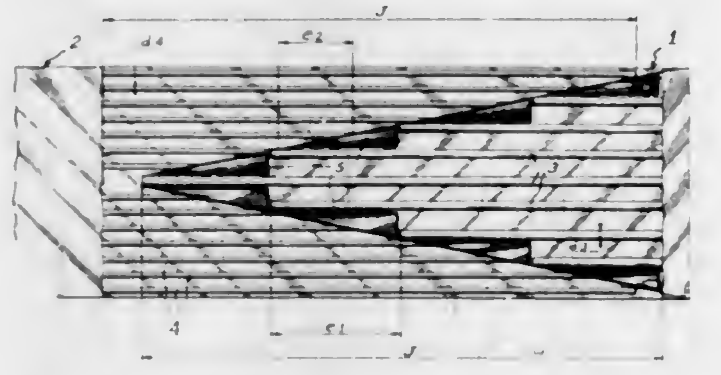
1. The method of forming a jacketed cable having multiple conductors covered by primary insulation at the cable core, comprising the steps of

(A) heating a thin, flat separator tape of relatively stiff, springy thermoplastic material
 (1) to at least its softening point,
(B) wrapping the separator tape around the cable core with a longitudinal seam
 (1) while said separator tape is in a heated, softened condition,
(C) cooling the separator tape to its stiff, springy condition and then
(D) applying a jacketing material over the taped cable core.

3,304,215
METHOD FOR JOINING CONVEYOR BELTS

Francis Victor Frederic Paul, Paris, France, assignor to Pneumatiques, Caoutchouc Manufacture and Plastiques Kleber-Colombes, Paris, France, a corporation of France

Filed Mar. 23, 1964, Ser. No. 353,798
4 Claims. (Cl. 156—137)



1. The method of joining ends of first and second lengths of conveyor belt material wherein each of said first and second lengths is reinforced with at least one layer of longitudinal parallel cables and have at least one layer of carcass material covering said cables, said first end having cables of greater diameter than the cables of said second end, the operations of stripping off said at least one layer of carcass material over portions of said ends, cutting said cables of each of said ends in stepwise formation so that each step in said first end has only one cable and the ratio between the number of steps in said second end to the number of steps in said first end is at most equal to the ratio between the numbers of longitudinal cables per centimetre of width in said second and first lengths respectively fitting said ends together, packing raw unvulcanized carcass material in the spaces between said step wise formation of said cables, recovering the interfitted ends with carcass material, and vulcanizing said carcass material.

3,304,216
METHOD OF MANUFACTURING HOUSEHOLD UTENSILS

Earl Richard Eggleton, Warwick, R.I., assignor to Dixon Corporation, Bristol, R.I., a corporation of Rhode Island

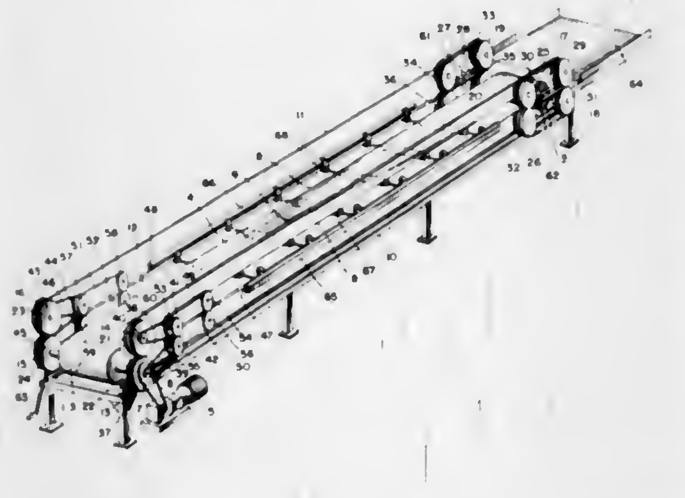
No Drawing. Filed Mar. 19, 1964, Ser. No. 353,236
1 Claim. (Cl. 156—283)

A method of manufacturing household utensils characterized by resistance to discoloration and a greater service life which comprises cleaning and roughening a metal surface, applying powdered polytetrafluoroethylene to form an anchoring layer without heating to the softening temperature of polytetrafluoroethylene, applying a first preformed sheet of polytetrafluoroethylene, applying a second preformed sheet of polytetrafluoroethylene, angularly oriented with respect to said first sheet, each of said sheets having a thickness of from about 0.001 inch to about 0.003 inch and then heating at a temperature within the range from about 650 to 800° F. with the application of pressure to anchor the preformed layers to each other and to the metal base.

3,304,217
APPARATUS FOR THE PRODUCTION OF WELDED BAGS FROM THERMOPLASTIC TUBULAR SHEETING

Ernst Mommsen, Mannheim, and Horst Rosewicz and Jakob Schoenmann, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Dec. 4, 1963, Ser. No. 328,030
Claims priority, application Germany, Dec. 5, 1962, B 69,867
5 Claims. (Cl. 156—499)

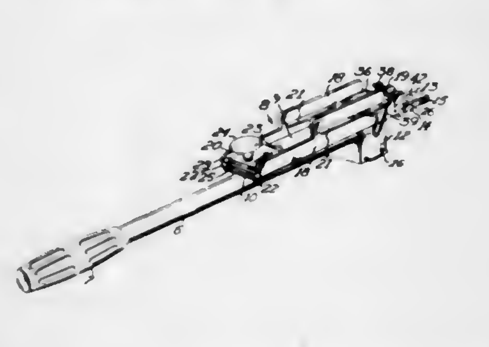


1. Apparatus for the continuous production of welded bags from thermoplastic tubular sheeting having lateral folds and a valve, comprising a generally horizontal frame, a motor-driven endless elastic belt running over two terminal drums horizontal relative to each other and serving to receive individual flat sections of sheeting, such sections of sheeting projecting beyond both edges of said belt, four long cooled endless steel strips spaced from the two sides of said belt and traveling horizontally in pairs in the plane of the upper flight of said belt in the same direction as said belt, the middle flights of said endless strips being pressed together and traveling at the same rate as said belt, a source of radiant heat located adjacent to each of said pairs of endless steel strips, and a pair of short cooled endless steel strips pressed together and located upstream and downstream of said source of radiant heat in the direction of movement of said belt, parallel to and spaced from said pairs of long endless steel strips on both sides of said belt.

3,304,218
LIVESTOCK MARKERS

Glenn V. Challman, Butterfield, Minn. 55403

Filed Jan. 10, 1963, Ser. No. 250,576
5 Claims. (Cl. 156—572)

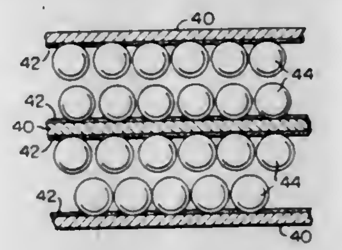


1. A marking device of the class described comprising in combination, a mounting frame having a magazine, and handle means supporting said frame, said frame having upper and lower base members and a pair of opposed upstanding side members, a sliding member mounted between said upper and lower base members for endwise movements therebetween and manual means for manipulating said sliding member, means for holding a plurality of cards retained in stacked relation in said magazine and means associated with said magazine for spring loading the stacked cards to urge the same upwardly thereby moving one of said stacked cards into the path of the sliding member as the same is moved forwardly to position said card on a transfer lift formed in the forward end portion of the frame, means on said frame mounting a container containing a quantity of adhesive therein, in supported relation upon the upper base plate, and means for engaging the container whereby said adhesive may be discharged in a predetermined quantity onto the upper exposed surface of the forwardmost card carried by said frame and positioned thereon to be transferred to another object by adhesive action when the said device is inverted and said object is struck lightly thereby.

3,304,219
ENERGY ABSORBING MATERIALS

Mortimer H. Nickerson, Winchester, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts

Filed May 2, 1962, Ser. No. 191,864
12 Claims. (Cl. 161—162)



1. An article of manufacture comprising a flexible web, said web having first and second surfaces, first and second adhesive layers applied to said first and second surfaces respectively, a first group of particles of expanded polymeric material affixed to said first adhesive layer, and a second group of particles of expanded polymeric material affixed to said second adhesive layer whereby each of said particles is contacted by adhesive solely in the area of contact between the particle and web and thus is affixed only to an adhesive layer but is free to move with respect to adjacent particles, said first and second group of particles forming first and second essentially monoplanar layers.

3,304,220
PRODUCTION OF NON-WOVEN WEBS FROM SYNTHETIC FIBERS

James Eric McIntyre, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed May 6, 1963, Ser. No. 278,473
Claims priority, application Great Britain, May 7, 1962, 17,423/62
8 Claims. (Cl. 161—170)

1. A method for producing a nonwoven fabric comprising fibers of a polymer selected from the group consisting of polyester and copolyester fibers which comprises the steps of bringing said fibers into contact with each other when they are in a substantially noncrystalline state, without substantial application of pressure at a temperature above the second order transition temperature and below the crystalline melting point thereof until said fibers will adhere to each other, and thereafter crystallizing said fibers by permitting them to stand at a temperature above their second order transition temperature and below their crystalline melting point until said fibers have crystallized.

6. Non-woven fabrics from polyester or copolyester fibres whenever made by a method claimed in claim **1**.

3,304,221
POLYTETRAFLUOROETHYLENE LAMINATES AND METHOD OF MAKING THE SAME

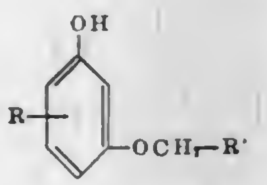
Earl Richard Eggleton, Warwick, R.I., assignor to Dixon Corporation, Bristol, R.I., a corporation of Rhode Island
No Drawing. Filed Apr. 18, 1963, Ser. No. 273,848
36 Claims. (Cl. 161—189)

19. A laminate comprising a substrate, a continuous film of polytetrafluoroethylene, and a discontinuous layer of polytetrafluoroethylene particles intermediate said substrate and said continuous film, said particles having an average diameter of at least about 75 microns.

3,304,222
ADHESIVE COMPOSITION COMPRISING A RUBBER LATEX AND A MODIFIED RESORCINOL-ALDEHYDE CONDENSATE

Philip H. Wilken, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Nov. 12, 1964, Ser. No. 410,770
16 Claims. (Cl. 161—227)

14. An article comprising a body of vulcanized polymeric organic rubber material bonded to an organic fiber by an adhesive composition comprising about 85 percent by weight of a latex selected from the group consisting of polyvinyl pyridine and copolymers and terpolymers of vinyl pyridine with styrene and butadiene and about 15 percent by weight of a formaldehyde-phenol resin comprising substantially equimolar quantities of said formaldehyde and said phenol, said phenol comprising from about 25 to 50 percent by weight of a compound of the formula



in which R is a hydrogen and R′ is a hydrocarbon radical of from about 3 to 6 carbon atoms which contains at least 1 ethylenically unsaturated bond, the remainder being resorcinol.

15. An article as defined in claim **14** in which the organic fiber is nylon.

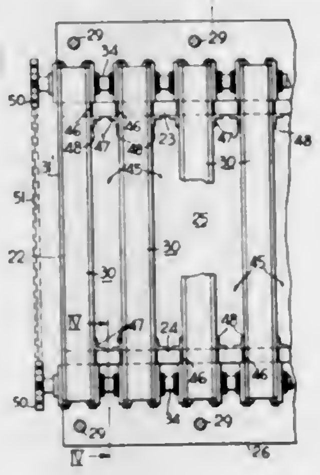
3,304,223
ELIMINATING HYDROGEN SULFIDE ODOR DURING THE PROCESS OF FORMING WET STRENGTH PAPER CONTAINING CEREAL XANTHATES

Donald H. Wheeler, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware
No Drawing. Filed Apr. 16, 1964, Ser. No. 360,415
4 Claims. (Cl. 162—175)

1. In a process of making paper from a pulp slurry which includes the incorporation in the pulp slurry of an alkali metal xanthate selected from the group consisting of xanthates of cereal starches, flour and bran and cross-linking said xanthate by means of an oxidizing agent selected from the group consisting of chlorine and hypochlorite prior to the formation of paper from said slurry which process normally results in the liberation of objectionable quantities of H_2S, the step of substantially eliminating the liberation of objectionable quantities of H_2S which comprises neutralizing the alkali used in forming the xanthate to an extent of from about 10 to 65% of said alkali by means of a strong mineral acid.

3,304,224
VANED PAPER MAKING MACHINE HEADBOX MANIFOLD HAVING ADJUSTABLE THICKNESS VANES

Donald R. Curtis, Appleton, Wis., assignor, by mesne assignments, to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 26, 1964, Ser. No. 378,254
8 Claims. (Cl. 162—343)

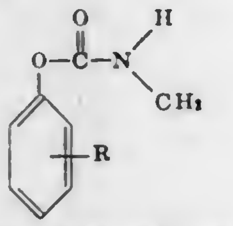


7. A fluid flow channeling assembly for a paper making machine headbox manifold and the like comprising a plurality of flat and straight vanes, a rod passing through said vanes, said rod being perpendicular to said vanes, said vanes also being spaced apart along said rod to define parallel fluid flow directing slots normal to said rod at least one of said vanes comprising a laminated pair of cooperating plates with an interposed matrix of a compressible material, and adjusting means connected to said rod and both of said plates for moving each cooperating plate toward and away from each other to compress and release compression of said matrix and thereby accordingly adjust the width of said slots adjacent said laminated vane.

3,304,225
PESTICIDAL METHODS AND COMPOSITIONS

Karoly Szabo, Orinda, and David J. Broadbent, San Jose, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 29, 1965, Ser. No. 491,444
12 Claims. (Cl. 167—30)

1. The method of killing insects comprising applying to an insect habitat an effective amount of a compound having the formula

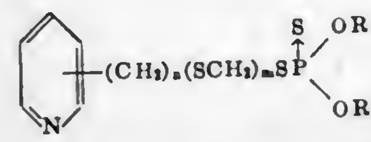


wherein R is a member selected from the group consisting of meta-oriented lower alkylthioalkoxy, para-oriented cyanomethyl, para-oriented cyanoethyl, 2,3-oriented ethylenedioxy, and 2,3-oriented lower alkyl ethylenedioxy.

3,304,226
PYRIDYL-PHOSPHORODITHIOIC ACID ESTERS AND METHODS OF KILLING PESTS

Peter F. Epstein, El Cerrito, and Mervin E. Brokke, Richmond, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 10, 1964, Ser. No. 381,927
4 Claims. (Cl. 167—33)

1. The method of killing pests selected from the group consisting of insects and acarids comprising applying to said pest habitat an effective amount of a compound of the formula



wherein R^1 and R^2 are lower alkoxy alkyl, *m* is an integer from 0 to 1 and *n* is an integer from 0 to 4, inclusive.

3,304,227
ANTIBIOTIC-CONTAINING ANIMAL FEED

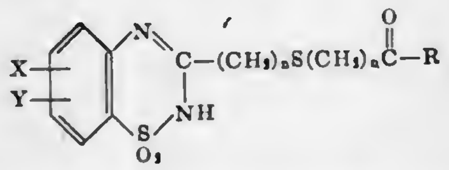
Loyal E. Loveless, 248 Rosemont, St. Louis, Mo. 63119
No Drawing. Continuation of application Ser. No. 218,553, Aug. 22, 1962. This application July 15, 1965, Ser. No. 472,361
4 Claims. (Cl. 167—53.1)

1. A method of augmenting animal blood concentration of antibiotics selected from the class consisting of 5-oxytetracycline and 7-chlorotetracycline which consists essentially in feeding birds about 75 mg. per kg. body weight of an antibiotic selected from the class consisting of 5-oxytetracycline and 7-chlorotetracycline in combination with about 400 mg. per kg. body weight of a benzene polycarboxylic acid of the class consisting of terepthalic acid, phthalic acid, 1,2,3-tricarboxybenzene, 1,2,4-tricarboxybenzene, 1,3,5-tricarboxybenzene, and 1,2,4,5-tetracarboxybenzene, and about 400 mg. per kg. body weight of surface active agents selected from the class consisting of dodecylbenzene sodium sulfonate, mixed acids derived from tallow condensed with ethylene oxide and mixed alcohols derived from tallow condensed with ethylene oxide.

3,304,228
DERIVATIVES OF 1,2,4-BENZOTHIADIAZINE-1,1-DIOXIDES

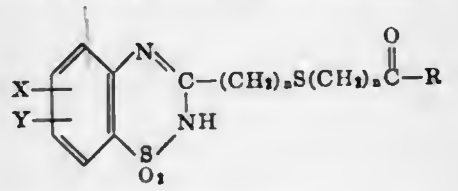
John G. Topliss, East Orange, N.J., assignor to Schering Corporation, Bloomfield, N.J., a corporation of New Jersey
No Drawing. Filed June 26, 1961, Ser. No. 119,320
11 Claims. (Cl. 167—65)

1. A compound of the formula:



and the tautomers and alkali metal salts thereof, wherein X represents halogen or trifluoromethyl located at one of the positions selected from the group consisting of the 6- and 7-positions, Y represents hydrogen, halogen, trifluoromethyl or methyl attached to one of the unsubstituted positions selected from the group consisting of the 6-, 7- and 8-positions, *n* represents an integer from one to three, and R represents a member of the group consisting of $—NH_2$, $—NHR_1$, $—NHNH_2$, and $NHNHR_1$ wherein R_1 is lower alkyl.

11. A method for lowering blood pressure in mammals which comprises administering a therapeutically effective dose of a compound of the formula:



and the tautomers and alkali metal salts thereof, wherein X represents halogen or trifluoromethyl located at one of the positions selected from the group consisting of the 6- and 7-positions, Y represents hydrogen, halogen, trifluoromethyl or methyl attached to one of the unsubstituted positions selected from the group consisting of the 6-, 7- and 8-positions, *n* represents an integer from one to three, and R represents a member of the group consisting of $—NH_2$, NHR_1, $NHNH_2$, and $NHNHR_1$, wherein R_1 is lower alkyl.

3,304,229
COMPOSITION CONTAINING LINCOMYCIN SALT

Barney J. Magerlein, Portage Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Mar. 4, 1963, Ser. No. 262,367
3 Claims. (Cl. 167—65)

1. A pharmaceutical preparation comprising: from about 100 to about 1000 mg. of a compound selected from the group consisting of lincomycin phenylsulfamate and lincomycin N-phenyl-N-alkyl-sulfamate in which the alkyl group contains 1 through 8 carbon atoms, dispersed in a pharmaceutical carrier.

3,304,230
LIQUID AEROSOL PROPELLANT SOLUTIONS OF FATTY ACID SALTS OF PHYSIOLOGICALLY ACTIVE AMINES

Bernard Abramson, White Plains, and Morris S. Herstein, Bronx, N.Y., assignors to Revlon, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 18, 1963, Ser. No. 259,406
10 Claims. (Cl. 167—82)

1. An aerosol composition consisting essentially of a solution of at least one salt of a physiologically active amine having a pK_a value of at least about 7.8 with a monocarboxylic fatty acid having 4–18 carbon atoms dissolved in a liquid propellant selected from the group consisting of liquefied petroleum gases and fluorinated, chlorinated, and fluorochlorinated saturated lower aliphatic hydrocarbons.

3,304,231
PROCESS OF CONTROLLING VIRAL ACTIVITY WITH PACTAMYCIN

Charles G. Smith, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Feb. 10, 1966, Ser. No. 526,349
5 Claims. (Cl. 167—65)

5. The method of controlling viral activity in growing plants which comprises applying to the plants an effective amount of pactamycin for viral inhibition.

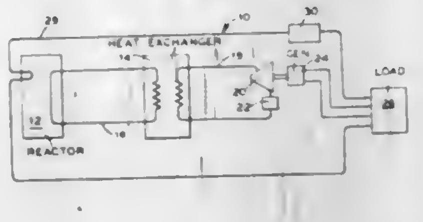
3,304,232
METHOD OF OPERATING A PULSED NUCLEAR REACTOR

Paul F. Schutt, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Sept. 12, 1963, Ser. No. 308,568
2 Claims. (Cl. 176—39)

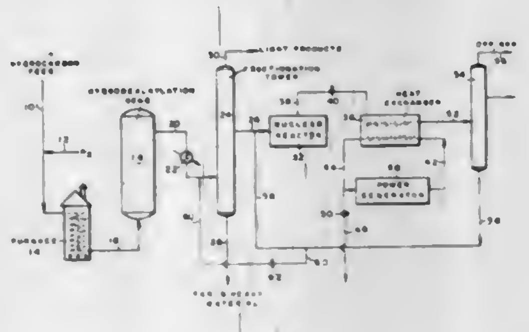
1. A nuclear reactor system comprising:
(A) a nuclear reactor,
(B) a core positioned within said reactor and containing sufficient nuclear fuel to sustain a fission chain reaction,
(C) control means for regulating the fission chain reaction,
(D) nuclear fueled thermionic elements arranged within said core for the direct conversion of heat generated in the fission reaction to electricity,
(E) means for the mechanical conversion of heat generated in the fission reaction into electricity,

(F) an electrical load connected to said thermionic elements and to said means for the mechanical conversion of heat to electricity, and

(G) means within said reactor in addition to said control means for rapid insertion of reactivity into said core whereby a sudden rise in temperature occurs in said core from the insertion of reactivity and results through said thermionic elements in a substantially instantaneous increase in electrical power.



3,304,233
METHOD OF COOLING A NUCLEAR REACTOR
Edward A. Kelso, Baytown, Tex., assignor, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware
Filed Oct. 3, 1963, Ser. No. 313,462
6 Claims. (Cl. 176—39)

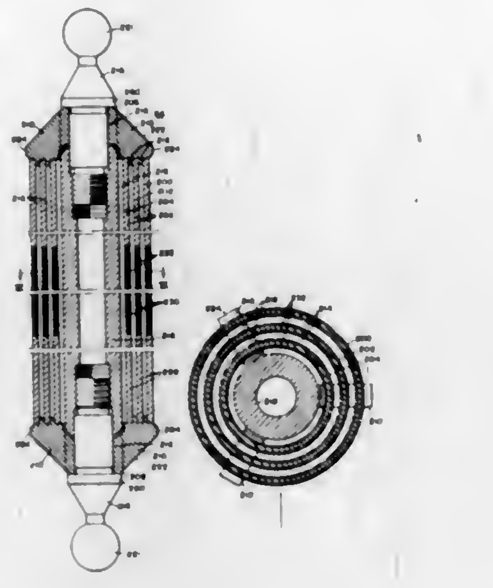


1. In the operation of a nuclear reactor, the improvement which comprises cooling said reactor by flowing a mixture of liquid hydrocarbons therethrough, said mixture of liquid hydrocarbons having been prepared by thermal hydrodealkylation of a petroleum feedstock at a temperature ranging from 1000° F. to 1500° F., a hydrogen to liquid hydrocarbon ratio ranging from 3000 s.c.f. per barrel of liquid hydrocarbons to 12,000 s.c.f. per barrel of liquid hydrocarbons, a pressure ranging from 400 p.s.i.g. to 1000 p.s.i.g. and for a period of time ranging from 20 seconds to 120 seconds.

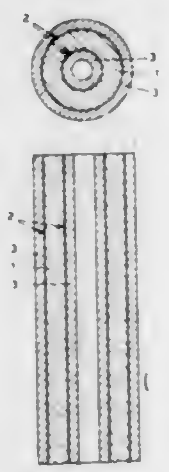
3,304,234
FUEL ELEMENT FOR NUCLEAR REACTORS
Erling Frisch, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Application Jan. 30, 1961, Ser. No. 85,877, now Patent No. 3,194,740, dated July 13, 1965, which is a continuation of application Ser. No. 610,821, Sept. 19, 1956. Divided and this application May 20, 1965, Ser. No. 457,362
10 Claims. (Cl. 176—76)

1. A nuclear fuel element for use within a nuclear reactor core comprising a plurality of concentrically nested tubes, a mass of nuclear fuel material forming part of each one of said tubes, and means for holding said tubes in laterally spaced relationship with one another.

4. A nuclear fuel element for use within a nuclear reactor core comprising an elongated member containing nuclear fuel material, at least one tube containing nuclear fuel material and surrounding said first member, and means for holding said tube in laterally spaced relationship with said first elongated member and forming at least one flow passage therebetween.



3,304,235
NUCLEAR FUEL ELEMENTS FORMED BY METALLIC URANIUM OR ITS ALLOYS LINED WITH MAGNESIUM OR ZIRCONIUM ALLOYS AND PROCESS OF LINING SAID ELEMENTS
Saverio Granata and Gian-Carlo Giacchetti, Milan, Italy, assignors to SNAM S.p.A., Milan, Italy, a company of Italy
Filed Dec. 15, 1964, Ser. No. 418,412
Claims priority, application Italy, Dec. 16, 1963, 682,916/63
7 Claims. (Cl. 176—82)



1. A fuel element of uranium or uranium alloys, lined with a lining consisting of magnesium or zirconium-based alloys or of zirconium, wherein a layer of titanium is interposed between the fuel element and the lining which is interdiffused both towards the fuel element and towards the lining.

2. Process of lining of fuel elements of metallic uranium or its alloys by means of a lining consisting of magnesium or zirconium base alloys or of zirconium comprising on the uranium or uranium alloy fuel element first applying a layer of titanium, and interdiffusing the titanium layer with the fuel element, and then applying the lining on the layer of titanium and effecting interdiffusion between the titanium and the lining.

3,304,236
PROCESS FOR THE MANUFACTURE OF DESACETYL-7-AMINO-CEPHALOSPORANIC ACID
Jakob Nuesch, Riehen, and Hans Bickel, Binningen, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 16, 1964, Ser. No. 411,592
Claims priority, application Switzerland, Nov. 19, 1963, 14,168/63; Sept. 17, 1964, 12,104/64
15 Claims. (Cl. 195—29)

1. Process for the manufacture of desacetyl-7-amino-cephalosporanic acid, wherein 7-amino-cephalosporanic acid is contacted, in aqueous medium, with an enzyme of a strain of microorganism selected from the group consisting of strains of the order Actinomycetales and *Bacillus subtilis* until substantially all of the 7-amino-cephalosporanic acid is desacetylated, and the desacetyl-7-amino-cephalsosporanic acid is separated in solid form from the aqueous medium.

3,304,237
METHOD OF PRODUCING 17β-HYDROXY-RETRO-STEROIDS WITH SPORORMIA SPECIES
Jan de Flines and Willem Frederik van der Waard, Delft, Netherlands, assignors, by mesne assignments, to Koninklijke Nederlandse Gist & Spiritusfabrieken, a corporation of the Netherlands
No Drawing. Filed Oct. 15, 1963, Ser. No. 316,472
Claims priority, application Netherlands, Oct. 16, 1962, 284,412
9 Claims. (Cl. 195—51)

1. A method of producing a 17α-H-17β-hydroxy-retro-steroid comprising aerobically subjecting a retro-steroid oxygenated at the C20 carbon atom and free from a 3-keto-$\Delta^{4,6}$ structure to the action of a microorganism selected from the group consisting of the developmental stages of the Sporormia species and the oxygenating enzyme systems thereof and recovering said 17α-H-17β-hydroxy-retro-steroid.

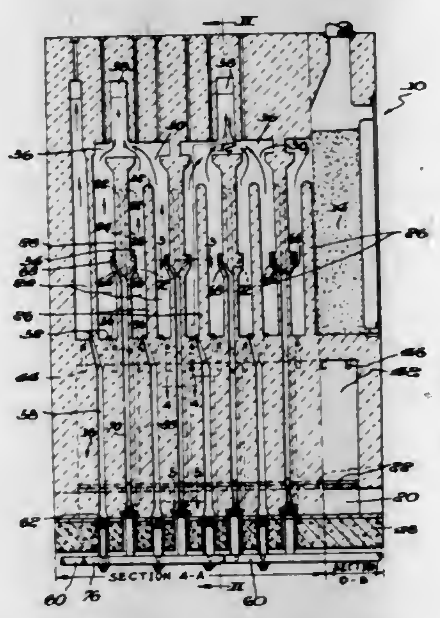
3,304,238
ENZYMIC MATERIAL AND METHOD OF PREPARING SAME
Louis Laufer and Sidney Gutcho, Bronx, N.Y., assignors to Schwarz Bio Research, Inc., Orangeburg, N.Y.
No Drawing. Original application Oct. 3, 1963, Ser. No. 313,433. Divided and this application Oct. 4, 1965, Ser. No. 492,875
10 Claims. (Cl. 195—52)

1. An aqueous enzymic medium capable of digesting ribonucleic acid to form primarily 5'-ribonucleotides comprising a dispersion of discrete rapidly proliferating substantially non-comminuted seed-parts selected from the group consisting of substantially seed-free germinating seed rootlets and substantially seed-free germinating seed stems in water, said mixture having been heated to from between about 70 to about 85° C. for from about 0.5 to about 7 minutes.

3,304,239
PROCESS AND AGENT FOR THE ENZYMATIC SPLITTING OF PEPTIDE BONDS
Herbert Zuber, Riehen, Switzerland, assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 11, 1964, Ser. No. 374,250
Claims priority, application Switzerland July 5, 1963, 8,423/63, 8,424/63; Sept. 16, 1963, 11,401/63, 11,402/63; Dec. 24, 1963, 15,941/63, 15,942/63; Jan. 24, 1964, 882/64, 883/64; May 25, 1964, 6,790/64
6 Claims. (Cl. 195—62)

1. Carboxypeptidase C-preparation obtained from the peels of citrus fruits said carboxypeptidase C being a carboxypeptidase that stepwise splits off, by enzymatic hydrolysis, L-α-amino acids including L-proline, but very slowly glycine, from the carboxyl end of a peptide chain in an aqueous solution at a pH about 4 to 6 and at a temperature of from about 30–40° C., said splitting proceeding up to the N-terminal amino acid when this amino acid has a protected α-amino group and to the amino acid adjacent to the N-terminal amino acid, when the α-amino group of the peptide chain is not protected, said hydrolysis being inhibited by a member selected from the group consisting of phenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, phenylacetic acid, phenylpropionic acid, indolylacetic acid, phosphate ions and iron (II) ions, but not inhibited by a member selected from the group consisting of ethylenediamine tetraacetic acid disodium salt, ortho-phenathroline, diisopropylfluorophosphate, citrate ions, and oxalate ions.

3,304,240
HIGH CHAMBERED COKE OVEN STRUCTURE
Joseph van Ackeren, Pittsburgh, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
Filed Aug. 31, 1964, Ser. No. 393,125
9 Claims. (Cl. 202—135)



1. In a high chambered horizontal coking retort oven a combination of heating elements therefor to provide uniform heating for the coking chambers comprising,

a plurality of heating walls on opposite sides of said coking chambers,

said heating walls having transversely extending partition walls forming a plurality of combustion flues,

said combustion flues having a base portion and high level and low level burners,

each pair of said flues having a common partition wall with laterally flared portions adjacent the upper end of said common partition wall,

said common partition wall having a first opening therein spaced upwardly from said flue base portion and forming a gas port for said high level burner,

a source of fuel gas located below said flue base portion,

a fuel gas supply passageway in said common partition wall connecting said source of fuel gas and said first opening, said passageways arranged to conduct fuel gas from said source to said high level gas port,

said common partition wall having a second opening therein spaced above said first opening and below said common partition wall laterally flared portions and forming an inlet opening for combustion gas, and

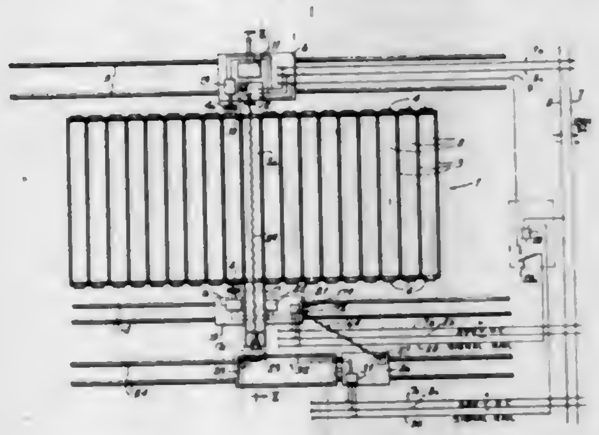
a combustion gas passageway in said common partition wall connecting said second opening with said fuel gas supply passageway adjacent said source of fuel gas, said combustion gas passageway arranged to conduct a portion of the gaseous products of combustion from said flue to said fuel gas supply passageway for intermixing with said fuel gas as an inert diluent gas.

3,304,241
SAFETY CONTROL APPARATUS FOR COKE OVEN BATTERIES

Thomas J. Radcliffe, Warrensville Heights, Daniel M. McElhaney, Euclid, and Daniel F. Havel, Cleveland, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey

Filed Sept. 12, 1961, Ser. No. 137,588

9 Claims. (Cl. 202—262)



1. Interlocking control apparatus for a coke oven battery, comprising:
- (a) a pusher car movable along one side of the battery;
- (b) a pusher on the pusher car movable into an oven to expel coke therefrom on the opposite side of the battery from the pusher car;
- (c) a coke guide car movable along said opposite side of the battery;
- (d) a coke guide on the guide car;
- (e) quench car means including a quench car adapted to receive hot coke and movable along a path alongside the path of the coke guide car and on the opposite side thereof from the battery;
- (f) a discharge door on said quench car, said door being openable to discharge coke therefrom;
- (g) interlocking means responsive to the discharge door only in its closed position, and to alignment of the pusher, the coke guide and the quench car with the same oven, and effective to inhibit movement of the pusher into an oven until:
  - (1) the pusher and the coke guide are aligned with that oven;
  - (2) the quench car is aligned with the coke guide; and
  - (3) the discharge door on the quench car is closed.

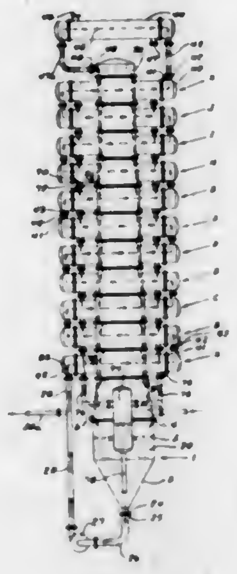
3,304,242
MULTI-STAGE FLASH EVAPORATORS

Carl Johan Lockman, Rindogatan 14, Stockholm, Sweden

Filed Nov. 19, 1965, Ser. No. 514,746

5 Claims. (Cl. 202—173)

1. A multi-stage flash type evaporator which comprises a plurality of units, each of said units including a vapor body and an indirect heat exchanger extending through said vapor body, the vapor space within said vapor bodies being bounded by a substantially cylindrical side wall, a top, and a bottom, said units being mounted one on top of the other in the form of a column, the bottom of one vapor body forming the top of the next vapor body, each of said heat exchangers having a shell, each shell having an opening in its upper portion thereof opening into the vapor space, means including an enclosure surrounding the vapor body for the passage of liquid to be flash evaporated from one unit to the next lower unit down through the column, each of said heat exchangers having means providing channels with indirect heating surfaces isolated from and located in the space within said shell, means connecting the channels of successive heat exchangers in series, and means to circulate liquid to be evaporated through the series connected channels of the heat exchangers in the direction from the bottom to the top of the column and thereafter through successive vapor bodies of the units in the direction from the top to the bottom of the column, said openings in said shells providing for the passage of flash vapors directly from the vapor space inside the vapor bodies into their respective heat exchangers and into indirect heat exchange relationship with liquor to be heated in said heat exchangers.

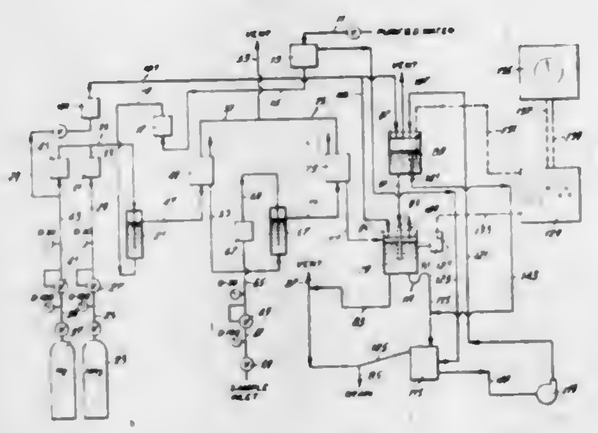


3,304,243
CONTINUOUS POLAROGRAPHIC ANALYSIS FOR LOW HYDROGEN SULFIDE CONCENTRATIONS

Italo A. Capuano, Orange, Conn., assignor to Union Carbide Corporation, a corporation of New York

Filed Aug. 8, 1963, Ser. No. 300,821

6 Claims. (Cl. 204—1)



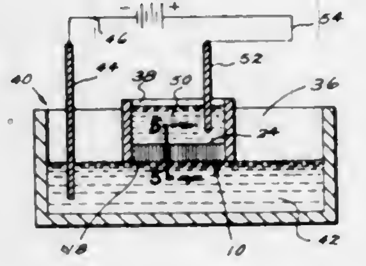
1. A method for continuous qualitative and quantitative determination of concentrations of hydrogen sulfide in multicomponent mixtures which method comprises the steps of reacting substantially pure water with anhydrous ammonia to produce a solution of ammonium hydroxide; passing a stream of multicomponent mixture containing hydrogen sulfide continuously through said ammonium hydroxide solution to produce a solution of ammonium sulfide; continuously passing a stream of said ammonium sulfide solution through a measuring cell portion of a polarographic analyzer apparatus; concurrently continually dropping liquid mercury drops from a dropping mercury electrode arranged in said measuring cell portion and disposed in the ammonium sulfide solution passing therethrough; maintaining an applied electric voltage between the dropping mercury electrode and a reference electrode disposed in a reference cell portion of said polarographic analyzer; developing a continuous signal representative of voltage-diffusion current relationship obtaining between the dropping mercury and the reference electrodes; and translating said signal into a continuous sensible indication proportional to the sulfide ion concentration of the ammonium sulfide solution passing through the mercury cell portion of the polarographic analyzer apparatus, said sensible indication being also proportional to and representative of the concentration of hydrogen sulfide present in the stream of multicomponent mixture being analyzed.

3,304,244
METHOD OF SEALING FIBER OPTIC PLATES

George A. Granitsas, Marlboro, Mass., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts

Filed Oct. 30, 1963, Ser. No. 320,134

3 Claims. (Cl. 204—20)



1. The method of sealing porosities in a fiber optic plate which comprises the steps of positioning one face of said plate in surface-to-surface contact with the cathode of an electrolytic cell, placing a metal salt in solution against the opposite face of said plate, causing an electric current to pass through said solution and porosities in said plate toward said cathode and cause respective metal cations of said salt to move into said porosities by attraction to said cathode and become precipitated therein whereby such precipitate will form a seal in said porosities.

3,304,245
METHOD OF MAKING GALVANNEALED FERROUS METAL OF IMPROVED SOLDERABILITY

Lawrence E. Helwig, Glenshaw, Pa., assignor to United States Steel Corporation, a corporation of Delaware

No Drawing. Filed Aug. 20, 1964, Ser. No. 390,993

3 Claims. (Cl. 204—35)

1. A method of making galvannealing ferrous metal of improved solderability comprising galvanizing a ferrous metal base with an aluminum-containing spelter to provide a coating of zinc thereon, galvannealing said galvanized ferrous metal base by heating to substantially completely alloy said coating with said base and cathodically treating said coating surface in an aqueous electrolyte of the character which will not attack said coating by passing at least 1000 coulombs/ft.^{2} of electricity through said surface whereby galvannealed ferrous metal of improved solderability is produced.

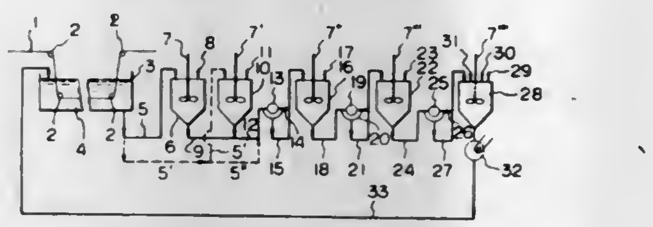
3,304,246
METHOD OF ELECTROLYTICALLY DESCALING STEEL INCLUDING SELECTIVE RECOVERY OF DISSOLVED SCALE PRODUCTS

Saburo Fukui, Hiroshima-shi, Masato Yamamoto, Asa-gun, and Kozo Tao and Shigeo Hasegawa, Hiroshima-shi, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1964, Ser. No. 418,685

Claims priority, application Japan, Dec. 26, 1963, 38/69,775

7 Claims. (Cl. 204—145)



1. In a method of electrolytically descaling nickel and chromium containing steel, wherein the electrolysis is carried out in an electrolytic bath of an aqueous solution consisting essentially of
- (1) at least about 2 percent by weight of at least one salt selected from the group consisting of the sodium and potassium salts of sulfuric acid and nitric acid; and
- (2) not more than about 10 percent by weight of an organic substance capable of forming complex ions with iron, chromium and nickel,

the step of recovering iron, nickel and chromium dissolved in the electrolyte during the electrolysis by first precipitating the iron in the form of its hydroxide at a pH of about 3 to 5 and removing the iron hydroxide from the bath, then precipitating the chromium in the form of its hydroxide at a pH of about 5 to 6 and removing the chromium hydroxide from the bath, and thereafter precipitating the nickel in the form of its hydroxide at a pH of about 6 to 8 and removing the nickel hydroxide from the bath.

3,304,247
PREPARATION OF ISOPROPANOL-ACETYLENIC ADDITION PRODUCTS

Joseph K. Hoffman, Morristown, N.J., assignor, by mesne assignments, to Cumberland Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Original application Sept. 12, 1960, Ser. No. 55,164. Divided and this application Feb. 8, 1966, Ser. No. 525,834

8 Claims. (Cl. 204—158)

1. A process for preparing isopropanol-acetylenic addition products which comprises reacting isopropanol with an acetylenic compound selected from the group consisting of acetylene, dialkyl acetylene, phenyl acetylene and 2-methyl-3-butyn-2-ol at a temperature of from about 30° C. to about 80° C., for about 1 to 5 hours, in the presence of an ultraviolet radiation photosensitizer, exposing the reaction mixture to ultraviolet radiation to produce a reaction product mixture containing addition products of isopropanol and said acetylenic compound and removing said unreacted products from said product mixture.

3,304,248
PROCESS FOR THE PRODUCTION OF NITROGEN FLUORIDES

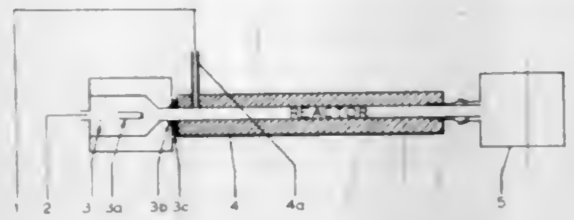
Harold T. Fullam, Oakland, and Haig Vernon Seklemian, Covina, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

Filed July 24, 1963, Ser. No. 297,255

3 Claims. (Cl. 204—178)

1. A process for preparing a compound of the group consisting of dinitrogen tetrafluoride and nitrogen trifluoride which comprises contacting elemental fluorine

gas with a nitrogen plasma at a temperature of at least 1000° C. for a contact period of 0.01–10.0 seconds and



cooling the resulting gaseous reaction product to a temperature below 25° C. within a maximum of $\frac{1}{20}$ second.

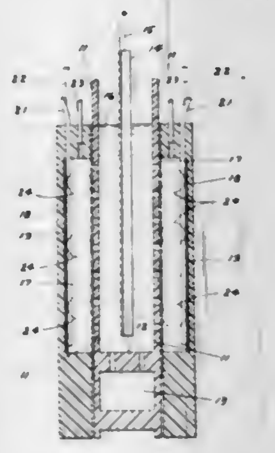
3,304,249
METHOD OF STABILIZING A FLUIDIZED BED USING A GLOW DISCHARGE

Herbert Katz, Port Jefferson, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed Feb. 28, 1964, Ser. No. 348,920
4 Claims. (Cl. 204—164)

1. A process for producing stabilized fluidized beds in a vessel having a fluidized bed made up of particulate solids, which solids have a moderate surface electroconductivity and are fluidized in the vessel by a gaseous fluidizing medium having a sufficiently high ionization potential to provide a corona discharge without arcing comprising applying a high voltage to at least a portion of the bed in an amount sufficient to cause a corona discharge in said fluidized bed.

3,304,250
CONTINUOUS ELECTROCOATING PROCESS UTILIZING ELECTRODIALYSIS TO CONTROL THE BATH COMPOSITION

Allan E. Gilchrist, Fairview Park, Ohio, assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Mar. 17, 1965, Ser. No. 440,583
11 Claims. (Cl. 204—181)

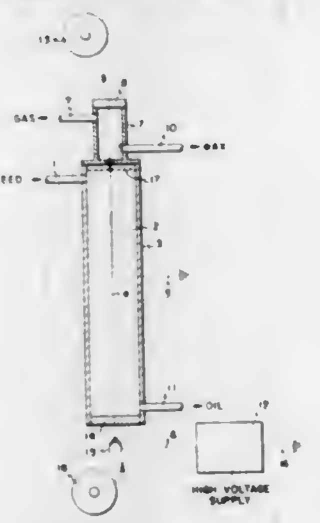


1. In a continuous method of electrocoating wherein electrically conductive objects are passed through an aqueous coating bath comprising a dispersion of
   - (a) a first component consisting of a synthetic organic resin having within its molecular structure prior to dispersion functional groups which undergo chemical change in contact with water and the hereinafter recited second component creating ionic sites upon said resin and altering the pH of said bath, and
   - (b) a second component consisting of a water soluble and water ionizable resin dispersal assistant in an amount which at least partially neutralizes said resin,

and having a first electrode in electrical communication therewith, each of said objects while passing through said bath serving as a second electrode, a difference of electrical potential is provided between said first electrode and said second electrode causing a direct current flow of electrical energy through said bath between said first electrode and said second electrode which electrically induces deposition of said resin upon said second electrode while resin dispersal assistant is liberated in said bath, said resin is thereby removed from said dispersion at a substantially higher rate than said resin dispersal assistant, and water ionizable resin dispersal assistant is added to said bath with replenishment resin at a rate greater than said dispersal assistant is removed by said method of electrocoating, the improvement wherein a dialysis membrane permeable to water and water soluble resin dispersal assistant material within said bath and substantially impermeable to said resin is interposed between said first electrode and said second electrode forming a coating zone containing the aforesaid resin dispersion and a substantially resin free second zone, ionized dispersal assistant is electrodialyzed through said membrane into said second zone, the concentration of titratable resin dispersal assistant in said coating zone is established and maintained at a level not substantially above about 2% by weight of said bath in said coating zone, and the aqueous material in said second zone is withdrawn from said zone.

3,304,251
SEPARATION OF WAX FROM AN OIL DISPERSION USING A NON-UNIFORM ELECTRIC FIELD

Jack Walker and Donald W. Murray, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Mar. 14, 1962, Ser. No. 179,734
13 Claims. (Cl. 204—184)



1. A process of separating precipitated wax particles from a dispersion of said particles in a liquid diluent comprising contacting the dispersion with a non-uniform electrical field comprising a moving wire high voltage electrode, said wax particles migrating and adhering to the moving wire electrode by virtue of the applied non-uniform field and being removed from the contacting zone.

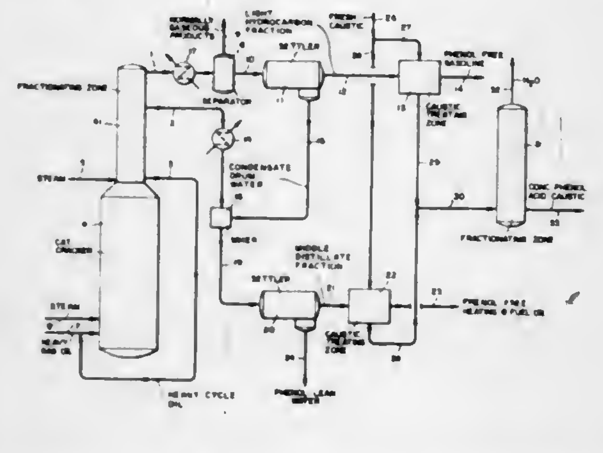
3,304,252
METHOD OF PREVENTING ADHESION OF PITCH TO COOLING SLAB

Stephen Gobla and William T. Tate, Gary, Ind., assignors to United States Steel Corporation, a corporation of Delaware
Filed Nov. 13, 1963, Ser. No. 323,479
2 Claims. (Cl. 208—39)

1. A method of solidifying molten pitch which comprises providing a layer of cooling water on a slab to a predetermined depth or at least about one-half inch, then pouring molten pitch onto said slab to provide a layer of solidified pitch having a depth approximating the depth of said water layer, then pouring additional molten pitch onto said solidified pitch layer, the thickness of said solidified pitch layer being such that the additional molten pitch will not remelt it to said slab, and cooling the additional molten pitch to solidify the same.

3,304,253
RECOVERY OF PHENOLIC MATERIALS

William L. Lewis, Baton Rouge, La., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Dec. 14, 1962, Ser. No. 244,812
11 Claims. (Cl. 208—97)



1. A process comprising the steps of catalytically cracking a petroleum oil containing phenolic materials, distilling the products of said cracking in contact with steam in a fractionation zone to separate and recover a light boiling fraction, an intermediate boiling fraction, and a heavy fraction, cooling and condensing said light fraction, separating said light fraction into an oil phase saturated with phenolic materials and an aqueous phase saturated with phenolic materials; withdrawing said aqueous phase from said oil phase and contacting said aqueous phase with said intermediate fraction to selectively extract phenolic materials from said aqueous phase, allowing said aqueous phase and said intermediate fraction to separate; withdrawing an aqueous phase therefrom substantially free of phenolic materials and withdrawing an oil phase therefrom substantially increased in phenolic materials.

3,304,254
CATALYTIC HYDROCRACKING WITH A PHYSICAL MIXTURE OF A CRYSTALLINE ALUMINOSILICATE AND A POROUS SUPPORT CONTAINING A HYDROGENATION COMPONENT

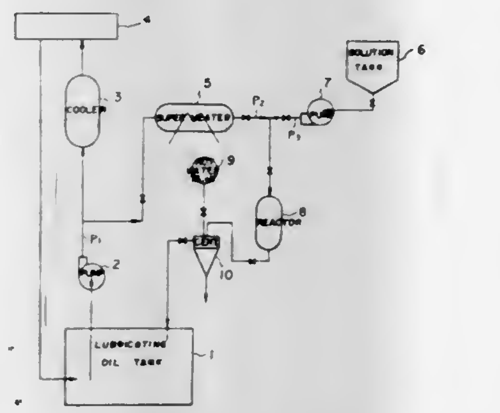
Sylvander C. Eastwood, Woodbury, N.J., Richard J. Kelly, Morrisville, Pa., and Stephen J. Wantuck, Cherry Hill, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Jan. 21, 1965, Ser. No. 427,133
The portion of the term of the patent subsequent to Mar. 16, 1982, has been disclaimed
35 Claims. (Cl. 208—111)

1. A hydrocracking catalyst composite consisting essentially of a physical particle-form mixture of two components:
   - (1) a crystalline aluminosilicate component, having a sodium content of less than 4 percent by weight; and
   - (2) a hydrogenation component comprising a predominant proportion of a porous support, other than a crystalline aluminosilicate, and a minor proportion of at least one constituent exhibiting hydrogenation activity.

18. A process for converting a hydrocarbon charge which comprises contacting the same in the presence of hydrogen with a hydrocracking catalyst composite consisting essentially of a physical particle-form mixture of two components:
   - (1) a crystalline aluminosilicate component having a sodium content of less than 4 percent by weight; and
   - (2) a hydrogenation component comprising between about 15 and 40 percent by weight silica, 4 and 30 percent of at least one constituent exhibiting hydrogenation activity and the remainder alumina.

3,304,255
METHOD FOR CONTINUOUS REMOVAL OF CONTAMINANTS FROM LUBRICATING OIL AND APPARATUS THEREFOR

Kibei Katsuta, Akito Nakagawa, and Hideto Mitsutake, Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 21, 1964, Ser. No. 405,509
Claims priority, application Japan, Oct. 23, 1963, 38/56,081
7 Claims. (Cl. 208—179)



1. A method for continuous removal of deteriorated and contaminative components of lubricating oil which comprises continuously adding to the lubricating oil an aqueous solution of less than about 20% of caustic alkali, thereby to increase the particle size of the deteriorated and contaminative components in the oil by cohesion, the alkali being added in an amount of 0.1 to 1.5 kg. per ton of oil, and thereafter separating and removing the thusly enlarged deteriorated and contaminative components.

3,304,256
SPARKING COMPOSITION

Leandro W. Tomarkin, Spring Valley, N.Y.
(P.O. Box 393, Monsey, N.Y. 10952)
No Drawing. Filed Oct. 30, 1963, Ser. No. 320,000
11 Claims. (Cl. 252—1)

1. A composition for producing visible sparks upon being subjected to frictional action, said composition consisting essentially of a mixture of a minor proportion of powdered triboluminescent phosphor and a major proportion of glass beads.

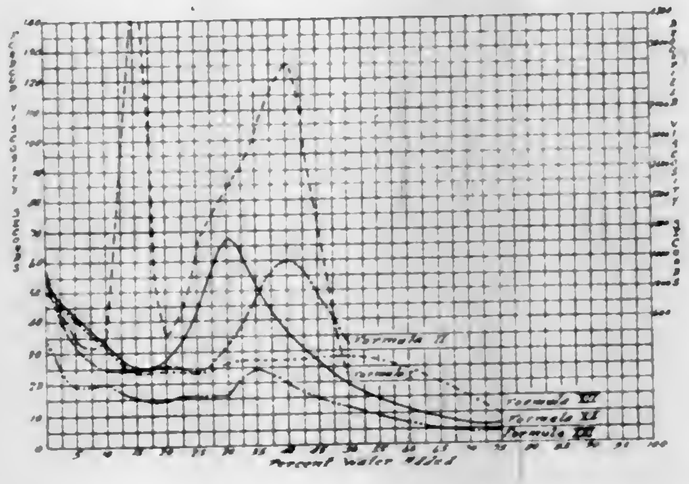
3,304,257
LUBRICANTS

Wilhelm Schanzer, Munich, Germany, assignor to Molykote Produktions G.m.b.H., Munich, Germany
No Drawing. Filed July 19, 1965, Ser. No. 473,190
Claims priority, application Germany, July 22, 1964, M 61,844
6 Claims. (Cl. 252—25)

1. A lubricating composition containing at least 1 percent by weight of an aluminum salt of an acid selected from the group consisting of phosphoric and phosphorous acids.

3,304,258
DRAWING COMPOUND AND METHOD

James E. White, Dearborn Heights, and Richard J. Cuff, Birmingham, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Oct. 29, 1964, Ser. No. 414,485
19 Claims. (Cl. 252—33.6)



1. A wet drawing compound for sheet metal usable wet during all working operations thereon, consisting essentially of an admixture of the following ingredients in percent by weight of the compound:

15 to 75% water soluble soap and mixtures of soaps selected from the group consisting of sodium, potassium and amine rosin soaps, sodium and potassium soaps of fats and fatty acids whose titre does not exceed 30° C. and amine soaps of fatty acids whose titre does not exceed 30° C.;
0 to 15% organic fluid and mixtures of organic fluids selected from the group consisting of dimethyl sulfoxide, glycols, and ethers of glycols;
0 to 12% water; and the remainder at least about 14% of
oil and mixtures of oils selected from the group consisting of aliphatic type oils, naphthenic type oils, aromatic type oils, pure paraffin oils, fatty oils, chlorinated aliphatic, naphthenic, aromatic, and fatty oils and chlorinated paraffins,
said water soluble soap containing at least about 10% by weight of the composition of the soap of rosin soap and said oil not including more than 50% by weight thereof of aromatic type oil.

3,304,259
ORGANOPOLYSILOXANE GREASES

John H. Wright, Elnora, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,157
14 Claims. (Cl. 252—49.6)

1. An organopolysiloxane grease composition comprising at least one organopolysiloxane base fluid selected from the class consisting of a first organopolysiloxane fluid having the formula:

$$R_eSiO_{4-e/2}$$

a second organopolysiloxane fluid having the formula:

$$R_nH_mSiO_{4-n-m/2}$$

and a third organopolysiloxane fluid having the formula:

$$R_pVi_qSiO_{4-p-q/2}$$

and a filler formed by the addition of the SiH groups of said second organopolysiloxane fluid across the silicon-bonded vinyl groups of said third organopolysiloxane fluid, the filler being an organopolysiloxane material having silethylene linkages; where R is a group selected from the class consisting of alkyl radicals, aryl radicals, substituted alkyl radicals and substituted aryl radicals; *e* is from 1.98 to 2.5; *m* is from 0.015 to 1.0, and the sum of *n* and *m* is from 2.0 to 2.35; *q* is from 0.015 to 1.0, and the sum of *p* and *q* is from 2.0 to 2.3; there being at least 6×10^{-3} gm.-moles of potential silethylene linkages per 100 grams of grease, said filler being present in said grease in an amount, by weight, of from 15% to 60%.

3,304,260
COMPOSITIONS OF IMPROVED VISCOSITY INDEX CONTAINING ALKYL POLYMETHACRYLATE OF HIGH RELATIVE SYNDIOTACTICITY

Joseph E. Fields and Edward H. Mottus, both of Dayton, Ohio, assignors to Monsanto Company, a corporation of Delaware
Original application Dec. 30, 1960, Ser. No. 79,671, now Patent No. 3,252,949, dated May 24, 1966. Divided and this application July 28, 1965, Ser. No. 510,413
11 Claims. (Cl. 252—51.5)

11. A mineral oil composition having high viscosity index characteristics and dispersant properties comprising a major amount of mineral oil and at least 0.1% by weight based on said oil of an oil-soluble polymer having a relative syndiotacticity of at least 87 comprising a major amount of mixture of C_{10}—C_{18} straight-chain alkyl methacrylates, a minor amount of methyl methacrylate and a minor amount of N-vinyl-2-pyrrolidone.

3,304,261
MINERAL LUBRICATING OIL COMPOSITIONS CONTAINING TERPOLYMER VISCOSITY INDEX IMPROVERS

Stephan Ilnyckyj, Islington, Ontario, and George A. Holder, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Jan. 24, 1966, Ser. No. 522,341
5 Claims. (Cl. 252—56)

1. A lubricating oil composition comprising a mineral lubricating oil and a viscosity index improving amount of a terpolymer formed from ethylene, an unsaturated aliphatic monocarboxylic acid ester of from 4 to 20 carbon atoms per molecule, and at least one unsaturated dicarboxylic acid diester of a saturated monohydric primary alcohol containing in the range of 8 to 18 carbon atoms per molecule and of an acid selected from the group consisting of alpha-beta unsaturated dicarboxylic acids and their anhydrides.

3,304,262
CLEANSING COMPOSITION AND METHOD OF MANUFACTURE THEREOF

Garland George Corey, Milltown, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 1, 1964, Ser. No. 371,752
5 Claims. (Cl. 252—122)

1. A stable gelated oil-in-water emulsion cleansing composition consisting essentially of by weight of the composition about 20% to about 50% of odorless mineral spirits, about 40% to about 60% of water, about 5% to about 15% of a condensate of an aliphatic alcohol with about 4 to 12 mols of ethylene oxide, said aliphatic alcohol containing from about 12 to 20 carbon atoms, about 0.1% to about 10% of a hydrophilic-hydrophobic polyoxyalkylene polyoxypropylene glycol of the formula

$$HO(C_2H_4O)_m(C_3H_6O)_n(C_2H_4O)_m.H$$

in which *m* and *n* are numbers whose value is such that the molecular weight of the group $(C_3H_6O)_n$ is from the range of 1,750 to 3,500 and $(C_2H_4O)_m$ equals 20% to 50% of the total weight of the compound and about 3% to 14% of higher fatty acid calculated as soap sufficient to gel the ingredients, said ingredients being proportioned to form a stable gelated oil-in-water emulsion having a pH from about 7 to about 9.

3,304,263
PHOSPHINE OXIDE DETERGENT COMPOSITION

John Thomas Yoke III, Tucson, Ariz., and Robert G. Laughlin, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Original application Feb. 16, 1962, Ser. No. 173,834. Divided and this application Sept. 18, 1963, Ser. No. 309,841
9 Claims. (Cl. 252—132)

1. A detergent composition consisting essentially of a tertiary phosphine oxide detergent compound having the formula RR′R″P→O, wherein R is selected from the group consisting of alkyl, alkenyl and monohydroxyalkyl radicals ranging in chain length from 10 to 18 carbon atoms, R′ and R″ are each selected from the group consisting of alkyl and monohydroxyalkyl radicals containing from 1 to 3 carbon atoms and a material selected from the group consisting of anionic organic detergents nonionic organic detergents, water-soluble inorganic alkaline builder salts, organic alkaline sequestrant builder salts and mixtures thereof, the ratio of said phosphine oxide detergent compound to said material ranging from about 4:1 to about 1:20.

3,304,264
PROCESS OF CLEANING THE WINDSHIELD

Carl O. Durbin, Orchard Lake, and Gert G. Levy, Detroit, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
No Drawing. Filed Nov. 9, 1964, Ser. No. 409,948
2 Claims. (Cl. 252—153)

1. In the process of cleaning the windshield of an automotive vehicle equipped with windshield washing apparatus including spray means for applying a liquid cleaning composition to the windshield and wiper blades for wiping the composition and road film and foreign matter suspended therein from the windshield to produce a clear windshield, the improvement comprising spraying the surface of the windshield with a liquid cleaning composition consisting essentially of ammonium salt selected from the group consisting of ammonium salts of sulfate esters of nonylphenol polyethylene glycol ether having between about 2 to 9 moles of ethylene oxide and mixtures thereof, monohydric alcohol containing between 1 to 3 carbon atoms and water, said ingredients being present in the proportion of about 12 to 264 parts by weight of alcohol to each part by weight of ammonium salt and about 19 to 702 parts by volume of water to each 26 parts by volume of combined alcohol and salt, whereby to dissolve road film on said windshield and suspend any foreign matter thereon in said cleaning composition and causing said blades to wipe said foreign matter and cleaning composition from the windshield all whereby to produce a clear windshield without icing or leaving objectionable fog-forming film on the same and without harmfully affecting the body paint of said vehicle contacted during said cleaning operation and upon remaining on said paint after said operations are completed.

3,304,265
VAPOUR PHASE OXIDATION

Arthur Wallace Evans, Nunthorpe, and Kenneth Arkless, Egglescliffe, England, assignors to British Titan Products Company Limited, Billingham, England, a corporation of Great Britain
No Drawing. Continuation of application Ser. No. 274,939, Apr. 23, 1963, now Patent No. 3,228,887, dated Jan. 11, 1966. This application Mar. 10, 1965, Ser. No. 438,762
5 Claims. (Cl. 252—301.1)

1. Particles for use in a fluidized bed of a TiO_2 vapour phase oxidation process comprising a member selected from the group consisting of silica, zircon, alumina, zirconia, titanium oxide, and mixtures thereof, said member containing a theoretical concentration of 0.01 to 5 percent by weight thorium.

2. A method of producing fluid bed particles containing thorium for use in a fluidized bed process for the production of titanium dioxide by the vapor phase oxidation of a titanium tetrahalide selected from the group consisting of $TiCl_4$, $TiBr_4$ and TiI_4 which comprises slurrying particulate material selected from the group consisting of silica, zirconia, alumina, zircon, titanium dioxide, and mixtures thereof with a solution containing a source of thorium, and drying the resulting slurry such that the dry particulate material contains 0.01 to 5 percent by weight of the thorium source.

3,304,266
FOAM CONTROL AGENTS

Robert E. Sullivan, Bay City, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed May 6, 1963, Ser. No. 278,428
13 Claims. (Cl. 252—358)

1. A foam control agent consisting essentially of a mixture of 1 to 10 percent by weight of silica having a surface area of at least 50 square meters per gram and a water insoluble polyalkylene glycol, said agent having been prepared by heating the mixture at a temperature of at least 100° C. while subjecting the mixture to a shearing action whereby an improved foam control agent was obtained.

3,304,267
METHOD OF INHIBITING RUST AND CORROSION IN A FUEL OIL TANK

Leo D. Miller, 33 Claudet Way, Eastchester, N.Y. 10709
No Drawing. Continuation of application Ser. No. 861,185, Dec. 22, 1959. This application Apr. 13, 1964, Ser. No. 361,322
1 Claim. (Cl. 252—389)

The method of inhibiting rust and corrosion in a fuel oil tank having a bottom, sides, ends and a top, which in normal operation thereof has fuel oil periodically withdrawn and admitted to maintain a reservoir of oil in said tank, and wherein an aqueous layer containing water-soluble corrosive impurities, collects in a layer underlying oil in said tank, said method comprising: introducing into said tank a solid body consisting essentially of sodium metasilicate as a binder, in amount from 5–15% by weight, a substantially water-soluble rust and corrosion inhibiting alkaline salt, selected from the group consisting of sodium nitrite, sodium citrate, sodium carbonate, sodium bicarbonate, sodium chromate, sodium phosphate, lithium citrate, lithium carbonate, lithium bicarbonate, in amounts from 75–85 percent by weight, and an alkyl phenyl ether of polyethylene oxide and phenol water-in-oil emulsifying agent in amount from 5–15% by weight, said solid body being sufficiently heavier than oil to sink through the oil into said aqueous layer, said alkaline salt dissolving in said aqueous layer, said water-in-oil dispersant causing said aqueous layer together with said water-soluble impurities and said therein dissolved inhibitor to disperse in said oil, whereby said inhibitor becomes distributed to portions of said tank normally subject to rust and corrosion, and said corrosive materials dispersed in said oil are withdrawn from said tank together with said oil during the normal operation thereof.

3,304,268
METHOD OF PREPARING A SUPPORTED COPPER OXIDE CATALYST COMPOSITION

George R. Lester, Mount Prospect, and Cecelia J. Adams, Chicago, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Sept. 20, 1965, Ser. No. 488,815
11 Claims. (Cl. 252—475)

1. A method of preparing a catalyst which comprises contacting an oxide of a metal selected from a group con-

sisting of magnesium, calcium, and zinc with an aqueous solution of a cuprihydroxycarboxylate of a metal selected from the group consisting of alkali metals and alkaline earth metals, the concentration of said cuprihydroxycarboxylate, in said solution being such that the final catalyst composite has the hereinafter recited composition, sorbing said cuprihydroxycarboxylate on said oxide, drying and calcining the resulting composite and forming a final catalyst composite comprising an oxide of a metal selected from the group consisting of magnesium, calcium, and zinc, and from about 0.1 wt. percent to about 15 wt. percent copper as copper oxide.

3,304,269

PRODUCTION OF POLYMERS OF EPOXIDE COMPOUNDS USING CATALYTIC PRODUCT OF GROUP VIII METAL CARBONYL WITH AN ALKYL ALUMINUM COMPOUND

Wolfram R. Kroll, Linden, and Alberto Malatesta, Roselle, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed July 22, 1963, Ser. No. 296,859

6 Claims. (Cl. 260—2)

1. A process for polymerizing an alkylene oxide compound containing an oxirane group which comprises:

(a) contacting said alkylene oxide compound with a catalyst in the ratio of about 1 to 20 grams of catalyst per 100 grams of alkylene oxide compound, said catalyst comprising the reaction product of
  (1) a Group VIII metal carbonyl compound, with
  (2) an alkyl aluminum compound, the mole ratio of metal carbonyl to alkyl aluminum being in the range of .05 to 1 and
(b) recovering the solid polymer product.

3,304,270

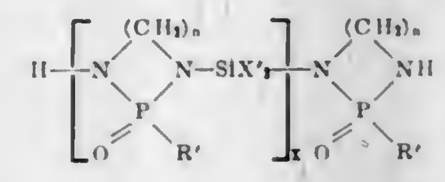
POLYMERS OF HEXAHYDRODIAZAPHOSPHORINES OR DIAZAPHOSPHOLIDINES AND SILANES

Richard T. Dickerson, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 21, 1964, Ser. No. 398,083

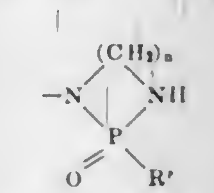
19 Claims. (Cl. 260—2)

1. A polymer consisting essentially of a structure having the formula



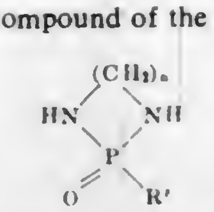
wherein

R′ is a radical selected from the class consisting of NR″$_2$, OR″ and R″;
R″ is a hydrocarbon radical having no more than 20 carbon atoms therein selected from the class consisting of aliphatic, aromatic and cycloaliphatic hydrocarbon;
n is an integer having a value no less than 2 and no more than 3; *x* is an integer of at least 1; and
X′ is a radical selected from the class consisting of halogen, OR″, R″ and



10. The process of preparing a polymeric composition comprising the steps of reacting

(a) a heterocyclic compound of the formula



wherein
R′ is a radical selected from the class consisting of N(R″)$_2$, OR″ and R″;
R″ is a hydrocarbon radical having no more than 20 carbon atoms selected from the class consisting of aliphatic, cycloaliphatic and aromatic hydrocarbon; and
n is an integer having a value of at least 2 and no more than 3;
(b) with a coupling reagent of the formula SiX$_4$ wherein
X is selected from the class consisting of halogen atoms and R″ and OR″, said reagent having at least two halogen atoms therein.

3,304,271

SILANOL CONDENSATION USING TETRACYANOETHYLENE AS A CATALYST

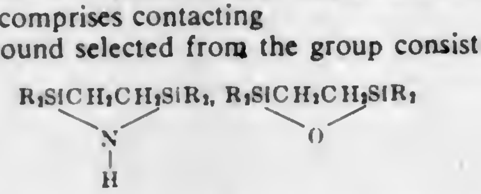
Ronald H. Baney, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Feb. 15, 1965, Ser. No. 432,900

4 Claims. (Cl. 260—2)

1. A method for polymerizing organosilicon compounds which comprises contacting

(1) a compound selected from the group consisting of



(R$_2$SiO)$_3$, and an organosilicon compound having an average per silicon atom of 1 to 3 monovalent aliphatic hydrocarbon substituent groups and at least one ≡SiOH group per molecule, any remaining valences of said organosilicon compound being satisfied with substituents selected from the group consisting of divalent oxygen atoms and divalent hydrocarbon radicals, with
(2) tetracyanoethylene, where R is a monovalent aliphatic hydrocarbon radical.

3. A method of polymerizing organosilicon compounds containing silicon-bonded hydroxyl radicals, which method comprises contacting

(1) an organosilicon compound having an average per silicon atom of 1.98 to 2.00 monovalent aliphatic hydrocarbon substituent groups and an average per molecule of two ≡SiOH groups, any remaining valences of said organosilicon compound being satisfied with substituents selected from the group consisting of divalent oxygen atoms and divalent hydrocarbon radicals, with
(2) tetracyanoethylene.

3,304,272

ION EXCHANGE MATERIALS PREPARED BY ABSORBING STYRENE ONTO PARTICULATE POLYETHYLENE, INTRODUCTION OF ION EXCHANGE GROUPS AND SHAPING

Henryk Zenftman, West Kilbride, Scotland, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 3, 1958, Ser. No. 771,183

Claims priority, application Great Britain, Nov. 20, 1957, 36,115/57

7 Claims. (Cl. 260—2.1)

1. In a process for the production of ion exchange materials which includes the introduction of ion exchange groups into the aromatic constituent of a film consisting essentially of a carrier selected from polyethylene and polypropylene, and styrene polymerized in situ therein by treating said film with a group which confers ion exchange properties thereon, the steps of successively mixing a predetermined quantity of styrene monomer with and absorbing it into said carrier selected from polyethylene and polypropylene in granular form in the presence of a polymerization catalyst, heating said resulting granules until the styrene monomer absorbed therein has been converted into a polymeric resinous product, and forming a film from the resulting thermoplastic granules at a temperature of from about 90 to 95° C. by the application of heat and pressure.

3,304,273

METHOD OF PREPARING POLYURETHANES FROM LIQUID, STABLE, REACTIVE, FILM-FORMING POLYMER/POLYOL MIXTURES FORMED BY POLYMERIZING AN ETHYLENICALLY UNSATURATED MONOMER IN A POLYOL

Paul Stamberger, 552 W. University Parkway, Baltimore, Md. 21210

No Drawing. Filed Feb. 6, 1963, Ser. No. 256,531

22 Claims. (Cl. 260—2.5)

1. A method for preparing polyurethanes comprising reacting

(A) a liquid, stable reactive polymer-polyol mixture having a viscosity of less than about 40,000 cps. at 10% polymer concentration and having a combining weight in a range yielding elastic-to-rigid polyurethane products, the essential components of said reactive mixture consisting of
  (1) a substantial but minor amount of film forming polymer having a molecular weight of at least 5,000 and having a plurality of radicals containing active hydrogen atoms which are reactive with the —N=C=O radicals of an organic polyisocyanate
 and
  (2) a major amount of a solvent medium for said polymer consisting essentially of at least one normally liquid polyol essentially free from ethylenic unsaturation and having a molecular weight of at least about 500, said polymer (1) being the polymerizate obtained by polymerizing, to a molecular weight of at least 5,000 and to a solids concentration of about 10% to about 50% by weight, an ethylenically unsaturated monomer in such polyol,
 with
(B) an organic polyisocyanate to form such polyurethane, the ratio of the —N=C=O equivalents of (B) to the equivalents of reactive radicals of (A) being in the range of about 1–5 to 1.

3,304,274

ANHYDROUS PROCESS FOR THE PREPARATION OF EXPANDABLE PARTICULATE STYRENE POLYMERS

Arthur A. Eng, Somerset, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 13, 1963, Ser. No. 287,520

17 Claims. (Cl. 260—2.5)

1. Process for the preparation of expandable particulate styrene polymer which comprises coating the particulate styrene polymer with a finely divided, inorganic, anhydrous siliceous material having a particle size less than about 150 microns, reducing the ambient pressure on the coated particulate polymer to substantially below atmospheric, admixing a low boiling liquid hydrocarbon nonsolvent for the styrene polymer having a boiling point below the softening temperature of the styrene polymer with the coated particulate polymer under anhydrous conditions, heating the resulting mixture to a temperature between about 35° C. and 65° C., but below that temperature which causes particle agglomeration while maintaining said heated mixture under a pressure of from about 30 to 60 pounds per square inch until at least about 1 percent liquid hydrocarbon has been diffused into the particulate polymer, and thereafter removing the excess hydrocarbon and recovering the expandable particulate styrene polymer.

3,304,275

POLYMERIZABLE VICINAL ACYLOXY-HALO, LONG-CHAIN ALIPHATIC COMPOUNDS

David S. Cobbledick and Henry M. Walton, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

No Drawing. Filed June 10, 1963, Ser. No. 286,485

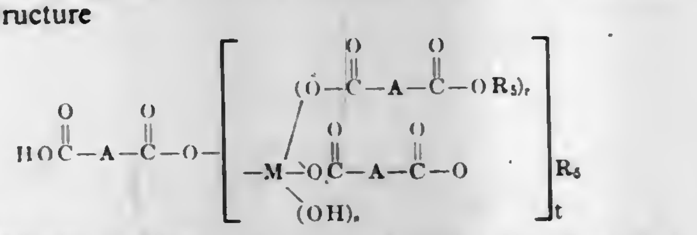
24 Claims. (Cl. 260—22)

1. A copolymer of from 2 to 95 parts by weight of a vinylidene monomer and from 98 to 5 parts by weight of a long-chain vicinal acyloxy-halo compound wherein said vicinal acyloxy-halo compound comprises a haloacylation reaction product of hypohalite, a long-chain, ethylenically unsaturated, open chain compound of 10 to 24 carbon atoms having the structure

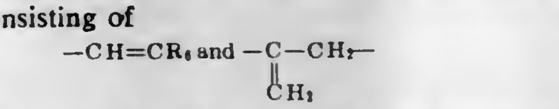
$$R{-}CH_2{-}CH{=}CH{-}CH_2{-}R$$

wherein R is selected from the class consisting of hydrogen and a monovalent aliphatic group, and an ester of a polyhydroxy component and a dicarboxylic acid component wherein said ester has on an average (1) at least one free carboxyl group, (2) at least two intra-ester linkages in the ester chain, (3) at least one alpha,beta-ethylenically unsaturated dicarboxylic acid component and (4) a molecular weight of at least 206.

2. The copolymer of claim 1, wherein the hypohalite is a tertiary alkyl hypochlorite and said ester of a polyhydroxy component and dicarboxylic acid component has the structure



wherein each A is selected from the class consisting of a divalent hydrocarbon group and a divalent halogen substituted hydrocarbon group; at least one A is selected from the class consisting of



$$-CH{=}CR_6 \text{ and } -\underset{\underset{CH_2}{\|}}{C}-CH_2-$$

R$_6$ is selected from the class consisting of hydrogen, alkyl of from 1 to 4 carbon atoms and halogen; M is the residue of the hydroxy compound, *r* is a number ranging from 0 to 4, *s* is a number ranging from 0 to 4, the sum of $r+s+2$ is 2 to 6 the number of hydroxyl groups in the original hydroxyl compound; R$_5$ is selected from the class consisting of a monovalent aliphatic group, a monovalent aromatic group and hydrogen; and *t* is a number ranging from 1 to 10.

3,304,276

POLYHYDRIC PHENOL MODIFIED FATTY MEDIA AND IRON SURFACES CHELATED THEREWITH

Raymond Noel Faulkner, Hanworth, Middlesex, and Leonard Alfred O'Neill, Hampton Hill, Middlesex, England, assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed May 13, 1964, Ser. No. 367,262

21 Claims. (Cl. 260—22)

1. A process for obtaining high yields of polyhydroxy phenol-substituted vegetable oil based media, said process comprising heating for about 2–4 hours at about 150° C.

to 230° C. in the presence of a catalyst, a reaction mixture comprising (a) a vegetable oil based member selected from the group consisting of castor oil, hydrogenated castor oil, linseed oil, soybean oil, tung oil, dehydrated castor oil, isomerized safflower oil, methyl oleate, methyl undecenoate, the mixed linseed methyl esters, and a castor-phthalic-glycerol alkyd, and (b) a polyhydroxy phenol selected from the goup consisting of pyrogallol, catechol, methyl gallate, and propyl gallate, with constant removal of byproduct lower alcohol during the alcoholysis that occurs when the said vegetable oil based member is one that contains hydroxyl functionality and the polyhydric phenol is a lower alkyl gallate, said catalyst being selected from the group consisting of acid-activated montmorillonite and a C_2–C_4 alkoxide of a metal selected from the group consisting of aluminum, titanium, and zirconium.

3,304,277
METAL PRIMER OF AN ACRYLONITRILE COPOLYMER AND A TRIALKYL PHOSPHATE ADDITIVE

Karl-Heinz Mielke, Cologne-Stammheim, Rudolf Wüst, Cologne-Mulheim, and Heinrich Meckbach, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Oct. 20, 1964, Ser. No. 405,240
Claims priority, application Germany, Nov. 14, 1963,
F 41,277
4 Claims. (Cl. 260—29.6)

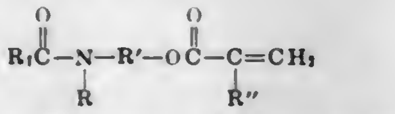
1. A thermosetting metal primer comprising an aqueous dispersion of (1) a copolymer of acrylonitrile and (2) a member selected from the group consisting of trimethyl phosphate and triethyl phosphate, said copolymer including at least one comonomer selected from the group consisting of styrene, acrylic acid, methacrylic acid, acrylamide, methacrylamide, alkyl esters of acrylic acid and methacrylic acid containing 1–12 carbon atoms in the alkyl moiety thereof, vinyl acetate, vinyl propionate, vinyl butyrate, butadiene and isoprene and at least 50% by weight of said copolymer being copolymerized acrylonitrile.

3,304,278
FLUORINATED UNSATURATED ORGANIC COMPOUNDS AND POLYMERS THEREOF

Murray Hauptschein, Glenside, and Sameeh S. Toukan, Phoenixville, Pa., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Feb. 25, 1966, Ser. No. 529,937
9 Claims. (Cl. 260—29.6)

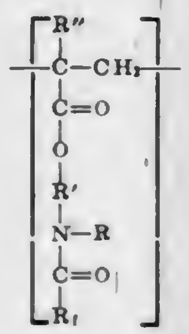
1. Compounds of the formula



$$R_fC(=O)-N(R)-R'-OC(=O)-C(R'')=CH_2$$

where R_f is a perfluorinated alkyl radical having from 4 to 18 carbon atoms, where R is a branched alkyl radical having from 4 to 10 carbon atoms, where R′ is an alkylene radical having from 2 to 6 carbon atoms, and where R″ is hydrogen or a methyl group.

6. Polymers of the compounds of claim 1 wherein the polymer comprises a plurality of repeating units of the formula



3,304,279
RESINOUS POLYMER DISPERSION AND METHOD OF MAKING THE SAME

Erik R. Nielsen, Des Plaines, and Edwin A. Swire, Elmhurst, Ill., assignors to Mono-Sol Corporation, Chicago, Ill., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 465,755, Oct. 29, 1954. This application Mar. 11, 1963, Ser. No. 264,019
6 Claims. (Cl. 260—30.6)

6. A method of making a dispersion of a resinous polymer in an organic medium which comprises forming a mixture consisting essentially of a monomer polymerizable to a thermoplastic resinous polymer, a catalyst for the polymerization of said monomer, an organic liquid dispersant which is a swelling agent for the polymer and a liquid diluent which is volatile at a temperature substantially below the fusion temperature of the resinous polymer and which is a solvent for the dispersant and has at most little swelling action on the polymer, polymerizing the monomer while it is present in the mixture to form the dispersion of a resinous polymer in an organic medium and vigorously agitating the mixture during the polymerization of the monomer by ball milling the mixture.

3,304,280
METHYL ETHYL KETONE SOLUTION OF A TERPOLYMER OF METHYLMETHACRYLATE, BUTYLACRYLATE AND 2-HYDROXYETHYLMETHACRYLATE

Alwyn Senior, Cincinnati, Ohio, assignor to Formica Corporation, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed June 1, 1962, Ser. No. 199,281
5 Claims. (Cl. 260—32.8)

5. A composition of matter comprising (1) a methyl ethyl ketone solution of a terpolymer of (A) from about 82 mole percent of methylmethacrylate, (B) 5 mole percent of butylacrylate, and (C) 13 mole percent of 2-hydroxyethylmethacrylate, wherein the total mole percent is 100, wherein said terpolymer is polymerized in said methyl ethyl ketone and (2) 1 mole of a hexamethyl ether of a hexamethylol melamine per mole of said hydroxyethylmethacrylate.

3,304,281
BLENDS OF RUBBERY POLYMERS

John H. Tucker, Norman, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Dec. 31, 1962, Ser. No. 248,198
3 Claims. (Cl. 260—33.6)

1. A method of blending a solution polymerized rubber of cis-polybutadiene having a cis content of at least 75 percent with an emulsion polymerized rubber, said emulsion rubber being selected from the group consisting of homopolymers of conjugated dienes containing 4 to 8 carbon atoms per molecule and copolymers of a major amount of said conjugated dienes with a minor amount of styrene, which comprises mixing together a polymer solution effluent stream from a solution polymerization process and a latex stream from an emulsion polymerization process, immediately feeding the resulting mixture into a stripping zone wherein solvent is stripped from said mixture, maintaining said mixture in said stripping zone under acid conditions, and recovering a precipitated rubber crumb.

3,304,282
PRODUCTION OF GLASS FIBER REINFORCED THERMOPLASTICS

Anton Cadus, Otto Kaiser, and Reinhold Weber, Ludwigshafen (Rhine), Klaus Benker, Koenigsbach, Weinstrasse, and Hermann Uhr, Frankenthal, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

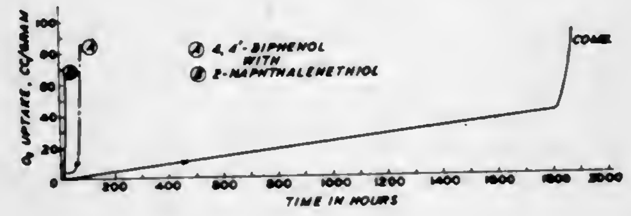
No Drawing. Filed Aug. 16, 1965, Ser. No. 480,099
Claims priority, application Germany, Aug. 27, 1964,
B 78,283
5 Claims. (Cl. 260—37)

1. A process for the production of glass fiber reinforced thermoplastics by mixing glass fibers with a melt of a thermoplastic in a screw extruder having conveying means the improvement which comprises supplying endless glass fibers to said melt ahead of the treatment chamber of said screw extruder, mixing said fibers with said melt and extruding the mixture continuously.

3,304,283
STABILIZED ALPHA-MONO-OLEFINIC POLYMERS

Walter L. Hawkins, Montclair, N.J., and Mary Ann Worthington, Monroe, Conn., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Continuation of application Ser. No. 28,734, May 12, 1960. This application Apr. 24, 1964, Ser. No. 364,881
19 Claims. (Cl. 260—45.9)



1. A composition stabilized against oxidative degradation comprising a polymer of an alpha-mono-olefin having 2 to 12 carbon atoms and a stabilizer consisting of two components, each of said components being included in an amount of at least 0.1% by weight and the maximum amount of both components together being 10% by weight, a first component selected from the group consisting of

aromatic disulfides having the general formula

R—S—S—R′

in which R and R′ are ring structures each containing at least one carbon atom and in which the maximum number of carbon atoms in each of the said ring structures including substituents is 30,

alkyl disulfides having the general formula

R—S—S—R′

in which R and R′ are alkyl radicals each containing from 4 to 30 carbon atoms

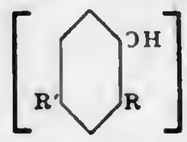
aromatic mercaptans having the general formula R—SH in which R is a ring structure containing from 1 to 30 carbon atoms,

aliphatic mercaptans having the general formula

$$R(SH)_x$$

in which R is an alkyl radical containing from 6 to 30 carbon atoms, and *x* is an integer having a maximum value of two,

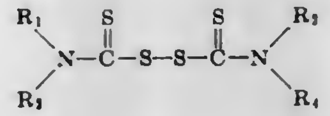
aromatic thioethers having the general formula:



R is selected from the group consisting of a normal alkyl group containing from 6 to 20 carbon atoms and a branched alkyl group containing from 3 to 6 carbon atoms, and R′ is selected from the group consisting of hydrogen and a normal alkyl group containing up to 6 carbon atoms, and the total number of carbon atoms in R and R′ does not exceed 30,

diaryl thioethers having the general formula Ar—S—Ar′ in which Ar and Ar′ are fused ring carbocyclic benzenoid aromatic radicals containing at least one substituent selected from the group consisting of hydroxyl radicals and secondary amine radicals and further in which compound the maximum number of carbon atoms in each fused ring moiety including substituents is 30

aliphatic thiuramdisulfides having the structure



in which R_1, R_2, R_3 and R_4 are aliphatic groups and in which the total number of carbon atoms contained in each of the substituent pairs R_1, R_2 and R_3, R_4 is from 2 to 30,

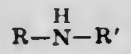
and a second component selected from the group consisting of

phenols which are characterized by the general formula:

OH—R[X]R′—OH

where X is selected from the group consisting of a CH_2 group and a single bond, and R and R′ are aromatic rings,

amines which are characterized by the general formula:



$$R-\overset{H}{N}-R'$$

where R and R′ are selected from the group consisting of benzene and naphthylene rings.

3,304,284
STABILIZATION OF RUBBER WITH A MIXTURE OF DIAMINES

William L. Cox, Cuyahoga Falls, Ohio, assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Nov. 22, 1965, Ser. No. 509,165
8 Claims. (Cl. 260—45.9)

1. A mixture of from about 50% to about 90% by weight of N-alkyl-N′-phenyl-p-phenylenediamine in which the alkyl group contains from 3 to 20 carbon atoms and from about 50% to about 10% by weight of a synergist composition containing at least about 50% of N-phenyl-N′-methylphenyl-p-phenylenediamine in admixture with smaller amounts of N,N′-di-methylphenyl - p - phenylene diamine and N,N′-diphenyl-p-phenylene diamine.

3,304,285
STABILIZATION OF RUBBER WITH A MIXTURE OF DIAMINES

William L. Cox, Cuyahoga Falls, Ohio, assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Nov. 22, 1965, Ser. No. 509,194
4 Claims. (Cl. 260—45.9)

1. A mixture of from about 50% to about 90% by weight of N,N′-dicycloalkyl-p-phenylenediamine and from about 50% to about 10% by weight of a synergist composition containing at least about 50% of N-phenyl-N′-methylphenyl - p - phenylenediamine in admixture with smaller amounts of N,N′-di-methylphenyl-p-phenylene diamine and N,N′-diphenyl-p-phenylene diamine.

3,304,286

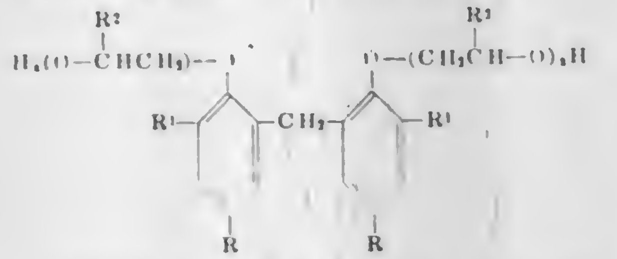
POLYESTER-POLYISOCYANATE MATERIALS AND COATINGS OBTAINED THEREFROM

Siegfried Altscher, Union, and Morris N. Schneider, Metuchen, N.J., assignors to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey
No Drawing. Filed Jan. 29, 1963, Ser. No. 254,595
15 Claims. (Cl. 260—47)

1. A polyester prepolymer soluble in non-polar solvents comprising the reaction product of

(A) a polyester having free and unreacted hydroxyl groups, said polyester being the reaction product of

(1) a component containing free hydroxy groups, said component comprising at least 60% by weight of said hydroxy component, of an aromatic glycol having the structure



wherein R is an alkyl group containing from about 8 to 12 carton atoms, R^1 and R^2 are selected from the group consisting of methyl and hydrogen, and x varies from 1 to 2, with

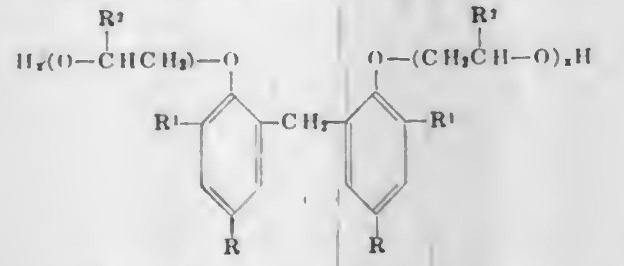
(2) a material selected from the class consisting of saturated and unsaturated aliphatic and aromatic dicarboxylic acids and anhydrides thereof, said component being present in amounts sufficient to provide about 1.3 to about 3 free hydroxy groups for each mole of said material present, and

(B) isocyanate having about two free isocyanate groups, said isocyanate being present in sufficient amount to provide a ratio of from about 1.5 to 2.2 isocyanate groups for each free and unreacted hydroxyl group contained within said polyester.

12. A hard, flexible coating comprising the reaction product of a polyester prepolymer soluble in non-polar solvents, and an organic substance containing at least two active hydrogen atoms, said polyester prepolymer being the reaction product of

(A) a polyester having free and unreacted hydroxyl groups said polyester being the reaction product of

(1) a component containing free hydroxy groups, said component comprising at least 60% by weight of a glycol having the structure



wherein R is an alkyl group containing from about 8 to 12 carbon atoms, R^1 and R^2 are selected from the group consisting of methyl and hydrogen, and x is an integer of from 1 to 2 with

(2) a material selected from the class consisting of saturated and unsaturated aliphatic and aromatic dicarboxylic acids and anhydrides thereof, said component being present in amounts sufficient to provide about 1.3 to about 3 free hydroxy groups for each mole of said material present, and

(B) an isocyanate compound having about two free isocyanate groups, said isocyanate being present in sufficient amount to provide a ratio of from about 1.5 to 2.2 isocyanate groups for each free and unreactant hydroxyl group contained within the polyester.

13. A hard flexible coating according to claim **12** wherein said organic substance is a polyol.

14. A hard flexible coating according to claim **12** wherein said organic substance is a glycol.

3,304,287

PROCESS FOR PREPARING LINEAR COPOLYMERS CONTAINING OXYMETHYLENE AND UNITS DERIVED FROM SATURATED OXAZINES

Kornel D. Kiss, University Heights, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware
No Drawing. Filed May 20, 1963, Ser. No. 281,774
20 Claims. (Cl. 260—67.6)

1. A linear, thermoplastic copolymer composition having a high degree of thermal stability consisting essentially of recurring oxymethylene groups interspersed with groups corresponding to at least one structure selected from the group consisting of

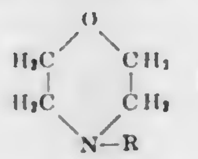
$$\{O—(CH_2)_2—NR—(CH_2)_2\}$$

and

$$\{(CH_2)_2—O—(CH_2)_2—NR\}$$

wherein R is selected from the group consisting of hydrogen, halogen, alkyl, acyl and phenyl radicals, said copolymer composition containing from about 83 to 99.97 percent of repeating oxymethylene units and from about 0.03 up to about 17 percent of repeating units derived from a saturated oxazine, the said saturated oxazine units being incorporated in the copolymer during the preparation thereof by an opening of the oxazine ring, said copolymer having a melting point of at least 110° C. and an inherent viscosity of at least 1 as determined by measuring at 60° C. the viscosity of a 0.5% solution of the copolymer in p-chlorophenol which contains 2% by weight of a-pinene.

3. A process for preparing a linear thermoplastic copolymer composition having a high degree of thermal stability which comprises copolymerizing under substantially anhydrous conditions and in the presence of an ionic-type polymerization catalyst selected from the group consisting of butyl lithium, diethyl zinc, tributyl boron, phenyl magnesium bromide, methyl aluminum dichloride, the halides of boron, aluminum, tin and antimony and their coordinate complexes with organic compounds in which the donor atom is selected from the group consisting of oxygen, nitrogen and sulfur, a compound selected from the group consisting of formaldehyde and trioxane with from about 0.03 to about 17 mol percent of a saturated oxazine having the formula



where R is selected from the group consisting of hydrogen, halogen, alkyl, acyl, and phenyl radicals; and recovering a solid copolymer containing repeating oxymethylene units and repeating units derived from the said saturated oxazine.

3,304,288

ZINC ETHYLENE GLYCOLOXIDE AS A POLYESTER POLYMERIZATION CATALYST

Henry L. King, Cary, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed July 13, 1966, Ser. No. 564,719
8 Claims. (Cl. 260—75)

1. In a process for producing synthetic, highly polymeric polyesters wherein an aromatic dicarboxylic acid and a polymethylene glycol having the formula,

$$HO(CH_2)_nOH$$

wherein n is an integer from 2 to 10, are reacted under esterification conditions and the reaction product is polymerized until a highly polymeric product is formed, the improvement which comprises carrying out the polymerization step in the presence of a catalytic amount of a polymerization catalyst consisting essentially of zinc ethylene glycoloxide.

3,304,289

MODIFIED POLYAMIDES HAVING IMPROVED AFFINITY FOR DYES

James B. Ballentine, Chapel Hill, William A. H. Huffman, Durham, and Oscar A. Pickett, Chapel Hill, N.C., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed Dec. 21, 1962, Ser. No. 246,313
7 Claims. (Cl. 260—78)

1. A fiber-forming synthetic linear polycarbonamide of a composition selected from the group consisting of

(a) a polymermizable monoaminocarboxylic acid having the formula

$$R—NH—R'—COOH$$

wherein R is a radical selected from the group consisting of a monovalent hydrocarbon radical and hydrogen and R′ is a divalent radical having at least five carbon atoms and

(b) substantially equimolar proportions of a dicarboxylic acid having the formula

$$HOOC—R''—COOH$$

and a diamine having the formula

$$NH_2—R'''—NH_2$$

wherein R″ and R‴ are divalent radicals each having at least two carbon atoms, from 0.5 to 2.5 mol percent of an amide-forming basic nitrogen chain terminator having not greater than two amide-forming groups and from 0.05 to 1.0 mol percent of a chain branching agent selected from the group consisting of a polycarboxylic acid having at least three carboxyl groups, amide forming derivatives thereof and a tetra[aminopropoxymethyl]methane.

3,304,290

SYNTHETIC LINEAR POLYCARBONAMIDES HAVING AN IMPROVED RECEPTIVITY FOR ACID DYES

Richard D. Chapman, Durham, and Lawrence W. Crovatt, Jr., Raleigh, N.C., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed Oct. 8, 1963, Ser. No. 314,631
7 Claims. (Cl. 260—78)

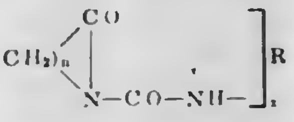
1. A fiber-forming synthetic linear polycarbonamide having recurring amide groups as an integral part of the main polymer chain, and wherein said groups are separated by at least 2 carbon atoms, which comprises the product obtained from reactants comprising (A) a polyamide-forming composition consisting of substantially equimolecular proportions of a dicarboxylic acid of the formula HOOCRCOOH wherein R is a divalent hydrocarbon radical having a chain length of at least 2 carbon atoms and a diamine of the formula $NH_2(CH_2)_nNH_2$ wherein n is an integer of at least 2, and (B) from about 0.1 to 10 percent based on the weight of said polyamide forming composition of a polyhydroxy compound selected from a group consisting of pentaerythritol, dipentaerythritol, tripentaerythritol and tetrapentaerythritol.

3,304,291

ANIONIC POLYMERIZATION OF LACTAMS WITH LACTAM-N-CARBAMIDO COMPOUNDS AS ACTIVATORS

Karl Dachs, Horst Brueggemann, and Edmund Boeck, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 22, 1965, Ser. No. 441,860
Claims priority, application Germany, July 14, 1959, B 53,999
14 Claims. (Cl. 260—78)

1. In a process for polymerizing lactams having one —CONH— group in the lactam ring and having at least 6 ring carbon atoms in the presence of a catalyst selected from the group consisting of alkali metal lactams and alkaline earth metal lactams, the improvement which comprises polymerizing said lactams at temperatures above 100° C. in the presence of 0.1 to 15% by weight, based on said lactam, of a polymerization activator of the formula



wherein n is an integer in the range of 3–11, inclusive, x is 2 or 3, and R is a hydrocarbon group having up to 20 carbon atoms.

3,304,292

GROUP I METAL, GROUP I ALUMINUM HYDRIDE, TRANSITION METAL HALIDE FOR POLYMERIZATION OF ETHYLENE TO ETHYLENE-BUTENE COPOLYMER

Hugh J. Hagemeyer, Jr., Marvin B. Edwards, and Vernon K. Park, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Sept. 5, 1963, Ser. No. 306,680
10 Claims. (Cl. 260—88.2)

1. The method for the preparation of ethylene-butene copolymer which comprises contacting ethylene, at a temperature in the range of about 170° to about 300° C. with a catalyst consisting essentially of (1) an alkali metal, (2) an alkali metal aluminum hydride. (3) a subhalide of a transition metal selected from the group consisting of titanium, vanadium, chromium, molybdenum and tungsten, and (4) a basic compound selected from the group consisting of alkali metal fluorides, magnesium oxide and calcium oxide, the mole ratio of alkali metal to alkali metal aluminum hydride being in the range of about 0.1:1 to about 5:1, the mole ratio of alkali metal aluminum hydride to transition metal halide being in the range of about 0.25:1 to about 3:1 and the mole ratio of basic compound to transition metal halide being no greater than about 1:1.

3,304,293

GAS PHASE POLYMERIZATION OF TETRAFLUOROETHYLENE

Robert Fuhrmann, Hanover Township, Morris County, and David Jerolamon, Morris Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Mar. 6, 1962, Ser. No. 177,744
3 Claims. (Cl. 260—92.1)

1. A process for polymerizing tetrafluoroethylene, comprising contacting gaseous tetrafluoroethylene with a catalyst selected from the group consisting of a mixture of silica gel having a surface area of at least 100 square meters per gram and an average pore diameter of at least 40 A. with a salt of an oxyacid of hexavalent chromium and a mixture of silica-alumina gel of the above-described surface area and pore diameter with a salt of an oxyacid of hexavalent chromium, the sum of the weights of aluminum and chromium in said catalyst being equal to about 1 to 10% by weight based on the sum of the weights of the silica, alumina and chromium-containing salts.

3,304,294

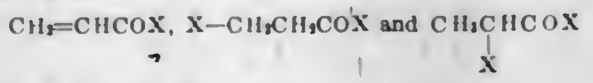
PROCESS FOR ACYLATION OF ALKENYL AROMATIC POLYMERS

Frederick C. Leavitt, Midland, Mich., and Priscilla A. Carney, Madison, Wis., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 24, 1964, Ser. No. 347,063

13 Claims. (Cl. 260—93.5)

1. The process for solvent-free acylation of an aromatic polymer comprising the steps of blending a dry powder of the aromatic polymer with an anhydrous powdered acylation catalyst selected from the class consisting of aluminum chloride and aluminum bromide to form an intimate mixture thereof, thereafter passing through said intimate mixture a vaporized acylating agent and retaining said three components in admixture at a temperature in the range of 0–100° C. for a period sufficient to effect acylation of said aromatic polymer, said aromatic polymer being selected from the class consisting of polymers of an alkenyl aromatic compound having at least four aromatic nuclear positions unsubstituted, and said acylating agent having a formula selected from the class consisting of:



$$CH_2{=}CHCOX,\ X{-}CH_2CH_2COX \text{ and } \underset{\displaystyle X}{CH_3\overset{}{C}HCOX}$$

wherein X represents an halogen atom.

3,304,295

LITHIUM, LITHIUM ALUMINUM HYDRIDE, TITANIUM TRICHLORIDE AND PROMOTER FOR OLEFIN POLYMERIZATION

Hugh J. Hagemeyer, Jr., and Marvin B. Edwards, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed July 13, 1964, Ser. No. 382,351

18 Claims. (Cl. 260—93.7)

1. The process for polymerizing an α-monoolefinic hydrocarbon containing at least 3 carbon atoms to solid, high molecular weight polymer having a crystallinity of at least 70% which comprises contacting said α-monoolefinic hydrocarbon, at a temperature in the range of about 140° to about 300° C. and a pressure in the range of atmospheric to about 2000 atmospheres with a catalyst comprising (1) lithium metal, (2) lithium aluminum hydride and (3) a halide of a transition metal from Group IV–B—VI–B of the Periodic Table, the valence of the metal in said halide being at least one less than maximum, the mole ratio of (1) and (2), based on lithium content, to (3) being in the range of about 1:2 to about 10:1.

3,304,296

PARA-ARYLAZOPHENYLMETHYLOXYCARBONYL GROUPS AS AMINO PROTECTING GROUPS IN PEPTIDE SYNTHESIS

Robert Schwyzer, Riehen, Karl Zatskó and Peter Sieber, Basel, and Heini Kappeler, Bettingen, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 7, 1963, Ser. No. 322,044

Claims priority, application Switzerland, Aug. 30, 1957, 49,962

7 Claims. (Cl. 260—112.5)

1. In a process for the temporary blocking, in peptide syntheses, of a free amino group by acylating it and, after the peptide condensation has been effected, splitting off the acyl group introduced, the improvement wherein a free amino group not participating in the condensation reaction is acylated with a para-arylazophenyl-methyloxycarbonyl halide in which the aryl substituent is selected from the group consisting of phenyl, halogenophenyl, lower alkoxyphenyl, naphthyl, halogenonaphthyl, and lower alkoxynaphthyl.

3,304,297

DYESTUFFS CONSISTING OF ORGANIC DYESTUFFS BOUND TO POLYHYDROXYLATED ORGANIC POLYMERS

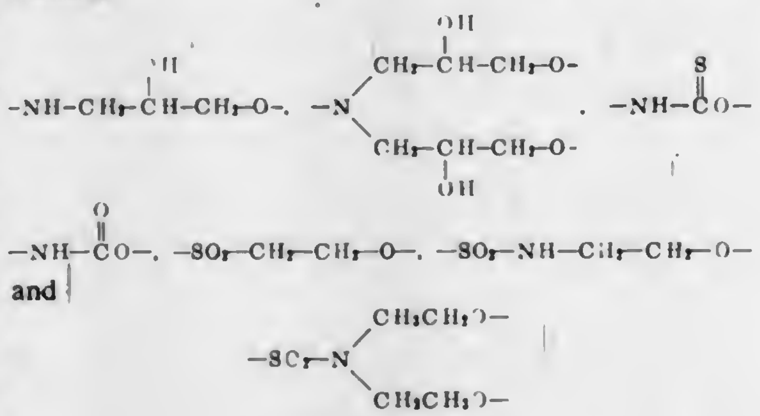
Jacques Wegmann, Heinz Hefti, and Carl Becker, Basel, and Henri Riat, Arlesheim, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed Nov. 27, 1962, Ser. No. 240,412

Claims priority, application Switzerland, Feb. 12, 1959, 69,474/59; June 18, 1959, 74,592/59; Jan. 12, 1960, 254/60; Mar. 18, 1960, 3,066/60

6 Claims. (Cl. 260—153)

1. A dyestuff consisting of a member selected from the group consisting of a radical of a water-soluble reactive oxazine dyestuff, triphenylmethane dyestuff, xanthene dyestuff, nitro dyestuff, acridone dyestuff, anthraquinone dyestuff, azo dyestuff, phthalocyanine dyestuff and peridicarboxylic acid imide dyestuff, said radical being bound via bridge radical to the carbon atoms of a polyhydroxylated organic polymer selected from the group consisting of a water- or alkali-soluble cellulose ether, a water, or alkali-soluble cellulose ester, polyvinyl alcohol, a water- and alkali-insoluble cellulose ether, a water- and alkali-insoluble cellulose ester, a water- and alkali-insoluble starch, dextrine, sodium alginate, gum arabic and guaran, said bridge radical, inclusively of the oxygen atoms of the polyhydroxylated polymer, being a member selected from the group consisting of an aminotriazinyloxy radical, an aminopyrimidyloxy radical, an aminophthalazinyloxy radical, an aminochinazolinyloxy radical, an aminochinoxalinyloxy radical and a radical of the formula



$$-NH-CH_2-\overset{\displaystyle OH}{\overset{|}{C}}H-CH_2-O-,\quad -N\begin{matrix}\diagup CH_2-\overset{\displaystyle OH}{\overset{|}{C}}H-CH_2-O-\\ \diagdown CH_2-\underset{\displaystyle OH}{\underset{|}{C}}H-CH_2-O-\end{matrix},\quad -NH-\overset{\displaystyle S}{\overset{\|}{C}}O-$$

$$-NH-\overset{\displaystyle O}{\overset{\|}{C}}O-,\ -SO_2-CH_2-CH_2-O-,\ -SO_2-NH-CH_2-CH_2-O- \text{ and } -SO_2-N\begin{matrix}\diagup CH_2CH_2O-\\ \diagdown CH_2CH_2O-\end{matrix}$$

3,304,298

PROCESS FOR PREPARING DL-RIBOSE AND INTERMEDIATES THEREFOR

Issei Iwai, Tadahiro Iwashige, Motoji Asai, Kazuo Tomita, Tetsuo Hiraoka, and Junya Ide, all of Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

No Drawing. Filed Oct. 9, 1964, Ser. No. 402,963

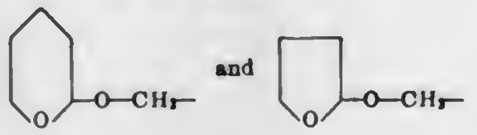
Claims priority, application Japan, Apr. 17, 1961, 36/13,082, 36/13,083; Oct. 2, 1961, 36/35,287

6 Claims. (Cl. 260—209)

1. Process for preparing DL-ribose which comprises subjecting a compound having the formula

$$R—O—CH_2—CH{=}CH—R_1$$

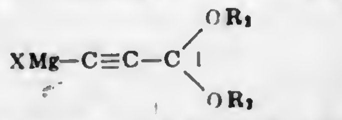
wherein R is a member selected from the group consisting of 2-tetrahydropyranyl and 2-tetrahydrofuryl groups and R_1 is a member selected from the group consisting of hydrogen atom, a lower alkyl group containing from 1 to 3 carbon atoms



to ozone oxidation to form a compound having the formula

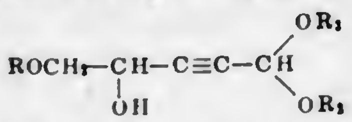
$$R—O—CH_2—CHO$$

wherein R has the same meaning as above, reacting the latter compound with a compound having the formula



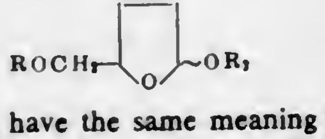
$$XMg-C\equiv C-C\begin{matrix}\diagup OR_2\\ \diagdown OR_2\end{matrix}$$

wherein X is a member selected from the group consisting of chlorine, bromine and iodine atoms and R_2 is a lower alkyl group containing from 1 to 3 carbon atoms to form a compound having the formula

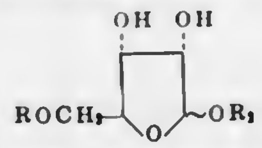


$$ROCH_2-\underset{\displaystyle OH}{\underset{|}{C}}H-C\equiv C-CH\begin{matrix}\diagup OR_2\\ \diagdown OR_2\end{matrix}$$

wherein R and R_2 have the same meaning as above, subjecting the latter compound to partial hydrogenation in the presence of a rare metal catalyst to form a compound having the formula



wherein R and R_2 have the same meaning as above, reacting the latter compound with an oxidizing agent selected from the group consisting of alkali metal permanganate, hydrogen peroxide and osmium tetraoxide to form a compound having the formula



wherein R and R_2 have the same meaning as above and treating the latter compound with a dilute mineral acid.

3,304,299

D-GLUCOPYRANO IMIDAZOLES

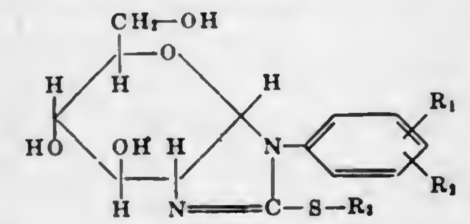
Charles J. Morel, Arlesheim, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed May 28, 1965, Ser. No. 459,881

Claims priority, application Switzerland, June 9, 1964, 7,493/64

9 Claims. (Cl. 260—211.5)

1. A compound of the formula



wherein each of R_1 and R_2 represents a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen of an atom member up to 35 inclusive, and R_3 represents lower alkyl.

3,304,300

METHOD FOR ISOLATION AND PURIFICATION OF HMX

James W. Watters, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Aug. 26, 1964, Ser. No. 392,350

6 Claims. (Cl. 260—239)

1. A method of purifying HMX which comprises:

(a) dissolving impure HMX in a complexing agent selected from the group consisting of dimethylformamide, dimethylacetamide and dimethylaniline,

(b) separating the addition compound from the solution, and

(c) regenerating HMX free from impurities from the molecular addition compound.

3,304,301

DERIVATIVES OF 6-AMINOPENICILLANIC ACID

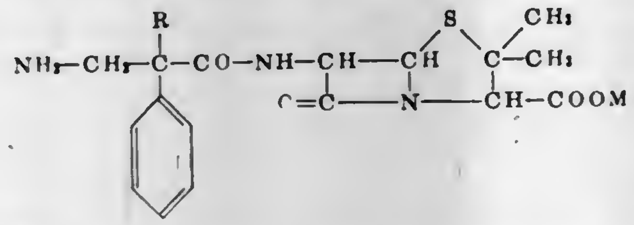
Hubert Vanderhaeghe, Kessel-lo, and Michel Claesen, Heverlee, Belgium, assignors to Recherche et Industrie Therapeutiques R.I.T., Genval, Belgium, a corporation of Belgium

No Drawing. Filed Dec. 24, 1963, Ser. No. 333,186

Claims priority, application Great Britain, Dec. 27, 1962, 48,696/62; Feb. 25, 1963, 7,473/63

6 Claims. (Cl. 260—239.1)

1. A 6-aminopenicillanic acid derivative of the formula:

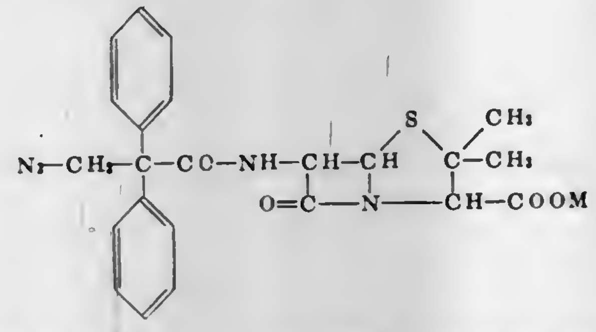


in which:

R is a member selected from the group consisting of aryl and arylalkyl and

M is a member selected from the group consisting of hydrogen and a pharmaceutically acceptable cation, said aryl being a member selected from the group consisting of phenyl, thienyl and furyl.

5. A compound of the formula:



in which M is a pharmaceutically acceptable cation.

3,304,302

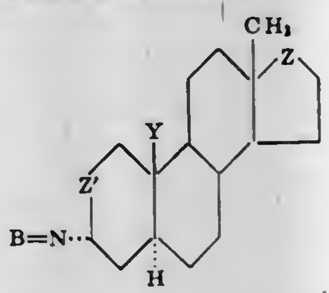
3-AMINO-2-OXO STEROIDS

Robert L. Clarke, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 4, 1965, Ser. No. 423,353

12 Claims. (Cl. 260—239.5)

1. A compound of the formula



wherein:

B=N is a member of the group consisting of lower-alkylamino, hydroxy-lower-alkylamino, di-lower-alkylamino, polymethylenimino of 5–7 ring members, 4-morpholinyl, 1-piperazinyl, and 4-lower-alkyl-1-piperazinyl;

Y is a member of the group consisting of hydrogen and methyl;

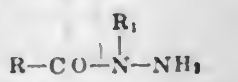
Z is a member of the group consisting of CH(OH-β), CH(OAcyl-β), C(lower-alkyl)(OH-β), C(lower-alkyl)(OAcyl-β), and C=O; and

Z′ is a member of the group consisting of CH(OH-β), CH(OAcyl-β) and C=O;

Acyl in each instance being carboxylic acyl having from 1 to 10 carbon atoms.

3,304,303
PYRAZOLE-CARBOXYLIC ACID-HYDRAZIDES
Paul Schmidt, Therwil, and Kurt Eichenberger and Max Wilhelm, Basel, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 12, 1965, Ser. No. 471,418
Claims priority, application Switzerland, Dec. 24, 1959, 82,329/59; Apr. 5, 1960, 3,803/60
8 Claims. (Cl. 260—247.1)

1. A member selected from the group consisting of a compound of the formula



$$R{-}CO{-}\underset{}{\overset{R_1}{\overset{|}{N}}}{-}NH_2$$

in which R is a 5-R′-3-R″-pyrazolyl-(4) radical substituted at one of the pyrazole ring nitrogen atoms by the radical R‴, R′ being a member selected from the group consisting of hydrogen and lower alkyl, R″ being a member selected from the group consisting of amino, lower alkanoylamino, benzoylamino and hydroxy and R‴ being a member selected from the group consisting of branched-chain lower alkyl, hydroxy-lower alkyl, amino-lower alkyl, mono lower alkyl-amino-lower alkyl, di-lower alkylamino - lower alkyl, monocycloalkylamino-lower alkyl, N-lower alkyl-N-lower cycloalkyl-amino-lower alkyl, pyrrolidino-lower alkyl, piperidino-lower alkyl, piperazino-lower alkyl, morpholino-lower alkyl, N′-lower alkyl-piperazino-lower alkyl and N′-hydroxy-lower alkyl-piperazino-lower alkyl, and R_1 stands for a member selected from the group consisting of hydrogen and lower alkyl, and their acid addition salts.

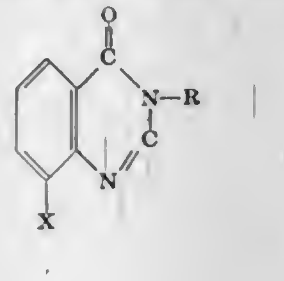
7. A member selected from the group consisting of

2-(β-ethylamino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
2-(β-piperidino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
2-(β-morpholino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
2-(β-diethylamino-ethyl)-3-hydroxy-pyrazole-4-carboxylic acid hydrazide,
2-(β-hexamethyleneimino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
2-(β-isopropylamino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
2-(β-methylamino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,
and 2-(β-n-propylamino-ethyl)-3-amino-pyrazole-4-carboxylic acid hydrazide,

and their acid addition salts.

3,304,304
QUINAZOLONE DERIVATIVES
Volkert Claassen and Gerardus Henricus Maria Mos, both of Van Houtenlaan, Weesp, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 18, 1965, Ser. No. 440,952
Claims priority, application Netherlands, Mar. 24, 1964, 64/03115
7 Claims. (Cl. 260—251)

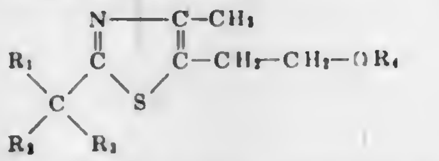
7. A quinazolone derivative selected from the group consisting of the quinazolones of the formula:



wherein X is a member of the group consisting of halogen and the CF_3 group, and R is alkyl of 1–3 carbon atoms and the non-toxic acid addition salts thereof.

3,304,305
SUBSTITUTED THIAZOLES AND PROCESSES FOR THEIR PREPARATION
Joseph Kiss and Hans Spiegelberg, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Filed Dec. 14, 1964, Ser. No. 418,307
Claims priority, application Switzerland, Dec. 20, 1963, 15,753/63
32 Claims. (Cl. 260—256.5)

1. A compound of the formula:

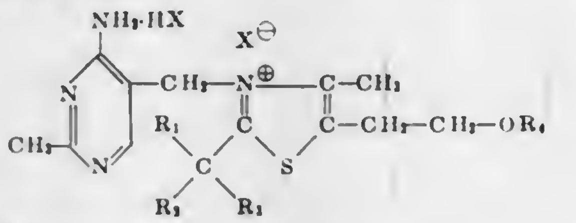


(I)

wherein

R_1 is selected from the group consisting of hydrogen and lower alkyl,
R_2 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, lower alkenyl, lower alkynyl, phenyl, and phenyl-lower alkyl,
R_3 is selected from the group consisting of hydroxyl and lower alkoxy, except that when either of R_2 and R_3 is lower alkoxy, the other of R_3 and R_2 must be lower alkoxy, and
R_4 is selected from the group consisting of lower alkanoyl, benzoyl and the acid moieties of the mineral acids.

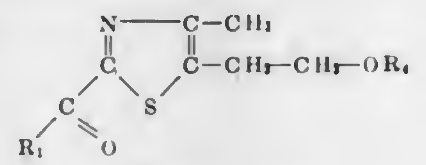
2. A quaternization product of a compound of claim 1 having the formula:



wherein

X is the anion of a strong acid, and
R_1 through R_4 have the same meaning as in claim 1.

31. A compound of the formula

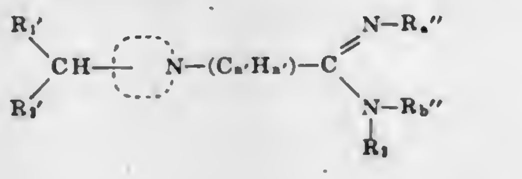


wherein

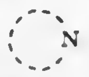
R_1 is hydrogen or lower alkyl, and
R_4 is hydrogen, lower alkanoyl, benzoyl or the acid moieties of the mineral acids.

3,304,306
N(AMIDINO-LOWER ALKYL)-BENZHYDRYL PIPERIDINES
Lincoln Harvey Werner, Summit, Robert Paul Mull, Florham Park, Renat Herbert Mizzoni, Long Valley, and George de Stevens, Woodland Park, Summit, N.J., assignors to Ciba Corporation, New York, N.Y.
No Drawing. Filed Jan. 2, 1964, Ser. No. 335,374
8 Claims. (Cl. 260—293)

1. A member selected from the group consisting of a compound of the formula



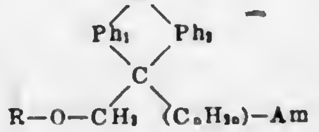
in which the group of the formula



is N,N-alkylene-imino having 5 to 6 ring members, each of the groups R_1' and R_2' is a member selected from the group consisting of phenyl, (lower alkyl)-phenyl, (lower alkoxy)-phenyl and (halogeno)-phenyl, the group of the formual —$(C_{n'}H_{2n'})$— is alkylene having from one to three carbon atoms and separating the carbon atom of the amidino moiety from the ring-nitrogen by one to two carbon atoms, R_a'' is a member selected from the group consisting of hydrogen and hydroxyl, and R_b'' is a member selected from the group consisting of hydrogen and, when taken together with R_a'', lower alkylene having from two to three carbon atoms and separating the two nitrogen atoms by two to three carbon atoms R_3 is a member selected from the group consisting of hydrogen and lower alkyl, and acid addition salts thereof.

3,304,307
DIBENZOCYCLOALKADIENES
Renat Herbert Mizzoni, Long Valley, N.J., assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 12, 1963, Ser. No. 308,332
10 Claims. (Cl. 260—294.3)

1. A member selected from the group consisting of a compound of the formula



in which each of the groups Ph_1 and Ph_2 is a member selected from the group consisting of 1,2-phenylene, (lower alkyl)-1,2-phenylene, (lower alkoxy)-1,2-phenylene, (lower alkenyloxy)1,2-phenylene, (lower alkylenedioxy)-1,2-phenylene, A is a member selected from the group consisting of a direct bond between the two groups Ph_1 and Ph_2, lower alkylene separating the groups Ph_1 and Ph_2 by at most two carbon atoms, and lower alkylene separating the groups Ph_1 and Ph_2 by two carbon atoms, Am is a member selected from the group consisting of amino, lower alkylamino, cycloalkylamino and cycloalkyl-lower alkylamino with 3 to 8 ring-carbon atoms, phenylamino, phenyl-lower alkylamino, lower alkanoylamino, monocyclic carbocyclic or azacyclic aroylamino, di-lower alkylamino, N-cycloalkyl-N-lower alkylamino with 3 to 8 ring-carbon atoms, N-lower alkyl-N-phenyl-lower alkylamino, N-hydroxy-lower alkyl-N-lower alkylamino and di-hydroxy-lower alkylamino in which hydroxy is separated from the nitrogen atom by at least 2 carbon atoms, alkyleneimino with 4 to 8 carbon atoms, oxaalkyleneimino, thiaalkyleneimino, azaalkyleneimino, N-lower alkyl-azaalkyleneimino, N-hydroxy-lower alkyl-azaalkyleneimino, N-lower alkanoyl-azaalkyleneimino and N-carbo-lower alkoxy-azaalkyleneimino in which the hetero-atom is separated from imino by at least 2 carbon atoms and N-lower alkanyl-N-lower alkylamino,

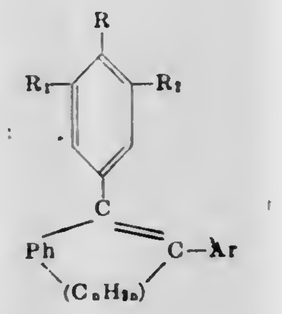
$$—(C_nH_{2n})—$$

is lower alkylene separating Am from the ring carbon atom by at least two carbon atoms, and R is a member selected from the group consisting of hydrogen, lower alkanoyl, cycloalkyl-carbonyl and cycloalkyl-lower alkanoyl with 3 to 8 ring-carbon atoms, halogeno-lower alkanoyl, lower alkoxy-lower alkanoyl, monocyclic carbocyclic or heterocyclic aroyl and aryl-lower alkanoyl, a salt thereof, an N-oxide of a compound having an N-oxide-forming amino group, a salt of an N-oxide of a compound having an N-oxide-forming amino group, and a quaternary ammonium derivative of a compound having a quaternary ammonium derivative-forming amino group.

8. 9 - acetyloxymethyl - 9 - [2 - (1 - piperidino)-ethyl]-fluorene.

3,304,308
1-ALKYL AMINO-PHENOL, 2 ARYL-3,4 DIHYDRO-NAPHTHALENE COMPOUNDS
William Laszlo Bencze, New Providence, N.J., assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed May 18, 1964, Ser. No. 368,380
9 Claims. (Cl. 260—294.7)

1. A member selected from the group consisting of a compound of the formula



in which R is a member selected from the group consisting of hydroxyl, lower alkoxy, N,N-di-lower alkylamino-lower alkoxy, N,N-alkyleneimino-lower alkoxy in which alkylene has 4 to 8 carbon atoms, N,N-aza-alkyleneimino-lower alkoxy and N-lower alkyl-N,N-aza-alkyleneimino-lower alkoxy in which alkylene has 4 to 6 carbon atoms, morpholino-lower alkoxy, thiamorpholino-lower alkoxy in all of which radicals containing more than one heteroatom, two heteroatoms are separated by 2 to 3 carbon atoms, (1,3-diaza-2-cycloalken-2-yl)-methoxy and N-lower alkyl-(1,3-diaza-2-cycloalken-2-yl)-methoxy in which the 1,3-diaza-2-cycloalken-2-yl portion has from 5 to 6 ring members, R_1 is a member selected from the group consisting of N,N-di-lower alkylamino-methyl, N-cycloalkyl-N-lower alkylaminomethyl in which cycloalkyl has 5 to 7 ring carbon atoms, N-lower alkyl-N-phenyl-lower alkylaminomethyl, N-hydroxy-lower alkyl-N-lower alkylaminomethyl, N,N-di-hydroxy-lower alkyl-aminomethyl N,N-alkyleneiminomethyl in which alkylene has 4 to 8 carbon atoms, N,N-aza-alkyleneiminomethyl and N-lower alkyl-N,N - aza - alkyleneiminomethyl in which alkylene has 4 to 6 carbon atoms and the nitrogen atoms are separated by at least 2 carbon atoms, morpholinomethyl and thiamorpholinomethyl, R_2 is a member selected from the group consisting of hydrogen and a radical listed for R_1, Ph is a member selected from the group consisting of 1,2-phenylene, (lower alkyl)-1,2-phenylene, (lower alkoxy)-1,2-phenylene and (halogeno)-1,2-phenylene, Ar is a member selected from the group consisting of phenyl, (lower alkyl)-phenyl, (lower alkoxy)-phenyl and (halogeno)-phenyl and the group —(C_nH_{2n})— is lower alkylene separating Ph from the carbon atom carrying Ar by 2 carbon atoms, an N-oxide thereof, a lower alkyl-quaternary thereof and an acid addition salt of these compounds.

4. A member selected from the group consisting of 1-[4-hydroxy - 3,5 - di-(1-piperidino-methyl)-phenyl]-2-phenyl-3,4-dihydro-naphthalene, and an acid addition salt thereof.

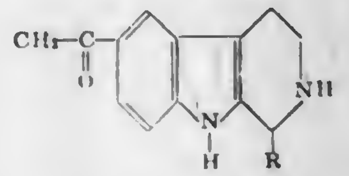
3,304,309
1 - SUBSTITUTED-6-ACETYL-1,2,3,4-TETRAHYDRO-β-CARBOLINES AND PROCESS FOR THEIR PRODUCTION

John Shavel, Jr., Mendham, Maximilian von Strandtmann, Rockaway, and Chester Puchalski, Morristown, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed Aug. 19, 1963, Ser. No. 303,143

7 Claims. (Cl. 260—296)

1. A compound of the formula:



wherein R is a member selected from the group consisting of lower alkyl, aryl, aralkyl and lower alkoxy substituted aralkyl and to the nontoxic pharmaceutically acceptable acid addition salts thereof.

3,304,310
CERTAIN ANTHRAQUINONETHIAZOLE COMPOUNDS

Istvan Hari and Max Staeuble, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed June 11, 1962, Ser. No. 201,247

Claims priority, application Switzerland, June 12, 1961, 6,894/61; June 21, 1961, 7,269/61; May 15, 1962, 5,832/62

2 Claims. (Cl. 260—303)

1. 2-carboxybenzoylaminoanthraquinonyl-5:6 - phthaloylbenzthiazole.

3,304,311
ANTHRAQUINONYL VAT DYESTUFFS

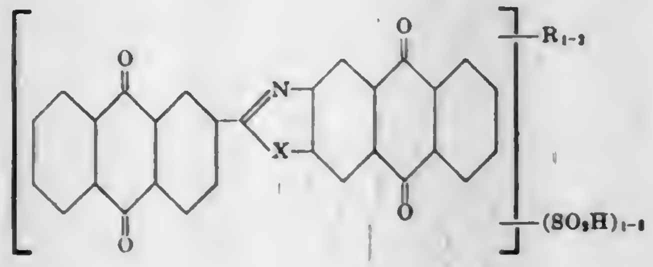
Kurt Weber and Max Jost, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

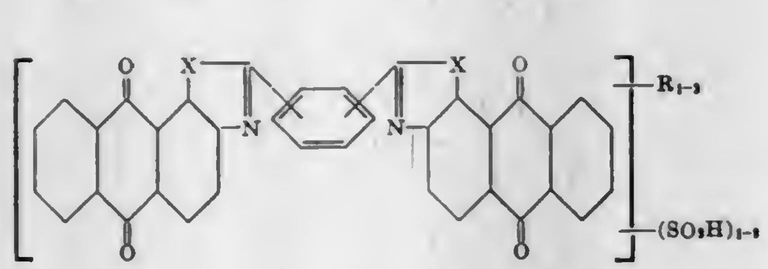
No Drawing. Filed Aug. 1, 1962, Ser. No. 213,856

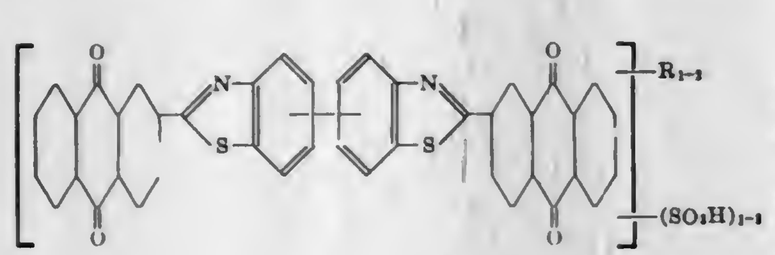
Claims priority, application Switzerland, Aug. 11, 1961, 9,453/61; June 20, 1962, 7,459/62

5 Claims. (Cl. 260—303)

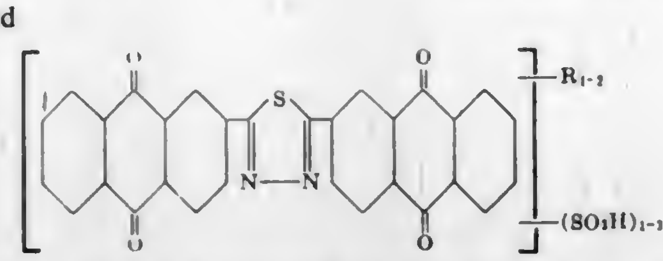
1. A vat dyestuff selected from the group consisting of those of the formulae:







and



wherein each R is independently selected from the group consisting of amino, 2-benzothiazolylamino, halogen, lower alkoxy, lower alkyl, aminosulfonyl, isothiocyano, epoxyethylene, β-haloethylsulfonyl, β-sulfatoethylsulfonyl, vinylsulfonyl, and N-(β-sulfatoethyl)aminosulfonyl; and X is —O—, —S—, or —NH—.

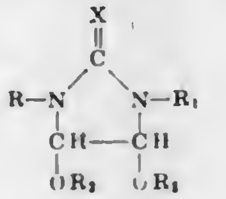
3,304,312
IMIDAZOLIDINONES

Michael T. Beachem, Franklin Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed July 8, 1966, Ser. No. 563,708

6 Claims. (Cl. 260—309.7)

1. A compound of the formula



where R and R_1 are selected from the group consisting of phenyl, lower alkyl, and substituted lower alkyl, wherein the substituting group is cyano, carboxy, carb(lower) alkoxy or carbamoyl, R_2 and R_3 are lower alkyl, provided that when R and R_1 are phenyl or substituted lower alkyl, R_2 and R_3 may be hydrogen and X is selected from the group consisting of oxygen and sulfur.

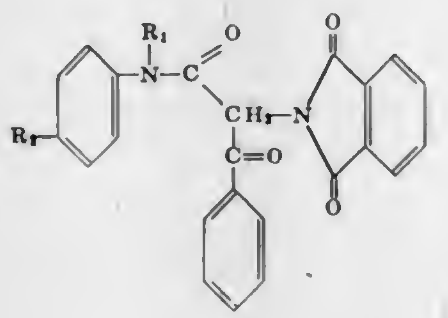
3,304,313
2 - (N-PHTHALIMIDOACETYL - N - CYCLOALKYLMETHYL) - AMINOBENZOPHENONE DERIVATIVES

Freeman H. McMillan, Dover, and Ian Pattison, Denville, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Original application Mar. 1, 1963, Ser. No. 262,221, now Patent No. 3,192,199, dated June 29, 1965. Divided and this application Jan. 21, 1965, Ser. No. 427,141

2 Claims. (Cl. 260—326)

1. A compound of the formula:



3

in which R_1 is a member selected from the group consisting of cyclopropylmethyl, cyclobutylmethyl and cyclopentylmethyl and R_2 is a member of the group consisting of hydrogen, halogen, lower alkyl and lower alkoxy.

3,304,314
NOVEL 9β,10α-STEROIDS AND PROCESS FOR THE MANUFACTURE THEREOF

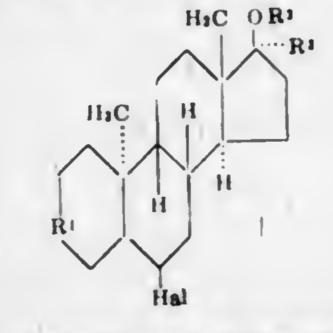
Engbert Harmen Reerink, Hendrik Frederik Louis Scholer, and Pieter Westerhof, all of Van Houtenlaan, Weesp, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 24, 1965, Ser. No. 466,818

Claims priority, application Switzerland, June 26, 1964, 8,465/64

27 Claims. (Cl. 260—397.4)

1. 9β,10α-steroids of the formula



(I)

wherein R^1 is a member selected from the group consisting of the 3-keto-4-dehydro-system, the 3-keto-4,6-bisdehydro-system, the 3-keto-1,4-bisdehydro-system, the 3-keto - 1,4,6 - trisdehydro-system and the 3-alkoxy-3,5-bisdehydro-system, OR^2 is a member selected from the group consisting of hydroxy, acyloxy and etherified hydroxy, R^3 is a member selected from the group consisting of alkyl and alkenyl and Hal is a halogen selected from the group consisting of fluorine, chlorine and bromine.

3,304,315
VICINAL-ACRYLOXY-HALO LONG CHAIN COMPOUNDS AND PROCESS FOR SAME

Charles S. Nevin, Decatur, Ill., assignor to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

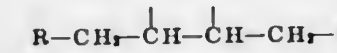
No Drawing. Filed Jan. 18, 1962, Ser. No. 167,154

30 Claims. (Cl. 260—404.8)

1. The process of preparing a polymerizable long chain compound, which comprises reacting at a temperature of from 0° C. to 100° C. an ethylenically unsaturated compound having the structure

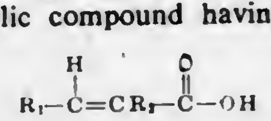
$$R-CH_2-CH=CH-CH_2-R$$

wherein



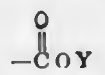
$$R-CH_2-\overset{|}{C}H-\overset{|}{C}H-CH_2-R$$

is an open chain of from 10 to 24 carbon atoms and R is selected from the group consisting of hydrogen and a monovalent aliphatic group, a tertiary alkyl hypochlorite and an acid acrylic compound having the structure



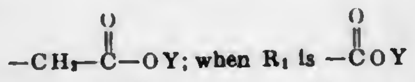
$$R_1-\overset{H}{\overset{|}{C}}=CR_2-\overset{O}{\overset{\|}{C}}-OH$$

wherein R_1 is selected from the group consisting of hydrogen and



$$-\overset{O}{\overset{\|}{C}}OY$$

when R_1 is a hydrogen, R_2 is selected from the group consisting of hydrogen, alkyl of from 1 to 4 carbon atoms, alkoxy of from 1 to 4 carbon atoms, halogen, phenyl, benzyl and



$$-CH_2-\overset{O}{\overset{\|}{C}}-OY;\ \text{when } R_1 \text{ is } -\overset{O}{\overset{\|}{C}}OY$$

R_2 is selected from the group consisting of hydrogen, halogen and alkyl of from 1 to 4 carbon atoms; and Y is selected from the group consisting of a monovalent aliphatic group of from 1 to 18 carbon atoms and a monovalent aromatic group of from 6 to 18 carbon atoms.

3,304,316
PHENYL MERCURY SALTS OF BRANCHED CHAIN ALIPHATIC MONOCARBOXYLIC ACIDS

John Geraci, Ridgefield, N.J., and Sergey V. Chodsky, New York, N.Y., assignors to Alcolac Chemical Corporation, a corporation of Maryland

No Drawing. Filed Feb. 8, 1965, Ser. No. 431,204

4 Claims. (Cl. 260—433)

1. Phenyl mercuric salts of saturated branched chain aliphatic monocarboxylic acids wherein said acids contain from 4 to 18 carbon atoms.

3,304,317
PREPARATION OF ALKYL BROMIDES AND DIALKYL ALUMINUM CYANIDES

Gordon D. Brindell, Wayne, N.J., and David W. Marshall, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Dec. 11, 1961, Ser. No. 158,570

9 Claims. (Cl. 260—448)

1. A process for preparing a mixture of an alkyl bromide and a dialkyl aluminum cyanide which comprises reacting an aluminum trialkyl having alkyl substituents containing not in excess of about 50 carbon atoms with bromocyanogen at a temperature between about 0° and 125° C.

3,304,318
METHOD FOR HYDROLYZING ALKOXYSILANES

Sam A. Brady, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Aug. 27, 1962, Ser. No. 219,726

8 Claims. (Cl. 260—448.2)

4. A process for preparing a siloxane of the unit formula $R_nH_mSiO_{(4-n-m)/2}$ which comprises contacting a silane of the formula $R_nH_mSi(OR')_{4-n-m}$ in the presence of a sulfonic acid cation exchange resin with sufficient water to completely hydrolyze the silane and then condensing the hydrolysis product obtained, wherein R is selected from the group consisting of monovalent hydrocarbon and halogenated monovalent hydrocarbon radicals, R′ is selected from the group consisting of alkyl radicals from 1 to 6 inclusive carbon atoms and $-(CH_2)_nOR''$ radicals, wherein R″ is an alkyl radical from 1 to 3 inclusive carbon atoms, n has a value from 1 to 3 inclusive, m has a value of from 0 to 1 inclusive, and the sum of $m+n$ is from 1 to 3 inclusive.

3,304,319
TETRA(TRIALKYLSILYL)CYCLOHEXENE DERIVATIVES AND PROCESS OF PREPARATION

Donald R. Weyenberg, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Jan. 14, 1963, Ser. No. 251,048

10 Claims. (Cl. 260—448.2)

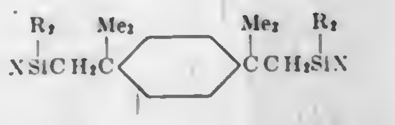
1. A composition of matter selected from the group consisting of phenyltetra(trialkylsilyl)cyclohexenes and t-butyltetra(trialkylsilyl)cyclohexenes in which each alkyl group contains from 1 to 7 inclusive carbon atoms.

6. The method of preparing phenyltetra(trialkylsilyl)-cyclohexenes wherein the alkyl groups each contain from 1 to 7 inclusive carbon atoms, said method comprising reacting (1) biphenyl, (2) a metal selected from the group consisting of sodium and lithium, and (3) a trialkylchlorosilane wherein the alkyl groups each contain from 1 to 7 inclusive carbon atoms, in a solvent selected from the group consisting of tetrahydrofuran, 1,2-dimethoxyethane and 2-methoxyethyl ether.

3,304,320
ORGANOSILICON COMPOSITIONS

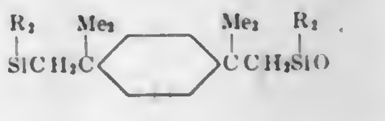
Ralph D. Spencer, Pitcairn, Pa., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed June 17, 1963, Ser. No. 288,553
5 Claims. (Cl. 260—448.2)

1. A silane of the formula



in which
X is selected from the group consisting of halogen, hydrogen, alkoxy and hydroxyl and
R is selected from the group consisting of monovalent hydrocarbon and monovalent halohydrocarbon radicals.

4. A siloxane containing at least one siloxane unit of the formula



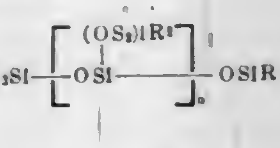
in which
R is selected from the group consisting of monovalent hydrocarbon radicals and monovalent halohydrocarbon radicals, any remaining units in said siloxane being essentially all of the formula $R'_nSiO_{4-n/2}$ in which
R′ is selected from the group consisting of monovalent hydrocarbon radicals, monovalent halohydrocarbon radicals and hydrogen atoms and
n is an integer from 0 to 3 inclusive.

3,304,321
PROCESS FOR HYDROXYLATING TRIORGANOSILOXYLATED SILOXANES

Charles W. Lentz, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Aug. 28, 1963, Ser. No. 305,192
19 Claims. (Cl. 260—448.2)

1. A process for hydroxylating triorganosiloxylated siloxanes which comprises the steps of
(1) reacting a triorganosiloxylated siloxane with a catalyst selected from the group consisting of aluminum chloride, titanium tetrachloride and sulfuric acid,
(2) hydrolyzing the reaction product and
(3) recovering the hydroxylated product.

9. A process for hydroxylating triorganosiloxylated siloxanes which comprises the steps of
(1) reacting a triorganosiloxylated siloxane having the general formula



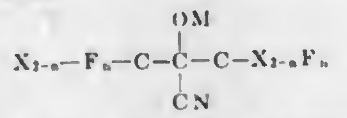
$$R_3Si-\left[OSi\overset{\overset{(OS_3)_1R^1}{|}}{}\right]_n-OSiR_3$$

wherein each R is a radical independently selected from the group consisting of the methyl, ethyl and 3,3,3-trifluoropropyl radicals and *n* is an integer, with a catalyst selected from the group consisting of aluminum chloride, titanium tetrachloride and sulfuric acid,
(2) hydrolyzing the reaction product and
(3) recovering the hydroxylated product.

3,304,322
ALKALI METAL SALTS OF PERCHLOROFLUOROACETONE CYANOHYDRINS

Theodore Mill, Palo Alto, and John O. Rodin and Robert M. Silverstein, Menlo Park, Calif., and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Mar. 24, 1964, Ser. No. 354,436
12 Claims. (Cl. 260—465.6)

1. Alkali metal salts of perhalofluoroacetone cyanohydrin of the formula



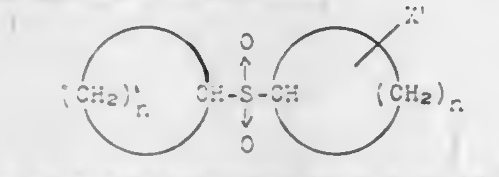
$$X_{3-n}-F_n-C-\underset{\underset{CN}{|}}{\overset{\overset{OM}{|}}{C}}-C-X_{3-n}F_n$$

wherein M is an alkali metal; X is a halogen having an atomic number not exceeding 35; *n* is an integer from 0 to 3 inclusive and at least one fluorine atom is present in the molecule.

3,304,323
OXYGENATED DICYCLOALKYL SULFONES

Gunther S. Fonken, Charleston Township, Kalamazoo County, Milton E. Herr, Kalamazoo Township, Kalamazoo County, and Herbert C. Murray, Barry Township, Barry County, Mich., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Mar. 20, 1964, Ser. No. 353,567
13 Claims. (Cl. 260—488)

1. A compound of the formula:

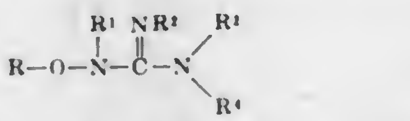


wherein *n* is a whole number from 4 to 14, inclusive; and X′ is selected from the group consisting of hydroxy, keto and acyloxy in which the acyl radical is that of a hydrocarbon carboxylic acid containing from 1 to 12 carbon atoms, inclusive.

3,304,324
ARALKOXYGUANIDINES AND ARYLOXYALKOXYGUANIDINES AND SALTS THEREOF

Edward L. Schumann, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed July 16, 1964, Ser. No. 383,231
23 Claims. (Cl. 260—501)

1. A compound selected from the group consisting of the free base and acid addition salt forms of a compound of the formula



$$R-O-\overset{\overset{R^1}{|}}{N}-\overset{\overset{NR^2}{\|}}{C}-N\begin{matrix}R^3\\ \\ R^4\end{matrix} \qquad (I)$$

wherein R is selected from the group consisting of aralkyl and aryloxyalkyl, wherein the aryl moiety of R is substituted by up to three substituents selected from the group consisting of hydrogen, alkyl of from one to four carbon atoms, inclusive, alkoxy, chlorine, bromine, nitro and phenyl; R^1, R^2, R^3 and R^4 are selected from the group consisting of hydrogen and alkyl of from one to four carbon atoms, inclusive.

3,304,325
DECHLORINATION OF CHLOROACETIC ACIDS

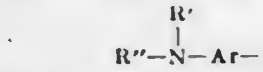
Arthur Brian Foster, Shawinigan South, Quebec, Canada, assignor to Shawinigan Chemicals Limited, Montreal, Quebec, Canada, a corporation of Canada
No Drawing. Filed Dec. 5, 1963, Ser. No. 328,176
6 Claims. (Cl. 260—539)

1. A process for the replacement with hydrogen of at least one atom of chlorine in a chloroacetic acid, which process comprises mixing the chloroacetic acid with hydrogen and passing the resulting mixture in the vapor phase into intimate contact with activated charcoal at a temperature in the range 140–250° C., said activated charcoal being the sole hydrogenation catalyst to contact the mixture.

3,304,326
GUANIDINES

Oswald Schier, Birsfelden, Switzerland, assignor to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 9, 1964, Ser. No. 395,311
Claims priority, application Switzerland, Sept. 20, 1963, 11,643/63; July 17, 1964, 9,422/64; Aug. 14, 1964, 10,647/64
23 Claims. (Cl. 260—551)

1. A compound of the formula



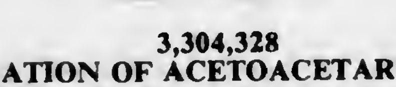
$$R''-\overset{\overset{R'}{|}}{N}-Ar-G$$

in which R″ stands for a member selected from the group consisting of unsubstituted naphthyl and naphthyl substituted by a member selected from the group consisting of lower alkyl, lower alkoxy, halogen and trifluoromethyl, R′ stands for a member selected from the group consisting of hydrogen and lower alkyl, Ar stands for a member selected from the group consisting of phenylene, lower alkyl-phenylene, lower alkoxy-phenylene, halogeno-phenylene and trifluoromethylphenylene and G for a member selected from the group consisting of unsubstituted N′-cyanoguanidino and N′-cyanoguanidino substituted by lower alkyl.

3,304,327
2,4-DISUBSTITUTED CARBOHYDRAZIDES

Leo A. Rapaelian, West Haven, Gerhard F. Ottmann, Hamden, and Haywood Hooks, Jr., West Haven, Conn., assignors to Olin Mathieson Chemical Corporation, New Haven, Conn., a corporation of Virginia
No Drawing. Filed Mar. 2, 1966, Ser. No. 531,034
12 Claims. (Cl. 260—554)

1. A compound of the formula:



$$H_2N-\overset{\overset{R}{|}}{N}-\underset{\underset{O}{\|}}{C}-\overset{\overset{R}{|}}{N}-NH_2$$

wherein each R is independently selected from the class consisting of alkyl having 1–8 carbon atoms and phenyl.

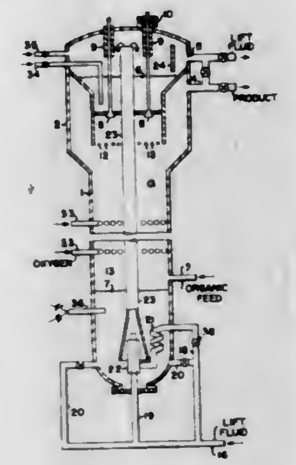
3,304,328
PREPARATION OF ACETOACETARYLAMIDES

Ralph L. Pelley, Linthicum Heights, Md., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 25, 1963, Ser. No. 318,820
6 Claims. (Cl. 260—562)

1. In the process of preparing acetoacetarylamides by reacting a primary amine selected from the group consisting of arylamines and aryldiamines in which the amino groups are attached directly to the aromatic carbocyclic nuclei with diketene in aqueous medium with agitation at a temperature of 0–50° C., the improvement which comprises simultaneously adding the two reactants in substantially stoichiometric proportions at substantially the rate at which they react whereby any substantial build-up of reactants is avoided in the presence of 1–10 parts by weight of water for each part of total reactants while agitating with a force of at least 0.5 horsepower per 100 gallons of reaction medium, whereby the product is produced in high yields of at least about 90% and is completely soluble in cold aqueous caustic without purification.

3,304,329
OXIDIZING HYDROCARBONS IN THE PRESENCE OF TRIGGERING AGENTS

Jennings H. Jones and Merrell R. Fenske, State College, Pa., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Mar. 9, 1960, Ser. No. 13,842
4 Claims. (Cl. 260—592)



1. A process for oxidizing a lower alkyl aromatic compound that normally requires the use of severe conditions including high temperatures which comprises contacting about 85 to 99 mole percent of said lower alkyl aromatic compound in vapor form with about 1 to 15 mole percent of a C_4–C_{20} more easily oxidizable organic compound selected from the group consisting of hydrocarbons and hydroxy, carbonyl and epoxide substituted hydrocarbons that has at least 30% methylenic carbon atoms, but not more than 30% of its carbon atoms in the form of alkyls selected from the group consisting of methyl and ethyl substituents and a free oxygen-containing gas, passing the resulting mixture through a reaction zone at a temperature between about 300° and 650° C., also passing through the reaction zone evenly dispersed finely divided inert solids that are at a temperature below the maximum temperature in the reaction zone said solids being present in a concentration of about 0.05 to 10 volume percent of solid per volume of reaction space and sufficient to maintain the average temperature in said reaction zone below 650° C., the mixture being passed through the reaction zone at a rate such that the residence time of the mixture in the reaction zone is not more than 20 seconds, and separating the reaction products from the mixture.

3,304,330
TERTIARY PHOSPHINE OXIDE COMPOUNDS

John Thomas Yoke III, Tucson, Ariz., and Robert G. Laughlin, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
No Drawing. Filed Feb. 16, 1962, Ser. No. 173,834
5 Claims. (Cl. 260—606.5)

1. Tertiary phosphine oxide compounds having the formula $RR'R''P \rightarrow O$, wherein R is selected from the group consisting of alkyl and monohydroxyalkyl radcals ranging in chain length from 10 to 18 carbon atoms, R′ and R″ are each selected from the group consisting of alkyl and monohydroxyalkyl radicals containing from 1 to 3 carbon atoms.

3,304,331
PROCESS FOR CHLORINATION OF DIMETHYLSULFOXIDE

Charles Di Santo, Mount Vernon, N.Y., assignor to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Aug. 28, 1963, Ser. No. 305,203
3 Claims. (Cl. 260—607)

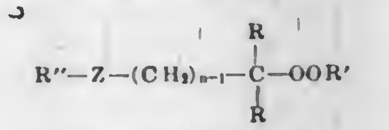
1. A process of preparing bis(trichloromethyl)sulfone

which comprises reacting dimethylsulfoxide in aqueous media under substantially neutral to alkaline conditions with sufficient alkali metal hypochlorite whereby total chlorination of all the hydrogen atoms is effected while causing oxidation of the sulfoxide function to a sulfone and isolating the so formed bis(trichloromethyl)sulfone.

3,304,332
ORGANIC POLYBROMINATED PEROXIDES

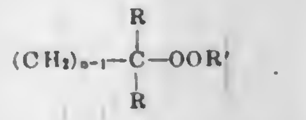
Richard A. Bafford, Delmont, Pa., assignor to Koppers Company, Inc., a corporation of Delaware
No Drawing. Filed Feb. 28, 1964, Ser. No. 348,295
4 Claims. (Cl. 260—610)

1. A compound having the formula:



$$R''-Z-(CH_2)_{n-1}-\overset{R}{\underset{R}{\overset{|}{\underset{|}{C}}}}-OOR'$$

wherein R is a member selected from the group consisting of lower alkyl and hydrogen, R′ is tertiary lower alkyl, R″ is a member selected from the group consisting of R and



$$(CH_2)_{n-1}-\overset{R}{\underset{R}{\overset{|}{\underset{|}{C}}}}-OOR'$$

wherein R and R′ are as defined above; Z is a member selected from the group consisting of CHX—CHX, CX=CX and CX_2—CX_2 wherein X is bromine and *n* is an integer having a value of 1–7.

3,304,333
POLYENE-1-OLS INSECT ATTRACTANTS

Ernst Truscheit and Karl Eiter, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed June 20, 1960, Ser. No. 37,086
Claims priority, application Germany, June 23, 1959, F 28,769
6 Claims. (Cl. 260—617)

1. An unsaturated aliphatic alcohol having the formula:

$$R—CH{=}CH—(CH_2)_8—CH_2—OH$$

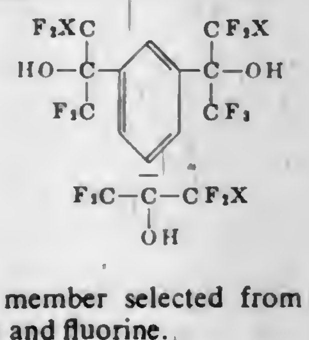
wherein R is a member selected from the group consisting of propene-(1)-yl-(1)-, pentadiene-(1,3)-yl-(1)-, 2-6-dimethylheptadiene-(1,5)-yl-(1)- and 2,6,6-trimethylcyclohexene-(1)-yl-1(1)-.

3. 10-trans-12-trans-tetradecadiene-(10,12)-ol-(1).

3,304,334
TRIS-(2-HYDROXYPERHALOFLUORO-2-PROPYL) BENZENES AND PROCESS FOR PREPARING THEM

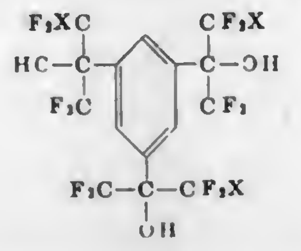
Edward S. Jones, Whippany, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Sept. 18, 1964, Ser. No. 397,625
7 Claims. (Cl. 260—618)

1. Tris-1,3,5-(2-hydroxyperhalofluoro-2-propyl) benzenes of the formula



wherein X is a member selected from the group consisting of chlorine and fluorine.

4. The process for preparing a tris-1,3,5-(2-hydroxyperhalofluoro-2-propyl) benzene of the formula



wherein X is a member selected from the group consisting of chlorine and fluorine, which comprises subjecting a mixture of (1) a perhalofluoroacetone selected from the group consisting of hexafluoroacetone and pentafluoromonochloroacetone, and (2) a benzene compound selected from the group consisting of zenzene, mono-(2-hydroxyhexafluoro - 2 - propyl) benzene; bis - (2 - hydroxyhexafluoro - 2 - propyl) benzene; mono - (2 - hydroxypentafluoromonochloro - 2 - propyl) benzene; and bis - (2 - hydroxypentafluoromonochloro - 2 - propyl) benzene, in proportions of at least the stoichiometric amount of perhalofluoroacetone and benzene compound theoretically necessary to produce the tris-(2-hydroxyperhalofluoro-2-propyl) benzene, to a pressure of at least about 20 kilobars and a temperature between about 150° C. and about 300° C. in the presence of boron trifluoride as catalyst.

3,304,335
PREPARATION OF HALODIFLUORONITROSOMETHANE

Marvin M. Fein, Westfield, and John E. Paustian, Whippany, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
No Drawing. Filed Aug. 13, 1965, Ser. No. 479,611
2 Claims. (Cl. 260—647)

1. A process for preparing chlorodifluoronitrosomethane comprising reacting nitroso chloride with sodium chlorodifluoroacetate at a temperature between about 85° C. and 160° C., and recovering said chlorodifluoronitrosomethane.

3,304,336
DEHYDROCHLORINATION OF POLYCHLORINATED HYDROCARBONS

William A. Callahan, Holland, Mich., assignor to Detrex Chemical Industries, Inc., Detroit, Mich., a corporation of Michigan
No Drawing. Continuation of application Ser. No. 170,261, Jan. 31, 1962. This application May 27, 1964, Ser. No. 370,713
12 Claims. (Cl. 260—654)

1. In a method of effecting the dehydrochlorination of a polychlorinated hydrocarbon compound selected from the group consisting of 1,1,1-trichlorethane; 1,1,1,2-tetrachlorethane; and pentachlorethane, the step which comprises eliminating hydrogen chloride by heating said compound in the presence of an addition product of anhydrous aluminum chloride and a nitrobenzene selected from the group consisting of nitrobenzene, alkyl substituted nitrobenzenes, halogen substituted nitrobenzenes, hydroxy substituted nitrobenzenes, and alkoxy substituted nitrobenzenes.

3,304,337
ETHANE CHLORINATION

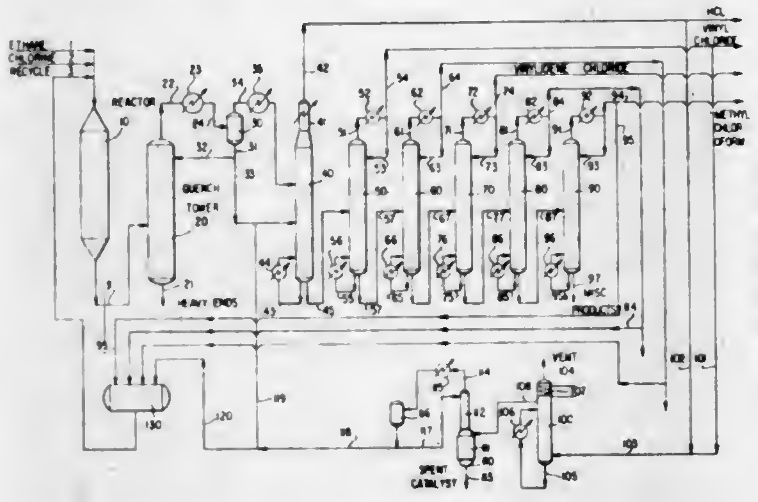
James Irwin Jordan, Jr., and Harold Stanton Vierk, Wichita, Kans., assignors to Frontier Chemical Company, division of Vulcan Materials Company, Wichita, Kans., a corporation of New Jersey
Filed Aug. 22, 1962, Ser. No. 218,773
13 Claims. (Cl. 260—662)

1. A process for chlorinating ethane to make a mixture of chlorinated hydrocarbons rich in methyl chloroform, vinyl chloride and vinylidene chloride, which comprises the steps of:

passing into a reaction zone a mixture consisting essentially of ethane, chlorine, and a saturated chlorinated ethane containing 1 to 3 chlorine atoms per molecule, said saturated chlorinated ethane being in proportions sufficient (a) to absorb exothermic heat of reaction so as to thereby maintain the temperature in said zone within the range of about 650° F. to about 820° F., and (b) to modify the product distribution of said chlorinated hydrocarbons, said zone being maintained at a superatmospheric pressure of about 10 p.s.i.g. to about 100 p.s.i.g., the mole ratio of free chlorine to ethane being between about 1.5 and about 3,

withdrawing the reaction mixture from said reaction zone,

separating and recovering the desired chlorinated hydrocarbon reaction product,



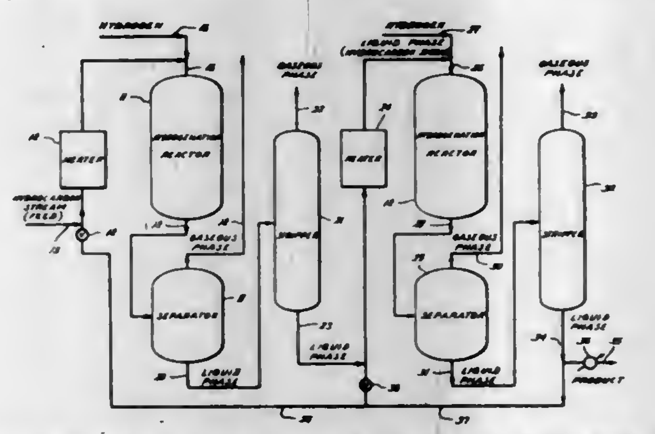
and recycling to the reaction zone at least a portion of the saturated chlorinated ethane contained therein to control the temperature and modify the product distribution.

12. A process for making 1,1-dichloroethane which comprises passing a feed consisting essentially of ethane, chlorine and ethyl chloride through a reaction zone at a temperature between about 650° and 820° F. and at superatmospheric pressure between about 10 p.s.i.g. and about 100 p.s.i.g., said feed containing about 0.5 to 1.2 moles of free chlorine per mole of ethane and about 0.8 to 2 moles of ethyl chloride per mole of free chlorine, said ethyl chloride being present in said feed in a proportion sufficient to absorb exothermic heat of reaction so as to maintain the temperature in said zone within the range between about 650° and 820° F. and to modify the product distribution of said chlorinated hydrocarbons, and withdrawing an effluent rich in 1,1-dichloroethane from said reaction zone.

3,304,338
TWO-STAGE HYDROGENATION OF AROMATIC HYDROCARBONS

Clyde E. Parish, Houston, Tex., assignor to Signal Oil and Gas Company, Los Angeles, Calif.
Filed May 5, 1964, Ser. No. 366,220
11 Claims. (Cl. 260—667)

1. A process for hydrogenating monocyclic aromatics in a hydrocarbon stream comprising the steps of subjecting a platinum catalyst contaminant-containing hydrocarbon stream, the aromatic content thereof containing a major proportion of monocyclic aromatics, in a first reaction zone to the action of hydrogen in an amount above 800 s.c.f. per barrel of hydrocarbons, a pressure from about 300 p.s.i. to about 500 p.s.i., a temperature from about 400° F. to just below the temperature at which reforming of the non-aromatic hydrocarbons occurs, in the presence of a hydrogenation catalyst containing platinum and at a LHSV of hydrocarbons between about 0.5 and 12, regulated to provide hydrogenation of cyclic aromatics without cracking, separating the products of said first reaction zone into liquid and gaseous phases, and subjecting only the liquid phase in a second isolated reaction zone to the action of contaminant-free hydrogen under conditions equivalent to those of the first reaction zone, including hydrogen in an amount above 800 s.c.f. per barrel of hydrocarbons, a pressure from about 300 p.s.i. to about 500 p.s.i., a temperature from just below 400° F. to about the temperature at which reforming of the non-aromatic hydrocarbons occurs, in the presence of a contaminant-free hydrogenation catalyst containing platinum and a LHSV of hydrocarbons between about 0.3 and 12, regulated to provide essentially complete hydrogenation of monocyclic aromatics without cracking thereof.



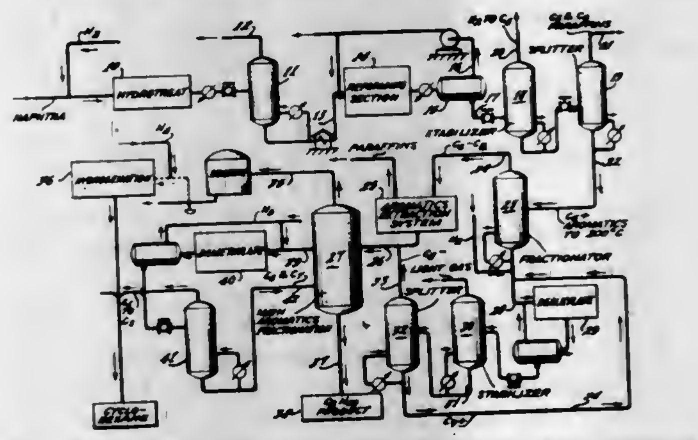
3,304,339
CONVERSION OF ALKYL AROMATICS

Hans A. Benesi, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 25, 1966, Ser. No. 529,949
6 Claims. (Cl. 260—668)

1. A process for isomerizing a xylene isomer which comprises contacting said isomer in the presence of hydrogen in an isomerization zone at a temperature in the range from about 200 to 500° C. with a catalyst comprising silver and fluoride composited with an acid-acting cracking catalyst.

3,304,340
AROMATICS PRODUCTION

Henry D. Noll, Philadelphia, Pa., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware
Filed Oct. 14, 1965, Ser. No. 495,932
10 Claims. (Cl. 260—672)



1. In the method of producing benzene and xylenes from a hydrocarbon reformate rich in aromatics the improvement which comprises: removing hydrocarbons boiling below about 75–78° C. from said reformate; frac-

tionating the remaining hydrocarbons after such separation into (a) a light fraction composed predominantly of C_6 to C_8 hydrocarbons, and (b) a heavy fraction consisting essentially of C_9 and higher hydrocarbons; extracting aromatic hydrocarbons from said light fraction (a); subjecting said heavy fraction (b) to selected conditions of mild hydrogenative dealkylation at temperatures between about 1100 and about 1150° F. over active chrome-alumina catalyst favoring production of xylenes; separating C_6 to C_8 hydrocarbons from said mild dealkylation while continuously recycling to said dealkylation products boiling above xylenes; combining the separated C_8 to C_8 hydrocarbons stream with said aromatic extract stream from the light fraction and subjecting the combined streams to fractional distillation to provide: (c) an overhead cut consisting substantially of benzene; (d) a bottoms cut composed essentially of C_8 aromatic hydrocarbons predominating in xylenes; and (e) a middle cut consisting essentially of toluene; subjecting said middle cut (e) to severe demethylation over active chrome-alumina catalyst at temperatures between about 1000 and about 1200° F. under selected conditions favoring production of benzene; removing products boiling below benzene from the effluent from said severe demethylation reaction, while returning the produced benzene and unreacted toluene to fractional distillation with the aforesaid combined streams so as to obtain (1) additional recovered benzene products and (2) toluene for recycling to demethylation; and controlling the mild dealkylation of the C_9 plus hydrocarbons fraction to provide shorter residence time than that employed in the severe demethylation of the toluene.

3,304,341
PROCESSES FOR SEPARATION OF OLEFINES

Hans Berthold Wiener, Alexander James Strath Sorrie, and William Featherstone, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Apr. 26, 1963, Ser. No. 276,077

Claims priority, application Great Britain, May 7, 1962, 17,424/62

9 Claims. (Cl. 260—677)

1. In a process for separating olefinic compounds from a mixture containing olefinic and non-olefinic organic compounds by:

(a) a selective extraction step with an aqueous solution of silver fluoborate or silver fluosilicate to give an aqueous extract,

(b) a stripping step to recover said olefinic compound from said aqueous extract and thereby regenerate said solution,

the improvement which comprises a purification step, after said selective extraction step and before said stripping step, to purify said aqueous extract, said purification step being carried out by a liquid extraction with a solvent different from that used in said selective extraction step or by an extractive distillation.

3,304,342
OXIDATIVE DEHYDROGENATION OF MONOOLEFINS

George J. Nolan and Vernon C. F. Holm, Bartlesville Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Dec. 27, 1965, Ser. No. 516,740

4 Claims. (Cl. 260—680)

1. A method for dehydrogenating at least one compound selected from the group consisting of alkenes and the alkyl-substituted and unsubstituted cycloalkenes, said method comprising the step of contacting said compound in the presence of oxygen with a catalyst comprising aluminum phosphate at a temperature ranging from 800 to about 1300° F.

3,304,343
PROCESS FOR TRANSFERRING DOUBLE BOND OF OLEFIN

Akio Mitsutani, Kurashiki, Japan, assignor to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan

No Drawing. Filed Apr. 27, 1964, Ser. No. 363,002

Claims priority, application Japan, May 2, 1963, 38/22,948

2 Claims. (Cl. 260—683.2)

1. A method of transferring a double bond of an aliphatic monoolefin having from 4 to 10 carbon atoms from one position to another position in the molecular chain which comprises contacting the aliphatic monoolefin with a catalyst free of water-soluble components prepared by (1) calcining a solid phosphoric acid catalyst consisting of phosphoric acid deposited on a carrier consisting essentially of silica, the calcination being carried out at a temperature in the range of about 500° C. to 1100° C., and (2) washing the calcined catalyst with water to remove water-soluble components from said calcined catalyst.

3,304,344
REACTION PRODUCT OF A POLYEPOXY MONOMER AND COMPLEX ACIDS DERIVED FROM SOLVENT EXTRACTS OF LUBRICATING OILS

Theodore H. Szawlowski, Wonder Lake, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Dec. 26, 1961, Ser. No. 162,279

16 Claims. (Cl. 260—830)

1. A flexible, non-setting, pressure-sensitive epoxy resin reaction product of

(1) polyepoxy monomers having terminal epoxy groups in which the oxygen atom is joined to adjacent carbon atoms, a molecular weight of about 1000 to 3000 and and epoxide equivalent of at least about 140 and

(2) complex polynuclear aromatic carboxylic acids derived from solvent extracts obtained in the solvent refining of mineral lubricating oils with a solvent selective for aromatic compounds by metalation of said solvent extracts to form the alkali metal adduct, carbonation of said adduct to form the corresponding alkali metal salt of the carboxylic acid and acidification of said salt to form the free carboxylic acid characterized by being complex, polynuclear aromatic, alkyl-aromatic acids predominating in carbon and hydrogen, containing about 0.5 to 4.5 wt. percent of sulfur, having a molecular weight of above about 300 and having 1.7 to 3.5 average number of aromatic rings per aromatic molecule, said reaction being conconducted by heating said polyepoxy monomer with about 10% to 50% by weight of said complex carboxylic acids, based on the weight of said monomers, at a temperature of about 250° to 370° F. in the presence of a tertiary amine catalyst.

3,304,345
LIQUID THERMOSETTING RESINOUS MIXTURE STABILIZED WITH A SODIUM SALT OF A SULFONATED DI(ALKARYL)ALKYLENE COMPOUND

John R. Le Blanc, Wilbraham, Mass., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Dec. 30, 1963, Ser. No. 334,546

4 Claims. (Cl. 260—839)

1. An improved thermosetting resin composition consisting of in admixture a liquid thermosetting phenol-formaldehyde condensate and a thermosetting condensate selected from the group consisting of melamine-formaldehyde and substituted melamine-formaldehyde; the improvement being in the addition of 0.05–0.5 weight percent of a stabilizer which stabilizer is the sodium salt of a disulfonated di(alkaryl)alkylene compound wherein the

aryl group contains 1–2 benzene rings, the alkyl proportion of the alkaryl group contains 0–5 carbon atoms and the alkylene group contains 1–5 carbon atoms.

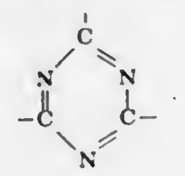
3,304,346
FLUORESCENT TRIAZINYL BENZOPYRONE-ALDEHYDE CONDENSATION PRODUCTS

Gaetano F. D'Alelio, South Bend, Ind., assignor, by direct and mesne assignments, to Dal Mon Research Co., Cleveland, Ohio, a corporation of Delaware

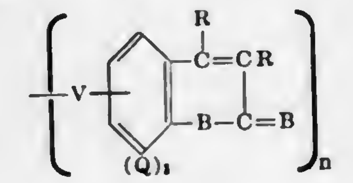
No Drawing. Filed Mar. 1, 1963, Ser. No. 262,192

18 Claims. (Cl. 260—849)

1. A fluorescent composition of matter comprising the reaction product of an aldehyde and a triazine having the structure



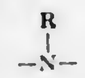
wherein at least one of said valencies is attached to an aldehyde-reactable group and at least one of said valencies is attached to a benzopyrone-substituent group having the formula



wherein

n is an integer having a value of at least one and no more than two;

V represents a radical selected from the class consisting of —O—, —S—, and



$-\overset{R}{\overset{|}{N}}-$

radicals;

Q represents a radical selected from the class consisting of —H, —R, —OR, —SR, —Cl, —Br, —F, and —NO_2 radicals;

R represents a hydrocarbon radical containing one to twelve carbon atoms,

B represents a radical of the class consisting of O and S.

9. A composition of claim 1 in which said mass also comprises a methylol urea.

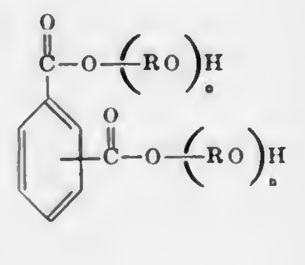
3,304,347
UNSATURATED POLYESTER PREPARED FROM BIS(HYDROXYALKYLENEOXYCARBONYL)BENZENES

Charles W. McGary, Jr., South Charleston, Percy L. Smith, Dunbar, and Lowell R. Comstock, South Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Apr. 6, 1964, Ser. No. 357,749

6 Claims. (Cl. 260—861)

1. A composition that comprises a styrene solution of a polyester, said polyester consisting essentially of the reaction product of (a) an unsaturated dicarboxylic acid or anhydride thereof and (b) a diester of the formula:



wherein each *n* individually represents a number having an average value of from about 1.5 to about 2.5, and wherein each R individually represents alkylene of from 2 to 4 carbon atoms, said diester having been previously produced by reacting alkylene oxide with a phthalic acid or a mono(hydroxyalkyl) ester thereof at a temperature below about 160° C.

3,304,348
HEAT SETTABLE BUTADIENE-STYRENE COMPOSITIONS FOR PROTECTIVE COATINGS COMPRISING PHOSPHORIC ACID AND A POLYCARBOXYLIC ACID ANHYDRIDE

Joseph G. Svrchek, Hinsdale, Ill., assignor, by mesne assignments, to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

No Drawing. Filed Oct. 25, 1963, Ser. No. 318,817

4 Claims. (Cl. 260—894)

2. A composition settable by heat into an impervious protective coating resistant to cathodic disbonding comprising a mixture of copolymers whose solids content contains from 5 to 40% of a butadiene-styrene copolymer containing from 75 to 85% butadiene and 15 to 25% styrene and from 60 to 95% of a partly oxidized butadiene-styrene copolymer containing from 75 to 85% butadiene and 15 to 25% styrene, in combination with an anhydride of a polycarboxylic organic acid in an amount up to about 25% by weight of the said solids content and phosphoric acid in an amount up to about 2% by weight of said solids content.

3,304,349
EPIHALOHYDRIN REACTION PRODUCTS OF PHOSPHOROUS AND SULFUR OXYGEN ACIDS AND AMINES

Kwan-Ting Shen, St. Louis, Mo., assignor to Petrolite Corporation, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 12, 1962, Ser. No. 244,020

2 Claims. (Cl. 260—920)

1. The zwitterion reaction product formed by first reacting epichlorohydrin with an alkali metal salt of phosphorous acid, phosphoric acid, sulfurous acid or sulfuric acid to open the epoxy ring and then reacting said so-formed product containing the unreacted chlorine atom of epichlorohydrin with dimethyl dodecyl amine.

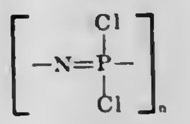
3,304,350
PREPARATION OF POLYFLUOROALKYL PHOSPHONITRILATES

Ehrenfried H. Kober, Hamden, Henry F. Lederle, North Haven, and Gerhard F. Ottmann, Hamden, Conn., assignors to Olin Mathieson Chemical Corporation, a corporation of Virginia

No Drawing. Filed Apr. 1, 1964, Ser. No. 356,634

7 Claims. (Cl. 260—973)

1. A method for the preparation of a polyfluoroalkyl phosphonitrilate which comprises reacting a phosphonitrilic chloride of the formula:



$$\left[-N=\overset{Cl}{\overset{|}{\underset{\underset{Cl}{|}}{P}}}-\right]_n$$

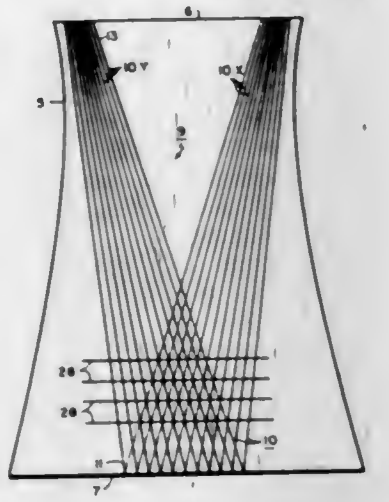
wherein *n* is an integer of from 3 to 7 inclusive with a polyfluoroalcohol of the formula:

$$Y(CF_2)_xCH_2OH$$

wherein Y is selected from the group consisting of hydrogen and fluorine, *x* is a small whole number of from 1 to 20 in a water-aromatic hydrocarbon medium and in the presence of a water-soluble acid acceptor.

3,304,351
METHOD OF CONSTRUCTING A HYPERBOLIC CONCRETE SHELL FOR A WATER-COOLING TOWER

John M. Sweeney, 131 Sylvania Drive,
Pittsburgh, Pa. 15236
Filed Dec. 17, 1962, Ser. No. 245,260
11 Claims. (Cl. 264—32)

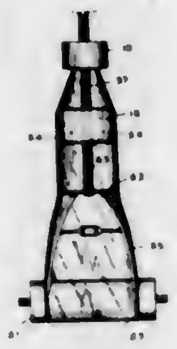


1. In a method of constructing a water-cooling tower of substantially hyperbolic shape, said tower having an open grillwork base from which rises a hyperbolic shell having a restricted neck portion between its top and bottom, the invention comprising, firstly building said shell by forming a substantially hyperbolic shaped network of a plurality of tension cables through affixing the lower end of each said cable to substantially the top of said grillwork base and connecting the upper end thereof to means supported adjacent the top of said tower, arranging a first portion of said cables so that each cable of said first portion extends diagonally upwardly from its lower end towards said means in a right-hand direction and is substantially tangent to said neck portion, said first portion cables being spaced apart from one another and disposed substantially around the top of said base and around said means, arranging a second portion of said cables so that each cable of said second portion extends diagonally upwardly from its lower end towards said means in a left-hand direction and is substantially tangent to said neck portion, said second portion cables being spaced apart from one another and disposed substantially around the top of said base and around said means, secondly subjecting each cable to a given amount of tension which takes out a substantial amount of sag in each cable but leaves more than four inches of sag in each said cable and is less than that which overloads said means and is sufficient to reduce distortion of the shape of said network to a given amount, thirdly erecting a form which is parallel to said network, fourthly utilizing said form in embedding said network in cementlike material from said top of said base to substantially said top of said cables to produce said hyperbolic shell with the restricted neck portion between its top and bottom, during said embedding maintaining tension in said cables substantially at said given amount by decreasing and increasing tension in said cables as said embedding progresses from the bottom of said network to the top thereof.

3,304,352
METHOD FOR THE EXTRUSION OF TUBING

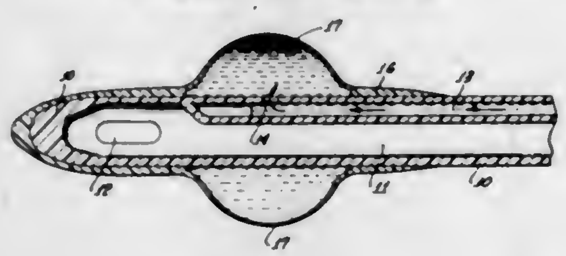
Milo Robert Gerow, 174 Laurel Hill Road,
Mountain Lakes, N.J. 07046
Filed Apr. 8, 1963, Ser. No. 271,244
3 Claims. (Cl. 264—95)

1. In a method for extrusion of tubing and sheeting in which heated synthetic resinous thermoplastic tubing is die-extruded in non-self-sustaining condition and a fluid under pressure is supplied within said tubing to support said tubing, and which includes reducing said pressure in a reduced pressure zone to eliminate substantially any possibility of surge, and the pressure in the reduced pressure zone is balanced against a weight equal substantially to that of a Ping-pong ball, and in which the supporting fluid is circulated within the tubing to prevent its collapse, and the tubing is passed through a modifying and sizing zone to size and at least partially set the extruded tubing, and includes passing the tubing from the modifying and sizing zone into a sealing zone to seal the tubing against fluid passage in the direction of tubing travel and substantially to equalize the draw on the tubing around its entire periphery, the method which includes the further step of substantially equalizing the fluid pressure in the tubing between the sealing zone and the sizing zone with the pressure between the sizing zone and the point of extrusion.



3,304,353
METHOD OF CATHETER MANUFACTURE

Andrew Harautuneian, Gardena, Calif., assignor to Pharmaseal Laboratories, Glendale, Calif., a corporation of California
Filed Mar. 25, 1963, Ser. No. 267,723
5 Claims. (Cl. 264—98)

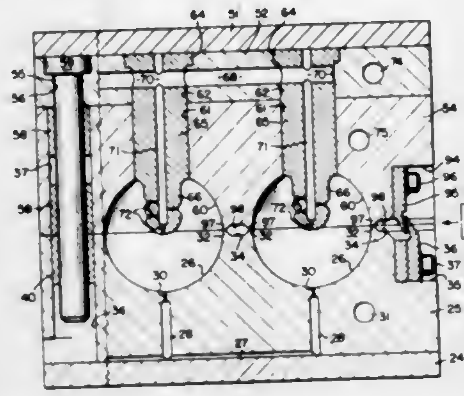


1. A method of making a thermoplastic medical retention catheter comprising the steps of:

(A) forming a thermoplastic tube with a wall surrounding a main lumen passage and with a second passage in this wall;
(B) cutting the tube to length;
(C) closing off one end of said second passage;
(D) forming an opening in the wall of the tube communicating between an exterior of the tube and the second passage;
(E) applying a water soluble partitioning coating cylindrically and continuously around the tube adjacent said opening;
(F) covering said coating with a thermoplastic balloon layer from a liquid organic solvent system, said balloon layer bonding to the tube beyond ends of said coating, which coating remains intact during this step; and
(G) dissolving the partitioning coating by an aqueous liquid injected through the second passage and wall opening to inflate the balloon, whereby material of said partitioning coated dissolved in the inflation liquid can exit through the opening in the tube wall and along the second passage as the inflation liquid is withdrawn to deflate the balloon.

3,304,354
METHOD AND APPARATUS FOR MOLDING

Howard J. Hill, Jr., East Aurora, and Robert V. Blakely, Lakeview, N.Y., assignors to Fisher-Price Toy, Inc., East Aurora, N.Y., a corporation of New York
Filed Apr. 8, 1963, Ser. No. 271,324
31 Claims. (Cl. 264—98)

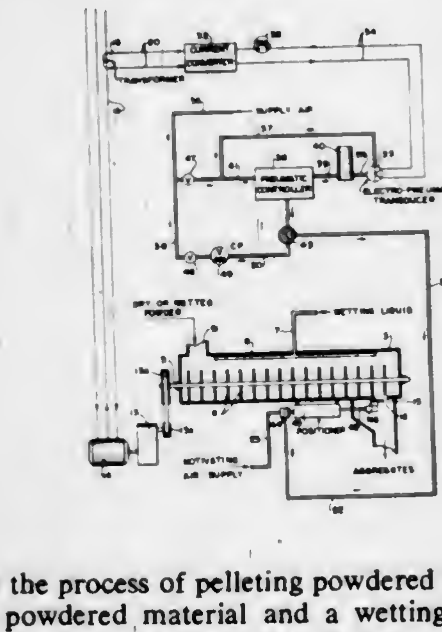


19. A method of molding a shaped plastic article having a socket with an irregular, lateral surface, said method comprising:

(a) forming a mold cavity between confronting faces of a plurality of mold sections including at least one mold section that projects into said cavity to form said socket;
(b) expanding a plastic body that is in its plastic state in said mold cavity to conform said plastic body to the configuration of said cavity and said socket forming mold section;
(c) converting said plastic from its plastic state to a state in which said plastic is self-sustaining in shape;
(d) dilating said socket by injecting fluid under pressure laterally from said socket forming mold section;
(e) withdrawing said socket forming mold section axially from said dilated socket.

3,304,355
PROCESS FOR FORMING AGGREGATES OF POWDERED MATERIALS

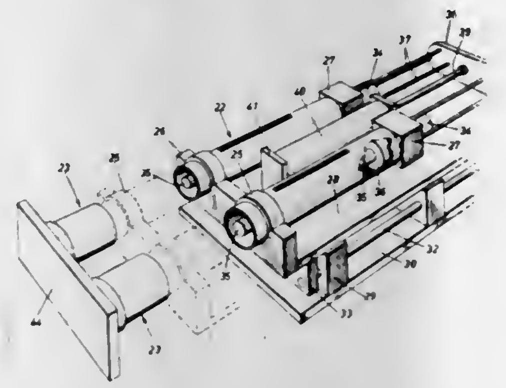
David F. Pobst, Jr., and Bobby J. Rowlett, Franklin, La., assignors to Columbian Carbon Company, New York, N.Y., a corporation of Delaware
Filed June 6, 1963, Ser. No. 286,042
3 Claims. (Cl. 264—117)



1. In the process of pelleting powdered material whereby the powdered material and a wetting liquid are fed to an agitation zone having a discharge opening at one end thereof at rates which enable the production of pellets having the desired characteristics, which rates are not deliberately varied, but are subject to fluctuation during operation, and the mass of powdered pigment and wetting liquid is subjected to vigorous mechanical agitation while being advanced through said agitation zone toward the discharge opening thereof by subjecting the mass to the action of agitating means moving through the mass in a direction transverse to the advancing movement of the mass through the agitation zone, the method of regulating and controlling the characteristics of the resulting pellets which comprises varying the area of said discharge opening and thereby varying the rate at which said mass is discharged from said agitation zone, in response to and in proportion to variations in the resistance offered by said mass to the movement of said agitating means therethrough from the level of resistance required to produce pellets having the desired characteristics, whereby the area of said discharge opening is proportionately decreased when the resistance offered by said mass to the movement of said agitating means falls below the required level, and is proportionately increased when the resistance offered by said mass to the movement of said agitating means becomes greater than the required level.

3,304,356
METHOD OF PRODUCING PLASTIC FIBER FILTERS

Robert Palmai, Preston, Ontario, Canada, assignor to Kralinator Filters Limited, Preston, Ontario, Canada
Filed May 18, 1964, Ser. No. 367,954
Claims priority, application Canada, Apr. 18, 1964, 900,742
2 Claims. (Cl. 264—137)

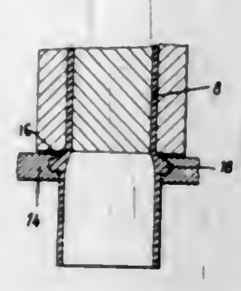


1. In the method of producing filters from a mat of resilient fibrous material by impregnating said mat with a thermosetting resin after which the mat is dried at the temperature below that at which curing of the resin commences, forming said dried mat into a filter, transferring the formed filter into an open ended heated mold, closing said mold with a cover member to compress said filter form and heating said compressed filter form in said mold to effect curing of the resin, the improvement comprising the steps of applying heat and pressure to compress said filter form within said mold after transfer thereto, maintaining said pressure only for the time necessary to initiate curing of the resin and thereby reduce the resiliency of said filter form, releasing said pressure and closing said mold with said cover member to recompress said filter form to then complete the curing of said resin.

3,304,357
METHOD OF FORMING A BLANK OF THERMO-PLASTIC MATERIAL

Erhard Langecker, Oststrasse 32, Meinerzhagen, Germany
Filed Mar. 29, 1963, Ser. No. 268,963
Claims priority, application Germany, Nov. 9, 1962, L 43,420
1 Claim. (Cl. 264—150)

A method for conveying a hose-shaped or cord-shaped unworked piece extruded from a nozzle away from said nozzle, comprising surrounding the extruded unworked piece near its edge by a gripping device at the nozzle in the form of a bulge-like bead, the gripping device in its closed position enveloping the unworked piece without narrowing down its cross section extruding from the nozzle and, at an uninterrupted continuation of the extrusion step held in closed rest position during a time period at the nozzle until the bulge-shaped recess of the gripping device is filled by the extruded, material, and separating the unworked piece from the nozzle subsequently at the continuation of the extrusion step and transferring the piece by the gripping device into a mold.



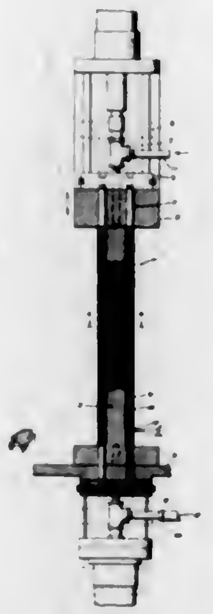
3,304,358
METHOD OF ASSEMBLING AND BONDING TOGETHER LAMINATIONS TO FORM LAMINATED CORES FOR ELECTRICAL INDUCTIVE DEVICES

Milton V. De Jean, Fort Wayne, Ind., and Michael J. Lacy, Florissant, Mo., assignors to General Electric Company, a corporation of New York

Continuation of application Ser. No. 785,061, Jan. 5, 1959. This application Oct. 28, 1963, Ser. No. 320,255

3 Claims. (Cl. 264—159)

3. A method of forming a laminated stator core having a bore, winding accommodating means, and a plurality of bolt holes extending axially through the core spaced from said means and positioned adjacent the outer periphery of said core, the method comprising the steps: arranging a plurality of individual laminations in juxtaposed, aligned, relation to form the bore, winding accommodating means, and bolt holes; introducing a resinous material in an unhardened state under pressure into at least one of said bolt holes while compressing the laminations together so that the material penetrates between adjacent laminations to surround the bolt holes; removing the unhardened material from the bolt holes whereby the bolt holes may be free to accommodate bolts for mounting the stator core; and hardening the material surrounding the bolt holes between the laminations to hold the laminated stack securely together.



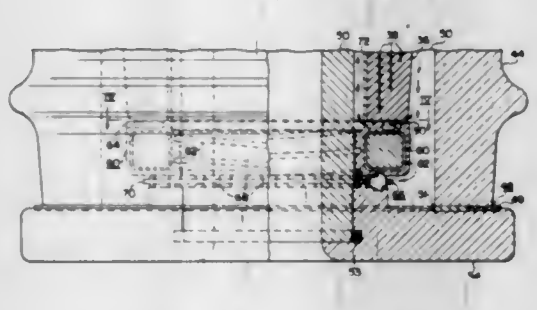
ELECTRICAL

3,304,359
ELECTRICAL BUSHING WITH INDUCTOR-TYPE FLUID-CIRCULATING IMPELLER

Louis E. Sauer, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 14, 1965, Ser. No. 495,785

6 Claims. (Cl. 174—15)



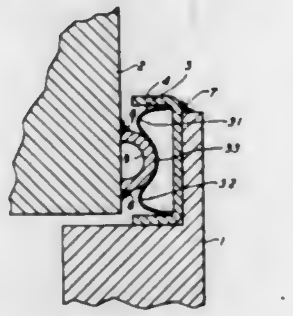
1. An electrical insulating bushing having an electrical conductor and a cavity disposed therein which provides a closed path for circulation of fluid means within the bushing, fluid means disposed within said cavity, a rotatable member disposed in communication with said fluid means and in inductive relation with said electrical conductor, said rotatable member including an electrical winding having an asymmetrically conductive device connected across its ends.

3,304,360
RADIO FREQUENCY GASKET FOR SHIELDED ENCLOSURES

George E. Hadley, Chatham, and Edward D. Prescott, Livingston, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed June 3, 1964, Ser. No. 372,414

9 Claims. (Cl. 174—35)



1. A radio frequency gasket means for the door to an access opening in a wall of a shielded enclosure, said gasket means comprising a rigid channel member of conductive material surrounding said opening near the edge thereof, a thin flexible strip of solid conductive material having a substantially uniform thickness which is small compared to its crosswise dimension and a crosswise dimension greater than the inside width of said channel member, said strip being flexed about its long axis and positioned inside said channel member forcibly engaging two opposite inside surfaces thereof with an intermediate portion extending convexly outwardly so that it may be forcibly deflected inwardly between said door and said enclosure wall in continuous electrical contact as said door is closed.

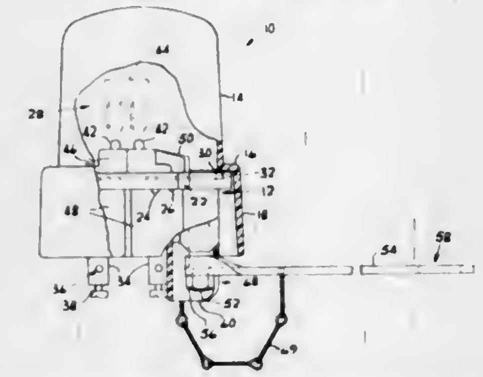
3,304,361
OVERHEAD LINE EQUIPMENT MOUNTING DEVICE

Harold Bremner Sharp, 12 Mundy Ave., Howardene, Durban, Natal, Republic of South Africa

Filed Sept. 17, 1965, Ser. No. 488,213

Claims priority, application Republic of South Africa, Sept. 25, 1964, 4,571/64

4 Claims. (Cl. 174—44)



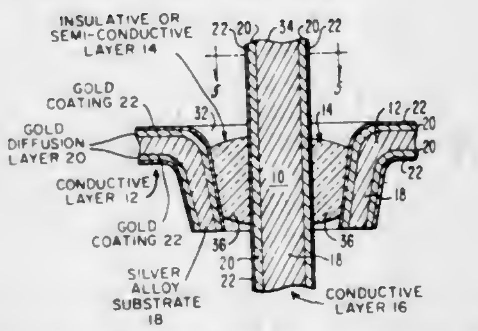
1. An overhead line equipment mounting device comprising a platform of electrical insulating material; a cover having engaging means engaging said platform with a space between said platform and cover within which overhead line equipment is receivable; connecting means providing electrical conducting paths through said platform into and out of said space; mounting means mounting said cover and platform assembly close to overhead line conductors including a metal member fast with said platform and projecting below it; and a shield of electrical insulating material between said metal member and said connecting means, said shield being in the form of a skirt integral with said platform and extending at least partially around said metal member and depending from the underside of said platform so that it interrupts the direct line between said metal member and said connecting means.

3,304,362
GLASS-TO-METAL SEALS IN ELECTRONIC DEVICES

William S. August, Altadena, Calif., assignor to Inland Electronic Products Corporation, Pasadena, Calif., a corporation of California

Filed Dec. 31, 1964, Ser. No. 422,597

16 Claims. (Cl. 174—50.56)



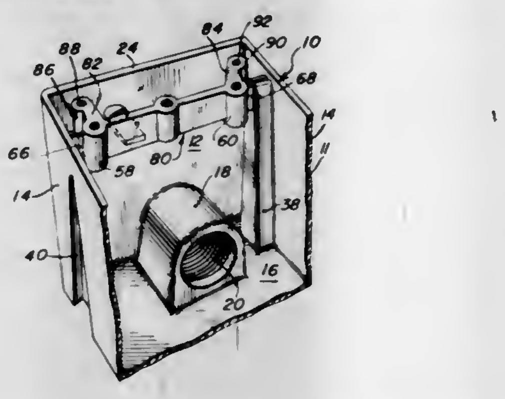
1. An electronic device having improved high temperature stability, said device comprising, in combination, at least one electrically conductive layer and a layer having electrical conductivity lower than that of said electrically conductive layers and fabricated of material selected from the group consisting of semi-conductive and electrically insulative material disposed on and bonded to said electrically conductive layers, at least one of said electrically conductive layers comprising a substrate of an oxidation hardened, high temperature silver base alloy containing about 0.1–2.0%, by weight, of magnesium oxide and essentially the remainder being silver, said substrate having a low modulus of elasticity, a high tensile strength and a coefficient of thermal expansion selected with respect to that of the layer of reduced electrical conductivity, whereby the device has improved resistance to cracking under widely fluctuating temperature conditions.

3,304,363
JUNCTION BOX CONSTRUCTION

Paul J. Zerwes, Chicago, Ill., assignor to Bell Electric Company, Chicago, Ill., a corporation of Illinois

Filed July 20, 1964, Ser. No. 383,713

12 Claims. (Cl. 174—53)



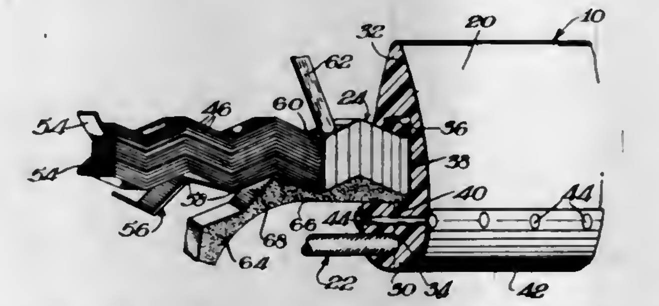
1. A junction box for securement of an electrical appliance thereto and providing outlets for connection of electrical wires and the like to the appliance on the interior of the box, comprising an open top box body having end and side walls and a bottom wall, nad the end and side walls presenting upper edges in a plane to define the open top, means in at least one wall to enable electrical conductors to be led to the inside of the box, means in the side walls providing a vertically arranged groove in each side wall adjacent each end wall so that there is a pair of juxtaposed grooves at each end of the box, the grooves including a bottom ledge substantially spaced above the bottom wall, a pair of transversely arranged mounting bars, each having means for enabling the securement of said electrical appliance to said open top, each bar having end tongues engaged in the respective grooves of a pair and being suspended over the box interior, means locking the bars in said grooves, said means in the side walls comprising vertical columns integral with the side walls, each column having a bifurcated upper end to form one of said grooves, and said locking means comprises deformed portions of said upper ends engaged upon said tongues.

3,304,364
CONDUCTING TOW LINE STRUCTURE

Alexander C. Hetherington, Adrian, Mich., assignor to Stauffer Chemical Company, a corporation of Delaware

Filed Jan. 25, 1965, Ser. No. 427,635

19 Claims. (Cl. 174—101.5)

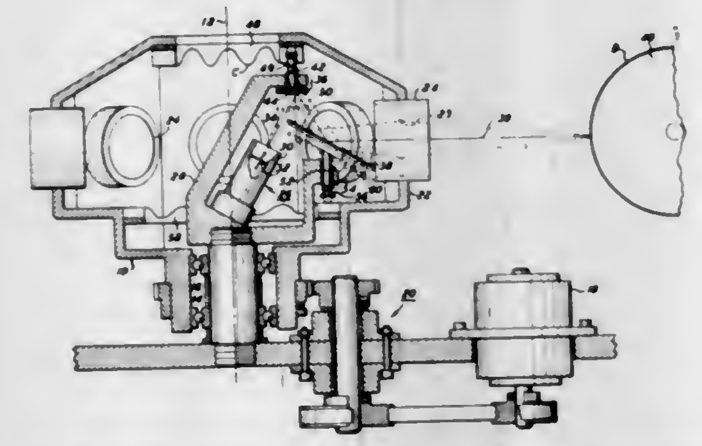


1. Tow line structure comprising an elongated body portion of resilient material, an elongated cavity formed in continuous fashion within the body portion, and a message conducting assembly within the cavity, the assembly including a plurality of elongated yieldable members positioned laterally adjacent each other, each member having

at least one generally uninterrupted conductor means integrally formed therein so as to be insulated from the conductor means in the adjacent yieldable members, and yieldable biasing means normally urging the yieldable members into a laterally contoured configuration within the cavity whereby the resilient body portion of the tow line structure is capable of elongation by straightening out the laterally contoured configuration of the yieldable members within the cavity, said yieldable biasing means having a configuration conforming essentially to that of said yieldable members.

3,304,365
SCANNING APPARATUS WITH DYNAMIC FOCUSING

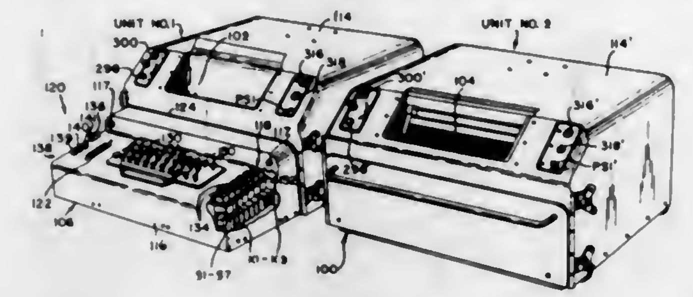
John R. Miles, Glenview, Ill., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Jan. 9, 1964, Ser. No. 336,798
3 Claims. (Cl. 178—7.6)



1. A scanning device for scanning a flat object surface with a light spot comprising:
- a rotary scanner head,
- means for rotating the head about an axis of rotation,
- a fixed light source arranged within said head and adapted to direct the light rays emanating from the light source along an optical path,
- a plurality of lens tubes having projection lens elements mounted on said scanner head at equal angularly spaced positions about the axis of rotation of the head and arranged to successively intercept the light rays from the light source during rotation of said head,
- at least one mirror surface mounted within said scanner head and being arranged to intercept the light rays and to direct the rays through each of the lens tubes, and
- means for cyclically positioning said mirror surface during scanning by each lens tube in order to vary the optical distance between the light source and each of the lens tubes during each scan and thereby maintain the light spot in focus.

3,304,366
COMMUNICATIONS EQUIPMENT PRINTER

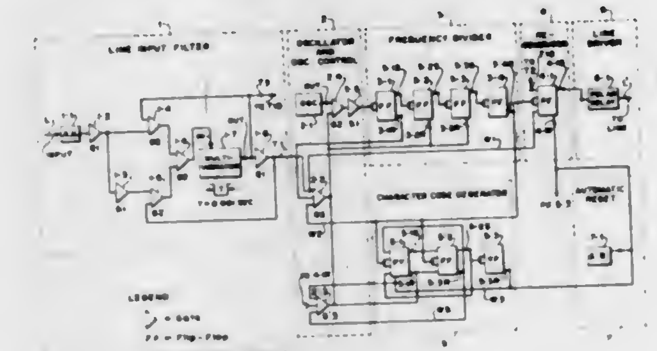
Clayton H. Clark, Mundelein, and Donald J. Stefanik, Berwyn, Ill., assignors to SCM Corporation, New York, N.Y., a corporation of New York
Original application Apr. 3, 1962, Ser. No. 184,820. Divided and this application Aug. 23, 1965, Ser. No. 481,795
26 Claims. (Cl. 178—23)



1. An electronic, transistorized, continuously rotated print drum page printer comprising:
- (a) print hammer carriage means;
- (b) means to step space said carriage means in multiple steps from a start-of-line position to end-of-line position in front of the rotating print drum; and
- (c) printer control means including transistorized electronic circuitry providing coincidence between a multiple bit code signal received by said printer and impulse position signals derived from drum rotational positions, for causing the print hammer carriage means to accomplish a printing action against said drum once within a revolution of the drum for each received code signal representing a character to be printed and to thereafter enable and accomplish character spacing.

3,304,367
REGENERATIVE REPEATER

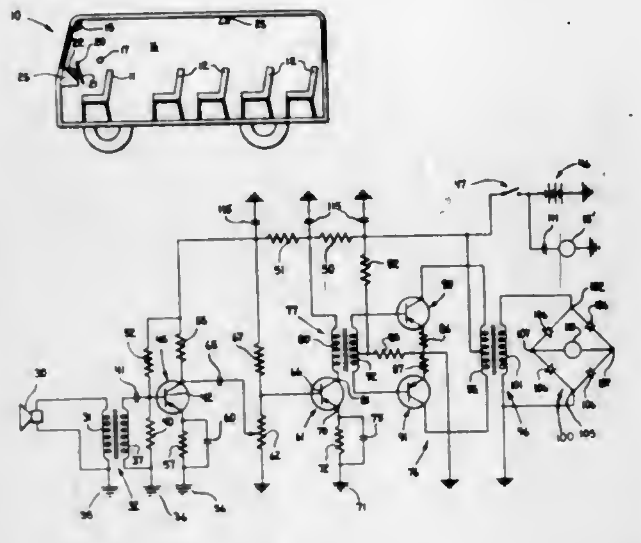
John Ellch, Staten Island, and Frank J. Masciandaro, Brooklyn, N.Y., assignors to The Western Union Telegraph Company, New York, N.Y., a corporation of New York
Filed Aug. 16, 1963, Ser. No. 302,520
14 Claims. (Cl. 178—70)



1. A regenerative repeater for telegraph signals, comprising in combination:
- (a) a line input filter for receiving mark and space input signals from an input line and for suppressing any input signals and signal variations having a duration of less than a predetermined minimum time;
- (b) a free running oscillator for producing continuously square probe pulses at a predetermined rate;
- (c) a frequency divider for producing other square proble pulses at a predetermined reduced frequency from the first named probe pulses;
- (d) oscillator control means connected between the oscillator and frequency divider for cutting off from the frequency divider and for restoring to the frequency divider the square probe pulses produced by the oscillator;
- (e) A signal regenerator circuit connected to the frequency divider to receive therefrom said other probe pulses and connected to the line input filter to receive input signals therefrom;
- (f) means in the signal regenerator for integrating said input pulses and said other probe pulses to produce timing pulses; and
- (g) other means in the signal regenerator for producing output signals duplicating the input signals applied to the line input filter with momentary signal interruptions and signal variations suppressed, said output signals being produced at a rate determined by said timing pulses.

3,304,368
NOISE LEVEL INDICATOR FOR SCHOOL BUS

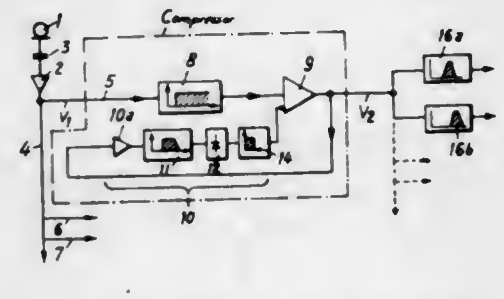
Joseph L. Ford and Richard L. Rounder, both of 640 E. Main St., Brownsburg, Ind. 46112
Filed May 10, 1963, Ser. No. 279,502
4 Claims. (Cl. 179—1)



1. In a passenger bus having a driver's seat and a plurality of passenger seats all facing forwardly, a noise level indicator system comprising a light mounted in the bus at the forward end thereof and sufficiently high to be visible to all persons sitting in said seats, a microphone mounted in said bus adjacent the top of said driver's seat whereby said mocrophone is adjacent the ear of a person sitting in said driver's seat, an amplifier coupled to said microphone, and means for adjusting the amplification of said amplifier to control the level of sound intensity which causes energization of said light, said light being coupled to said amplifier.

3,304,369
SOUND ACTUATED DEVICES

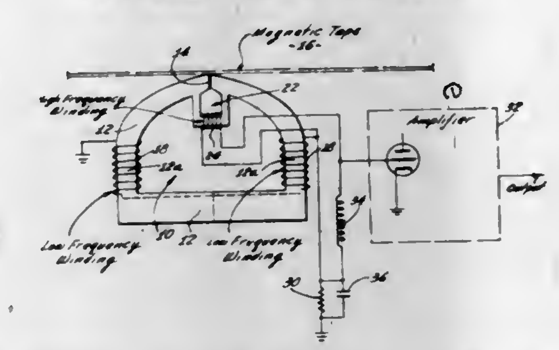
Jean Albert Dreyfus, 5 Ave. de la Grenade, Geneva, Switzerland
Original application Dec. 4, 1961, Ser. No. 156,831, now Patent No. 3,238,301, dated Mar. 1, 1966. Divided and this application Oct. 19, 1965, Ser. No. 510,126
Claims priority, application Switzerland, Dec. 8, 1960, 13,835/60
16 Claims. (Cl. 179—1)



1. A circuit for compressing the amplitude of an electrical signal representative of sounds and thereby improve sound recognition in speech analysis, especially of human speech, said circuit comprising:
- a main channel responsive to said electrical signal;
- and an auxiliary channel including means for regulating the degree of gain of said main channel and means for passing only the frequencies of the said sounds above the first formant of said sounds and below the second formant of said sounds thereby facilitating the recognition of said sounds by regulting the gain of said main channel by a signal including only said frequencies.

3,304,370
REPRODUCING HEAD AND SYSTEM INCORPORATING LOW FREQUENCY EMPHASIS MEANS

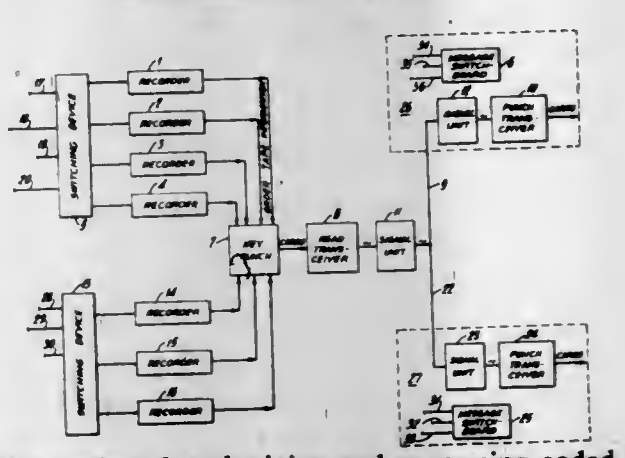
Wayne R. Johnson, Woodland Hills, Calif., assignor to Winston Research Corporation, Los Angeles, Calif., a corporation of California
Filed May 17, 1963, Ser. No. 281,092
4 Claims. (Cl. 179—100.2)



1. A magnetic reproducing system exhibiting low frequency emphasis including: a magnetic reproducing head having a magnetic core configured to define a common air gap and to define a first looped portion extending from one side of the air gap to the other and to define a second looped portion also extending from one side of the air gap to the other; a high frequency signal winding mounted on said first looped portion of said air gap in magnetically coupled relationship therewith, said high frequency signal winding having a first terminal at which output signals appear and having a second terminal; a low frequency signal winding mounted on said second looped portion of said core in magnetically coupled relationship therewith and having a substantially greater number of turns than said first signal winding, said low frequency signal winding having one terminal connected to a point of reference potential and having a second terminal; and resistance means connected from said second terminals of said low frequency and high frequency windings to said point of reference potential.

3,304,371
INFORMATION PROCESSING SYSTEM

Alex J. Rosenberg, 277 West End Ave., New York, N.Y. 10023
Filed Sept. 25, 1963, Ser. No. 311,479
2 Claims. (Cl. 179—1)



1. The method for obtaining and processing coded information from telephone callers which consists of
- connecting the telephone circuit from one caller of a group of similar callers having information to a telephone switching device having one incoming telephone number, switching the incoming call to one of a series of tape recorders, the switching occurring so that the incoming call is automatically switched to a non-busy recorder,
- announcing to the connected caller a first group of coded information by means of said recorder,
- recording a series of second groups of coded information stated by a plurality of said callers on the tape of the recorder,

periodically playing the recorded tape so that the said series of second groups of information is reproduced consecutively,

reproducing said second groups of coded information upon punch cards,

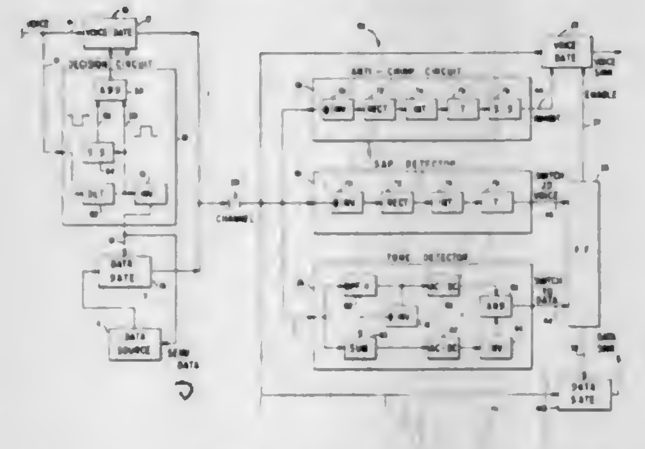
utilizing said punch cards to transmit said second groups of coded information as electric signals to a receiver, and

changing the recorded announcements periodically,

wherein said second groups of code consist of numbers or letters directly related to the programming of the information into a computer, the sources of information deliver their information over a period of time, and the first group of information represents to the caller a function he is to perform subsequent to the call.

3,304,372
VOICE-DATA MULTIPLEXING SYSTEM FOR TRANSMITTING DATA DURING PAUSES IN THE VOICE SIGNALS

Richard F. J. Filipowsky and Constantine Prisekin, Rockville, Md., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 28, 1963, Ser. No. 291,395
6 Claims. (Cl. 179—2)



1. A voice-data multiplexing system in which voice signals from a voice source and data signals from a data source are time multiplexed over a common transmission channel, as a composite voice data signal, comprising:

transmitter means, including a voice source and a data source;

means for normally inhibiting said data source until idle gaps in said voice signals exceed a predetermined first duration;

means responsive to the presence of voice signals for pre-empting any transmission of data from said data source, said means including means for resuming the transmission of voice signals a predetemined second duration after the appearance of said voice signals, whereby each voice signal transmitted over the common transmission channel is preceded by a time interval equal to said second duration;

means included in said data source for generating and transmitting a keying signal to herald subsequent data transmission;

receiver means, connected to a data sink and a voice sink, for receiving the composite data and voice signal transmitted over said common transmission channel, said receiver means having two states, a data state for passing received data signals to said data sink and a voice state for passing received voice signals to said voice sink;

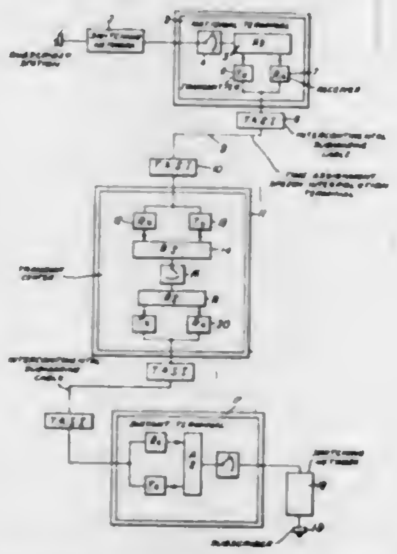
a first gap detector responsive to gaps of said predetermined second duration in said composite data-voice signal for switching said receiver means to said voice state;

a second gap detector responsive to gaps in said voice-data signals which equal said predetermined first duration, for inhibiting said receiver means from passing any signals to said voice sink; and

means responsive to said keying signal heralding the receipt of data signals for switching said receiver to a data state, whereby any data signals received are passed to said data sink.

3,304,373
LONG DISTANCE TASI COMMUNICATION SYSTEMS HAVING ANSWER-BACK SIGNALLING

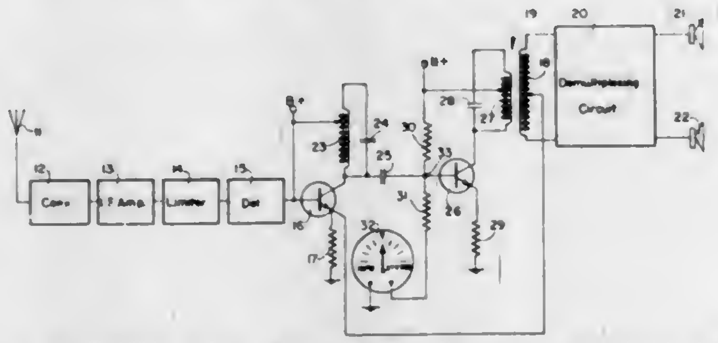
Esmond Philip Goodwin Wright, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 13, 1963, Ser. No. 264,906
Claims priority, application Great Britain, Mar. 30, 1962, 12,285/62
8 Claims. (Cl. 179—15)



1. A long distance TASI telecommunication transmission system comprising means for establishing a connection from a first station through said system via at least one transmit center to a second station, means at said first station for transmitting a demand signal through said transmit center to request said connection, means in said transmit center operated responsive to said demand signal for transmitting an acknowledgment answer signal from said transmit center back to said first station while simultaneously transmitting a forward demand signal from said second station, and means in said transmit center for maintaining the transmission of said forward demand signal until said transmit center receives an acknowledgment signal from said second station.

3,304,374
INDICATING CIRCUIT

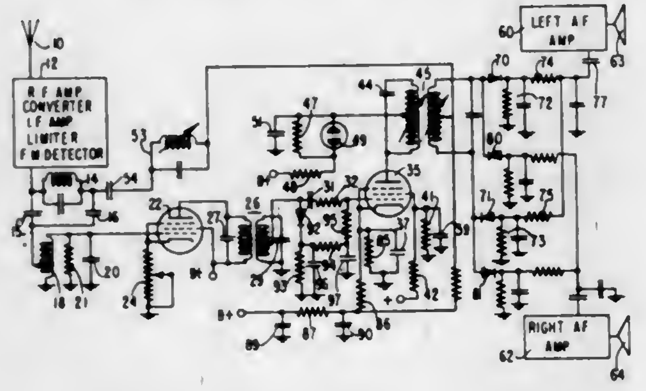
Kamil Y. Jabbar, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Oct. 2, 1964, Ser. No. 401,196
5 Claims. (Cl. 179—15)



1. A system for indicating the respective presence of multiplex and non-multiplex signals in a frequency modulation receiver, such system including in combination, amplifier means including a bias circuit having a control point, said circuit providing at said control point in the presence of non-multiplex signals, a voltage of a given polarity with respect to a reference potential, said circuit providing at said control point in the presence of multiplex signals, a potential of polarity opposite to said given polarity, and meter means connected from said control point to the reference potential and providing opposite indications in response to said opposite polarities at said control point to thereby indicate the presence of multiplex and non-multiplex signals.

3,304,375
FM STEREO MULTIPLEX RECEIVER FOR AUTOMATICALLY SWITCHING BETWEEN STEREOPHONIC AND MONAURAL OPERATION

Norman W. Parker, Wheaton, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Continuation of application Ser. No. 235,738, Nov. 6, 1962. This application Mar. 25, 1965, Ser. No. 445,844
10 Claims. (Cl. 179—15)



1. Stereophonic signal demodulating apparatus for deriving right and left audio frequency signals from a received signal representing the sum of the right and left signals and suppressed carried modulation components representing the difference of the right and left signals and a carrier representative signal related to the suppressed carrier, including in combination, circuit means for developing the carrier representative signal for demodulating the modulation components, said circuit means including an electron control device in the path of the carrier representative signal and means to bias said control device to cutoff, means coupled to said control device and responsive to the carrier representative signal for biasing said control device into conduction, said means including a network to delay for a predetermined time the translation of the carrier representative signal upon reception of the received signal, and means for combining the carrier representative signal, the modulation components and the sum signal for producing separate right and left audio frequency signals.

3,304,376
COMBINATION TELEPHONE AND INTERCOMMUNICATIONS SYSTEM

Ralph Truby, Rumson, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Jan. 30, 1964, Ser. No. 341,176
23 Claims. (Cl. 179—42)

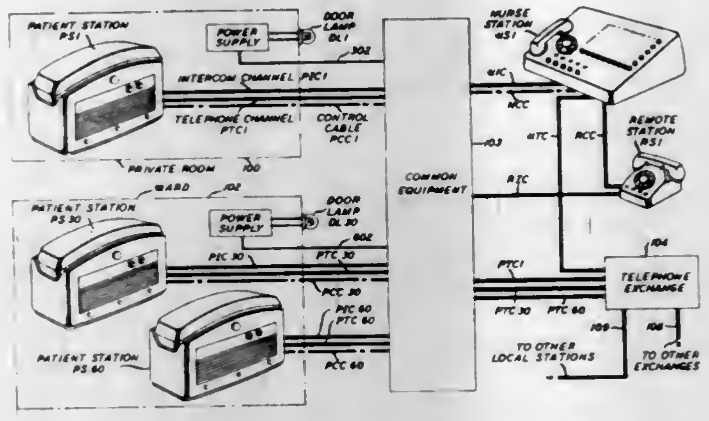
1. In a telephone system,

a pair of stations,

a pair of distinct and separate bidirectional voice intercommunication channels extending between said stations,

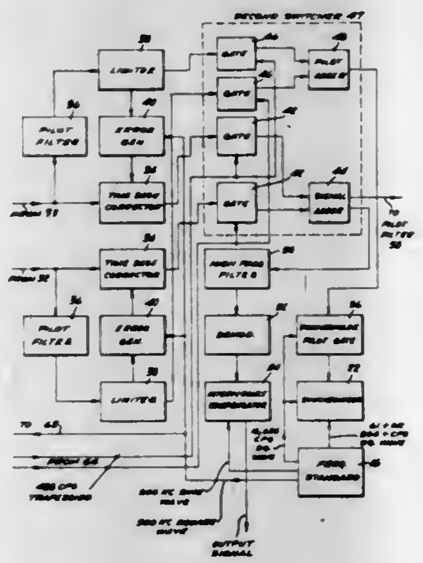
means for interconnecting said stations via one of said channels to permit voice communication between said stations over said one channel,

and means at one of said stations for transferring said interconnection from said one channel to the other one of said channels to permit voice communication between said stations over said other channel.



3,304,377
SYNCHRONIZING SYSTEM FOR VIDEO TRANSDUCING APPARATUS UTILIZING COMPOSITE INFORMATION AND PILOT SIGNALS

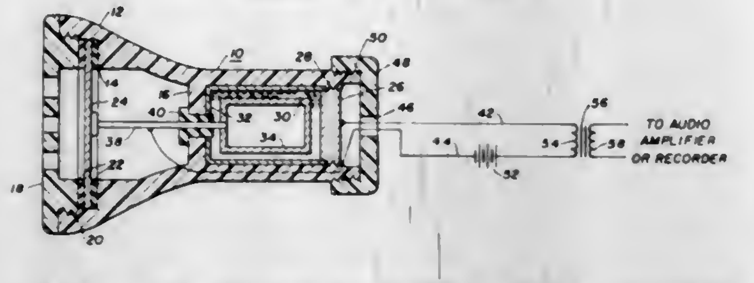
Erhard K. Kietz, Menlo Park, Sidney S. Damron, Los Altos, and John F. Varnell, Jr., Menlo Park, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Sept. 11, 1961, Ser. No. 137,368
17 Claims. (Cl. 179—100.2)



17. In a magnetic reproducing apparatus for reproducing a continuous information signal from information signals recorded on a magnetic medium additively with a pilot signal by a magnetic head assembly having a plurality of magnetic heads, said medium being driven by a driving means, the combination comprising: means for deriving the recorded signals from said magnetic medium by sequential utilization of said plurality of magnetic heads; each head sensing a portion of said combined recorded signals; said sensed signals being processed in separate channels; means for separating said pilot signal component from the information signals in each of said channels; said means for separating operatively coupled to said means for deriving; a source of reference signals; correction means for combining said separated pilot signals with said reference signals to develop error signals and for adjusting the information signals in response to said error signals; and means for combining the corrected information signals into a continuous signal without any significant loss of information.

3,304,378
FREQUENCY-DOUBLING SONIC TRANSDUCER

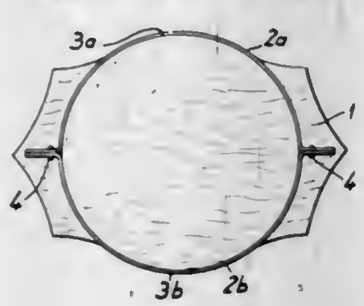
Robert M. Haines and Thomas W. Martinek, Crystal Lake, and Donald L. Klass, Barrington, Ill., assignors, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed Feb. 3, 1964, Ser. No. 342,154
9 Claims. (Cl. 179—133)



1. An audio frequency doubling device comprising first and second spaced members having opposing electrically conductive surfaces, one of said members being movable, a shear-responsive fluid confined between said surfaces, a vibratory diaphragm mechanically connected to the movable member in such manner that the vibration of said diaphragm imparts vibratory movement to the movable member, and electrical conductor means connected to each of said first and second members.

3,304,379
PROTECTIVE HYGIENIC COVER FOR SOUND-TRANSMISSION AND LISTENING APPARATUS

Erna Memmel, Unertlstrasse 23, and Else Jahn, Unertlstrasse 35, both of Munich, Germany
Filed Feb. 5, 1963, Ser. No. 256,304
Claims priority, application Germany, Feb. 12, 1962, M 51,781; Mar. 22, 1962, M 52,223; Oct. 10, 1962, M 54,455
7 Claims. (Cl. 179—185)

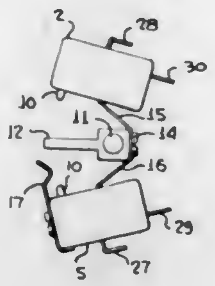


1. A protective cap for voice-frequency communication devices, such as mouth-pieces or ear-pieces of electric speaking or listening apparatus, especially of telephone hand sets, comprising:
- a substantially U-shaped, curved hood-like part made of an elastically extensible material having desired acoustic properties and having two leg portions, secured to fastening ring means,
- the fastening ring means including two flexible cardboard strips with the two ends thereof substantially symmetrically superposed one upon the other and secured thereat to each other, with the two ends thereof simultaneously forming two oppositely disposed handle portions whereby the protective cap may be slipped over the device under slight mechanical pre-stress.

3,304,380
MULTIPLE MICROSWITCH

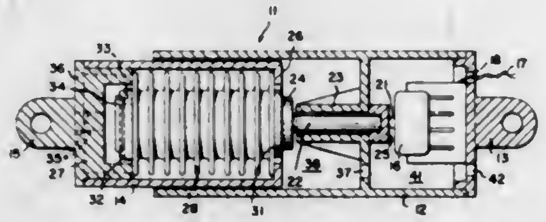
Irving L. Mitchell, Rockville Centre, N.Y., assignor to Ebert Electronics Corp., Floral Park, N.Y., a corporation of New York
Filed Nov. 18, 1964, Ser. No. 412,004
12 Claims. (Cl. 200—44)

1. In combination, a first bank of switches, a second bank of switches, said first and second banks of switches being separately located, a switch actuating element, means supporting said switch actuating element in a position from which the separately positioned switches may be actuated, means biasing the switch actuating element to a neutral position, and means attached to said second bank of switches for latching the switch actuating element in operative contact with the second switch bank, wherein the switch actuating element is an arm extending from a rotatable shaft, including a rotary motion producing key operated lock mechanism wherein the switch actuating element and the rotatable shaft are rotated by means of the key operated lock mechanism.



3,304,381
CAUTION LIGHT APPARATUS TO INDICATE VEHICLE DECELERATION

William J. McAnespey, Philadelphia, Pa., assignor to Triex, Inc., a corporation of Pennsylvania
Filed Sept. 2, 1965, Ser. No. 484,712
9 Claims. (Cl. 200—61.89)

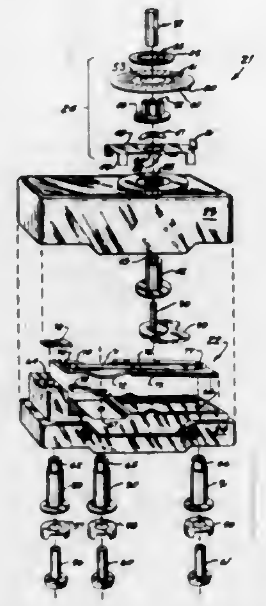


1. An actuator for caution light apparatus for use in a vehicle to indicate that the vehicle is decelerating and adapted to be operatively connected to an accelerator pedal, comprising inner and outer cylinders which are axially movable relative to each other,
- a switch positioned in one of the cylinders,
- an actuating rod,
- switch-opening means normally urging the actuating rod against the switch to hold it open, means for moving the cylinders axially away from each other in response to letting up on the accelerator pedal,
- and switch-closing means for moving the actuating rod away from the switch so that the switch closes in response to moving the cylinders axially away from each other.

3,304,382
ADJUSTABLE SWITCH ACTUATOR

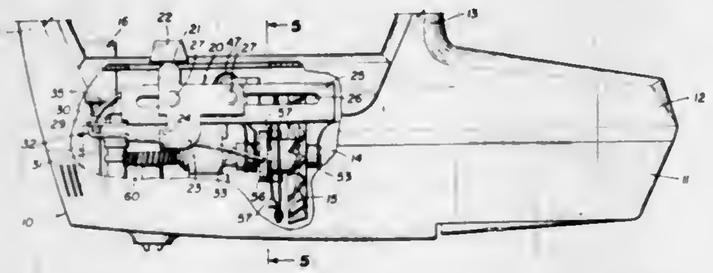
Theodore Yngve Korsgren, Cary, Ill., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed Dec. 2, 1964, Ser. No. 415,252
6 Claims. (Cl. 200—67)

1. A snap acting switch comprising a self-biased monostable leaf spring assembly comprising a plurality of spaced parallel tines, at least one of said tines being held in tension and at least one of said tines being held in compression, pin plunger means for mechanically applying an excursion inducing force to said spring, said pin plunger means including a threaded pin having an elongated threaded nut turned thereon, whereby the length of said pin plunger is fixed by the number of turns taken by said nut on said threaded pin, means for mounting said leaf spring in a position such that said self-bias automatically moves said spring to a normal stable position when said pin plunger is not actuated and said spring snaps to an off-normal position when said pin plunger is actuated, and range setting means for adjusting the length of the pin plunger to select a point in the plunger travel where said spring snaps to said off-normal position, said range setting means comprising a dial plate having a gear attached thereto, a smooth central passage passing through said dial plate and gear, the said nut passing through said central passing and being free to slide therein for reciprocal movement independent of the inertia of said range setting means.



3,304,383
ELECTRIC MOTOR SPEED CONTROL MECHANISM

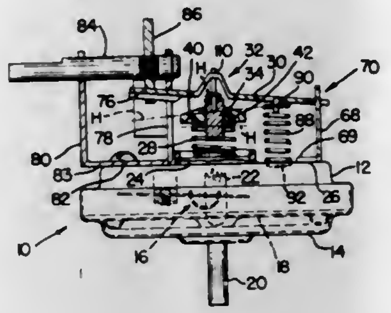
John M. Hansen, Racine, Wis., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed July 20, 1965, Ser. No. 473,446
7 Claims. (Cl. 200—80)



1. Electric motor speed control mechanism comprising
- (a) a fixedly mounted cam bracket provided with an elongated slot,
- (b) a manually movable slider mounted on the cam bracket for movement longitudinally in the slot,
- (c) a fixed support adjacent the cam bracket,
- (d) a contact carrying bracket pivotally mounted on the fixed support,
- (e) a yielding contact carrying plate mounted on the fixed support with the contacts of the plate and pivotal bracket in electrical engagement with each other,
- (f) a cam rod having a free end, a pressure exerting end bearing on the pivoted bracket, and an intermediate portion mounted for rocking motion about its axis, means urging the pivoted bracket into engagement with the pressure exerting end, and
- (g) means on the slider engaging opposed surfaces of the free end of the cam rod for raising and lowering said end when the slider is moved in the cam bracket to thereby adjust the pressure exerting end and the position of the pivotally mounted bracket.

3,304,384
ACTUATING CONSTRUCTION

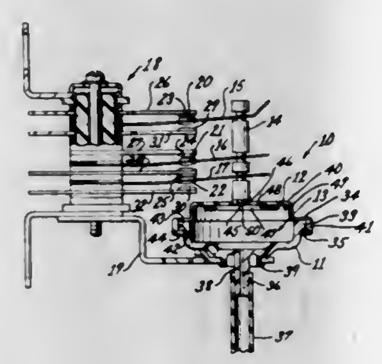
Werner Robert Bauer, Columbus, Ohio, assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Apr. 16, 1964, Ser. No. 360,369
5 Claims. (Cl. 200—83)



1. In combination: a construction having an upwardly directed actuating member with a flat end designed to receive a spring; an upwardly directed loading compression coil spring having a lower end engaging said upper flat end; a generally horizontal spring adjusting lever mounted on said construction and having a downwardly directed transverse channel; a vertical screw member having a lower free end in said coil spring and having a transverse pivot member firmly secured at its upper end with a horizontal edge construction upwardly engaging said downwardly directed transverse channel the engagement of said transverse channel and said edge construction locking said screw member from turning; and a nut threaded on said screw member and having a generally horizontal flat surface receiving said upper flat end of said coil spring.

3,304,385
PNEUMATIC ACTUATOR WITH FOLDED DIAPHRAGM

Harald E. Vollbehr, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed June 10, 1964, Ser. No. 373,928
5 Claims. (Cl. 200—83)



1. In combination, a switch mounting block means, a plurality of contact carrying switch blades being carried by said block means in stacked relation, certain of said blades being resilient and having slotted free ends, a pneumatic actuator interconnected to said block means and having a rigid housing member provided with an outwardly directed annular flange, a flexible diaphragm having a body portion and an annular flange offset relative to said body portion, said flange of said diaphragm having an inwardly facing groove snap-fitted over said flange of said housing member whereby said flange of said diaphragm is under both radial and axial compression on said flange of said housing member to effect a positive fluid seal therewith, said body portion and said flange

being so constructed and arranged that said body portion is not placed under radial tension by the snap-fitting of said diaphragm flange over said flange of said housing member whereby said snap fitting does not impose retarding forces on movement of said body portion of said diaphragm between the operating positions of said actuator, and an actuating post carried by said body portion of said diaphragm, said post having a plurality of spaced annular recesses provided therein and respectively defining reduced portions of said post, said reduced portions of said post respectively being received in said slots of said certain switch blades and providing lost motion means therewith whereby movement of said body portion of said diaphragm from one position thereof to another position thereof moves said certain switch blades out of contact with certain other blades and into contact with the remainder of said blades.

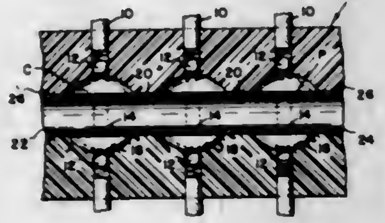
3,304,386

MULTIPLE CONTACT PROGRAM SYSTEM FLUID PRESSURE TYPE

Bernard Edward Shlesinger, Jr., 906 Bruce Lane, Annandale, Va. 22003

Filed June 25, 1964, Ser. No. 378,000

22 Claims. (Cl. 200—83)



1. A programming system including:

(a) a switch block

(b) a chamber in said switch block and an opening for said chamber

(c) a plurality of spaced electrical contact members in said block extending radially about the longitudinal axis of said chamber and entering said chamber

(d) an elongated inflatable member extending into said opening and into and through said chamber

(e) individually spaced means in said chamber for permitting radial inflation of said inflatable member at spaced intervals on its longitudinal axis and for preventing radial inflation at other spaced intervals on its longitudinal axis

(f) means for preventing axial shifting of those portions of said inflatable member at opposite ends of said chamber when said inflatable member is being inflated, and

(g) said inflatable member including means for making contact between said spaced electrical contact members.

3,304,387

CURRENT-LIMITING FUSE HAVING PARALLEL CURRENT-LIMITING ELEMENTS AND A SERIES CONNECTED CURRENT CALIBRATED ELEMENT WITH AUXILIARY ARC GAPS TO BLOW THE CURRENT-LIMITING ELEMENTS ONE BY ONE

Sigurd I. Lindell, Northbrook, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 24, 1966, Ser. No. 522,676

15 Claims. (Cl. 200—120)

1. A current-limiting fuse including:

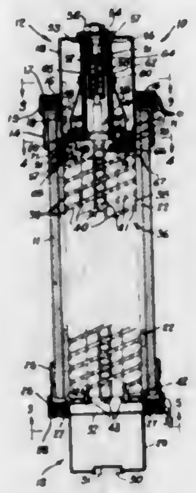
an elongated insulating housing with end terminals,

an intermediate terminal in said housing insulated from said end terminals,

fusible element means interconnecting one end terminal and said intermediate terminal,

a plurality of current-limiting fusible elements embedded in a granular filling in said housing and connected in parallel circuit relation between said intermediate terminal and the other end terminal,

a minor portion of each current-limiting fusible element adjacent said intermediate terminal constituting an extension of a major portion thereof, and



means providing a spark gap individual to each current-limiting fusible element, one terminal of each spark gap being connected to the junction between the respective extension and the major portion of its current limiting fusible element, the other terminal of each spark gap including conductor means connected to said one end terminal thereby placing said spark gaps in shunt circuit relation to the gap formed on blowing of said fusible element means on flow of fault current therethrough.

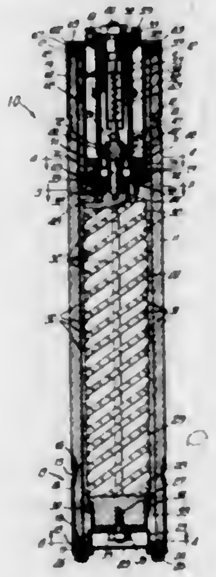
3,304,388

CURRENT-LIMITING FUSE HAVING ARC CHUTES IN WHICH ARCS ARE FORMED TO CUT EXTENSIONS OF THE CURRENT-LIMITING ELEMENTS

Sigurd I. Lindell, Northbrook, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 26, 1966, Ser. No. 523,228

13 Claims. (Cl. 200—120)



1. In a current-limiting fuse including:

an elongated insulated housing with end terminals,

an intermediate terminal in said housing insulated from said end terminals,

current calibrated fusible element means interconnecting one end terminal and said intermediate terminal, and

a plurality of current-limiting fusible elements embedded in a granular filling in said housing and connected in parallel circuit relation between said intermediate terminal and the other end terminal,

the improvement comprising:

a minor portion of each current-limiting fusible element adjacent said intermediate terminal constituting an extension of a major portion thereof,

means individual to each extension providing an arc blast chute in which the extension is located, and

means providing a spark gap individual to each current-limiting fusible element in the respective arc blast chute, one terminal of each spark gap being connected to the junction between the respective extension and the major portion of its current-limiting fusible element, the other terminal of each spark gap including conductor means connected to said one end terminal thereby placing said spark gaps in shunt circuit relation to the gap formed on blowing of said current calibrated fusible element means on flow of fault current therethrough.

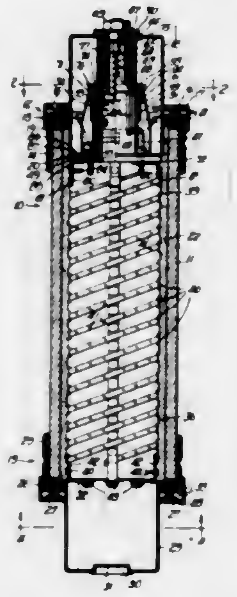
3,304,389

CURRENT-LIMITING FUSE HAVING AN IMPACT MEMBER TO SEVER MECHANICALLY RIBBON EXTENSIONS OF CURRENT-LIMITING ELEMENTS

Sigurd I. Lindell, Northbrook, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 27, 1966, Ser. No. 523,312

17 Claims. (Cl. 200—120)



1. A current-limiting fuse including:

an elongated insulating housing with end terminals,

an intermediate terminal in said housing insulated from said end terminals,

fusible element means interconnecting one end terminal and said intermediate terminal,

a plurality of current-limiting fusible elements embedded in a granular filling in said housing and connected in parallel circuit relation between said intermediate terminal and the other end terminal,

a minor portion of each current-limiting fusible element adjacent said intermediate terminal constituting an extension of a major portion thereof,

means providing a spark gap individual to each current-limiting fusible element, one terminal of each spark gap being connected to the junction between the respective extension and the major portion of its current-limiting fusible element, the other terminal of each spark gap including conductor means connected to said one end terminal thereby placing said spark gaps in shunt circuit relation to the gap formed on blowing of said fusible element means on flow of fault current therethrough, and

means operated in response to blowing of said fusible element means for mechanically severing said extensions.

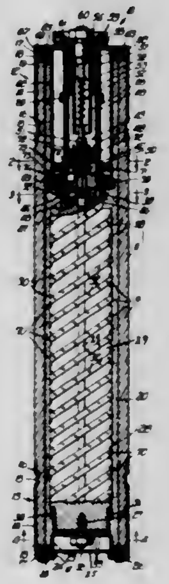
3,304,390

CURRENT-LIMITING FUSE WITH DUAL ELEMENT RELEASE AND HAVING EXTENSIONS OF THE CURRENT-LIMITING ELEMENTS CUT BY ARC BLASTS IN ARC CHUTES AND BY A MECHANICAL CUTTER

Sigurd L. Lindell, Northbrook, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware

Filed Jan. 27, 1966, Ser. No. 523,442

18 Claims. (Cl. 200—120)



1. A current-limiting fuse including:

an elongated insulating housing with end terminals,

an intermediate terminal in said housing insulated from said end terminals,

fusible element means interconnecting one end terminal and said intermediate terminal,

a plurality of current-limiting fusible elements embedded in an inert filling in said housing and connected in parallel circuit relation between said intermediate terminal and the other end terminal,

a minor portion of each current-limiting fusible element adjacent said intermediate terminal constituting an extension of a major portion thereof,

means providing a spark gap individual to each current-limiting fusible element, one terminal of each spark gap being connected to the junction between the respective extension and the major portion of its current-limiting fusible element, the other terminal of each spark gap including conductor means connected to said one end terminal thereby placing said spark gaps in shunt circuit relation to the gap formed on blowing of said fusible element means on flow of fault current therethrough,

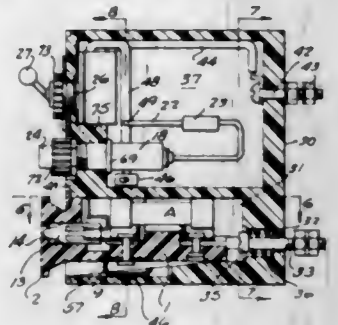
an auxiliary terminal connected to the junction of one of said current-limiting elements,

means interconnecting said intermediate terminal and said auxiliary terminal, and

means responsive to blowing of at least one of said current-limiting fusible elements for interrupting the connection between said intermediate terminal and said auxiliary terminal.

3,304,391
FUSEHOLDER CONTAINING PILOT LIGHT AND SWITCH

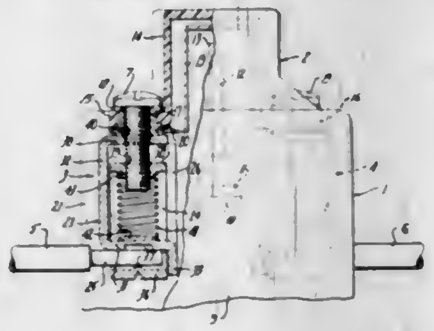
William C. Linton, Bethesda, Md., assignor to Fuse Indicator Corporation, Rockville, Md., a corporation of Maryland
Filed Sept. 29, 1965, Ser. No. 491,213
12 Claims. (Cl. 200—121)



1. A fuseholder comprising a body of electrical insulting material having an open end recess providing therein, a contact terminal extending within said body recess at the inner end thereof, a second contact terminal extending within said body recess at one side thereof, but in spaced relation with said first mentioned contact terminal, a stop extending within said recess, a fuse carrier of electrical insulating material removably inserted through the open end of said body recess, a plurality of fuse clips secured to said carrier for retaining a fuse thereon, means pivotally connecting said carrier and electrically connecting one of said fuse clips to said first mentioned contact terminal, a contact electrically connected to another of said fuse clips and resilient means positioned on a side of said carrier opposite to said stop detachably retaining said carrier in engagement with said stop for preventing the withdrawal of said carrier from said recess until manually moved from said stop and electrically connecting said contact and said second contact terminal.

3,304,392
SPACE SAVING ELECTRICAL TERMINAL

Eduard W. Isler, Cleveland, Ohio, assignor, by mesne assignments, to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York
Filed Feb. 11, 1965, Ser. No. 431,796
6 Claims. (Cl. 200—124)



1. A thermal overload device, comprising

a switch unit having a housing with a pair of terminal recesses in opposite side walls of the housing and having terminal mounting protrusions within the recesses, said switch unit having a heat sensitive switch means and means to secure the switch means within the housing,

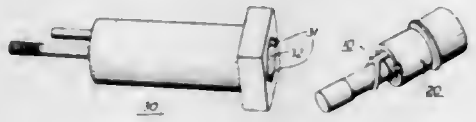
a pair of terminal units, one in each recess and each terminal unit including a mounting frame held in fixed relation within the corresponding recess by cooperative interlocking engagements with the protrusions, each mounting frame having a conductive support wall at one end of the recess and an aligned terminal wall at the opposite end, each unit further including a movable terminal clamp having connected inner and outer walls on opposite sides of the terminal wall in alignment with the support wall and the terminal wall, the outer wall being adapted to tightly clamp a lead between the terminal wall and the outer wall by moving of the clamp toward the support wall,

a heating unit including a heating element located within a cover having flanges aligned with the recesses and resting upon the corresponding conductive support walls, each flange including a metallic portion connected to the heating element and engaging the conductive support wall, and

securement means secured to the flanges and to the corresponding inner wall of the terminal clamp and movable to draw the terminal clamp toward the corresponding flange to tightly clamp the heating unit to the support wall and to hold the terminal clamp in lead clamping engagement with respect to the terminal wall.

3,304,393
RETAINER FOR CARTRIDGE FUSE

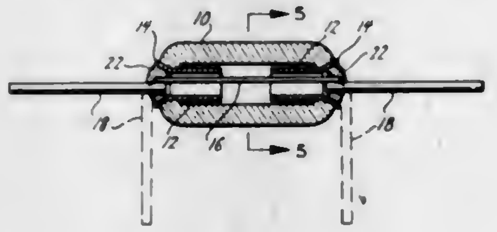
Lawrence L. Gosnell, Baltimore, Md., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 14, 1965, Ser. No. 487,211
2 Claims. (Cl. 200—129)



1. A fuse holder comprising, in combination, a chambered block with contact means therein, a cap disposed within said chambered block and having an interior chamber having an open and a closed end, a coil spring fastened coaxially at said closed end, a plastic resilient member comprising a loop with a bayonet leg affixed thereto, said leg being frictionally engaged between the coils of said coil spring and the wall of said interior chamber and said loop being disposed adjacent said open end to receive and frictionally grip a cartridge fuse, said fuse contacting said coil spring and said chambered block contacting means when said gap is disposed within said block.

3,304,394
GLASS-ENCASED ELECTRIC FUSES

Angelo Urani, St. Louis, Mo., assignor to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware
Filed Nov. 6, 1964, Ser. No. 409,365
8 Claims. (Cl. 200—131)

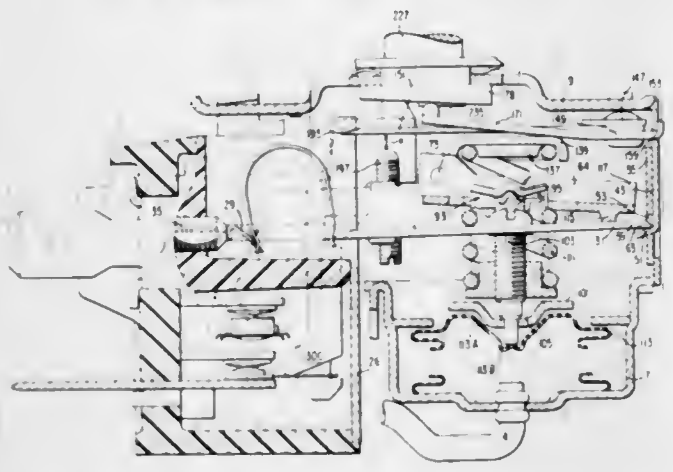


7. An electric fuse that comprises:
(a) a glass tube,
(b) eyelets having portion thereof disposed within, and heat sealed to, the ends of said tube,
(c) a fusible element extending through said eyelets and through said tube,
(d) leads which have ends extending into said eyelets, and
(e) solder that closes said eyelets,
(f) said solder electrically bonding said leads to said fusible elements and hermetically closing and sealing said eyelets,

(g) said eyelets having other portions thereof projecting transversely outwardly of said ends of said glass tube to receive and hold said solder and to constitute barriers between said solder and the outer surface of said glass tube, thereby limiting the extent to which said solder can extend toward the ends of said glass tube.

3,304,395
CONDITION RESPONSIVE ELECTRIC SWITCH MECHANISM

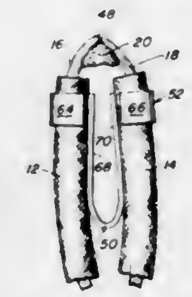
John L. Slonneger, Morrison, Ill., assignor to General Electric Company, a corporation of New York
Filed July 29, 1965, Ser. No. 475,820
5 Claims. (Cl. 200—140)



1. An electric switch comprising: an insulated housing, a first pair of contacts disposed within said housing, means for moving said contacts between a first and a second position, condition responsive means connected to said moving means for controlling the movement thereof, means in engagement with said moving means for biasing said contacts in the first position, rotatable means for selectively varying the condition at which the first pair of contacts are moved toward the second position, a second pair of contacts disposed within said housing, one of said contacts being movable between a first open and a second closed position, an actuator connected to the movable one of said second pair of contacts, cam means connected to said rotatable selectively varying means for controlling said actuator such that movement of said selectively varying means also actuates a second pair of contacts.

3,304,396
THERMAL DISCONNECT MEANS FOR ELECTRICAL DEVICES

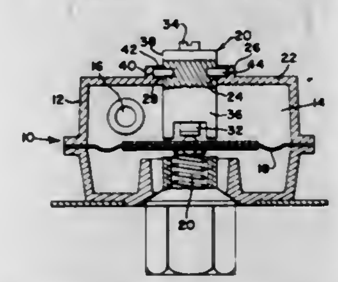
Sol Hasson, Skokie, Ill., assignor to Advance Transformer Co., Chicago, Ill., a corporation of Illinois
Filed Nov. 9, 1964, Ser. No. 409,867
5 Claims. (Cl. 200—142)



1. A thermal disconnect device comprising a pair of electrical leads each formed of a center wire and an outer insulating cover of a diameter greater than that of the wire, each of said leads having at least one end thereof bared and the leads being arranged side by side, the bared ends being solder connected one to the other under tension whereby to spring apart upon melting of the soldered connection by force of a flat-spring member disposed in compressed condition between the leads and biasing same to the spring-apart condition, and a sheath insulating material having an inner diameter greater than the combined diameters of the pair of covered lead wires and engaged over said pair of leads whereby to enclose the bared ends and said soldered connection without interfering with the movement thereof in springing apart, said flat-spring member formed from a single piece of material as a pair of parallel arms connected at one end and having opposite free ends, said arms having integral bent portions extending outward from corresponding edges thereof and looped in opposed directions whereby to provide at least a pair of loops for receiving the respective wires therethrough.

3,304,397
PRESSURE CONTROL ACTUATOR WITH SEAL-MOUNTED ELECTRICAL ELEMENT

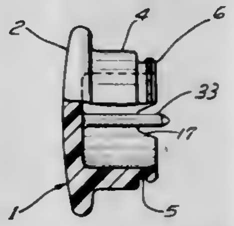
Edwin W. Bernhagen, 2627 E. Hayes, Davenport, Iowa 52803
Filed Nov. 23, 1964, Ser. No. 413,149
5 Claims. (Cl. 200—168)



1. A device of the class described, comprising: a casing including wall means defining a fluid-pressure-receivable chamber enclosing an internal movable member, said wall means including a portion including an outer face and having a through-opening and said portion having therein in said outer face a peripheral externally facing recess bordering the opening and enlarging said opening in only the outer face of said portion; a control element relatively closely slidably fitting and extending through the opening and having an outer part externally of said wall portion outer face and surrounded by the recess and an inner part within the chamber and operatively associated with the movable member, said outer part and said recess cooperating to provide an external peripheral channel about said element; and means securing the element in place, including filler material contained within the channel and peripherally engaging the proximate peripheral portion of said outer part of the element in fluid-tight relation.

3,304,398
SNAP-IN PUSH BUTTON OPERATOR

James E. Stallman, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Nov. 3, 1965, Ser. No. 506,215
7 Claims. (Cl. 200—172)



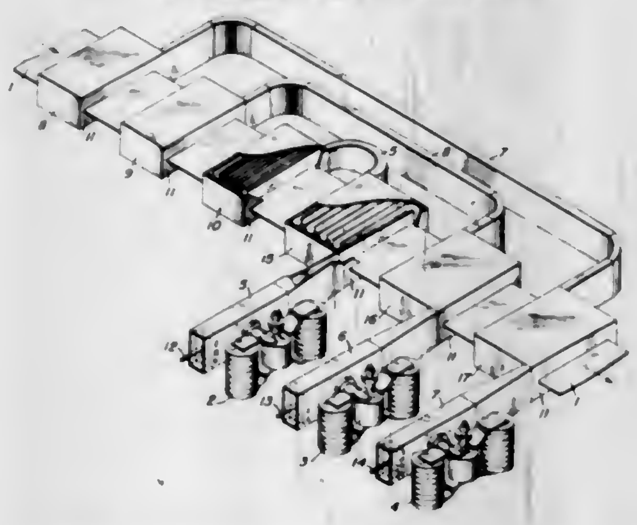
1. An operator button comprising a unitary structure of relative stiff, resilient, self-restoring material and including a head, a stem extending rearwardly therefrom, the rear end of the stem being a guiding nose of reduced diameter with its peripheral wall divergent forwardly of the stem part way toward the head, and a radially open peripheral groove in the stem adjacent to said nose.

3,304,399

HIGH-FREQUENCY FURNACE FOR HIGH-FREQUENCY HEATING BY MEANS OF ULTRA-HIGH FREQUENCIES

Franciscus Josephus Hendricus Timmermans, Hamburg, Germany, and Johan Posthuma van der Helm, Geldrop, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Mar. 10, 1964, Ser. No. 350,698
Claims priority, application Netherlands, Mar. 11, 1963, 290,076
8 Claims. (Cl. 219—10.55)



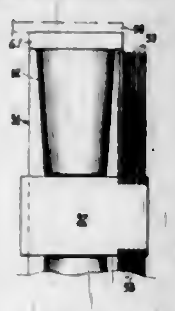
1. High-frequency heating apparatus comprising first and second groups of heating units sequentially arranged in the path of an object to be heated, each of said heating units comprising a waveguide structure having a plurality of spaced partition members extending transversely to said path and arranged to form a plurality of adjacent waveguide sections interconnected to define a serpentine path for high-frequency energy, each of said partition members having an aperture therein to form a channel for the passage of said object, a plurality of high-frequency generators coupled to individual ones of the heating units of said first group, and means for coupling the heating units of said first group to individual ones of the heating units of said second group thereby forming a high-frequency energy propagation path for each generator comprising a heating unit of each of said first and second groups.

3,304,400

COOLING ARRANGEMENT FOR MAGNETRONS

Göran Axel Runo Öjelid, Huskvarna, Sweden, assignor to Husqvarna Vapenfabriks Aktiebolag, a joint-stock company of Sweden

Filed Apr. 10, 1964, Ser. No. 358,857
Claims priority, application Sweden, Mar. 4, 1960, 2,198/60
25 Claims. (Cl. 219—10.55)



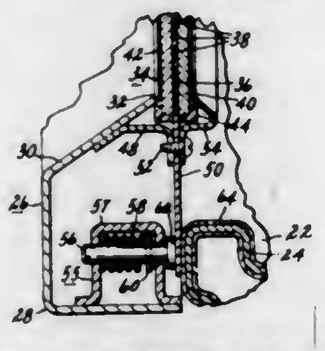
1. In a magnetron of the kind comprising two aligned, spaced apart permanent magnetic pole pieces, a substantially U-shaped yoke interconnecting the remote ends of said pole pieces, and an anode block which is interposed between said aligned pole pieces and is provided with a high frequency output and a pair of heater supporting connections; a cooling arrangement comprising a plurality of cooling fins which have a good heat conductivity and are united, at close intervals, substantially parallel to each other and to the common axis of said pole pieces, with the anode block in close heat exchange relationship therewith, and at least one blower having a discharge opening facing one of the longitudinal edges of each of said cooling fins and the intervals therebetween for blowing cooling air through said intervals.

3,304,401

MICROWAVE OVEN DOOR CLOSURE

George B. Long, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 28, 1964, Ser. No. 392,826
9 Claims. (Cl. 219—10.55)



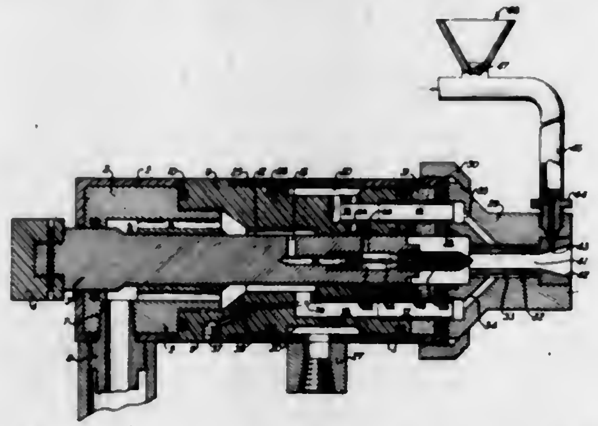
1. In a microwave oven assembly having a microwave generator, the combination of, a liner forming an oven cavity, said liner including a continuous flange forming an opening into said cavity, a continuous peripheral frame member forming a door opening, a see-through window assembly blocking said opening including a flat perforated metal core for blocking microwave energy, an imperforate sheet of transparent material in juxtaposition with each face of said perforated metal core, means for preventing penetration of vapor between said core and said sheets, said core including an imperforate flexible flange directed outwardly of said door opening to overlie said liner flange, said flexible core flange biasingly engaging said liner flange when the door is closed to prevent microwave leakage around the periphery of the door, and a coating of voltage attenuating material on one of said flanges serving to prevent microwave arcing at the juncture between the oven liner and the door closure.

3,304,402

PLASMA FLAME POWDER SPRAY GUN

Merle Lee Thorpe, Suncook, N.H., assignor to Metco Inc., Westbury, N.Y., a corporation of New Jersey

Filed Nov. 18, 1963, Ser. No. 325,520
11 Claims. (Cl. 219—76)



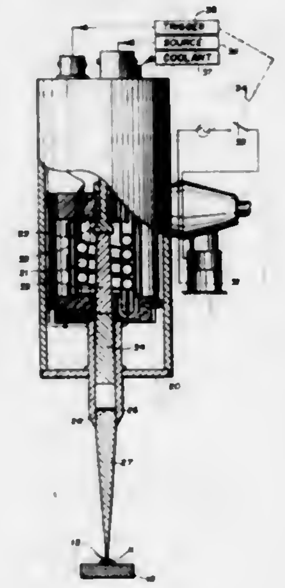
1. In a spray gun for spraying divided, heat-fusible material, comprising means defining a substantially enclosed chamber having a nozzle electrode defining an outlet from said chamber, a second electrode at least partially positioned in said chamber in spaced relationship to said nozzle electrode, means for passing an arc-forming electric current between said electrodes, means for passing a plasma-forming gas along the arc and out through the nozzle electrode out of contact with the arc as a free plasma stream, constricting the arc, causing the same to strike part way down the interior of the nozzle electrode prior to its outlet end, the improvement which comprises said nozzle electrode having a continuous tubular bore of circular cross-section and of constant diameter in the portion in which the arc is struck and constricted, the outlet end of said nozzle electrode from said portion of constant diameter continuously diverging to a maximum diameter at the nozzle electrode outlet, and a passage having an axis which substantially intersects the axis of the nozzle electrode defined laterally through the wall of said nozzle into said diverging portion past the striking point of the arc, and means for passing heat-fusible powder through said passage.

3,304,403

LASER WELDING OF CONTACTS

James G. Harper, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Oct. 14, 1963, Ser. No. 315,793
1 Claim. (Cl. 219—121)



A system for securing a miniature electrical lead which comprises:

- (a) a component having at least one contact zone thereon,
- (b) a laser crystal supported in axial alignment with said zone,
- (c) light concentrating means to direct light from said laser to focus on said zone,
- (d) a conductor extending through said concentrating means into contact with said zone, and
- (e) means for pulsing said laser to fuse said conductor to said zone.

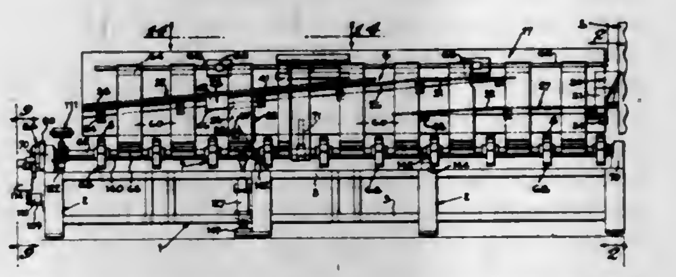
3,304,404

HIGH SPEED HEAT TREATING MACHINE

Clifford Goldmeyer, Cincinnati, and Thomas J. Dull, Fairfield, Ohio, assignors to The J. R. Greeno Company, Cincinnati, Ohio, a corporation of Ohio

Filed May 14, 1964, Ser. No. 367,538
12 Claims. (Cl. 219—156)

1. A heat treating machine for normalizing elongated workpieces such as helical wires or the like comprising,
- a receiving section adapted to receive said workpieces,
- a rotary indexing mechanism mounted relative to said receiving section, whereby said receiving section is adapted to deliver the said workpieces individually to the said indexing mechanism,
- said rotary indexing mechanism comprising an indexing shaft,
- a series of indexing wheels mounted on said shaft and spaced apart axially along the shaft from one another to provide a support engageable with the said elongated workpiece,
- a heat treating station mounted relative to said rotary indexing mechanism,
- said heat treating station comprising a plurality of electrodes mounted in alignment with the said indexing wheels of the indexing mechanism, said electrodes normally residing in a retracted position with respect to the said indexing wheels, said electrodes adapted to engage the elongated workpiece at points which are supported by the said indexing wheels, whereby the indexing wheels coact with the electrodes to support and clampingly engage the workpiece along the length thereof,
- said indexing wheels and said electrodes being electrically insulated,
- and means for applying electrical energy to said electrodes, whereby said electrodes heat the elongated workpiece to a normalizing temperature.

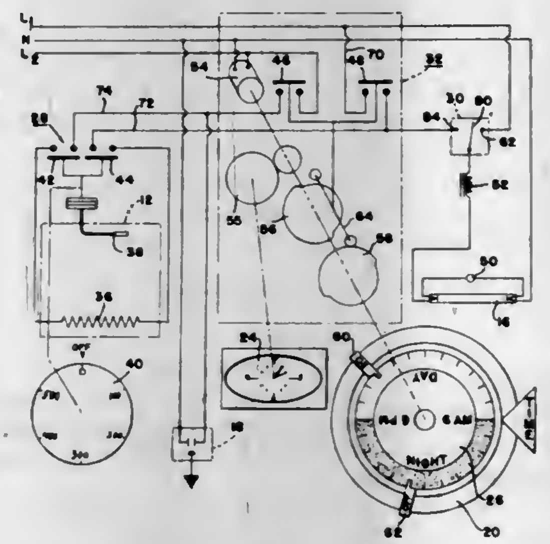


3,304,405

REPEATABLE TIMED NIGHT LIGHT ARRANGEMENT FOR A HOUSEHOLD RANGE

George W. Schauer, Jr., Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

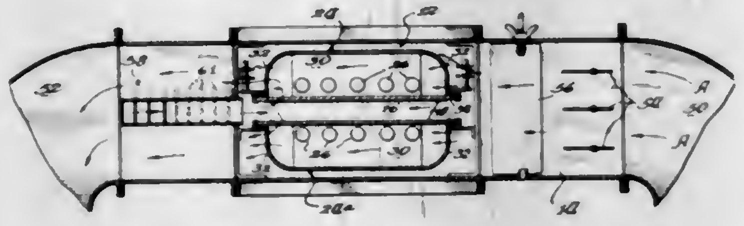
Filed Mar. 2, 1964, Ser. No. 348,660
1 Claim. (Cl. 219—396)



A repeat cycle timed night light arrangement in a domestic electric range having casing means defining an oven having a heating circuit means, lighting circuit means for illuminating the area around the range, and clock means for telling time, said timed light arrangement comprising timer means for selectively controlling energization of said heating circuit means, and said lighting circuit means in repeat cycles and for operating said clock means continuously, said timer means comprising first switch means adapted to be connected to a power source and in power supply relationship to said heating circuit means and said lighting circuit means and respectively closable and openable to energize and deenergize said heating circuit means and said lighting circuit means, and control means for effecting the closing and opening of said first switch means in a repeat cycle once every twenty-four hours to determine a time interval during which said heating circuit means and said lighting circuit means shall be energized, said control means including means presettable in a manner to determine said time interval, said heating circuit means including a heater for said oven and second switch means thermally responsive to temperatures in said oven and interposed between said first switch means and said heater for selectively conditioning said heater for energization through said first switch means, and said lighting circuit means including a lamp and a third switch means manually operable between a timed night light position interposed between said first switch means and said lamp for selectively conditioning said lamp for energization during said time interval through said first switch means and a continuous light position interposed directly between the power source and said lamp for energizing said lamp continuously.

3,304,406
INFRARED OVEN FOR HEATING FOOD IN PACKAGES

Alan M. King, Lake Forest, Ill., assignor to Square Manufacturing Company, a corporation of Illinois
Filed Aug. 14, 1963, Ser. No. 302,203
8 Claims. (Cl. 219—411)

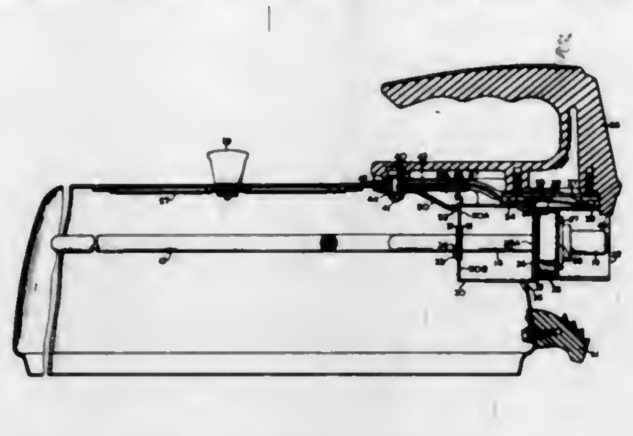


4. In combination, a heating station for heating frozen food, comprising: a relatively shallow frozen food package having substantially parallel top and bottom panels highly transmissive of infrared rays; a heating station including infrared heater means and generally parallel infrared transmissive pressure members, said pressure members constructed and arranged to maintain the top and bottom package panels in heat transfer contact with the food in the package when the package is placed between the pressure members; and means for forcibly circulating cooling air around the package and pressure members to maintain the members and package below package charring temperatures.

3,304,407
GRILLER-COVER

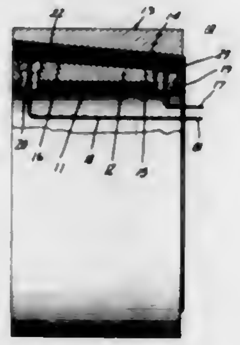
William John Clark, Mortdale, New South Wales, and Terrence Brian Higgins, Oatley, New South Wales, Australia, assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 4, 1963, Ser. No. 328,093
3 Claims. (Cl. 219—435)

3. A griller-cover comprising a cover, an opening in one side wall of the cover, a heating assembly removably secured to the cover, a sheathed type heating element for the heating assembly inside the cover, parallel adjacent terminal pins at the ends of the heating element outside the cover, a shroud surrounding the terminal end pins, a thermal control box secured to and about portions of the heating element adjacent the terminal ends, the thermal control box filling the opening in the cover, a gap between the adjacent parts of the thermal control box and the shroud, said gap being adjacent but outside the said side-wall of the cover, a spring secured to the cover which bears against the end wall of the thermal control box inside the cover, the spring being displaceable to a position away from the thermal control box to permit withdrawal of the heating assembly from the cover, an insulated handle carried by said cover and projecting therefrom over said shroud, and cooperating assembly means on said handle and said shroud positioning said assembly means with respect to said cover.



3,304,408
ELECTRIC HEATING DEVICES

Thomas E. Finch and Thorbjorn Skogland, Shelbyville, Ind., assignors to General Electric Company, a corporation of New York
Filed July 16, 1964, Ser. No. 383,151
6 Claims. (Cl. 219—544)



1. An electric heating device comprising an inner ring member having an external tapered surface, an outer ring member formed with an internal tapered surface, means for generating heat including a helical coil of resistance wire disposed around the external tapered surface of said inner ring member, shim means disposed around said helical coil, and electrical insulating and heat conducting means interposed and compressively sandwiched between said shim means and said external tapered surface of said inner ring member to embed said resistance wire in said electrical insulating and heat conducting means.

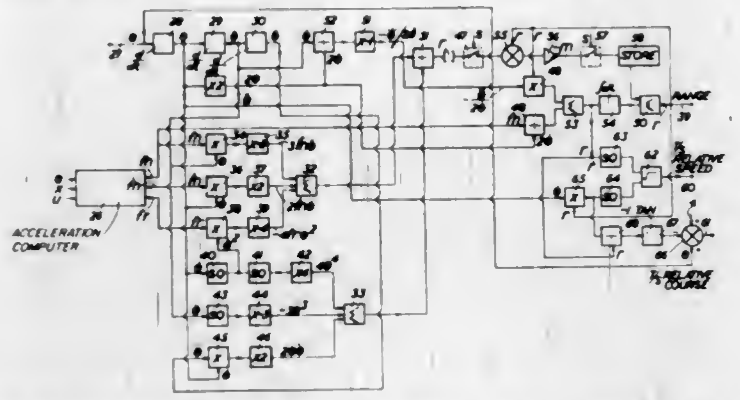
3,304,409
APPARATUS FOR COMPUTING THE RANGE COURSE AND/OR SPEED OF A TARGET OR OTHER BODY

Charles Snowdon, Belfast, Northern Ireland, and Richard A. B. Bond, Plumstead, Republic of South Africa, assignors to Short Brothers & Harland Limited, Belfast, Northern Ireland, a British company
Filed Mar. 15, 1961, Ser. No. 125,285
Claims priority, application Great Britain, Mar. 23, 1960, 10,376/60
3 Claims. (Cl. 235—61.5)

1. Apparatus for computing the range r of a target from a moving observing station, said apparatus comprising means for generating signals respectively representative of the first, second and third time derivatives $\dot{\theta}$, $\ddot{\theta}$ and $\dddot{\theta}$ of the target bearing θ, means for generating a signal representative of a component f_r of the acceleration f of the target relative to the observing station, the component f_r being an acceleration component along the target bearing line, and for generating a signal representative of a component f_n of the acceleration f, the component f_n being an acceleration component at right angles to said target bearing line, means for generating a signal representative of the first time derivative $\dot{f}_n$ of the acceleration component f_n, and means for operating on and combining said signals in accordance with the expression

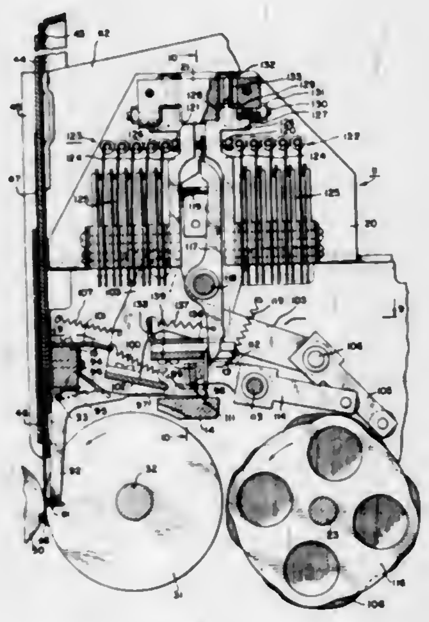
$$\frac{2\dot{\theta}\dot{f}_n-3\ddot{\theta}f_n-4\dot{\theta}^2f_r}{4\dot{\theta}^4+2\dot{\theta}\dddot{\theta}-3\ddot{\theta}^2}$$

or its equivalent to produce an output signal representative of the range r.



3,304,410
TABULATING CARD READER

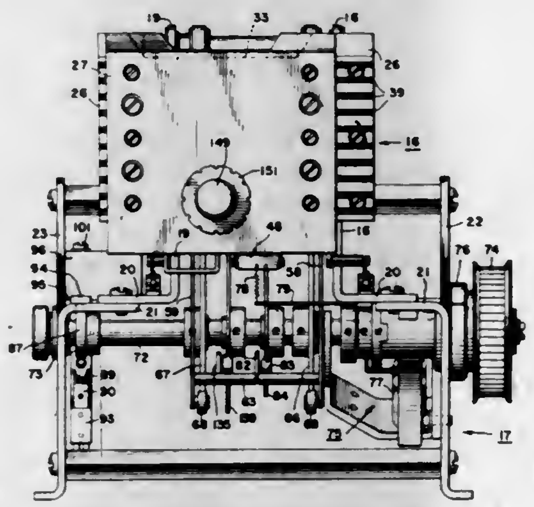
Edwin O. Blodgett, Rochester, N.Y., assignor, by mesne assignments, to Friden, Inc., San Leandro, Calif., a corporation of Delaware
Filed Jan. 3, 1963, Ser. No. 249,228
17 Claims. (Cl. 235—61.11)



1. A tabulating card reader comprising a plurality of sensing elements adapted to sense concurrently by index-point columns code apertures in individual ones of plural index-point rows of a tabulating card, a plurality of pairs of output-coded-information electrical contacts each having an actuating member, means for transporting a tabulating card by successive index-point column steps past said sensing elements, power driven means having a cycle of reciprocatory motion in relation to each step drive of said transporting means, a plurality of pivotally supported interposers pivotally controlled individually by any of said sensing elements which sense a corresponding code aperture in said card and reciprocated concurrently by said power driven means for pivotally engaging and cyclically actuating corresponding individual ones of said electrical-contact actuating members to effect by resultant actuation of said contacts translation of an item of coded information read from said card, and a power-driven reciprocatory bail member actuated into concurrent engagement with the pivoted ends of said interposers near the end of each cycle of said power driven means for interrupting the engagement of said interposers with said electrical-contact actuating members.

3,304,411
PUNCHED-CARD READER

Edwin O. Blodgett, Rochester, N.Y., assignor, by mesne assignments, to Friden, Inc., San Leandro, Calif., a corporation of Delaware
Filed Jan. 3, 1963, Ser. No. 249,252
18 Claims. (Cl. 235—61.11)



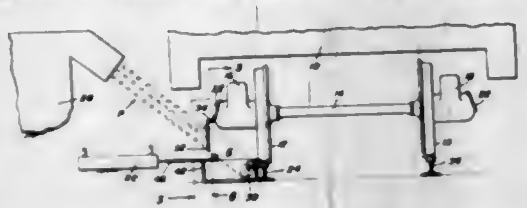
3. A coded-information punched-card reader comprising an array of aperture sensing pins and articulated latches arranged and spring biased to reciprocate in unison between non-sensing and code-aperture sensing positions to effect spring-biased sensing by said pins of individual ones of a corresponding array of index-point code apertures of a punch card, power driven means for permitting biased movement of said sensing pins from non-sensing to sensing position and for returning said pins by bias-opposing power drive to said non-sensing position, an array of code-storage elements corresponding to said array of sensing pins and having individual actuators adapted to be individually aligned with and latchably engaged by an individual one of said latches and drivingly moved thereby from non-storage to code-storage position by power driven return movement of individual ones of any of said sensing pins which sense a corresponding aperture in said card, thereby to store by the positioning of said elements the coded information sensed in each card read, and means for moving all of said latches to unlatch position out of alignment with said actuator prior to completion of said movement of said sensing pins from non-sensing to sensing position.

3,304,412
VEHICLE READING SYSTEM USING INBOARD LIGHT

Jacob Rabinow, Bethesda, Md., assignor, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Jan. 29, 1963, Ser. No. 254,689
11 Claims. (Cl. 235—61.11)

1. A vehicle data system for vehicles which operate on a track, where a typical vehicle has wheels on the track and a vehicle structure above the track surface and overhanging the area outboard on the track on both sides thereof, a code member with light-transconductive subareas defining the code, said member attached to a part

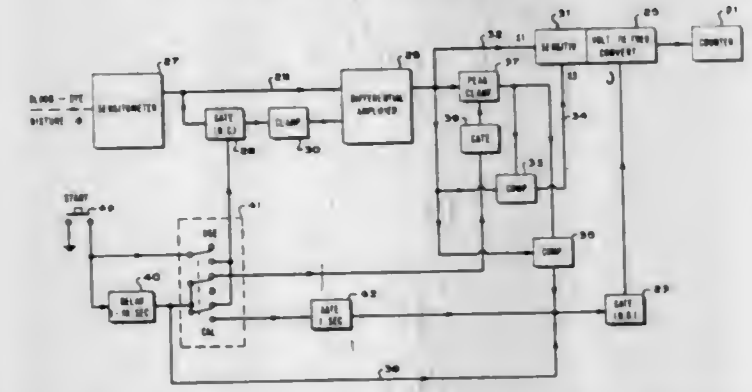
of said structure to position said member above said area outboard of one of the track rails, a light source device and an optical sensing device in optical alignment with each other to establish an optical path therebetween, one device being lower than the other so that said path is inclined relative to said area, and the lower device located



closely adjacent to said track and the other device farther away from the same track in an outboard direction with respect to said track, and the specific location of said member on the vehicle structure being predetermined with respect to said optical path to intercept the optical path as the vehicle moves on the track.

3,304,413
CARDIAC OUTPUT COMPUTER

William B. Lehmann, White Plains, N.Y., and Arye Ron, Brighton, Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Mar. 26, 1963, Ser. No. 268,105
5 Claims. (Cl. 235—92)

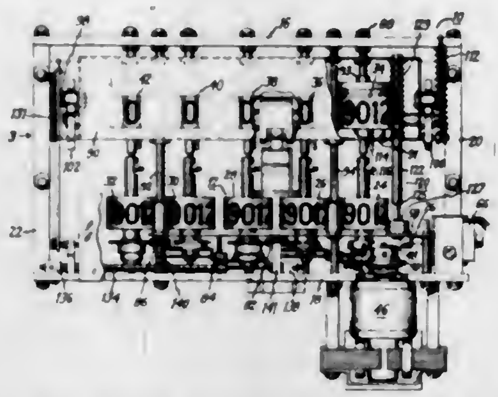


1. Apparatus for integrating a function, said apparatus comprising:
- first circuit means forming pulses having a repetition rate related by a first factor to the value of said function;
- a counter;
- means for applying said pulses to said counter;
- means producing first and second signals related to the peak value of said function;
- second circuit means to form pulses related by a second factor of the value of said function in response to a predetermined relationship between the value of said function and said first signal;
- means for applying said last-mentioned pulses to said counter; and
- means to prevent the application of pulses to said counter in response to a predetermined relationship between the value of said function and said second signal.

3,304,414
PULSE COUNTING DEVICE WITH VISUAL AND ELECTRICAL STORAGE AND READOUT

Donald M. Ham, Rochester, N.H., and Fin Serck-Hanssen, Oslo, Norway, assignors to General Electric Company, a corporation of New York
Filed May 31, 1963, Ser. No. 284,688
17 Claims. (Cl. 235—92)

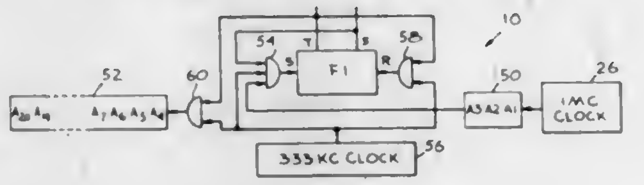
1. A pulse counting device provided with visual and electrical storage and readout comprising;
- (a) a pair of visually readable registers disposed in an enclosure in the upper and lower portion thereof,
- (b) one of said registers being connected to a counting mechanism for accumulating incoming pulse counts,
- (c) the other of said registers providing visual and electrical storage and readout of counted pulses,
- (d) means interconnecting said registers to transfer the reading of said one register to said other register,



  - (1) said means including camming means on said other register cooperating with contact means on said one register,
- (e) transfer means electrically actuated to operate said interconnecting means whereby the count accumulated in said one register is transferred to said other register.

3,304,415
COUNTER APPARATUS

Thomas A. Connolly, Anaheim, and David B. Kaplan and Alfred D. Scarbrough, Los Angeles, Calif., assignors, by mesne assignments, to The Bunker-Ramo Corporation, Stamford, Conn., a corporation of Delaware
Filed Sept. 10, 1963, Ser. No. 307,962
11 Claims. (Cl. 235—92)



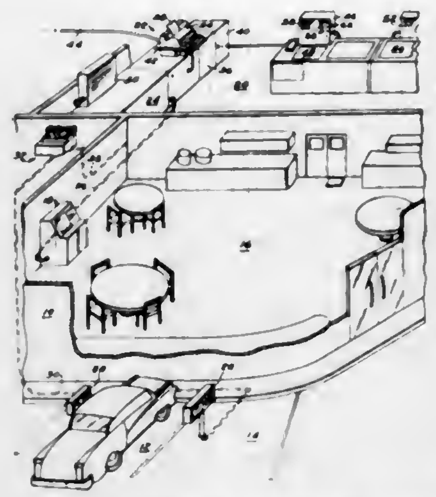
1. In a digital counter including *n* stages,
- a first frequency generator;
- a second frequency generator operating asynchronously with respect to said first frequency generator;
- a first counter portion including *x* stages;
- a second counter portion including *n–x* stages;
- means connecting said first frequency generator to said first counter portion for driving said *x* stages;
- means connecting said second frequency generator to said second counter portion for driving said *n–x* stages; and
- means interconnecting said first and second counter portions for causing said second counter portion to count cycles of said first counter portion.

3,304,416
BUSINESS ORDER CONTROL SYSTEM AND APPARATUS

Jesse David Wolf, Bethesda, Md., assignor to Marriott-Hot Shoppes Inc., a corporation of Delaware
Continuation of abandoned application Ser. No. 737,642, May 26, 1958. This application Mar. 7, 1966, Ser. No. 532,478
12 Claims. (Cl. 235—92)

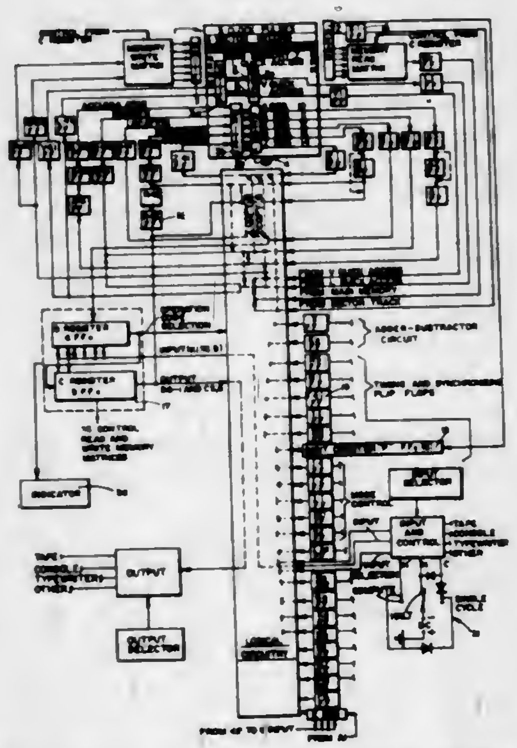
1. An electrical system for controlling the operation of a business, comprising a plurality of order stations, a central station connected for control selectively from any of said order stations, means at each of said order stations for generating coded messages corresponding to

orders entered at said station, means for programming the operation of each order station to cause the transmission of the messages to the central station, a plurality of work stations at which are to be performed respective items of work called for by said messages, means at said central station for recording the messages as received, automatic means for computing numerical information based on the content of said messages, means for relaying selected portions of each of said messages to respective ones of said work stations, and means at each work station, responsive to the relayed message portions, for providing a visual display of order information pertinent to that work station.



3,304,417
COMPUTER HAVING FLOATING POINT MULTIPLICATION

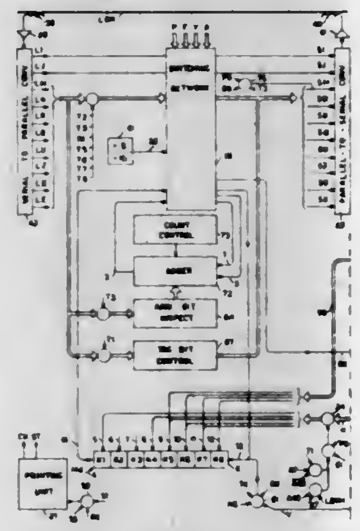
Theodore M. Hertz, Whittier, Calif., assignor to North American Aviation, Inc.
Continuation of application Ser. No. 227,365, Oct. 1, 1962. This application May 23, 1966, Ser. No. 552,341
8 Claims. (Cl. 235—164)



1. In an electronic computer, means providing floating point multiplication of one operand with another in a plurality of computer word times including an initial computer word time, each of said operands having an exponent portion and a fraction portion, said exponent portion indicating a power of 2 by which said fraction portion must be multiplied to obtain the numerical valve of the operand represented by said exponent and fraction portions, one of said operands being a multiplier and the other of said operands being a multiplicand, said means providing floating point multiplication comprising means for serially by bit multiplying the fraction portion of said multiplicand by the fraction portion of said multiplier, said means providing floating point multiplication further comprising means for serially by bit adding the exponent portions of said multiplier and said multiplicand during an initial computer word time of the floating point multiplication.

3,304,418
BINARY-CODED DECIMAL ADDER WITH RADIX CORRECTION

Pier Giorgio Perotto, Turin, and Giovanni De Sandre, Sacile, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy, a corporation of Italy
Filed Mar. 1, 1965, Ser. No. 435,813
Claims priority, application Italy, Mar. 2, 1964, 4,933/64
2 Claims. (Cl. 235—169)



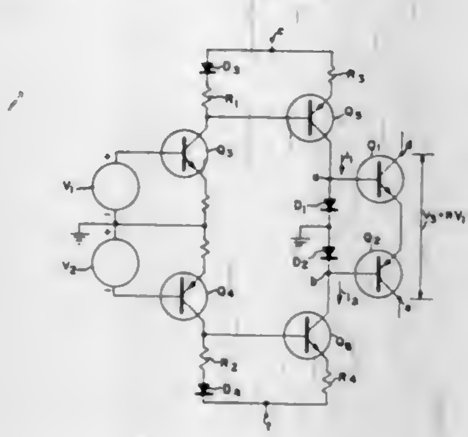
2. An electronic computer comprising:
- (a) a cyclic serial memory for storing two multi-digit binary-coded decimal numbers,
- (b) means effective during a first memory cycle for adding together the successive pairs of corresponding digits of said two numbers to obtain successive uncorrected sum digits,
- (c) means controlled by said adding means for indicating the magnitude of each one of said uncorrected sum digits,
- (d) means for storing said uncorrected sum digits in said memory,
- (e) means controlled by said indicating means for storing in said memory, for each of said uncorrected sum digit, a mark having a value depending on whether the corresponding magnitude exceeds nine or not,
- (f) means effective during a second memory cycle for sequentially reading out of said memory said uncorrected sum digits along with the relevant marks.
- (g) and means responsive to said reading means for adding to each uncorrected sum digit being read out a filler digit having a value depending on the value of the relevant mark.

3,304,419
SOLID-STATE ANALOG MULTIPLIER CIRCUIT

Wright H. Huntley, Jr., Palo Alto, Calif., and Enn Tammaru, Arlington, Mass., assignors of twenty percent to Wright H. Huntley, Sr.
Filed July 31, 1963, Ser. No. 299,046
4 Claims. (Cl. 235—194)

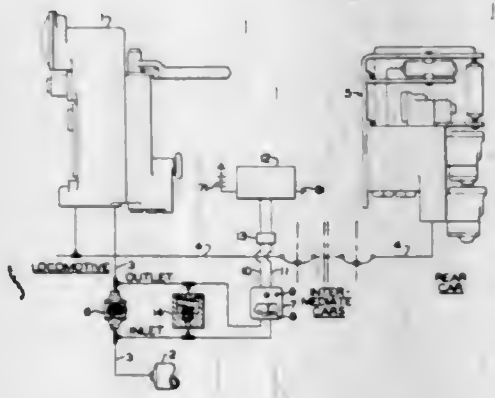
1. A solid-state analog multiploer circuit comprising: a pair of semiconductor junction diodes, opposite polarity terminals of said diodes being connected to a common potential point so that input currents through said diodes

develop a voltage at the remaining diode terminals which varies as the sum of the logarithms of the currents through each of said diodes; and a floating-input, complementary pair of transistors, said voltage being impressed across the base-emitter junctions of said transistors so that the output collector current of said transistors varies in accordance with the antilogarithm of said voltage.



3,304,420
APPARATUS FOR CHECKING INTEGRITY OF BRAKE PIPE OF FLUID PRESSURE BRAKE SYSTEM AND PRECONDITIONING BRAKE SYSTEM FOR AUTOMATED CONTROL

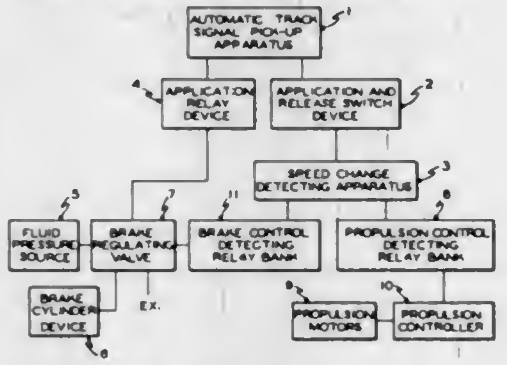
George S. Bowman, 224 Elmore Road,
Pittsburgh, Pa. 15221
Original application Sept. 29, 1964, Ser. No. 400,049. Divided and this application June 10, 1966, Ser. No. 556,728
2 Claims. (Cl. 246—169)



1. For use in an automated train operatiing equipment, the combination of:
- (a) means for conditioning the train equipment for operation,
- (b) a normally charged brake pipe extending throughout the train, reductions of pressure therein effecting brake operations,
- (c) brake valve means on the head end of the train for effecting supply and release of fluid under pressure to and from said brake pipe, to respectively effect charging of said brake pipe and initiation of brake applications,
- (d) an integrity signaling device on the rear of the train operative responsively to attainment of a predetermined pressure in said brake pipe responsive to charging of the brake pipe by said brake valve means after a first brake pipe pressure reduction by said brake valve means, for initiating a second brake pipe pressure reduction in the brake pipe from the rear end of the train,
- (e) flowmeter means for continuously registering the rate of charging flow of fluid to the brake pipe, and
- (f) switch means operative responsively to registration by said flowmeter means of increasing rate of flow of fluid to the brake pipe incidental to said second brake pipe pressure reduction to complete circuitry for causing said conditioning means to render the train equipment operative to initiate propulsion of the train.

3,304,421
AUTOMATIC PROPULSION AND BRAKE CONTROL FOR UNMANNED TRAINS

Carl D. Wright, Jr., Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed May 3, 1963, Ser. No. 277,754
11 Claims. (Cl. 246—182)

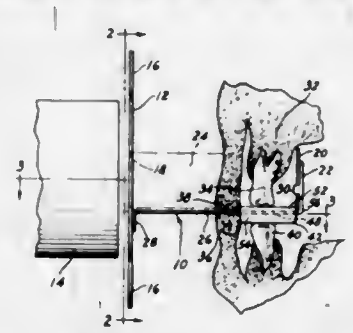

AUTOMATIC TRACK SIGNAL PICK-UP APPARATUS
1
APPLICATION RELAY DEVICE
4
APPLICATION AND RELEASE SWITCH DEVICE
2
SPEED CHANGE DETECTING APPARATUS
3
FLUID PRESSURE SOURCE
5
BRAKE REGULATING VALVE
7
BRAKE CONTROL DETECTING RELAY BANK
11
PROPULSION CONTROL DETECTING RELAY BANK
8
BRAKE CYLINDER DEVICE
6
EX.
PROPULSION MOTORS
9
PROPULSION CONTROLLER
10

1. Automated train control apparatus for unmanned trains of the type utilizing trackside control signals, said apparatus comprising in combination:
- (a) signal pick-up means operably responsive to receipt of trackside signals to initiate various predetermined train control operations,
- (b) braking means for braking a train,
- (c) propulsion means for propelling the train,
- (d) control means operable responsively to operation of said signal pick-up means for initiating a brake application by said braking means and controlling said propulsion means,
- (e) speed-change sensing means for repeatedly providing a selected control voltage indicative of the amount of difference in the speed of the train during two successively spaced intervals of time, and
- (f) regulating means controlled by a control voltage supplied by said speed-change sensing means for so controlling said control means as to cause variation of the degree of braking effected by the braking means and to cause variation of the degree of propulsion effected by the propulsion means so as to maintain a constant speed.

3,304,422
DENTAL X-RAY SHIELD AND FILM HOLDING SUPPORT HAVING A BITE-RECEIVING MEMBER

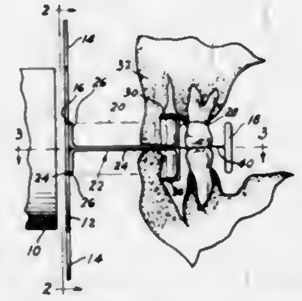
Fred M. Medwedeff, Nashville, Tenn., assignor to Precision X-ray Company, North Nashville, Tenn.
Filed July 30, 1964, Ser. No. 386,205
5 Claims. (Cl. 250—70)

1. A dental X-ray shield and film holder unit comprising in combination, a plate-like X-ray shield arranged to be positioned exteriorly of the face of a patient adjacent the outer end of the cone of an X-ray machine and having an opening of restricted size extending substantially centrally therethrough and being of similar shape and area to that of an X-ray film to be used in the mouth of a patient, a flat strip-like bracket arm formed from rigid sheet material having an attaching ear bent perpendicularly to said arm at one end thereof and connected to one face of said shield adjacent said opening, said arm extending substantially perpendicularly from said one face of said shield, film-holding means attached to and extending substantially perpendicularly from one flat face of the opposite end of said bracket arm and having means to receive an X-ray film and support the same within the mouth of a patient substantially parallel to said shield adjacent the lingual or palatal wall of one of the gums when the bracket arm extends to the oral cavity past the teeth, and a block-like bite-receiving member having opposite outer surfaces respectively formed from yieldable material non-injurious to teeth and engageable by the teeth of the opposite jaws of a patient, said member having a longitudinal slot extending inward from one side of the member for the full length thereof substantially in parallelism with at least one of said outer surfaces and closer to one of said surfaces than the other to provide relatively thick and thin spacing portions between the opposite surfaces of said bracket arm and the outer surfaces of said bite-receiving member to permit reversal of said member on said arm and thereby provide different spacings of said arm and film held thereby relative to shallow and deep palates of patients, said slot being snugly complementary to the thickness of said bracket arm to frictionally receive the same closely adjacent said film holding means and in engagement with an X-ray film when supported by said holding means to position the edges of said film nearest said bracket arm in predetermined relationship to said bracket arm of said unit, thereby to firmly support the bracket arm between said opposing teeth of a patient and thus position said X-ray shield exteriorly of a patient's face as aforesaid with the opening therein in axial alignment with an X-ray film when placed within said film holding means and supported thereby within the oral cavity of a patient.



3,304,423
DENTAL X-RAY SHIELD AND AIMING MEANS AND FILM HOLDER MEANS MOUNTED ON OPPOSITE ENDS OF BITE MEANS

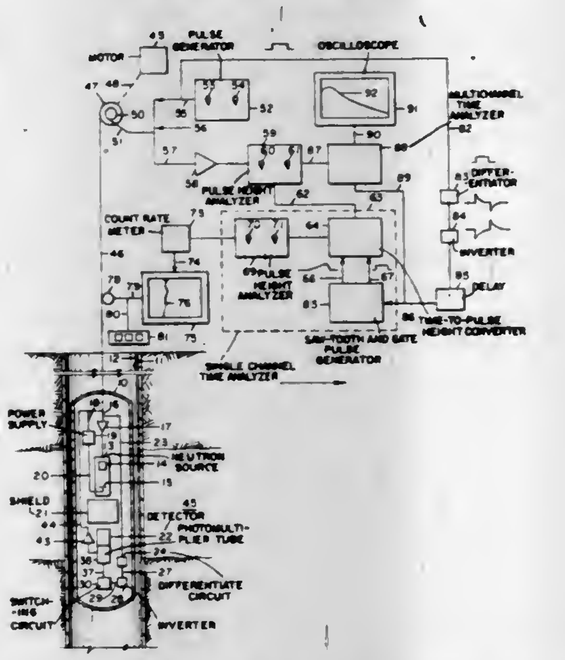
Fred M. Medwedeff, 4505 Wayland Drive,
Nashville, Tenn. 37215
Filed Mar. 25, 1966, Ser. No. 544,640
11 Claims. (Cl. 250—70)



1. An X-ray film holder comprising in combination, substantially plate-like X-ray shield and aiming means arranged to be positioned exteriorly of a patient's face and adjacent the outer end of the cone of an X-ray machine, said shield and aiming means being at least equal in area and shape to that of the cone of an X-ray machine and having an opening of restricted size therethrough of substantially similar shape and area to that of X-ray film to be used with said holder to effect collimation of the X-ray beam, bracket means connected at one end to and extending perpendicularly from one face of said shield and aiming means, the other end of said bracket having supporting means spaced apart a distance greater than the width of said opening in said shield and aiming means, and non-metallic connecting means having film attaching means and bracket attaching means on opposite ends of intermediate bite means, said film attaching means and bracket attaching means being attachable to and readily detachable from an X-ray film and the supporting means on the other end of said bracket means respectively thereby to position the film in axial alignment with said opening in said shield and aiming means and also with the cone of said X-ray machine when said bite means of said connecting means is engaged supportingly between upper and lower teeth of a patient, whereby no metallic means on said bracket or connecting means are disposed between said opening in said shield and said X-ray film when the film is supported by said film attaching means.

3,304,424
RADIOACTIVE WELL LOGGING TECHNIQUE FOR LOGGING FOR THE SODIUM-24 ISOMER

William R. Mills, Jr., Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York
Filed Mar. 21, 1963, Ser. No. 266,872
8 Claims. (Cl. 250—71.5)



1. The method of logging the formations traversed by a borehole for salt water containing sodium which forms the radioactive isotope sodium-24 upon the capture of thermal neutrons, said radioactive isotope having an isomeric energy level with a characteristic half life of about 20 milliseconds and which decays to the ground state by the emission of gamma radiation of energy of about 0.47 m.e.v., comprising the steps of irradiating the formations with neutrons, detecting gamma radiation emanating from said formations upon the irradiation thereof with neutrons, and selectively measuring the intensity of gamma radiation detected which corresponds to gamma radiation emitted from the isomeric energy level of sodium-24.

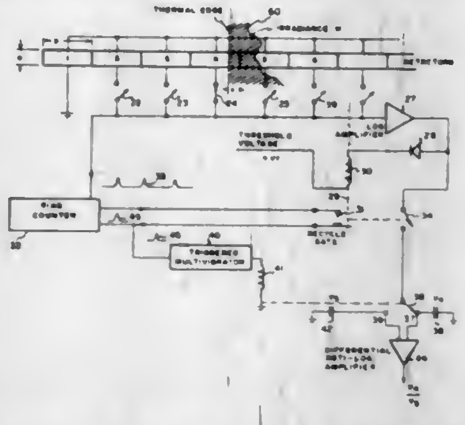
3,304,425
THERMAL DISCONTINUITY DETECTOR HAVING MEANS FOR SEQUENTIALLY SAMPLING A PLURALITY OF SPACED DETECTOR ARRAYS

Robert W. Astheimer, Westport, Conn., assignor to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware
Continuation of application Ser. No. 263,601, Mar. 7, 1963. This application Apr. 6, 1966, Ser. No. 546,117
11 Claims. (Cl. 250—83.3)

1. An apparatus for accurately determining sharp thermal discontinuities between an object and its surroundings, comprising
- (a) at least one array of radiation detectors,

(b) an optical system for imaging said object on said array of detectors in which the image of said object is larger than any two detectors in said array,

(c) sampling means for sequentially sampling the detectors in said array, thereby producing from the detectors in said array a first signal indicative of the detector in the array on which the image of the edge



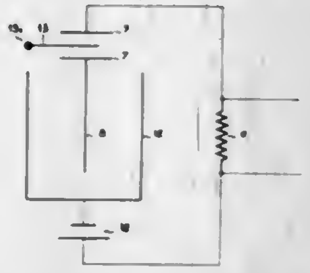
of the object is located and a second signal from the next succeeding detector in said array which is equal to or greater than said first signal, and

(d) means for obtaining a ratio of said first and second signals for accurately locating the fractional position of the edge of the image of the object within the detector on which the image of the edge of the object first appears.

3,304,426

CONTACT ELECTROMETERS WITH OSCILLATING BLADES

Gilbert Ganouna-Cohen, Bagneux, Seine, France, assignor to Commissariat à l'Energie Atomique, Paris, France
Filed Aug. 1, 1963, Ser. No. 299,219
Claims priority, application France, Aug. 8, 1962, 906,478
2 Claims. (Cl. 250—83.6)



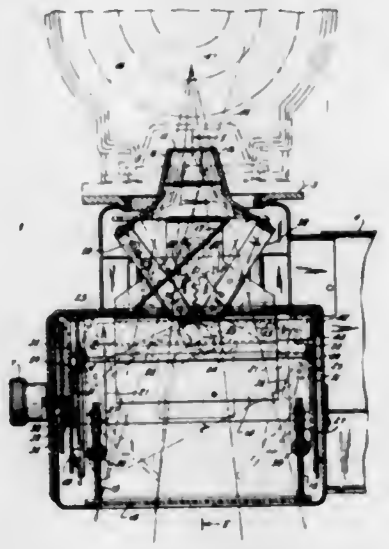
1. A contact electrometer, particularly for the measurement of weak electrical charges liberated in a detector having very high output impedance, such as an ionisation chamber, said electrometer comprising a first fixed electrode connected to the collector electrode of the detector, a second fixed electrode connected through an outer circuit comprising a resistor, to one of the poles of a voltage source, the other pole of which source is connected to the outer casing of the detector, and a movable blade electrically isolated from said outer circuit and from said fixed electrodes and located between said fixed electrodes for contact with said fixed electrodes.

3,304,427

X-RAY BEAM DEFINING APPARATUS HAVING ADJUSTABLE COLLIMATOR PLATES DISPOSED IN THREE PARALLEL PLANES

Leonard F. Peyser, White Plains, N.Y., assignor to The Machlett Laboratories, Inc., Stamford, Conn., a corporation of Connecticut
Filed Feb. 13, 1964, Ser. No. 344,745
2 Claims. (Cl. 250—105)

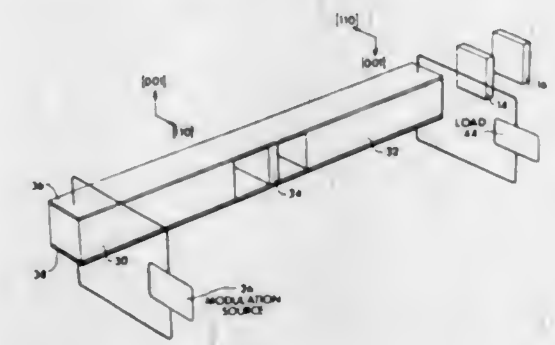
1. An X-ray collimator for rotating anode tubes comprising first and second pairs of collimating elements movable in planes at right angles to each other for defining a rectangular beam of adjustable dimensions, a mounting plate at one end for attachment to an X-ray tube housing, two pairs of opposing off-focus radiation shielding plates extending beyond said mounting plate so as to position their edges close to the window of an X-ray tube when the mounting plate is fastened to the housing thereof, one pair of opposed shielding plates being stationary, parallel to the planes of said first pair of collimating elements and to the plane of anode rotation, and subtending an angle about the tube focal spot slightly greater than the maximum angle of the opening defined by said first pair of collimating elements with respect to said focal spot, said second pair of shielding elements being adjustable, means mounting the second pair of said shielding plates for adjustment toward and away from each other in parallelism to the planes of said second pair of collimating elements and to the tube axis, and means coupling the said second pair of radiation shielding elements to said second pair of collimating elements for movement therewith with their edges subtending an angle slightly greater than the angle of the opening defined by the said second pair of collimating elements with respect to said focal spot.



3,304,428

TRANSMISSION LINE LIGHT MODULATOR

Charles J. Peters, Wayland, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 18, 1964, Ser. No. 419,465
5 Claims. (Cl. 250—199)

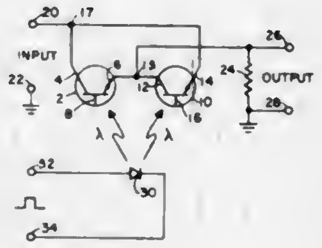


1. In a light modulation system which includes a .ight source for transmitting a light beam through a modulator, and a polarizer for producing linearly polarized light of variable amplitude, a light modulator comprising, a conductive cylinder having a rectangular opening coaxial therewith, first and second elongated birefringent electro-optic crystals disposed collinearly in light transmitting relationship within said opening, with the optical axes of said first crystal being disposed 180 degrees to the optical axes of said second crystal, a rotator disposed between said crystals, only one face of each crystal being in contact with said cylinder, a flat electrode attached to the face of said crystals opposite to the face in contact with said cylinder, and coaxial means for applying a modulating potential across said cylinder and flat electrode to thereby vary said crystal birefringence.

3,304,429

ELECTRICAL CHOPPER COMPRISING PHOTOSENSITIVE TRANSISTORS AND LIGHT EMISSIVE DIODE

Edward L. Bonin, Richardson, and Jack S. Kilby, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 29, 1963, Ser. No. 326,765
15 Claims. (Cl. 250—217)



1. An electro-optical chopper for switching an electrical signal from a first circuit to a second circuit, comprising:

(a) a pair of transistors comprised of a first semiconductor material each having an emitter region, a base region and a collector region with the collector region of one of said pair of transistors interconnected with the emitter region of the other of said pair of transistors, and the collector region of said other of said pair of transistors interconnected with the emitter region of said one of said pair of transistors to effect at least a partial cancellation of the junction voltages as measured between the emitter regions of said pair of transistors when conducting,

(b) an input terminal connected to the interconnection of said collector region of said one of said pair of transistors and said emitter region of said other of said pair of transistors for connection into said first circuit and for the application of said electrical signal thereto,

(c) an output terminal connected to the interconnection of said collector region of said other of said pair of transistors and said emitter region of said one of said pair of transistors for connection into said second circuit,

(d) said pair of transistors conducting in response to optical radiation incident thereon which has a photon energy greater than the band gap energy of said first semiconductor material, and

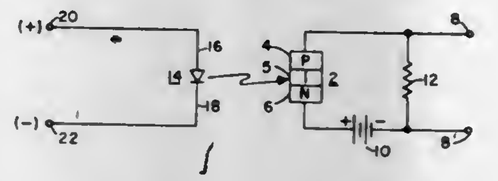
(e) a semiconductor light emitting device for generating optical radiation having a photon energy greater than the band gap energy of said first semiconductor material electrically isolated from but optically coupled to said pair of transistors for directing said optical radiation thereon,

(f) said light emitting device having a first region of one conductivity type and a second region of an opposite conductivity type contiguous to and forming a rectifying junction with said first region and generating said optical radiation when a current is caused to flow through said junction in a forward direction.

3,304,430

HIGH FREQUENCY ELECTRO-OPTICAL DEVICE USING PHOTOSENSITIVE AND PHOTOEMISSIVE DIODES

James R. Biard, Richardson, and Gary E. Pittman, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 29, 1963, Ser. No. 327,131
11 Claims. (Cl. 250—217)



1. A four terminal electro-optical active device, comprising:

(a) a photosensitive diode comprised of a first semiconductor material having a p-type conductivity region of relatively high electrical conductivity and an n-type conductivity region of relatively high electrical conductivity separated from said p-type region by an intermediate region of relatively low electrical conductivity,

(b) electrical contacts to said p-type region and said n-type region constituting a pair of output terminals,

(c) potential means electrically coupled to said photosensitive diode creating an electric field across said intermediate region between said p-type region and said n-type region, to reverse bias said diode,

(d) said photosensitive diode being characterized by the absorption of optical radiation incident thereon which has a photon energy greater than the band gap energy of said first semiconductor material for generating excess minority carriers therein and being responsive to said excess minority carriers to alter the reverse diode characteristics of said photosensitive diode when said optical radiation is absorbed within said intermediate region,

(e) a light emitting diode electrically isolated from but optically coupled to said photosensitive diode for generating optical radiation which is directed on said photosensitive diode and having a first region of one conductivity type and a second region of an opposite conductivity type contiguous to and forming a rectifying junction with said first region,

(f) said light emitting diode being characterized by the generation of said optical radiation when a forward current is caused to flow through the rectifying junction thereof,

(g) said optical radiation generated by said light emitting diode being characterized by a photon energy greater than the band gap energy of said first semiconductor material, and

(h) electrical contacts to said first and said second regions of said light emitting diode constituting a pair of input terminals for conducting said forward current.

3,304,431

PHOTOSENSITIVE TRANSISTOR CHOPPER USING LIGHT EMISSIVE DIODE

James R. Biard and Edward L. Bonin, Richardson, and Jack S. Kilby and Gary E. Pittman, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 29, 1963, Ser. No. 327,140
18 Claims. (Cl. 250—217)

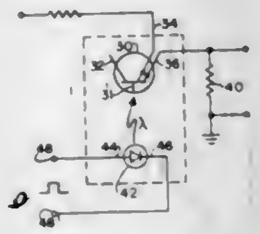
1. An electro-optical chopper for switching an electrical signal from a first circuit to a second circuit, comprising:

(a) a pair of transistors comprised of a first semiconductor material each having an emitter region, a base region, a collector region, emitter-base junction and collector-base junction with the base and collector regions of one of said pair of transistors interconnected with the base and collector regions, respectively, of the other of said pair of transistors to effect at least a partial cancellation of the junction voltages as measured between the emitter regions of said pair of transistors when conducting.

(b) an input terminal connected to the emitter region of said one of said pair of transistors for connection into said first circuit and for the application of said electrical signal thereto,

(c) an output terminal connected to the emitter region of said other of said pair of transistors for connection into said second circuit,

(d) said pair of transistors conducting in response to optical radiation incident thereon which has a photon energy greater than the band gap energy of said first semiconductor material, and



(e) a semiconductor light emitting device for generating optical radiation having a photon energy greater than the band gap energy of said first semiconductor material electrically isolated from but optically coupled to said pair of transistors for directing said optical radiation thereon.

(f) said light emitting device having a first region of one conductivity type and a second region of an opposite conductivity type contiguous to and forming a rectifying junction with said first region and generating said optical radiation when a current is caused to flow through said junction in a forward direction.

3,304,432

PHOTOSENSITIVE SENSING SYSTEM FOR A CURRENCY DETECTOR

Frank A. Leingang, Jennings, and William R. Cousins, St. Louis County, Mo., assignors to National Rejectors, Inc., St. Louis, Mo., a corporation of Missouri

Filed Sept. 5, 1963, Ser. No. 306,769

14 Claims. (Cl. 250—219)

3. A sensing system that comprises:

(a) a pair of sensing elements that are connected in series,

(b) a voltage divider that is connected in parallel with one of said sensing elements,

(c) an actuatable device,

(d) a phase inverter which has the input thereof connected to a contact of said voltage divider,

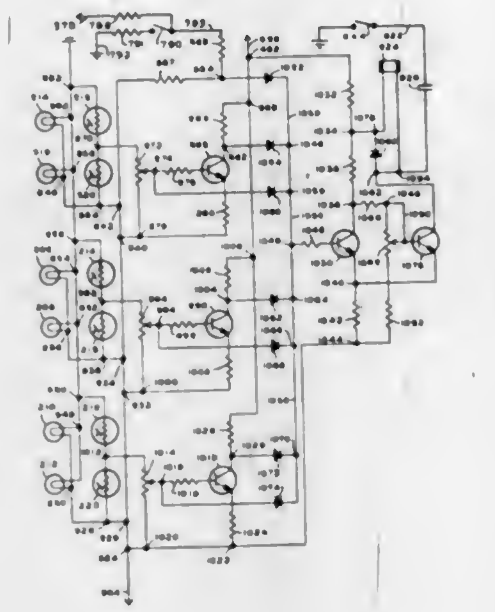
(e) a member that is connected between said contact of said voltage divider and said actuatable device and that can respond to a first predetermined voltage at said contact to actuate said actuatable device, and

(f) a second member that is connected between the output of said phase inverter and said actuatable device and that can coact with said phase inverter and with a second predetermined voltage at said contact to actuate said actuatable device,

(g) the first said and said second predetermined voltages being equal or close to each other,

(h) the first said member responding to voltages displaced in one direction from the first said predetermined voltage to prevent actuation of said actuatable device,

(i) said second member and said phase inverter responding to voltages displaced in the opposite direction from said second predetermined voltage to prevent actuation of said actuatable device,



(j) said members being connected in series between said contact and said actuatable device,

(k) said output of said phase inverter being connected to a junction between said members.

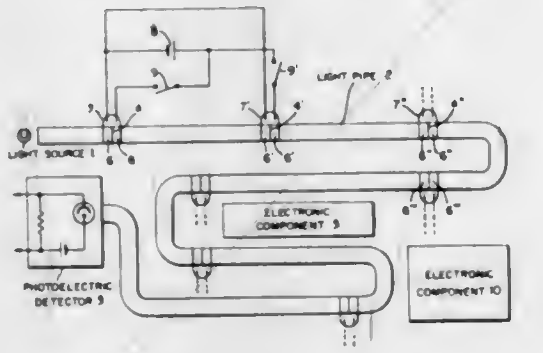
3,304,433

PHOTOSENSITIVE LOGIC CIRCUITRY UTILIZING LIGHT PIPE

Omer F. Hamann, La Jolla, Calif., assignor to General Dynamics Corporation, Rochester, N.Y., a corporation of Delaware

Filed Aug. 26, 1964, Ser. No. 392,260

10 Claims. (Cl. 250—227)



3. Logic circuitry comprising, a light pipe containing photochromic substances at a plurality of locations along said pipe, said pipe having a first and second end, a light source positioned adjacent to one end of said light pipe for inserting light into said pipe, means positioned adjacent to the other end of said pipe for detecting the strength of the light generated by said light source and emerging from said pipe, means for exposing at least one section of said pipe containing said photochromic substances to electromagnetic radiation having a frequency higher than the frequency of said light generated by said light source and for causing said photochromic substances to at least partially absorb said light generated by said light source thereby to change the intensity of the light detected by said photoelectric detector.

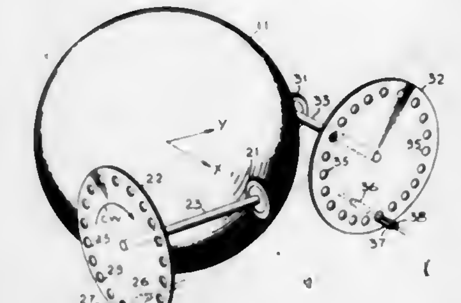
3,304,434

POSITION CONTROL SYSTEM EMPLOYING PULSE PRODUCING MEANS INDICATIVE OF MAGNITUDE AND DIRECTION OF MOVEMENT

Robert A. Koster, Canoga Park, Calif., assignor to The Bunker-Ramo Corporation, Stamford, Conn., a corporation of Delaware

Filed June 1, 1965, Ser. No. 465,243

6 Claims. (Cl. 250—231)



1. Apparatus for controlling the position of an element capable of moving in an X–Y plane having an X axis and a Y axis, said apparatus including:

a manually actuatable control device supported for rotational movement about at least first and second orthogonally related axes;

first means normally actuated to respond to the component of rotational movement of said control device about said first axis for moving said element in a related manner with respect to said X axis; and

second means normally actuated to respond to the component of rotational movement of said control device about said second axis for moving said element in a related manner with respect to said Y axis;

said first means including a first medium carrying a plurality of spaced markers thereon;

said second means including a second medium carrying a plurality of spaced markers thereon;

first and second transducer means respectively positioned proximate to said first and second mediums for counting the number and direction of markers moving therepast;

means responsive to said component of rotational movement about said first axis for introducing related movement between said first medium and said first transducer means; and

means responsive to said component of rotational movement about said second axis for introducing related movement between said second medium and said second transducer means.

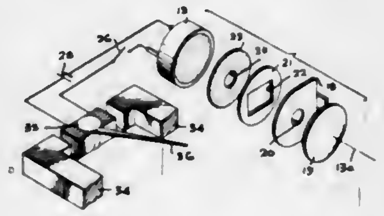
3,304,435

PHOTOMETRIC DEVICE HAVING GREATER RESPONSE TO A PREFERENTIAL CENTRAL PORTION OF A SCENE

Donald W. Norwood, 1470 San Pasqual St., Pasadena, Calif. 91106

Filed July 18, 1963, Ser. No. 295,963

10 Claims. (Cl. 250—237)



6. A photometric device comprising a single lens structure for forming a single image of a scene, a single means responsive to the light of said image and operable to vary an electrical signal in accordance with the brightness thereof, said light responsive means including means for introducing a difference in response between different portions of said image so that each lumen coming from a preferential central portion of the scene and forming a corresponding preferential central portion of said image will cause a greater electrical output signal than each lumen coming from the remaining portion of the scene and being in a remaining portion of said same image produced by said same lens structure, said light responsive means including a photoelectric cell onto which the light of said image is directed and filter means serving as said means for introducing a difference in response and constructed to reduce the brightness of said remaining portion of the image relative to said preferential central portion, and an electrically actuated unit operable by said light responsive means in response to light in each of said portions of said image and to a greater extent by each lumen from said preferential central portion of the scene than by each lumen from said remaining portion thereof, said filter means being located at the focal plane of said image produced by said lens structure, and said photoelectric cell being located slightly beyond said filter means in the direction of light travel.

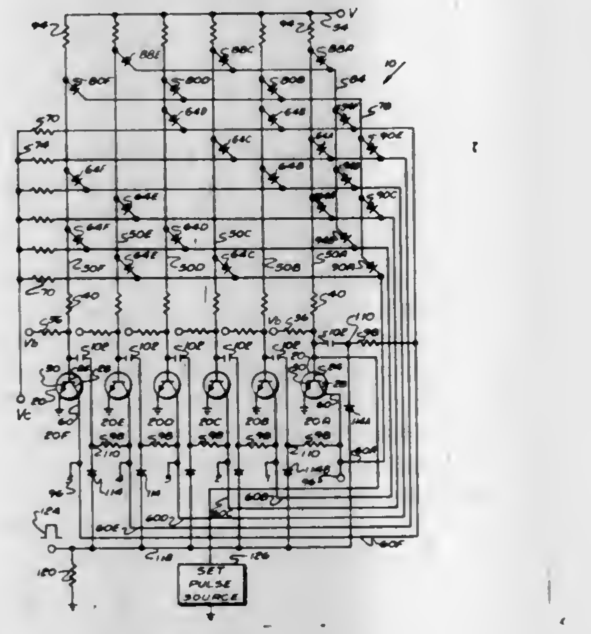
3,304,436

SEMICONDUCTOR COUNTING CIRCUITS

James J. Klinikowski, Somerville, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed July 5, 1963, Ser. No. 292,956

8 Claims. (Cl. 307—88.5)



1. A counting circuit including

a plurality of count-registering devices connected to execute a series of counts,

each count-registering device occupying either an odd-numbered or even-numbered position in the counting series and thus being designated an odd device or an even device,

each device having an input and an output,

a connection from the output of each even device through a diode to the input of every other even device,

a connection from the output of each odd device through a diode to the input of every other odd device,

a first auxiliary line coupled through a diode to the input of each odd device,

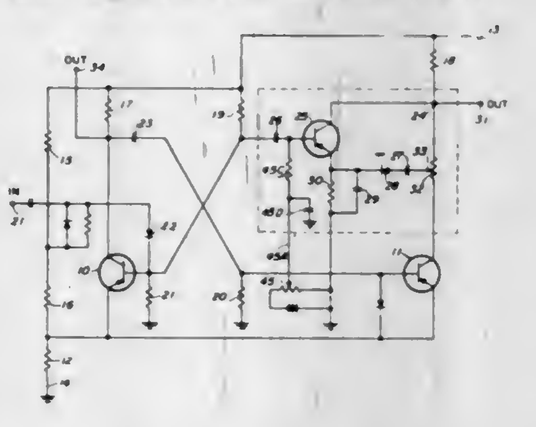
a second auxiliary line coupled through a diode to the input of each even device,

the output of each even device also being coupled through an auxiliary diode to said first auxiliary line,
the output of each odd device also being coupled through an auxiliary diode to said second auxiliary line,
said auxiliary diodes being oriented so that the output of an even device is isolated from the outputs of the other even devices and the output of each odd device is isolated from the outputs of the other odd devices, all of said diodes being oriented so that as each device registers a count, the electrical potential of its output is coupled to the input of every other device, this electrical potential being such that every other device is prevented from registering a count.

3,304,437
SINGLE-SHOT MULTIVIBRATOR PULSE WIDTH CONTROLLED BY REPETITION RATE

Paul K. Dano, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Aug. 20, 1963, Ser. No. 303,450



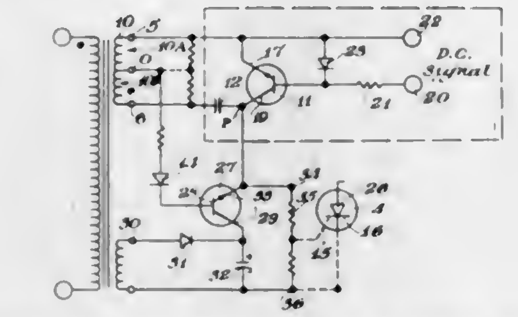
1. In combination,
a one shot multivibrator having two amplifiers with regenerative feedback circuits, respectively, from the output of each amplifier to the input of the other amplifier, the feedback circuit from the output of one amplifier; including in series a condenser and a variable resistance,
means for regulating the RC time constant of the one feedback circuit, said variable resistance comprising the base-collector circuit of a transistor,
means for sampling the pulse signal voltage in the output of said one amplifier, means for rectifying and smoothing the sampled signal, and
means for applying the smoothed voltage to the emitter of said transistor to control the effective resistance of the base-collector circuit and to control the duration of one state of the multivibrator as a function of the pulse repetition rate of the multivibrator.

3,304,438
PHASE SHIFT GATE DRIVE CIRCUIT

Nicholas G. Muskovac, Stamford, Conn., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed Nov. 19, 1963, Ser. No. 324,626
2 Claims. (Cl. 307—88.5)

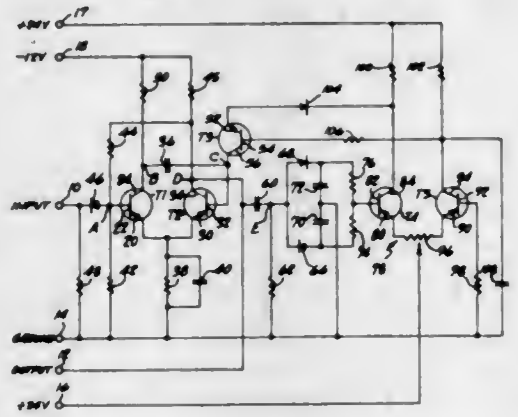
1. An electrical apparatus including in combination a phase shifting means for producing an output voltage variable in phase relationship to an applied alternating voltage and connectible to a controlled rectifier for applying a firing signal to the rectifier, said phase shifting means including a first branch circuit consisting of a pair of impedances and a second branch circuit including a capacitor and a transistor serially connected across a portion of said second branch circuit, a D.C. signal means for varying the relative conductance of said transistor for an output terminal of said phase shifting means connected between said capacitor and transistor, a first unidirectional current means controlling the charging of said capacitor, a second means for providing a unidirectional current, the emitter and collector of a pair of second transistors coupled to said second unidirectional means, a pair of controlled rectifiers, means connecting said emitter and collector of each of said second transistors to the gate and cathode respectively of said controlled rectifiers for applying a firing signal to the rectifier, means coupling said phase shifting means to the base and emitter of said second transistor whereby the time of application of the firing signal to the controlled rectifier may be varied with respect to the initial application of the respective half cycles of said alternating voltage to the respective controlled rectifiers, and means for producing a negative transistor base-to-emitter bias producing a cut-off condition during the negative half of the rectifier anode voltage on the respective controlled rectifier.



3,304,439
FREQUENCY MULTIPLYING MONOSTABLE MULTIVIBRATOR

Boyd L. Stratton, Woodside, and Barrett E. Guisinger, Redwood City, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed Dec. 26, 1963, Ser. No. 333,434
8 Claims. (Cl. 307—88.5)

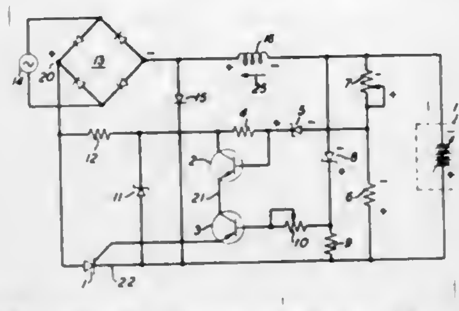


1. In a monostable multivibrator circuit for converting an input waveform into doubled output waveforms including first and second active elements each having control and output electrodes, means for applying said input waveform to the control electrode of said first active element, a capacitor coupled between the output electrode of the first active element and the control electrode of the second active element, and an output terminal coupled to the output electrode of the second active element, the combination comprising a third active element coupled to the capacitor, integrating means coupled to the output terminal for producing a signal that is the integral of the output of the monostable multivibrator circuit, and means coupled between the integrating means and the third active element for converting the integral into an error signal proportional to departures of said integral from a predetermined reference and applying the error signal to the third active element to alter the resistance thereof to vary the time constant of the monostable multivibrator to produce the desired waveforms or symmetry in the doubled output waveforms.

3,304,440
PULSE SHAPING CIRCUIT

William M. Sillers, Jr., Mendham, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 26, 1963, Ser. No. 333,597
5 Claims. (Cl. 307—88.5)

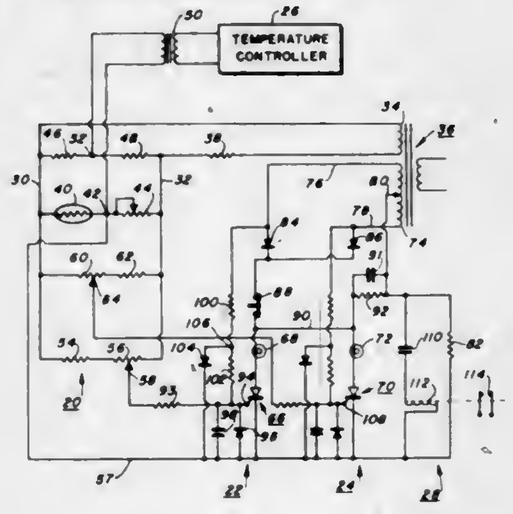


1. A pulse shaping circuit comprising first and second transistors each having base, collector, and emitter electrodes, pulse generating means connected to the base electrode of said first transistor to render said first transistor conductive at predetermined intervals, circuit means connecting the base and emitter electrodes of said second transistor to provide a current sufficient to saturate the base-emitter junction of said second transistor, and means serially connecting the emitter-collector paths of said first and second transistors between a source of potential and a pulse stimulated utilization circuit so that a pulse applied to the base electrode of said first transistor causes a current to flow in the emitter-collector path of said first transistor in the forward conductivity direction, and in the emitter-collector path of said second transistor in the inverse conductivity direction, until said second transistor is driven from a saturated condition into cut-off and the inverse current flow is terminated, whereby a narrow width pulse is transmitted to said pulse stimulated utilization circuit.

3,304,441
PARAMETER VARIATION MONITOR

Thomas E. Pelt, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed July 31, 1964, Ser. No. 386,510
4 Claims. (Cl. 307—88.5)

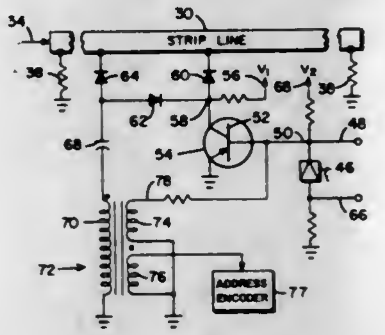


4. Monitoring circuitry comprising in combination:
(a) an SCR having anode, gate and cathode electrodes,
(b) an alternating current power supply having an end terminal and a further terminal,
(c) means connecting said further terminal to a common conductor,
(d) a load impedance,
(e) a rectifier,
(f) means connecting said load impedance, said rectifier and the anode-cathode path of said SCR in series between said end terminal and said common conductor with said rectifier poled to apply a positive direct current potential to said anode,
(g) means for triggering said SCR into conduction,
(h) a reset switch connected in series between said rectifier and said anode electrode,
(i) and a filter including a capacitor connected between said further terminal and a point between said anode and said reset switch.

3,304,442
BISTABLE CIRCUIT USED TO DETECT INFORMATION FROM STORAGE MEDIA

Louzelle A. Luke, Coon Rapids, Minn., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Aug. 26, 1964, Ser. No. 392,148
3 Claims. (Cl. 307—88.5)



1. An impedance state detector comprising:
a circuit including a transformer with an input and first and second output windings and a negative resistance element having first and second stable states,
means coupled to said negative resistance element for setting it to the first of its two stable states,
means for generating a signal representative of a first or a second condition,
means coupling said signal to said negative resistance element to change it from said first stable state to said second stable state when said signal represents said first condition and to leave said negative resistance element in its first state when said signal represents said second condition,
interrogating pulse means,
means electrically coupled to said interrogating pulse means, said negative resistance element and said input transformer winding for coupling said interrogating pulse to said transformer input winding when said negative resistance element is in said second state only,
means utilizing the signal on said first transformer output winding to indicate the condition of said signal generating means, and
means coupling the signal on said second transformer output winding to said negative resistance element to reset said element to the first of its two stable states.

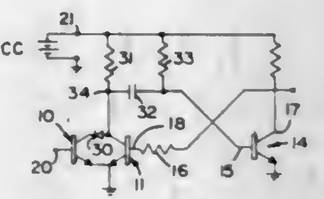
3,304,443
DELAY CIRCUIT

James E. Sheahan, Framingham, and Edwin H. Paul, Jr., Natick, Mass., assignors, by mesne assignments, to Honeywell Inc., a corporation of Delaware

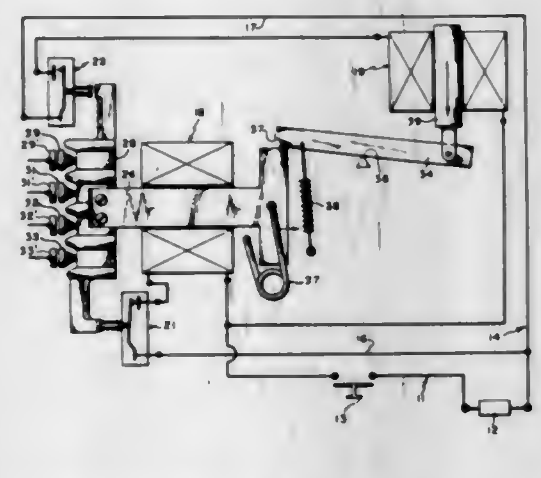
Filed Feb. 12, 1965, Ser. No. 432,351
11 Claims. (Cl. 307—88.5)

6. In a transistor delay circuit comprising a first transistor having base, collector and emitter electrodes, and a second transistor having base, collector and emitter electrodes, connected in a face-to-face arrangement with the collector electrodes of the two transistors connected to a first point and the emitter electrodes of the two transistors connected to a second point, a third transistor connected

by a resistor-capacitor time constant network to said first point, a feedback circuit between said third transistor and said base electrode of said second transistor, means to connect an external signal to said base of said first transistor, and means to connect a voltage source across said first point and said second point, the combination in said face-to-face arrangement comprising a voltage dropping element connected in series with said first transistor between said first point and said second point, a direct connection between the collector electrode of said second transistor and said first point and a direct connection between the emitter electrode of said second transistor and said second point.

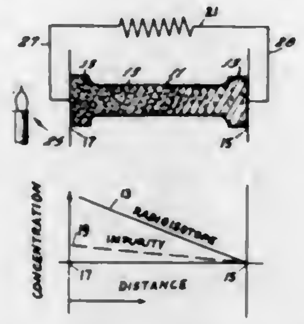


3,304,444
CONTROL DEVICE FOR AN ELECTRICAL SWITCH
Eugene S. Smith, Fort Myers, Fla.
(4531 Caminita de la Puerta, Tucson, Ariz. 85718)
Filed Nov. 1, 1963, Ser. No. 320,784
10 Claims. (Cl. 307—112)



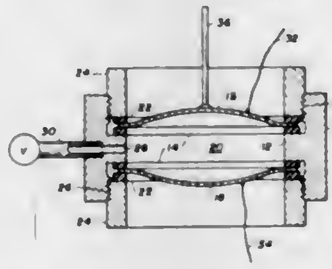
1. A circuit controller comprising, a switch contact member movable between first and second positions and including biasing means to move the member between the positions, a first normally-closed switch associated with said member and opened by and in response to movement of said member to said second position, a second normally-open switch associated with said member and closed by and in response to movement of said member to said second position, a first solenoid, first means moving said member to the second position in response to energization of said first solenoid, second means releasably engaging said member in the second position when moved thereto, a second solenoid, third means effecting movement of said member to the first position, against the action of said second means, in response to energization of said second solenoid, a control switch, first circuit means connecting said first switch and first solenoid in series, second circuit means electrically in parallel with said first circuit means and connecting said second switch and second solenoid in series, and third circuit means in series with said first and second circuit means and including said control switch to momentarily permit current flow through said switch and through one of either of the first or second circuit means.

3,304,445
SEMICONDUCTOR BATTERY
James B. Weddell and Walter Precht, Baltimore County, Md.; said Weddell assignor to Martin Marietta Corporation, a corporation of Maryland
Filed Feb. 13, 1961, Ser. No. 88,965
19 Claims. (Cl. 310—3)



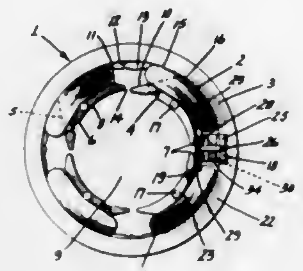
1. A device for directly converting nuclear energy to electrical energy comprising a body of substantially radiation stable semi-conducting material the resistance of which is between 100 microohm centimeters and 0.10 ohm centimeters having a radio-isotope in inhomogeneous mixture therewith capable of charged particle emission with the ratio of said radioisotope to said semi-conducting material therein being at a maximum in a first region of said body and at a minimum in a second region of said body spaced from said first region, the concentration of radioisotope essentially continuous between said regions and varying so as to decrease in a monotonic manner from said first region to said second region, a daughter product impurity evolved from the decay of said radioisotope in mixture within said semi-conductor body, having a concentration essentially proportionate with said concentration of radioisotope so as to establish a quasi electric field within said body, and charge carriers provided in irradiating said semiconducting material with said charged particle emission, said charge carriers essentially influenced by said quasi electric field, thereby establishing the availability of electric energy within said body, and connection means coupled to said regions for supplying said energy to a load circuit.

3,304,446
ELECTROSTRICTIVE FLUID TRANSDUCER
Thomas W. Martinek, Crystal Lake, and Donald L. Klass, Barrington, Ill., assignors, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed Dec. 26, 1963, Ser. No. 336,098
12 Claims. (Cl. 310—8)



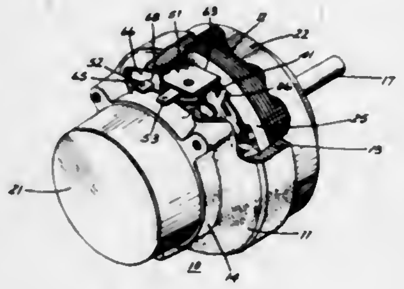
1. A transducer for converting electrical energy to mechanical energy comprising two members having opposing, spaced, electrically conductive, surfaces electrically insulated from each other, at least one of said members being a flexible diaphragm, an electrostrictive fluid confined in the entire space between said surfaces, said fluid comprising particles having non-piezoelectric properties, and electrical conductor means connected to each of the electrically conductive surfaces, whereby application of a varying electric potential results in change in volume of the electrostrictive fluid to produce mechanical energy.

3,304,447
LEAD POSITIONER AND ANCHOR FOR DYNAMOELECTRIC MACHINES
Stanley L. Lindt, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Dec. 2, 1963, Ser. No. 327,454
5 Claims. (Cl. 310—71)



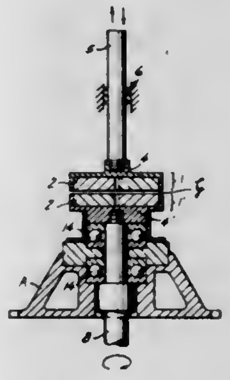
1. In a stator for a dynamoelectric machine, a core having an energizing winding and at least one slot defined by a plurality of slot walls, a plurality of lead wires connected to said winding, and a lead wire positioner and anchor having a body for positioning and anchoring at least two of said leads in position on said stator, said body having two outer faces on opposite sides thereof, said body being positioned in said slot with one of said outer faces tightly engaged with one of said slot walls and the other of said faces tightly engaged with at least two of said lead wires, thereby to frictionally hold said lead wire positioner and anchor in position in said slot against extraction, and a flange at one end of said body, said flange being disposed between said two lead wires to separate said lead wires and said lead wire positioner and anchor holding said lead wires in position in said slot against displacement or extraction.

3,304,448
DYNAMOELECTRIC MACHINE TERMINAL ARRANGEMENT
Stanley L. Lindt, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Apr. 24, 1964, Ser. No. 362,225
3 Claims. (Cl. 310—71)



1. A dynamoelectric machine comprising frame means having a cavity and an opening communicating between the cavity and the exterior of the frame means; a stator mounted within said cavity, said stator including a core formed of magnetic material having a plurality of angularly spaced apart slots, at least one winding accommodated in at least some of said slots; and a terminal assembly carried by said stator in the vicinity of the frame opening for connecting the winding to a power source externally of the machine, said terminal assembly comprising a member formed of electrical insulating material having a section attached to said stator and at least two terminal elements mounted on the insulating member with an end of each terminal element terminating in terminal portions extending beyond one edge of said insulating member; means attaching the windings and terminal elements electrically together; closure means disposed in said frame means in the vicinity of and closing said opening; said terminal portions projecting into said frame opening through and beyond said closure means thereby being exposed to the exterior of the frame means for connection in circuit with the power source, whereby said closure means tends to close the opening of the frame means, except for the exposed terminal portions, and to resist outward movement of said terminal assembly away from the core as the terminal portions are being connected and disconnected relative to the power source.

3,304,449
APPARATUS FOR PRODUCING SONIC AND ULTRASONIC OSCILLATIONS
Reimar Pohlman, Schumannstrasse 2, Darmstadt, Germany, and Ernst Gunter Lierke, Kampchenstrasse 10, Kohlscheid, Germany
Filed Aug. 22, 1963, Ser. No. 303,734
21 Claims. (Cl. 310—103)

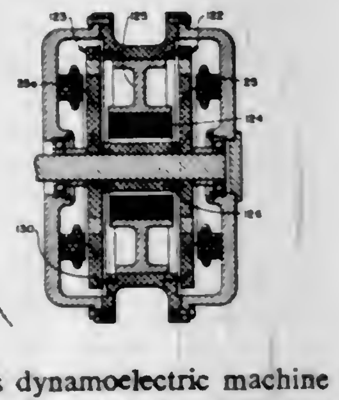


1. Apparatus for producing sonic and ultrasonic oscillations of a vibratory body, comprising, in combination, an elongated vibratory body having an axis and within the sonic and ultrasonic frequency range together with any member attached thereto a predetermined resonant frequency for a predetermined mode of oscillation and including a stationary portion substantially coinciding with the node of said elongated body when it oscillates at said predetermined resonant frequency and mode of oscillation and a freely vibratable portion; holding means for stationarily holding said stationary portion of said vibratory body while permitting said freely vibratable portion thereof to oscillate; first magnetic means firmly attached to said freely vibratable portion of said vibratory body and comprising a plurality of magnets each having a north and south pole and arranged so that the north pole of one magnet is disposed next to the south pole of the adjacent magnet, said magnets being in a plane perpendicular to said axis and surrounding the latter, the orientation of the magnetic field produced by each of said magnet means being opposite to that produced by the respectively neighboring magnet means; second magnetic means mounted rotatably about said axis and adjacent to said first magnetic means independently therefrom and from said freely vibratable portion of said vibratory body and comprising an assembly of a plurality of magnets similar to that of said first magnetic means and arranged in a plane perpendicular to said axis and surrounding the latter, the orientation of the magnetic field produced by each of said magnet means of said assembly being opposite to that produced by the respectively neighboring magnet means, said first and second magnetic means cooperating in such a manner that when said second magnetic means is periodically caused to change between magnetic attraction and repulsion with said first magnetic means it causes

oscillation of said freely vibratable portion of said vibratory body; and means for rotating said second magnetic means so as to periodically change it between magnetic attraction and repulsion with said first magnetic means at said resonant frequency within the sonic and ultrasonic frequency range so as to thereby cause corresponding oscillation of said freely vibratable portion of said vibratory body at said resonant frequency.

3,304,450
AXIAL AIRGAP DYNAMOELECTRIC MACHINE

George B. Bosco, Jr., Whittier, and Howard E. Corbitt, Arcadia, Calif., assignors to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio
Original application Aug. 12, 1960, Ser. No. 56,080, now Patent No. 3,261,998, dated July 19, 1966. Divided and this application Apr. 1, 1965, Ser. No. 465,221
9 Claims. (Cl. 310—126)

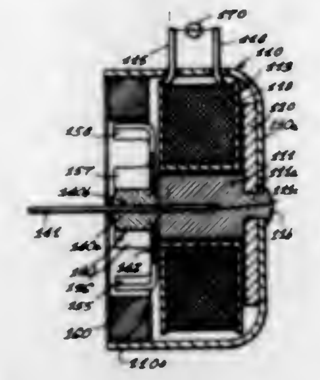


7. A brushless dynamoelectric machine comprising: a winding-free rotor having a pair of discs each with an axis of rotation and provided with a face containing magnetic material lying in a plane substantially perpendicular to the axis of rotation, said magnetic material extending incompletely, but to a substantial extent, around the axis of rotation, a stationary armature located adjacent and juxtaposed to the face of each disc, the two discs being located between the two armatures, each armature having a core of magnetic material extending concentrically and completely around the axis of rotation and having an armature winding provided with means for connection with equipment external of the machine and having a face also substantially perpendicular to said axis of rotation and juxtaposed to said disc face to which it is adjacent, with an axial air gap between the armature face and the adjacent disc face, stationary means comprising magnetic material forming parts of a pair of closed paths for magnetic flux, one of said paths passing through the magnetic material of one of the rotor discs and its respective armature core and the other path passing through the magnetic material of the other of said rotor discs and the other of said armature cores, and a field winding means magnetically related to said stationary means, whereby when said field winding means is energized magnetic flux is created through said paths and the flux between the discs and the respective armatures across the respective air gaps rotates with rotation of the rotor and thereby cuts said armature windings.

3,304,451
SYNCHRONOUS MOTOR INCLUDING A PERMANENT MAGNET STATOR

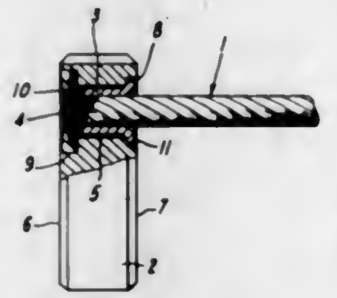
Richard A. Scholten, Cincinnati, Ohio, assignor to Indiana General Corporation, Valparaiso, Ind., a corporation of Indiana
Original application Apr. 5, 1960, Ser. No. 20,128. Divided and this application May 29, 1963, Ser. No. 284,135
5 Claims. (Cl. 310—154)

2. An electric motor comprising magnetic core means defining a magnetic circuit, said circuit having a stationary ring-shaped permanent magnet and annular air gaps radially inwardly and radially outwardly of said stationary permanent magnet, rotor means having annular series of pole portions in each of said air gaps, and stationary winding means coupled to said magnetic circuit for energizing said rotor pole portions to cause said stationary permanent magnet to exert a driving torque on said rotor.



3,304,452
CARBON BRUSHES AND CONNECTOR MEANS

Richard George Hurrell and John Leslie Ayres, London, England, assignors to Morganite Carbon Limited, London, England
Filed July 2, 1964, Ser. No. 379,844
Claims priority, application Great Britain, Apr. 2, 1964, 13,620/64
5 Claims. (Cl. 310—249)



1. In an electrical contact brush comprising a block of carbon, an arrangement for connecting to the brush a flexible electrical connector composed of metal strands, said arrangement including:

a transverse bore completely through the said brush, said connector passing completely through said bore from a first bore end to a second bore end, one end of said connector being slightly beyond said second bore end,

a metal sleeve mounted in said bore around the connector, said sleeve having a flange at one end thereof in abutment with said block around the said first bore end thereby preventing the sleeve from being thrust towards the second end of the bore,

the other end of said sleeve remote from said flange end terminating at a point proximate to the second bore end,

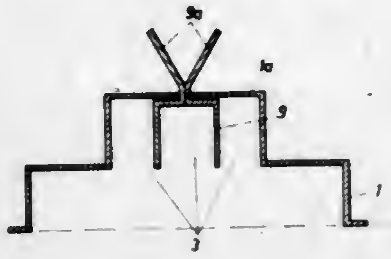
the metal strands at the said other end of the connector being splayed radially outwardly from the bore passing radially of the over over the said other sleeve end,

and a metal solder connection between the said splayed end and the said other end of the sleeve,

the said metal solder connection being in the form of a head which includes the metal solder and the splayed ends of the flexible connection and which extends radially outwardly from the sides of the bore and is in abutment with said block around the said second bore end thereby preventing the sleeve and solder connection from being thrust towards the first end of the bore.

3,304,453
PLURAL CHAMBER ANODE WITH RADIATION COOLING MEANS

Franz Dlouhy, Neu-Ulm (Danube), Germany, assignor to Telefunken Patentverwertungs-G.m.b.H., Ulm (Danube), Germany
Filed Dec. 18, 1964, Ser. No. 419,375
Claims priority, application Germany, Dec. 27, 1963, T 25,347
11 Claims. (Cl. 313—40)



1. For use in an electric discharge tube having grid means defining a grid plane, a chamber anode comprising, in combination:

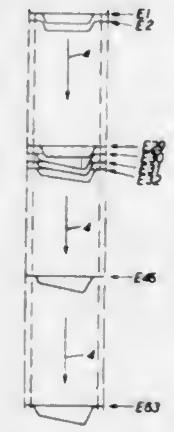
means forming an anode member having an active surface disposed substantially parallel to and facing said grid plane;

insert means arranged in said anode member, extending from the active surface thereof and facing toward said grid plane for dividing the interior of said chamber anode into a plurality of chambers; and

radiation means, being an entity separate from said anode member, and in heat conducting relationship with said insert means and disposed exteriorly of said chamber anode, whereby heat is radiated from the insert means.

3,304,454
PARTICLE ACCELERATING TUBES

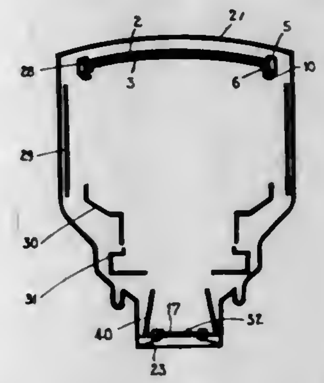
William Douglas Allen, Abingdon, Albert Edward Pyrah, Harwell, and John Henry Partridge, Upton, England, assignors to National Institute for Research in Nuclear Science, Rutherford High Energy Laboratory, Harwell, Berkshire, and United Kingdom Atomic Energy Authority, London, England
Filed Aug. 3, 1962, Ser. No. 214,748
Claims priority, application Great Britain, Aug. 11, 1961, 29,159/61
1 Claim. (Cl. 313—63)



An accelerating tube for an electrostatic generator comprising a plurality of electrodes whereof the planar region adjacent the beam is normal to the tube axis followed by a plurality of electrodes whereof the planar region adjacent the beam is tilted relative to a plane normal to the tube axis, the azimuthal direction of tilt of successive electrodes being incrementally varied to form at least one pair of consecutive 360° spirals spiralling in opposite directions, and the increments being such that the net displacement and angular deviation of the beam in traversing the pair of spirals are substantially zero.

3,304,455
IMAGE-CONVERTER TUBE WITH OUTPUT FLUORESCENT SCREEN ASSEMBLY RESILIENTLY MOUNTED

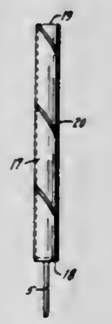
Lucien J. Mesta, Paris, France, assignor to Compagnie Francaise Thomson-Houston, Paris, France, a French body corporate
Filed Jan. 6, 1964, Ser. No. 335,857
Claims priority, application France, Jan. 16, 1963, 921,573, Patent 1,388,626
7 Claims. (Cl. 313—94)



1. In an image converter tube having a sealed envelope, a photocathode in the envelope near an input end thereof, an image-forming output screen assembly in the envelope near and spaced from an output end thereof, and electron-optical means in the envelope for directing photo-electrons from the photocathode on to an inner surface of said output screen to form an image pattern thereon, the improvement comprising means supporting said output screen assembly at a prescribed spacing from said output end of the tube including spring means resiliently pressing the output screen assembly against its supporting means an annular dust-shield member positioned in the space between the output screen assembly and the output end of the envelope and having one marginal portion sealingly engaging the periphery of the screen assembly and another marginal portion sealingly engaging the inner surface of said envelope so as to seal off said space from the general cavity of the tube envelope against ingress of foreign particles thereinto.

3,304,456
SLOT CATHODE

Beatrice Pearson De Lany, Miami Beach, Fla., and Paul L. Copeland, Bensenville, Ill.; Gertrude P. Copeland, executor of the estate of said Paul L. Copeland, deceased, assignor of one-half interest to Gertrude P. Copeland, individually
Filed Mar. 4, 1963, Ser. No. 262,446
19 Claims. (Cl. 313—182)

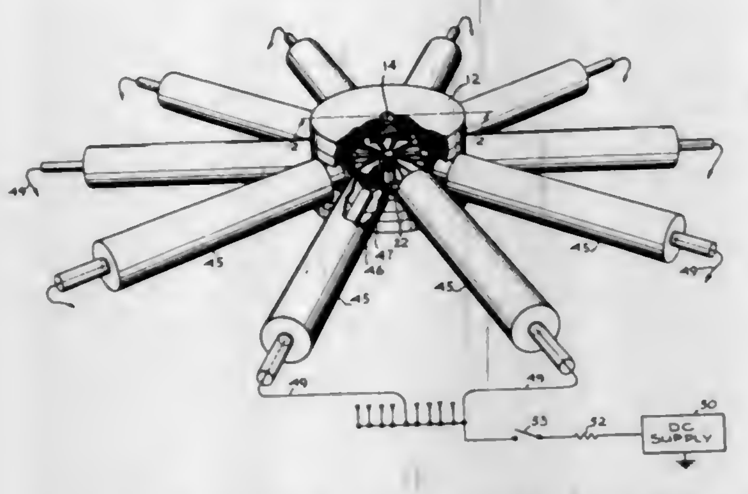


1. In combination in an electric discharge tube an air-impervious envelope of insulating material, an anode extending thereinto, a hollow metallic cathode longitudinally spaced from said anode, a lead-in wire in electrical connection with said cathode and extending to a point outside of the envelope, said cathode being slit and formed with a cavity therein facing in the direction of the anode.

3,304,457

HIGH INTENSITY LIGHT SOURCE

Frithjof N. Mastrup, Woodland Hills, Calif., assignor, by mesne assignments, to TRW Inc., a corporation of Ohio
Filed Sept. 21, 1961, Ser. No. 139,731
4 Claims. (Cl. 313—184)

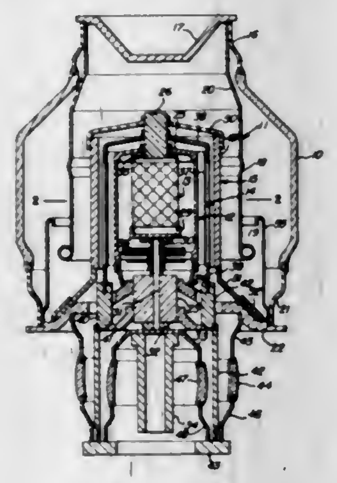


1. A high intensity thermal light source including the combination of a chamber containing a gas under a pressure in excess of 50 atmospheres, a common electrode within the chamber, a number of electrodes disposed symmetrically about the common electrode and spaced equally apart therefrom in a plane substantially normal thereto, and means coupled to the electrodes for providing a substantially simultaneous discharge from each of the electrodes to the common electrode and with each discharge having a time duration of the order of a few microseconds.

3,304,458

VIBRATION RESISTANT ELECTRON TUBE

Helmut Langer, Stamford, and Edmund J. Kulowiec, Springdale, Conn., assignors to The Machlett Laboratories, Springdale, Conn., a corporation of Connecticut
Filed July 25, 1963, Ser. No. 297,597
6 Claims. (Cl. 313—269)

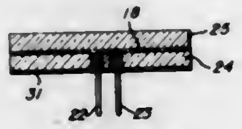


1. An electron tube comprising a glass bulb, a relatively heavy substantially frusto-conical end member sealed to one end of the bulb, a tubular anode mounted at one end adjacent the seal between the end member and bulb, an inverse relatively heavy frusto-conical terminal member sealed to the opposite end of the bulb, a pair of rigid substantially frusto-conical inwardly extending supports mounted on the inner side of the terminal member, a cathode fixedly mounted on one of the supports, a first grid fixedly mounted on the other support and encircling the cathode, a relatively heavy partly conical supporting plate spaced outwardly from the terminal member, a second grid located between the cathode and first grid, means rigidly affixed to the plate and freely penetrating the terminal member and having the second grid firmly mounted thereon, the unsupported ends of the cathode and both grids carrying apertured caps, and a nonconductive cylinder of heat expandable ceramic material mounted in said caps and retaining the cathode and grids immovably in assembled spaced relation.

3,304,459

HEATER FOR AN INDIRECTLY HEATED CATHODE

Beverley A. Shaw, North Reading, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Continuation of application Ser. No. 369,184, May 21, 1964. This application June 13, 1966, Ser. No. 557,324
2 Claims. (Cl. 313—337)

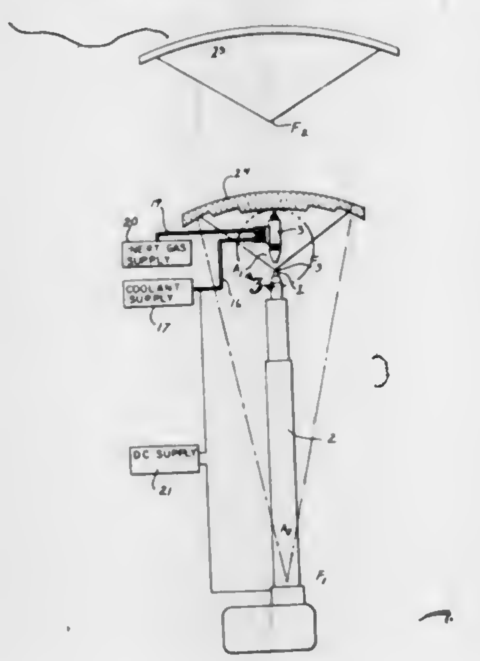


1. In an electron discharge device, an indirectly heated thermionic cathode structure comprising a planar type electron emitter and a heater structure adjacent one surface of the electron emitter, said heater structure embodying a substantially flat spiral photoetched heater element having means for connection to a source of filament voltage whereby infrared radiation of about 1–6 microns in wavelength at about 1100° C. is emitted therefrom, said heater element being a delicate and fragile wire of a diameter not greater than about .005 inch, a pair of rigid support discs on opposite sides of the heater element, the heater element being sandwiched therebetween, said support discs being transparent to the infrared radiation emitted by the heater element, and an infrared reflective coating on the outer surface of the support disc most remote from the emitter.

3,304,460

MEANS FOR PRODUCING RADIANT ENERGY

William W. Cargill, Jr., 7411 W. 85th St., Los Angeles, Calif. 90045, and Robert C. Albert, 5139 W. 58th Place, Los Angeles, Calif. 90052
Filed Apr. 27, 1964, Ser. No. 364,356
15 Claims. (Cl. 314—21)

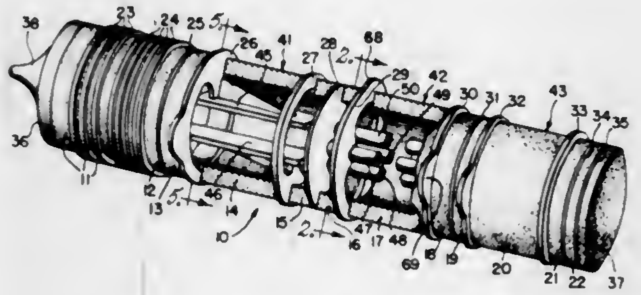


1. A source of radiant energy comprising a carbon anode, a tungsten cathode disposed in spaced relation to said anode, means for establishing an arc between said cathode and said anode, and means for surrounding said arc with flowing gas to constrict said arc in a column having a generally uniform cross-section along its length.

3,304,461

SUPPORT FOR ELONGATED ELECTRODES OF ELECTRON BEAM TUBE

David W. Prine, Maywood, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Sept. 20, 1963, Ser. No. 310,269
4 Claims. (Cl. 315—3)



1. In an electron beam device in which the electron beam is projected through an extended space, an electrode and envelope assembly comprising:

a sleeve of insulating material defining an axis therethrough;

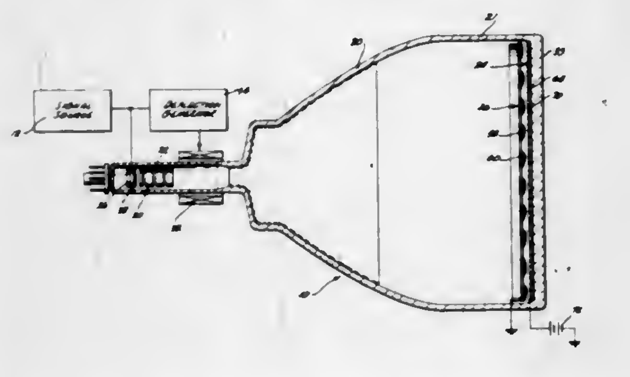
first and second conductive washers disposed individually across respective opposite ends of said sleeve, each of said washers having a circumferentially limited portion projecting outwardly from the external surface of said sleeve and the opening in the washer defining a finger projecting radially inward part way to said axis and with said washers being mutually rotatable about said axis upon assembly with said sleeve to dispose said fingers in selected angularly spaced fixed relative positions;

and a pair of elongated electrodes, disposed inside and generally parallel with said sleeve, each conductively secured at one end to an inner end of a respective one of said fingers and each projecting as a cantilever member in the direction of the other of said washers and said electrodes together in correspondence with said selected positions defining across said axis a transverse field region.

3,304,462

SINGLE GUN STORAGE TUBE WITH TARGET EMISSION SUSTAINED BY ELECTRIC FIELD

Nobuo J. Koda, Vista, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Dec. 23, 1963, Ser. No. 332,551
4 Claims. (Cl. 315—12)

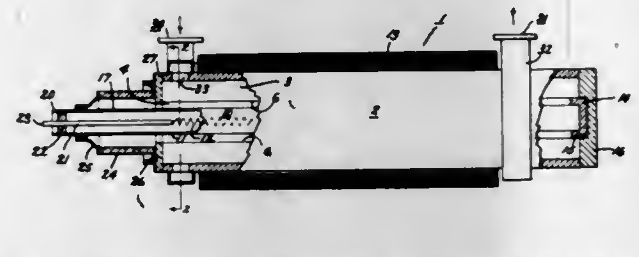


1. An electronic storage display device comprising: an evacuated container; a target member in said container having an electrically conductive surface and an opposite surface thereto on which is disposed a layer of electron emissive material; a viewing target disposed in said container coextensive with said target member and adapted to luminesce in response to the impingement thereon of electrons emitted from said layer of electron emissive material, said viewing target being disposed adjacent the surface of said target member on which said layer of electron emissive material is disposed; means for forming an electron beam and for scanning said conductive surface of said target member to trigger the emission of electrons only from areas of said layer of electron emissive material opposite areas of said conductive surface impinged by said scanning electron beam; and means for establishing an electric field across said layer of electron emissive material to sustain said triggered electron emission therefrom.

3,304,463

CROSSED-FIELD AMPLIFIER DEFINING A TRANSMISSION LINE

Donald A. Wilbur, Scotia, N.Y., and Philip N. Hess, Los Altos, Calif., assignors to General Electric Company, a corporation of New York
Filed Sept. 10, 1962, Ser. No. 222,510
12 Claims. (Cl. 315—39)



1. A transverse wave amplifier comprising spaced cathode and anode means defining a transmission line having a magnetron interaction space coincident therein, said transmission line adapted for supporting and propagating a fast electromagnetic wave having a slow wave electric field component extending transverse the direction of propagation of said fast wave, means for establishing an electron flow in said transmission line transverse the direction of propagation of said fast wave and parallel to the direction of said transverse slow wave electric field component thereof, electromagnetic wave signal input means directly coupled to said interaction space at only one section thereof for introducing an electromagnetic wave signal having a transverse electric field component at said one section in said magnetron interaction space, and separate output means directly coupled to said interaction space for extracting amplified electromagnetic wave energy from another spaced section of said magnetron interaction space longitudinally spaced a plurality of free-space wavelengths from said one section along the path of propagation of said fast wave.

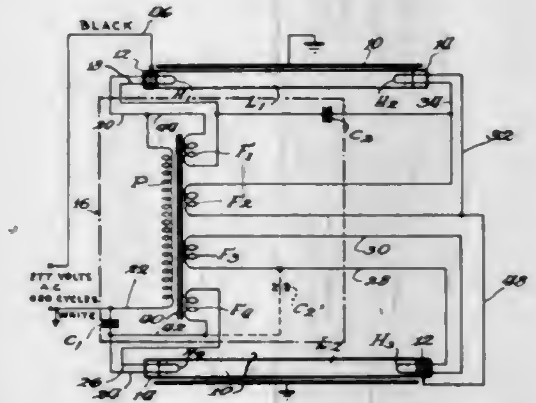
3,304,464

FLUORESCENT LAMP BALLAST AND CIRCUIT

Albert E. Feinberg, Chicago, Ill., assignor to Advance Transformer Co., Chicago, Ill., a corporation of Illinois
Filed Nov. 8, 1963, Ser. No. 322,291
13 Claims. (Cl. 315—97)

1. A fluorescent lighting system for a pair of gaseous arc discharge lamps energized from an A.C. source having a high potential side and a grounded side and in which each lamp has a filament in each end thereof with two external contacts at each end connected with a respective filament, which comprises: a transformer having a primary winding, a first pair of filament windings closely coupled to the primary winding with one end of each being the terminal of an output circuit including all of the primary winding therein, a second pair of filament windings closely coupled to the primary winding, a pair of three-terminal disconnect lamp sockets having two lamp-receiving terminals and a disconnect

terminal which makes electrical engagement with one of the other two terminals but only when a lamp is inserted into the socket with its external contacts engaging the lamp terminals and is turned to a detent position in said last-mentioned socket, a pair of two-terminal lamp sockets, the first pair of filament windings being connected respectively to the lamp-receiving terminals of the first disconnect socket and first two-terminal socket, the second pair of filament windings being connected respectively to the lamp receiving terminals of the second disconnect socket and the second two-terminal socket, so that each filament winding is connected to the lamp-receiving terminals of a single socket, the primary winding being connected in an input circuit across the source with at least the high side of the source connected through the disconnect terminal of the first disconnect socket so that said primary cannot be energized unless said last-mentioned disconnect terminal is in electrical engagement with one of the other terminals of said first disconnect socket, one lamp being engaged in the first disconnect socket and the second two-terminal socket, the other lamp being engaged in the first two-terminal socket and the second disconnect socket, an electrical lead from one terminal of the second two-terminal socket to the disconnect terminal of the second disconnect socket, and current limiting impedance means in circuit with said lamps during operation thereof.

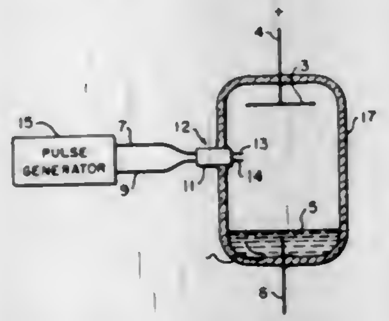


3,304,465
IGNITION OF ELECTRIC ARC DISCHARGE DEVICES

Hans W. Hendel, Manasquan, and Robert G. Lauttman, Neptune, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed June 25, 1962, Ser. No. 205,137

4 Claims. (Cl. 315—330)



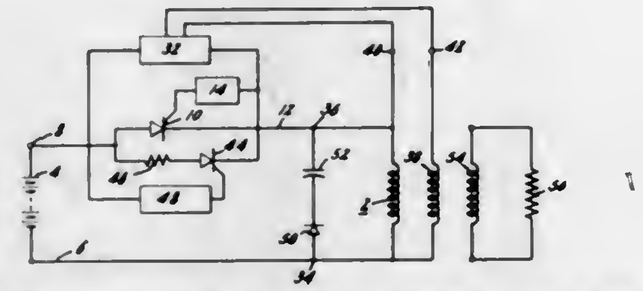
3. In an arc discharge tube of the type including an anode, cathode and an ionizable gas sealed in a gas-tight envelope, the improvement comprising; a pair of closely spaced metallic electrodes mounted within said envelope, and means to cause arc-over between said metallic electrodes whereby portions of said electrodes are vaporized and ionized, thereby projecting a plasma into said envelope and rapidly causing ionization of said gas.

3,304,466
PROTECTIVE CIRCUITS FOR SUPERCONDUCTIVE LOADS

Stephen H. Minnich and Theodor A. Buchhold, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed Apr. 20, 1965, Ser. No. 449,526

20 Claims. (Cl. 317—13)



1. A protective circuit for a superconductive load adapted to be connected to a power supply and energized thereby comprising:

(a) a first load current switching means;

(b) means connected to said first load current switching means to initiate conduction therethrough;

(c) means connected to said first load current switching means to terminate conduction therethrough;

(d) sensing means connected to said conduction termination means and to said superconductive load to actuate said conduction termination means in response to a signal developed at the inception of the transition of a portion of said superconductive load to a normal state;

(e) a second load current switching means connected in parallel with said first load current switching means;

(f) means connected to said second load current switching means to initiate conduction therethrough a predetermined period after conduction through said first load current switching means has terminated, said second load switching conduction initiation means being connected to and responsive to said conduction termination means; and

(g) ancillary storage means to maintain the magnetic field and its energy during the time in which the current in the superconductive load is interrupted and superconductivity is being restored; and

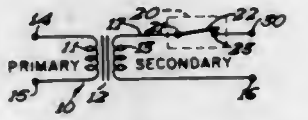
(h) energy dissipation means to dissipate the leakage energy of the superconductive load and to reduce the current in the superconductive load to identically zero value in the shortest possible time.

3,304,467
CONTACT STRUCTURE

Carl J. Bishofberger, Minneapolis, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed Jan. 8, 1965, Ser. No. 424,308

8 Claims. (Cl. 317—15)



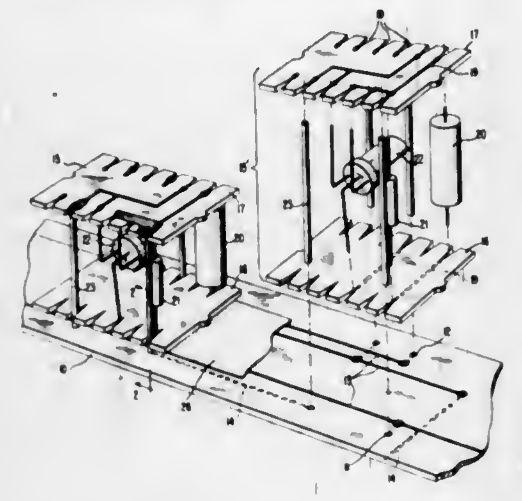
1. An electrical contact structure adapted to fail under cyclic operation, including: cyclically movable means for operation of contact means; and said contact means having an insulating member including a thin film of contact material cooperating with an electrical contact to complete an electric circuit through said contact means; said cyclically movable means repeatedly moving said insulating member with respect to said electrical contact to interrupt a current drawn through said contact means until said thin film of contact material is eroded to open circuit said contact means.

3,304,468
REPLACEABLE ELECTRONIC MODULE FOR MASTER CIRCUIT BOARDS

Alfred C. Lawson, Peabody, Mass., assignor to General Electric Company, a corporation of New York

Filed May 5, 1965, Ser. No. 453,460

8 Claims. (Cl. 317—101)



1. A circuit module adapted for mounting on a circuit board comprising:

(a) first and second spaced, parallel circuit wafers, each circuit wafer having means formed thereon to trap a conductor and conductive means formed on each of said wafers;

(b) a plurality of electrical components disposed between said circuit wafers with terminal portions of each of said electrical components held by said trapping means;

(c) a plurality of connector posts partially disposed between said circuit wafers and in said trapping means, each of said connector posts having a first end portion extending beyond said first circuit wafer and constituting the sole means for connecting said module to the circuit board and a second end portion terminating adjacent said second circuit wafer;

(d) means connecting only those terminal portions held by said trapping means formed on said first circuit wafer to said conductive means thereon; and

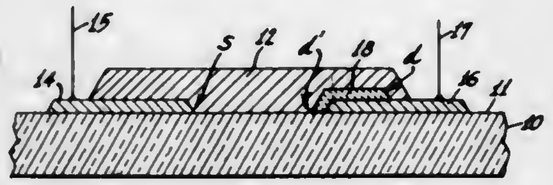
(e) means connecting said terminal portions and said connector post second end portions to said conductive means formed on said second circuit wafer, only said connector post second end portion being permanently connected to said circuit module.

3,304,469
FIELD EFFECT SOLID STATE DEVICE HAVING A PARTIALLY INSULATED ELECTRODE

Paul Kessler Weimer, Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Mar. 3, 1964, Ser. No. 349,090

8 Claims. (Cl. 317—234)



7. A solid state field-effect device comprising:

a layer of semiconductive material of single conductivity type;

a film of high resistivity material on a portion of one side of said semiconductive layer;

a first electrode in contact with said semiconductive layer; and

a second electrode having a portion thereof in contact with said semiconductive layer and defining with said first electrode the ends of a current path through said semiconductive layer, said second electrode having another portion thereof extending adjacent a portion of said current path and separated from said semiconductive layer by said film of high resistivity material.

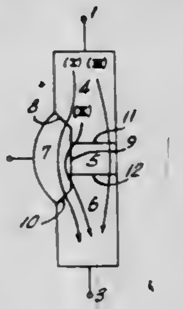
3,304,470
NEGATIVE RESISTANCE SEMICONDUCTOR DEVICE UTILIZING TUNNEL EFFECT

Teruo Hayashi, Hisashi Watanabe, and Yoshihiro Sotome, all of Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan, a corporation of Japan

Filed Mar. 3, 1964, Ser. No. 349,185

Claims priority, application Japan, Mar. 14, 1963, 38/13,157

5 Claims. (Cl. 317—235)



1. A semiconductor device having a negative resistance characteristic and comprising

semiconductor regions of given type conductivity spaced from one another, one of said regions being a degenerate region with a high impurity concentration,

a semiconductor layer of opposite type conductivity sandwiched between said regions of given type conductivity,

a degenerate region with a high impurity concentration of the same type conductivity as said opposite type, said latter region being formed contiguous to said layer and said regions of given type conductivity,

a tunnel junction formed at the juncture of said regions of high impurity concentration,

terminals attached to each of said regions, whereby said negative resistance characteristic is obtained between said terminals connected to said regions of given type conductivity,

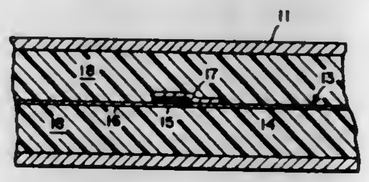
said negative resistance being controllable by the voltage-current characteristic of the tunnel diode formed by said regions of high impurity concentration and said tunnel junction between these regions.

3,304,471
THIN FILM DIODE

Rainer Zuleeg, Newport Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Jan. 28, 1963, Ser. No. 254,209

4 Claims. (Cl. 317—237)



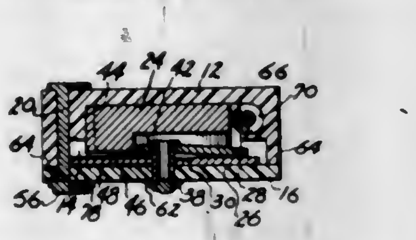
4. In combination, a transmission line having an outer conductor and an inner conductor coaxially disposed therein, a thin film diode device comprising a body of semi-insulating material having a thickness of less than

20 microns and a resistivity of at least 10^4 ohm-centimeters disposed between separated portions of said inner conductor and electrically coupled thereto by connections having larger and smaller work functions, respectively, than the work function of said body of semi-insulator material.

3,304,472
VARIABLE CAPACITOR

Leonard Sperry, Milwaukee, Wis., assignor to Globe-Union Inc., Milwaukee, Wis., a corporation of Delaware

Filed Apr. 28, 1965, Ser. No. 451,515
12 Claims. (Cl. 317—255)

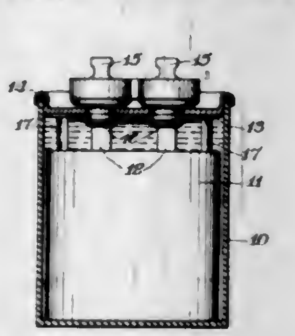


1. A variable capacitor comprising a housing, a fixed capacitor plate disposed within said housing, an insulating dielectric support member of uniform predetermined thickness rotatably mounted within said housing and substantially completely enclosed thereby, a second capacitor plate carried by said support member, said fixed capacitor plate and said second capacitor plate with said support member disposed therebetween comprising a variable capacitor, resilient means disposed in said housing and urging said support member into intimate engagement with said fixed capacitor plate, and drive means mounted in said housing, operatively connected to said support member to effect rotation thereof, and having an engageable portion externally disposed in said housing.

3,304,473
NONBURSTING ELECTRICAL CAPACITOR

Paul H. Netherwood, Livingston L. Rice, and David A. Hynes, Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed Nov. 12, 1963, Ser. No. 322,761
1 Claim. (Cl. 317—256)

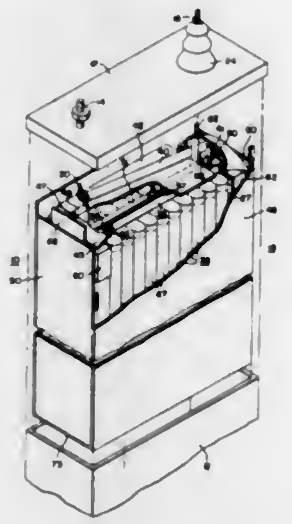


An electrical capacitor consisting essentially of a capacitor section in a hermetically sealed can, said can having a cover domable in response to increasing internal pressure; conductive tabs firmly affixed to said section; said section being connected to terminals in said cover via said conductive tabs, at least one of said tabs being substantially slack-free; at least one strip of relatively inflexible insulating material extending from within said capacitor section at a point near the periphery thereof and extending to the underside of said cover, said strip functioning as a section restraining means fixedly locating said section in said can; whereby progressive doming of the cover, in response to increasing internal pressure, disrupts electrical communication between said slack-free tab and its terminal thereby stopping further rapid generation of pressure before bursting of the capacitor.

3,304,474
POWER CAPACITOR DEVICE HAVING VOLTAGE STRESS GRADING PLANE

Robert D. McClain, Bloomington, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 9, 1965, Ser. No. 447,111
19 Claims. (Cl. 317—256)

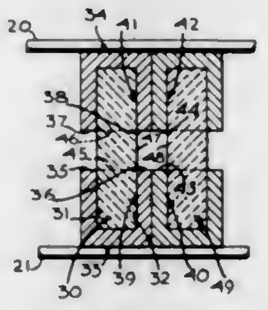


1. A power capacitor device comprising a casing having at least one high voltage terminal disposed thereon, a capacitor section subassembly disposed in said casing, said section subassembly including a plurality of compressed sections wound from foil and insulative interleaving to form respective capacitive circuits, means connecting said section capacitive circuits in a device circuit, at least some of said sections having wound high voltage foil means, an assembled section surface formed by ends of said sections, a conductor disposed along said section surface so as to provide an equipotential plane which grades any electric field applied between said foil means and said casing, insulative means disposed about said conductor, and means for holding said conductor at a potential intermediate to the potential of said terminal and said casing.

3,304,475
MINIATURE CAPACITOR AND METHOD OF MAKING THE SAME

Hammond E. T. Gowen, Escondido, and Raymond J. Gelb and Morgan M. Harris, Los Angeles, Calif., assignors to The Scionics Corporation, Northridge, Calif., a corporation of California

Continuation of application Ser. No. 104,461, Apr. 20, 1961. This application June 7, 1965, Ser. No. 466,508
12 Claims. (Cl. 317—261)



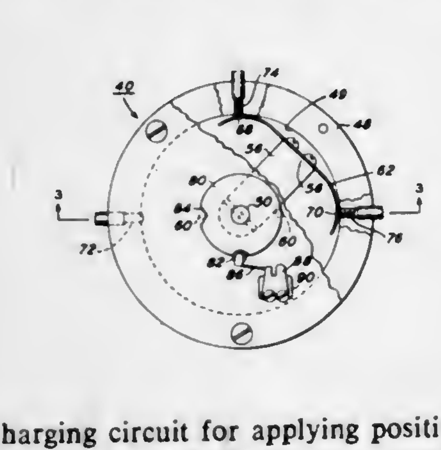
1. A method of making micro-miniature capacitors comprising: providing a plurality of identical capacitor modules, each having a thin rectangular high dielectric constant ceramic body member having a thickness of the order of 1 mil to 15 mils provided with thin conductive plates having a thickness of the order of 0.00001 inch to 0.0005 inch bonded thereon and covering opposed portions of major surfaces of said body member, stacking said modules with the plates of one module in registration with and surface contact with the corresponding plates of adjacent modules, fusing the contacting surfaces of said plates together by applying heat and pressure to said stacked modules to form a monolithic rectanguloid capacitor structure having uniform, fixed capacitance along the length thereof, and slicing said monolithic capacitor structure through said conductive plates in such a manner that said conducting layer will extend to said sliced edge to form a plurality of micro-miniature rectanguloid capacitors, each having conductive plates extending from sliced edge to sliced edge.

10. A capacitor comprising: a rectanguloid rigid dielectric body member having two parallel surfaces of relatively major areas; and a pair of U-shaped conductive plates bonded to said body member in opposed relationship, each of said plates having a pair of parallel arm portions disposed on said surfaces and having ends terminating in a plane, such planes being in parallel and spatially opposed, whereby the capacitive effect is exhibited primarily between such opposed ends.

3,304,476
TRANSFER SWITCH FOR A XEROGRAPHIC APPARATUS

John J. Schoen, Rochester, and Joseph B. Stone, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Apr. 30, 1964, Ser. No. 363,880
2 Claims. (Cl. 317—262)



1. A charging circuit for applying positive or negative electrostatic charge selectively to a xerographic plate including:

a corona charging device having at least one corona discharge electrode movable relative to and adjacent a xerographic plate;

a D.C. power supply connected to a source of electric current having positive and negative output terminals and a circuit connected to said electrode for conducting a D.C. potential thereto and thereby produce a corona discharge;

said circuit including a switch mechanism having a first contact connected to said positive terminal, a second contact connected to said negative terminal, and a third contact connected to said electrode;

said switch mechanism having a rotatable conductive element movable to a first position to bridge across said first and third contacts to permit energization of said electrode with positive voltage and movable to a second position to bridge across said second and third contacts to permit energization of the electrode with negative voltage;

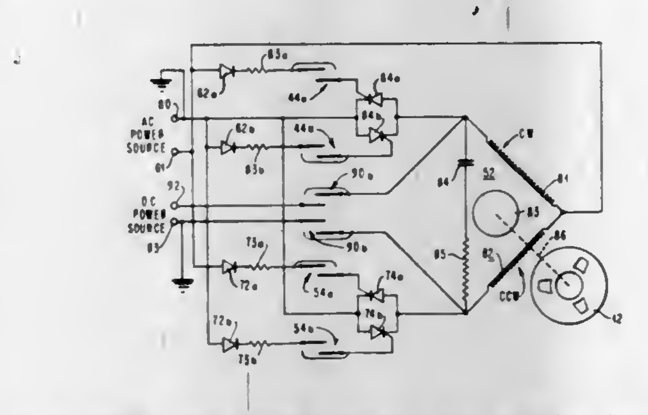
means for selectively actuating said conductive element to either of said positions; and,

a switching device for opening the circuit to said power supply from said source for terminating conduction thereto before said conductive element is moved into on out of engagement with said contacts.

3,304,477
BUFFER POSITION SENSING AND REEL MOTOR CONTROL FOR A MAGNETIC TAPE TRANSPORT

Jack F. Wells and Leonard H. Thompson, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 31, 1963, Ser. No. 334,845
6 Claims. (Cl. 318—7)



1. A buffer tape-length control for a drive having a pair of tape buffer arms respectively associated with a pair of tape reels, each buffer arm controlling a buffer length of tape adjacent a tape processing station, each buffer arm being movable between two limits relative to said processing station, each buffer arm having associated with it:

at least a first reed switch and a magnet arranged for switch actuation by buffer arm movement within said limits,

a reel motor for driving each reel,

and a circuit connecting said reed switch to said reel motor for driving it in a particular direction to change tape tension on said buffer arm when the buffer arm movement actuates said reed switch,

said reed switch including first and second contact sets,

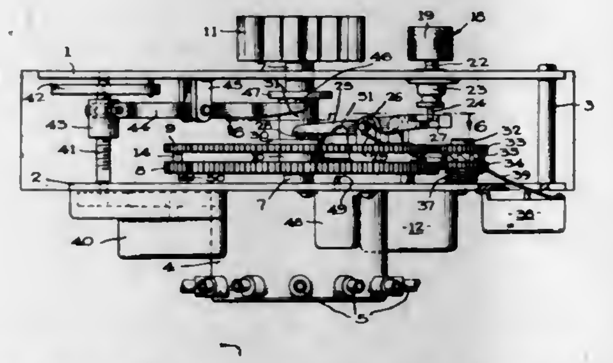
a silicon controlled rectifier pair having a pair of gate electrodes,

an alternating-current power source having opposite terminals respectively connected to said gate electrodes in series with said first and second contact sets.

3,304,478
SEQUENTIAL TIMING DEVICE USING PLURAL MOTORS

Edwin James Hunter, Riverside, Calif., assignor to Moist O'Matic Inc., Riverside, Calif., a corporation of Minnesota

Filed Aug. 27, 1963, Ser. No. 304,842
9 Claims. (Cl. 318—102)



1. A device for sequentially timing a multiple position control unit having a shaft adapted to set said unit to any one of a plurality of control positions comprising an indexing motor for rotating said shaft to successive control positions, a timing member mechanically linked to said shaft, means for driving said timing member in an orbital path, a plurality of spaced, stationary timing

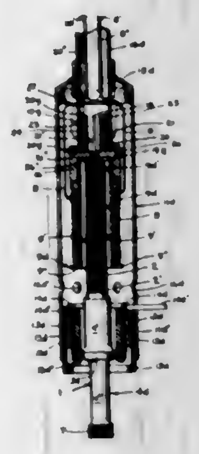
units disposed along said path, each said timing unit including a timing pin adjustably extending into said path and adapted to abut against said timing member for stopping the orbital motion thereof, a timing motor for advancing said timing member along said abutted timing pin towards the free end thereof in a path substantially normal to said orbital path, means for maintaining said shaft stationary in any one of said control positions for the duration of contact between said timing member and any one of said timing pins, and camming means for causing said timing member to move out of contact with said abutted timing pin when said shaft is manually advanced.

3,304,479
DEVICES FOR SENSING AND INDICATING VARIATIONS IN FREQUENCY AND AMPLITUDE OF ACOUSTICALLY VIBRATED WORK MEMBERS

Claus Kleesattel, Forest Hills, Arthur Kuris, Riverdale, and Lewis Balamuth, New York, N.Y., assignors to Cavitron Ultrasonics, Inc., Long Island, N.Y., a corporation of New York

Filed June 5, 1963, Ser. No. 285,629

20 Claims. (Cl. 318—118)



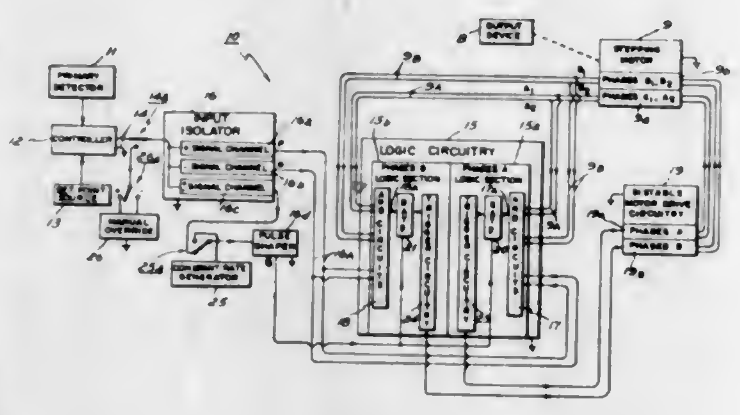
11. A vibrator assembly including in combination; a work performing vibrator unit which presents an electromechanical transducer component and a work tool component designed to perform useful work which is rigidly joined to said transducer component by a vibration transmitting component and which together provide a vibrator unit designed to vibrate at a predetermined resonance frequency when the transducer component is energized by an alternating field of corresponding frequency, a stationary casing containing said transducer component and at least a portion of the vibration transmitting component of said vibrator unit, means associated with said casing for supporting said vibrator unit adjacent a node of longitudinal vibration thereof, and a high frequency alternating current winding contained within and supported by said casing and positioned in surrounding relation to said transducer component and operative when energized to establish an alternating magnetic field in surrounding relation to said transducer component whose frequency substantially corresponds to the resonance frequency of vibration of said work performing vibrator unit; and a device for sensing variations in the frequency and amplitude of vibration of said work performing vibrator unit when vibrated; said device including an elongated magnetostrictive member presenting a free end having means at the opposite end thereof for rigidly securing said member to a component of said work performing vibrator unit in the region of a loop of vibration thereof and whereby said member is vibrated at a frequency and amplitude which substantially correspond to the frequency and amplitude of vibration of that region of the vibrator unit at which said member is fixed, said magnetostrictive member having a longitudinal length which is not more than one-half wave length of sound traveling through said member when mechanically vibrated by said unit at the resonance frequency for which the unit is designed, said magnetostrictive member having a relatively small cross-sectional area and relatively small mass as compared to the component of the vibrator unit to which it is secured and whereby said member does not materially alter the normal resonance frequency or amplitude of vibration of such component, a pickup assembly telescoped over said magnetostrictive member and which includes a pickup coil surrounding a region of maximum stress in said member when vibrated, means for polarizing said magnetostrictive member, and a housing positioned in spaced relation to said vibrator unit for containing and supporting said pickup coil in telescoped position with respect to said magnetostrictive member, means associated with said casing for supporting said pickup assembly in telescoped position with respect to said magnetostrictive member and in a manner independently of said magnetostrictive member and the component of said work performing vibrator unit with which it is associated; said pickup coil being operative to generate an electromotive force, as induced therein by the vibrations of said polarized magnetostrictive member, whose magnitude varies in accordance with the variations in amplitude of vibration of the vibrator unit at the region thereof at which said magnetostrictive member is secured thereto.

3,304,480
DIGITAL ACTUATOR INCLUDING FEEDBACK REPRESENTATION OF THE STEPPER MOTOR WINDING ENERGIZATION STATE

Wen H. Ko, Cleveland Heights, Ohio, assignor to Conoflow Corporation, Philadelphia, Pa., a corporation of Pennsylvania

Filed May 16, 1963, Ser. No. 280,966

20 Claims. (Cl. 318—138)



1. Digital actuator apparatus comprising an electrically-excited motive device for producing a mechanical output movement of predetermined magnitude in one of two possible directions responsive to each change in electrical excitation thereof, said motive device producing movements in the two directions responsive to electrical excitations thereof in accordance with a predetermined repetitive sequence, controller means producing two different control signals to command output movements of said predetermined magnitude from said motive device in different directions, logic circuit means for changing the electrical excitations of said motive device responsive to each occurrence of said control signals, and means applying to said logic circuit means electrical input signals characterizing both said control signals and the state of the electrical excitations in the sequence of said electrical excitations of said motive device, said logic circuit means being wired to respond to said electrical input signals with changes in said electrical excitations according to said predetermined repetitive sequence.

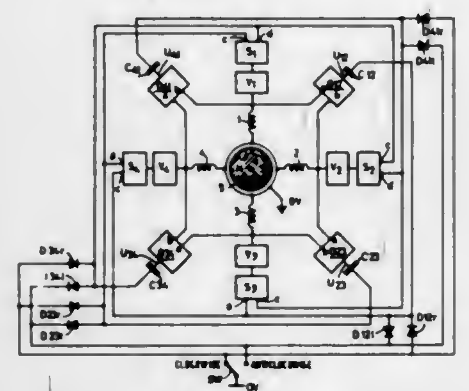
3,304,481
CIRCUIT FOR DIRECT CURRENT MINIATURE MOTORS WITHOUT MECHANICAL COMMUTATORS

Günter Saussele, Nurnberg, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany

Filed July 29, 1964, Ser. No. 385,900

Claims priority, application Germany, Aug. 2, 1963, S 86,507

5 Claims. (Cl. 318—138)



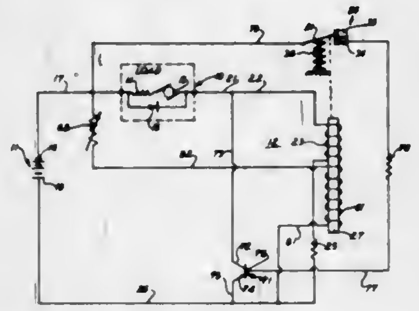
1. An electric motor circuit comprising a direct-current miniature motor without mechanical commutators, said motor naving a permanent-magnet rotor and star-connected stator windings, direct-current circuit means connected to said respective windings for sequentially energizing them by direct current to produce a rotating magnetic field, said circuit means comprising current control means responsive to voltage induced by said rotor in said stator windings during respective intervals between said energizing currents, whereby the energizing currents of said respective stator windings are commutated under control by said induced voltages.

3,304,482
ELECTROMECHANICAL OSCILLATOR WITH VARIABLE DUTY CYCLE

John D. Jenks, Dearborn, and Ole K. Nilssen, Livonia, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Continuation of application Ser. No. 239,153, Nov. 21, 1962. This application Sept. 24, 1965, Ser. No. 505,085

3 Claims. (Cl. 318—330)



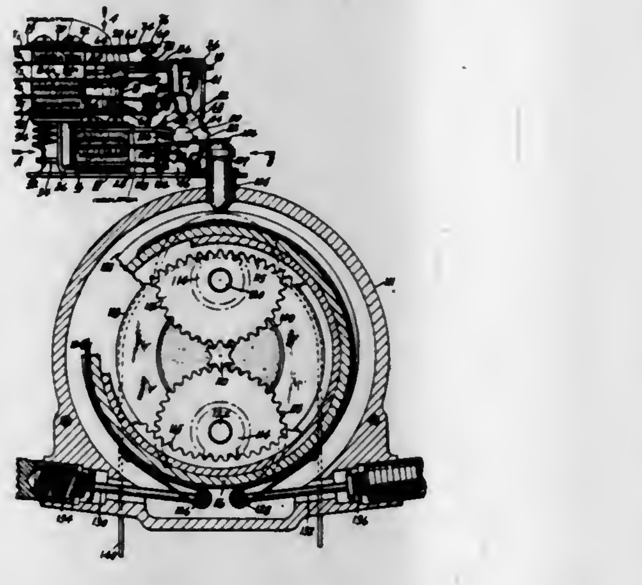
1. In an electrical system, a source of direct current electrical energy, a load, a transistor including an emitter and a collector connected in series with said load and said source of electrical energy, said transistor including a base, electromechanical switch means for connecting said base to said source of electrical energy to bias said transistor into a fully conducting state when said electromechanical switch means is closed, said electromechanical switch means including a movable arm and a solenoid electromagnetically coupled to said movable arm, said solenoid connected in shunt with said transistor, means engaging said movable arm for biasing said switch to the open position, the electromagnetic force exerted by said solenoid when energized being insufficient to move said movable arm to the extent of closing said switch, and auxiliary means for applying a force at all times during the operation of the electrical system to said movable arm in a direction to close said switch, said auxiliary means including means for varying said force whereby said transistor is alternately switched from a conducting to a nonconducting state and said load is periodically energized with a duty cycle dependent upon the magnitude of the force applied by said auxiliary means.

3,304,483
RELAY CONTROLLED SWITCHING ASSEMBLY

Joseph W. Wanner, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 2, 1964, Ser. No. 379,955

6 Claims. (Cl. 318—265)



1. In a control system for a garage door operator having a reversible electric motor energized from a power source the combination of, relay means, manually actuatable means for selectively energizing said relay means, first switch means for completing a circuit from the source of power through the electric motor, second switch means operative independently of said first switch means cooperating with said first switch means for connecting the electric motor across the source of power, said second switch means including first and second pairs of actuatable contacts, actuator means operatively associated with said first and second pairs of contacts including means for maintaining one pair of contacts open and the other of said pair of contacts closed, switching means disposed between said actuator means and said relay means for reversing the positions of said first and second pairs of actuatable contacts, said switching means being operated upon momentary energization of said relay means to stop rotation of the motor, said switch means including means operative upon continuous energization of said relay means to condition the motor for reverse rotation.

3,304,484
VALVE EXTINGUISHING NETWORK FOR INVERTERS

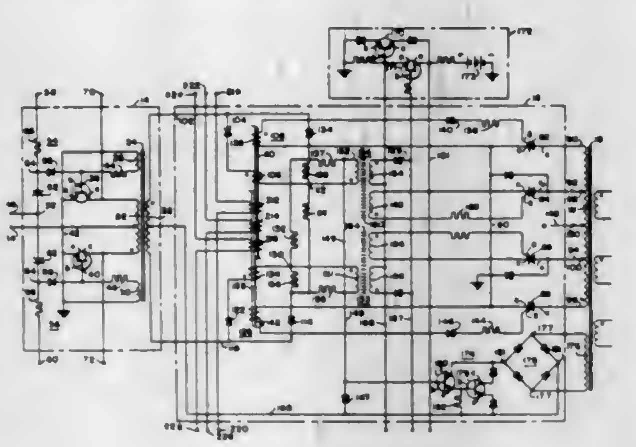
Andress Kernick and Theodore M. Heinrich, both of Lima, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 13, 1965, Ser. No. 513,385

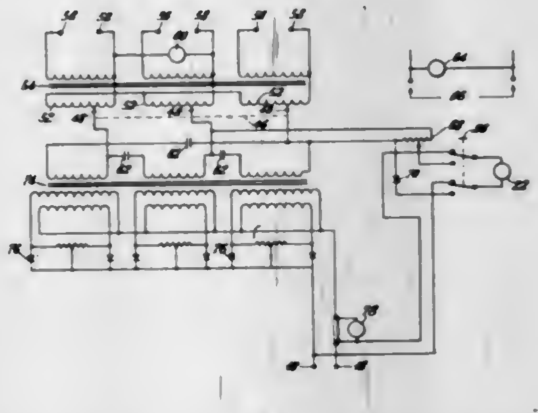
24 Claims. (Cl. 321—5)

1. In an apparatus of the character described; a plurality of integral inverters; each said inverter including a pair of input terminals, a pair of output terminals, a pair of current controlling devices each having a pair of terminals and being operable upon being rendered conductive

to pass current between its said terminals, and at least one current path interconnecting said pairs of terminals and including said terminals of a first of said controlling devices; a sequencing network operatively conected .o each of first devices for rendering said first devices conductive in sequence; a first bus; a current interrupting switch; means connecting a corresponding one of said terminals of each of said first devices to said first bus; a second bus; means connecting said interrupting switch between said busses; means connecting a corresponding one of said terminals of each of a second of said devices to said second bus; each said inverter having the other terminal of its said second current controlling device connected to a point in said inverter which has the same instantaneous potential polarity as the other terminal of its said one current controlling device; and means connecting said sequencing network to said second current controlling devices for actuation of said second current controlling devices in timed sequence with respect to the actuation of said first devices.

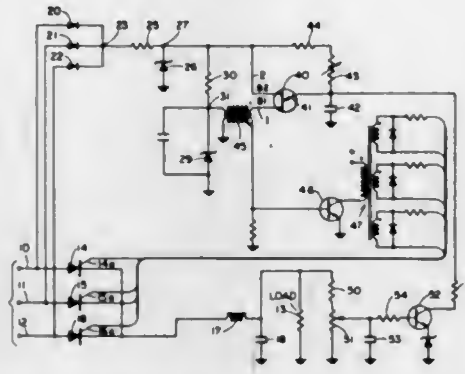


3,304,485
WELDING ARC POWER SUPPLY
August F. Manz, Newark, N.J., assignor to Union Carbide Corporation, a corporation of New York
Filed Dec. 26, 1963, Ser. No. 333,282
4 Claims. (Cl. 321—8)



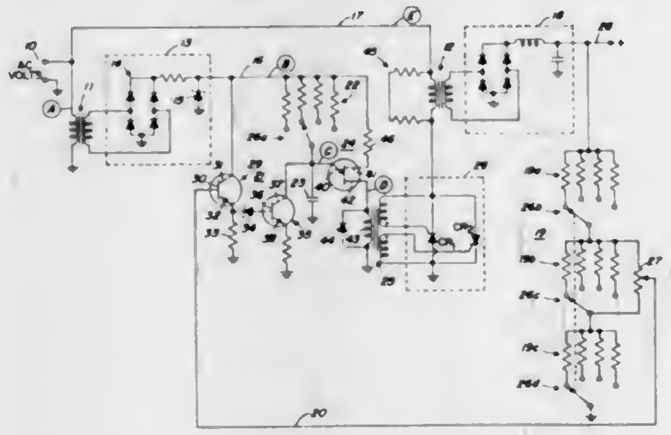
1. An apparatus for supplying arc current from an A.C. source, comprising a transformer, means for adjusting the output of said transformer to select a desired potential across output terminals, means including a contact or switch for connecting the output of said transformer to such output terminals, a voltmeter connected to such terminals for indicating such potential when said contactor switch is closed and circuit means including a switch for connecting said voltmeter to the output of said transformer when said contactor switch is open to indicate the potential that would subsequently appear across such terminals when the contactor switch is closed, whereby the desired potential across such terminals can be preselected by operating said adjustable means while such terminals are deenergized.

3,304,486
VOLTAGE REGULATION FOR A.C.-TO-D.C. CONVERTERS
Thomas B. Michaels, Rochester, N.Y., assignor to General Dynamics Corporation, Rochester, N.Y., a corporation of Delaware
Filed May 17, 1963, Ser. No. 281,292
7 Claims. (Cl. 321—18)



3. A system for initiating the charging of a condenser in an RC timing circuit at a precise angle the wave of a polyphase voltage source, the system comprising a polyphase A.C. source and rectifying means coupled to said source and adapted to develop an undulating rectified alternating voltage wave of a constant frequency, a unijunction transistor coupled to said rectifying means and having base-1, base-2 and emitter electrodes, the peak emitter voltage for initiating current in the emitter-base-1 circuit of said transistor being a fixed function *n* of the base-to-base voltage, a coupling resistor connected between said bases and said rectifying means, a voltage clamp device connected to the base-1 end of said resistor for clamping the base-1 at a voltage corresponding to the crossover voltage of two adjacent waves of said rectified wave, an RC timing circuit coupled between said emitter electrode and said rectifying means and including a storage condenser and adjustable resistance means, a second voltage clamp device connected to the base-2 end of said resistor for clamping said base-2 voltage at some voltage intermediate the clamped voltage of said base-1 and the peak voltage of said rectifying means so that said unijunction transistor becomes nonconducting and said condenser begins to charge at the instant of said crossover.

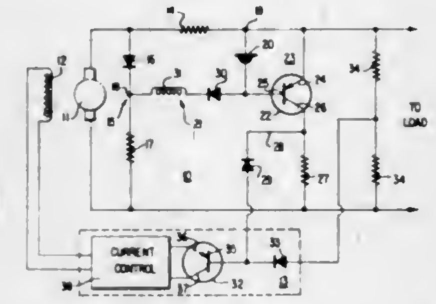
3,304,487
REGULATED ADJUSTABLE POWER SUPPLY HAVING A PRIMARY CURRENT CONTROLLED BY INPUT AND OUTPUT VOLTAGES
Abner E. McCaskey, Jr., Richardson, Tex., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Dec. 16, 1963, Ser. No. 330,799
11 Claims. (Cl. 321—19)



1. In a power supply for converting an input alternating current signal to a direct current output voltage, said

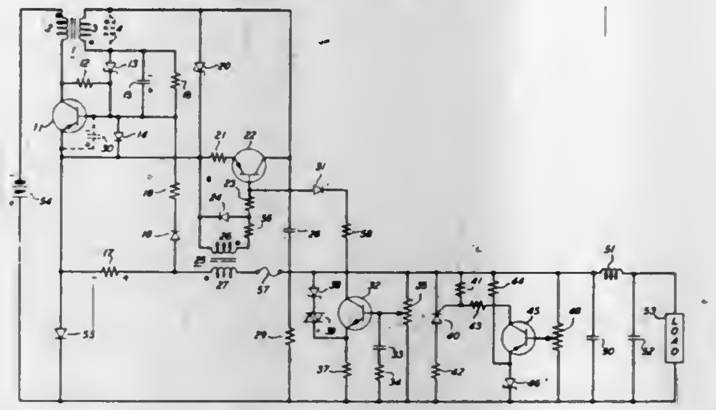
power supply including a power transformer the primary windings of which receive said input signal, voltage rectifying means connected to secondary winding of said power transformer and producing a direct current output voltage; means for regulating said direct current output voltage comprising full wave voltage controlled rectifying means serially connected with said input signal and the primary winding of said power transformer, said voltage controlled rectifying means being responsive to an input trigger signal thereto to fire and pass therethrough predetermined portions of successive half cycles of said input signal, reference voltage full wave rectifying means receiving said input signal and developing therefrom a pulsating direct current reference, means applying said reference voltage through an RC network, said network comprising a resistor and a capacitor respectively serially connected with the output from said network being the voltage across said capacitor, means sampling said direct current output voltage, feedback control means connected to said RC network and receiving the output of said sampling means and in response thereto effecting a variation in the charging rate of said RC network, and means developing said trigger signal in response to a predetermined charge being effected on said capacitor during each successive half cycle of said input signal.

3,304,488
ELECTRONIC CURRENT REGULATOR
Robert M. Henderson, Williams Bay, and Richard Zechlin, Beloit, Wis., assignors, by mesne assignments, to Fairbanks Morse Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 17, 1963, Ser. No. 273,740
11 Claims. (Cl. 322—27)



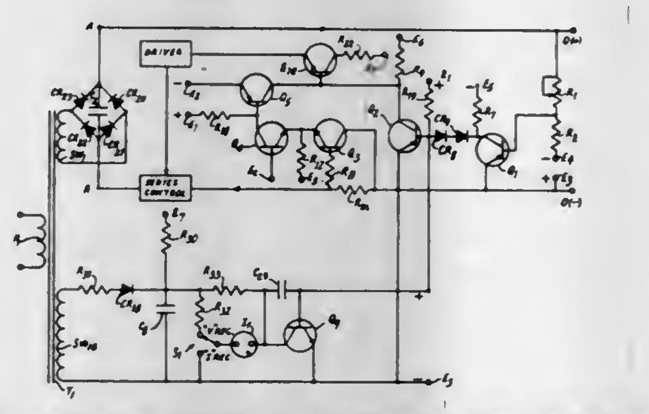
1. An electronic current regulator for use with a generator having an armature circuit, a field circuit, and field current control means to control the flow of current to said field circuit, said current regulator comprising first resistance means connected in series with said armature circuit for developing a first voltage thereacross which varies with variations in armature current, bias circuit means connected across said armature circuit for developing a reference voltage, control circuit means connected to said first resistance means having a current-voltage characteristic exhibiting both positive and negative resistance characteristics and conductive and nonconductive states, output circuit means connected between said control circuit means and said field current control means for controlling said field current control means in response to non-conduction of said control current means, and second resistance means interconnecting said bias circuit means and said control circuit means, the difference voltage between said reference voltage and said first voltage being applied as a voltage source to said control circuit means and said second resistance means being connected as a load for said control circuit means so as to effect switching of said control circuit means from said conductive to said non-conductive states upon increase in armature current beyond a predetermined level effecting variation in said difference voltage.

3,304,489
HIGH FREQUENCY SWITCHING REGULATOR
Stephen J. Brolin, Bronx, and George W. Meszaros, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Apr. 15, 1963, Ser. No. 273,200
6 Claims. (Cl. 323—9)



1. A high speed switching regulator which comprises a source of direct potential, a load, a regulating transistor having its emitter and collector electrodes serially connected with said source of direct potential and said load sponsive to load voltage variations, and biasing means to interrupt the flow of current from said source to said load, a serially connected switching control network comprising energy storage means and a control element connected to the base and emitter electrodes of said regulating transistor to switch the emitter-collector and emitter-base paths of said regulating transistor between conductive and nonconductive states, means connecting said control element to said load to render said control element responsive to load voltage variations, and biasing means connected to said control element to bias said control element into conduction during the conductive interval of said regulating transistor, said control element providing a conductive reverse current path through the base-emitter path of said regulating transistor for the energy stored in said energy storage means whereby each transition of said regulating transistor from a conductive to a nonconductive state is initiated.

3,304,490
MONITORING CIRCUIT FOR REGULATED POWER SUPPLY
Lester Dubin, Pelham Manor, Irving Forrest, Plainview, and Sol Greenberg, Port Washington, N.Y., assignors to Lambda Electronics Corporation, Long Island, N.Y., a body corporate of New York
Filed June 5, 1963, Ser. No. 285,715
8 Claims. (Cl. 323—9)



1. A monitoring circuit for indicating the operating mode of a regulated D.C. power supply which includes a source of unregulated potential; output terminals; a variable control means coupling said source to said output terminals; a voltage control circuit operative in one mode of the power supply to adjust said control means to achieve a predetermined voltage characteristic at said

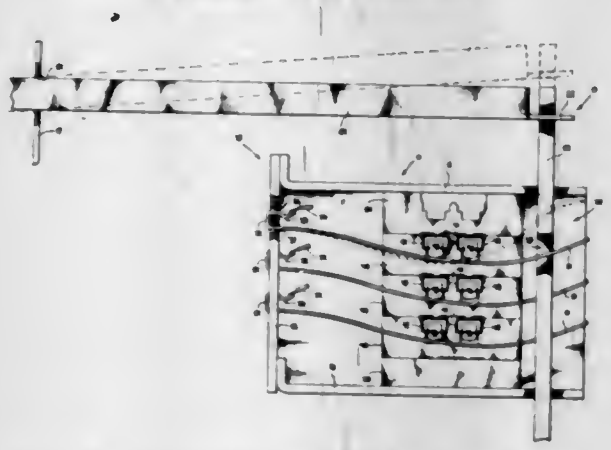
output terminals; a current control circuit operative in the other mode of the power supply to adjust said control means to achieve a predetermined current characteristic at said output terminals; and circuit means interconnecting said current control circuit and said voltage control circuit to automatically select the mode which limits, respectively, the voltage and current at said output terminals in accordance with preselected settings; said monitoring circuit comprising a transistor so connected to said control circuits that said transistor is rendered conductive when the power supply is in one mode and is rendered nonconductive when the power supply is in the other mode; and an electrical indicating means connectable in series with said transistor to be energized when said transistor is conductive and to thereby indicate that the power supply is in one of said operating modes, and connectable in shunt relationship with said transistor to be energized when said transistor is nonconductive to thereby indicate that the power supply is in the other of said operating modes.

3,304,491
MUSICAL INSTRUMENT SWITCH DEVICE

James S. Adams, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware

Filed May 25, 1964, Ser. No. 369,927

7 Claims. (Cl. 323—95)



3. A switch arrangement comprising an input terminal, an output contact formed of conductive resiliently compressible material having a conductance varying directly as the compressive deformation of the output contact, a further contact formed of conductive resiliently compressible material having a conductance varying directly as the compressive deformation of the further contact, a flexible conductor electrically connected to said terminal and engaging said further contact, means for actuating said flexible conductor to move it into engagement with said output contact and out of engagement with said further contact.

3,304,492
LINE SHARPENING IN SPECTROSCOPY BY THE INCLUSION OF HIGHER ORDER DERIVATIVES IN THE ABSORPTION SPECTRUM

Sivert H. Glarum, Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed June 23, 1964, Ser. No. 377,302

2 Claims. (Cl. 324—.5)

1. A spectrum analyzer comprising:

a cavity adapted for housing a sample to be tested and tuned to a signal frequency;

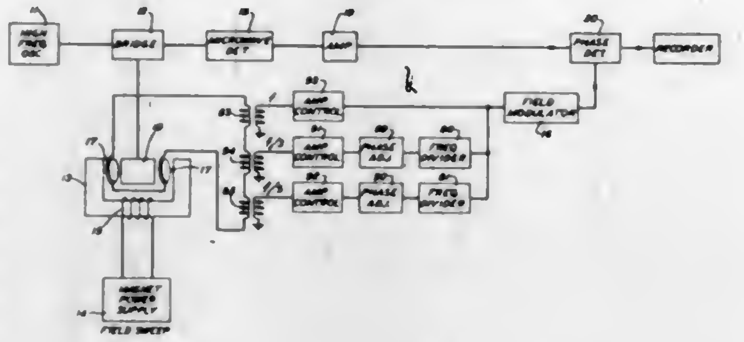
means for applying a magnetic field to said sample;

means for sweeping the amplitude of said field;

means for amplitude modulating said magnetic field simultaneously at a fundamental frequency and at at least one odd subharmonic of said fundamental frequency;

means for applying wave energy to said cavity at said signal frequency;

and means including a phase detector operated coherently with said fundamental frequency for detecting the fundamental frequency component contained in the information modulating the wave energy reflected from said cavity.

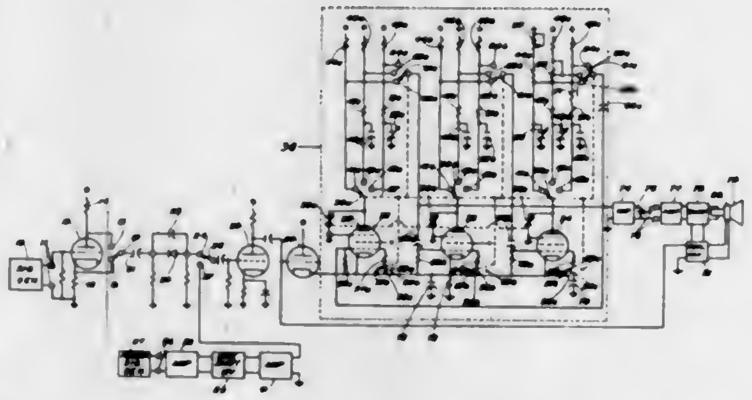


3,304,493
TELEVISION AND RADAR FREQUENCY RESPONSE TESTING APPARATUS HAVING A KEYED OSCILLATOR

Albert J. Barackei, Lancaster, Ohio, assignor to Diamond Power Specialty Corporation, Lancaster, Ohio, a corporation of Ohio

Filed Sept. 24, 1963, Ser. No. 311,170

7 Claims. (Cl. 324—57)



1. Measuring apparatus comprising: an oscillator; a keying circuit connected to said oscillator; means connected to said keying circuit to supply a control signal thereto to drive said keying circuit from a first operating condition to a second, said keying circuit controlling the operation of said oscillator to make said oscillator quiescent when said keying circuit is in one of its operating conditions and to make said oscillator begin oscillating at the same relative phase condition each time said keying circuit is driven to the other of its operating conditions; means connecting said oscillator to electronic apparatus including a cathode ray tube to receive the repeated series of oscillations and to render the same visible; and deflection means connected to said first-named means to be controlled thereby to deflect the cathode ray beam to produce a repetitive pattern in fixed position.

3,304,494
WIDE RANGE WIDE AND NARROW BAND DIRECT INDICATING ANALYZER

Anthony C. Palatinus, 68—17 60th Road, Maspeth, N.Y. 11378

Filed July 16, 1963, Ser. No. 295,565

11 Claims. (Cl. 324—77)

1. A circuit for the generation of repetitive, constant amplitude sawtooth voltages having precisely controlled voltage excursion limits which comprises:

(a) a source of constant current,

(b) a capacitor connected across said source for receiving a charging current therefrom,

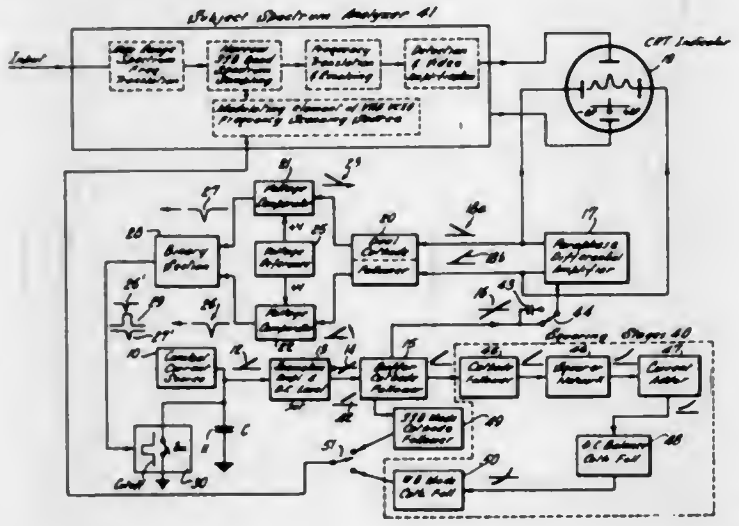
(c) a paraphase differential amplifier having one input and a pair of outputs, said paraphase amplifier input connected across said capacitor,

(d) a source of a selectable stable reference voltage,

(e) a pair of comparators each having two inputs and one output and operable to produce a pulse only when the voltage level applied to one of said inputs exceeds the voltage level applied to the other of said inputs,

(f) electrical means connecting one output of said paraphase amplifier to each one input of one of said comparators,

(g) said source of said reference voltage applied to the other input of each of said comparators,



(h) a bistable switching device having input and output terminals capable of assuming either of two states, said states being open and grounded output terminals, said device switching from one state to the other state upon the application of a pulse to said input terminals,

(i) wiring means connecting said outputs of said comparators to said inputs of said bistable means,

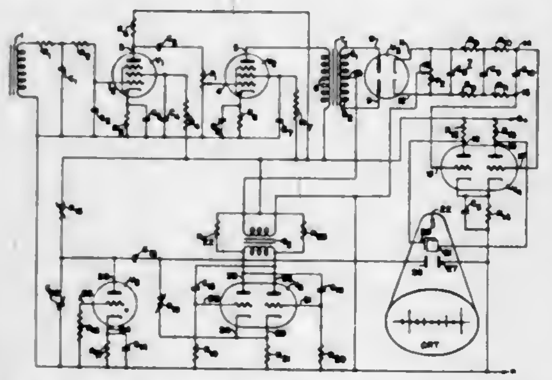
(j) additional wiring means connecting said capacitor across said output terminals of said bistable device whereby the charging of said capacitor may be accurately controlled as well as the voltage limits between which said capacitor is charged and the voltage across said capacitor will be a repetitive sawtooth voltage.

3,304,495
SUBMARINE DETECTION SYSTEM

Charles B. Brown, 1402 Elson St., Takoma Park, Md. 20012

Filed July 11, 1952, Ser. No. 298,487

5 Claims. (Cl. 324—77)



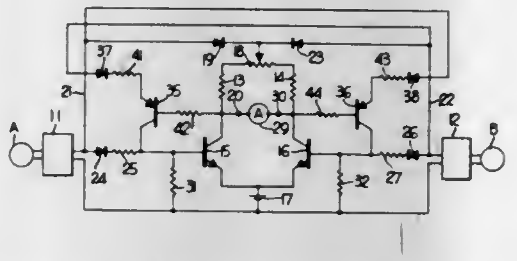
1. In a submarine detection system of a character adapted for pickup of commutator ripple frequency signal intelligence, the combination with a detection means and band pass amplifier means, a phase comparison means connected to the output of said amplifier means, a cathode ray tube, means for applying the output of said phase comparator means to the vertical deflection plates of said cathode ray tube, means providing a horizontal sweep for the electron beam of said cathode ray tube, and variable frequency control means for said phase comparator of a character to permit the passing to said cathode ray tube of all received signal intelligence of phase and frequency correspondence to said control means with a correlative rejection therein of all signals differing therefrom.

3,304,496
PHASE ANGLE INDICATING MEANS

Willard S. Lorenz, Oconomowoc, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed June 1, 1964, Ser. No. 371,480

7 Claims. (Cl. 324—87)



3. Means for producing a voltage across a load, said voltage having a level varying as a function of the phase angle between a first and second alternating input and having a polarity indicating which of the inputs is leading, said means comprising:

a first and second resistance each having a first and second end terminal and each having its first end terminal connected to an electrical power source;

said load connected between the second end terminals of the first and second resistance;

first switching means operable when turned on to connect the second terminal of the first resistor to conduct current from the electrical power source through the first and second resistance and the load, said first switching means connected to be responsive to the first input to turn on during half cycles of one polarity of the first input;

second switching means operable when turned on to connect the second terminal of the second resistor to conduct current from the electrical power source through the first and second resistance and the load, said second switching means connected to be responsive to the second input to be turned on during half cycles of one polarity of the second input; and

means responsive to half cycles of the one polarity of both the first and second input for keeping the first and second switching means turned on as long as one input is in a half cycle of said one polarity.

3,304,497
MEASURING SYSTEM WHEREIN TIME-VOLTAGE SIGNALS ARE CONVERTED TO PROPORTIONAL PULSE FREQUENCY SIGNALS FOR STORAGE, DETECTION, AND INTEGRATION

Arthur L. MacRitchie, Morristown, and John J. Heigl, Short Hills, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

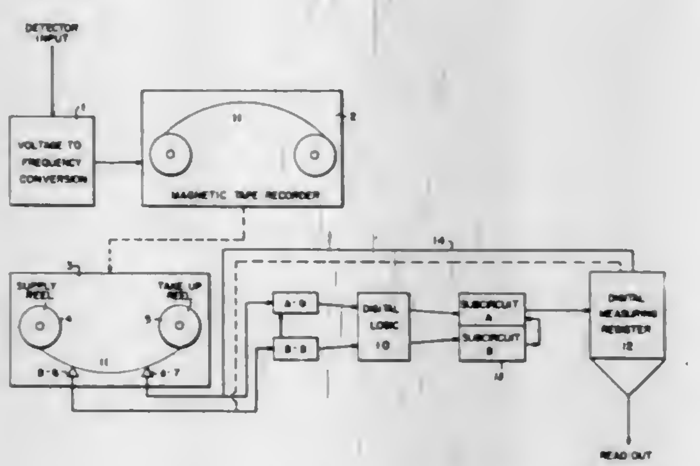
Continuation of application Ser. No. 214,339, Aug. 2, 1962. This application Apr. 3, 1963, Ser. No. 270,279

3 Claims. (Cl. 324—120)

1. An integrator control system comprising in combination

(a) a source of variable voltage;

(b) means for converting said variable voltage into proportional frequency pulsations;
(c) a first and a second sensing means responsive to said frequency pulsations at two different points in time;
(d) a first counting means for measuring the number of pulsations detected by the first of said sensing means;
(e) a second counting means for measuring the number pulsations detected by the second said sensing means;
(f) a logic circuit for determining the ratio of the total pulsations measured by said first counting means to the total pulsations measured by said second counting means;

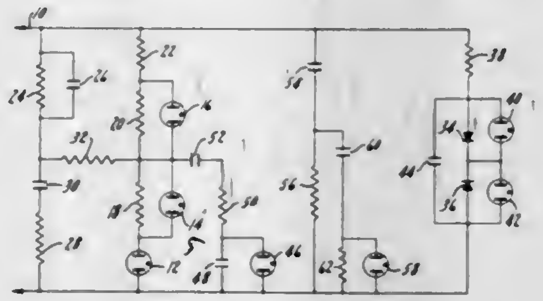


(g) triggering means responsive to the ratio determination of said logic circuit; said triggering means producing a command impulse when a predetermined change in the ratio of pulsations measured by said first counting means to the total pulsations measured by said second counting means is detected;
(h) measuring means responsive to said command impulse of said triggering means for totalizing the pulsation detected by either the first or second sensing means.

3,304,498

VOLTAGE, POLARITY AND FREQUENCY TESTER HAVING A.C.-D.C. COMPENSATION AND GAS TUBE INDICATORS

Thomas E. Myers, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware
Filed May 15, 1963, Ser. No. 280,637
4 Claims. (Cl. 324—133)

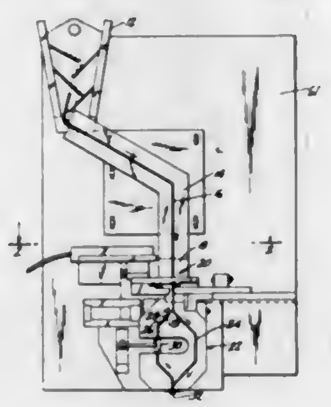


1. A voltage tester circuit including an input, a plurality of voltage indicators connected generally in series across said input and each arranged to be activated at a different input voltage, a compensating network connected between the input and at least one of said voltage indicators, which network provides generally the same voltage amplitude at said one indicator for both A.C. and D.C. voltage inputs, a low frequency indicator connected to said input, and a low frequency filter network for activating it, and a high frequency filter network including a first resistor and a first capacitor in series across said input, a second resistor and a second capacitor in series connection across said first resistor, and a high frequency indicating means in parallel with said second resistor.

3,304,499

ESCAPEMENT AND CONTACT MECHANISM HAVING SEPARATELY ACTING SERIES CONTROLLERS FOR TESTING ELECTRONIC COMPONENTS

Bela T. Vincze, South Bellingham, Mass., assignor to General Instrument Corporation, Newark, N.J., a corporation of New Jersey
Filed Nov. 27, 1962, Ser. No. 240,233
3 Claims. (Cl. 324—158)

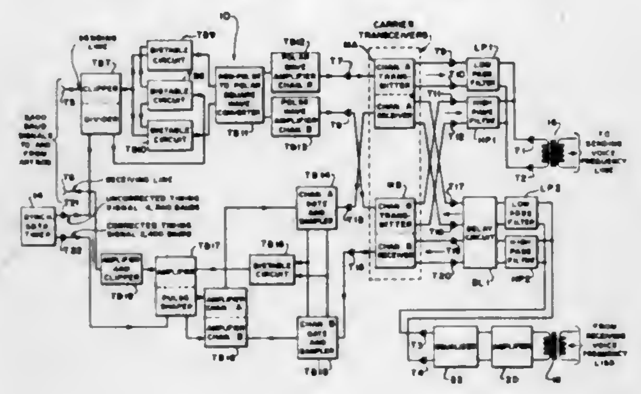


1. Contact mechanism for testing electronic components having oppositely extending lead wires, said mechanism comprising an upright chute having edges and having sides with narrow side slots for the lead wires of the components, stationary stops at the sides of the chute extending away from one edge of the chute, movable contacts at the sides of the chute extending away from the opposite edge of the chute and movable horizontally toward the stops for pressing the lead wires of the component against said stops and thereby electrically contacting the lead wires, a finger to prevent downward movement of the components, said finger extending in a direction away from the contacts and away from the same edge of the chute as the stops, knives at the sides of the chute somewhat higher than the contacts and extending away from the same edge of the chute as the contacts and fixedly connected to the contacts for movement therewith to enter the clearance space between the leads of the bottom component and the next higher component, test supports at the sides of the chute extending away from the same edge of the chute as the contacts and fixedly connected to the contacts for movement therewith, said supports being located at the level of the contacts, a rigid frame connecting the contacts and knives and tests supports at one edge of the chute to the finger at the opposite edge of the chute for simultaneous horizontal movement of all of said parts, the frame elements at the sides of the chute being spaced apart further than the overall length of the components including the lead wires, and a linear actuator to reciprocate the frame together with the contacts, knives, test supports and finger, the disposition of the parts being such that the superposed components higher than the bottom component are supported by the advancing knives as the bottom component is released by retraction of the finger, and the bottom component is supported by the tests supports as it is being contacted for tests, and the tested component is released for continued movement down the chute when the supports and knives are retracted, at which time the finger advances to again hold the stack of components.

3,304,500

FSK SYSTEM INCLUDING MEANS FOR DISTRIBUTING DATA PULSES INTO TWO CHANNELS TO MODULATE TWO SEPARATE CARRIER FREQUENCIES

Harry C. Likel, Brooklyn, N.Y., assignor to Western Union Telegraph Company, New York, N.Y., a corporation of New York
Filed Apr. 3, 1963, Ser. No. 270,438
2 Claims. (Cl. 325—59)



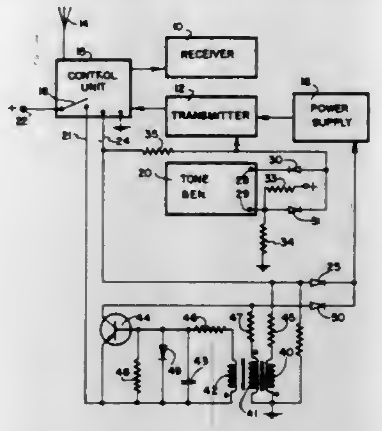
1. In a dual channel communications system for transmission and reception of coded signals, the combination comprising:
(a) a source of binary coded signals;
(b) a synchronous data timer means for supplying timing pulses to said source of binary coded signals to cause the binary coded signals to be stepped out at a predetermined fixed bit rate;
(c) signal divider means;
(d) means for applying the binary coded signals to said signal divider means to derive therefrom two separate binary coded signal bit streams each having one half of said fixed bit rate;
(e) two transceivers in the dual channels respectively, said transceivers having:
  (1) signal modulators for modulating the two binary coded signal bit streams on carriers in upper and lower halves of a voice frequency band, and
  (2) signal demodulators for demodulating received modulated signals into two binary bit streams;
(f) delay means in circuit with the demodulators for equalizing the time of arrival of signals in both half bandwidths at the demodulators; and
(g) alignment means in circuit with the transceivers for determining the time delay required in signals in one channel to equalize the time of arrival of signals at the demodulators in both channels.

3,304,501

TIME DELAY CIRCUIT FOR BRIEFLY HOLDING A SELECTIVE CALL TRANSMITTER ENERGIZED

Ross E. Ruthenberg, Blue Island, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Aug. 20, 1964, Ser. No. 390,867
12 Claims. (Cl. 325—186)

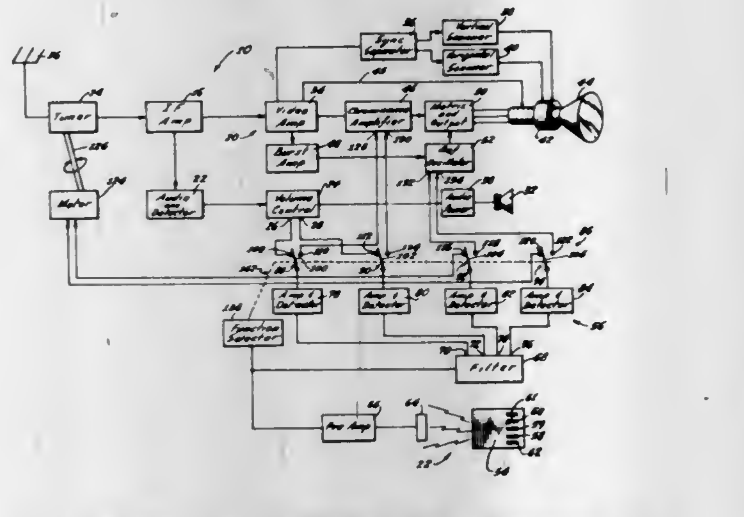
7. A control system for a transmitter which includes a power supply for energizing the transmitter, said control system including in combination, actuating means providing a first control potential to condition the transmitter for operation, said actuating means being coupled to the power supply and applying said first control potential thereto for causing energization of the transmitter, and delay means coupled to said actuating means and including a transistor and a saturable transformer for controlling conduction of said transistor, said saturable transformer including a first winding coupled to said actuating means for receiving said first control potential and a second winding coupled to said transistor, said second winding applying a voltage to said transistor for rendering the same conducting to provide a second control potential which continues for a predetermined time duration in response to termination of said first control potential, said delay means being coupled to the power supply and applying said second control potential thereto to hold the power supply energized for said predetermined time duration.



3,304,502

REMOTE CONTROL OF A PLURALITY OF FUNCTIONS

Orris K. Paddock, Pacific Palisades, Calif., assignor to Packard-Bell Electronics Corporation, Los Angeles, Calif., a corporation of California
Filed Nov. 6, 1963, Ser. No. 321,851
12 Claims. (Cl. 325—391)



1. In a system for controlling the adjustment of a plurality of adjustable means in response to a first command signal of a first character and to a second command signal of a second character transmitted by a transmitter, the combination of:
a first control interconnected with a first adjustable means in said plurality of adjustable means for controlling the adjustment of said first means,
a second control interconnected with a second adjustable means in said plurality of adjustable means for controlling the adjustment of said second means,
a receiver for receiving the command signals transmitted by said transmitter, said receiver being responsive to the individual command signals to provide first control signals each time that a command signal of the first character is received and to provide second control signals each time that a command signal of the second character is received,
switch means interconnected with said receiver and actuatable between a first state and a second state, said switch means when in the first state interconnecting said receiver with the first control to transfer the first control signal from the receiver to the first control and when in the second state interconnecting said receiver with the second control to transfer the

first control signal from said receiver to the second control, and

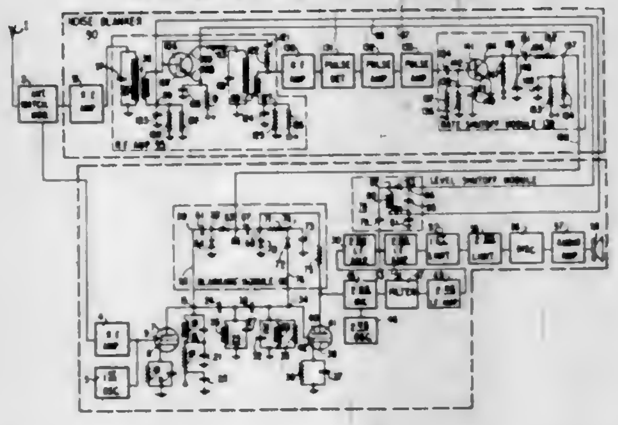
a function selector interconnected with said receiver and responsive to the second control signals, said function selector being interconnected with said switch means to actuate said switch means from one of said states to the other of said states in response to the second control signals.

3,304,503
NOISE REDUCING SYSTEM

Daniel B. Walker, Jr., Bellwood, and John F. Sarallo, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Apr. 9, 1963, Ser. No. 271,766

11 Claims. (Cl. 325—478)



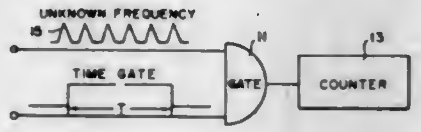
1. A carrier wave receiver including in combination, an intermediate frequency amplifier stage for translating a desired signal which may be accompanied by impulse noise disturbances and which stage is adapted to be interrupted by the application of blanking pulses thereto, radio frequency amplifier and converter means coupled to the input of said intermediate frequency amplifier stage, an antenna for receiving said carrier waves, a noise blanking system for the generation of blanking pulses in response to impulse noise applied thereto coupled to said antenna for receiving said carrier waves therefrom, first circuit means coupling said antenna to said radio frequency amplifier and converter means for applying said carrier waves thereto, and second circuit means connecting said noise blanking system to said intermediate frequency amplifier stage for applying said blanking pulses thereto to interrupt the same.

3,304,504
GATE GENERATOR SYNCHRONIZER

Frank J. Horlander, Lexington, Ky., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Dec. 14, 1964, Ser. No. 418,361

11 Claims. (Cl. 328—72)



1. A gate generator synchronizer for a frequency measuring system having a half count accuracy comprising:

means for producing a first and a second pulse train in response to an input signal;

means providing a sequence of delayed pulses;

coincidence means receiving said delayed pulses and said first pulse train and for providing an output in response to coincidence between said delayed pulses and said pulses of said first pulse train said coincidence means having an output;

gating means responsive to the output from said coincidence means;

time gate means responsive to said gating means and to said second pulse train for passing said second pulse train fed thereto, said time gate means having an output; and

counter means responsive to the output of said time gate means for counting the number of pulses passed by said time gate means whereby the frequency of said input signal is determined.

ERRATUM

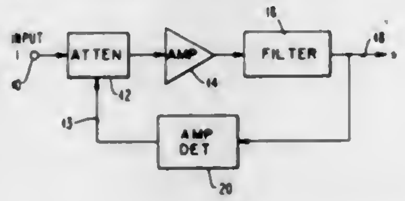
For Class 328—95 see:
Patent No. 3,303,843

3,304,505
FUNDAMENTAL FREQUENCY DETECTION SYSTEM

Wilbur D. Pricer, Pleasant Valley, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 9, 1963, Ser. No. 328,971

9 Claims. (Cl. 328—139)



1. In a system for deriving the unknown fundamental frequency of a signal waveform, the combination comprising

input and output connections, said signal waveform being applied at said input connection;

signal amplification means having a variable gain;

low pass band filter means for attenuating the second harmonic of said fundamental frequency and all higher harmonics thereof so as to reduce the amplitudes of the harmonic frequencies relative to the amplitude of the fundamental frequency;

means for serially connecting said signal amplification means and filter means between said input and output connections; and

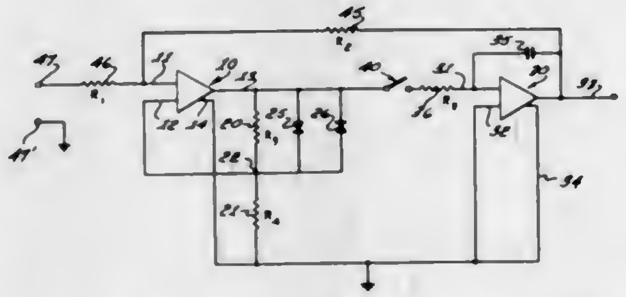
feedback means coupled between said output and said amplification means for providing a control signal to said amplification means indicative of the signal level at said output connection, to cause said means to vary the gain imparted to said signal waveform so as to insure a preset system gain.

3,304,506
SAMPLE AND HOLD SYSTEM

Barret B. Weekes, Newport Beach, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed Feb. 7, 1964, Ser. No. 343,407

2 Claims. (Cl. 328—151)



2. A system for selectively sampling and holding an input signal having

a first amplifier having input and output terminals comprising a low-drift differential amplifier;

means coupled from said output to said input terminals of said first amplifier for providing potentiometric feedback;

a second amplifier having input and output terminals comprising a low front end current ejection, single ended amplifier;

means coupled to said second amplifier to provide an operational integrator;

means for selectively interconnecting said output terminals of said first amplifier to said input terminals of said second amplifier to provide the sample mode wherein said operational integrator is charged to a voltage proportional to said input signal; and

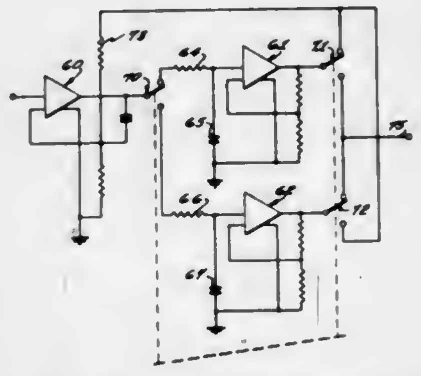
means for providing an overall operational configuration when said interconnecting means is closed including a resistive impedance means connected between the output terminals of said operational integrator stage and the input terminals of said first amplifier.

3,304,507
SAMPLE AND HOLD SYSTEM HAVING AN OVERALL POTENTIOMETRIC CONFIGURATION

Barret B. Weekes and Leland B. Smith, Fullerton, Calif., assignors to Beckman Instruments, Inc., a corporation of California

Filed Feb. 7, 1964, Ser. No. 343,416

9 Claims. (Cl. 328—151)



4. A sample and hold system having zero sampling time comprising

first and second RC networks,

potentiometric amplifier means including means for feeding back only a portion of the output to the input, for isolating each of said RC networks from loading effects during the hold mode,

switching means for selectively connecting a signal to be sampled to said RC networks for charging the capacitive impedance of one of said RC networks to a voltage proportional to the system input signal so that one of said capacitive impedances is charged during a sample mode while the other of said capacitive impedances simultaneously provides a hold mode.

3,304,508
LEVEL REGENERATING ARRANGEMENT FOR TRANSMISSION OF BIPOLAR SIGNALS

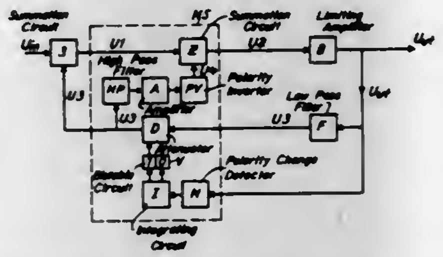
Sigurd Parell Danielsen, Bandhagen, Eidar Hermann Johnsen, Farsta, and Walter Herbert Erwin Widl, Bandhagen, Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden

Filed Jan. 21, 1965, Ser. No. 427,015

Claims priority, application Sweden, May 14, 1964, 5,888/64

2 Claims. (Cl. 328—164)

1. Apparatus for regenerating bipolar signals comprising: first signal summing means having first and second input terminals and an output terminal, said first input terminal being adapted to receive the bipolar signals; a second signal summing means having first and second input terminals and an output terminal; means for connecting the output terminal of said first signal summing means to the first input terminal of said second signal summing means; a limiting amplifier means having an input terminal and an output terminal for transmitting a signal from the output terminal which switches between two polarities in accordance with the polarity of the signal received at the input terminal; means for connecting the output terminal of said second signal summing means to the input terminal of said limiting amplifier means; a controlled attenuator means having an input terminal, an output terminal and a control terminal for controlling the attenuation of a signal received at the input terminal in accordance with a control signal received at the control terminal; means for connecting the output terminal of said controlled attenuator means to the second input terminal of said first signal summing means; high pass filter and signal polarity inverting means connecting the output terminal of said controlled attenuator means to the second input terminal of said second signal summing means; low pass filter means connecting the output terminal of said limiting amplifier means to the input terminal of said controlled attenuator means; and control means connecting the output terminal of said limiting amplifier means to the control terminal of said controlled attenuator means for controlling said attenuator means to change the degree of attenuation when the signal at the output terminal of said limiting amplifier means does not change polarity in a given period of time.



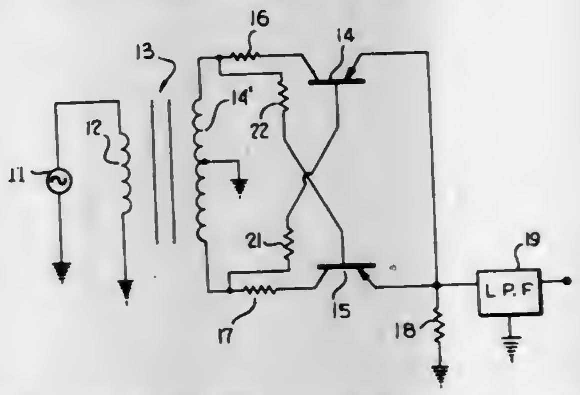
3,304,509
LINEAR FULL WAVE DETECTOR

Burke, Va., assignors to Melpar, Inc., Falls Church, Va., a corporation of Delaware

Laurence A. Barnes, Jr., Springfield, and Ronald E. Irons,

Filed Mar. 10, 1964, Ser. No. 350,812

6 Claims. (Cl. 329—101)

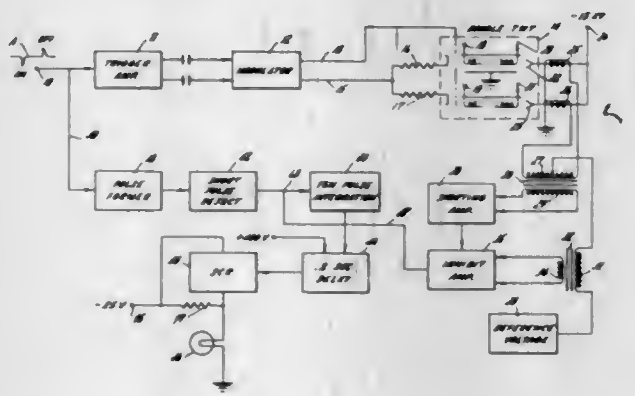


1. A linear full wave detector comprising, in combination, a pair of substantially identical parallel circuit paths, a common load impedance connected in series with said parallel circuit paths, alternating signal generating means connecting said circuit paths for simultaneous application of identical signals of opposite phase to each, each of said circuit paths including a normally non-conductive transistor of the same conductivity type as the transistor in the other of said paths, each transistor providing a conductive connection through its respective circuit path from said signal generating means to said common load impedance when triggered to a conductive state, and means

for respectively applying driving current derived from the signal applied to each of said paths to the transistor in the other of said paths to alternately trigger said transistors to a conductive state in accordance with the instantaneous polarity of said alternating signal.

3,304,510
MONITORING CIRCUIT FOR TRANSMITTER POWER AMPLIFIERS

Alvis O. Elrod, Jr., Newark, Ohio, and Earl H. Heckman, Severna Park, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 12, 1963, Ser. No. 308,603
9 Claims. (Cl. 330—2)



1. A monitoring circuit for traveling wave tube power amplifiers comprising:

an input for trigger pulses;

a monitor signal light and a semiconductor switch in circuit with a voltage supply, said switch having a control electrode therefor;

a pulse former circuit, a short pulse reject circuit, a ten-pulse integrator circuit, and a delay circuit coupled in series from said input to said control electrode of said semiconductor switch to produce a control signal to control said semiconductor switch to energize said monitor signal light;

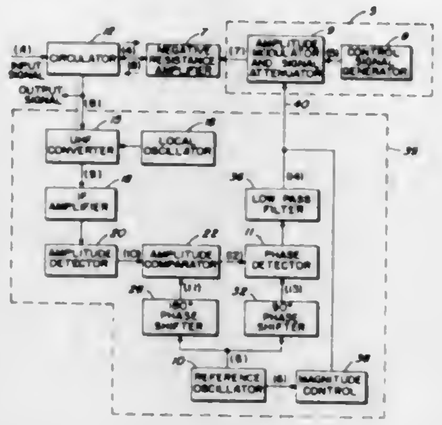
traveling wave tubes, having the cathodes, grids, and collectors coupled in common and each having the collector output with a current sensing means associated therewith to sense the amount of current flow in each collector, said commonly coupled grids coupled to receive said signal pulses from said input;

inhibit circuit means coupled to said current sensing means as an input thereto and to said ten-pulse integration circuit as an output therefrom to produce an inhibit signal when said current sensing means senses proper and equal current flow in each collector output applied to said ten-pulse integrator to inhibit said control signal from energizing said monitor light and to produce no inhibit signal when said current sensing means senses improper low and unequal current flow in the collector outputs whereby operation of said traveling wave tubes is monitored.

3,304,511
GAIN STABILIZATION NETWORK FOR NEGATIVE RESISTANCE AMPLIFIER

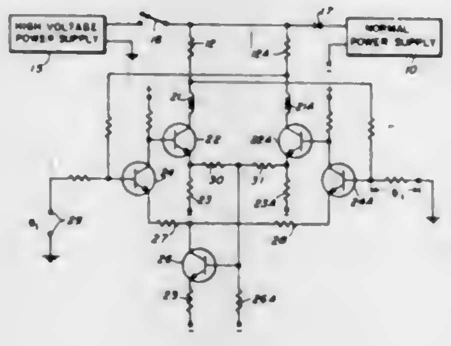
Meredith S. Ulstad, Edina, Minn., assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Continuation of application Ser. No. 145,171, Oct. 16, 1961. This application May 27, 1965, Ser. No. 459,176
13 Claims. (Cl. 330—4.5)

1. A gain stabilization network for a negative resistance amplifier comprising; input circuit means having a first, a second, and a third terminal; said first terminal receiving an input signal; said second terminal feeding said input signal to said amplifier, said second terminal also receiving the output from said amplifier, said output going to said third terminal through said input circuit means, said third terminal being connected to a control means, said control means being connected to amplifier gain varying means, said amplifier gain varying means controlling the gain of said amplifier according to signals received from said control means, so that the gain of said amplifier is held constant.



3,304,512
FEEDBACK SYSTEM FOR HIGH SPEED MAGNETIC DEFLECTION

Robert W. McMillan, Orlando, Fla., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Oct. 29, 1963, Ser. No. 319,903
3 Claims. (Cl. 330—30)



1. In combination in a deflection system, two coaxial deflection coils;

a first and a second transistor said transistors having a common emitter circuit with output circuits, respectively, in series with said coils;

a direct current power source of a predetermined normal voltage, the transistor-coil circuits being connected in parallel across said power source;

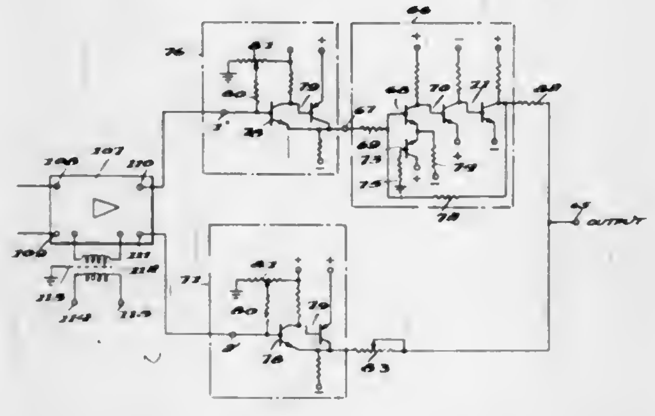
a differential amplifier comprising third and fourth transistors with a common emitter circuit, a synchronizing pulse source coupled to said differential amplifier;

a feedback circuit connected between each coil and the out-of-phase control electrode of the third and fourth transistors to regulate current through said coils;

a current control transistor, the collector-emitter circuit of said control transistor being connected in the mentioned common emitter circuit of said differential amplifier, the control electrode of said control transistor being connected to the mentioned common emitter circuit of said first and second transistors so that transient voltages applied in phase to said coils does not disturb voltage-wise the conduction through either the transistor-coil circuit or the differential amplifiers.

3,304,513
DIFFERENTIAL DIRECT-CURRENT AMPLIFIER

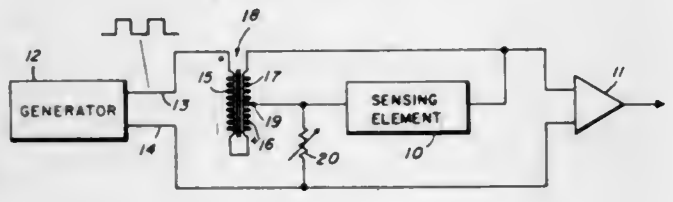
Franklin F. Offner, 1890 Telegraph Road, Deerfield, Ill. 60015
Original application Feb. 2, 1959, Ser. No. 790,498. Divided and this application May 28, 1964, Ser. No. 370,882
3 Claims. (Cl. 330—69)



1. A differential amplifier including a first amplifier section isolated from ground, said first amplifier section being of the single-ended type and producing an output signal which is substantially an amplified facsimile of the input signal applied thereto and including two output terminals, and a second amplifier section of the differential type connected to the two output terminals of said first amplifier section.

3,304,514
COUPLING CIRCUIT FOR LOW IMPEDANCE SENSING ELEMENT

Richard L. Bireley, San Diego, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Nov. 27, 1963, Ser. No. 326,646
3 Claims. (Cl. 330—189)



1. An impedance matching system for coupling a sensing element of relatively low impedance into the input of an amplifier of relatively high impedance, said system comprising,

an autotransformer,

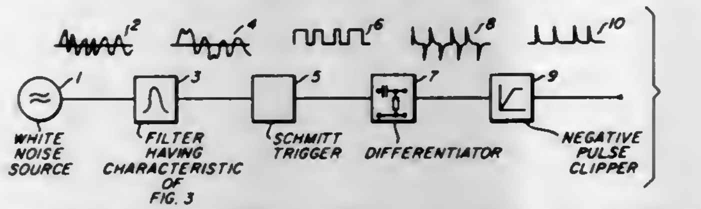
a pulse generator, the output circuit of said generator being coupled to the input circuit of said amplifier, the primary and secondary windings of said autotransformer being connected in series in one lead between said generator and said amplifier,

a coupling resistor, said resistor and said sensing element being connected in series across the generator-to-amplifier leads, the junction of the resistor and sensing element being connected to a point on said secondary winding so that the voltage applied across said amplifier input is a function of the impedance of said sensing element.

3,304,515
RANDOM PULSE GENERATOR

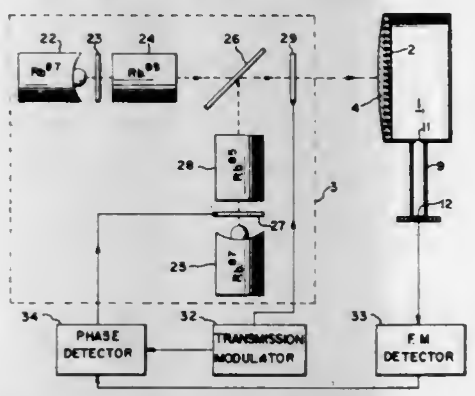
Werner Stieler, Ulm (Danube), Germany, assignor to Telefunken G.m.b.H., Berlin, Germany
Filed Nov. 20, 1959, Ser. No. 854,511
Claims priority, application Germany, Nov. 24, 1958, T 15,920
2 Claims. (Cl. 331—78)

1. In a system for generating randomly occuring pulses having maximum and minimum time spacing T_{max} and T_{min} and a substantially uniform statistical distribution of said pulses, a source of wide band noise, a bandpass filter connected in cascade with said source of wide band noise, said bandpass filter having substantially vertically sharp cut-off frequencies at a minimum frequency$=K/T_{max}$ and at a maximum frequency$=K/T_{min}$, where T is time interval, and relatively large responses at said cutoff frequencies, said bandpass filter further having a generally hyperbolic descending response characteristic from said minimum cutoff frequency to said maximum cutoff frequency, and means responsive to the response of said filter for generating pulses substantially only at zero crosings of said response, whereby the slope of said descending response characteristic provides at least a nearly uniform distribution of time spacing of said pulses within the time intervals T_{max} and T_{min}.



3,304,516
OPTICALLY PUMPED ATOMIC RESONANCE APPARATUS WITH IMPROVED OPTICAL PUMPING MEANS

Robert Novick, Hartsdale, and Paul Davidovits, New York, N.Y., assignors to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Oct. 5, 1964, Ser. No. 401,450
9 Claims. (Cl. 331—94)



5. The method for reducing light shift in an optically pumped gaseous atomic resonance apparatus comprising the steps of, illuminating the atomic gaseous medium with spectral resonance radiation substantially at the optical pumping frequency, the illuminating optical resonance radiation having a spectral profile with one resonance spectral line being slightly displaced below the atomic resonance frequency for the optical transition of said atomic ensemble from a ground state to a higher excited state, and the other spectral line component of said spectral radiation having a frequency slightly higher than the optical transition frequency of said atom from the ground state to the higher excited state, and the ratio of the intensities of the first and second spectral lines being proportioned such that changes in the total intensity of the spectral radiation applied to said ensemble of atoms does not produce an appreciable shift in the R.F. atomic resonance frequency of said gaseous atoms.

3,304,517

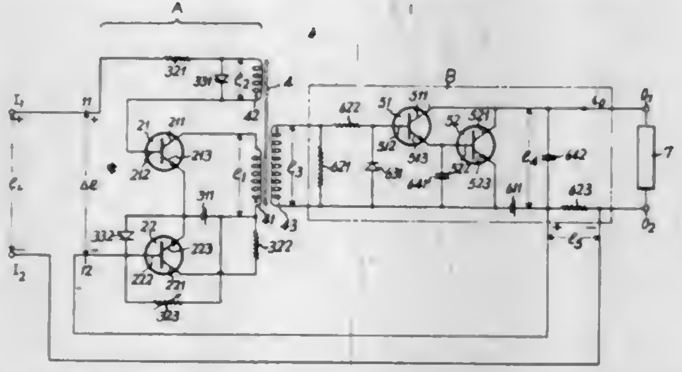
INPUT CONTROL VOLTAGE FOR OSCILLATOR COMBINED WITH OSCILLATOR OUTPUT TO STOP OSCILLATOR

Takashi Yamanaka, Tadashi Kanno, Koukichi Atsumi, Eiju Matsumoto, and Yutaka Ishikawa, Musashino-shi, Tokyo, Japan, assignors to Yokogawa Denki Seisakusho (Yakogawa Electric Works Ltd.), Musashino-shi, Tokyo, Japan, a corporation of Japan

Filed May 19, 1965, Ser. No. 457,142

Claims priority, application Japan, May 30, 1964, 39/42,074; July 18, 1964, 39/41,001, 39/41,003

4 Claims. (Cl. 331—112)



2. An oscillator-type amplifier apparatus comprising: an oscillator circuit having a pair of input terminals for receiving a voltage of given polarity to cause an output from said oscillator circuit; an amplifier circuit; means coupling said output of said oscillator circuit to said amplifier circuit, said amplifier circuit producing an amplified signal in accordance with said output; filter means in said amplifier circuit for filtering said amplified signal to produce a load current; and feedback means connected between said filter means and said pair of input terminals to apply thereto a voltage of opposite polarity with respect to said voltage of given polarity, said voltage of opposite polarity being responsive to said load current; whereby, the voltages of said given polarity and of said opposite polarity are combined to produce a resultant voltage which has the same polarity as said voltage of opposite polarity to render said oscillator circuit inoperative, thereby regulating said load current.

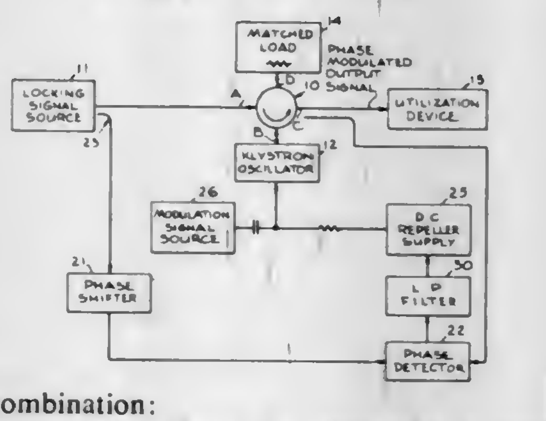
3,304,518

INJECTION LOCKED OSCILLATOR HAVING PHASE MODULATION MEANS

Richard C. Mackey, Reseda, Calif., assignor, by mesne assignments, to TRW Inc., a corporation of Ohio

Filed July 1, 1963, Ser. No. 291,875

6 Claims. (Cl. 332—19)



4. In combination:

a free running oscillator for generating a source of energy,

a substantially fixed frequency reference oscillator coupled to said free running oscillator whereby said source of energy is frequency locked to the frequency of said reference oscillator,

and means connected to said free running oscillator for modulating said energy generated by said free running oscillator whereby said energy is phase modulated.

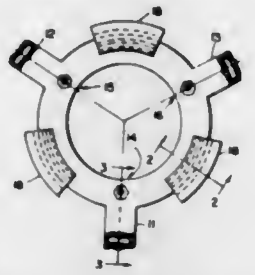
3,304,519

HIGH FREQUENCY CIRCULATOR HAVING A PLURALITY OF DIFFERENTIAL PHASE SHIFTERS AND INTENTIONAL MISMATCH MEANS

Jerald A. Weiss, Wayland, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts

Filed Feb. 21, 1964, Ser. No. 346,474

10 Claims. (Cl. 333—1.1)



1. A high frequency wave conducting device comprising a plurality of multiport junctions each having one external port and means for coupling said junctions together including a plurality of differential phase shift devices and means for producing substantial wave reflection at each of said junctions, whereby transmission between all combinations of two adjacent external ports is substantially nonreciprocal.

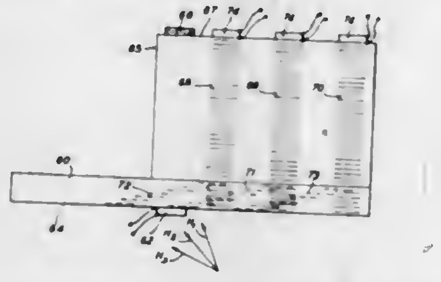
3,304,520

VARIABLE ELASTIC WAVE DEFLECTION

Bert A. Auld, Menlo Park, Calif., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Nov. 23, 1964, Ser. No. 413,243

8 Claims. (Cl. 333—7)



1. In combination, an elastic wave transmission medium, means for launching an elastic wave for propagation in a first direction within said medium, and means interposed in said medium in the path of said wave for deflecting the direction of propagation of a substantial portion of said wave from said first direction to a second direction, said last mentioned means comprising a body of nonconductive ferromagnetic material magnetized with a principal component of magnetization extending in a third direction at an angle to both said first direction and said second direction with said first direction lying between said second and third directions.

3,304,521

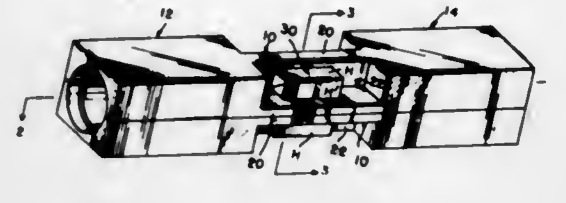
MICROWAVE FERRITE ISOLATOR HAVING A CIRCUMFERENTIAL BIASING MAGNETIC FIELD APPLIED TO A CRUCIFORM WAVEGUIDE SECTION

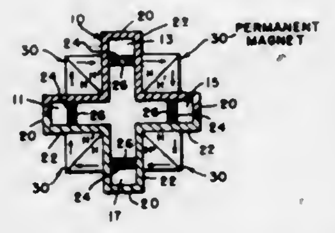
Elmer Freibergs, Long Branch, Nathan Lipetz, Oakhurst, and Richard A. Stern, Eatontown, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed May 10, 1965, Ser. No. 454,755

5 Claims. (Cl. 333—24.2)

1. A microwave isolator comprising first and second cylindrical waveguide sections, a cruciform waveguide section having four channels intermediate said cylindrical waveguide sections and longitudinally aligned therewith and coupled thereto, each channel of said cruciform waveguide section comprising a relatively narrow end wall and two relatively wide side walls, respective ferrites mounted within each of said channels and positioned close to the respective narrow end walls of each of said channels but spaced therefrom, and magnetic biasing means mounted in abutment with the outer surfaces of said side walls for producing a circumferential magnetic field encompassing said waveguide channels in the vicinity of said ferrites.





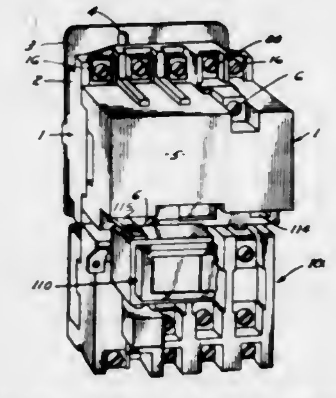
3,304,522

SWITCH STRUCTURE AND COMBINATION THEREOF WITH OVERLOAD RELAY AND PUSH BUTTON

Joseph J. Gribble and Kenneth J. Marien, Milwaukee, Wis., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Original application June 29, 1961, Ser. No. 120,725, now Patent No. 3,235,686. Divided and this application July 16, 1965, Ser. No. 472,599

7 Claims. (Cl. 335—202)



1. In combination, a switch device including a mounting plate, an insulated base mounted on the plate, said base having a front wall, a rear wall, and lateral walls, a plurality of sets of stationary contact assemblies disposed in parallel rows on the base, each of said sets providing a pair of spaced stationary contacts having contact portions on opposite sides, respectively, of a median plane extending forwardly and rearwardly and laterally of the base, said contacts being spaced between the front and rear walls and having intermediate portions, extending from the contact portions, with terminal portions externally accessible at the front of the base clamping members carried by the external portions of the terminal portions, respectively, for clamping conductors to the terminal portions, respectively, a movable contact assembly carried by the base to be removable as a unit from the base, said movable contact assembly including a contact carrier movable linearly generally parallel to the median plane in a direction toward and away from the stationary contact assemblies between two positions, a plurality of movable contacts carried by the carrier so as to be separated from the contact portions when the carrier is in a first of the said two positions and to engage and bridge the contact portions of the pairs of stationary contacts of each set and complete an electric circuit through each set when the carrier is in a second of said two positions, and an electromagnet having a magnet coil for moving the carrier from the first to the second position upon energization of the magnet coil by a control circuit,

an overload relay device, means detachably connecting the relay device in a fixed position relative to the base, spaced rigid male connector in fixed positions, respectively, on the overload relay device, and extending endwise, exteriorly thereof and clamped by the clamping members in contact with the terminal portions, respectively, and said fixed positions of the male connectors and the positions of the terminal portions being such that the male connectors are alignable with, and while aligned are receivable endwise concurrently in a clamping position relative to their associated terminal portions of the switch device by bodily relative movement of the devices toward each other endwise of the male connectors.

3,304,523

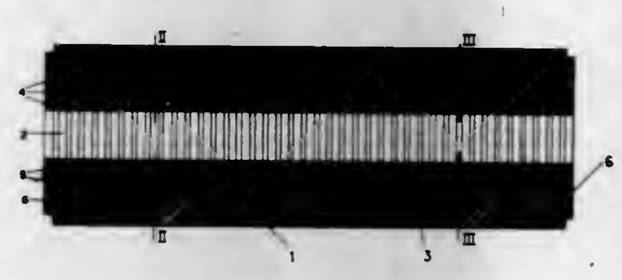
MAGNETIC FIELD STRAIGHTENER

Jean Jaouen and Philippe Martinot-Lagarde, Paris, France, assignors to CSF—Compagnie Generale de Telegraphie Sans Fil, Paris, France

Filed Sept. 28, 1964, Ser. No. 399,555

Claims priority, application France, Oct. 4, 1963, 949,554

9 Claims. (Cl. 335—210)



1. In combination, a hollow means operable to produce a magnetic field and a field straightener positioned within the hollow space of said means, said field straightener including ring-like elements of non-magnetic material alternating with ring-like sets, each containing in a substantially common plane ring-like elements of non-magnetic material alternating with ring-like elements of high permeability magnetic material.

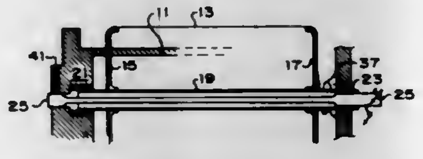
3,304,524

ELECTROMECHANICAL TRANSDUCER HAVING A TORSIONALLY MOUNTED ARMATURE

Steven I. Zoltan, Arlington, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Oct. 5, 1964, Ser. No. 401,430

5 Claims. (Cl. 335—222)



1. In an electromechanical transducer:

an armature which is rotatable about a longitudinal axis and which includes an electrical conductor having a portion thereof disposed away from said axis and parallel therewith;

rigid hollow shaft means disposed along said axis, said armature being attached thereto and supported thereby;

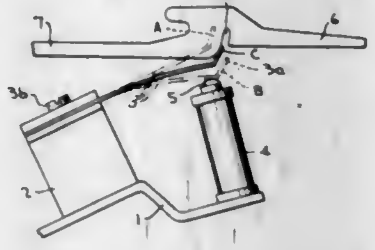
a torsionally resilient and axially rigid bar means coaxially disposed within said hollow shaft means and attached at one end thereof to said shaft means;

at least one bearing disposed about said shaft means for rotatably supporting said shaft means and hence said armature about said axis; and

means securing said bar means rigidly at a point along the length thereof, whereby rotation of said armature about said axis twists only said bar about said axis.

3,304,525
POLARIZED RELAY FOR CONTROLLING DEVICES PROVIDED WITH TO-AND-FRO MOVING ELEMENTS

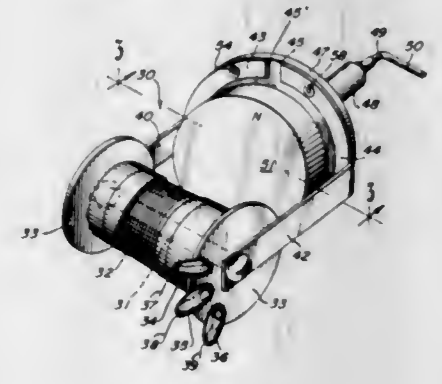
Walter Zangerle, Zurich, Switzerland, assignor to Oerlikon-Bührle Holding AG, Zurich, Switzerland
Filed Apr. 15, 1965, Ser. No. 448,378
Claims priority, application Switzerland, Apr. 24, 1964, 5,375/64
8 Claims. (Cl. 335—230)



1. Apparatus for controlling devices having at least one to-and-fro moving element which is selectively restrained in a predetermined position, comprising a polarized relay, said polarized relay including a core and an armature constructed in the form of an elastic leaf spring, said leaf spring being mounted for movement into a locked position where it bears against the core and is in a stressed state and into a working position into which it moves upon release from said core under the action of its internal stress, said working position being selected such that said leaf spring in said working position has not yet attained its relaxed state, and mechanical means for displacing said leaf spring from said working position into said locked position.

3,304,526
PROPORTIONAL MAGNETIC ACTUATOR DEVICE

Frank R. Adams, 2625 Ruger Ave., Janesville, Wis. 53545
Filed May 3, 1965, Ser. No. 452,738
7 Claims. (Cl. 335—230)



1. A light weight actuator adapted for use in controlling model vehicles comprising:

(a) an electromagnet having a core,

(b) a winding on said core,

(c) magnetizable means connected to the ends of said core, and selectively energized thereby,

(d) said magnetizable means disposed in a common plane to complete a magnetic circuit,

(e) a magnetized member mounted in a plane parallel to said common plane,

(f) a rock shaft joined to the surface of said magnetized member for movement therewith,

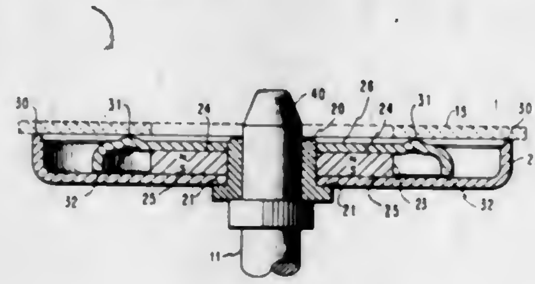
(g) said magnetizable means having zones of reduced cross-sectional area formed therein,

(h) said zones permitting maximum leakage flux to escape therefrom and to attract said magnetized member into alignment therewith when said magnetizable means are energized, and said rock shaft being indexed in accordance with the movement of said magnetized member,

(i) said magnetizable means comprising a pair of magnetizable polar arms extending axially from the ends of the core, said polar arms having inturned pole pieces at the ends thereof, said pole pieces each being a flat strip of material of substantially uniform width and semi-circular in shape and mounted upon the periphery of a plastic disc, said pole pieces being separated by air gaps.

3,304,527
MAGNETIC HOLDING AND ALIGNING DEVICE

Ralph E. Marrs, Campbell, and Dwight W. Brede, Los Altos Hills, Calif., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Apr. 26, 1965, Ser. No. 450,704
5 Claims. (Cl. 335—285)



1. A magnetic holding means for holding a removable object thereto, said object including a magnetic recording medium, comprising:

a magnetizing means including north and south pole faces;

a magnetically permeable portion of said removable object through which magnetic flux from said magnetizing means flows by way of said pole faces when said object is in proper position so as to be magnetically attracted and held thereby;

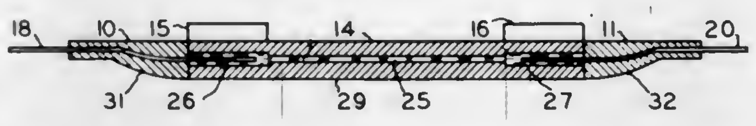
an air gap physically displaced away from said object forming a magnetic circuit in parallel with said magnetically permeable portion of said object which thereby acts as a magnetic shunt, said air gap being longer than any gap between said pole faces and magnetically permeable portion of said object when said object is in said proper position; and

alignment means comprising mating surfaces of said object and said holding means to align said object with respect to said holding means when said object is in said proper position, said mating surfaces being arranged to approximately maintain said alignment over a range of movement of said object such that said magnetically permeable portion of said object magnetically shields said magnetic recording medium from said air gap so long as said magnetic recording medium is in such proximity with said air gap that it would otherwise be adversely affected by the magnetic flux thereat.

3,304,528
ELASTOMERIC STRAIN GAUGE

Leonard U. Rastrelli, Eugene L. Anderson, and Jarvis D. Michie, San Antonio, Tex., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 29, 1965, Ser. No. 491,470
8 Claims. (Cl. 338—2)

5. An improved strain gauge for measuring variations in mechanical strains in a device to be tested comprising:



(a) an elastomeric body member having at least one planar surface for affixing said body to said device to be tested;

(b) a passageway formed in said body member and extending therethrough, said passageway having first, second, and third portions, said first and third portions positioned at the ends of said body member and having substantially equal lengths and cross-sectional areas, said second portion connecting said first and third portions and having a cross-sectional area of less than one-tenth of that of said first and third portions;

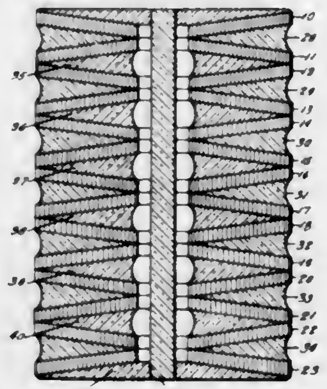
(c) first and second elastomeric end members joined to said body member and positioned to seal off said first and third portions of said passageway;

(d) first and second wires extending through said first and second end members into said first and third portions of said passageway; and

(e) a liquid having a known electrical resistivity filling said first and second, and third portions of said passageway, said liquid being in electrical contact with first and second wires.

3,304,529
RESISTOR FOR HIGH VOLTAGE

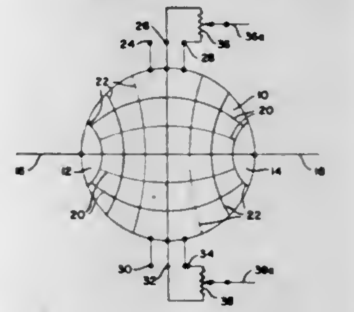
Haakon Forwald, Lauri Savolainen, and Samuel Berg, Ludvika, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed Mar. 2, 1965, Ser. No. 436,532
Claims priority, application Sweden, Mar. 12, 1964, 3,064/64; Jan. 27, 1965, 1,030/65
5 Claims. (Cl. 338—21)



1. A high voltage resistor comprising, in combination: a plurality of coaxial spirally wound windings of resistor wire wound in the same direction, means supporting said windings in spaced relation to each other, said resistor windings having internal wire end portions and external wire end portions at the interior and exterior of their said windings; first alternate pairs of adjacent resistor windings having their said internal wire end portions electrically connected to one another, second alternate pairs of adjacent resistor windings having their said external wire end portions electrically connected to one another; alternate adjacent pairs of said resistor windings being dished toward and away from one another, respectively, said supporting means comprising a plurality of radially tapering coaxial insulation discs each interposed between and filling the spaces between respective adjacent windings of said spaced resistor windings.

3,304,530
CIRCULAR HALL EFFECT DEVICE

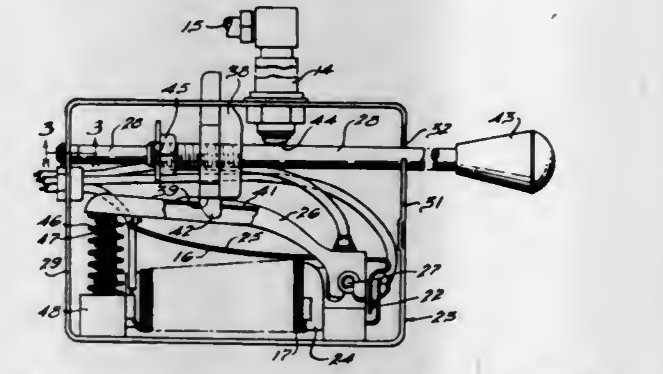
William Honig, 6801 Bay Parkway, Brooklyn, N.Y. 11204
Filed Mar. 26, 1965, Ser. No. 443,125
1 Claim. (Cl. 338—32)



A Hall effect device, comprising a circular thin film of semiconductor material, two opposing current drive contact members electrically contacting said thin film at the ends of a diameter thereof, said contacts comprising segments of respective circular discs having their centers falling substantially on extensions of said diameter exterior of said circular thin film, said contacts each having a radius of curvature less than the radius of said thin film, the circular portions of said contacts defining equipotential lines, said contacts being spaced with respect to each other so that the equipotential lines existing in said thin film due to current flow between said contacts are substantially circular, with the maximum spread between said equipotential lines occurring at the opposing ends of the diameter transverse to said first named diameter, and output terminals electrically connected to said thin film at said opposing ends.

3,304,531
BRAKE CONTROLLER

Stirling A. McInnis, Troy, Mich., assignor to Syncro Corporation, Oxford, Mich., a corporation of Michigan
Filed Dec. 5, 1963, Ser. No. 328,261
2 Claims. (Cl. 338—96)

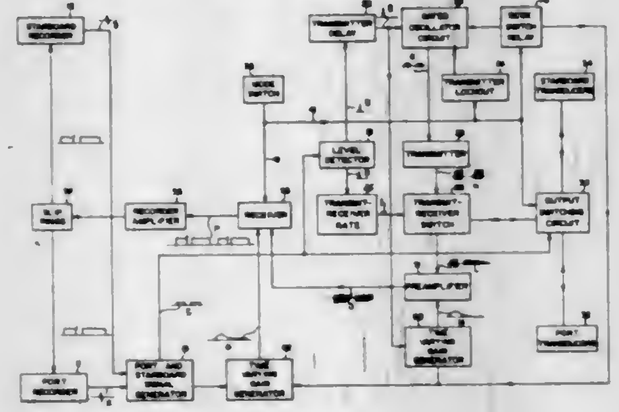


1. In an electric brake controller, a wound wire resistor, a conductor engageable with progressive turns of said resistor, a conductor supporting arm to which said conductor is attached, means mounting said supporting arm for movement between a released position and a fully actuated position, means for urging said arm from its released to its fully actuated position, and resilient means for urging said arm from its fully actuated position to its released position, said last-mentioned means comprising a pair of nested helical coil compression springs, the outer spring being relatively stiff and having a relatively short unstressed length, the inner spring being relatively

weak and having a relatively long unstressed length, whereby the outer spring will be substantially unstressed but said inner spring will be compressed a substantial amount when said conductor supporting arm is in its released position.

3,304,532
SIDE-LOOKING SONAR SYSTEM

Arthur Nelkin, Pittsburgh, and Dale D. Skinner, Turtle Creek, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 16, 1965, Ser. No. 448,775
13 Claims. (Cl. 340—3)



2. A sonar system comprising:
- (a) vehicle carried port and starboard long range side-looking sonar transducer means;
- (b) vehicle carried port and starboard high resolution side-looking sonar transducer means;
- (c) a source of sync signals;
- (d) means responsive to said sync signals for providing sequentially occurring port and starboard signals;
- (e) oscillator means for providing a limited pulse width output signal for each said port signal produced and each said starboard signal produced;
- (f) amplifier means;
- (g) port and starboard recording means;
- (h) circuit means operable, during the period in which a port signal is provided,
  - (1) to gate the output signal to a selected one of said port transducer means, whereupon said port transducer means transmits an acoustic signal to the surrounding medium and provides an echo signal upon receipt of any reflected acoustic signal, and
  - (2) to gate the echo signal provided by said port transducer means to said amplifier and said port recording means;
- (i) said circuit means being additionally operable during the period in which a starboard signal is provided,
  - (1) to gate the output signal to a selected one of said starboard transducer means, whereupon said starboard transducer means transmits an acoustic signal to the surrounding medium and provides an echo signal upon receipt of any reflected acoustic signal, and
  - (2) to gate the echo signal provided by said starboard transducer means to said amplifier and said starboard recording means.

3,304,533
MARINE SEISMIC SURVEYING

William B. Huckabay, Dallas, and William H. Parker, Richardson, Tex., assignors to Rayflex Exploration Company, Dallas, Tex., a corporation of Texas
Filed Dec. 4, 1964, Ser. No. 416,085
2 Claims. (Cl. 340—7)

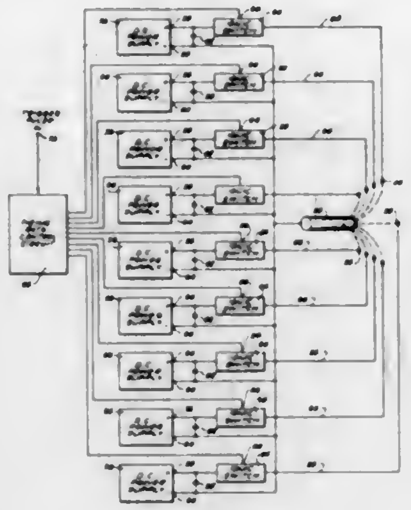
1. In a system for conducting a seismic survey of subsurface structure covered by water:

plural arcing means disposed in the water,

plural switch means connected to the respective arcing means,

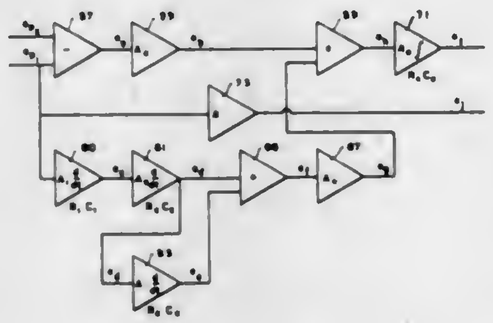
plural power sources connected to the respective switch means, and

a decade counter effective to provide a plurality of sequential output pulses, each pulse of which is effective to close a switch means and thus enable an arc, said decade counter being pulse-enabled to deliver sequential output pulses for a predetermined short period, the last pulse of the sequence effective to disable the counter output.



3,304,534
MULTIPURPOSE PIEZOELECTRIC TRANSDUCER SYSTEM

Alan O. Sykes, Fairfax County, Va.
(304 Mashie Drive, Vienna, Va. 22180)
Original application Feb. 27, 1963, Ser. No. 261,549. Divided and this application Aug. 16, 1965, Ser. No. 489,455
10 Claims. (Cl. 340—10)



1. A transducer system for providing an output signal representing accurate measurement of input signal parameters under conditions which would normally lead to inaccuracies due to presence of second and third order error terms in the transducer output signals, comprising;

transducer means having first and second piezoelectric elements mounted for response to input signal parameters at least one of which is sound pressure to produce outputs represented by voltage phasors e_{p_1} and e_{p_2} respectively;

the signal difference between voltage phasors e_{p_2} and e_{p_1} of the respective output signals of the piezoelectric elements having second and third order signal error components herein;

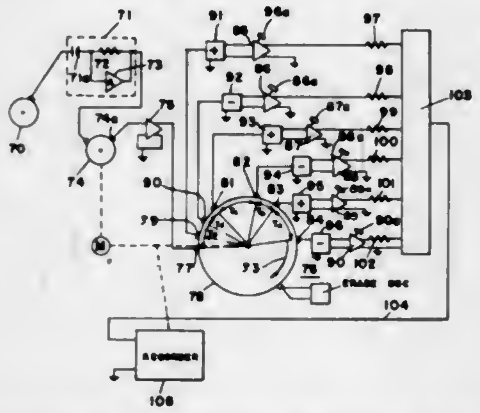
means for subtracting one said voltage phasor from the other thereby producing said signal error components in the signal $e_{p_2}-e_{p_1}$;

signal processing means for deriving from said one voltage phasor said signal error components;

and means for algebraically combining the subtracted signals with said one voltage phasor derived signal containing said signal error components to thereby eliminate said signal error components from the subtracted signals $e_{p_2}-e_{p_1}$.

3,304,535
CORRELATION OF GEOPHYSICAL LOGS

Philip L. Lawrence, Riverside, Conn., assignor to Mobil Oil Corporation, a corporation of New York
Filed Apr. 30, 1964, Ser. No. 364,031
4 Claims. (Cl. 340—15.5)



1. In geophysical exploration wherein a first log, obtained from a first borehole and indicative of the subsurface layering of the earth adjacent said first borehole, is cross-correlated with at least an operator portion of a second log, obtained from a second borehole and indicative of the subsurface layering of the earth adjacent said second borehole, to produce, a cross-correlation having having a maximum occurring at a time indicative of the dip of the subsurface layering between said first and said second boreholes, and wherein said first and said second logs include variations indicative of changes in said subsurface layering and a mean component of magnitude which changes slowly with respect to said variations, the improvement comprising

generating a first electrical signal varying as a function of the subsurface layering as represented by the first log,

generating a second electrical signal varying as a function of the subsurface layering as represented by at least the operator portion of the second log,

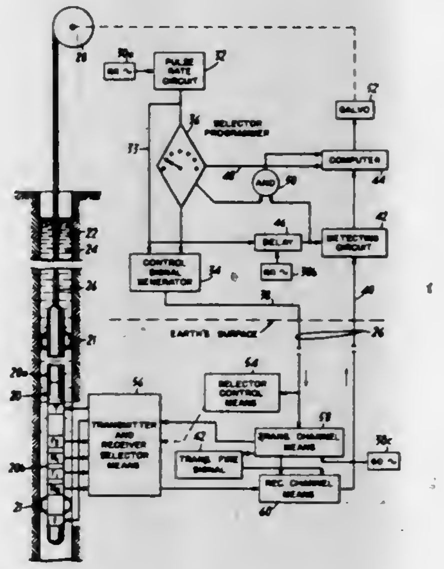
applying said first and second electrical signals to a high-pass filter to cancel the slowly changing mean components and thereby produce third and fourth electrical signals whose variation in amplitude with respect to an average value is greater respectively than the variation in amplitude with respect to an average value of said first and second electrical signals, and

applying said third and fourth electrical signals to a correlator to produce by cross-correlation a correlogram having a maximum identifying the time separation between said operator portion and its counterpart in said first log to indicate the dip of subsurface layering between said first and second boreholes.

3,304,536
ACOUSTIC LOGGING METHODS AND APPARATUS EMPLOYING TWO TRANSMITTERS AND FOUR RECEIVERS

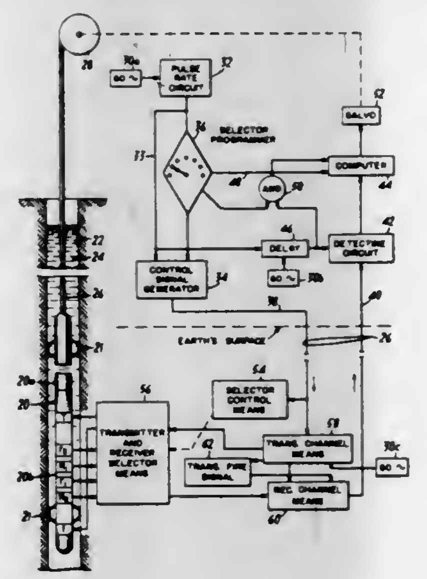
Frank P. Kokesh, Seabrook, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Mar. 31, 1964, Ser. No. 356,185
8 Claims. (Cl. 340—18)

1. A method of making a well log of the travel time of acoustic energy through an increment of predetermined length in earth formations surrounding a well bore whereby errors introduced by the refractive effects of fluid in the bore and variations in cross-sectional area of the bore are substantially eliminated, comprising the steps of at each of a plurality of levels in the well bore making individual travel time measurements from a point above said increment to respective ones of a first pair of points straddling at least a portion of said increment, making individual travel time measurements from a point below said increment to respective ones of a second pair of points straddling at least a portion of said increment said second points being longitudinally displaced from and related to said first points to balance out the effects of variation in hole diameter, each of said individual travel time measurements being over a distance substantially greater than said increment, subtracting the shorter distance measurements from the longer distance measurements of each pair of individual measurements to provide a pair of difference measurements, computing one half of the sum of said pair of difference measurements to obtain the average travel time over said increment and providing an indication thereof, and repeating said procedure at each of said plurality of levels to obtain a log of travel time versus depth in the well bore.



3,304,537
ACOUSTIC LOGGING APPARATUS WITH SELECTABLE TRANSMITTERS AND RECEIVERS

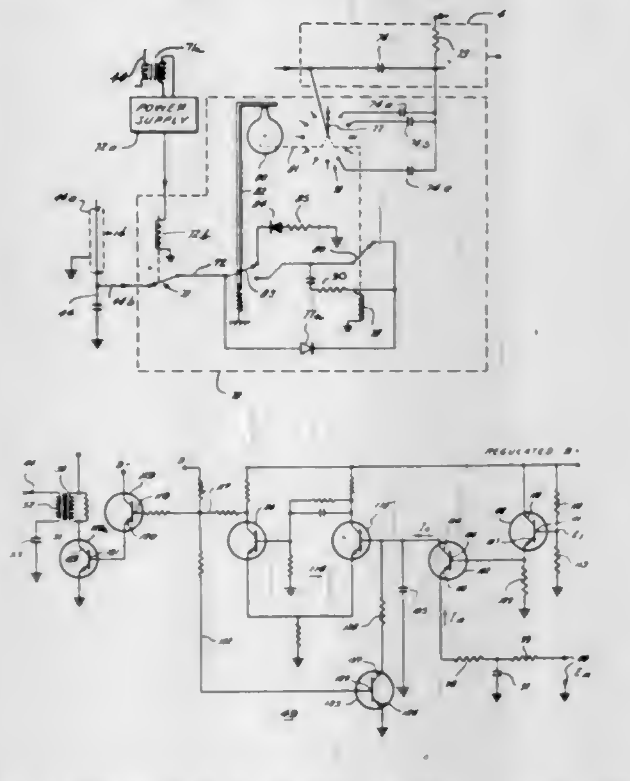
Robert J. Schwartz, Houston, Tex., assignor to Schlumberger Well Surveying Corporation, Houston, Tex., a corporation of Texas
Filed Mar. 31, 1964, Ser. No. 356,186
17 Claims. (Cl. 340—18)



10. In apparatus for acoustic logging of earth formations surrounding a well bore including a logging tool having a plurality of acoustic transmitters and receivers

and suspended in said well bore by conductive cable means extending from the surface of the earth, surface equipment comprising, a master pulse source for generating periodic pulses having a spacing between successive pulses defining a measurement interval, signal generator means for selectively generating during an initial portion of each measurement interval a control signal representative of one of a plurality of possible pairs of transmitters and receivers in said tool, detecting means rendered operative during each measurement interval after generation of said control signal to receive electrical signals from said tool, and means responsive to the output of said detector means for recording signals representative of a characteristic of said formations as a function of depth in the well bore.

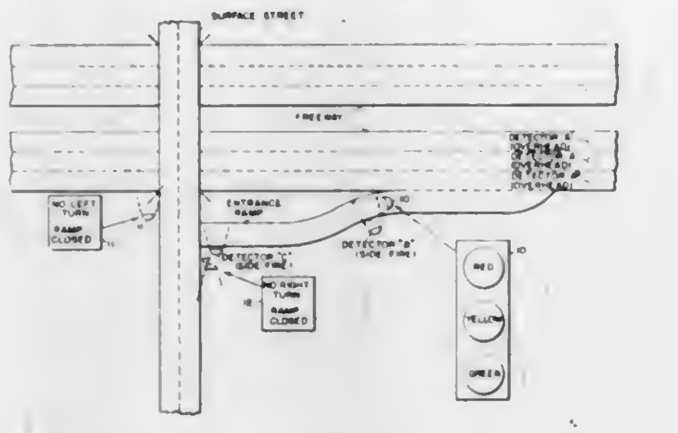
3,304,538
ACOUSTIC WELL LOGGING DOWNHOLE CONTROL SYSTEM
Fred W. Zill, Houston, Tex., assignor to Schlumberger Well Surveying Corporation, Houston, Tex., a corporation of Texas
Original application Aug. 8, 1961, Ser. No. 130,116. Divided and this application Feb. 7, 1966, Ser. No. 525,502
15 Claims. (Cl. 340—18)



1. In a well logging apparatus adapted to be suspended below the earth's surface in a well bore by a cable including a single transmission conductor, a control function circuit operable by signals transmitted from the surface over the conductor, comprising first circuit means responsive to first signals on the conductor for developing first output signals, second circuit means having an input connectable to the conductor and responsive to second signals on such conductor for developing control function signals, and switch means connected between the input of said second circuit means and the conductor, said switch means being responsive to said first output signals to actuate said switch means to selectively decouple the second circuit means from the conductor.

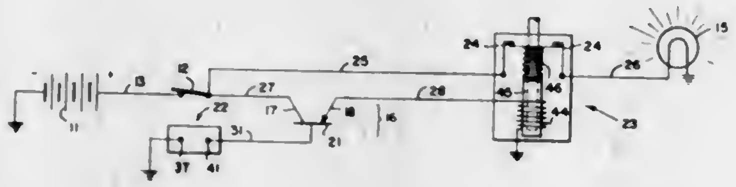
6. An electrical system for converting an analog signal into a digital signal including: circuit means having an input and output and operable to develop a pulse output; current storage means coupled to said input to provide an input trigger signal upon charging up to a predetermined value; selectively operable discharge means coupled to said current storage means and responsive to a pulse output signal from said circuit means to discharge said current storage means.

3,304,539
FREEWAY ACCESS RAMP TRAFFIC CONTROL
John H. Auer, Jr., Fairport, N.Y., assignor to General Signal Corporation, a corporation of New York
Continuation of abandoned application Ser. No. 207,537, July 5, 1962. This application Oct. 15, 1965, Ser. No. 505,103
16 Claims. (Cl. 340—36)



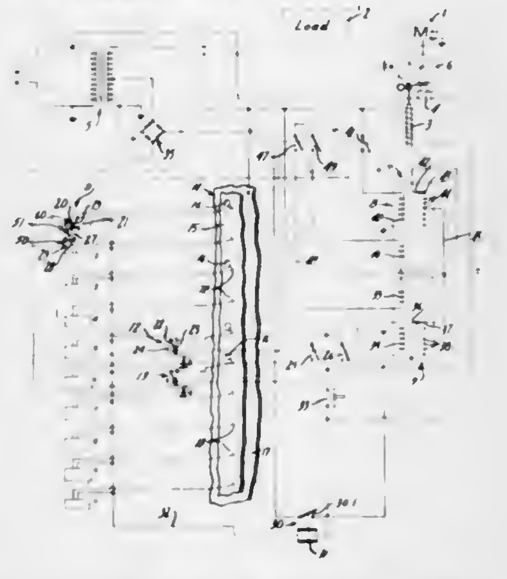
1. In an access control system for a freeway having an entrance ramp and a traffic signal controlling vehicular entry from the ramp onto the freeway, a first vehicle presence detector situated to sense freeway lane occupancy, a second vehicle presence detector situated to sense ramp outlet occupancy, a third vehicle presence detector situated to sense ramp inlet occupancy, and means connecting the detectors to the traffic signal for controlling duration of red signal and green signal in accordance with traffic conditions sensed by the vehicle presence detectors.

3,304,540
VEHICLE DECELERATION CAUTION LIGHT APPARATUS
William J. McAnespey, Philadelphia, Pa., assignor to Triex, Inc., a corporation of Pennsylvania
Filed Feb. 17, 1965, Ser. No. 433,380
4 Claims. (Cl. 340—71)



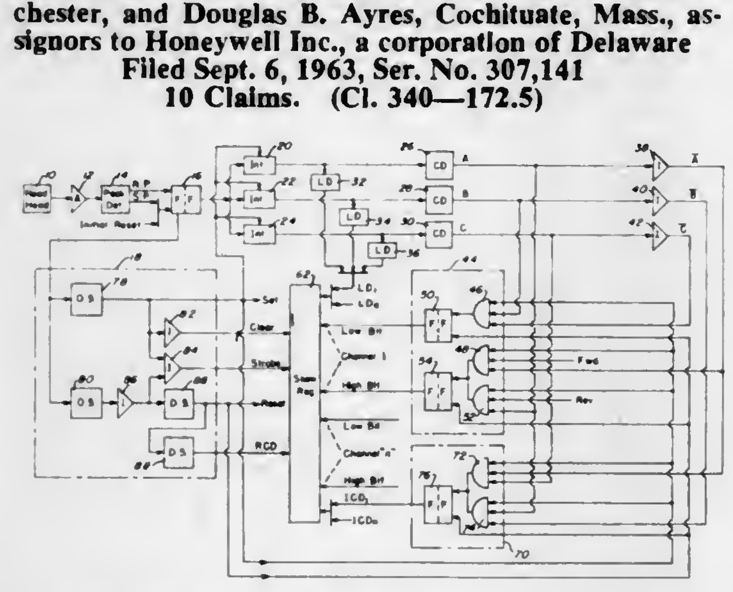
1. Caution light apparatus for use in a vehicle to indicate that the vehicle is decelerating, said vehicle having a battery and an ignition switch connected in electrical circuit and having accelerator pedal means for varying the speed of the vehicle, said apparatus comprising a caution light, a transistor having a collector, emitter and base, actuator means which is adapted to be closed when said accelerator pedal means is depressed to accelerate or maintain vehicle speed and which is adapted to be opened when said accelerator pedal means is released to decelerate vehicle speed, a control switch having contacts which are normally closed when the switch is de-energized whereby the caution light is in on condition, a caution light circuit having the control switch contacts connected in circuit with the caution light, and a control switch circuit including said transistor and a control switch operating means and with said actuator means in circuit with the base so that when the actuator means is closed the transistor is energized to energize the control switch operating means to open the switch contacts and extinguish the caution light, and when the actuator means is opened the transistor is de-energized to de-energize the control switch operating means to close the switch contacts and turn on the caution light, said caution light circuit and said control switch circuit being adapted to be connected in circuit with the battery and ignition switch.

3,304,541
RESET MEANS FOR CODED CONTROL
Walter L. Probert, Erie, and Keith N. Shade, Wesleyville, Pa., assignors to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York
Filed Feb. 28, 1963, Ser. No. 261,809
12 Claims. (Cl. 340—147)



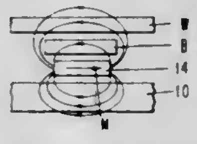
1. A coded control for a load, which comprises
(a) a plurality of input elements having a standby position and an actuated position,
(b) control circuit adapted to be connected to the load and having a comparator means connected to said input elements and to a resettable control means preset for operation of the load by predetermined actuation of said input elements,
(c) circuit switching means to operatively complete said control circuit when said control means is properly preset for operating said load,
(d) separately actuated means to reset said input elements to standby, and
(e) means to reset said control means and coupled to the circuit switching means to prevent operative resetting of the control means subsequent to predetermined actuation of said control means.

3,304,542
SPECIAL CODE TAPE READING SYSTEM
David R. Sutton, Framingham, Richard B. Lawrance, Winchester, and Douglas B. Ayres, Cochituate, Mass., assignors to Honeywell Inc., a corporation of Delaware
Filed Sept. 6, 1963, Ser. No. 307,141
10 Claims. (Cl. 340—172.5)



7. Apparatus for reading out a plurality of channels of a magnetic storage medium, each channel having magnetic indicia serially recorded in adjacent cells, said indicia being respectively representative of one of four possible combinations of a pair of binary digits, each of said magnetic indicia including a first polarity reversal defining the boundary between the present and the preceding cells and a second oppositely directed polarity reversal spaced from said first polarity reversal a distance characteristic of the digit combination represented, comprising for each channel a magnetic read head positioned at a readout station, amplifying and peak detection means coupled to said read head, a first flip-flop circuit connected to said last-recited means to provide a responsive bilevel data signal having transitions corresponding to said polarity reversals, a clock circuit coupled to said first flip-flop circuit adapted to provide timing signals, first, second and third integrating circuits having different rates of rise and fall, means for simultaneously energizing each of said last-recited circuits from said first flip-flop circuit to provide separate integration signals, means for terminating said integration signals with said timing signals, first, second and third crossover detection means respectively coupled to corresponding ones of said integrating circuits and adapted to provide direct and inverted output signals displaying a change of signal levels in response to each detected crossover, decoding means responsive to a first set of said direct and inverted output signals to derive a pair of signals jointly representative of the binary digit pair which corresponds to the magnetic indicia read out for said channel, detection means responsive to a second set of said direct and inverted output signals to derive a signal indicative of the validity of said first set of output signals, means for applying said output signals to said decoding and detection means respectively in synchronism with said timing signals, buffering means connected to receive validity indication signals derived from all of said channels to provide a single responsive signal, a register, and means for separately storing respective signal pairs derived from all of said channels in said register in association with said single signal.

3,304,543
NONDESTRUCTIVE READOUT THIN FILM MEMORY
Helmut P. Louis, Briarcliff Manor, N.Y., and Wolfgang Dietrich, Adliswil, Zurich, Switzerland, assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 18, 1962, Ser. No. 245,473
Claims priority, application Switzerland, Mar. 8, 1962, 2,801/62
11 Claims. (Cl. 340—174)

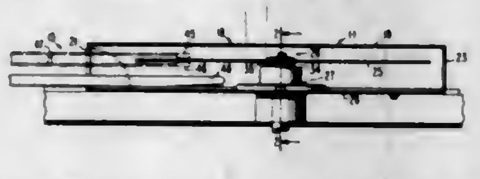


2. A data storage device comprising:
a planer uniaxial anisotropic thin magnetic film element having an anisotropic field strength H*k* and exhibiting an easy axis of remanent flux orientation defining opposite stable states and a hard direction of flux orientation transverse with respect to the easy axis;
a stripline shaped conductor traversing said element and positioned in field coupling relationship thereto;
means for energizing said conductor to apply a field in the plane of said element whose magnitude is greater than H*k* and directed transverse to the easy axis to cause the magnetization thereof to rotate from an original stable state to the hard direction, the arrangement of said conductor and said magnetic film element relative to each other being such that rotation of the film magnetization into the hard direction induces in said conductor eddy currents

which during a predetermined time interval are capable of applying a field along the easy axis of said element tending to orient the magnetization thereof back to its original stable state; and,

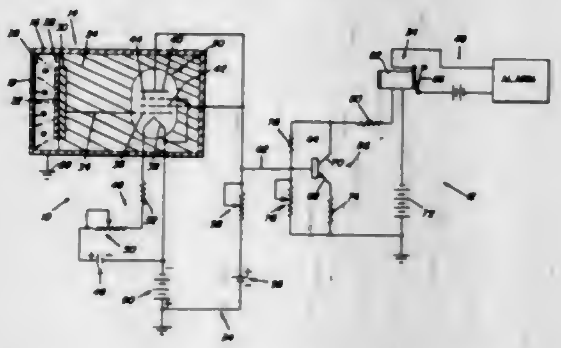
means for terminating the energization of said conductor within said predetermined time interval.

3,304,544
RANDOM ACCESS MAGNETIC MEMORY UNIT HOUSING
Donald D. Johnson, Los Gatos, Vladimir M. Lieskovsky, Palo Alto, and Wilbur E. Tibbetts, San Jose, Calif., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 27, 1962, Ser. No. 247,597
2 Claims. (Cl. 340—174.1)



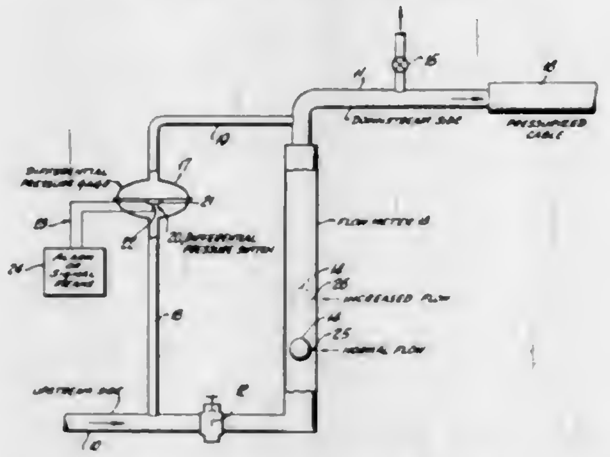
1. For use with a disk drive unit which includes a power driven shaft and a transducer support assembly mounted adjacent to and protruding toward the longitudinal axis of the shaft, a random access memory unit, comprising:
- a protective housing forming a closed structure;
- a magnetic disk assembly rotatably mounted within the housing;
- means on the housing to permit introduction of the transducer support radially of the disk assembly, said means including spring-biased door means mounted on the housing to automatically seal the housing when it is separated from the disk drive unit; and
- means exposed to the exterior of the housing for affecting driving engagement between the disk assembly and the power driven shaft.

3,304,545
COMBUSTION PRODUCTS DETECTOR
Owen K. Bell, 2505 NW. 6th St., and Thomas F. Parkinson, 3930 SW. 5th Place, both of Gainesville, Fla. 32601
Filed Oct. 1, 1962, Ser. No. 227,180
4 Claims. (Cl. 340—237)



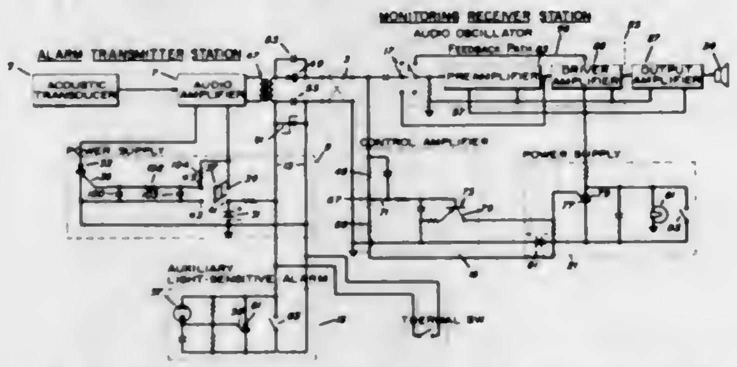
3. A detector unit for detecting the presence of particles in the air comprising, a single ionization chamber adapted to receive the air with said particles therein, a plate exposed to said chamber, means grounding the chamber to establish a potential on said plate in response to ionization of the air in said chamber, an electrometer tube having a cathode, an anode and a grid, means connecting said grid only to the plate in a floating grid circuit, an alpha emitter deposited on said plate in the chamber for ionizing the air therein, means for establishing a controlled electron flow between the cathode and the anode to balance the ion flow in said chamber produced by said ionization of the air therein by the alpha emitter, and means connected directly to the anode for producing an alarm in response to reduction in the ion flow in the chamber.

3,304,546
LEAK DETECTOR FOR PRESSURIZED CABLE
Joseph F. Kern, Massapequa, and Walter A. Siebein, Smithtown, N.Y., assignors to Puregas Equipment Corp., Copiague, N.Y.
Filed Nov. 16, 1964, Ser. No. 411,374
8 Claims. (Cl. 340—242)



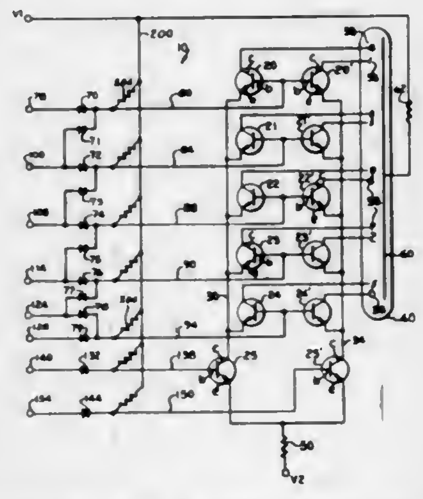
1. In a fluid flow system having an orifice coupled between the upstream and downstream sides of the system, a leak detecting apparatus comprising a differential pressure gage coupled across the upstream and downstream sides of said orifice, leak-simulating bleed-off means on the downstream side for adjustably indexing said differential pressure gage to sense a differential pressure corresponding to an undesirable leak on said downstream side, and signal means actuated by said differential pressure gage for indicating when an undesirable leak rate is sensed by said indexed differential pressure gage.

3,304,547
ALARM SYSTEM
Benedict Bristol III, P.O. Box 753, Morganton, N.C. 10710
Filed Dec. 30, 1964, Ser. No. 422,123
17 Claims. (Cl. 340—261)



1. An alarm system comprising in combination first and second stations and an electrical transmission line coupled therebetween, said first station including acoustic transducer means for producing an A.C. electrical signal output in response to acoustic vibrations, amplifier means coupled to said acoustic transducer and to one end of said transmission line, said amplifier means being responsive to an A.C. signal output from said transducer for supplying said A.C. electrical signal output to said line, and a first D.C. power supply means coupled to said first amplifier means for energizing said amplifier and to said one end of said transmission line for placing a first level of D.C. voltage signal upon said line, said second station including energizable audio reproducing means for producing an audible output from said A.C. electrical signal output as received over said line, second D.C. power supply means having a D.C. voltage level, switching means for connecting said second D.C. power supply means with said energizable audio reproducing means, and comparison means coupled between the other end of said transmission line and said second D.C. power supply means for producing an output in response to variation in the comparative level of signals received by said comparison means from said transmission line and said D.C. voltage level of said second D.C. power supply means respectively, said switching means being coupled to said comparison means for operation of said switching means to connect said second power supply means with said energizable audio reproducing means in response to a predetermined output from said comparison means.

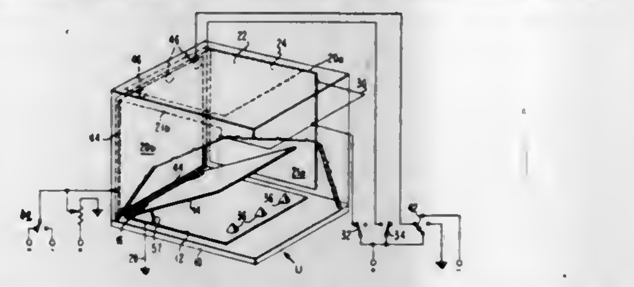
3,304,548
ELECTRONIC DECODER CIRCUITS
James J. Klinikowski, Somerville, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Mar. 23, 1964, Ser. No. 353,846
4 Claims. (Cl. 340—347)



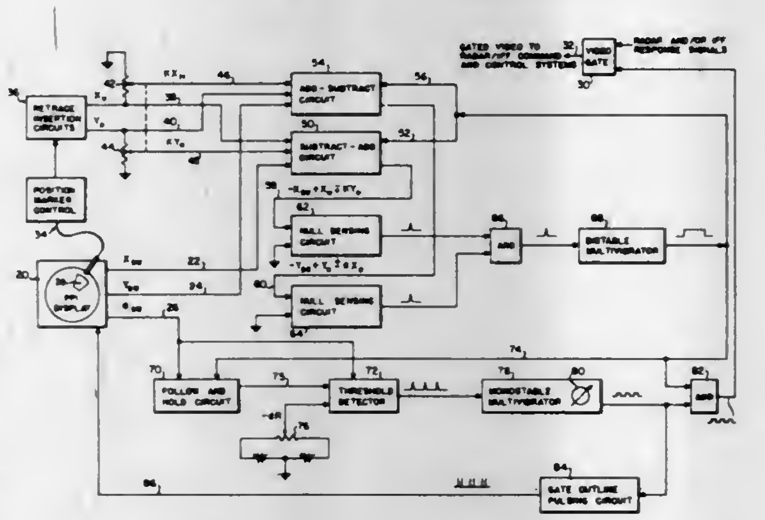
4. A circuit for use in decoding biquinary code signals comprising
- five pairs of decimal-representing transistors,
- two auxiliary control transistors, each coupled to and controlling the operation of one transistor of each pair of transistors,
- a diode matrix,
- eight input lines to said diode matrix,
- seven output lines from said diode matrix,
- said diode matrix including two single diodes in two of said output lines and a two-diode AND gate in five of said output lines,
- said input lines being adapted to receive different combinations of signal bits in one code and providing current flow on one output line from the diode matrix to one of said pairs of transistors and to one of said auxiliary transistors whereby one transistor of one of said pairs of transistors is turned on and provides an output signal having a meaning in decimal code.

3,304,549
COMPOSITE SIGNALLING DEVICE
William R. Aiken, Los Altos Hills, Calif., assignor to Electronix Ten, Inc., San Francisco, Calif., a corporation of California
Filed June 1, 1964, Ser. No. 371,637
11 Claims. (Cl. 340—373)

1. A display apparatus employing physically movable components comprising an array of individual signalling units arranged to form a set of superposed horizontal rows of juxtaposed units and a set of juxtaposed vertical rows of superposed units, each unit having a vane mounted for movement from a concealed position to an exposed position, and means for moving the vanes of each of said units individually from said concealed to said exposed position including first and second electrodes located adjacent the path of movement of said vanes in each of said units; individual means for each of the rows in one of said sets for applying a vane-moving potential to the first electrodes of all the units comprised in the row and individual means for each of the rows in the other one of said sets for applying a vane-moving potential to the second electrodes of all the units comprised in the row.



3,304,550
VIDEO GATE
Frederick R. Fluhr, Oxon Hill, and George L. Hall, Camp Springs, Md., and Donald J. McLaughlin, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Navy
Filed Sept. 1, 1966, Ser. No. 577,119
9 Claims. (Cl. 343—11)



1. In a PPI display system which produces range, horizontal and vertical sweep signals R_{sw}, X_{sw} and Y_{sw} and D.C. marker signals X_H and Y_H, which represent the co-ordinates of a selected position of the display, a circuit for producing a polar gate which is substantially of constant angular width and substantially of constant range depth comprising:
- signal producing means connected to receive said horizontal and vertical sweep signals X_{sw} and Y_{sw} and said D.C. marker signals X_H and Y_H and having two controllable conditions; said signal producing means producing signals equal to $-X_{sw}+X_H-KY_H$ and $-Y_{sw}+Y_H+KX_H$ in one of said two conditions and producing signals equal to $-X_{sw}+X_H+KY_H$ and $-Y_{sw}+Y_H-KX_H$ in the other of said two conditions, where K is less than one;
- comparing means connected to receive and to compare the signals produced by said signal producing means with a reference signal and to produce a signal when the signals produced by said signal producing means equal said reference signal;
- a square wave pulse producing circuit connected to be energized and to receive said range sweep signal R_{sw} for repetitively producing, when energized, a square wave pulse each time said range sweep signal R_{sw} equals a value less by an increment dR than said range sweep signal was at the time said square wave pulse producing circuit was energized; and

a bistable multivibrator having an input connected to said comparing means, said bistable multivibrator changing state in response to each of said signals produced by said comparing means, the output of said bistable multivibrator being connected to control the condition of said signal producing means and to energize said square wave pulse producing means;

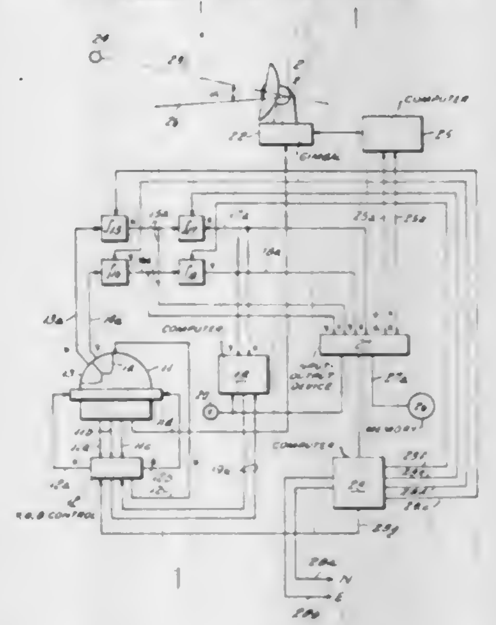
whereby the square wave pulses produced by said square wave pulse producing means define a polar gate in said PPI display system.

3,304,551
AUTOMATIC LATITUDE AND LONGITUDE CALCULATING SYSTEM

Kikuo Oki and Mamoru Yamaguchi, Minato-ku, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed Jan. 20, 1964, Ser. No. 339,034

7 Claims. (Cl. 343—112)



2. An automatic latitude and longitude calculating system for use on a vessel, or the like, moving near the surface of the earth and within the range of a body in space emitting electromagnetic waves wherein the position of the body relative to the earth can be determined, comprising:

passive radar means for automatically tracking the source of the electromagnetic waves;

first means for determining the velocity of said vessel at any moment t;

computer means responsive to said radar means for calculating the position of said vessel during periodic time intervals;

means for storing said position data;

said computer comprising second means for calculating the velocity of said vessel from the position data generated during said periodic time intervals; and third means for comparing the velocity data generated by said computer means and said first means; fourth means responsive to said third means for adjusting said first means to obtain a null condition between the velocities generated by said first means and said computer means to automatically correct said system.

3,304,552
DEVICE FOR CONVERTING CHANGING COORDINATE INPUTS INTO RESULTANT MOTION

Roy B. Perschy, Gardena, Calif., assignor to Ling-Temco-Vought, Inc., Dallas, Tex., a corporation of Delaware

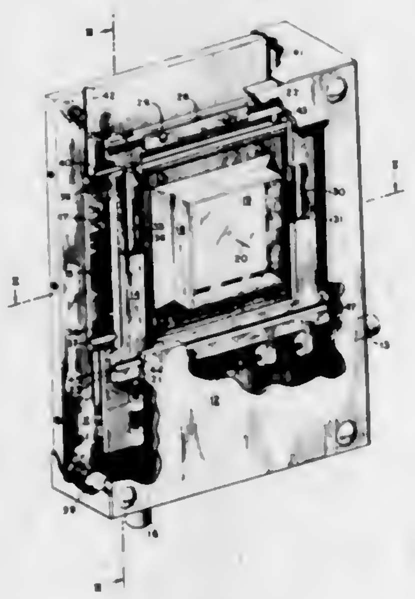
Filed Nov. 10, 1964, Ser. No. 410,165

8 Claims. (Cl. 346—29)

1. In a coordinate plotting device, a first stationary mounting member, a first carrier frame, a follower frame, a second carrier frame, and a second stationary mounting member arranged successively in adjacent superimposed planes,

said first carrier frame being mounted for horizontal movement relative to said mounting members, first controllable motive means operable in response to application thereto of coordinate data input to move said first carrier frame horizontally over a limited distance relative to said mounting frame,

said second carrier frame being mounted for vertical movement relative to said mounting members, second controllable motive means operable in response to application thereto of coordinate data input to move said second carrier frame vertically over a limited distance relative to said mounting frames,



said mounting frames being mounted precisely for linear motion in their respective directions that are mutually perpendicular without noticeable movement in any other direction, said follower frame being mounted for precise free vertical movement only relative to said first carrier frame and for precise free horizontal movement only relative to said second carrier frame, whereby said follower frame is moved accurately in a path that is the resultant of the motion of said carrier frames,

said follower frame having a transparent window with a stylus attached perpendicularly thereto to provide passage of a projection beam through said window, and said mounting members and said carrier frames being constructed about said window so as to permit unobstructed passage of light through the window for any position of said carrier frames as required for projection.

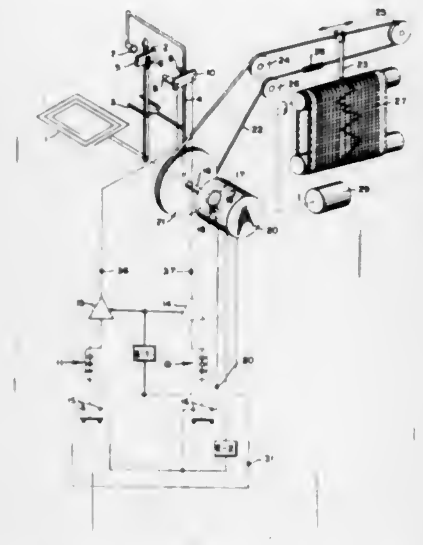
3,304,553
GALVANOMETER CONTROLLED RECORDER

Adolph Phillips, New York, N.Y.

Filed Mar. 22, 1965, Ser. No. 441,725

6 Claims. (Cl. 346—31)

1. A recording instrument for graphically recording the magnitude of an electrical signal upon a recording medium comprising: a meter responsive to the magnitude of said electrical signal, said meter including a member, movable in dependence upon said magnitude; a bracket; first and second sensing means attached to said bracket responsive to the movement of said member, said first and second sensing means comprising first and second photosensitive cells and a light source spaced from said first and second photo-sensitive cells, a shutter connected to said member and positioned between said ilght source and said first and second photosensitive cells and positioned in coplanar relation in alignment therewith in a manner whereby said light source energizes one of said first and second photosensitive cells when said shutter is moved out of alignment with one of said first and second photosensitive cells; first and second circuit closing means activated by said sensing means, depending upon the direction of the movement of said member; a reversible motor, the direction of the motion of which is dependent upon which of said circuit closing means is activated; means for causing rotation of said motor responsive to said first and second circuit closing means; a recording pen operatively connected to said motor and in operative contact with said recording medium; gearing means operatively connecting said motor to said bracket whereby said first and second sensing means attached to said bracket are moved into direct alignment with the shutter connected to said member, thereby removing the activation of said circuit closing means which in turn removes said rotation causing means from said motor preventing further motion of said motor.

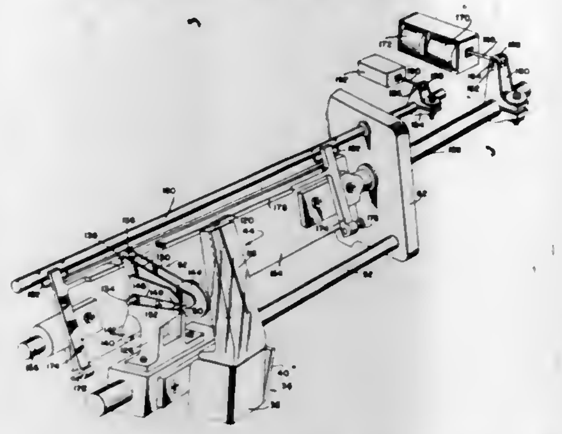


3,304,554
MARKING DEVICE FOR SOUND TRANSLATING APPARATUS

Charles W. Helm, Rocky Hill, Conn., assignor to The Gray Manufacturing Company, a corporation of Connecticut

Filed Feb. 8, 1965, Ser. No. 430,956

17 Claims. (Cl. 346—62)



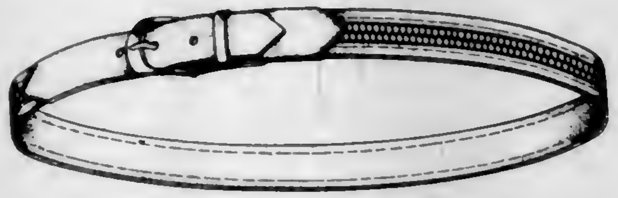
1. Sound translating apparatus comprising relatively movable frame and carriage members, a support mounted on one of said members to receive a pressure sensitive index element, anvil and marking means disposed on opposite sides respectively of said support, said anvil means including an anvil having a width of the order of a fine line, said anvil extending outwardly beyond said members and support and constantly exposed to the view of an observer, means for advancing said marking means towards said support to apply pressure to an adjacent surface of an index element carried by said support against said anvil and produce a mark of the order of width of said anvil on a remote surface of said element, and means mounted on said one member for energizing said advancing means whereby a mark so produced on said element is obscured from an observer only while in registry with said anvil.

DESIGNS

FEBRUARY 14, 1967

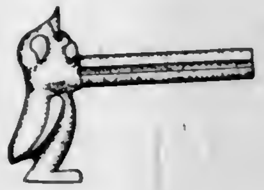
206,930
BELT

Zallo Loston, 113 S. Arnaz Drive,
Beverly Hills, Calif. 90211
Filed Feb. 23, 1966, Ser. No. 1,154
Term of patent 14 years
(Cl. D3—10)



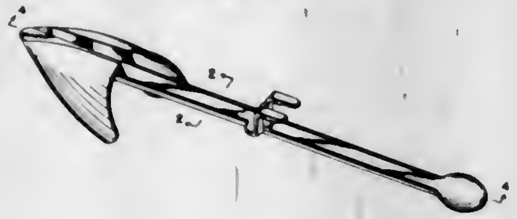
206,931
COLLAPSIBLE TUBE DISPENSER

Gust M. Axiotis, South San Francisco, Calif.
(319 SW. 11th St., Miami, Fla. 33129)
Filed Apr. 11, 1966, Ser. No. 1,831
Term of patent 14 years
(Cl. D4—3)



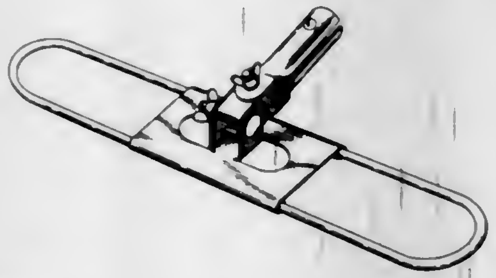
206,932
SHOE TREE

John Bellock, 71 Essex Drive, Tenafly, N.J. 07670
Filed Feb. 14, 1966, Ser. No. 1,040
Term of patent 14 years
(Cl. D7—3)



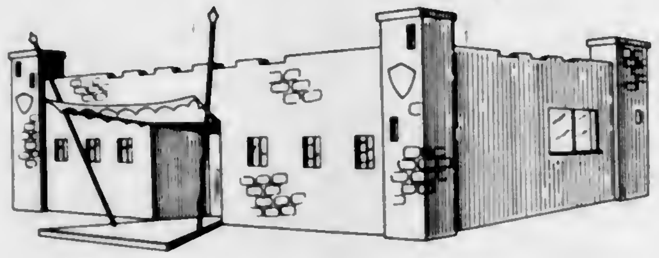
206,933
COMBINED MOP HEAD AND MOP HOLDER

Francis O. Gibbs, 1812 Sullivan St.,
Greensboro, N.C. 27405
Filed Oct. 12, 1965, Ser. No. 87,445
Term of patent 3½ years
(Cl. D9—2)



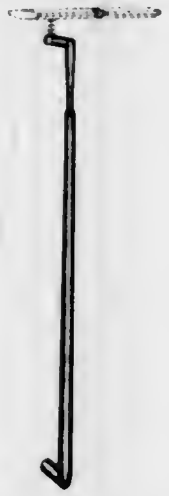
206,934
BUILDING

Jon Hedu, Woodbury, Conn., assignor to Nutmegger Packing Company, Incorporated, Waterbury, Conn., a corporation of Connecticut
Filed Jan. 20, 1966, Ser. No. 690
Term of patent 14 years
(Cl. D13—1)



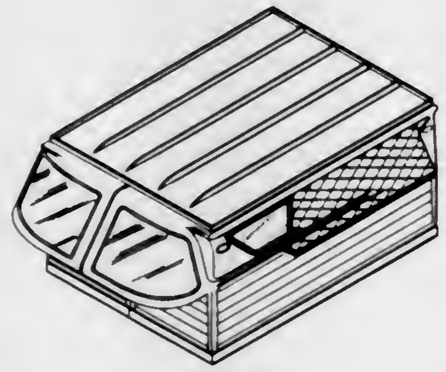
206,935
COMBINED HANDRAILING AND RAILING POST

Louis Blum and William J. Horgan, Jr., both of Pittsburgh, Pa., assignors to Blumcraft of Pittsburgh, Pittsburgh, Pa., a firm
Filed July 28, 1965, Ser. No. 86,324
Term of patent 14 years
(Cl. D13—7)



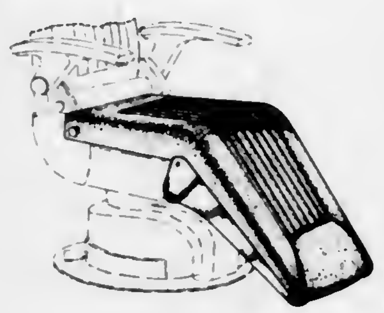
206,936
DEMOUNTABLE CAMPER

Robert D. Matz, 316 N. Walnut, Mishawaka, Ind. 46544
Filed Sept. 27, 1965, Ser. No. 87,164
Term of patent 3½ years
(Cl. D14—3)



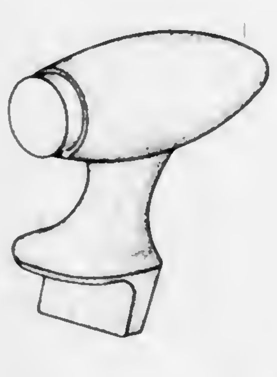
206,937
SEAT AND LEG REST FOR DENTAL CHAIR OR SIMILAR ARTICLE

John M. Gardella and Rudolph Vetere, Staten Island, N.Y., assignors to The S. S. White Dental Manufacturing Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed July 27, 1965, Ser. No. 86,307
Term of patent 14 years
(Cl. D15—3)



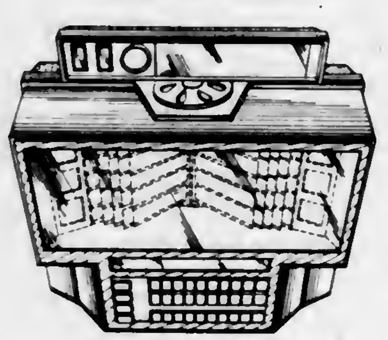
206,938
HEADREST

Robert A. Bobchik, 521 N. Minerva,
Royal Oak, Mich. 48067
Filed June 17, 1965, Ser. No. 85,776
Term of patent 14 years
(Cl. D15—8)



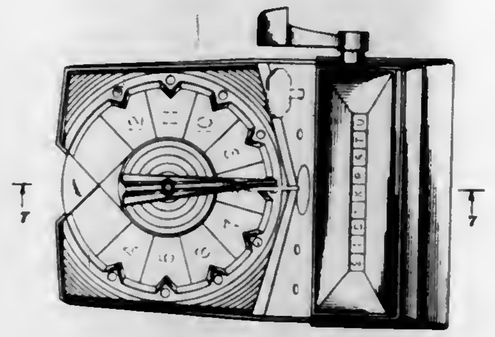
206,939
REMOTE CONTROL UNIT FOR AN AUTOMATIC PHONOGRAPH

Melvin H. Boldt, Glenview, Ill., assignor to Canteen Corporation, Chicago, Ill., a corporation of Delaware
Filed Sept. 30, 1965, Ser. No. 87,239
Term of patent 14 years
(Cl. D26—13)



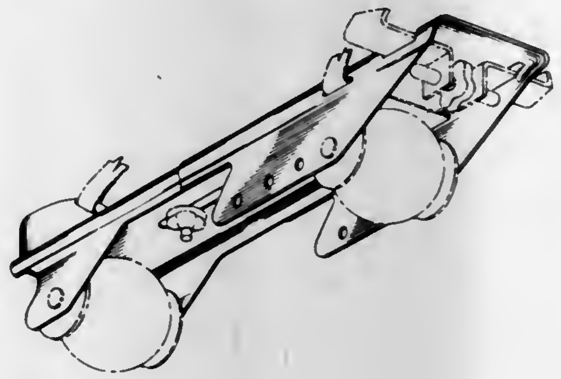
206,940
DEVICE FOR PLAYING A WORD GAME

Felix Gilbert, New York, N.Y., assignor to De Luxe Reading Corporation, a corporation of New Jersey
Filed Mar. 1, 1966, Ser. No. 1,226
Term of patent 7 years
(Cl. D34—5)



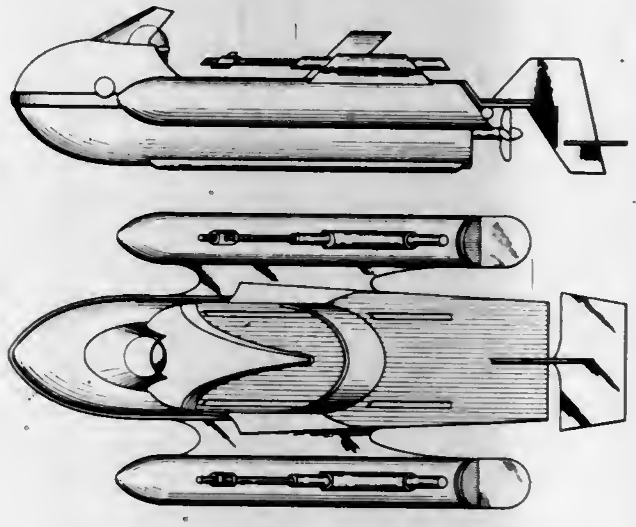
206,941
SKATE

George D. Carter, 5628 E. Lancaster, Apt. 29,
Fort Worth, Tex. 76112
Filed Oct. 22, 1965, Ser. No. 87,740
Term of patent 14 years
(Cl. D34—14)



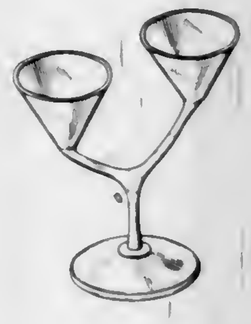
206,942
TOY SUBMERSIBLE BOAT

Samuel F. Speers, North Attleboro, Mass., and David O. Pressler, Providence, R.I., assignors to Hassenfeld Bros., Inc., Pawtucket, R.I., a corporation of Rhode Island
Filed Mar. 2, 1966, Ser. No. 1,238
Term of patent 14 years
(Cl. D34—15)



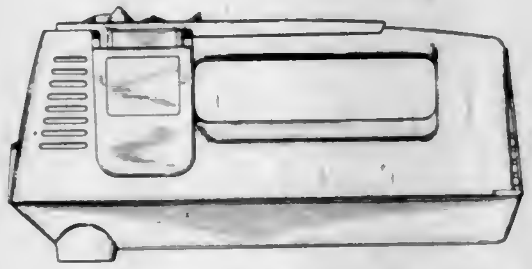
206,943
DOUBLE MARTINI GLASS

Jack Kinney, Los Angeles, Calif., assignor to Bill Dana Productions Ltd., Hollywood, Calif., a corporation of California
Filed Dec. 13, 1965, Ser. No. 159
Term of patent 14 years
(Cl. D36—8)



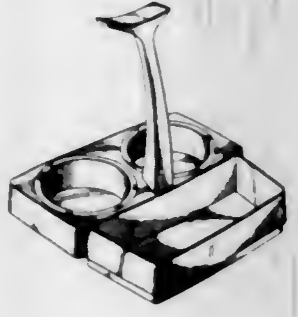
206,944
COMBINED FOOD MIXER AND CAN OPENER OR THE LIKE

Douglas N. Cabell, Bloomfield Hills, Mich., assignor to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey
Filed Feb. 28, 1966, Ser. No. 1,217
Term of patent 14 years
(Cl. D44—1)



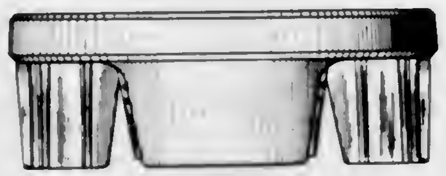
206,945
CONDIMENT CADDY

Thomas K. Hale, Glendale, Calif., assignor to Dispensers, Inc., Santa Barbara, Calif., a corporation of California
Filed Feb. 14, 1966, Ser. No. 1,038
Term of patent 14 years
(Cl. D44—7)



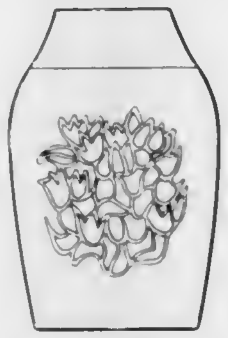
206,946
CANDLE WARMER OR THE LIKE

Ruediger W. Knodt, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 5, 1966, Ser. No. 2,171
Term of patent 14 years
(Cl. D44—10)



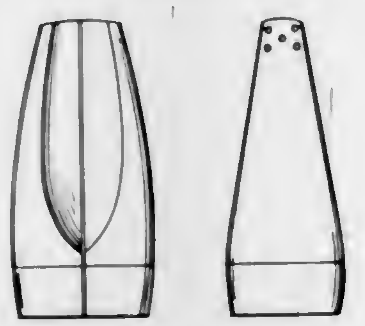
206,947
DISPENSER FOR POWDERED MATERIAL

Jay Doblin, Chicago, Ill., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
Filed Dec. 16, 1965, Ser. No. 213
Term of patent 14 years
(Cl. D44—22)



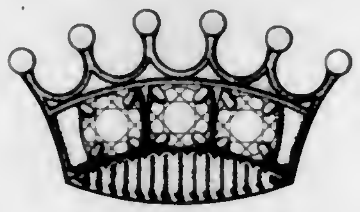
206,948
COMBINED SALT AND PEPPER SHAKER

Arthur A. Nudell, 6467 Avondale Ave., Chicago, Ill. 60631
Filed Oct. 1, 1965, Ser. No. 87,265
Term of patent 3½ years
(Cl. D44—22)



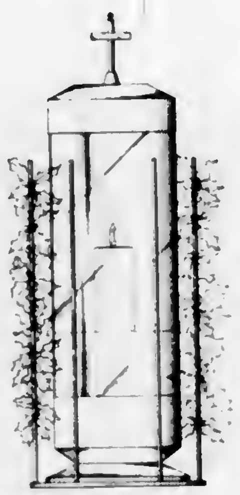
206,949
NECKTIE PIN

Douglas E. Kirchner, Minneapolis, Minn., assignor to Kirchner's Kaynar Diamond Co., Minneapolis, Minn.
Filed Mar. 1, 1966, Ser. No. 1,223
Term of patent 14 years
(Cl. D45—19)



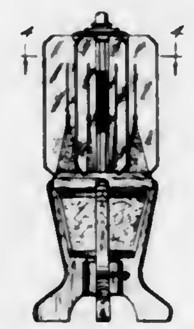
206,950
ELECTRIC MEMORIAL LAMP

Alfonso A. Colletti, 95 Beckman Ave., North Tarrytown, N.Y. 10591
Filed Dec. 8, 1965, Ser. No. 122
Term of patent 14 years
(Cl. D48—20)



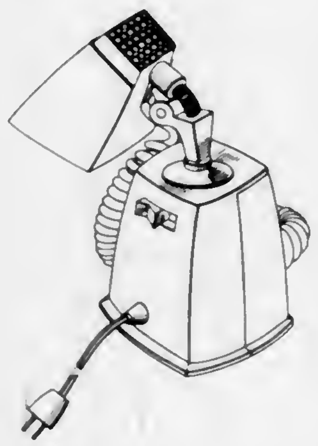
206,951
DESK LAMP

Karl Mayer, Montreal, Quebec, and Laszlo Velekei, Ville de Jacques Cartier, Quebec, Canada, assignors to Nouvelle Lampe (Quebec) Inc., Ville de Jacques Cartier, Quebec, Canada
Filed May 5, 1966, Ser. No. 2,187
Term of patent 14 years
(Cl. D48—20)



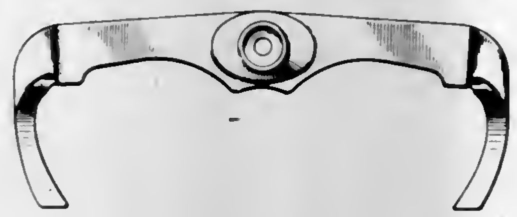
206,952
HIGH TENSITY LAMP

Milton Fletcher, 85 New York Ave., Congers, N.Y. 19020
Filed June 27, 1966, Ser. No. 2,824
Term of patent 14 years
(Cl. D48—20)



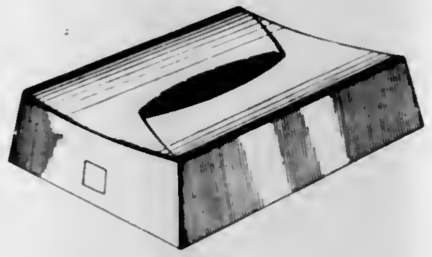
206,953
FLASHLIGHT HOLDER

Joe L. Beecher, Jr., 147 Broadway, and Arthur C. Haggstrom, 709 Camlin, both of Rockford, Ill. 61108
Filed Oct. 20, 1965, Ser. No. 87,647
Term of patent 14 years
(Cl. D48—20)



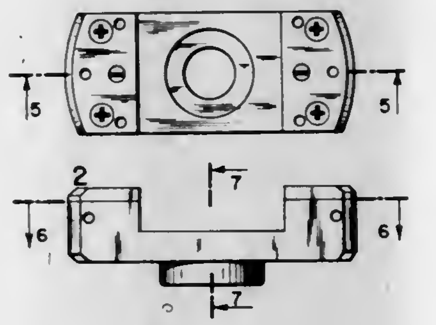
206,954
TISSUE DISPENSER

William Stark, Oshkosh, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Dec. 10, 1965, Ser. No. 797
Term of patent 14 years
(Cl. D52—2)



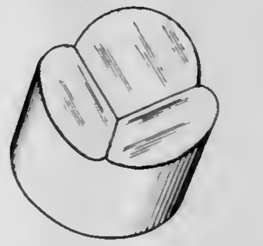
206,955
TOOL HOLDER

Herman Abrams, 51 Grace Ave., Lynbrook, N.Y. 11563
Filed Aug. 25, 1965, Ser. No. 86,708
Term of patent 3½ years
(Cl. D54—6)



206,956
HOLLOW CORNER PRISM

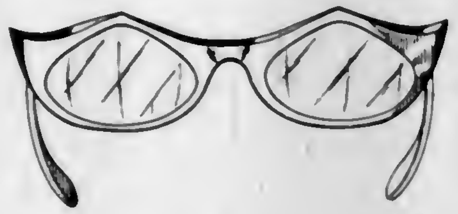
Donald E. Stewart, 1729 8th, Arcadia, Calif. 91006
Original design application Nov. 6, 1964, Ser. No. 82,505, now Patent No. 204,319, dated Apr. 5, 1966. Divided and this application Oct. 24, 1965, Ser. No. 359
Term of patent 3½ years
(Cl. D57—1)



206,957
PAIR OF SPECTACLES

Robert H. Ramp, Pittsford, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

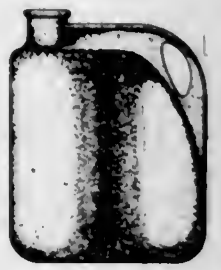
Filed Apr. 29, 1966, Ser. No. 2,067
Term of patent 14 years
(Cl. D57—1)



206,958
JUG

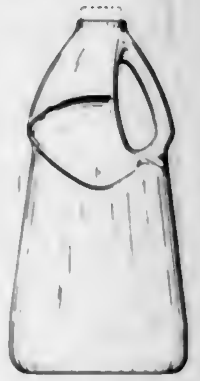
Victor F. Anderson, Wenonah, N.J., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Apr. 1, 1966, Ser. No. 1,738
Term of patent 14 years
(Cl. D58—5)



206,959
JUG

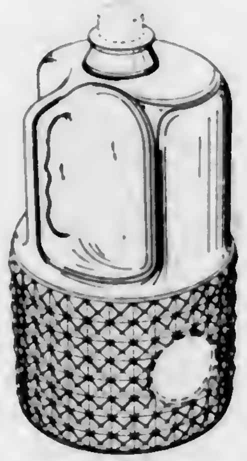
James A. Shepler, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed May 23, 1966, Ser. No. 2,378
Term of patent 14 years
(Cl. D58—5)



206,960
JUG

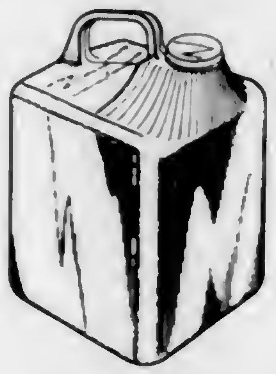
Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio

Filed May 23, 1966, Ser. No. 2,394
Term of patent 14 years
(Cl. D58—5)



206,961
PLASTIC JUG

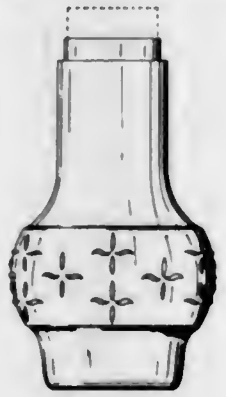
Norman A. Kelly, Wayne Township, Kosciusko County, Ind., assignor to Crystal Preforming and Packaging, Inc., Warsaw, Ind., a corporation of Indiana
Filed Apr. 12, 1965, Ser. No. 84,738
Term of patent 14 years
The portion of the term of the patent subsequent to Oct. 5, 1979, has been disclaimed
(Cl. D58—5)



206,962
BOTTLE

Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio

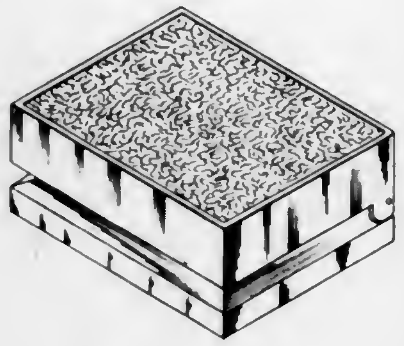
Filed May 23, 1966, Ser. No. 2,395
Term of patent 14 years
(Cl. D58—8)



206,963
JEWELRY BOX

Philip Beck, New York, N.Y., assignor to Bulova Watch Company, Inc., Flushing, N.Y., a corporation of New York

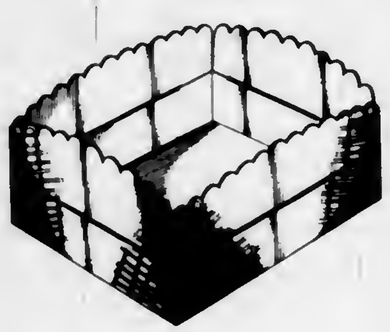
Filed Feb. 17, 1966, Ser. No. 1,099
Term of patent 7 Years
(Cl. D58—12.6)



206,964
COMBINED PACKAGING BOX AND SERVING TRAY

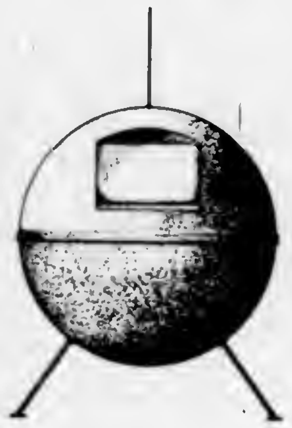
Richard M. Watts, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed July 16, 1965, Ser. No. 86,189
Term of patent 14 years
(Cl. D58—12.6)



206,965
COLLECTION RECEPTACLE FOR DONATED ARTICLES

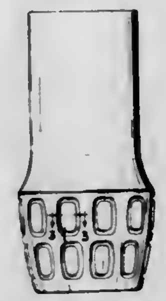
Joseph Ashby Coffman, 16789 Drury Drive, Whittier, Calif. 90603
Filed Mar. 6, 1964, Ser. No. 78,897
Term of patent 3½ years
(Cl. D58—17)



206,966
JAR

Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio

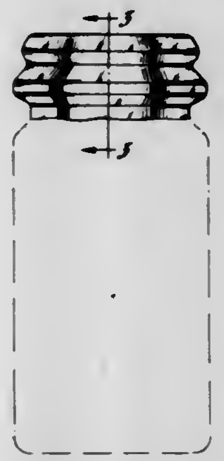
Filed May 23, 1966, Ser. No. 2,393
Term of patent 14 years
(Cl. D58—25)



206,967
JAR

John Dennis Dodge, Arlington Heights, Ill., assignor to American Can Company, New York, N.Y., a corporation of New Jersey

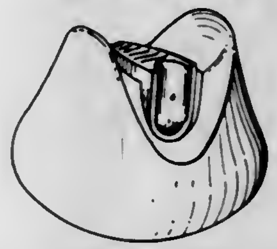
Filed July 15, 1965, Ser. No. 86,161
Term of patent 14 years
(Cl. D58—25)



206,968
DISPENSER CAP FOR A PRESSURIZED CAN

Joseph Charles Pizzurro, Scarsdale, N.Y., assignor to Precision Valve Corporation, Yonkers, N.Y., a corporation of New York

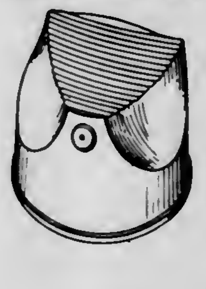
Filed Dec. 16, 1965, Ser. No. 202
Term of patent 14 years
(Cl. D58—26)



206,969
DISPENSER TOP FOR A PRESSURIZED CAN

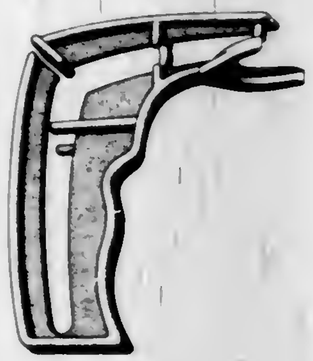
Robert Podall, Chicago, Ill., assignor to Aerosol Research Company, a Division of Valve Corporation of America, a corporation of Delaware

Filed Mar. 28, 1966, Ser. No. 1,661
Term of patent 14 years
(Cl. D58—26)



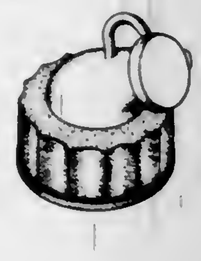
206,970
SPRAY CAN HANDLE

Thomas C. Matthews, Hialeah, Fla., assignor to Sun Engineering Co., a corporation of Florida
Filed Oct. 19, 1965, Ser. No. 87,601
Term of patent 14 years
(Cl. D58—26)



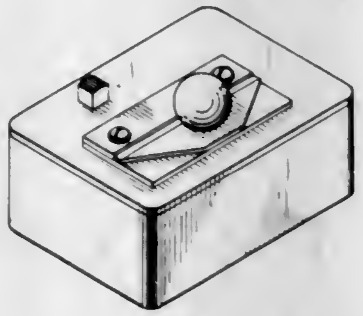
206,971
COMBINED CAP, POURING SPOUT AND CAPTIVE CLOSURE FOR A BOTTLE OR THE LIKE

William D. Williams, Toledo, Ohio, assignor to Lehn & Fink Products Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 30, 1965, Ser. No. 88,262
Term of patent 14 years
(Cl. D58—26)



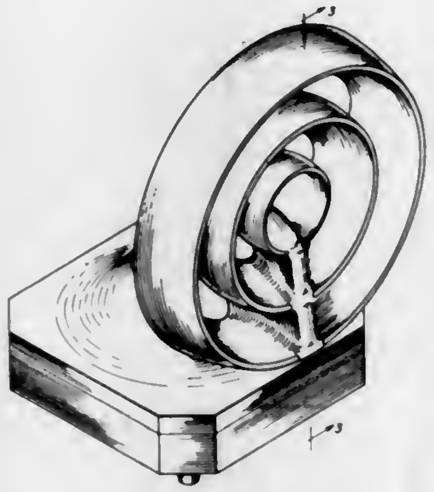
206,972
PHOTOGRAPHIC BORDER PRINTER OR THE LIKE

Charles Scott, 2144–A W. Juno Ave., Anaheim, Calif. 92804
Filed Nov. 9, 1964, Ser. No. 82,520
Term of patent 3½ years
(Cl. D61—1)



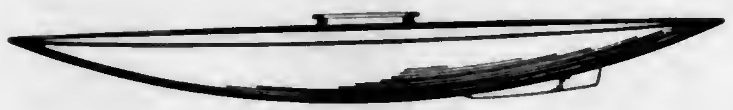
206,973
AIR CIRCULATOR OR SIMILAR ARTICLE

Salvatore De Lisio, South Boston, Mass.
(P.O. Box 67, N. Postal Annex, Boston, Mass. 02101)
Filed Nov. 15, 1965, Ser. No. 88,085
Term of patent 14 years
(Cl. D62—4)



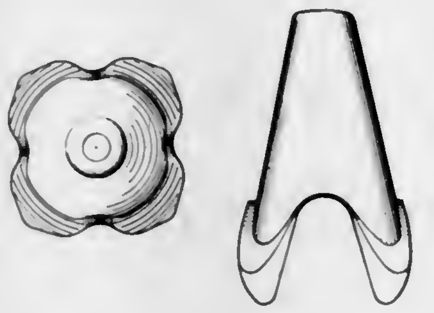
206,974
BOAT HULL

Charles W. Sherburne, 3409 S. Patton Ave., San Pedro, Calif. 90731
Filed Dec. 20, 1965, Ser. No. 249
Term of patent 14 years
(Cl. D71—1)



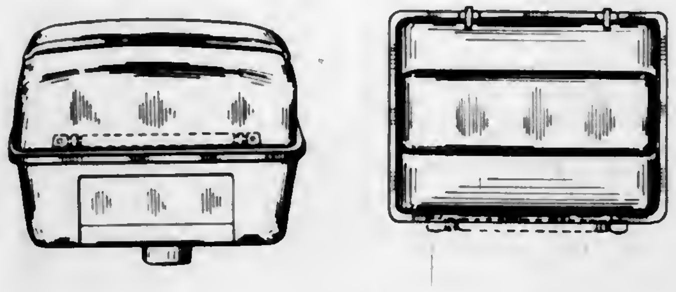
206,975
TRAFFIC CONE

Robert E. Dawson, Huntingdon Valley, Pa., assignor to R. E. Dietz Company, Syracuse, N.Y., a corporation of New York
Filed Jan. 6, 1966, Ser. No. 491
Term of patent 14 years
(Cl. D72—1)



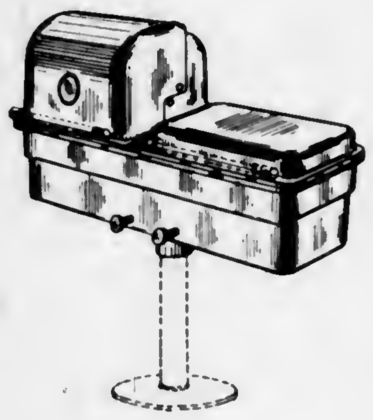
206,976
BARBECUE

Walter Koziol, Russell, Ill., assignor to Charmglow Products, Inc., Antioch, Ill., a corporation of Illinois
Filed Oct. 21, 1965, Ser. No. 87,668
Term of patent 14 years
(Cl. D81—10)



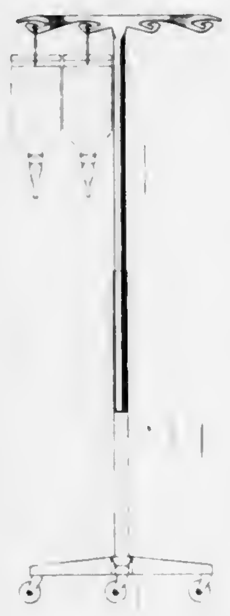
206,977
COMBINED BARBECUE AND ROTISSERIE

Walter Koziol, Russell, Ill., assignor to Charmglow Products, Inc., Antioch, Ill., a corporation of Illinois
Filed Oct. 21, 1965, Ser. No. 87,670
Term of patent 14 years
(Cl. D81—10)



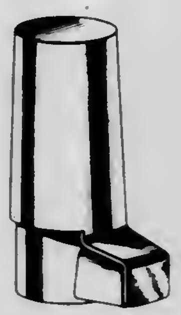
206,978
STAND FOR HOLDING INTRAVENOUS FLUID CONTAINERS

Dennis Arblaster, 34081 La Serena, Dana Point, Calif. 92629
Filed Feb. 2, 1966, Ser. No. 961
Term of patent 14 years
(Cl. D83—1)



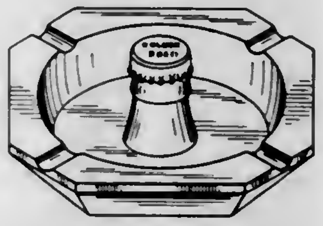
206,979
INHALATOR

Martin A. Jaffe, Yonkers, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
Filed May 5, 1966, Ser. No. 2,177
Term of patent 14 years
(Cl. D83—1)



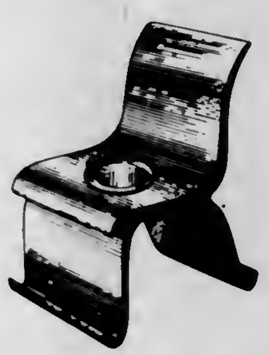
206,980
ASH TRAY

Edward B. Herman, Rte. 4, Box 239, Excelsior, Minn. 55331
Filed Feb. 4, 1966, Ser. No. 915
Term of patent 14 years
(Cl. D85—2)

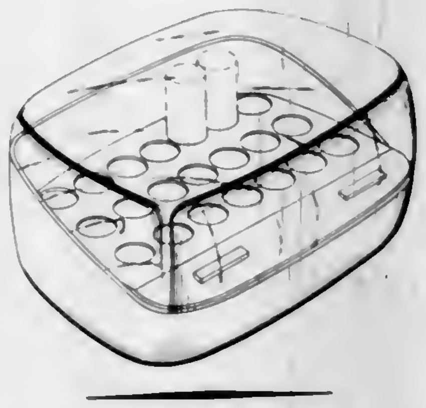


206,981
CIGARETTE SNUFFER

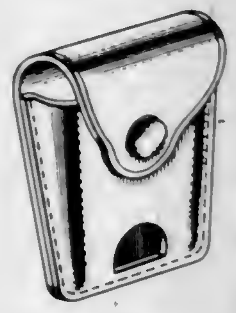
Milton R. Revzin, 727 Delaware Ave., Youngstown, Ohio 44510
Filed Apr. 6, 1966, Ser. No. 1,791
Term of patent 7 years
(Cl. D85—2)



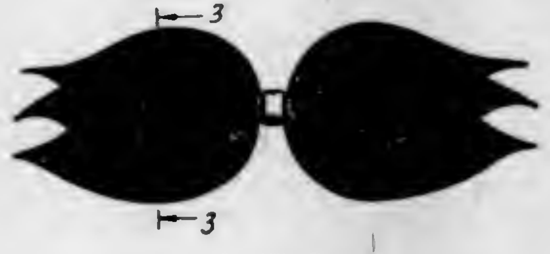
206,982
HEATER HOUSING FOR HAIR CURLERS
Giovanni Giacchero, 3 Corso Re Umberto,
Turin, Italy
Filed May 13, 1966, Ser. No. 2,285
Claims priority, application Italy Jan. 10, 1966
Term of patent 14 years
(Cl. D86—10)



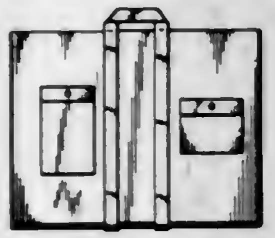
206,983
HOLDER FOR A CIGARETTE LIGHTER
Willard C. Knight, 2822 Cambridge Blvd.,
Fort Wayne, Ind. 46808
Filed Mar. 2, 1966, Ser. No. 1,246
Term of patent 7 years
(Cl. D87—5)



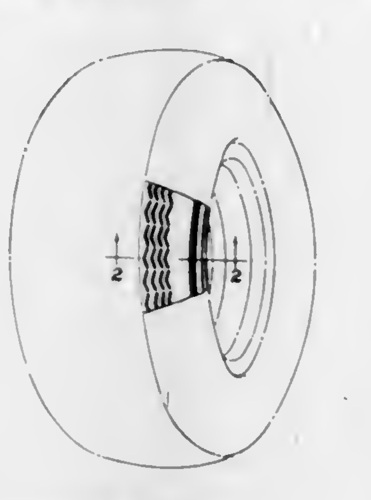
206,984
HAIR ORNAMENT OR SIMILAR ARTICLE
Myron Heifetz, Jackson Heights, N.Y. (℅ Flower Style Originals, 15 E. 31st St., New York, N.Y. 10016)
Filed Oct. 13, 1964, Ser. No. 82,161
Term of patent 14 years
(Cl. D86—10)



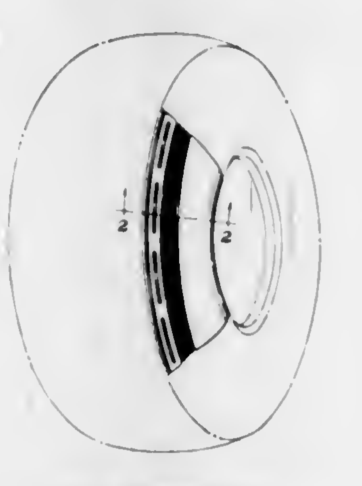
206,985
BIFOLD PORTFOLIO
Randolph G. England, 3865 W. 33rd St.,
Cleveland, Ohio 44109
Filed Aug. 12, 1963, Ser. No. 76,187
Term of patent 3½ years
(Cl. D87—3)



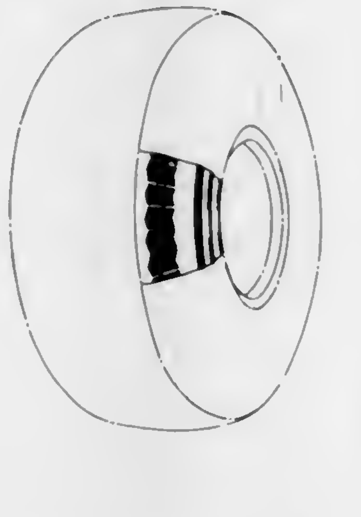
206,986
TIRE
Aristides Makris, Plainfield, N.J., assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Mar. 9, 1966, Ser. No. 1,372
Term of patent 14 years
(Cl. D90—20)



206,987
TIRE
Aristides Makris, Plainfield, N.J., assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed May 13, 1966, Ser. No. 2,293
Term of patent 14 years
(Cl. D90—20)



206,988
TIRE
Aristides Makris, Plainfield, N.J., assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed July 20, 1966, Ser. No. 3,137
Term of patent 14 years
(Cl. D90—20)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Agfa Aktiengesellschaft: *See—*
  Muller, Hermann. Re. 26,156.
Eastman Kodak Co.: *See—*
  Tholstrup, Clarence E. Re. 26,158.
Elgin Sweeper Co.: *See—*
  Link, Charles T., Jr., Schmidt, and Gooden. Re. 26,155.
Gooden, John S.: *See—*
  Link, Charles T., Jr., and Schmidt. Re. 26,155.
Kopaska, Arnold F. Farm implement lift apparatus. Re. 26,159, 2-14-67 Cl. 172—624.
Link, Charles T., Jr., R. F. Schmidt, and J. S. Gooden. Street sweeper dirt box assembly. Re. 26,155, 2-14-67, Cl. 214—508.
Muller, Hermann, to Agfa Aktiengesellschaft. Portable projection screen. Re. 26,156, 2-14-67, Cl. 160—24.
Schmidt, Robert F.: *See—*
  Link, Charles T., Jr., Schmidt, and Gooden. Re. 26,155.
Tholstrup, Clarence E., to Eastman Kodak Co. Poly-a-olefin compositions containing dialkyl-3,3′-thiodipropionates and a nitrogen containing compound. Re. 26,158, 2-14-67, Cl. 260—45.85.
Tinnerman, George A. Mounting clips or clamps. Re. 26,157, 2-14-67, Cl. 248—361.

LIST OF PLANT PATENTEES

Bourne, Benjamin A.: *See—*
  Weetman, Leslie M., and Bourne. 2,715.
Cole, David B., to The Cole Nursery Co. Littleleaf linden. 2,712, 2-14-67, Cl. 51.
Cole Nursery Co., The: *See—*
  Cole, David B. 2,712.
Darrow, Nance M. and R. J. Mandarin orange plant. 2,714, 2-14-67, Cl 45.
Darrow, Nance M. and R. J. Mandarin orange plant. 2,714, 2-14-67, Cl. 45.
Darrow, Robin J.: *See—*
  Darrow, Nance M and R. J. 2,714.
Hervin Farms, Inc.: *See—*
  Vinyard, Charles L. 2,713.
United States Sugar Corp.: *See—*
  Weetman, Leslie M., and Bourne. 2,715.
Vinyard, Charles L., to Hervin Farms, Inc. Plum tree. 2,713, 2-14-67, Cl. 38.
Weetman, Leslie M., and B. A. Bourne, to United States Sugar Corp. Sugar cane. 2,715, 2-14-67, Cl. 89.

LIST OF DESIGN PATENTEES

Abrams, Herman. Tool holder. 206,955, 2-14-67, Cl. D54—6.
Aerosol Research Co., a Division of Valve Corp. of America: *See—*
  Podall, Robert. 206,969.
American Can Co.: *See—*
  Dodge, John D. 206,967.
Anderson, Victor F., to Shell Oil Co. Jug. 206,958, 2-14-67, Cl. D58—5.
Arblaster, Dennis. Stand for holding intravenous fluid containers. 206,978, 2-14-67, Cl. D83—1.
Axiotis, Gust M. Collapsible tube dispenser. 206,931, 2-14-67, Cl. D4—3.
Bausch & Lomb Inc.: *See—*
  Ramp, Robert H. 206,957.
Beck, Philip, to Bulova Watch Co., Inc. Jewelry box. 206,963 2-14-67, Cl. D58—12.6.
Beecher, Joe L., Jr., and A. C. Haggstrom. Flashlight holder. 206,953, 2-14-67, Cl. D48—20.
Bellock, John. Shoe tree. 206,932, 2-14-67, Cl. D7—3.
Blum, Louis, and W. J. Horgan, Jr., to Blumcraft of Pittsburgh. Combined handrailing and railing post. 206,935, 2-14-67, Cl. D13—7.
Blumcraft of Pittsburgh: *See—*
  Blum, Louis, and Horgan. 206,935.
Bobchik, Robert A. Headrest. 206,938, 2-14-67, Cl. D15—8.
Boldt, Melvin H., to Canteen Corp. Remote control unit for an automatic phonograph. 206,939, 2-14-67, Cl. D26—13.
Bulova Watch Co., Inc.: *See—*
  Beck, Philip. 206,963.
Cabell, Douglas N., to Ronson Corp. Combined food mixer and can opener or the like. 206,944, 2-14-67, Cl. D44—1.
Canteen Corp.: *See—*
  Boldt, Melvin H. 206,939.
Carter, George D. Skate. 206,941, 2-14-67, Cl. D34—14.
Charmglow Products, Inc.: *See—*
  Koziol, Walter. 206,976.
  Koziol, Walter. 206,977.
Coffman, Joseph A. Collection receptacle for donated articles. 206,965, 2-14-67, Cl. D58—17.
Colgate-Palmolive Co.: *See—*
  Doblin, Jay. 206,947.
Colletti, Alfonso A. Electric memorial lamp. 206,950, 2-14-67, Cl. D48—20.
Corning Glass Works: *See—*
  Knodt, Ruediger W. 206,946.
Crystal Preforming and Packaging, Inc.: *See—*
  Kelly, Norman A. 206,961.
Dana, Bill Productions Ltd.: *See—*
  Kinney, Jack. 206,943.
Dawson, Robert E., to R. E. Dietz Co. Traffic cone. 206,975, 2-14-67, Cl. D72—1.
Dietz, R. E., Co.: *See—*
  Dawson, Robert E. 206,975.
DeLisio, Salvatore. Air circulator or similar article. 206,973, 2-14-67, Cl. D62—4.
DeLuxe Reading Corp.: *See—*
  Gilbert, Felix. 206,940.

Dispensers, Inc.: *See—*
  Hale, Thomas K. 206,945.
Doblin, Jay, to Colgate-Palmolive Co. Dispenser for powdered material. 206,947, 2-14-67, Cl. D44—22.
Dodge, John D., to American Can Co. Jar. 206,967, 2-14-67, Cl. D58—25.
England, Randolph G. Bifold portfolio. 206,985, 2-14-67, Cl. D87—3.
Fletcher, Milton. High tensity lamp. 206,952, 2-14-67, Cl. D48—20.
Gardella, John M., and R. Vetere, to The S. S. White Dental Mfg. Co. Seat and leg rest for dental chair or similar article. 206,937, 2-14-67, Cl. D15—3.
Giacchero, Giovanni. Heater housing for hair curlers. 206,982, 2-14-67, Cl. D86—10.
Gibbs, Francis O. Combined mop head and mop holder. 206,933, 2-14-67, Cl. D9—2.
Gilbert, Felix, to DeLuxe Reading Corp. Device for playing a word game. 206,940, 2-14-67, Cl. D34—5.
Goodrich, B. F., Co., The: *See—*
  Makris, Aristides. 206,986.
  Makris, Aristides. 206,987.
  Makris, Aristides. 206,988.
Haggstrom, Arthur C.: *See—*
  Beecher, Joe L., Jr., and Haggstrom. 206,953.
Hale, Thomas K., to Dispensers, Inc. Condiment caddy. 206,945, 2-14-67, Cl. D44—7.
Hassenfeld Bros., Inc.: *See—*
  Speers, Samuel F., and Pressler. 206,942.
Hedu, Jon, to Nutmegger Packing Co. Inc. Building. 206,934, 2-14-67, Cl. D13—1.
Heifetz, Myron. Hair ornament or similar article. 206,984, 2-14-67, Cl. D86—10.
Herman, Edward B. Ash tray. 206,980, 2-14-67, Cl. D85—2.
Horgan, William J., Jr.: *See—*
  Blum, Louis, and Horgan. 206,935.
Jaffe, Martin A., to Sterling Drug Inc. Inhalator. 206,979, 2-14-67, Cl. D83—1.
Kelly, Norman A., to Crystal Preforming and Packaging, Inc. Plastic jug. 206,961, 2-14-67, Cl. D58—5.
Kimberly-Clark Corp.: *See—*
  Stark, William. 206,954.
Kinney, Jack, to Bill Dana Productions Ltd. Double martini glass. 206,943, 2-14-67, Cl. D36—8.
Kirchner, Douglas E., to Kirchner's Kaynar Diamond Co. Necktie pin. 206,949, 2-14-67, Cl. D45—19.
Kirchner's Kaynar Diamond Co.: *See—*
  Kirchner, Douglas E. 206,949.
Knight, Willard C. Holder for a cigarette lighter. 206,983, 2-14-67, Cl. D87—5.
Knodt, Ruediger W., to Corning Glass Works. Candle warmer or the like. 206,946 2-14-67, Cl. D44—10.
Koziol, Walter, to Charmglow Products, Inc. Barbecue. 206,976, 2-14-67, Cl. D81—10.
Koziol, Walter, to Charmglow Products, Inc. Combined barbecue and rotisserie. 206,977, 2-14-67, Cl. D81—10.
Lehn & Fink Products Corp.: *See—*
  Williams, William D. 206,971.

- Loston, Zallo. Belt. 206,930, 2-14-67, Cl. D3—10.
- Makris, Aristides, to The B. F. Goodrich Co. Tire. 206,986, 2-14-67, Cl. D90—20.
- Makris, Aristides, to The B. F. Goodrich Co. Tire. 206,987, 2-14-67, Cl. D90—20.
- Makris, Aristides, to The B. F. Goodrich Co. Tire. 206,988, 2-14-67, Cl. D90—20.
- Matthews, Thomas C., to Sun Engineering Co. Spray can handle. 206,970, 2-14-67, Cl. D58—26.
- Matz, Robert D. Demountable camper. 206,936, 2-14-67, Cl. D14—3.
- Mayer, Karl, and L. Velekei, to Nouvelle Lampe (Quebec) Inc. Desk lamp. 206,951, 2-14-67, Cl. D48—20.
- Nouvelle Lampe (Quebec) Inc.: *See—*
  - Mayer, Karl, and Velekei. 206,951.
- Nudell, Arthur A. Combined salt and pepper shaker. 206,948, 2-14-67, Cl. D44—22.
- Nutmegger Packing Co. Inc.: *See—*
  - Hedu, Jon. 206,934.
- Owens-Illinois, Inc.: *See—*
  - Shepler, James A. 206,959.
  - Weckman, Richard L. 206,960.
  - Weckman, Richard L. 206,962.
  - Weckman, Richard L. 206,966.
- Pizzurro, Joseph C., to Precision Valve Corp. Dispenser cap for a pressurized can. 206,968, 2-14-67, Cl. D58—26.
- Podall, Robert, to Aerosol Research Co., a Division of Valve Corp. of America. Dispenser top for a pressurized can. 206,969, 2-14-67, Cl. D58—26.
- Precision Valve Corp.: *See—*
  - Pizzurro, Joseph C. 206,968.
- Pressler, David O.: *See—*
  - Speers, Samuel F., and Pressler. 206,942.
- Ramp, Robert H., to Bausch & Lomb Inc. Pair of spectacles. 206,957, 2-14-67, Cl. D57—1.
- Ravzin, Milton R. Cigarette snuffer. 206,981, 2-14-67, Cl. D85—2.
- Reynolds Metals Co.: *See—*
  - Watts, Richard M. 206,964.
- Ronson Corp.: *See—*
  - Cabell, Douglas N. 206,944.
- Scott, Charles. Photographic border printer or the like. 206,972, 2-14-67, Cl. D61—1.
- Shell Oil Co.: *See—*
  - Anderson, Victor F. 206,958.
- Shepler, James A., to Owens-Illinois, Inc. Jug. 206,959, 2-14-67, Cl. D58—5.
- Sherburne, Charles W. Boat hull. 206,974, 2-14-67, Cl. D71—1
- Speers, Samuel F., and D. O. Pressler, to Hassenfeld Bros., Inc. Toy submersible boat. 206,942, 2-14-67, Cl. D34—15.
- Stark, William, to Kimberly-Clark Corp. Tissue dispenser. 206,954, 2-14-67, Cl. D52—2.
- Sterling Drug Inc.: *See—*
  - Jaffe, Martin A. 206,979.
- Stewart, Donald E. Hollow corner prism. 206,956, 2-14-67, Cl. D57—1.
- Sun Engineering Co.: *See—*
  - Matthews, Thomas C. 206,970.
- Velekei, Laszlo: *See—*
  - Mayer, Karl, and Velekei. 206,951.
- Vetere, Rudolph: *See—*
  - Gardella, John M., and Vetere. 206,937.
- Watts, Richard M., to Reynolds Metals Co. A combined packaging box and serving tray. 206,964, 2-14-67, Cl. D58—12.6.
- Weckman, Richard L., to Owens-Illinois, Inc. Jug. 206,960, 2-14-67, Cl. D58—5.
- Weckman, Richard L., to Owens-Illinois, Inc. Bottle. 206,962, 2-14-67, Cl. D58—8.
- Weckman, Richard L., to Owens-Illinois, Inc. Jar. 206,966, 2-14-67, Cl. D58—25.
- White, S.S., Dental Mfg. Co., The: *See—*
  - Gardella, John M., and Vetere. 206,937.
- Williams, William D., to Lehn & Fink Products Corp. Combined cap, pouring spout and captive closure for a bottle or the like. 206,971, 2-14-67, Cl. D58—26.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- ACF Industries Inc.: *See—*
  - Martin, Charles L. 3,304,047.
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Design Patents

4 :	206,974	12 :	206,970	18 :	206,961	34 :	206,958	36 :	206,968	39 :	206,981
6 :	206,930	17 :	206,939		206,983		206,988		206,979		206,985
	206,931		206,947	20 :	206,973	36 :	206,937		206,984		206,986
	206,943		206,948	25 :	206,942		206,940	37 :	206,933		206,987
	206,945		206,953	26 :	206,938		206,946	39 :	206,959	42 :	206,935
	206,956		206,967		206,944		206,950		206,960		206,975
	206,965		206,969	27 :	206,949		206,955		206,962	48 :	206,941
	206,972		206,976		206,980		206,957		206,966	51 :	206,964
	206,978		206,977	31 :	206,952		206,963		206,971	55 :	206,954
9 :	206,934	18 :	206,936	34 :	206,932						

Plant Patents

4 :	2.713	9 :	2.715	34 :	2.712						

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

February 14, 1967 Volume 835 Number 2

TRADEMARKS

NOTICES

Trademark Suits

Notices under 15 U.S.C. 1116 ; Trademark Act of July 5, 1946

Reg. No. 49,322 (ABSORBINE), Wilbur F. Young, Liniments and embrocations ; **Reg. No. 89,786** (ABSORBINE, JR. AND DESIGN), same, Liniment, **filed** Dec. 29, 1966, D.C., W.D. Mich. (Grand Rapids), Doc. 5515, *W. F. Young, Incorporated* v. *Muir Drug Laboratories, Inc.*

Reg. No. 89,786. (See Reg. No. 49,322.)

Reg. No. 317,704 (METAMUCIL), G. D. Searle & Co., Preparation in powder form for the treatment of gastroenterological conditions, **filed** Dec. 29, 1966, D.C., C.D. Calif.(Los Angeles), Doc. 66–2087–EC, *G. D. Searle & Co.* v. *MDX Purity Pharmacies, Inc.*

Reg. No. 337,286 (KOROSEAL), The B. F. Goodrich Company, Plasticized polymerized vinyl chlorides ; **Reg. No. 680,212** (B. F. GOODRICH AND DESIGN), same, Rubberized hair cushioning material, transparent and opaque plastic material sold in sheet form, cellular materials made of rubber or rubber-like materials sold in sheet form, etc., **filed** Sept. 14, 1966, D.C.N.J. (Newark), Doc. 927–66, *The B. F. Goodrich Company* v. *Koroseal Building Products, Inc. et al.* Consent judgment for injunction Dec. 19, 1966.

Reg. No. 337,404 (POLAROID), Sheet Polarizer Company, Inc., Composite material comprising suspensions of crystalline particles in a light-transmitting medium adapted to be used in connection with optical devices such as microscope eyepieces, etc. ; **Reg. No. 399,329**, same, Polaroid Corporation, Viewing devices—namely, filters, lenses, eyeglasses and goggles, **filed** Sept. 22, 1965, D.C. Del. (Wilmington), Doc. 3093, *Polaroid Corporation* v. *Sea & Ski Corporation.* Final consent judgment, trademark registrations held valid and infringed Nov. 20, 1966.

Reg. No. 359,292 (DILANTIN), Parke, Davis & Company, Pharmaceutical preparations containing diphenylhydantoin or a salt thereof ; **Reg. No. 415,663** (CARBRITAL), same, Hypnotic and sedative preparation ; **Reg. No. 416,252** (BENADRYL), same, Pharmaceutical preparations containing diphenylhydramine hydrochloride ; **Reg. No. 509,735** (CHLOROMYCETIN), same, Anti-biotic preparation ; **Reg. No. 753,207** (REPRESENTATION OF GRAY BAND ON WHITE CAPSULE), same, Antibiotic preparations ; **Reg. No. 813,341** (WHITE BAND ON PINK CAPSULE AND DESIGN), same, Antihistamine preparation, **filed** Dec. 19, 1966, D.C., E.D.N.Y. (Brooklyn); Doc. 66C–1185, *Parke, Davis & Co.* v. *Generic Formulae, Inc.*

Reg. No. 399,329. (See Reg. No. 337,404).

Reg. No. 415,663. (See Reg. No. 359,292.)

Reg. No. 416,252. (See Reg. No. 359,292.)

Reg. No. 509,735. (See Reg. No. 359,292.)

Reg. No. 609,668 (TOM-BOY), Tom Boy, Inc., Extract of vanilla for food purposes, canned sliced apples, canned apple sauce, canned apricots, etc., **filed** May 10, 1966, D.C., E.D. Mo. (St. Louis), Doc. 66C–178(3), *Tom Boy, Inc.* v. *Tom Boy Systems, Inc.* Final consent decree in favor of plaintiff Nov. 17, 1966.

CONDITION OF TRADEMARK APPLICATIONS AS OF DECEMBER 31, 1966

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	28,133
Date of oldest new application	Dec. 16, 1965
Date of oldest amended application (filing date)	Nov. 7, 1963

C. M. WENDT, Director, Trademark Examining Operation **TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION**	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	12-16-65	12-12-63
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	1-13-66	11-7-63
Renewals (All Classes)	12-5-66	---------
Sec. 12(c) Publications (All Classes)	11-28-66	---------

Applications filed during the month of December 1966—2,208

Registrations Issued--------------------------428—No. 823,829 to No. 824,256
Renewals Issued-------------------------------- 70

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Reg. No. 662,180 (DREAM PETS AND DESIGN), R. Dakin & Co., Stuffed animals used as toys, **filed** Oct. 19, 1964, D.C., S.D. Calif. (Los Angeles), Doc. 64–1441–PH, *R. Dakin & Co.* v. *Circle Import-Export Corp.* Stipulation and consent decree; defendant enjoined; counterclaim dismissed with prejudice Dec. 28, 1966.

Reg. No. 669,334 (PATINOS), Gustinettes, Inc., Men's, women's, and children's shoes and slippers, **filed** Dec. 28, 1966, D.C., S.D.N.Y., Doc. 66/4483, *Gustinettes, Inc.* v. *B. F. Goodrich Company.*

Reg. No. 680,212. (See Reg. No. 337,286.)

Reg. No. 709,813 (VAPONA), Shell Oil Company, Insecticide; **2,956,073**, Whetstone and Harman, INSETICIDALLY ACTIVE ESTERS OF PHOSPHORUS ACIDS AND PREPARATION OF THE SAME, **filed** Mar. 22, 1965, D.C., N.D. Iowa (Cedar Rapids), Doc. 65–C–508–EC, *Shell Oil Company* v. *Barco Corporation et al.* Consent judgment—Patent No. 2,956,073 and Trademark Reg. No. 709,813 held valid and infringed; defendants enjoined Dec. 12, 1966.

Reg. No. 737,656 (AMERICANA AND DESIGN), Tisch Hotels, Inc., Hotel, restaurant, banquet and catering services; **Reg. No. 757,046** (AMERICANA), same, **filed** July 15, 1966, D.C., M.D. Fla. (Jacksonville), Doc. 66–514–J, *Loew's Theatres, Inc.* v. *Americana Inn.* Stipulation and judgment enjoining defendant Oct. 14, 1966.

Reg. No. 752,443 (TAMMY), Ideal Toy Corporation, assignee of The Royal Doll Mfg. Co., Inc., Dolls; **Reg. No. 757,234**, same, Accessories for a toy mannequin doll, including clothing, handbags, jewelry, etc., **filed** Oct. 13, 1964, D.C., S.D.N.Y., Doc. 64/3112, *Ideal Toy Corporation* v. *Fab-Lu Ltd. (Inc.) et al.* Action closed as to defendant David Faber Sept. 23, 1966. Final judgment, plaintiff entitled to injunction Dec. 28, 1966.

Reg. No. 753,207. (See Reg. No. 359,292.)

Reg. No. 757,046. (See Reg. No. 737,656.)

Reg. No. 757,234. (See Reg. No. 752,443.)

Reg. No. 757,835 (REPRESENTATION OF A MALE CHEF WITH HAT AND CANE), Kentucky Fried Chicken, Inc., Freshly prepared chicken and gravy, packaged and sold in retail trade; **Reg. No. 759,776** ("IT'S FINGER LICKIN' GOOD"), same; **Reg. No. 801,095** (IT'S FINGER LICKIN' GOOD), Kentucky Fried Chicken Corporation, Restaurant services; **Reg. No. 805,773** (COLONEL SANDERS' RECIPE), same; **Reg. No. 806,104** (DESIGN HUMAN HEAD), same; **Reg. No. 807,043** (DESIGN HUMAN FIGURE WITH CHEF'S HAT AND CANE), same; **Reg. No. 810,835** (DESIGN HUMAN HEAD), same, Fried chicken cooked and frozen, cooking sauce, gravy, gravy base mix, etc.; **Reg. No. 813,559** (COL. SANDERS' RECIPE KENTUCKY FRIED CHICKEN), same, Frozen and fresh prepared chicken and gravy, packaged and sold in retail trade, prepared potatoes, etc.; **Reg. No. 814,610** (COL. SANDERS' RECIPE), same, Fried chicken cooked and frozen, cooking sauce, gravy, gravy base mix, etc.; **Reg. No. 815,167** (KENTUCKY FRIED CHICKEN), same, Restaurant services, **filed** July 5, 1966, D.C., N.D. Ohio (Toledo), Doc. C66–144, *Kentucky Fried Chicken Corporation* v. *Famous Recipe Fried Chicken, Inc., doing business as Harold's Take Home et al.* Consent judgment, trademark registrations held valid Dec. 16, 1966.

Reg. No. 759,776. (See Reg. No. 757,835.)

Reg. No. 773,590 (KUTZ-KWIK), Kutz Kwik, Inc., Carton cutting machines, **filed** May 5, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c796, *Kutz-Kwik, Inc.* v. *K & K Enterprises, Inc. et al.* Judgment enjoining defendants from further infringement Dec. 19, 1966.

Reg. No. 777,153 (MAYCO), Mayer Manufacturing Corporation, Advertising services—namely, the preparation and printing of advertising on novelty and specialty items and the distribution of the same; **Reg. No. 778,055**, same, Key chains, scrapers, thermometers and rain gauges, and advertising specialties comprising desk top and pocket accessories—namely, calendars, pads, trays, and clip boards, **filed** Dec. 22, 1966, D.C., S.D.N.Y., Doc. 66/4443, *Mayer Manufacturing Corporation* v. *Paudmay Co., Inc.*

Reg. No. 778,055. (See Reg. No. 777,153.)

Reg. No. 782,779 (AWARD), Award Tool Co., Inc., Small hand tools—namely, screw drivers, pliers and wrenches, **filed** Apr. 1, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–561–CC, *Award Tool Co., Inc.* v. *Light Sales Co., Inc. et al.* Consent judgment in favor of plaintiff; defendants enjoined Dec. 15, 1966.

Reg. No. 801,095. (See Reg. No. 757,835.)

Reg. No. 805,773. (See Reg. No. 757,835.)

Reg. No. 806,104. (See Reg. No. 757,835.)

Reg. No. 807,043. (See Reg. No. 757,835.)

Reg. No. 810,835. (See Reg. No. 757,835.)

Reg. No. 813,341. (See Reg. No. 359,292.)

Reg. No. 813,559. (See Reg. No. 757,835.)

Reg. No. 814,610. (See Reg. No. 757,835.)

Reg. No. 815,167. (See Reg. No. 757,835.)

MARKS PUBLISHED FOR OPPOSITION

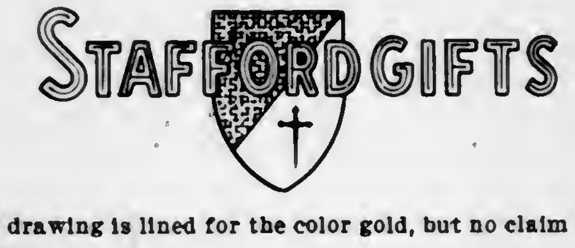
SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[**NOTE:** For publication of marks presented in applications for registration in one class, see section 2.]

SN 211,726. Ernest Hazel, Jr., Inc., Washington, Mo. Filed Feb. 10, 1965.



The drawing is lined for the color gold, but no claim is made to color.

Class 3—Baggage, Animal Equipments, Portfolios, and

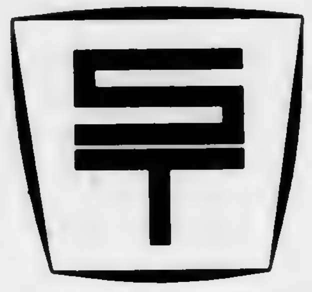
For Portfolios, Billfolds, and Card Cases.

Class 37—Paper and Stationery

For Desk Folders, Book Covers, Engagement Pads, Desk Calendars, Desk Sets, and Book Binders.

First use Jan. 11, 1965.

SN 220,558. Sarkes Tarzian, Inc., Bloomington, Ind. Filed June 7, 1965.



Class 21—Electrical Apparatus, Machines, and Supplies

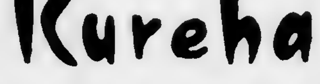
For Television and Industrial Equipment—Namely, Transmitters, Microwave Relay Equipment, Television Signal Switching Systems, Amplifiers, Power Supplies, Terminal Distribution Equipment and Signal Generators, Rectifiers and Voltage Regulators and Suppressors, and Television Tuners.

Class 26—Measuring and Scientific Appliances

For Cameras and Mounting Equipment Therefor, Slide Projectors, Optical Multipliers and Programming Computers.

First use May 1959.

SN 223,201. Kureha Spinning Company Limited, Higashi-ku, Osaka, Japan. Filed July 13, 1965.



Owner of Japanese Reg. Nos. 656,487 and 656,491, dated Oct. 24, 1964, and 664,288, dated Jan. 16, 1965.

Class 39—Clothing

For Raincoats, Socks, Hosiery, Tights, Sweaters, Shirts, Blouses, Handkerchiefs, Aprons, Underwear, Scarfs, Negligees, Pajamas and Other Nightwear; Slips, Jumpers, Slacks, Dresses, Suits, Swim Suits, Hats and Shoes.

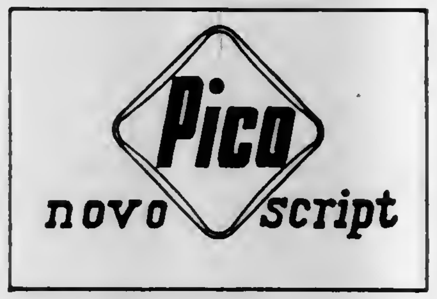
Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Sheets and Pillow Cases, Curtains, Carpets, Towels and Towel Goods, Bed-Covers; Cotton, Wool and Synthetic Fabrics Used in the Manufacture of Clothing, Carpeting, Upholstery, Sheets and Pillow Cases, Curtains, Towels and Towel Goods, and Bed-Covers.

Class 43—Thread and Yarn

For Yarns and Threads.

SN 226,136. Firma Dr. Adolf Hölken, Düren, Rhineland, Germany. Filed Aug. 20, 1965.



Owner of German Reg. No. 800,530, dated Feb. 11, 1965; and U.S. Reg. No. 800,712.

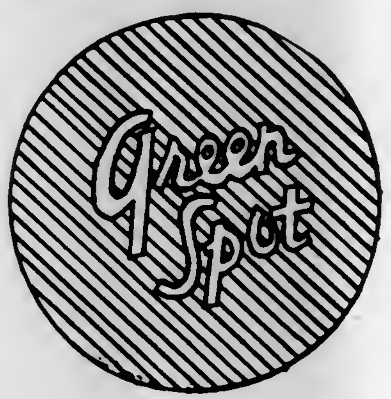
Class 11—Inks and Inking Materials

For Typewriter Ribbons; Carbon Paper, Marking Inks, Hectograph paste; and Stamp Pads.

Class 37—Paper and Stationery

For Typewriter Paper; Erasing Shields; Rubber Erasers; Knife Erasers; Tracing Paper; Stenographers' Tablets; Wax Paper; Correction Lacquer; Correction Paste; Tissue Paper; Blotting Paper; Copy Books; Lead Pencils; Color Crayons; Slate Pencils; Ink Pencils; Inkwells; Letter Files; Paper Clips; Envelopes; Printed Forms; Permanent Stencils; Single and Multilayer Paper Rolls for Bookkeeping Machines, Recording Instruments and Telewriters; Weighing Machine Tickets; Accounting Sheets; and Duplicating Paper.

SN 228,006. Capital Food Industries, Inc., d.b.a. Green Spot Company, Chicago, Ill. Filed Sept. 17, 1965.



The drawing is lined for green.

Class 45—Soft Drinks and Carbonated Waters

For Lemonade, and Lemon Flavoring for Use in the Making of Lemonade.
First use Jan. 27, 1955.

Class 46—Foods and Ingredients of Foods

For Lime Puree for Making Lime Flavored Sherbet; Orange Puree for Making Orange Flavored Sherbet; Orange Flavor for Making Sherbet, Ices, Juice Bars and Ice Cream; and Fruit Flavored Food Beverages and Concentrates for Making the Same.
First use Nov. 10, 1934.

SN 239,483. Arrow Plastic Manufacturing Co., Chicago, Ill. Filed Feb. 24, 1966.

KITCHEN MATES

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

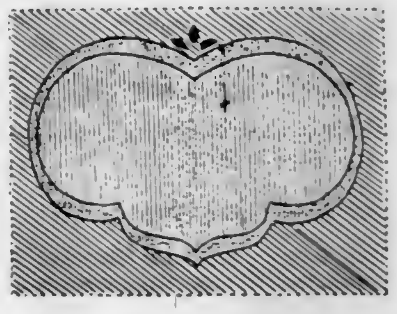
For Kitchen Utensils and Kitchen Equipment, Including Spatulas, Food Strainers, Spoons, Scoop Sets, Cake Servers, and Tongs.

Class 26—Measuring and Scientific Appliances

For Measuring Spoons and Measuring Cups.

First use Jan. 28, 1965.

SN 240,046. California Packing Corporation, San Francisco, Calif. Filed Mar. 3, 1966.



The drawing is lined for green, red, and yellow. Owner of Reg. Nos. 120,014, 286,243, and others.

Class 45—Soft Drinks and Carbonated Waters

For Soft Drinks.
First use Apr. 23, 1964.

Class 46—Foods and Ingredients of Foods

For Canned Vegetables, Canned Fruits, Canned Fruit and Vegetable Juices, Canned Fish, Dried Fruits, Pickles, Vegetable Relishes, Hot Peppers, and Catsup.
First use Oct. 30, 1964.

SN 240,208. Sellstrom Manufacturing Company, Palatine, Ill. Filed Mar. 4, 1966.

SELLSTROM

Owner of Reg. Nos. 585,629, 588,214, and others.

Class 26—Measuring and Scientific Appliances

For Industrial and Sporting Goggles, Spectacles, Welders' Helmets With Shield, Eye and Face Shields and Parts Thereof, and Lenses for Such Spectacles and Goggles.

Class 39—Clothing

For Welders' Helmets Without Shields.

First use in or about July 1944.

SN 245,880. Monsanto Company, St. Louis, Mo. Filed May 18, 1966.

ACTIONWEAR

Class 39—Clothing

For Men's, Women's, Children's, and Infants' Garments—Namely, Coats, Suits, Dresses, Hosiery, Pants, Slacks, Sportswear, Jackets, Sweaters, Blouses, Shirts, Underwear, and Sleepwear.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

Fabrics for Making Into Suits, Coats, Lingerie, Dresses, and the Like.

First use at least as early as Dec. 4, 1963.

SN 248,650. Quaker Lace Company, Philadelphia, Pa. Filed June 22, 1966.

THE HOUSE OF QUAKER

Owner of Reg. Nos. 87,800 and 648,997.

Class 39—Clothing

For Robes and Women's Lingerie.
First use June 2, 1966.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Tablecloths and Blankets.
First use Mar. 9, 1966.

SN 256,254. Stafast Corporation, New York, N.Y. Filed Oct. 12, 1966.

THERMO-MEND

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Monogram Applicating Machine.

Class 40—Fancy Goods, Furnishings, and Notions

For Heat Reactive, Adhesive Backed Fabrics and Patches of Various Sizes.

First use on or about July 18, 1966.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1 — Raw or Partly Prepared Materials

SN 248,216. Cowan Stone Company, Cowan, Tenn. Filed June 16, 1966.

CAL PRO

For High-Calcium Limestone in Bulk.
First use May 2, 1966.

SN 249,012. Husky Briquetting, Inc., d.b.a. Husky-Dominion Briquets, Cody, Wyo. Filed June 27, 1966.

GRILLIT

For Charcoal in Lump or Briquet Form.
First use May 27, 1966.

SN 249,521. Franklin Fibre-Lamitex Corp., Wilmington, Del. Filed July 5, 1966.

LAMITEX

Owner of Reg. Nos. 312,412 and 628,042.
For Plastic Sheets, Rods, and Tubes for General Use in the Industrial Arts.
First use July 1, 1933.

Class 2 — Receptacles

SN 238,787. Ray Control Corp., New York, N.Y. Filed Feb. 14, 1966.

FONTANA

For Tea Pots, Ice Buckets, Beverage Sets, Aluminum Canister Sets, Tea Pot Range Sets, Spice Rack Sets, and Cabinet Spice Rack Sets.
First use 1953.

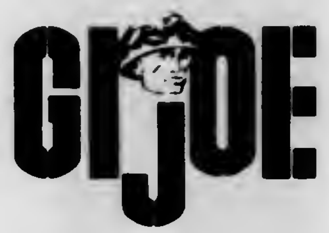
Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 245,951. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

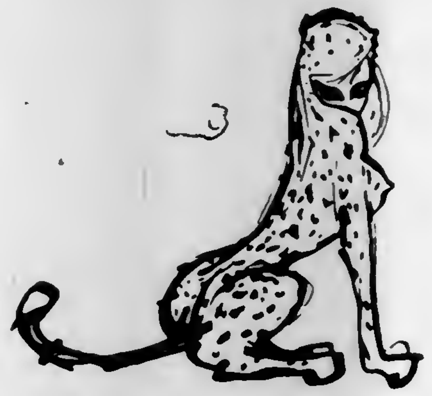
For Ladies' Handbags.
First use Apr. 27, 1966.

SN 246,308. Hassenfeld Bros. Inc., Pawtucket, R.I. Filed May 23, 1966.



Owner of Reg. Nos. 773,150, 787,088, and others.
For School Bags and Camping Bags.
First use on or about May 11, 1966.

SN 247,954. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Ladies' Handbags.
First use Apr. 27, 1966.

Class 4 — Abrasives and Polishing Materials

SN 241,009. Nord-Viscount Corp., Brooklyn, N.Y., assignee of Federated Chemical Corp., Livingston, N.J. Filed Mar. 9, 1966.

ASTRO SHIELD

For Preparation or Product for Polishing, Preserving and Cleaning Automobiles, Boats, Airplanes, and Finished, Painted, Lacquered, Enameled, and Other Surfaces.
First use Feb. 21, 1966.

Class 5 — Adhesives

SN 196,920. Textron Electronics, Inc., d.b.a. Spectrolab, Sylmar, Calif. Filed July 1, 1964.

SOLABOND

For Epoxy and Resin Type Bonding Materials for Attaching Solar Cells to Metal Panels.
First use on or before Mar. 1, 1960.

SN 234,633. Eskimo Radiator Mfg. Co., Los Angeles, Calif. Filed Dec. 15, 1965.

STICKY ICK

The word "Sticky" is disclaimed apart from the mark as shown.
For Adhesive Compound for Sealing Gaskets.
First use June 25, 1965.

SN 236,876. Binney & Smith Inc., New York, N.Y. Filed Jan. 20, 1966.

firma-grip

Owner of Reg. Nos. 296,868 and 758,258.
For Adhesive Paste and Glue.
First use Oct. 31, 1955; Jan. 27, 1932, on adhesive paste.

SN 248,365. Schwartz Chemical Co. Inc., Long Island City, N.Y. Filed June 17, 1966.

REZ-N-GLUE

For All Purpose Cement and Thinner Therefor, and Retarder.
First use in or about March 1943.

SN 248,366. Schwartz Chemical Co. Inc., Long Island City, N.Y. Filed June 17, 1966.

REZ-N-BOND

For Composition for Bonding Lucite, Plexiglas, and Polystyrene Solid Plastics.
First use in or about March 1943.

Class 6—Chemicals and Chemical Compositions

SN 157,537. Nippon Soda Kabushiki Kaisha, Chiyoda-ku, Tokyo, Japan. Filed Jan. 28, 1963.

NISSO HI-CHLON

Priority claimed under Sec. 44(d) on Japanese application filed July 27, 1962; Reg. No. 723,296, dated Oct. 18, 1966.
For Bleaching Powder.

SN 196,697. The Murphy Chemical Company Limited, Wheathampstead, near St. Albans, England Filed June 29, 1964.

MURVENTIN

Owner of British Reg. No. 837,538, dated July 31, 1962.
For Fungicides for Use in Agriculture, Horticulture, and Forestry.

SN 228,871. Alnapol Distributing Company, New York, N.Y., assignee of Alnapol, Inc., New York, N.Y. Filed Sept. 29, 1965.

ALNAPOL

For Sizing Additive Used in Connection With Textile and Paper Products.
First use Sept. 13, 1965.

SN 231,180. Moser Paper Company, Chicago, Ill. Filed Oct. 22, 1965.

50:50 FORMULA

Applicant, without waiver of common law rights, disclaims the word "Formula" apart from the mark as shown.
For Massage Creme With Restoring Qualities for Use by Undertakers.
First use December 1956.

SN 231,937. Pastemaster, Inc., Seaford, N.Y. Filed Nov. 1, 1965.

SWISH 'N NU

For Liquid Rinse for Increasing the Life of Hosiery.
First use Oct. 26, 1965.

SN 232,005. Magnet Cove Barium Corporation, Houston, Tex. Filed Nov. 2, 1965.

SALINEX

For Liquid Chemical Emulsifier for Use in Drilling Muds Containing Salt and Active Calcium and Magnesium Compounds.
First use Oct. 19, 1965.

SN 234,220. Marlyn Chemical Company, Inc., Lakeview, Ohio. Filed Dec. 8, 1965.

LUMAR

For Powdered Fabric Softener.
First use May 21, 1956.

SN 234,483. Texize Chemicals, Inc., Greenville, S.C. Filed Dec. 13, 1965.

WONDER

For Laundry Whitener.
First use Dec. 8, 1965.

SN 235,426. Racon Incorporated, Wichita, Kans. Filed Dec. 28, 1965.

Racon

For Refrigerants and Propellants manufactured From Fluoro-carbon Compounds, Which Circulate Inside the Cooling Coils of Refrigerators and Air Conditioning Units, and in Aerosol Preparations.
First use Oct. 26, 1965.

SN 236,946. Balab, Burlingame, Calif. Filed Jan. 14, 1966.

BUBBLE BREAKER

For Foam Depressants.
First use Jan. 21, 1941.

SN 237,053. United Merchants and Manufacturers, Inc., New York, N.Y. Filed Jan. 21, 1966.

VALET

For Resin Reactant Compositions for Obtaining Permanent Press Textile Fabrics.
First use on or about Dec. 3, 1965.

SN 238,630. W. R. Grace & Co., New York, N.Y. Filed Feb. 11, 1966.

HATCOL

Owner of Reg. No. 580,077.
For Plasticizers.
First use 1958.

SN 240,355. Standard International Corporation, Andover, Mass. Filed Mar. 7, 1966.

RESTORE

For Fabric Conditioner.
First use Feb. 25, 1966.

SN 240,699. Armour Pharmaceutical Company, Chicago, Ill. Filed Mar. 11, 1966.

REHANSAR

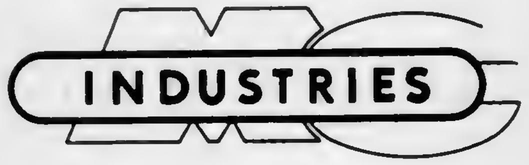
For Pancreas Substance for Manufacturing Use.
First use on or prior to Feb. 24, 1966.

SN 240,700. Armour Pharmaceutical Company, Chicago, Ill. Filed Mar. 11, 1966.

REHANCIT

For Pancreas Substance for the Lipolyzation of Fatty Materials and Used in the Manufacture of Pharmaceuticals.
First use on or prior to Feb. 24, 1966.

SN 242,970. Emcee Industries, Inc., Teaneck, N.J. Filed Apr. 8, 1966.



For Rare Earth Chemicals.
First use Dec. 10, 1965.

SN 248,486. Eli Lilly and Company, Indianapolis, Ind. Filed June 20, 1966.

TRI-CIDE

For Systemic Insect Spray for Roses, Ornamentals, and Other Flowers.
First use June 13, 1966.

SN 248,487. Eli Lilly and Company, Indianapolis, Ind. Filed June 20, 1966.

CRABICIDE

For Pre-Emergence Herbicide for Crabgrass, Foxtail, and Other Undesirable Grasses.
First use June 10, 1966.

SN 248,489. Eli Lilly and Company, Indianapolis, Ind. Filed June 20, 1966.

PREEN

For Herbicide for Grass and Weed Control for Flower and Ornamental Beds.
First use June 13, 1966.

SN 248,490. Eli Lilly and Company, Indianapolis, Ind. Filed June 20, 1966.

BUG OUT

The word "Bug" is disclaimed apart from the mark as a whole.
For Lawn Insecticide.
First use June 10, 1966.

SN 248,840. Osmose Wood Preserving Co. of America, Inc., Buffalo, N.Y. Filed June 23, 1966.

OSMOSE K-33

Owner of Reg. Nos. 336,697, 704,802, and others.
For Wood Preservative.
First use May 4, 1964.

SN 249,354. Philadelphia Quartz Company, Philadelphia, Pa. Filed June 30, 1966.

METSO BEADS

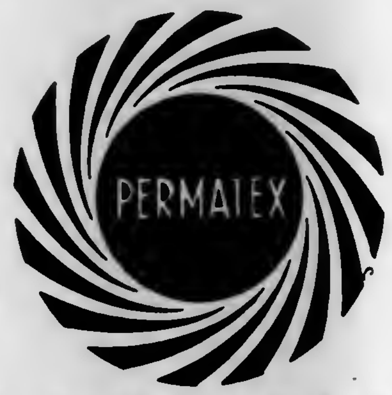
The word "Beads" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 507,992 and 510,947.
For Soluble Alkali Silicates.
First use on or about June 27, 1966.

SN 249,355. Philadelphia Quartz Company, Philadelphia, Pa. Filed June 30, 1966.

METSO SPHERES

The word "Spheres" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 506,992 and 510,947.
For Soluble Alkali Silicates.
First use on or about June 27, 1966.

SN 250,861. Permatex Company, Inc., Brooklyn, N.Y. Filed July 22, 1966.



Owner of Reg. Nos. 93,418, 519,208, and others.
For Hydraulic Brake Fluid, Radiator Cement and Rust Preventor, Radiator Sealer and Block and Head Sealer for Sealing Cracked Cylinder Heads and Openings in Cylinders and Water Jackets.
First use October 1960, on radiator sealer.

SN 256,246. Stauffer Chemical Company, New York, N.Y. Filed Oct. 11, 1966.

DYFONATE

For Organophosphorus Insecticide.
First use Sept. 16, 1966.

Class 8 — Smokers' Articles, Not Including Tobacco Products

SN 246,887. Frank J. Curran Co., Downers Grove, Ill. Filed May 31, 1966.

SAFTI-SQUARE

For Ash Trays.
First use Mar. 11, 1966.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 238,468. Trojan Fireworks Co., Norwalk, Calif. Filed Feb. 9, 1966.

FREEDOM FIREWORKS

Applicant disclaims the word "Fireworks," apart from the mark as shown.
For Fireworks.
First use April 1960.

Class 10 — Fertilizers

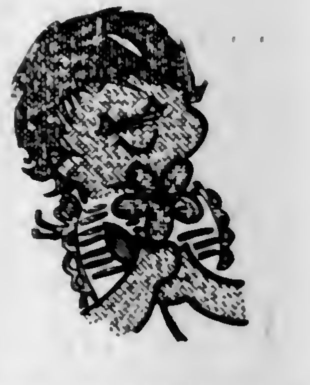
SN 246,711. Norsk Hydro-Elektrisk Kvaelstofaktieselskab, Oslo, Norway. Filed May 26, 1966.

LO-BI

For Fertilizers.
First use Aug. 10, 1956; in commerce Aug. 10, 1956.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

SN 222,974. Reliance Products Corporation, Woonsocket, R.I. Filed July 8, 1965.



The drawing is lined for orange, blue, yellow, and red. Owner of Reg. No. 717,360.
For Infants' Toilet Trainers and Seats and Feeding Dishes Made of Plastic Materials.
First use June 1, 1965.

SN 232,721. Republic Industrial Corporation, New York, N.Y. Filed Nov. 15, 1965.

PITCH-LOK

For Thread Inserts.
First use Oct. 1, 1963.

SN 233,837. A. O. Smith Corporation, Milwaukee, Wis. Filed Dec. 2, 1965.

AQUA HOT

For Water Heating Systems Including Pipes, Valves, Couplings, and Fittings.
First use Oct. 22, 1965.

SN 244,978. Empire Crafts Corporation, Newark, N.Y. Filed May 5, 1966.

NOBILITY

Owner of Reg. Nos. 348,432, 659,812, and others.
For Non-Electric Cookware.
First use Mar. 11, 1966.

SN 246,798. Clayton Mark & Company, Evanston, Ill. Filed May 27, 1966.

PETRO

Owner of Reg. No. 420,802.
For Ball Valves.
First use no later than Mar. 8, 1961.

Class 14 — Metals and Metal Castings and Forgings

SN 258,963. United States Steel Corporation, Pittsburgh, Pa. Filed Nov. 18, 1966.

Q-TEMP

For Steel Bars.
First use Oct. 11, 1966.

Class 15 — Oils and Greases

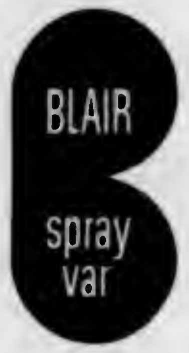
SN 204,492. The No-Load Company, Clyde, Ohio. Filed Oct. 21, 1964.

NO-LOAD

For Compound With Lubricating Properties for Preventing Loading of Cutting and Abrading Surfaces in Metal Working.
First use July 24, 1950.
Subj. to Intf. with SN 210,517.

Class 16 — Protective and Decorative Coatings

SN 225,862. Blair Art Products, Inc., Memphis, Tenn. Filed Aug. 17, 1965.



No claim of exclusive right is made to the word "Spray" apart from the mark as shown.
For Spray Varnish for Oil Paintings.
First use Mar. 24, 1955.

Class 17 — Tobacco Products

SN 246,921. Philip Morris Incorporated, New York, N.Y. Filed May 31, 1966.

LONGPAR

For Filtered Cigarettes.
First use May 19, 1966.

SN 246,922. Philip Morris Incorporated, New York, N.Y. Filed May 31, 1966.

TOM THUMB

For Cigarettes.
First use May 19, 1966.

Class 18 — Medicines and Pharmaceutical Preparations

SN 198,842. Heinrich Mack Nachf., Chem.-Pharmazeutische Fabrik, Kommanditgesellschaft, Bavaria, Germany. Filed July 30, 1964.

PSYCHOPRONT

Owner of German Reg. No. 758,679, dated Nov. 15, 1960.
For Psychotherapeutic Medicinal Agents.

SN 223,724. Richardson-Merrell Inc., Cincinnati, Ohio. Filed July 19, 1965.

TALAMO

For Pharmaceutical Preparation—Namely, Sodium Amobarbital.
First use July 6, 1965.

SN 234,546. Dover Laboratories, Inc., Norwood, Mass. Filed Dec. 14, 1965.

DOCTOR'S ORDERS

For Diaper Ointment.
First use Nov. 1, 1965.

SN 234,547. Dunhall, Inc., Gravette, Ark. Filed Dec. 14, 1965.

DUOPRIN

For Pharmaceutical in Tablet Form for Treatment of Pain of Headache, Common Cold, Sinusitis, and for Minor Arthritic and Rheumatic Pains, Muscular Aches, and Menstrual Discomfort.
First use on or about May 21, 1965.

SN 235,178. General Nutrition Corporation, Pittsburgh, Pa. Filed Dec. 23, 1965.

NUTRINS

The drawing is lined for the color red.
For Dietary Food Supplement in Tablet Form Containing Vitamins and Minerals.
First use July 1, 1964.

SN 242,127. Hazleton-Nuclear Science Corporation, Palo Alto, Calif. Filed Mar. 29, 1966.

X-SEED

For Radioactive Seed for Use in Cancer Therapy.
First use in or about February 1966.

SN 243,573. Park Laboratories, Incorporated, Chicago, Ill. Filed Apr. 15, 1966.

BURNACAIN

For Healing Ointments for Burns.
First use Mar. 1, 1966.

SN 247,191. Bristol-Myers Company, New York, N.Y. Filed June 3, 1966.

VERSACLOX

For Medicines and Pharmaceutical Preparations—Namely, an Antibiotic.
First use Mar. 3, 1966.

SN 247,788. Eisai Company, Limited, Bunkyo-ku, Tokyo, Japan. Filed June 10, 1966.

Klinit

For Medicinal and Pharmaceutical Preparations—namely, Xylitol Preparations for a Rapid-Acting, Versatile Source of Energy in Diabetes, Stress, and Post-Operative Feeding; for a Liver Protecting Agent in Acute and Chronic Hepatic Diseases, and for a Coadjuvant in Anabolic Treatments.
First use June 19, 1965; in commerce Apr. 7, 1966.

SN 249,407. Bristol-Myers Company, New York, N.Y. Filed July 1, 1966.

PEN-BL

For Medicinal and Pharmaceutical Preparations—Namely, an Antibiotic.
First use Apr. 15, 1966.

SN 252,605. Vitamin Council Incorporated, St. Paul, Minn. Filed Aug. 16, 1966.

ESPREL

For Pain Relieving Tablets.
First use Nov. 29, 1965.

SN 252,782. American Home Products Corporation, New York, N.Y. Filed Aug. 22, 1966.

SQUARE SHAKE

For Veterinary Vitamin Supplement.
First use Aug. 11, 1966.

SN 252,783. American Home Products Corporation, New York, N.Y. Filed Aug. 22, 1966.

FACE GUARD

The word "Face" is disclaimed apart from the mark as shown.
For Medicated Face Cream.
First use Aug. 11, 1966.

SN 256,794. Parke, Davis & Company, Detroit, Mich. Filed Oct. 20, 1966.

PAROFENOL

For Hypnotic-Sedative Preparation.
First use on or before Jan. 1, 1959.

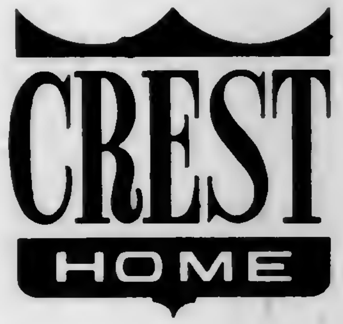
SN 258,869. Kirkman Laboratories, Inc., Portland, Oreg. Filed Nov. 17, 1966.

FLURA-GEL

Owner of Reg. Nos. 712,408 and 732,675.
For Topical Fluoride Preparation for Professional Application to Teeth.
First use Oct. 10, 1966.

Class 19—Vehicles

SN 224,073. Chickasha Mobile Homes of Missouri, Inc., North Kansas City, Mo. Filed July 23, 1965.



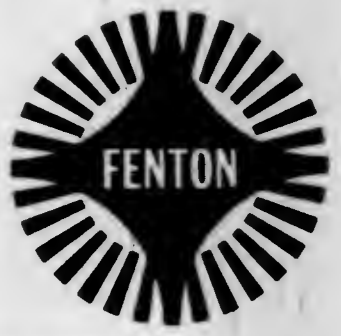
The term "Home" is disclaimed apart from the mark as shown.
For Mobile Homes.
First use Apr. 15, 1965.

SN 224,734. European Motor Products, Inc., Riverside, Calif. Filed Aug. 2, 1965.

CAMBER COMPENSATOR

For Stabilizer Bars for the Rear Wheels of Swing-Axle Automobiles.
First use on or about Dec. 9, 1959.

SN 226,633. Fenton Company, Gardena, Calif. Filed Aug. 27, 1965.



For Automobile Wheels.
First use on or about May 7, 1965.

SN 237,267. Yankee Metal Products Corp., Norwalk, Conn. Filed Jan. 25, 1966.

BRITE-VUE

For Automobile Mirrors and Mirror Mountings.
First use Nov. 20, 1939.

SN 240,441. The Huffman Manufacturing Company, Miamisburg, Ohio. Filed Mar. 8, 1966.

THE RAIL

For Bicycles, and Parts Therefor.
First use Feb. 2, 1966.

SN 240,676. Teleflex Incorporated, North Wales, Pa. Filed Mar. 10, 1966.

DONZI

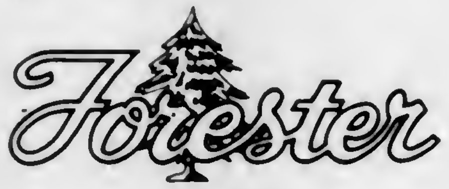
For Boats.
First use May 7, 1964.

SN 241,859. Butler Manufacturing Company, Kansas City, Mo. Filed Mar. 25, 1966.

COST-BUSTR

For Tank Trailer Vehicles.
First use Sept. 30, 1965.

SN 242,353. Forest City Industries, Inc., Forest City, Iowa. Filed Mar. 31, 1966.



For Travel Trailers and Campers.
First use Aug. 13, 1958.

SN 242,481. Persons-Majestic Mfg. Company, Worcester, Mass. Filed Apr. 1, 1966.

SWINGER

For Bicycle Saddles.
First use Feb. 2, 1966.

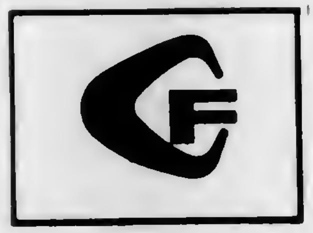
Class 21—Electrical Apparatus, Machines, and Supplies

SN 235,731. Toa Musen Co., Ltd., Shinagawa-ku, Tokyo, Japan. Filed Jan. 3, 1966.

TELECON

For Audio Amplifiers, Transceivers, Intercoms, Walkie-Talkies, and Walkie-Talkies With Radio Receiver.
First use September 1960; in commerce June 23, 1962.

SN 239,037. Fostoria Corporation, Fostoria, Ohio. Filed Feb. 17, 1966.



Owner of Reg. No. 740,540.
For Electrical Apparatus for Lighting, Industrial and Commercial Infra-Red Comfort Heating and Infra-Red Processing—Namely, Electric Lamps and Supports Therefor, Industrial and Commercial Infra-Red Electric Lamp Heaters, Infra-Red Ovens, Infra-Red Furnaces, and Parts Therefor.
First use Sept. 1, 1964.

SN 239,672. Sola Basic Industries, Inc., Milwaukee, Wis. Filed Feb. 25, 1966.

ELECTRI-COMFORT

For Electric Heaters.
First use Oct. 29, 1965.

SN 240,505. Continental Wirt Electronics Corporation, Philadelphia, Pa. Filed Mar. 9, 1966.

SWIDGET

For Electric Switches.
First use Mar. 23, 1962.

SN 240,506. Continental Wirt Electronics Corporation, Philadelphia, Pa. Filed Mar. 9, 1966.

SYDEWYNDER

For Electric Switches.
First use September 1965.

SN 240,597. Betty M. Dwyer, d.b.a. D & B Mfg. Co., Anderson,, Ind. Filed Mar. 10, 1966.

ARISTOCRAT

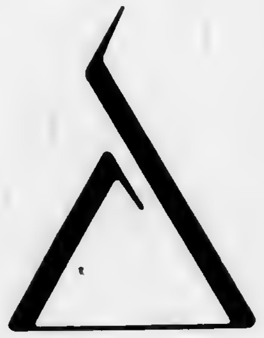
For Burglar, Fire, and Holdup Alarms.
First use Dec. 31, 1956.

SN 240,664. Rotron Manufacturing Company, Inc., Woodstock, N.Y. Filed Mar. 10, 1966.

DELWYN

For Electrical Motor Driven Fans.
First use on or about Feb. 9, 1966.

SN 240,665. Rotron Manufacturing Company, Inc., Woodstock, N.Y. Filed Mar. 10, 1966.



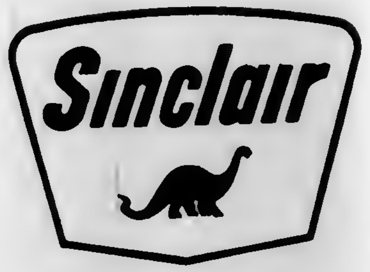
For Electrical Motor Driven Fans.
First use on or about Feb. 9, 1966.

SN 240,794. Scovill Manufacturing Company, Racine, Wis. Filed Mar. 11, 1966.

COOKBOOK

For Electric Mixers and Blenders.
First use Jan. 19, 1966.

SN 240,966. Sinclair Refining Company, New York, N.Y. Filed Mar. 14, 1966.



Owner of Reg. Nos. 146,362, 695,175, and others.
For Radios.
First use Nov. 19, 1965.

SN 241,029. Charles Engineering, Inc., Los Angeles, Calif. Filed Mar. 15, 1966.

WIZARD

Owner of Reg. No. 690,495.
For Couplers for Television and FM Receivers.
First use Mar. 23, 1957.

SN 241,059. Fedtro, Inc., Rockville Centre, N.Y. Filed Mar. 15, 1966.

It's Sound Business
to put Sound in Sports!

Owner of Reg. No. 789,621.
For Electric Amplifiers, Megaphones, Microphones, Speakers, Intercommunication Equipment, and Marine Hailer Sets.
First use Feb. 1, 1966.

SN 241,108. Wells Television, Inc., New York, N.Y. Filed Mar. 15, 1966.

Owner of Reg. No. 754,029.
For Remote Control Units for Television and Wireless Audio, and Television Reception Apparatus.
First use Nov. 1, 1962.

SN 241,444. Electrochimica Corporation, Menlo Park, Calif. Filed Mar. 21, 1966.

MERCAD

For Electrochemical Cells and Batteries of the Cadmium-Mercuric Oxide Type.
First use Feb. 1, 1966.

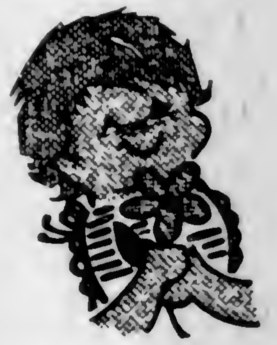
Class 22 — Games, Toys, and Sporting Goods

SN 213,497. Tudor Metal Products Corporation, Brooklyn, N.Y. Filed Mar. 5, 1965.

sNAP action

For Apparatus Sold as Units for Playing Board Games of Tennis, Croquet, Golf, Hockey, and the Like.
First use Feb. 19, 1965.

SN 222,973. Reliance Products Corporation, Woonsocket, R.I. Filed July 8, 1965.



The drawing is lined for orange, blue, yellow, and red.
Owner of Reg. No. 717,360.
For Infants' Toys, Excluding Dolls.
First use June 1, 1965.

SN 227,297. Items, Inc., d.b.a. Safe-T-Bone Co., St. Louis, Mo. Filed Sept. 7, 1965.

SAFE-T-BONE

For Chewing Toy for Animals.
First use Feb. 10, 1965.

SN 227,547. The Avalon Hill Company, Baltimore, Md. Filed Sept. 10, 1965.

$QUANDER

For Equipment Sold as a Unit for a Playing Board Game.
First use May 6, 1965.

SN 229,671. Multiple Products, Inc., Bronx, N.Y. Filed Oct. 8, 1965.

PLAZER

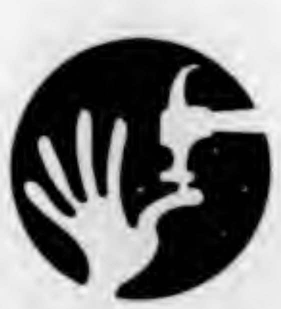
For Toy Guns.
First use Aug. 23, 1965.

SN 232,336. Multiple Products Inc., Bronx, N.Y. Filed Nov. 8, 1965.

RACE TRAP

For Toy Vehicle and Directional Guiding Means Therefor.
First use Sept. 24, 1965.

SN 233,390. Putter-Craft Company, Oakland, Calif. Filed Nov. 26, 1965.



For Domino Set Consisting of Domino Playing Pieces, and Container Therefor, the Lid of Which is Used as a Scoreboard.
First use Jan. 1, 1943.

SN 234,984. Joseph B. Zahn & Sons, Inc., New York, N.Y. Filed Dec. 20, 1965.

J Z B

For Dolls and Toys—Namely, Friction Toys, Novelties, Party Goods, Notions, and Other Assorted Toy Merchandise.
First use in or about February 1962.

SN 237,084. Championship Games, Inc., Southport, Conn. Filed Jan. 24, 1966.

CG

For Apparatus Sold as Units and Comprising Game Boards and Moving Pieces for Playing Various Type Parlor Games.
First use Sept. 17, 1965.

SN 237,481. Radio Steel & Mfg. Co., Chicago, Ill. Filed Jan. 27, 1966.

RADIO Jet

Owner of Reg. Nos. 561,829, 687,508, and others.
For Coaster Wagons.
First use Jan. 2, 1964.

SN 238,624. De Luxe Reading Corporation, Elizabeth, N.J. Filed Feb. 11, 1966.

PRETTY BOY

No claim of exclusive right is made to "Boy," for a doll.
For Dolls.
First use Jan. 28, 1966.

SN 238,959. Mego Corp., New York, N.Y. Filed Feb. 16, 1966.

HUSH-UP TOY

No claim of exclusive right is made to the word "Toy" for the goods recited.
For Miscellaneous Toys for Children.
First use Feb. 4, 1966.

SN 240,808. True Temper Corporation, Cleveland, Ohio. Filed Mar. 11, 1966.

TT

Owner of Reg. Nos. 708,047, 801,202, and others.
For Skiing Equipment, Comprising Skis, Ski Poles, Ski Baskets, Ski Bindings, and Parts Therefor.
First use Dec. 7, 1965, on skis.

SN 241,427. Wolf Brandt, Lees Summit, Mo. Filed Mar. 21, 1966.

"BARRAGE"

For Apparatus Sold as a Unit for Playing a Parlor Game.
First use Dec. 1, 1965.

SN 241,637. Colt's Inc., Hartford, Conn. Filed Mar. 23, 1966.

TARGETSMAN EXPRESS

Owner of Reg. No. 736,354.
For Archery Bows.
First use Nov. 22, 1965.

SN 241,792. Mattel, Inc., Hawthorne, Calif. Filed Mar. 24, 1966.

ANIMAL YACKER

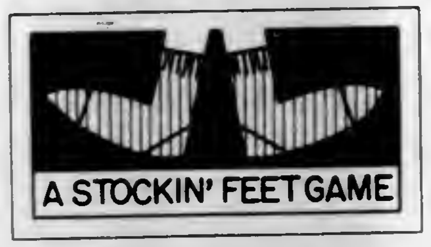
No claim of exclusive right to the word "Animal," apart from the mark as shown, is made.
For Animal Plush Toys.
First use Nov. 15, 1962.

SN 241,801. Regal Games Manufacturing Co., Chicago, Ill. Filed Mar. 24, 1966.

Million Dollar Solitare

No claim is made to the word "Solitare" apart from the mark as shown.
For Parts Sold as a Unit and Designed for Use in Playing a Solitaire-Type Parlor Game.
First use on or about Dec. 16, 1965.

SN 241,855. Milton Bradley Company, Springfield, Mass. Filed Mar. 25, 1966.



The drawing is lined to indicate the color red. The expression "A Stockin' Feet Game" is disclaimed apart from the mark as used.
For Equipment Comprising a Delineated Playing Surface for Playing a Parlor Game.
First use Mar. 3, 1966.

SN 241,857. Milton Bradley Company, Springfield, Mass. Filed Mar. 25, 1966.

Twister

For Equipment Comprising a Delineated Playing Surface for Playing a Parlor Game.
First use Mar. 3, 1966.

SN 242,357. The General Tire & Rubber Company, Akron, Ohio. Filed Mar. 31, 1966.

AQUA-BALANCE

For Water Skis.
First use Jan. 10, 1966.

SN 242,398. Shakespeare Company, Kalamazoo, Mich. Filed Mar. 31, 1966.

HYDRO-FILM

For Sporting Goods—Namely, Fishing Reels and Parts Thereof.
First use November 1965.

SN 242,399. Shakespeare Company, Kalamazoo, Mich. Filed Mar. 31, 1966.

HYDRO-SHEAR

For Sporting Goods—Namely, Fishing Reels and Parts Thereof.
First use November 1965.

SN 242,561. Claudea-Mark Corporation, Pittsburgh, Pa. Filed Apr. 4, 1966.

THE OAKMONTER

For Golf Clubs.
First use Nov. 29, 1965.

SN 242,828. Lowville-American Co., Inc., Lowville, N.Y. Filed Apr. 6, 1966.

Sharpshooter

For Billiard Cues.
First use Apr. 8, 1965.

SN 242,829. Lowville-American Co., Inc., Lowville, N.Y. Filed Apr. 6, 1966.

Shark

For Billiard Cues.
First use Apr. 14, 1965.

SN 243,974. Jack Finn, Inc., Boston, Mass. Filed Apr. 21, 1966.

MICKEY FINN

"Mickey Finn" is the commonly used nickname of Henry M. Finn, an officer of application corporation. Owner of Reg. No. 795,644.

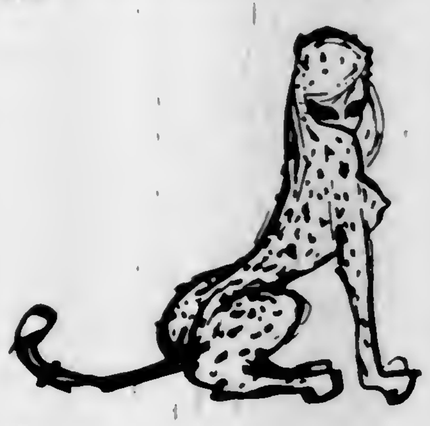
For Fishing Rods and Reels; Campers' Sleeping Bags; Skis and Poles; Baseball Gloves, Bats, and Balls; Footballs; Table Tennis Sets; Golf Clubs, Balls, Bags, and Carts; Basketballs; and Hockey Sticks, Pucks, and Pads.
First use at least as early as 1944.

SN 245,954. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Jigsaw Puzzles and Yo-Yos.
First use Apr. 27, 1966.

SN 247,956. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Jigsaw Puzzles and Yo-Yos.
First use Apr. 27, 1966.

SN 250,173. Parker Brothers, Inc., Salem, Mass. Filed July 13, 1966.

UNIVERSE

For Equipment for Use in Playing a Board Game.
First use June 23, 1966.

SN 256,035. Brunswick Corporation, Chicago, Ill. Filed Oct. 10, 1966.

CAROM-BOWL

For Apparatus for Playing a Bowling Game.
First use Feb. 17, 1966.

SN 256,201. Cordell Tackle, Inc., Hot Springs, Ark. Filed Oct. 11, 1966.

KING-SPOT

For Artificial Fishing Lures.
First use Aug. 22, 1966.

SN 257,021. Mattel, Inc., Hawthorne, Calif. Filed Oct. 24, 1966.

NITE-GLO

For Toy Figures and Replicas, and Toy Materials for Making the Same.
First use Sept. 12, 1966.

SN 257,022. Mattel, Inc., Hawthorne, Calif. Filed Oct. 24, 1966.

TALKIN' PATTER PILLOWS

Applicant disclaims the term "Talkin' " and "Pillows" apart from the mark as shown.

For Toys, Specifically Pillows, Containing Toy Phonograph Units.
First use Sept. 19, 1966.

SN 258,759. Mattel, Inc., Hawthorne, Calif. Filed Nov. 16, 1966.

M-16 MARAUDER

For Toy Guns.
First use Sept. 29, 1966.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

SN 227,100. Jack Foster, d.b.a. Goliath Products, Los Angeles, Calif. Filed Sept. 1, 1965.

GOLIATH

For Pastry Bags.
First use Feb. 1, 1958.

SN 228,421. Walker Manufacturing Company, Racine, Wis. Filed Sept. 22, 1965.

FAST PAK

For Air-Hydraulic Power Units for Force Applying Devices Such as Jacks and Lifting Units for Motor Vehicles.
First use Aug. 23, 1965.

SN 230,134. Corken Pump Company, Oklahoma City, Okla. Filed Oct. 14, 1965.

CORO-VANE

For Sliding Vane Pumps.
First use 1957.

SN 230,135. Corken Pump Company, Oklahoma City, Okla. Filed Oct. 14, 1965.

CORO-FLO

For Turbine-Regenerative Pumps.
First use 1955.

SN 230,790. Complett S.p.A., Milan, Italy. Filed Oct. 21, 1965.

complettMATIC

Priority claimed under Sec. 44(d) on Italian application filed Sept. 13, 1965; Reg. No. 173,945, dated Dec. 15, 1965.

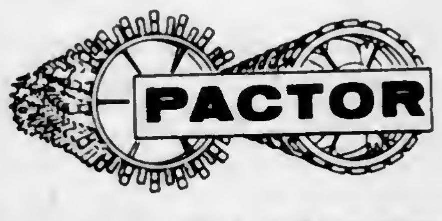
For Machines for Manufacturing and Mending Hosiery, Socks and Stockings, and Parts Thereof.

SN 232,933. Power Cleaning Supply Co., Rockford, Ill. Filed Nov. 18, 1965.

AERO-KLEEN

For Mobile Power Cleaning Units.
First use Feb. 11, 1965.

SN 233,734. Pactor Corporation, West Sacramento, Calif. Filed Dec. 1, 1965.



For Heavy Duty Vehicles Such as Earth Moving and Earth Compacting Equipment.
First use at least as early as June 12, 1963.

SN 235,196. Kearney & Trecker Corporation, West Allis, Wis. Filed Dec. 23, 1965.

SPEED-E-SPOOL

For Spool for the Handling and Storage of a Machine Tool Control Tape.
First use Jan. 22, 1965.

SN 248,364. Sears, Roebuck and Co., Chicago, Ill. Filed June 17, 1966.

POLAR CUB

For Motor Driven Snow Thrower.
First use on or about Sept. 15, 1965.

Class 26 — Measuring and Scientific Appliances

SN 198,572. Monroe International Corporation, Orange, N.J. Filed July 27, 1964.

MONROE EXECUTIVE

Owner of Reg. Nos. 129,029, 710,574, and others.
For Adding Machines and Calculating Machines.
First use on or about July 7, 1964; March 1913 as to "Monroe."

SN 210,914. Tiffen Optical Co., Roslyn Heights, N.Y. Filed Jan. 28, 1965.

COMBI-PAK

For Display Sleeve With a Close Up Lens in a Transparent Blister.
First use on or about Sept. 1, 1964.

SN 226,583. Siemens & Halske Aktiengesellschaft, Munich, Germany. Filed Aug. 26, 1965.

TRANSDATA

Owner of German Reg. No. 754,313, dated Oct. 21, 1960.

For Apparatus for Transmitting and Receiving Coded Data Over Telegraph or Audio Channels—Namely, Signal Transmitting Stations With Telephone Equipment and Converters for Translating Tape-Carried Code Signals Into Audio-Frequency Signals, Signal Receiving Stations with Telephone Equipment and Converters for Translating Audio-Frequency Signals Into Code-Signals, Tape Punching and Tape Recording Devices for Coded Data, Tape Reading Devices, Devices for Automatic Detection and Correction of Signal Errors, Data Processing Circuit Device With Data Memory Units, and Components of Said Stations and Devices.

SN 232,140. Otis Engineering Corporation, Dallas, Tex. Filed Nov. 4, 1965.

OTIS

Owner of Reg. Nos. 356,656, 572,820, and others.
For Oil and Gas Well Tools—Namely, Tubing Gages, Casing Gages, Tubing Calipers, Casing Calipers, Fluid Pressure Pipe and Joint Testing Tools, and Parts Therefor.
First use Jan. 1, 1936.

SN 239,473. Vernon Photographic Corporation, Mt. Vernon, N.Y.. Filed Feb. 23, 1966.

EDONAR

For Camera and Projector Lenses.
First use Dec. 29, 1965.

SN 239,890. Fisher Scientific Company, Pittsburgh, Pa. Filed Mar. 1, 1966.

DYNA-MIX

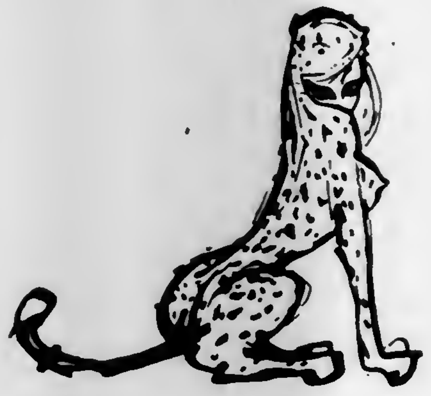
For Laboratory Stirrers.
First use November 1965.

SN 245,958. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Sunglasses.
First use Apr. 27, 1966.

SN 247,960. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Sunglasses.
First use Apr. 27, 1966.

Class 27 — Horological Instruments

SN 240,929. Lucien Piccard Watch Corp., New York, N.Y. Filed Mar. 14, 1966.

UNION

For Watches.
First use Sept. 13, 1965.

Class 28 — Jewelry and Precious-Metal Ware

SN 237,390. Ellis Silver Company, Inc., New York, N.Y. Filed Jan. 26, 1966.

EB

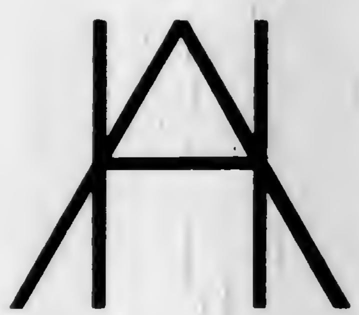
For Silverplate Hollow Ware.
First use Jan. 14, 1966.

SN 240,796. Shiman Bros.-Colonial, Inc., New York, N.Y. Filed Mar. 11, 1966.

INDIE

For Star Sapphires and Star Rubies.
First use Jan. 20, 1966.

SN 240,914. The House of Adler, Inc., Denver, Colo. Filed Mar. 14, 1966.



For Jewelry.
First use Sept. 10, 1965.

SN 244,979. Empire Crafts Corporation, Newark, N.Y. Filed May 5, 1966.

NOBILITY

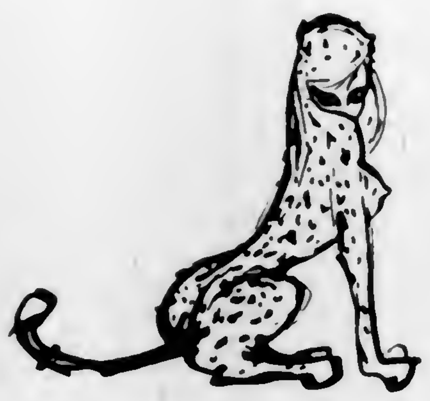
Owner of Reg. Nos. 348,432, 659,332, and others.
For Silver-Plated Holloware.
First use Mar. 15, 1966.

SN 245,955. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Earrings and Necklaces.
First use Apr. 27, 1966.

SN 247,955. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Earrings and Necklaces.
First use Apr. 27, 1966.

Class 29 — Brooms, Brushes, and Dusters

SN 236,260. I. Sekine Company, Inc., New York, N.Y. Filed Jan. 12, 1966.

HEADMASTER

For Hairbrushes.
First use Nov. 29, 1965.

Class 30 — Crockery, Earthenware, and Porcelain

SN 237,073. Amphenol Corporation, Broadview, Ill. Filed Jan. 24, 1966.

MPC-100

For Moldable Precision Ceramic for General Industrial Use.
First use Nov. 8, 1965.

Class 32 — Furniture and Upholstery

SN 209,523. The E. B. Malone Corporation, Hialeah, Fla. Filed Jan. 7, 1965.

Glamourest

Applicant claims use for the area comprising the States of Florida, Georgia and certain border areas adjacent to the Georgia cities of Columbus and Augusta, to wit, Russell County, Alabama, and Aiken County, South Carolina.
For Mattresses, Box Springs, Innerspring Mattresses, Rubber Mattress Cores, and Frames for Holding Springs and Mattresses.
First use July 1, 1948.
Subj. to Conc. Use Proc. with SN 236,154.

SN 236,154. Simmons Company, New York, N.Y. Filed Jan. 10, 1966.

GLAMOUREST

Applicant claims use for the area comprising the whole of the United States and its territories, except the States of Florida and Georgia, and the Counties of Russell in Alabama and Aiken in South Carolina. Owner of Reg. Nos. 207,821, 621,296, and others.
For Mattresses and Box Springs.
First use at least as early as July 2, 1952.
Subj. to Con. Use Proc. with SN 209,523.

SN 242,599. Hana Corporation, Park Ridge, Ill. Filed Apr. 4, 1966.

HANA RACK

The word "Rack" is disclaimed apart from the mark as a whole.
For Heavy Duty Industrial Storage Frames and Racks, and Structural Components Thereof.
First use Feb. 24, 1966.

SN 244,481. Frankie Hot Dogs, Inc., New York, N.Y. Filed Apr. 28, 1966.

FRANKIE HOT DOGS

The words "Hot Dogs" are disclaimed apart from the mark as shown.
For Frankfurter Vending Booths.
First use Feb. 15, 1966.

SN 258,871. Snyder Manufacturing Company, Philadelphia, Pa. Filed Nov. 17, 1966.

Beautymate

For Magnifying Vanity Mirror.
First use June 27, 1966.

Class 33 — Glassware

SN 240,696. American Saint Gobain Corporation, Kingsport, Tenn. Filed Mar. 11, 1966.

CASCADE

For Flat and Sheet Glass.
First use Feb. 28, 1966.

SN 244,980. Empire Crafts Corporation, Newark, N.Y. Filed May 5, 1966.

NOBILITY

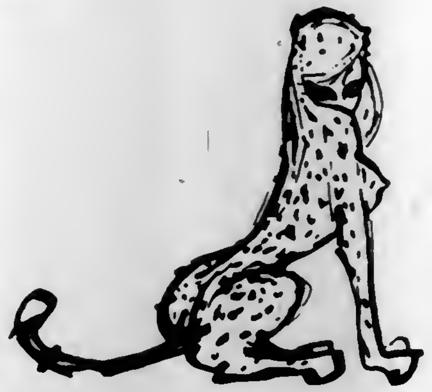
Owner of Reg. Nos. 348,432, 659,812, and others.
For Crystal Ware.
First use Mar. 23, 1966.

SN 245,956. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Drinking Glasses.
First use Apr. 27, 1966.

SN 247,958. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Drinking Glasses.
First use Apr. 27, 1966.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 223,707. Flavor-Seal Corporation, d.b.a. Nu-Trend Products Company, Chicago, Ill. Filed July 19, 1965.

CANDELRAMA

For Candle Lamp Sets, Comprising Holders, Shades, and Candles Therefor.
First use Aug. 5, 1963.

SN 240,659. Retail Stores Service, Inc., Baltimore, Md. Filed Mar. 10, 1966.

HOME-MARK

Owner of Reg. Nos. 640,010, 706,354, and 737,104.
For Electric Motor-Driven Ventilating and Air Circulating Fans.
First use Nov. 16, 1962.

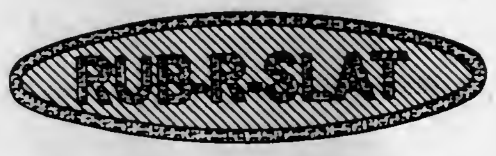
Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 216,923. Simmerwerke W. Simmer K.G., Kufstein, Austria. Filed Apr. 20, 1965.

SIKKUFIT

Owner of Austrian Reg. No. 52,843, dated July 23, 1964; and U.S. Reg. Nos. 702,260 and 727,594.
For Radial Shaft Sealing Rings, Machinery Packings, and Components Thereof.

SN 233,113. Legg Company, Inc., Halstead, Kans. Filed Nov. 22, 1965.



The drawing is lined for the colors green and yellow, but no claim is made to any particular color. Owner of Reg. No. 605,499.
For Power Driven Conveyor Belts for Grain Harvesting Machines.
First use Jan. 2, 1958.

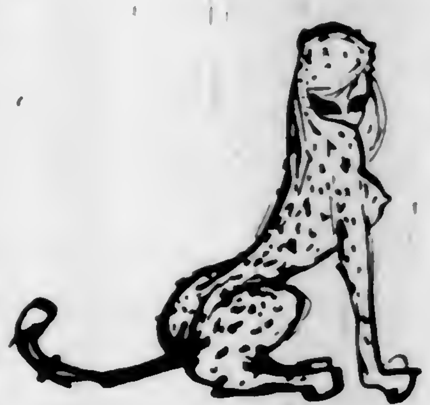
Class 36 — Musical Instruments and Supplies

SN 245,952. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Phonograph Records.
First use May 10, 1966.

SN 247,957. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Phonograph Records.
First use May 10, 1966.

Class 37 — Paper and Stationery

SN 217,075. All-Rite Pen Company, Inc., Hackensack, N.J., assignee of All-Rite Pen Incorporated, Hackensack, N.J. Filed Apr. 22, 1965.

ALL-RITE

For Writing Instruments and Parts Therefor.
First use Jan. 30, 1950.

SN 243,178. Scripto, Inc., Atlanta, Ga. Filed Apr. 11, 1966.

SCRIPTON

For Points for Fiber Tip Pens.
First use Mar. 11, 1966.

SN 251,477. Star Office Supply Co., Inc., New York, N.Y. Filed Aug. 1, 1966.

SPARTAN

For Pens.
First use July 1, 1966; April 1964 in a different form.

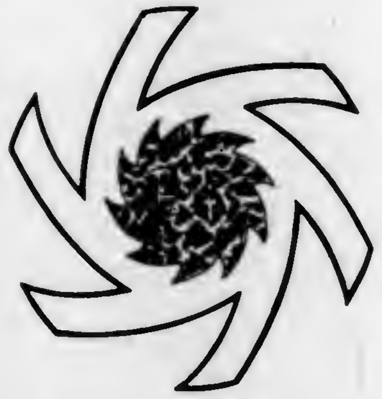
SN 258,957. Binney & Smith Inc., New York, N.Y. Filed Nov. 18, 1966.

AN-DU-SEPTIC

Owner of Reg. No. 224,026.
For Chalk Used for Writing and Drawing Purposes.
First use July 12, 1902.

Class 38 — Prints and Publications

SN 232,445. Expanse Publications, Inc., Minneapolis, Minn., assignee of Wilfred C. Bockelman, Minneapolis, Minn. Filed Nov. 10, 1965.



The drawing is lined for gold, but not claim is made to color.
For Magazine, in the Nature of a Digest Relating to Current Literature.
First use July 2, 1965.

SN 238,940. Will Eisner, New York, N.Y. Filed Feb. 10, 1966.

THE SPIRIT

For Comic Strip Published Periodically in a Section of Various Newspapers and for Comic Books.
First use Jan. 9, 1940.

SN 239,113. Bettendorf Publications Inc., Chicago, Ill. Filed Feb. 18, 1966.

Paperboard Packaging

Owner of Reg. No. 699,017.
For Magazine Relating to Paper and Its Uses.
First use at least as early as Jan. 31, 1966; Mar. 25, 1959, in a different form.

SN 239,591. Christ Temple Apostolic Faith Assembly, Indianapolis, Ind. Filed Feb. 25, 1966.

THE VOICE WILDERNESS

For Monthly Magazine.
First use May 15, 1958.

SN 240,122. Streater Store Fixtures, Inc., Albert Lea, Minn. Filed Mar. 3, 1966.

THE STREATER FORUM

For Company Business Newspaper.
First use on or about Sept. 10, 1965.

SN 242,611. Elmer Josephs, d.b.a. E. J. Enterprises, Minneapolis, Minn. Filed Apr. 4, 1966.

COIN-A-PRAISE

For Coin Appraisal and Check List.
First use Jan. 15, 1966.

SN 243,629. Benedict-Nerpel, Inc., North Hollywood, Calif. Filed Apr. 18, 1966.

OUTDOORS CALLING!

For Magazine Published Monthly.
First use Jan. 26, 1966.

SN 251,258. Institute for Scientific Information, Inc., Philadelphia, Pa. Filed July 29, 1966.

SCI

For Index to Scientific Literature.
First use Apr. 8, 1964.

SN 255,035. Institute for Scientific Information, Inc., Philadelphia, Pa. Filed Sept. 26, 1966.

IC

For Index Published Bi-Weekly on New Chemical Compounds.
First use Aug. 17, 1966.

SN 257,918. The Tru-D Company, Los Angeles, Calif. Filed Nov. 4, 1966.

SPACE-VISION

For Series of Motion Pictures.
First use Apr. 8, 1966.

SN 258,005. Union Tank Car Company, Chicago, Ill. Filed Nov. 3, 1966.

UTLX ACTION

For House Organ Published Quarterly.
First use October 1966.

Class 39 — Clothing

SN 225,545. Donmoor-Isaacson, Inc., New York, N.Y. Filed Aug. 12, 1965.

JUST MADE FOR BOYS—AND VICE VERSA

Owner of Reg. No. 746,777.
For Boys' Shirts.
First use in or about June 1960.

SN 229,498. Casben Productions Limited, Bankstown, New South Wales, Australia. Filed Oct. 7, 1965.

Casben

Owner of Australian Reg. No. 99,910, dated Aug. 30, 1949.
For Swimwear, Slacks, Outer Shorts, Skirts, and Shirts for Men, Women, and Children.

SN 230,233. Carson Pirie Scott & Co., Chicago, Ill. Filed Oct. 15, 1965.

Budgetwist

For Hosiery.
First use Aug. 25, 1965.

SN 231,275. Strathmore Shoe Co., Inc., Brockton, Mass. Filed Oct. 22, 1965.

FILIPPO VERDE
BY VERDE

The name "Filippo Verde" is the Italian for "Philip Green," a living individual who signed the application as treasurer.
Owner of Reg. No. 660,155.
For Men's Shoes.
First use August 1965.

SN 236,350. C. W. Anderson Hosiery Company, Clinton, S.C. Filed Jan. 13, 1966.

Poops

For Ladies' Hosiery.
First use 1950.

SN 237,040. Barbara K. Seelicke, Minneapolis, Minn. Filed Jan. 21, 1966.

SINNER'S SANDALS

The word "Sandals," when used apart from the mark, is disclaimed.
For Women's and Girls' Ornamented Foot Apparel.
First use July 1, 1965.

SN 242,775. T:mi SiDoste, om Lauri Molsa ja Kumpp, Tampere, Finland. Filed Apr. 1, 1966.

SIDOSTE

For Stockings.
First use June 1, 1954; in commerce June 1, 1965.

SN 243,548. Davidow Suits, Inc., New York, N.Y. Filed Apr. 15, 1966.

MARRAKASH

For Ladies' and Misses' Clothing—Namely, Suits, Jackets, Skirts, Dresses, Coats, Dress Ensembles, and Blouses.
First use June 1964.

SN 243,828. Auerbach and Company, Los Angeles, Calif. Filed Apr. 20, 1966.

imagination in clothes
LA JOLLA

No claim is made to the words "In Clothes" apart from the mark as shown.
Owner of Reg. Nos. 524,216, 612,226, and 765,939.
For Sportswear—Namely, Men's Slacks, Sport Shirts, Sport Coats and Jackets, Dress Shirts, Walking Shorts, and Pull-Overs.
First use June 15, 1965.

SN 243,885. Midland Shoe Co., St. Louis, Mo. Filed Apr. 20, 1966.

tidbits

For Women's Shoes.
First use Jan. 27, 1966.

SN 245,957. The Pop-Op Corporation, New York, N.Y. Filed May 18, 1966.

CHEETAH

For Belts, Skirts, Hats, and Pants.
First use Apr. 27, 1966.
Subj. to Intf. with SN 256,613.

SN 246,344. Modern Globe, Inc., Pawtucket, R.I. Filed May 23, 1966.

LOLLI-LEGS

Owner of Reg. Nos. 576,438, 690,582, and others.
For One-Piece Garment Combining Panties and Stockings.
First use on or about May 2, 1966.

SN 246,555. Genesco Inc., Nashville, Tenn. Filed May 25, 1966.

SIZE ONE

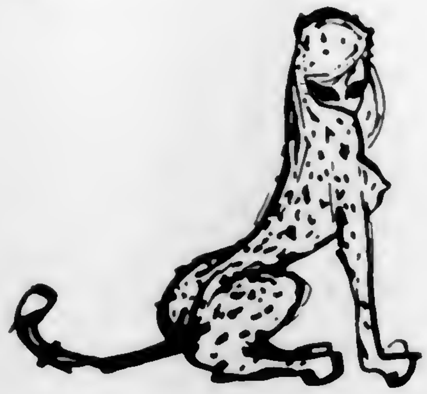
For Peignoirs and Night Gowns.
First use Oct. 27, 1965.

SN 247,919. Hanes Corporation, Winston-Salem, N.C. Filed June 13, 1966.

TODAY'S GIRL

For Ladies' Hosiery.
First use May 19, 1966.

SN 247,959. The Pop-Op Corporation, New York, N.Y. Filed June 13, 1966.



For Belts, Skirts, Hats, and Pants.
First use Apr. 27, 1966.
Subj. to Intf. with SN 256,613.

SN 256,613. Tudor Square Sportswear, Inc., New York, N.Y. Filed Oct. 17, 1966.

CHEETAHS

For Ladies' Pants.
First use Nov. 12, 1961.
Subj. to Intf. with SN 245,957 and SN 247,959.

SN 257,581. Bopear Travel Ltd., New York, N.Y. Filed Oct. 31, 1966.

Tote'n Travel

For Raincoats.
First use Oct. 10, 1966.

SN 258,452. Charles Deiber, d.b.a. C. Deiber Company, Encino, Calif. Filed Nov. 14, 1966.

Cali-Dream

For Women's Hosiery.
First use Oct. 18, 1966.

SN 258,753. Melville Shoe Corporation, New York, N.Y. Filed Nov. 16, 1966.

SUDO

For Men's and Women's Shoes.
First use Nov. 8, 1966.

SN 258,754. Melville Shoe Corporation, New York, N.Y. Filed Nov. 16, 1966.

SANDROVERS

Owner of Reg. No. 804,757.
For Shoes.
First use Nov. 8, 1966.

SN 258,756. Melville Shoe Corporation, New York, N.Y. Filed Nov. 16, 1966.

GUNSTOCK

For Men's Shoes.
First use Nov. 8, 1966.

SN 259,055. Cooper's, Incorporated, Kenosha, Wis. Filed Nov. 21, 1966.

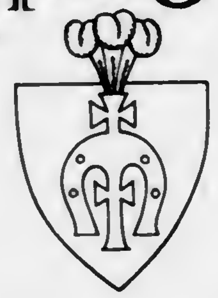
RAC
T

For Shirts.
First use at least as early as Oct. 20, 1966.

Class 40—Fancy Goods, Furnishings, and Notions

SN 222,836. Kai Dyzmann, Hamburg, Germany. Filed June 1, 1966.

KILROY



For Combs, Hair Ornaments, Hair Pins, Headbands and/or Hairbands, Brush and Comb Sets, Non-Electrical Hair Curlers, Artificial Eyelashes, Artificial Fingernails, and Sewing Etuis.
First use May 19, 1957; in commerce May 19, 1957.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 244,282. The Wool "O" Company, Philadelphia, Pa. Filed Apr. 25, 1966.

MENTRO

For Rugs.
First use Mar. 7, 1966.

SN 250,000. P. Kaufmann, Inc., d.b.a. Joseph W. Woods Company, New York, N.Y. Filed July 11, 1966.

WOODCO

Owner of Reg. No. 327,707.
For Cotton Piece Goods.
First use on or before June 6, 1955.

Class 44—Dental, Medical, and Surgical Appliances

SN 212,758. H.G. Enterprises, Kansas City, Mo. Filed Feb. 25, 1965.

DRI-PANTS

The word "Pants" is disclaimed apart from the mark as shown.
For Protective Two-Ply Undergarments, With an Absorbent Inner Pad, Somewhat in the Shape of a Diaper, Worn by Infants, Patients After Surgery, and Old People Incapable of Holding Their Urine.
First use on or about Jan. 11, 1965.

SN 258,646. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Nov. 15, 1966.

SKINVISIBLE

For Adhesive Tape for Medical and Surgical Uses.
First use Nov. 2, 1966.

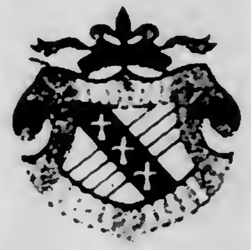
SN 258,865. Johnson & Johnson, New Brunswick, N.J. Filed Nov. 17, 1966.

DERMICEL

Owner of Reg. No. 719,395.
For Surgical Dressings.
First use July 7, 1966.

Class 45—Soft Drinks and Carbonated Waters

SN 234,366. Riva Distributing Company, San Francisco, Calif. Filed Dec. 10, 1965.



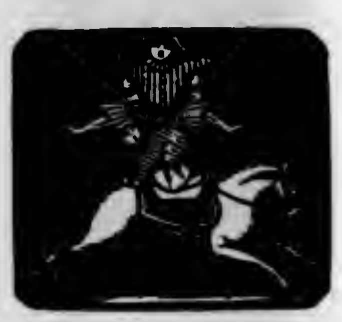
For Non-Alcoholic Mixes for Making Cocktails.
First use on or about Sept. 20, 1959.

SN 243,478. Pink Pussycat of Hollywood, Los Angeles, Calif. Filed Apr. 14, 1966.

PINK PUSSYCAT

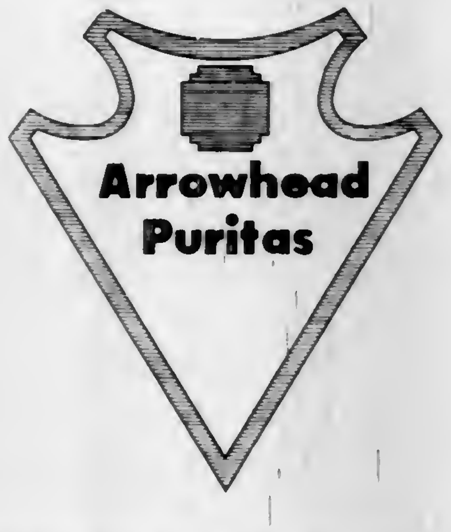
For Carbonated Soft Drink Beverages and the Like.
First use Mar. 18, 1966.

SN 245,567. Colony Imports, Inc., Los Angeles, Calif. Filed May 13, 1966.



For Soft Drinks.
First use Apr. 29, 1966.

SN 245,665. Arrowhead and Puritas Waters Inc., d.b.a. Arrowhead Puritas Waters, Los Angeles, Calif. Filed May 16, 1966.



The drawing is lined for red and light blue. Owner of Reg. Nos. 98,033, 730,090, and others.
For Drinking Water—Namely, Distilled Water, Spring Water, Fluoridated Water, and Spring Pure Water.
First use Feb. 1, 1966.

SN 256,696. PepsiCo, Inc., New York, N.Y. Filed Oct. 19, 1966.

GUARINDA

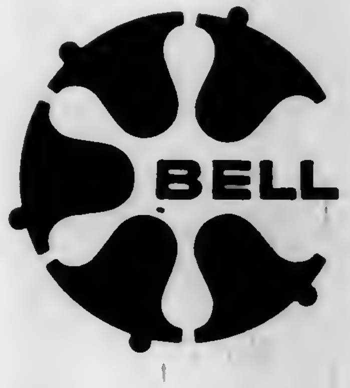
For Soft Drinks.
First use Sept. 21, 1966.

Class 46—Foods and Ingredients of Foods

SN 180,524. Nicolet-Krommenie N.V., Krommenie, Netherlands. Filed Nov. 4, 1963.

For Eating Chocolate.
First use 1956; in commerce 1957.

SN 197,659. Bell Brand Foods, Ltd., Los Angeles, Calif. Filed July 13, 1964.

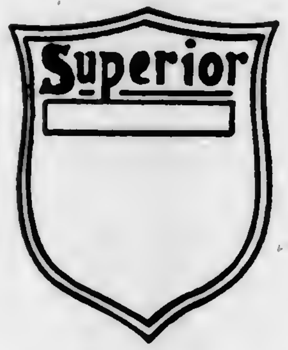


Owner of Reg. Nos. 434,791, 583,772, and others.
For Potato Chips of Various Kinds, Corn Chips, Cheese Puffs, and Peanut Butter.
First use Sept. 14, 1963.

SN 206,138. Anderson, Clayton & Co., Houston, Tex., assignee of Doric Corporation, d.b.a. Superior Feed Mills, Oklahoma City, Okla. Filed Nov. 13, 1964.

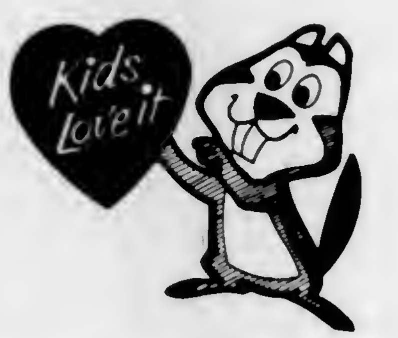
The drawing is lined for red, but no claim is made to any particular color. Owner of Reg. Nos. 191,828, 624,680, and others.
For Feeds for Poultry.
First use Jan. 1, 1944; Aug. 13, 1920, as to "Superior."

SN 206,139. Anderson, Clayton & Co., Houston, Tex., assignee of Doric Corporation, d.b.a. Superior Feed Mills, Oklahoma City, Okla. Filed Nov. 13, 1964.



Owner of Reg. Nos. 191,828, 624,680, and others.
For Poultry, Livestock, and Pet Feeds—Namely, Feed for Dogs, Cats, Rabbits, and Birds.
First use Jan. 1, 1927; Aug. 13, 1920, as to "Superior."

SN 209,096. The Kroger Co., Cincinnati, Ohio. Filed Dec. 30, 1964.



Without in any way relinquishing its common law rights, the applicant disclaims the words "Kids Love It" apart from the mark as shown. The drawing is lined for the color tan.
For Peanut Butter.
First use at least as early as June 24, 1963.

SN 210,399. Acme Markets, Inc., Philadelphia, Pa. Filed Jan. 22, 1965.

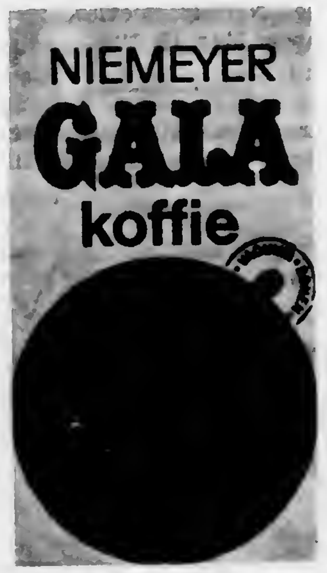
Owner of Reg. Nos. 50,065, 767,649, and others.
For Breakfast Foods—Namely, Wheat and Rice Puffs, Cream of Tartar and Baking Powder.
First use June 30, 1964.

SN 213,392. The Cornelius Company, Anoka, Minn. Filed Mar. 5, 1965.

dari·pop

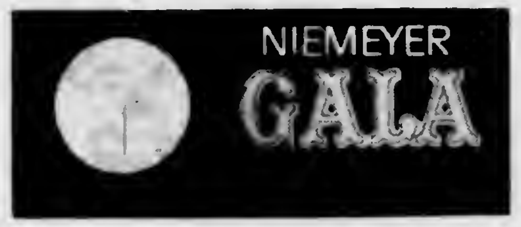
For Fluid Milk Beverages.
First use Dec. 30, 1964.

SN 215,435. Theodorus Niemeijer N.V., d.b.a. Theodorus Niemeyer N.V., Groningen, Netherlands. Filed Mar. 31, 1965.



Priority claimed under Sec. 44(d) on Dutch application filed Oct. 5, 1964; Reg. No. 153,420, dated Nov. 9, 1964. Applicant disclaims any exclusive rights in the word "Koffie" and the representation of the coffee beans. Owner of U.S. Reg. Nos. 629,654, 640,769, and 787,663.
For Coffee.

SN 215,436. Theodorus Niemeijer N.V., d.b.a. Theodorus Niemeyer N.V., Groningen, Netherlands. Filed Mar. 31, 1965.



Priority claimed under Sec. 44(d) on Dutch application filed Oct. 5, 1964; Reg. No. 153,421, dated Nov. 9, 1964. Applicant disclaims any exclusive rights in the terms "Thee, Geurige, Engelse, and Melange" apart from the mark. Owner of U.S. Reg. Nos. 629,654, 640,769, and 787,663.
For Tea.

SN 218,627. Fairmont Foods Company, Omaha, Nebr. Filed May 12, 1965.

Grasshoppers

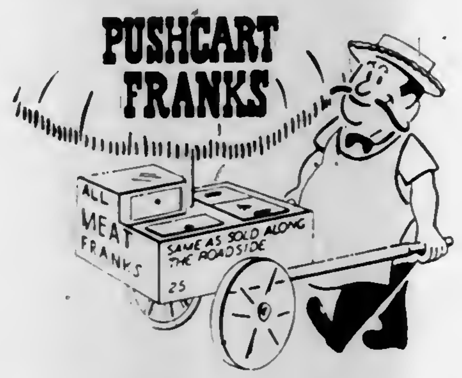
For Crackers, Not of a Confectionery Nature.
First use Apr. 19, 1965.

SN 224,392. Consolidated Foods Corporation, d.b.a. Booth Fisheries, Chicago, Ill. Filed July 28, 1965.

BOOTHBURGERS

Owner of Reg. Nos. 568,143 and 568,144.
For Frozen Fish Cakes.
First use June 30, 1965.

SN 225,577. Liberty Provisions Inc., Roseland, N.J. Filed Aug. 12, 1965.



The applicant disclaims the words "Franks," "same as sold along the roadside," and "all meat franks" apart from the mark.
For Frankfurters.
First use Jan. 3, 1964.

SN 228,480. Nixon & Company, Omaha, Nebr. Filed Sept. 23, 1965.

NIXON

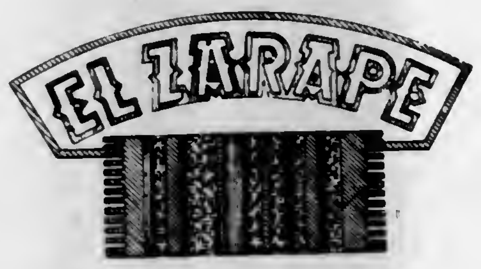
Owner of Reg. No. 581,444.
For Livestock Feeds.
First use Jan. 1, 1943.

SN 232,077. J. A. Joffe & Co., Inc., Mt. Vernon, N.Y. Filed Nov. 3, 1965.

Peek-a-Vue

For Candy in the Form of Decorated Eggs.
First use July 14, 1965.

SN 232,537. El Zarape Tortilla Factory, Inc., Los Angeles, Calif. Filed Nov. 12, 1965.



The drawing is lined for green, red, and yellow. "El Zarape" is the Spanish term which refers to the name of a shawl or blanket-like outer garment worn in Latin America.
For Prepared Foodstuffs—Namely, Enchilada Sauce, Enchiladas, Fried Beans, Fried Rice and Tortillas.
First use April 1942.

SN 233,186. Martrude Corp., Glendale, N.Y. Filed Nov. 23, 1965.

MI-LEM'

Owner of Reg. No. 732,209.
For Non-Alcoholic Mixes for Making Soft Drinks, Alcoholic Cocktails, and for Food and Food Beverage Purposes.
First use Oct. 5, 1965.

SN 234,283. Leaf Brands, Inc., Chicago, Ill. Filed Dec. 9, 1965.

ZING

For Candy.
First use Nov. 1, 1965.

SN 234,322. Genepesca S.p.A., Rome Italy. Filed Dec. 8, 1965.

GENEPESCA

Owner of Italian Reg. No. 171,699, dated Nov. 20, 1964.
For Frozen Fish.

SN 234,459. Progress Food Products, Inc., New York, N.Y. Filed Dec. 13, 1965.

KLOMPEN

The word "Klompen" means "little Dutch shoes."
For Canned Hams.
First use on or before Dec. 8, 1965.

SN 235,692. Michigan Fruit Canners, Inc., Benton Harbor, Mich. Filed Jan. 3, 1966.

HONEYSWEET

For Canned Fruits.
First use Oct. 14, 1940.

SN 236,680. Vicente Puig, Jr., d.b.a. Vicente Puig & Company, New York, N.Y. Filed Jan. 17, 1966.

LA CENA

The English translation of the words "La Cena" is "the supper" in Spanish and Italian.
For Meatless Sauces Containing Cooking Wine.
First use December 1964.

SN 237,602. Sternco Industries, Inc., Harrison, N.J. Filed Jan. 28, 1966.

FOSTERFRY

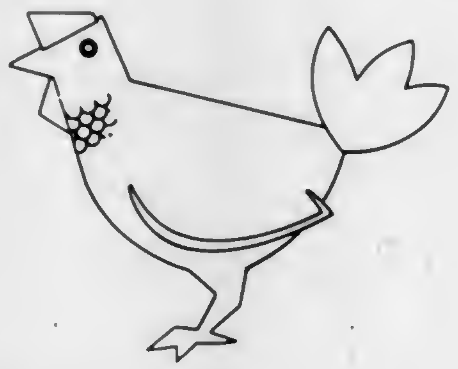
For Aquarium Fish Food.
First use Oct. 20, 1965.

SN 238,063. Euram Foods, Inc., d.b.a. Veltman Cookie Company, Grand Rapids, Mich. Filed Feb. 4, 1966.

COOKIE-TIME IS ANYTIME

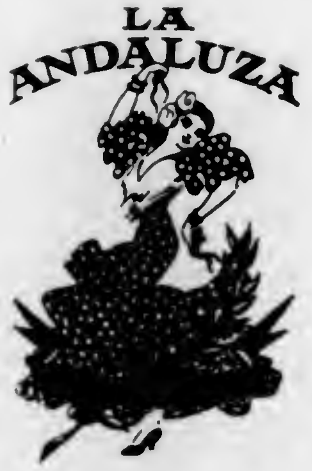
Owner of Reg. No. 810,848.
For Baked Goods—Namely, Cookies.
First use on or about Mar. 13, 1963.

SN 238,531. International Minerals & Chemical Corporation, d.b.a. Ac'cent International, Skokie, Ill. Filed Feb. 10, 1966.



For Chicken Flavor Base.
First use Jan. 13, 1966.

SN 239,171. Pallares Hermanos, S.A., Cabra, Cordoba, Spain. Filed Feb. 18, 1966.



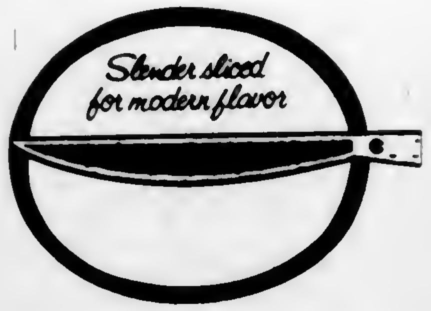
The figure on the drawing is fanciful. The word "La Andaluza" is the Spanish equivalent of the word "Andalusian."
Owner of Spanish Reg. No. 327,922, dated Mar. 28, 1958.
For Olive Oil.
First use at least as early as 1953; in commerce 1964.

SN 239,172. Paterson, Simons & Ewart Limited, London, England. Filed Feb. 18, 1966.

TAKSI

Owner of British Reg. Nos. 882,576 and 882,577, dated Aug. 2, 1965.
For Cocoa Butter, Cocoa Cake, Cocoa Powder, Cocoa Liquor, and Cocoa Products for Food and for Making Food Beverages.

SN 239,244. Peter Eckrich and Sons, Inc., Fort Wayne, Ind. Filed Feb. 21, 1966.


Slender sliced for modern flavor

Applicant disclaims any claim to the words "Slender Sliced for Modern Flavor" apart from the mark as shown.
For Chipped and Chopped Luncheon Meats and Meat Products, More Specifically Chipped Cooked Pork Loin, Chipped Smoked Turkey, Chipped Smoked Ham, Chopped Sliced Beef, and Chipped Corned Beef.
First use Nov. 10, 1965.

SN 240,056. Ballas Egg Products Corporation, Zanesville, Ohio. Filed Mar. 3, 1966.

VACU-EGG

For Frozen Eggs, Whole Egg Solids, Yolk Solids, Albumen Solids, and Egg Solids Blends Comprising Whole Eggs With Yolks or Whites and Modified Corn Syrup.
First use Feb. 16, 1966.

SN 240,190. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Mar. 4, 1966.

CORRAL

For Imitation Meat Flavoring.
First use Sept. 16, 1965.

SN 241,379. J & J Soft Pretzel Co., Inc., Pennsauken, N.J. Filed Mar. 18, 1966.

J&J

Owner of Reg. Nos. 808,910 and 809,353.
For Soft Pretzels.
First use July 19, 1965.

SN 241,845. Allied Chemical Corporation, New York, N.Y. Filed Mar. 25, 1966.

NITRON

For Ruminant Feed Containing Nitrogen.
First use Feb. 3, 1966.

SN 244,752. Southern Fruit Distrbutors, Inc., Orlando, Fla. Filed May 2, 1966.

LIQUID GOLD

For Refrigerated Citrus Juice in Containers.
First use Apr. 1, 1966.

SN 245,411. Marine Colloids, Inc., Springfield, N.J. Filed May 11, 1966.

POLYMINE-Y

Owner of Reg. No. 783,310.
For Isolated Soy Protein.
First use Mar. 14, 1966.

SN 253,099. Tomooka Bros., Santa Maria, Calif. Filed Aug. 25, 1966.

TOYO

The word "Toyo" has no known English meaning or translation.
For Fresh Vegetables.
First use June 25, 1966.

SN 257,563. Huntsinger Ranch, Acton, Calif. Filed Oct. 31, 1966.

HUNTSINGER RANCH

For Fresh and Frozen Turkeys.
First use in or about November 1942.

SN 257,683. Western Dairy Products, Inc., San Francisco, Calif. Filed Nov. 1, 1966.

MELETONE

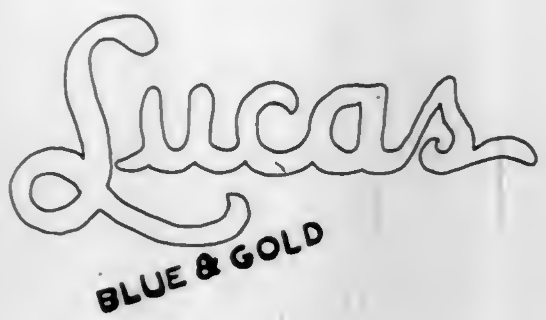
For Ice Cream Ingredient—Namely, a Mixture of Butterfat, Milk Solids Nonfat, Sugar and Water.
First use Sept. 19, 1966.

SN 259,050. Harry Buller, d.b.a. Harry Buller Farms, Bakersfield, Calif. Filed Nov. 21, 1966.

Chucky

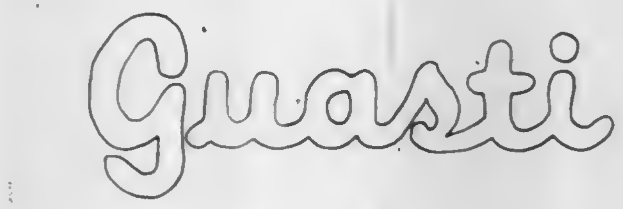
For Fresh Vegetables.
First use June 12, 1966.

SN 259,053. Carl Casella, d.b.a. Carl Casella Co., Altadena, Calif. Filed Nov. 21, 1966.



For Fresh Grapes.
First use Sept. 4, 1928; Apr. 6, 1928 as to "Blue & Gold."

SN 259,054. Carl Casella, d.b.a. C. & F. Co., Altadena, Calif. Filed Nov. 21, 1966.



Owner of Reg. No. 645,552.
For Fresh Grapes.
First use Sept. 11, 1955.

Class 47 — Wines

SN 242,448. Fredonia Products Company, Inc., d.b.a. Winston Wine Company, Fredonia, N.Y. Filed Apr. 1, 1966.

DRAGON LADY

For Wines.
First use Mar. 1, 1966.

SN 246,090. The May Department Stores Company, d.b.a. May Company, Los Angeles, Calif., Filed May 19, 1966.

SPECIAL OCCASION

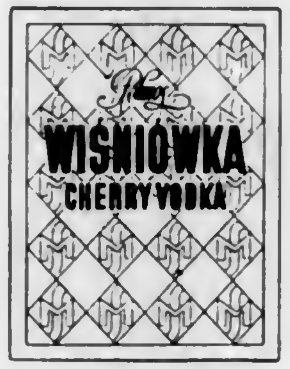
Owner of Reg. Nos. 676,441 and 807,873.
For Wine—Namely, Sparkling Burgundy and Champagne.
First use September 1960.

SN 259,056. Cucamonga Vineyard Company, d.b.a. Cucamonga Vineyard Co., Cucamonga, Calif. Filed Nov. 21, 1966.

For Champagnes.
First use Apr. 29, 1966.

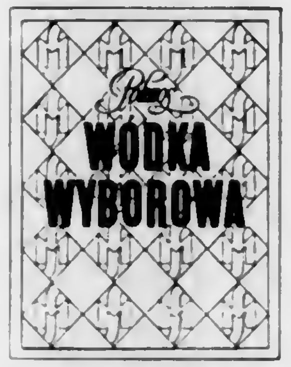
Class 49 — Distilled Alcoholic Liquors

SN 189,944. Przedsiebiorstwo Handlu Zagranicznego "Agros," Warsaw, Poland, assignee of Rolimpex Centrala Handlu Zagranicznego, Warsaw, Poland. Filed Mar. 30, 1964.



Applicant disclaims exclusive use of the words "Cherry Vodka" and "Wisniowka," a Polish word signifying a cherry cordial, which may be made by infusing vodka with cherry juice. Owner of Polish Reg. No. 43,964, dated June 29, 1963; and U.S. Reg. Nos. 757,016 and 796,087.
For Cherry Vodka.

SN 189,945. Przedsiebiorstwo Handlu Zagranicznego "Agros," Warsaw, Poland, assignee of Rolimpex Centrala Handlu Zagranicznego, Warsaw, Poland. Filed Mar. 30, 1964.



Applicant disclaims exclusive use of the words "Wodka Wyborowa." Owner of Polish Reg. No. 43,961, dated June 29, 1963; and U.S. Reg. Nos. 757,016 and 796,087.
For Vodka.

SN 220,789. John Power & Son Limited, Dublin, Ireland. Filed June 9, 1965.

POWER'S

Owner of U.S. Reg. Nos. 718,375 and 381,738.
For Gin.
First use Nov. 1, 1958; in commerce Mar. 2, 1960.

SN 225,760. John Gross & Co., Baltimore, Md. Filed Aug. 16, 1965.

HIGHLAND BANNER

Owner of Reg. No. 622,430.
For Scotch Whisky.
First use Feb. 18, 1955.

SN 233,949. Schieffelin & Co., New York, N.Y. Filed Dec. 3, 1965.

APPLETON

Owner of Reg. Nos. 424,668, 595,666, and 771,647.
For Rum.
First use Aug. 3, 1944.

SN 243,988. Heublein, Inc., Hartford, Conn. Filed Apr. 21, 1966.

ARROW

Owner of Reg. No. 570,125.
For Alcoholic Cordials, Vodka, Gin, and Prepared Alcoholic Cocktails.
First use Feb. 21, 1934.

SN 245,028. R. Stevenson, Taylor & Company Limited, Dumbarton, England. Filed May 5, 1966.

GRIFFIN

For Whisky.
First use Mar. 14, 1966; in commerce Mar. 14, 1966.

Class 50 — Merchandise Not Otherwise Classified

SN 235,825. Faster-Form Corporation, New Hartford, N.Y. Filed Jan. 5, 1966.

FAST STEM

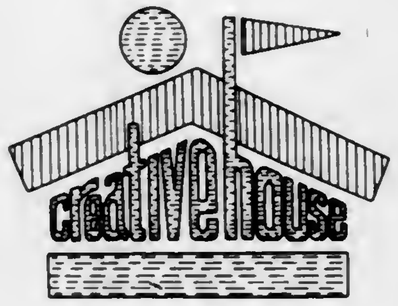
No claim is made by the applicant to the exclusive use of the word "Stem" apart from the mark as shown.
For Florist Supplies—Namely, Artificial Flower Stems, Each Having a Deformable Clip at One End for Gripping Engagement With a Portion of a Flower.
First use Dec. 7, 1965.

SN 236,857. Josephine Tussaud Inc., Scottsdale, Ariz. Filed Jan. 19, 1966.

JOSEPHINE TUSSAUD

The name "Josephine Tussaud" is the name of a living individual whose consent is of record.
For Wax Figures.
First use October 1961.

SN 240,860. Creative House Promotions, Inc., Chicago, Ill. Filed Mar. 14, 1966.



The drawing is lined for red and gray, but no claim is made to color.
For Advertising Specialties—Namely, Buttons, Badges, and Emblems.
First use June 15, 1964.

SN 248,708. International Artware Corporation, Cleveland, Ohio. Filed June 22, 1966.

For Artificial Floral Arrangements.
First use on or about June 10, 1966.

SN 250,873. Nesbit Industries, Incorporated, Chicago, Ill. Filed July 20, 1966.

FEATHER FUN

The word "Feather" is disclaimed apart from the mark as shown.
For Hobby Kit Comprising Feathers of Various Sizes for Use in Forming Decorative Articles.
First use January 1966.

SN 253,529. Donald D. Hedberg, d.b.a. Dyna-Slide Company, Evanston, Ill. Filed Aug. 31, 1966.

STEREOFOLDS

For Three Dimensional, Plastic Molecular and Atomic Models, and Parts and Accessories Therefor.
First use on or before June 25, 1966.

SN 253,837. Robert Q. Bekins, Jr., d.b.a. Holiday Forest, Fallbrook, Calif. Filed Sept. 6, 1966.

HOLIDAY FOREST

For Signs.
First use Oct. 31, 1965.

SN 253,838. Robert Q. Bekins, Jr., d.b.a. Holiday Forest, Fallbrook, Calif. Filed Sept. 6, 1966.

The mark consists of the letters "HF."
For Signs.
First use Oct. 31, 1965.

SN 254,630. Rowland Products, Incorporated, Kensington, Conn. Filed Sept. 16, 1966.

POLYCAPTOR

For Institutional Shields Used to Control and Subdue Individuals While Protecting the User.
First use on or about Aug. 22, 1966.

Class 51 — Cosmetics and Toilet Preparations

SN 238,077. The Gillette Company, Boston, Mass. Filed Feb. 4, 1966.

7 O'CLOCK

Owner of Reg. No. 99,931.
For After Shave Lotion, Cologne, Talcum Powder, Deodorant, Hair Groom, and Shaving Cream.
First use Oct. 4, 1965.

SN 239,847. World Wide Cosmetics, Inc., Chicago, Ill. Filed Feb. 28, 1966.

TUF

For Cologne and After Shave Lotion.
First use Dec. 17, 1965.

SN 243,169. Royal Hawaiian Perfumes, Ltd., Honolulu, Hawaii. Filed Apr. 11, 1966.

WICKED WAHINE

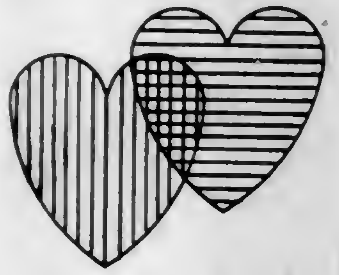
For Cologne.
First use Feb. 18, 1966.

SN 243,179. Seaforth Corporation, New York, N.Y. Filed Apr. 11, 1966.

LIME RICKEY

For After Shave Lotion.
First use Mar. 30, 1966.

SN 243,561. King Research, Inc., Brooklyn, N.Y. Filed Apr. 15, 1966.



The drawing is lined for the colors pink and blue, but color is not claimed.
For Cream for the Hands and for Other Areas of the Skin.
First use Mar. 28, 1966.

SN 244,020. Pierre Pellissard, Casablanca (Maroc), France. Filed Apr. 21, 1966.

T-LAK

For Dentifrices, Tooth-Paste.
First use Feb. 21, 1966; in commerce Feb. 21, 1966.

SN 244,226. La Maur, Inc., Minneapolis, Minn. Filed Apr. 25, 1966.

STYLAC

Owner of Reg. Nos. 753,442, 802,850, and others.
For Hair Fixative.
First use Apr. 13, 1966.

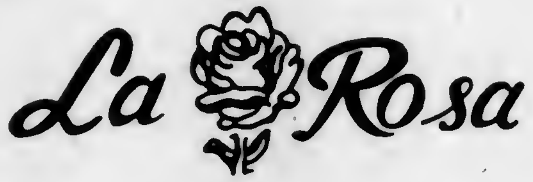
SN 248,846. Rayette-Faberge, Inc., New York, N.Y. Filed June 23, 1966.

VALOR

For Lotion for Men.
First use February 1958.

Class 52 — Detergents and Soaps

SN 208,688. Frank C. La Rosa, Omaha, Nebr. Filed Dec. 22, 1964.



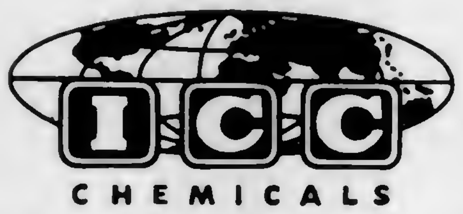
For Car Soap, Hand Soap, and All Purpose Cleaners for Windows, Walls, Floors, Tires, Stoves, Sinks, Woodwork, Tile, Linoleum, Plastic, Metal, and Similar Surfaces.
First use Nov. 10, 1958.

SN 226,604. Allied Chemical Corporation, New York, N.Y. Filed Aug. 27, 1965.

SUPER CLEANSER

For Chemicals Useful for General Household and Industrial Cleaning.
First use Nov. 27, 1922.

SN 237,704. Inter-Continental Chemical Corporation, Cincinnati, Ohio. Filed Feb. 1, 1966.



Applicant disclaims any rights to the use of the word "Chemical" apart from the mark as shown.
For Biodegradable Industrial Detergents and Detergent Concentrates.
First use Jan. 14, 1965.

SN 238,155. Samuel Heagan Bayles and Samuel M. Peck (joint owners), New York, N.Y. Filed Feb. 7, 1966.

SAFETY-BAR

For Package of Liquid Soap in a Plastic Container for Home Use.
First use Jan. 21, 1966.

SN 238,595. American Home Products Corporation, New York, N.Y. Filed Feb. 11, 1966.

EASY-OFF

Owner of Reg. Nos. 781,858, 675,731, and others.
For Fabric Cleaning Preparation.
First use Aug. 23, 1965.

SN 243,580. The Procter & Gamble Company, Cincinnati, Ohio. Filed Apr. 15, 1966.

BEYOND

For Laundry Detergent and Cleaner.
First use Jan. 19, 1966.

SN 246,049. Cosmetics Manufacturing Company, d.b.a. Cosmetco, Long Beach, Calif. Filed May 19, 1966.

bio·sheen

For Hair Shampoo Concentrate.
First use May 6, 1966.

SN 247,143. Heatbath Corporation, Springfield, Mass. Filed June 8, 1966.

MORPHOS

Owner of Reg. No. 817,212.
For Acidic Chemical Preparation for Cleaning Iron and Steel Articles.
First use Jan. 5, 1959.

SN 258,463. Solar Chemical Company, d.b.a. Solar Chemical Co., Inc., Buena Park, Calif. Filed Nov. 14, 1966.

WANTED

For All Purpose Cleaner.
First use Oct. 10, 1966.

SN 258,651. V.V.B. Enterprises, Inc., Metaire, La. Filed Nov. 15, 1966.

poof

For Concentrated Cleaning Compound for General Household Use.
First use on or about Jan. 15, 1966.
Subj. to Intf. with SN 242,070.

SERVICE MARKS

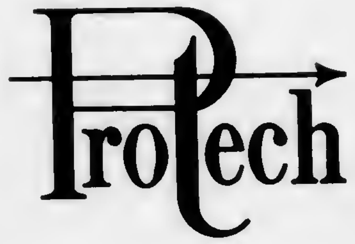
Class 100 — Miscellaneous

SN 185,001. Fernand Aubry, Paris, France. Filed Jan. 20, 1964.

Fernand AUBRY
"VISAGISTE"

Owner of French Reg. No. 510,042, dated Dec. 14, 1962 (Seine); Natl. Inst. No. 196,471; and U.S. Reg. No. 685,657.
For Beauty Salon Services.

SN 191,437. Pro-Tech, Inc., Springfield, Pa. Filed Apr. 17, 1964.



The drawing is lined for the color blue.
For Advisory and Consulting Services in Fluid Sampling and Monitoring for Pollution Control and Wastes Treatment; Designing, Developing, and Engineering Fluid Sampling and Monitoring Equipment; Developing Processes, Furnishing Research Services and Solving Problems in Connection With Fluid Sampling and Monitoring and Pollution Control and Wastes Treatment.
First use Apr. 15, 1962.

SN 209,084. Golden Eagle Motor Inn, Inc., Charlotte, N.C. Filed Dec. 30, 1964.

GOLDEN EAGLE

For Lodging Accommodation Services.
First use Oct. 26, 1964.

SN 212,696. Maurice L. Presley, Sylacauga, Ala. Filed Feb. 24, 1965.

AUTO-CABANA CLUB

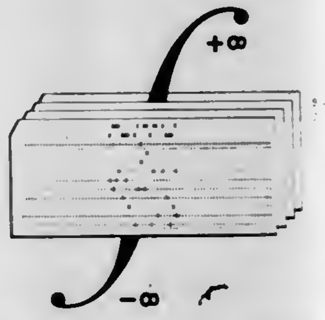
For Information Services Rendered to Campers.
First use Apr. 1, 1964.

SN 218,457. Midland Laboratories, Dubuque, Iowa. Filed May 10, 1965.

MID-DRY SYSTEM

Owner of Reg. Nos. 724,406 and 727,104.
For Advice and Consultation to Supermarkets and Similar Institutions With Heavy Public Traffic in Connection With Floor Cleaning and Maintenance of Washable Noncarpeted Floors.
First use in or about August 1960.

SN 228,476. Medcomp Research Corporation, Cincinnati, Ohio. Filed Sept. 23, 1965.



The mark comprises a punch card together with the mathematical integration and infinity symbols.
For Technical Consulting Services in Computer Technology.
First use June 24, 1965.

SN 228,625. Walter Buser, d.b.a. Design Image, Middletown, N.J. Filed Sept. 27, 1965.

DESIGN IMAGE

The word "Design" is disclaimed apart from the mark as shown.
For Design Consultation Service, Mainly Relating to Business Interiors, Graphics and Exhibit Design Consultation.
First use Apr. 2, 1965.

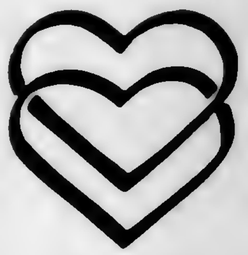
SN 232,788. J. R. Parachek, d.b.a. Serv-A-Line Co., Toledo, Ohio. Filed Nov. 16, 1965.

SERV-A-LINE

DUS-TAC

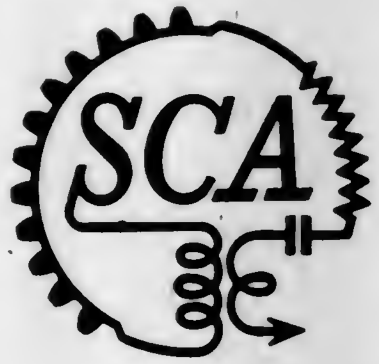
For Renting Chemically Treated Dust Mops.
First use Sept. 1, 1963.

SN 242,363. Institute for Human-Animal Relationship, Inc., Washington, D.C. Filed Mar. 31, 1966.



For Stressing to the Public the Importance and Proper Care of Pets in Homes and in Such Institutions as Rest Homes; Providing Needy Persons, Especially Children, With Appropriate Pets.
First use May 1960.

SN 242,753. Servo Corporation of America, Hicksville, N.Y. Filed Apr. 5, 1966.



Owner of Reg. Nos. 559,985, 639,464, and 693,322.
For Engineering and Consulting Services Rendered to Others on a Contract Basis—Namely, Conducting Surveys, Design Studies, and Research Related to Electronics, Servomechanisms, and Computers.
First use Oct. 25, 1965.

SN 243,069. Aldo's, Inc., Washington, D.C. Filed Apr. 11, 1966.

ALDO'S

For Restaurant Services.
First use Jan. 1, 1937.

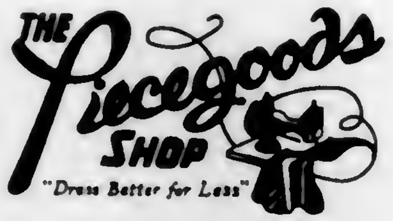
Class 101 — Advertising and Business

SN 150,382. Nida Brooks Adams, d.b.a. Tops In Stops, Denver, Colo. Filed Aug. 3, 1962.

TOPS IN STOPS

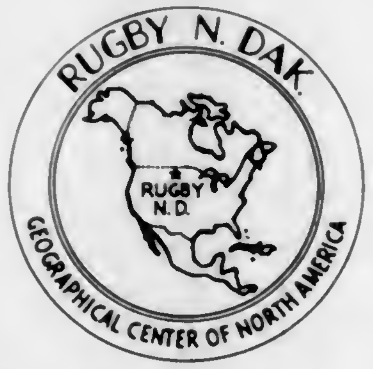
For Advertising Services for Resorts, Hotels, Motels, and Restaurants.
First use on or about Apr. 1, 1958.

SN 203,200. The Piece Goods Shop, Inc., Huntington, W. Va. Filed Oct. 2, 1964.



No claim is made to the wording "Dress Better for Less" apart from the mark as shown.
For Operation of Retail Stores Selling Fabrics, Notions, Patterns, Dry Goods, and Sewing Aids.
First use 1934.

SN 211,963. Chamber of Commerce of Rugby, North Dakota, Rugby, N. Dak. Filed Feb. 12, 1965.


RUGBY N. DAK.
RUGBY N.D.
GEOGRAPHICAL CENTER OF NORTH AMERICA

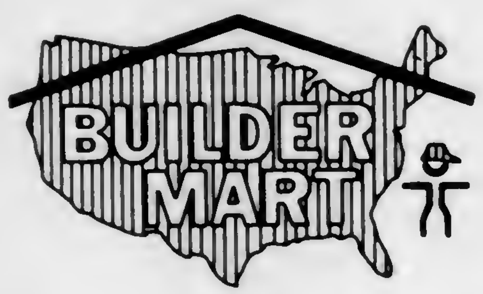
For Development and Promotion of the Business and Industrial Interests of Rugby, North Dakota, by Encouraging Conventions and Location of Business Establishments Therein.
First use 1930.

SN 226,799. Southern Nitrogen Company, Inc., Savannah, Ga. Filed Aug. 30, 1965.

FARMARKET

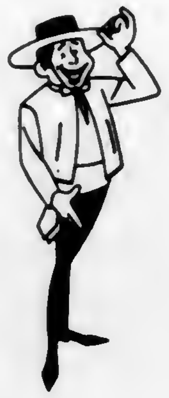
For Retail Store Services Specializing in the Sale of Fertilizers and Agricultural Chemicals.
First use Mar. 30, 1961.

SN 240,061. Builder Marts of America, Inc., Greenville, S.C. Filed Mar. 3, 1966.



The drawing is lined for the color red. The map of the United States, forming part of the mark, is disclaimed apart from the mark as shown.
For Volume Purchasing of Building Supplies, Including Prefabricated Houses for Resale by Affiliated Building Supply Outlets.
First use Feb. 14, 1966.

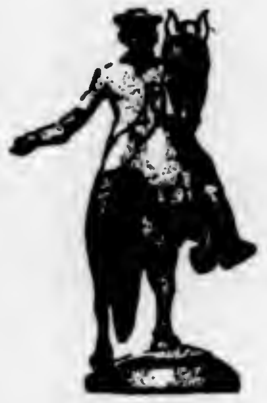
SN 241,295. Yuma County Chamber of Commerce, Yuma, Ariz. Filed Mar. 17, 1966.



For Promoting the Interests of the City and County of Yuma, Arizona, by Providing Information to Visitors and New Residents and by Encouraging Industrial and Commercial Growth.
First use Apr. 1, 1965.

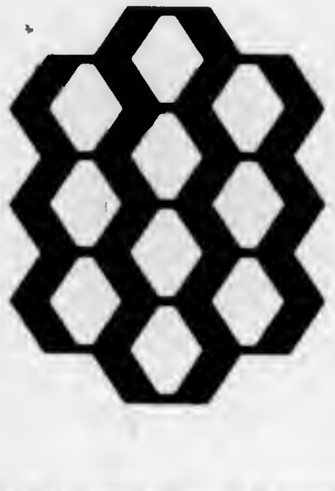
Class 102 — Insurance and Financial

SN 240,113. The Paul Revere Variable Annuity Insurance Company, Worcester, Mass. Filed Mar. 3, 1966.



For Insurance Underwriting Services.
First use Sept. 9, 1965.

SN 241,328. Drexel Equity Fund, Inc., Philadelphia, Pa. Filed Mar. 18, 1966.



The mark is the representation of a honeycomb.
For Operation of a Mutual Fund.
First use Jan. 24, 1966.

SN 242,984. Household Finance Corporation, Chicago, Ill. Filed Apr. 8, 1966.

HOUSEHOLD

For Complete Consumer Credit Service, Including Direct Cash Loans Repayable in Installments, and the Purchase of Time Sales Installment Paper From Retail Dealers.
First use in or about March 1935.

Class 104 — Communication

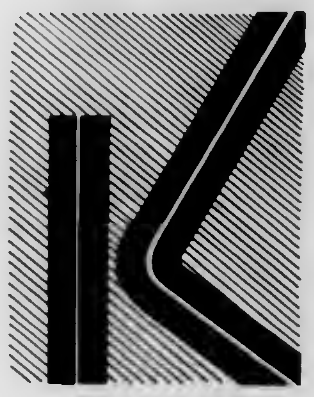
SN 242,564. Communications Satellite Corporation, Washington, D.C. Filed Apr. 4, 1966.

COMSAT

For Communication Services Via Satellite.
First use October 1964.

Class 105 — Transportation and Storage

SN 234,828. Kinney Service Corporation, New York, N.Y. Filed Dec. 17, 1965.



The drawing is lined for the color green. The mark consists of a fanciful showing of the letter "K." Owner of Reg. Nos. 757,055 and 710,068.
For Renting Automotive Vehicles.
First use November 1965.

SN 240,906. Jack A. Gregory, d.b.a. Gregory Storage Systems, Kansas City, Mo. Filed Mar. 14, 1966.

VITAFIED

For Rendering of a Complete Cold Storage Service for Garments, Bedding, and Other Articles Needing Protection Against Moths During Storage.
First use Apr. 24, 1940.

SN 242,466. Maritz, Inc., St. Louis, Mo. Filed Apr. 1, 1966.
Owner of Reg. No. 755,733.

PLEASURE HOLIDAYS

For Travel Agency Services.
First use Mar. 15, 1961.

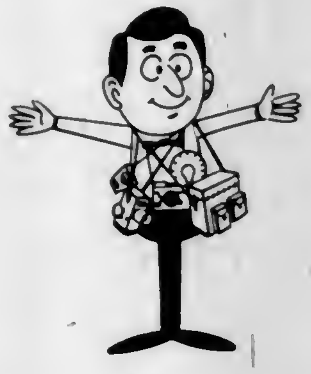
Class 106 — Material Treatment

SN 215,262. Plastic Applicators, Inc., Houston, Tex. Filed Mar. 29, 1965.

SCANALOG

For Inspecting Tubular Members, Such as Oil Field Pipe, Tubing, and the Like.
First use July 31, 1963.

SN 235,394. District Photo, Inc., d.b.a. The Camera Centers and/or The Camera Center, Washington, D.C. Filed Dec. 28, 1965.



No claim is made to the representation of cameras, camera case, and light meter, apart from the mark as shown.
For Film Processing Services.
First use Nov. 6, 1963.

Class 107 — Education and Entertainment

SN 192,128. Wed Enterprises, Inc., Glendale, Calif., assignee of WED Enterprises Inc., Glendale, Calif. Filed Apr. 23, 1964.

AUDIO-ANIMATRONICS

For Entertainment Services—Namely, the Production and Exhibition of Exhibits and Shows Employing Electronically Controlled Three-Dimensional Animated Figures.
First use on about July 1, 1961.

SN 215,254. The National Secretaries Association (International), Kansas City, Mo. Filed Mar. 29, 1965.

CERTIFIED PROFESSIONAL SECRETARY

The word "Secretary" is disclaimed apart from the mark as shown.
For Service of Promoting Secretarial Education by Dissemination of Information on Secretarial Proficiency, Devising and Administering Tests To Measure Secretarial Proficiency.
First use Feb. 1, 1952.

SN 235,520. National Dairy Council, Chicago, Ill. Filed Dec. 29, 1965.

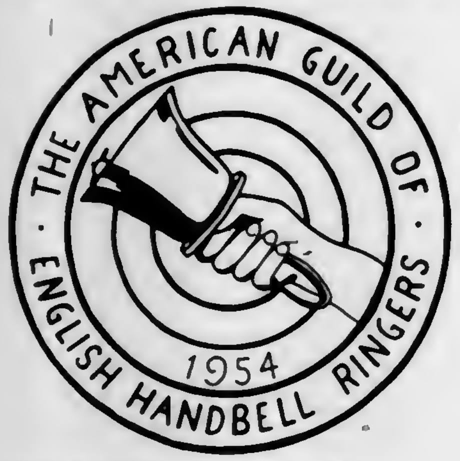
DOCTOR IN THE KITCHEN

For Education Service Relating to Nutrition and Health.
First use June 28, 1965.

COLLECTIVE MEMBERSHIP MARKS

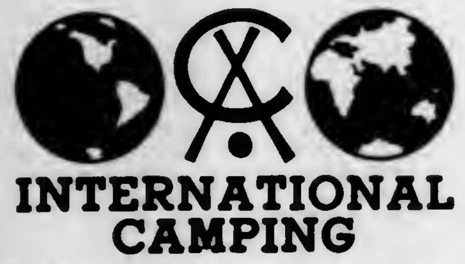
Class 200

SN 241,007. The American Guild of English Handbell Ringers, Inc., Los Angeles, Calif. Filed Feb. 25, 1966.



For Indicating Membership in Applicant.
First use June 24, 1965.

SN 242,251. International Camping, Incorporated, International Camping Club Division, Springfield, Va. Filed Mar. 30, 1966.

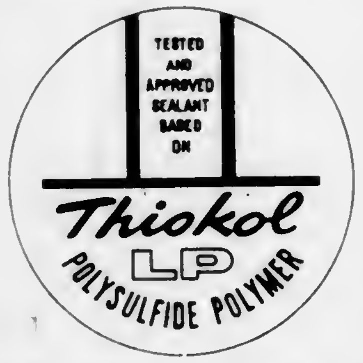


For Indicating Membership in Applicant Club.
First use Jan. 1, 1966.

CERTIFICATION MARKS

Class A — Goods

SN 240,365. Thiokol Chemical Corporation, Bristol, Pa. Filed Mar. 7, 1966.


TESTED AND APPROVED SEALANT BASED ON
Thiokol
LP
POLYSULFIDE POLYMER

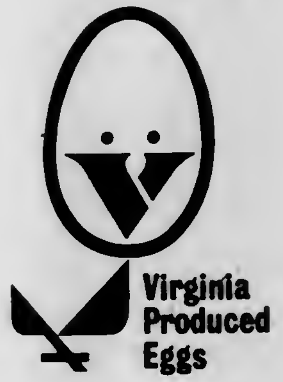
The mark certifies that sealants with which the mark is associated have been based on polysulfide polymers sold by applicant under its trademarks "Thiokol" and/or "LP," and that the sealants have been manufactured in accordance with standards established by applicant. Owner of Reg. Nos. 273,383, 738,861, 788,613, and others.
For Sealants.
First use on or about Aug. 9, 1965.

SN 258,945. Virginia Poultry Products Commission, Richmond, Va. Filed Nov. 17, 1966.

Ginny Hen

The mark certifies that eggs packed under the certification mark are produced within the boundaries of the State of Virginia and meet the minimum quality standards of Grade A as established by the Virginia Poultry Products Commission.
For Eggs.
First use Oct. 12, 1966.

SN 258,946. Virginia Poultry Products Commission, Richmond, Va. Filed Nov. 17, 1966.



The mark certifies that eggs packed under the certification mark are produced within the boundaries of the State of Virginia and meet the minimum quality standards of Grade A as established by the Virginia Poultry Products Commission.
For Eggs.
First use Oct. 3, 1966.

TRADEMARK REGISTRATIONS ISSUED
PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

823,829. BURL-A-POT. Garden Galleries, Inc. SN 199,050. Pub. 11-29-66. Filed 8-3-64.

823,830. IGNILUX AND DESIGN. Montecatini, Società Generale per l'Industria Mineraria e Chimica. MULTIPLE CLASS (Classes 1 and 12). SN 208,713. Pub. 11-29-66. Filed 12-23-64.

823,831. METALFLAKE. Metalflake, Inc. SN 220,523. Pub. 11-29-66. Filed 6-7-65.

823,832. CROFON. E. I. du Pont de Nemours and Company. SN 232,062. Pub. 11-29-66. Filed 11-3-65.

823,833. CAPELLA. Allied Chemical Corporation. SN 235,150. Pub. 7-5-66. Filed 12-23-65.

823,834. PETROTHENE XL. National Distillers and Chemical Corporation. SN 244,236. Pub. 11-29-66. Filed 4-25-66.

823,835. HYPOR. Euribrid N.V. SN 246,299. Pub. 11-29-66. Filed 5-23-66.

823,836. WING-TACK AND DESIGN. The Goodyear Tire & Rubber Company. SN 246,562. Pub. 11-29-66. Filed 5-25-66.

823,837. AEROPHEN. Ciba Limited. SN 251,281. Pub. 11-29-66. Filed 7-29-66.

Class 2 — Receptacles

823,838. TUBE-O-GRAM. Tube-Vend Limited. SN 226,869. Pub. 11-29-66. Filed 8-31-65.

823,839. TRIM TOWN. Union Camp Corporation, by change of name from Union Bag-Camp Paper Corporation. SN 229,696. Pub. 11-29-66. Filed 10-8-65.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

823,840. SKYLINE. Jack C. Abert, d.b.a. Mechanical Products Company. SN 225,246. Pub. 9-27-66. Filed 8-9-65.

Class 5 — Adhesives

823,841. JAC. Wilhelm Jackstadt & Co. MULTIPLE CLASS (Classes 5, 14, and 37). SN 189,825. Pub. 11-29-66. Filed 3-27-64.

823,842. TICO AND DESIGN. Tire Improvement Company, Inc. MULTIPLE CLASS (Classes 5 and 35). SN 210,619. Pub. 11-29-66. Filed 1-25-65.

Class 6 — Chemicals and Chemical Compositions

823,843. VELVET GRAIN. Western Litho Plate & Supply Co. MULTIPLE CLASS (Classes 6, 50, and 52). SN 187,544. Pub. 11-29-66. Filed 2-26-64.

823,844. MAPCO PRODUCTS. Michel & Pelton Co. MULTIPLE CLASS (Classes 6, 16 and 52). SN 216,238. Pub. 11-29-66. Filed 4-12-65.

823,845. F-23. Apollo Chemical Corp. SN 221,243. Pub. 8-16-66. Filed 6-16-65.

823,846. VYNAMON. Imperial Chemical Industries Limited. SN 225,421. Pub. 11-29-66. Filed 8-10-65.

823,847. MALGON. W. R. Grace & Co. SN 227,679. Pub. 11-29-66. Filed 9-13-65.

823,848. VANACT. R. T. Vanderbilt Company, Inc. SN 232,951. Pub. 7-19-66. Filed 11-18-65.

823,849. AQUAZYM. Novo Industri A/S. SN 235,698. Pub. 8-30-66. Filed 1-3-66.

823,850. DELAZ. The Euclid Chemical Company. SN 236,731. Pub. 11-29-66. Filed 1-18-66.

823,851. HESS AND DESIGN. Hess Oil & Chemical Corporation. SN 238,221. Pub. 11-29-66. Filed 2-7-66.

823,852. HESS AND DESIGN. Hess Oil & Chemical Corporation. SN 238,222. Pub. 11-29-66. Filed 2-7-66.

823,853. C CARLISLE AND DESIGN. Carlisle Chemical Works, Inc. SN 238,340. Pub. 11-29-66. Filed 2-8-66.

823,854. EMPIQUAT. Marchon Products Limited. SN 238,958. Pub. 11-29-66. Filed 2-16-66.

823,855. TANNERS FRIEND. Diamond Crystal Salt Company. SN 241,125. Pub. 11-29-66. Filed 3-16-66.

823,856. WS-7 AND DESIGN. The F. & M. Schaefer Brewing Co. SN 241,772. Pub. 11-29-66. Filed 3-24-66.

823,857. HALBARD. Shell Oil Company. SN 241,809. Pub. 11-29-66. Filed 3-24-66.

823,858. TRU-TAN. A. J. & J. O. Pilar, Inc. SN 242,412. Pub. 11-29-66. Filed 3-11-66.

823,859. SPACETAINER. James Varley & Sons, Inc. SN 242,688. Pub. 11-29-66. Filed 4-4-66.

823,860. SMEL-X-PEL. College Pharmacy Inc. SN 242,714. Pub. 11-29-66. Filed 4-5-66.

823,861. AERON. Diversified Chemicals & Propellants Company. SN 243,311. Pub. 11-29-66. Filed 4-13-66.

823,862. PERMAPOWER. Hooker Chemical Corporation. SN 243,323. Pub. 11-29-66. Filed 4-13-66.

823,863. POLY-DISPERSION. Wyrough and Loser, Inc. SN 243,370. Pub. 11-29-66. Filed 4-13-66.

823,864. MASTER BUILDERS. Martin-Marietta Corporation. SN 245,213. Pub. 11-29-66. Filed 5-9-66.

Class 7 — Cordage

823,865. SGB. Scaffolding (Great Britain) Limited. MULTIPLE CLASS (Classes 7, 19, 23, and 50). SN 233,038. Pub. 11-29-66. Filed 11-22-65.

823,866. AGWAY. Agway, Inc. SN 244,867. Pub. 11-29-66. Filed 5-4-66.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

823,867. HOT LINE. The Ensign-Bickford Company. SN 238,203. Pub. 11-29-66. Filed 2-7-66.

823,868. SCRATCH BOX. Bristol Flare Corporation. SN 238,336. Pub. 11-29-66. Filed 2-8-66.

823,869. PLEE-ZING. Plee-Zing, Inc. SN 238,558. Pub. 11-29-66. Filed 2-10-66.

Class 11 — Inks and Inking Materials

823,870. BLACK MAGIC. Higgins Ink Co., Inc., assignee of A. W. Faber-Castell Pencil Co., Inc. SN 228,246. Pub. 10-18-66. Filed 9-21-65.

823,871. LASTON. Monroe International Corporation. SN 244,337. Pub. 11-29-66. Filed 4-26-66.

Class 12 — Construction Materials

823,830. (See Class 1 for this trademark.)

823,872. AIRCOUSTIC. Aircoustic Co., Inc. SN 208,164. Pub. 6-28-66. Filed 12-15-64.

823,873. V-ALOY. Swift & Company. SN 225,371. Pub. 11-29-66. Filed 8-9-65.

823,874. PROFILITE AND DESIGN. Mississippi Glass Company. SN 229,990. Pub. 11-29-66. Filed 10-12-65.

823,875. CUSHION-LITE. Southeastern Tool & Die Company, Inc. SN 231,949. Pub. 11-29-66. Filed 11-1-65.

823,876. FASTAB. Fastab Insulations, Inc. SN 233,704. Pub. 11-29-66. Filed 12-1-65.

823,877. NUFOLD AND DESIGN. Nufold Corporation. SN 234,227. Pub. 11-29-66. Filed 12-8-65.

823,878. PLASTIZINC. Ivan C. King, d.b.a. Crusher Parts Co. SN 238,093. Pub. 11-29-66. Filed 2-4-66.

823,879. FASHION-A-FENCE. Potlatch Forests, Inc. SN 238,289. Pub. 11-29-66. Filed 2-7-66.

823,880. LONG-PLY. International Paper Company. SN 240,002. Pub. 11-29-66. Filed 3-2-66.

823,881. FIBRAIR. Yamaska Mills Inc. SN 240,228. Pub. 11-29-66. Filed 3-4-66.

823,882. PERMAGLASS. Permaglass, Inc. SN 240,334. Pub. 11-29-66. Filed 3-7-66.

823,883. PLASENE. Chemical Fireproofing Corporation. SN 241,123. Pub. 11-29-66. Filed 3-16-66.

823,884. AEROFOLD. The Aeroshade Company, Inc. SN 241,405. Pub. 11-29-66. Filed 3-21-66.

823,885. UNI-CLAD. Pittsburgh Corning Corporation. SN 241,511. Pub. 11-29-66. Filed 3-21-66.

823,886. MINUET. Simpson Timber Company. SN 241,533. Pub. 11-29-66. Filed 3-21-66.

823,887. PRELUDE. Simpson Timber Company. SN 241,534. Pub. 11-29-66. Filed 3-21-66.

823,888. SURPOXY. L & M-Surco Mfg., Inc. SN 241,539. Pub. 11-29-66. Filed 3-21-66.

823,889. MOON MESA. Anthony Brandenthaler. SN 241,858. Pub. 11-29-66. Filed 3-25-66.

823,890. MICACRETE 7. Harbison-Walker Refractories Company. SN 242,361. Pub. 11-29-66. Filed 3-31-66.

823,891. MASTER BUILDERS. Martin-Marietta Corporation. SN 245,215. Pub. 11-29-66. Filed 5-9-66.

823,892. EMPRESS. Kinkead Industries Incorporated. SN 248,579. Pub. 11-29-66. Filed 6-21-66.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

823,893. JIFFY GAS. James E. Marriot, Jr., d.b.a. Jiffy Gas Company. SN 233,512. Pub. 11-29-66. Filed 11-29-65.

823,894. BEST BY TEST. Jay R. Smith Mfg. Co. SN 236,191. Pub. 11-29-66. Filed 1-11-66.

823,895. GRIDDLE KING. Northland Aluminum Products, Inc. SN 241,169. Pub. 11-29-66. Filed 3-16-66.

823,896. SERVO-KING. Northland Aluminum Products, Inc. SN 241,170. Pub. 11-29-66. Filed 3-16-66.

823,897. CHEMODULAR. Lif-O-Gen, Inc. SN 243,791. Pub. 11-29-66. Filed 4-19-66.

823,898. UCAR. Union Carbide Corporation. SN 245,432. Pub. 11-29-66. Filed 5-11-66.

823,899. FLO-DIRECTOR. The Sheffer Corporation. SN 245,973. Pub. 11-29-66. Filed 5-18-66.

823,900. INST-O-SERT. National Tank Company. SN 246,193. Pub. 11-29-66. Filed 5-20-66.

823,901. EZE BEVEL AND DESIGN. Cora M. Seeger, d.b.a. Peg Seeger. SN 246,378. Pub. 11-29-66. Filed 5-23-66.

823,902. WESTERN STA-SHUT AND DESIGN. Lethalite Corporation. SN 246,473. Pub. 11-29-66. Filed 5-24-66.

823,903. Z. Talon, Inc. SN 246,621. Pub. 11-29-66. Filed 5-25-66.

823,904. NOZZ-ALL. The Curtice Manufacturing Company. SN 246,757. Pub. 11-29-66. Filed 5-27-66.

823,905. SHEELD. Edison Brothers Stores, Inc. SN 246,896. Pub. 11-29-66. Filed 5-31-66.

823,906. SLIP-ON. Empire Slip-On Hook Corp. SN 247,208. Pub. 11-29-66. Filed 6-3-66.

823,907. DURAPEG. Carr-Harris Products Limited. SN 247,331. Pub. 11-29-66. Filed 6-6-66.

823,908. MAHASI. Hans S. Singer, d.b.a. H. S. Singer. SN 247,724. Pub. 11-29-66. Filed 6-9-66.

823,909. TOPCO. Topco Associates, Inc. SN 248,557. Pub. 11-29-66. Filed 6-20-66.

823,910. PRINCESS. Kinkead Industries Incorporated. SN 248,577. Pub. 11-29-66. Filed 6-21-66.

823,911. MARK. Clayton Mark & Company. SN 254,129. Pub. 11-29-66. Filed 9-9-66.

Class 14 — Metals and Metal Castings and Forgings

823,841. (See Class 5 for this trademark.)

823,912. K. & F. S. AND DESIGN. K. & F. Shonback. SN 235,454. Pub. 11-29-66. Filed 12-27-65.

823,913. COMINCO. Cominco Ltd., by change of name from The Consolidated Mining and Smelting Company of Canada Limited. SN 236,441. Pub. 11-29-66. Filed 1-10-66.

Class 15 — Oils and Greases

823,914. SUNGARD. Sun Oil Company. SN 240,124. Pub. 11-29-66. Filed 3-3-66.

Class 16 — Protective and Decorative Coatings

823,844. (See Class 6 for this trademark.)

823,915. SANITILE. The Master Mechanics Company. SN 158,987. Pub. 11-29-66. Filed 12-12-62.

823,916. SEIDLITZ. Conchemco, Incorporated. SN 201,820. Pub. 11-29-66. Filed 9-14-64.

823,917. MAGNA VISUAL AND DESIGN. Magna Visual, Inc. MULTIPLE CLASS (Classes 16 and 50). SN 214,449. Pub. 11-29-66. Filed 3-18-65.

823,918. ARDANCO. Archer - Daniels - Midland Company. SN 227,915. Pub. 11-29-66. Filed 9-16-65.

823,919. PERKY PHELAN AND DESIGN. Phelan-Faust Paint Manufacturing Company. SN 238,284. Pub. 11-29-66. Filed 2-7-66.

823,920. AQUA-LUSTRE. Textron Industries, Inc. SN 254,422. Pub. 11-29-66. Filed 9-14-66.

Class 18—Medicines and Pharmaceutical Preparations

823,921. TRI-NEFRIN. The Pfeiffer Co. SN 222,198. Pub. 6–21–66. Filed 6–28–65.

823,922. SYROCOL PM. The Purdue Frederick Company, assignee of International Latex Corporation. SN 223,677. Pub. 11–29–66. Filed 7–19–65.

823,923. SYROCOL-JR. The Purdue Frederick Company, assignee of International Latex Corporation. SN 227,944. Pub. 11–29–66. Filed 9–16–65.

823,924. VERNON. Pharmaceutical Laboratories, Inc. SN 232,147. Pub. 11–29–66. Filed 11–4–65.

823,925. METRIX. Geigy Chemical Corporation. SN 234,560. Pub. 8–9–66. Filed 12–14–65.

823,926. RAPISORB. Merck & Co., Inc. SN 236,397. Pub. 11–29–66. Filed 1–13–66.

823,927. V–13. Lafayette Pharmacal, Inc. SN 237,846. Pub. 11–29–66. Filed 2–2–66.

823,928. REHEIS ETC. AND DESIGN. Armour Pharmaceutical Company, d.b.a. Reheis Chemical Company. SN 240,817. Pub. 11–29–66. Filed 3–11–66.

823,929. PERKE. B. F. Ascher & Company, Inc. SN 243,827. Pub. 11–29–66. Filed 4–20–66.

823,930. AVITENE. FMC Corporation. SN 247,210. Pub. 11–29–66. Filed 6–3–66.

823,931. RANTEX. Holland-Rantos Company, Inc. SN 247,463. Pub. 11–29–66. Filed 6–7–66.

823,932. STAND-EVAC. Standard X-Ray Company. SN 247,642. Pub. 11–29–66. Filed 6–8–66.

823,933. THERA-BLEM. Noxzema Chemical Company. SN 247,718. Pub. 11–29–66. Filed 6–9–66.

823,934. PIREXYL. Pharmacia Laboratories, Inc. SN 247,829. Pub. 11–29–66. Filed 6–10–66.

823,935. SILEXIN. Otis Clapp & Son, Inc. SN 248,423. Pub. 11–29–66. Filed 6–20–66.

823,936. PSORISO-REMEDY. R & S Enterprises. SN 248,527. Pub. 11–29–66. Filed 6–20–66.

823,937. VETLIN. Raymond Epstein, d.b.a. Vetco Company. SN 248,688. Pub. 11–29–66. Filed 6–22–66.

823,938. CHARLIE CHOCKS. Miles Laboratories, Inc. SN 248,826. Pub. 11–29–66. Filed 6–23–66.

823,939. NOXELL. The Noxzema Chemical Company. SN 248,835. Pub. 11–29–66. Filed 6–23–66.

823,940. NAVANE. Chas. Pfizer & Co., Inc. SN 253,947. Pub. 11–29–66. Filed 9–7–66.

823,941. CLOXCIL. American Home Products Corporation. SN 254,362. Pub. 11–29–66. Filed 9–13–66.

Class 19—Vehides

823,865. (See Class 7 for this trademark.)

823,942. FORMULAS AND DESIGN. Automotive Development Corporation. SN 226,031. Pub. 11–20–66. Filed 8–19–65.

823,943. PARATWIN. Pioneer Parachute Company, Inc. SN 238,005. Pub. 11–29–66. Filed 2–3–66.

Class 20—Linoleum and Oiled Cloth

823,944. SOLOTRED. Balamundi-Nederland N.V. SN 241,625. Pub. 11–29–66. Filed 3–23–66.

Class 21—Electrical Apparatus, Machines, and Supplies

823,945. SNAPLITE. Servel, Inc. SN 197,184. Pub. 11–29–66. Filed 7–6–64.

823,946. FORD. Ford Motor Company. SN 199,486. Pub. 11–29–66. Filed 8–7–64.

823,947. SCOTCH PLAID (DESIGN). Minnesota Mining and Manufacturing Company. SN 217,198. Pub. 11–29–66. Filed 4–23–65.

823,948. APILON. American Precision Industries, Incorporated. SN 219,511. Pub. 11–29–66. Filed 5–24–65.

823,949. AS AND DESIGN. Air Shields, Inc. MULTIPLE CLASS (Classes 21, 23, 26, 31, 34, and 44). SN 224,139. Pub. 11–29–66. Filed 7–26–65.

823,950. DUOSTAT. Aquariums Incorporated. SN 229,732. Pub. 11–29–66. Filed 10–11–65.

823,951. VIDMAC. American District Telegraph Company. SN 230,224. Pub. 11–29–66. Filed 10–15–65.

823,952. RANCH ROASTERS AND DESIGN. Charles L. Terragno, d.b.a. Electro-Matic Sales Company. SN 231,288. Pub. 11–29–66. Filed 10–22–65.

823,953. LOXSWITCH. The R. B. Denison Manufacturing Company. SN 234,741. Pub. 11–29–66. Filed 12–16–65.

823,954. CORRITRONICS. The Edwin F. Guth Company. SN 235,295. Pub. 11–29–66. Filed 12–27–65.

823,955. CURASTAT. Herbert Products, Inc. SN 235,302. Pub. 11–29–66. Filed 12–27–65.

823,956. ROBO-COUPLER. Robosonics, Inc. SN 235,718. Pub. 11–29–66. Filed 1–3–66.

823,957. SANTA'S WORLD. Kurt S. Adler, Inc. SN 236,866. Pub. 11–29–66. Filed 1–20–66.

823,958. ECONO-SONIC. Detrex Chemical Industries, Inc. SN 237,543. Pub. 11–29–66. Filed 1–28–66.

823,959. BRANSON. Branson Instruments, Incorporated. CONSOLIDATED CERTIFICATE. SN 237,930, pub. 10–18–66, filed 2–3–66, Cls. 21, 34, and 44; SN 237,929, pub. 10–18–66, filed 2–3–66, Cl. 26,

823,960. MAGNATROL. Magnatrol Valve Corporation. SN 240,010. Pub. 11–29–66. Filed 3–2–66.

823,961. AGWAY. Agway, Inc. SN 244,869. Pub. 11–29–66. Filed 5–4–66.

823,962. COFFEE-VAC. National Stamping & Electric Works. SN 245,742. Pub. 11–29–66. Filed 5–16–66.

823,963. LION ON ARROW (DESIGN). Societe Peugeot & Cie. MULTIPLE CLASS (Classes 21 and 23). SN 246,017. Pub. 11–29–66. Filed 5–19–66.

823,964. MAGNAVOX. The Magnavox Company. SN 248,719. Pub. 11–29–66. Filed 6–22–66.

823,965. ELECTROID. Electroid Corporation. SN 248,985. Pub. 11–29–66. Filed 6–27–66.

823,966. IC (IN DESIGN). Ionetics Corporation. MULTIPLE CLASS (Classes 21 and 26). SN 249,275. Pub. 11–29–66. Filed 6–30–66.

Class 22—Games, Toys, and Sporting Goods

823,967. SHARKSKIN. Parkway Fabricators. SN 236,004 Pub. 11–29–66. Filed 1–7–66.

823,968. CLOCK-A-WORD. De Luxe Reading Corporation. SN 238,616. Pub. 11–29–66. Filed 2–11–66.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

823,865. (See Class 7 for this trademark.)

823,949. (See Class 21 for this trademark.)

823,963. (See Class 21 for this trademark.)

823,969. LUBELOC. Smith Industries International, Inc. SN 218,491. Pub. 11–29–66. Filed 5–10–65.

823,970. SUPER-FEED. Robert G. Bodtke, d.b.a. American Monarch Machine Company. SN 218,959. Pub. 11–29–66. Filed 5–17–65.

823,971. STRONGARM AND DESIGN. Armstrong Beverley Engineering Ltd. SN 221,244. Pub. 11–29–66. Filed 6–16–65.

823,972. WATER MATIC. Uhrich Supply Company. SN 222,082. Pub. 11–29–66. Filed 6–25–65.

823,973. BLACKHAWK AND DESIGN. Applied Power Industries, Inc. SN 222,809. Pub. 11–29–66. Filed 7–7–65.

823,974. CONBEST. Penn State Metal Fabricators, Inc. SN 226,770. Pub. 11–29–66. Filed 8–30–65.

823,975. ZF AND DESIGN. Zimmer & Francescon. SN 228,096. Pub. 11–29–66. Filed 9–17–65.

823,976. NMB AND DESIGN. Lignum-Vitae Products Corporation. SN 228,264. Pub. 11–29–66. Filed 9–21–65.

823,977. FILLCAPPER. National Instrument Company, Inc. SN 228,479. Pub. 11–29–66. Filed 9–23–65.

823,978. ADFLEX. Richardson Manufacturing Company, Inc. SN 228,936. Pub. 11–29–66. Filed 9–29–65.

823,979. PANELOK. Union Camp Corporation, by change of name from Union Bag-Camp Paper Corporation. SN 229,311. Pub. 11–29–66. Filed 10–4–65.

823,980. LONG-NOSE. Gaunt Industries. SN 229,519. Pub. 11–29–66. Filed 10–7–65.

823,981. DYK AND DESIGN. Groendyk Manufacturing Company, Inc. SN 229,522. Pub. 11–29–66. Filed 10–7–65.

823,982. LANCER. Aquariums Incorporated. SN 229,728. Pub. 11–29–66. Filed 10–11–65.

823,983. HYDRA-TOWER. Sargent Engineering Inc. SN 232,095. Pub. 11–29–66. Filed 11–3–65.

823,984. ELDRED. The Eldred Company. SN 232,455. Pub. 11–29–66. Filed 11–10–65.

823,985. VIBRATOW. Rosco Manufacturing Company. SN 233,399. Pub. 11–29–66. Filed 11–26–65.

823,986. STA-PAC. Rosco Manufacturing Company. SN 233,401. Pub. 11–29–66. Filed 11–26–65.

823,987. ROLL-R-GRIND AND DESIGN. Big Dutchman. Inc. SN 233,442. Pub. 11–29–66. Filed 11–29–65

823,988. THERM SETTER. Meiki Co., Ltd. SN 233,616. Pub. 11–29–66. Filed 11–30–65.

823,989. PASTILLATOR. Rosin Engineering Company Ltd. SN 236,149. Pub. 11–29–66. Filed 1–10–66.

823,990. HANDI-WINCH. Beebe Bros., Inc., d.b.a. Beebe Bros. SN 238,158. Pub. 11–29–66. Filed 2–7–66.

823,991. AUTOMAC. Ermanno Fabbri. SN 239,032. Pub. 11–29–66. Filed 2–17–66.

823,992. INCREMENT-O-DRIVE. Geartronics Corporation. SN 239,041. Pub. 11–29–66. Filed 2–17–66.

823,993. CORNER-MATIC. Champion Dish Washing Machine Co. SN 239,720. Pub. 11–29–66. Filed 2–28–66.

823,994. CINCO 15. The Cincinnati Milling Machine Co. SN 240,259. Pub. 11–29–66. Filed 3–7–66.

823,995. FLEXIBILITY. Krogh Industries, Inc., d.b.a. Krogh Pump Company. SN 240,745. Pub. 11–29–66. Filed 3–11–66.

823,996. SQUEEZ-CRETE. Challenge-Cook Bros., Incorporated. SN 246,043. Pub. 11–29–66. Filed 5–19–66.

823,997. SHEAR-O-MATIC. Lumaside, Inc. SN 246,088. Pub. 11–29–66. Filed 5–19–66.

823,998. MISCELLANEOUS DESIGN. Rice Barton Corporation. SN 246,484. Pub. 11–29–66. Filed 5–24–66.

823,999. FOLDAROLL AND DESIGN. Donald M. Gales. SN 246,552. Pub. 11–29–66. Filed 5–25–66.

824,000. MATCHMASTER. Herman Pneumatic Machine Company. SN 246,566. Pub. 11–29–66. Filed 5–25–66.

824,001. MISS MY-T-24 AND DESIGN. My-T-Veyor Corporation. SN 246,584. Pub. 11–29–66. Filed 5–25–66.

824,002. PISTON-SET. Olin Mathieson Chemical Corporation. SN 246,810. Pub. 11–29–66. Filed 5–27–66.

824,003. SPARTAN. Bostitch, Inc. SN 246,874. Pub. 11–29–66. Filed 5–31–66.

824,004. HYDRALIFT. Rome Machine & Foundry Company. SN 246,953. Pub. 11–29–66. Filed 5–31–66.

824,005. GEMINI. Bissell Inc. SN 246,998. Pub. 11–29–66. Filed 6–1–66.

824,006. MERIT. The Monarch Machine Tool Company. SN 247,045. Pub. 11–29–66. Filed 6–1–66.

824,007. SUPER TRI AND DESIGN. Firma Franz Muller. SN 247,115. Pub. 11–29–66. Filed 6–2–66.

824,008. DSB AND DESIGN. The D. S. Brown Company. SN 247,193. Pub. 11–29–66. Filed 6–3–66.

824,009. DELASTALL. The D. S. Brown Company. SN 247,194. Pub. 11–29–66. Filed 6–3–66.

824,010. PERMA-LOCK. F. N. Burt Company, Inc. SN 247,195. Pub. 11–29–66. Filed 6–3–66.

824,011. WISSCO. The CF & I Steel Corporation, by change of name from Colorado Fuel and Iron Corporation. SN 247,334. Pub. 11–29–66. Filed 6–6–66.

824,012. EIRICH. Firma Maschinenfabrik Gustav Eirich. SN 247,589. Pub. 11–29–66. Filed 6–8–66.

824,013. DISPENS-A-TRAY. Brown Company. SN 247,677. Pub. 11–29–66. Filed 6–9–66.

824,014. LABELETTE. Labelette Company. SN 247,819. Pub. 11–29–66. Filed 6–10–66.

824,015. P.M. Esco Corporation. SN 248,316. Pub. 11–29–66. Filed 6–17–66.

824,016. KREBS. Krebs Engineers. SN 249,337. Pub. 11–29–66. Filed 6–30–66.

824,017. GREEN LITE. Minnesota Mining and Manufacturing Company. SN 253,082. Pub. 11–29–66. Filed 8–25–66.

824,018. PERMATRAK. American Machine & Tool Company, Inc. SN 254,486. Pub. 11–29–66. Filed 9–15–66.

824,019. INTERSTATE. Minnesota Mining and Manufacturing Company. SN 254,846. Pub. 11–29–66. Filed 9–21–66.

Class 24—Laundry Appliances and Machines

824,020. FORD. Ford Motor Company. SN 199,484. Pub. 11–29–66. Filed 8–7–64.

824,021. AGWAY. Agway, Inc. SN 244,870. Pub. 11–29–66. Filed 5–4–66.

Class 26—Measuring and Scientific Appliances

823,949. (See Class 21 for this trademark.)

823,959. CONSOLIDATED CERTIFICATE. See Class 21.

823,966. (See Class 21 for this trademark.)

824,022. CIMRON. Lear Siegler, Inc., assignee of Cimron Corporation. SN 211,345. Pub. 11–29–66. Filed 2–4–65.

824,023. KISTLER INSTRUMENTS. Kistler Instrument Corporation. SN 219,999. Pub. 11–29–66. Filed 5–28–65.

824,024. MINI-STRUCTURES. Model Builders Inc. SN 220,528. Pub. 5–3–66. Filed 6–7–65.

824,025. COMPUR ELECTRONIC. Compur-Werk Gesellschaft Mit Beschrankter Haftung & Co. SN 225,734. Pub. 11–29–66. Filed 8–16–65.

824,026. SUPERSHOT. Pyles Industries, Inc. SN 230,563. Pub. 11–29–66. Filed 10–19–65.

824,027. DYNAFLECT. Dresser Industries, Inc. SN 231,553. Pub. 11–29–66. Filed 10–24–65.

824,028. LAB-CREST. Fischer & Porter Co. SN 232,396. Pub. 11–29–66. Filed 11–9–65.

824,029. EDCO AND DESIGN. Engineering Developments Co., Inc. SN 232,770. Pub. 11–29–66. Filed 11–16–65.

824,030. CORONASTAT. SCM Corporation. SN 232,863. Pub. 11–29–66. Filed 11–17–65.

824,031. E-C. E-C Apparatus Corporation. SN 232,907. Pub. 11-29-66. Filed 11-18-65.

824,032. VALGREN. Virginia Lens Company, Inc. SN 233,663. Pub. 11-29-66. Filed 11-30-65.

824,033. ASTRO-SKI. Rayex Corporation. SN 236,330. Pub. 11-29-66. Filed 1-11-66.

824,034. TELEGUARD. Spiratone, Inc. SN 236,421. Pub. 11-29-66. Filed 1-13-66.

824,035. ANSCOCOLOR. General Aniline & Film Corporation. SN 236,808. Pub. 11-29-66. Filed 1-19-66.

824,036. SUPER-STAT. American Photocopy Equipment Company. SN 237,525. Pub. 11-29-66. Filed 1-28-66.

824,037. -S/N-. Micro-Measurements, Inc. SN 237,993. Pub. 11-29-66. Filed 2-3-66.

Class 27 — Horological Instruments

824,038. PAUL PEUGEOT. Sidney Watch Co., Inc. SN 235,749. Pub. 11-29-66. Filed 12-27-65.

Class 28 — Jewelry and Precious-Metal Ware

824,039. DORAL. Baldwin Bracelet Corporation. SN 235,882. Pub. 11-29-66. Filed 1-6-66.

824,040. XANDRA. Roype S.L. SN 236,290. Pub. 11-29-66. Filed 1-12-66.

824,041. LCS AND DESIGN. Luella C. Schroeder. SN 236,654. Pub. 11-29-66. Filed 1-17-66.

824,042. PATRICIAN. Plainville Stock Company. SN 251,082. Pub. 11-29-66. Filed 7-26-66.

Class 29 — Brooms, Brushes, and Dusters

824,043. LITTLE KING AND DESIGN. King Kullen Grocery Co., Inc. SN 248,393. Pub. 11-29-66. Filed 6-20-66.

Class 31 — Filters and Refrigerators

823,949. (See Class 21 for this trademark.)

824,044. FORD. Ford Motor Company. SN 199,485. Pub. 11-29-66. Filed 8-7-64.

824,045. SANYO. Sanyo Electric Co., Ltd. MULTIPLE CLASS (Classes 31 and 36). SN 206,495. Pub. 11-29-66. Filed 11-19-64.

824,046. FLOCOR. Imperial Chemical Industries Limited. SN 228,798. Pub. 11-29-66. Filed 8-18-65.

824,047. GILT EDGE. Central Soya Company, Inc. SN 241,976. Pub. 11-29-66. Filed 3-28-66.

824,048. CRYSTAL WHITE. The Cellulo Company. SN 242,557. Pub. 11-29-66. Filed 4-4-66.

824,049. BOHN-EL. Universal American Corporation. SN 243,200. Pub. 11-29-66. Filed 4-11-66.

Class 32 — Furniture and Upholstery

824,050. POSITION CHAIR. Lambeth Designs, Inc. SN 225,167. Pub. 11-29-66. Filed 8-6-65.

824,051. OPTI-MAN. Godfrey L. de'Caccia, d.b.a. D.E.C. Associates. SN 237,673. Pub. 11-29-66. Filed 2-1-66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

823,949. (See Class 21 for this trademark.)

823,959. CONSOLIDATED CERTIFICATE. See Class 21.

824,052. FLUXOLDER. Fluxolder Products Limited. SN 226,435. Pub. 11-29-66. Filed 8-25-65.

824,053. FC. Eutectic Welding Alloys Corporation. SN 227,406. Pub. 11-29-66. Filed 9-8-65.

824,054. MINI-LAMPS. Gilben Lamp Co., Inc. SN 227,575. Pub. 11-29-66. Filed 9-10-65.

824,055. SPIT-FIRE. The Harris Calorific Company. SN 235,102. Pub. 11-29-66. Filed 12-22-65.

824,056. SPRA-GARD. Pneumafil Corporation. SN 240,475. Pub. 11-29-66. Filed 3-8-66.

824,057. FIREFLY. Rubel & Co. Decorative Accessories Inc. SN 242,500. Pub. 11-29-66. Filed 4-1-66.

824,058. MONOFIRE. Ferro Corporation. SN 250,570. Pub. 11-8-66. Filed 7-19-66.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

823,842. (See Class 5 for this trademark.)

Class 36 — Musical Instruments and Supplies

824,045. (See Class 31 for this trademark.)

824,059. MULTI-MATIC PERCUSSION. The Wurlitzer Company. SN 198,109. Pub. 11-29-66. Filed 7-17-64.

824,060. HOHNER AND DESIGN. M. Hohner Inc. SN 253,476. Pub. 11-29-66. Filed 8-31-66.

Class 37 — Paper and Stationery

823,841. (See Class 5 for this trademark.)

824,061. A FRANCINE ORIGINAL AND DESIGN. Frances Wynn Wright. SN 232,175. Pub. 11-29-66. Filed 11-4-65.

824,062. WHALEHIDE AND DESIGN. Brown Company, assignee of KVP Sutherland Paper Company. SN 232,319. Pub. 10-11-66. Filed 11-8-65.

824,063. INVADER. Wallace Pencil Company. SN 233,153. Pub. 11-29-66. Filed 11-22-65.

824,064. PAPER MAID AND DESIGN. Brown Company, assignee of KVP Sutherland Paper Company. SN 234,754. Pub. 10-18-66. Filed 12-16-65.

824,065. VIS-A-VIS. Sanford Ink Company. SN 237,598. Pub. 11-29-66. Filed 1-28-66.

824,066. TILT-A-MATIC. Kenart Sales Corporation. SN 240,005. Pub. 11-29-66. Filed 3-2-66.

824,067. VENTURE. The Procter & Gamble Company. SN 245,752. Pub. 11-29-66. Filed 5-16-66.

824,068. FURY. The Procter & Gamble Company. SN 245,754. Pub. 11-29-66. Filed 5-16-66.

824,069. 400. Xerox Corporation. SN 246,006. Pub. 11-29-66. Filed 5-18-66.

824,070. TEL-A-GUIDE. Universal Plastics, Incorporated. SN 246,968. Pub. 11-29-66, Filed 5-31-66.

824,071. M-SETS. George W. Stroh. SN 247,079. Pub. 11-29-66. Filed 6-1-66.

824,072. SCHEMAC. Morgan Adhesives Company. SN 247,139. Pub. 11-29-66. Filed 6-2-66.

824,073. ANEX. Farah Manufacturing Company, Inc., d.b.a. Farah Industries. SN 247,906. Pub. 11-29-66. Filed 6-13-66.

Class 38 — Prints and Publications

824,074. TAKE A MINUTE TO KEEP IN TOUCH. Grant-Mann Lithographers Ltd. SN 220,761. Pub. 11-29-66. Filed 6-9-65.

824,075. SEATTLE POST-INTELLIGENCER The Hearst Corporation. SN 252,055. Pub. 11-29-66. Filed 8-10-66.

824,076. THE LIGHT. The Hearst Corporation. SN 252,059. Pub. 11-29-66. Filed 8-10-66.

824,077. CAMELOT AND DESIGN. The Hearst Corporation. SN 253,709. Pub. 11-29-66. Filed 9-2-66.

Class 39 — Clothing

824,078. KANGOL COMMANDO AND DESIGN. Kangol Wear Limited. SN 212,624. Pub. 11-29-66. Filed 12-14-64.

824,079. HAPPY WALK. Tip-Top Hosiery Mills, Inc. SN 219,368. Pub. 11-29-66. Filed 5-20-65.

824,080. DIXIE'S. Jackson Millinery Inc. SN 224,098. Pub. 11-29-66. Filed 7-23-65.

824,081. RUTH BARRY. City Products Corporation. SN 224,167. Pub. 11-29-66. Filed 7-26-65.

824,082. ORCHIDEE. Firma H. Heinzelmann. MULTIPLE CLASS (Classes 39 and 42). SN 225,647. Pub. 11-29-66. Filed 8-13-65.

824,083. DANDI LONG LEGS. Lewel Manufacturing Co., Inc. SN 226,650. Pub. 11-29-66. Filed 8-27-65.

824,084. PIERRE CONTE. Etablissements Pierre Conte & Fils, Societe Anonyme. SN 227,405. Pub. 11-29-66. Filed 9-8-65.

824,085. CARHARTT AND DESIGN. Carhartt, Inc. SN 227,646. Pub. 11-29-66. Filed 9-13-65.

824,086. MISCELLANEOUS DESIGN. A. Rivetz Co., Inc. SN 230,739. Pub. 11-29-66. Filed 10-15-65.

824,087. FILIPPO VERDE DELUXO BY VERDE. Strathmore Shoe Co., Inc. SN 231,274. Pub. 11-29-66. Filed 10-22-65.

824,088. TOLOS BY VERDE. Strathmore Shoe Co., Inc. SN 231,276. Pub. 11-29-66. Filed 10-22-65.

824,089. VERDE. Strathmore Shoe Co., Inc. SN 231,278. Pub. 11-29-66. Filed 10-22-65.

824,090. SUSAN IVES. Susan Ives Stores, Inc. SN 231,425. Pub. 11-29-66. Filed 10-23-65.

824,091. FASHION FIVE. Chadbourn Gotham, Inc. SN 233,994. Pub. 11-29-66. Filed 12-6-65.

824,092. MARCO VELLO. Ph. Horowitz, Inc. SN 234,351. Pub. 11-29-66. Filed 12-10-65.

824,093. PERMASET. Wembley, Inc. SN 236,030. Pub. 11-29-66. Filed 1-7-66.

824,094. WENDY LEE. Manchester Hosiery Mills. SN 237,006. Pub. 11-29-66. Filed 1-21-66.

824,095. KAMA-KENT. Central Textiles, Inc. SN 237,202. Pub. 11-29-66. Filed 1-25-66.

824,096. KAMA LEE. Central Textiles, Inc. SN 237,203. Pub. 11-29-66. Filed 1-25-66.

824,097. NAN-CAROL. The Union Company. SN 237,404. Pub. 11-29-66. Filed 1-26-66.

824,098. TOWN-FLAIR AND DESIGN. Butler's Shoe Corporation. SN 238,044. Pub. 11-29-66. Filed 2-4-66.

824,099. THOMSON. Thomson Company. SN 238,900. Pub. 11-29-66. Filed 2-15-66.

824,100. MIDRIFFER. Baka Manufacturing Company, Inc. SN 239,109. Pub. 11-29-66. Filed 2-18-66.

824,101. EDWARD WARREN. Garland Corporation, by change of name from Garland Knitting Mills. SN 239,140. Pub. 11-29-66. Filed 2-18-66.

824,102. HOUSE OF BALES. David A. Bales. SN 239,367. Pub. 11-29-66. Filed 2-23-66.

824,103. PERPIGNAN. Divina Footwear, Inc. SN 239,749. Pub. 11-29-66. Filed 2-28-66.

824,104. LUCKY PRESS. Charles Greenberg & Sons, Inc. SN 239,769. Pub. 11-29-66. Filed 2-28-66.

824,105. SHANMONT. Kirby, Block Distributing Corp. SN 240,446. Pub. 11-29-66. Filed 3-8-66.

824,106. RANCH WARMER. The Lo-Bel Company. SN 240,927. Pub. 11-29-66. Filed 3-14-66.

824,107. RICH GIRL. Marlene Industries Corporation. SN 240,933. Pub. 11-29-66. Filed 3-14-66.

824,108. RICH BOY. Marlene Industries Corporation. SN 240,936. Pub. 11-29-66. Filed 3-14-66.

824,109. MARDON 1000. Donald S. Lavigne, Inc. SN 241,152. Pub. 11-29-66. Filed 3-16-66.

824,110. ALEMEDA. Rose Brothers, Inc. SN 241,375. Pub. 11-29-66. Filed 3-18-66.

824,111. "NO BRA." Exquisite Form Industries, Inc. SN 241,770. Pub. 11-29-66. Filed 3-24-66.

824,112. WIFE SAVER. Fly Manufacturing Company, Inc. SN 241,776. Pub. 11-29-66. Filed 3-24-66.

824,113. ESCALATOR. Samuel F. Stein. SN 242,307. Pub. 11-29-66. Filed 10-24-65.

824,114. PRE-FORMER. Munsingwear, Inc. SN 242,472. Pub. 11-29-66. Filed 4-1-66.

824,115. TRANSISTOR. Peter Pan Foundations, Inc. SN 242,482. Pub. 11-29-66. Filed 4-1-66.

824,116. PARA-BOOT AND DESIGN. Exchange Service Co., Inc. SN 251,619. Pub. 11-29-66. Filed 8-3-66.

824,117. UP-STARES. Maidenform, Inc. SN 253,948. Pub. 11-29-66. Filed 9-7-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

824,082. (See Class 39 for this trademark.)

824,118. CAT'S MEOW. Canton Textile Mills, Inc., by change of name from Canton Cotton Mills. SN 233,452. Pub. 11-29-66. Filed 11-29-65.

824,119. CAT'S WHISKERS. Canton Textile Mills, Inc., by change of name from Canton Cotton Mills. SN 233,453. Pub. 11-29-66. Filed 11-29-65.

824,120. INSTANT TURF. Crown Tuft Carpet, Inc. SN 236,059. Pub. 11-29-66. Filed 1-10-66.

824,121. ROYALTY TURF. Crown Tuft Carpet, Inc. SN 236,060. Pub. 11-29-66. Filed 1-10-66.

824,122. THRIFTY MISS AND FEMALE DESIGN AND TOWELS. APL Corporation. SN 238,485. Pub. 11-29-66. Filed 2-11-66.

824,123. PLY-GUARD. Bates Manufacturing Company, Incorporated. SN 239,485. Pub. 11-29-66. Filed 2-24-66.

824,124. CONCORD FABRICS OF AMERICA. Concord Fabrics Inc. SN 241,037. Pub. 11-29-66. Filed 3-15-66.

824,125. MARY ANN. Thorndike Mills, Inc. SN 241,099. Pub. 11-29-66. Filed 3-15-66.

824,126. MILLICURE. Deering Milliken, Inc. SN 241,871. Pub. 11-29-66. Filed 3-25-66.

824,127. PRINCEKNIT. Princeton Knitting Mills, Inc. SN 242,659. Pub. 11-29-66. Filed 4-4-66.

824,128. OVERTRICK. Klopman Mills, Inc. SN 245,319. Pub. 11-29-66. Filed 5-10-66.

824,129. HEAVY WHIPPED CREAM. Klopman Mills, Inc. SN 245,320. Pub. 11-29-66. Filed 5-10-66.

824,130. DOUBLE FIFTY, SR. Cone Mills Corporation. SN 247,461. Pub. 11-29-66. Filed 6-7-66.

824,131. DOUBLE FIFTY, JR. Cone Mills Corporation. SN 247,472. Pub. 11-29-66. Filed 6-7-66.

824,132. LADY OF SPAIN. Normandie Bedspread Co., Inc. SN 251,685. Pub. 11-29-66. Filed 8-4-66.

824,133. RAISANETTE. Deering Milliken, Inc. SN 253,822. Pub. 11-29-66. Filed 9-6-66.

824,134. TWINDLE. Deering Milliken, Inc. SN 253,823. Pub. 11-29-66. Filed 9-6-66.

824,135. ROCKRIMMON. Deering Milliken, Inc. SN 253,824. Pub. 11–29–66. Filed 9–6–66.

824,136. SAFFRONELLA. Deering Milliken, Inc. SN 253,825. Pub. 11–29–66. Filed 9–6–66.

824,137. ULTRILON. Guilford Mills, Inc. SN 254,016. Pub. 11–29–66. Filed 9–8–66.

824,138. BANDMASTER. Klopman Mills, Inc. SN 254,022. Pub. 11–29–66. Filed 9–8–66.

Class 43 — Thread and Yarn

824,139. NL-AG. Metal Film Company, Inc. SN 240,013. Pub. 11–29–66. Filed 3–2–66.

824,140. THE WISDOM OF WOOL. Blankin Yarn Company. SN 240,060. Pub. 11–29–66. Filed 3–3–66.

824,141. CEFLEX. Chapman, Fraser & Company, Limited. SN 245,441. Pub. 11–29–66. Filed 4–11–66.

Class 44 — Dental, Medical, and Surgical Appliances

823,949. (See Class 21 for this trademark.)

823,959. CONSOLIDATED. CERTIFICATE. See Class 21.

824,142. ORAHESIVE. E. R. Squibb & Sons, Inc., assignee of Olin Mathieson Chemical Corporation. SN 231,649. Pub. 11–29–66. Filed 10–26–65.

824,143. ELECTROSURG. Coles Electronic Corporation. SN 234,113. Pub. 11–29–66. Filed 12–7–65.

824,144. RADIOSURG. Coles Electronic Corporation. SN 234,114. Pub. 11–29–66. Filed 12–7–65.

824,145. DELCREST. Walter E. Jordan, d.b.a. Jordan Manufacturing Company. SN 234,429. Pub. 11–29–66. Filed 12–13–65.

824,146. DELCREST AND DESIGN. Walter E. Jordan, d.b.a. Jordan Manufacturing Company. SN 234,430. Pub. 11–29–66. Filed 12–13–65.

824,147. LURIDE. The Kendall Company. SN 237,572. Pub. 11–29–66. Filed 1–28–66.

824,148. IDENT-A-TUBE. Hollister Incorporated. SN 238,737. Pub. 11–29–66. Filed 2–14–66.

Class 45 — Soft Drinks and Carbonated Waters

824,149. DIET PEPSI-COLA. PepsiCo, Inc. SN 254,096. Pub. 11–29–66. Filed 9–9–66.

824,150. PEPSI. PepsiCo, Inc. SN 254,097. Pub. 11–29–66. Filed 9–9–66.

824,151. PEPSI-COLA. PepsiCo, Inc. SN 254,098. Pub. 11–29–66. Filed 9–9–66.

824,152. DIET PEPSI. PepsiCo, Inc. SN 254,099. Pub. 11–29–66. Filed 9–9–66.

824,153. MISCELLANEOUS DESIGN. PepsiCo, Inc. SN 254,100. Pub. 11–29–66. Filed 9–9–66.

824,154. BURP. Richard Headley, d.b.a. Burpo Co. SN 254,764. Pub. 11–29–66. Filed 9–20–66.

Class 46 — Foods and Ingredients of Foods

824,155. MEDALLION. General Mills, Inc. SN 184,060. Pub. 3–23–65. Pub. 1–6–64.

824,156. SCHMIDT'S BLUE RIBBON. Schmidt Baking Co., Inc. SN 227,876. Pub. 11–29–66. Filed 9–15–65.

824,157. HOLLINGSWORTH'S UNUSUAL CANDIES. Fine Products Company, Inc., d.b.a. Hollingsworth's, assignee of Fine Products Corporation. SN 230,526. Pub. 11–29–66. Filed 10–19–65.

824,158. CHEX. John B. Aitchison, d.b.a. The Chex Company. SN 232,805. Pub. 11–29–66. Filed 11–17–65.

824,159. CANIGOU. Unisabi. SN 232,948. Pub. 11–29–66. Filed 11–18–65.

824,160. QUOTA. The Quaker Oats Company. SN 233,820. Pub. 11–29–66. Filed 12–2–65.

824,161. PONY EXPRESS. Campbell Taggart Associated Bakeries, Inc. SN 234,536. Pub. 11–29–66. Filed 12–14–65.

824,162. CHICKEN DELIGHT AND DESIGN. Chicken Delight, Inc. SN 236,233. Pub. 11–29–66. Filed 1–12–66.

824,163. DOC HOLLIDAYLAND. Doc Holliday, Inc. SN 236,473. Pub. 11–29–66. Filed 1–14–66.

824,164. J. H. (DOC) HOLLIDAY. Doc Holliday, Inc. SN 236,475. Pub. 11–29–66. Filed 1–14–66.

824,165. GLEN MAID. Glen Maid, Inc. SN 236,592. Pub. 11–29–66. Filed 1–17–66.

824,166. OAKWOOD. Richard Kuriger, Inc. SN 237,359. Pub. 11–29–66. Filed 1–26–66.

824,167. VOGEL'S AND DESIGN. Bird Provision Co. SN 239,212. Pub. 11–29–66. Filed 2–21–66.

824,168. SEA FOAM. Holmes Packing Corporation. SN 239,625. Pub. 11–29–66. Filed 2–25–66.

824,169. WESTERN CHIEF. G. Kawamura, d.b.a. Western Marketing Company of California and Western Marketing Company. SN 253,590. Pub. 11–29–66. Filed 9–1–66.

824,170. KING COOPER AND DESIGN. W. S. Pope & Son, d.b.a. W. S. Pope & Sons. SN 253,816. Pub. 11–29–66. Filed 9–6–66.

824,171. YOKOHL. W. F. Cosart Packing Co. SN 254,651. Pub. 11–29–66. Filed 9–19–66.

Class 47 — Wines

824,172. THE CROWNING TOUCH. Ambrose & Company. SN 234,494 Pub. 10–11–66. Filed 12–13–65.

824,173. FOLONARI. Societa per Azioni Fratelli Folonari. SN 235,802. Pub. 11–29–66. Filed 1–4–66.

Class 49 — Distilled Alcoholic Liquors

824,174. SANDY SCOT. Federal Distillers Inc., by change of name from Federal Liquors Ltd. SN 150,043. Pub. 8–27–63. Filed 7–30–62.

824,175. TREASURE ISLAND. Felton & Son, Incorporated, d.b.a. Treasure Island Dist. Co. SN 185,504. Pub. 10–20–64. Filed 1–28–64.

824,176. GARNIER. Julius Wile Sons & Co., Inc. SN 199,338. Pub. 11–29–66. Filed 8–5–64.

824,177. CAFE SOCIETY AND DESIGN. Forexp S.A. Comercio e Exportacao. SN 249,422. Pub. 11–29–66. Filed 7–1–66.

Class 50 — Merchandise Not Otherwise Classified

823,843. (See Class 6 for this trademark.)

823,865. (See Class 7 for this trademark.)

823,917. (See Class 16 for this trademark.)

824,178. DINEGARD. Dean Spencer. SN 245,253. Pub. 11–29–66. Filed 5–9–66.

824,179. HAWKLITE AND DESIGN. Hawkins-Hawkins Co., Inc. SN 246,078. Pub. 11–29–66. Filed 5–19–66.

Class 51 — Cosmetics and Toilet Preparations

824,180. JEAN D'AVEZE. Produits de Beaute-Parfums-Jean D'Aveze, Societe Anonyme. SN 163,076. Pub. 12–10–63. Filed 2–19–63.

824,181. VIGAH. Ira Lieb. SN 176,814. Pub. 4–20–65. Filed 9–12–63.

824,182. THERMODENT. Chas. Pfizer & Co., Inc. SN 199,219. Pub. 11–29–66. Filed 8–4–64.

824,183. OH ! DE LONDON. Yardley of London, Inc. SN 216,913. Pub. 11–29–66. Filed 4–19–65.

824,184. ENRICO CARUSO. Enrico Caruso Hairstylists, Inc. SN 226,044. Pub. 11–29–66. Filed 8–19–65.

824,185. '76. McKesson & Robbins, Incorporated, d.b.a. Tawn Limited, assignee of Vi-Jon Laboratories, Incorporated, d.b.a. The House of '76. SN 227,631. Pub. 5–3–66. Filed 9–10–65.

824,186. SIGH SHADOW. Yardley of London, Inc. SN 228,966. Pub. 11–29–66. Filed 9–29–65.

824,187. WOW BROW. Yardley of London, Inc. SN 229,391. Pub. 11–29–66. Filed 10–5–65.

824,188. BABY BLUES. Yardley of London, Inc. SN 229,392. Pub. 11–29–66. Filed 10–5–65.

824,189. SPRAY DENT. Pharmaco, Inc. SN 232,717. Pub. 11–29–66. Filed 11–15–65.

824,190. ROYAL BATH OIL OF SUMERIA. Edmond Bordeaux Szekely, also known as Edmond S. Bordeaux, d.b.a. Elixirs of Light. SN 234,112. Pub. 9–20–66. Filed 12–7–65.

824,191. COLOR BOND. Royal Beauty Laboratories, Inc. SN 236,515. Pub. 11–29–66. Filed 1–14–66.

824,192. ROJA. Laboratoires Roja. MULTIPLE CLASS (Classes 51 and 52). SN 238,749. Pub. 11–29–66. Filed 2–14–66.

824,193. FAIRWAY. Fairway Foods, Inc. SN 242,231. Pub. 11–29–66. Filed 3–30–66.

824,194. LITTLE WONDER. Richardson-Harris, Inc. SN 245,371. Pub. 11–29–66. Filed 5–11–66.

824,195. CONFIDE. The Procter & Gamble Company. SN 251,688. Pub. 11–29–66. Filed 8–4–66.

824,196. TWINK. Lever Brothers Company. SN 252,789. Pub. 11–29–66. Filed 8–22–66.

824,197. JEAN NATE. Jean Nate, Inc. MULTIPLE CLASS (Classes 51 and 52). SN 253,402. Pub. 11–29–66. Filed 8–30–66.

824,198. LALIXE. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,595. Pub. 11–29–66. Filed 9–1–66.

824,199. VOLANT. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,597. Pub. 11–29–66. Filed 9–1–66.

824,200. ZALLA. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,609. Pub. 11–29–66. Filed 9–1–66.

824,201. RONDOLAY. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,708. Pub. 11–29–66. Filed 9–2–66.

Class 52 — Detergents and Soaps

823,843. (See Class 6 for this trademark.)

823,844. (See Class 6 for this trademark.)

824,192. (See Class 51 for this trademark.)

824,197. (See Class 51 for this trademark.)

824,202. MISCELLANEOUS DESIGN. Morton International, Inc. SN 231,462. Pub. 11–29–66. Filed 10–23–65.

Service Marks

Class 100 — Miscellaneous

824,203. CENTRALEASE. Central Charge Service, Inc., d.b.a. Central Leasing Service. SN 231,049. Pub. 11–29–66. Filed 10–22–65.

824,204. HH AND DESIGN. Canteen Corporation, by change of name from Automatic Canteen Company of America. SN 232,513. Pub. 11–29–66. Filed 11–12–65.

Class 101 — Advertising and Business

824,205. KEYVERTISING. Keyvertising, Inc. SN 197,496. Pub. 11–29–66. Filed 7–9–64.

824,206. TIP. Bergen Drug Data Processing Corp. SN 199,011. Pub. 11–29–66. Filed 8–3–64.

824,207. DECORAMA AND DESIGN. Decorama, Inc. SN 219,690. Pub. 5–24–66. Filed 5–25–65.

824,208. V.I.P. A. C. Nielsen Company. SN 232,582. Pub. 10–11–66. Filed 11–12–65.

Class 103 — Construction and Repair

824,209. ONE HOUR SUN-KIST CLEANERS AND DESIGN. Saxe-Freeman Company. SN 238,305. Pub. 10–11–66. Filed 2–7–66.

Class 104 — Communication

824,210. AUTOLERT. Autolert. SN 229,914. Pub. 11–29–66. Filed 10–7–65.

Class 105 — Transportation and Storage

824,211. COMMUTER AIRLINES AND DESIGN. Commuter Airlines, Inc. SN 202,065. Pub. 2–8–66. Filed 9–17–64.

Class 107 — Education and Entertainment

824,212. TELE-BINGO. Tod Productions. SN 188,159. Pub. 9–14–65. Filed 3–6–64.

824,213. MEDALLIONS. Edco, Inc. SN 237,320. Pub. 11–29–66. Filed 1–26–66.

Collective Membership Mark

Class 200

824,214. ITDB PARTICIPANT LEADERSHIP-INTEGRITY AND DESIGN. Institute of American Poultry Industries. SN 227,293. Pub. 11–29–66. Filed 9–7–65.

824,215. UNIVERSITY OF DAYTON AND DESIGN. University of Dayton. SN 240,132. Pub. 11–29–66. Filed 3–3–66.

824,216. NOTHING. Nothing, Inc. SN 246,480. Pub. 11–29–66 Filed 5–24–66.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

SECTION 1

(Combined Certificates)

824,251. Schwabacher & Co., San Francisco, Calif. SN 214,312. Filed P.R. 3-17-65; Am. S.R. 11-25-66.

YOUR WESTERN INVESTMENT "PARTNER"

Class 100—Miscellaneous

For Advice and Consultation Services as Financial Advisers.

Class 102—Insurance and Financial

For Financial Services as Underwriters, Distributors, Dealers and Brokers of All Types of Securities.

First use July 5, 1964.

SECTION 2

Class 2 — Receptacles

824,217. Ames Shower Curtain Co., Inc., New York, N.Y. SN 232,052. Filed P.R. 11-3-65; Am. S.R. 12-5-66.

AMESWARE

For Tumblers, Soap Dishes, Waste Baskets, Tissue Boxes and Hampers.

First use November 1963.

Class 6 — Chemicals and Chemical Compositions

824,218. Freeport Sulphur Company, New York, N.Y. SN 236,363. Filed P.R. 1-13-66; Am. S.R. 11-30-66.

FREEPORT

For Sulphur.

First use Nov. 20, 1965.

Class 7 — Cordage

824,219. Davis Cordage Company, Portland, Oreg. SN 254,968. Filed P.R. 9-23-66; Am. S.R. 11-14-66.

MIGHTY-TIE

For Baler Twine.

First use on or before June 1, 1956.

Class 11 — Inks and Inking Materials

824,220. Morton International, Inc., Chicago, Ill. SN 234,054. Filed P.R. 12-6-65; Am. S.R. 11-22-66.

ORGANO INK

For Epoxy Resinous Coating in the Nature of an Ink for Applying a Design or Color and the Like, to the Surface of Packaging Materials or Containers.

First use Oct. 28, 1965.

Class 12 — Construction Materials

824,221. Balco, Inc., Wichita, Kans. SN 233,989. Filed P.R. 12-6-65; Am. S.R. 12-5-66.

RAIN DRAIN

For Roof Deck Expansion Joint Cover Structures for Buildings and the Like for Preventing Accumulation of Water in the Joints.

First use Nov. 17, 1965.

Class 14 — Metals and Metal Castings and Forgings

824,222. Minnesota Mining and Manufacturing Company, St. Paul, Minn. SN 235,573. Filed P.R. 12-30-65; Am. S.R. 12-13-66.

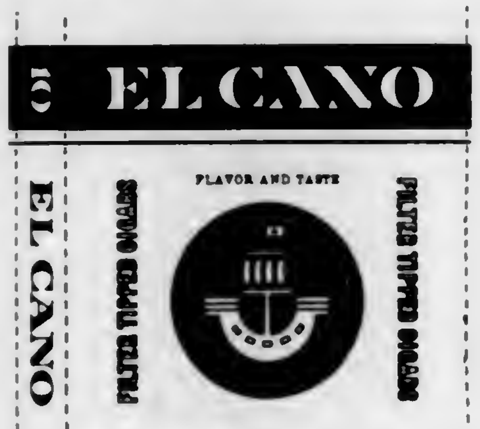
GOLDEN GALVANIZE

For Metallic Coating Applied to Metal Surfaces.

First use Feb. 11, 1963.

Class 17 — Tobacco Products

824,223. El Cano Cigar Corporation (Proprietary) Limited, Capetown, Republic of South Africa. SN 240,282. Filed P.R. 3-7-66; Am. S.R. 12-9-66.



The Spanish words "El Cano" are the equivalent of "the old" or "the ancient" in English. Owner of South African Reg. No. 64/4,666, dated Dec. 2, 1964.

For Cigarettes, Cigars, and Smoking Tobacco.

Class 18 — Medicines and Pharmaceutical Preparations

824,224. Pet Pharmaceuticals, Inc., New York, N.Y. SN 228,392. Filed P.R. 9-22-65; Am. S.R. 11-21-66.

PET aID

For Proprietary and Ethical Drugs and Pharmaceuticals for Pets.

First use Sept. 3, 1965.

Class 21 — Electrical Apparatus, Machines, and Supplies

824,225. Litton Precision Products, Inc., Minneapolis, Minn. SN 215,518. Filed P.R. 4-1-65; Am. S.R. 12-5-66.

START-FAST

For Automobile Battery Boosters and Chargers.

First use on or about Oct. 27, 1964.

Class 22 — Games, Toys, and Sporting Goods

824,226. Lipe Specialty Co., Inc., Skaneateles, N.Y. SN 223,248. Filed P.R. 7-13-65; Am. S.R. 12-8-66.

LIPE Release Check

For Pressure Testing and Checking Devices for Ski Bindings.

First use Dec. 7, 1964.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

824,227. W. J. Dennis & Company, Franklin Park, Ill. SN 226,730. Filed P.R. 8-30-65; Am. S.R. 12-7-66.

GLIDE-RAKE

For Lawn Rakes.

First use on or about July 7, 1965.

Class 26 — Measuring and Scientific Appliances

824,228. Carmody Corporation, Buffalo, N.Y. SN 194,033. Filed P.R. 5-22-64; Am. S.R. 11-25-66.

LEARNING BY GUIDED DOING

For Visual and Operational Training Aid Consisting of a Control Panel Containing simulated Instruments for Training Personnel in Control Procedures.

First use on or about Jan. 1, 1961.

824,229. Textron Inc., Rochester, N.Y. SN 212,260. Filed P.R. 2-17-65; Am. S.R. 12-12-66.

VISIONAL

For Ophthalmic Lenses.

First use 1942; Jan. 28, 1930 as to "Visionall."

Class 34 — Heating, Lighting, and Ventilating Apparatus

824,230. Hamilton Humidity, Inc., Chicago, Ill. SN 210,438. Filed P.R. 1-22-65; Am. S.R. 12-9-66.

HUMID-AIRE ELECTRA

For Combination Humidifiers and Electronic Air-Cleaners and Humidifiers.

First use Nov. 1, 1963.

Class 37 — Paper and Stationery

824,231. The Parker Pen Company, Janesville, Wis. SN 220,543. Filed P.R. 6-7-65; Am. S.R. 12-2-66.

Tip-Wic

For Marking Devices.

First use Feb. 9, 1965.

824,232. Brown Company, New York, N.Y., assignee of KVP Sutherland Paper Company, Kalamazoo, Mich. SN 226,646. Filed P.R. 8-27-65; Am. S.R. 12-1-66.

SUPER STA-FRESH

For Panels of Cardboard or Paperboard for Use in Packaging Food Products.

First use Aug. 9, 1965.

824,233. Brown Company, New York, N.Y., assignee of KVP Sutherland Paper Company, Kalamazoo, Mich. SN 228,260. Filed P.R. 9-21-65; Am. S.R. 9-16-66.

NEVER-STAYN

For Paperboard.

First use Aug. 9, 1965.

Class 38 — Prints and Publications

824,234. Alabama Sunday Magazine, Inc., Montgomery, Ala. SN 229,718. Filed P.R. 10-11-65; Am. S.R. 11-28-66.

SCRIPTURE-GRAM

For Puzzle Regularly Appearing in a Newspaper.

First use Oct. 25, 1964.

824,235. Sutherland Publications, Inc., Bethesda, Md. SN 233,958. Filed P.R. 12-3-65; Am. S.R. 11-25-66.

Nursery Business

For Trade Magazine.

First use Oct. 30, 1965.

824,236. Grosset & Dunlap, Inc., New York, N.Y. SN 238,525. Filed 2-10-66.

ILLUSTRATED JUNIOR LIBRARY

Owner of Reg. No. 425,454.
For Books Published From Time to Time.
First use Sept. 7, 1945.

824,237. Boston Herald-Traveler Corporation, Boston, Mass. SN 239,962. Filed P.R. 3-2-66; Am. S.R. 12-1-66.

Celebrity Cookbook

For Column in a Newspaper.
First use Mar. 22, 1964.

824,238. Dell Publishing Co., Inc., New York, N.Y. SN 241,874. Filed P.R. 3-25-66; Am. S.R. 12-12-66.

GREAT MYSTERY LIBRARY

For Series of Books.
First use Dec. 15, 1963.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

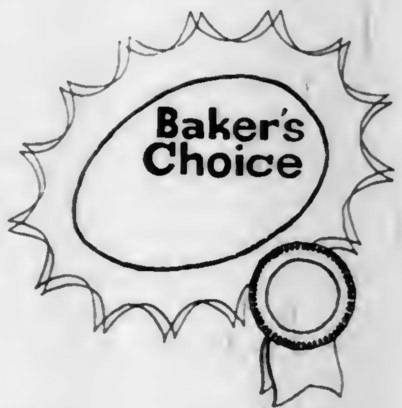
824,239. William N. Schreiber, d.b.a. Brittany Mills, Los Angeles, Calif. SN 244,745. Filed P.R. 5-2-66; Am. S.R. 12-5-66.

BRITTANY MILLS

For Floor Coverings Made of Either Cordage, Thread, Yarn, or Knitted Textile Fabrics.
First use Jan. 1, 1955.

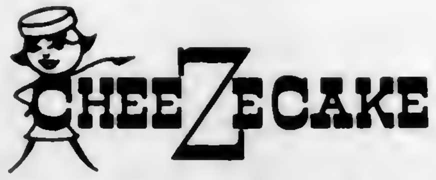
Class 46—Foods and Ingredients of Foods

824,240. Brasher Brothers, Inc., d.b.a. Brasher Brothers, Burbank, Calif. SN 235,265. Filed P.R. 12-27-65; Am. S.R. 12-5-66.



For Frozen Eggs.
First use May 1, 1962.

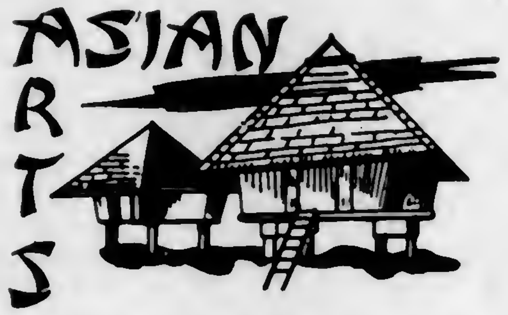
824,241. Creative Bakers, Inc., Brooklyn, N.Y. SN 237,630. Filed P.R. 1-7-66; Am. S.R. 9-23-66.



Applicant disclaims the terms "Cheeze Cake" apart from the mark as shown.
For Cheese Cake.
First use July 29, 1963.

Class 50—Merchandise Not Otherwise Classified

824,242. Richard H. Long, Towanda, Ill. SN 235,920. Filed P.R. 1-6-66; Am. S.R. 11-10-66.



For Three Dimensional Objects of Art, Oriental Wood Carvings, and Japanese Wood Block Prints.
First use July 6, 1965.

824,243. Emory L. Groff, Pompano Beach, Fla. SN 235,976. Filed 1-7-66.

SPUNJ-RAK

For Holders for Sponges To Facilitate the Drying and Storing Thereof When Not in Use.
First use Aug. 6, 1964.

Class 51—Cosmetics and Toilet Preparations

824,244. Clairol Benelux S.A., Brussels, Belgium. SN 215,484. Filed P.R. 4-1-65; Am. S.R. 11-21-66.

THE GIRL WITH THE BEAUTIFUL MOUTH

Owner of Belgian Reg. No. 102,788 dated Sept. 1, 1964.
For Lipstick.

824,245. L'Oreal, Societe Anonyme, Paris, France. SN 220,114. Filed P.R. 6-1-65; Am. S.R. 11-30-66.

EMULSION RICHE

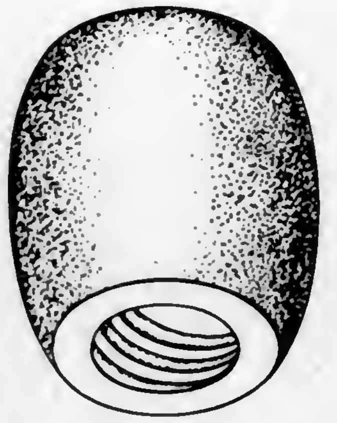
Owner of French Reg. No. 521,366, dated Apr. 17, 1964 (Seine); Natl. Inst. No. 224,009.
For Hair Conditioner.

824,246. Stonehill Laboratories, Inc., Setauket, N.Y. SN 225,210. Filed P.R. 8-6-65; Am. S.R. 11-28-66.

POST-SCRUB

For Emollient Cream To Restore Oil Lost From Skin.
First use Apr. 15, 1965.

824,247. MEM Company, Inc., Northvale, N.J. SN 236,501. Filed 1-14-66.



For Toilet Preparations—Namely, Men's All Purpose Lotion, After Shave Lotion, Hair Dressing, Pre-Shave Lotion, Eau de Cologne, Deodorant Lotion and Talcum Powder.
First use 1940.

Class 52—Detergents and Soaps

824,248. Lambert-Kay, Inc., Los Angeles, Calif. SN 239,421. Filed P.R. 2-23-66; Am. S.R. 11-14-66.

Wet 'n Dry

For Stain Remover for Cleaning Dog and Cat Stains From Carpets and Fabrics.
First use Sept. 14, 1965.

824,249. The Procter & Gamble Company, Cincinnati, Ohio. SN 242,391. Filed 3-31-66.

DEEPIO

For All Purpose Household and Laundry Detergent and Cleaner.
First use Feb. 18, 1966.

Service Marks

Class 100—Miscellaneous

824,251. See Section 1 (Combined Certificate).

824,250. Pittsburgh Plate Glass Company, Pittsburgh, Pa. SN 210,224. Filed P.R. 1-19-65; Am. S.R. 11-23-66.

THE HOUSE OF NEW DIMENSIONS

For Advice, Consultation and Technical Assistance in the Use of Light, Reflection and Color in Private Dwellings Through the Media of Coatings and Glass.
First use June 4, 1964.

Class 101—Advertising and Business

824,252. Extraservices, Inc., Hartford, Conn., by change of name from Extragirls, Incorporated, Hartford, Conn. SN 238,943. Filed 2-16-1966.

extraEngineers

Owner of Reg. No. 801,598.
For Supplying Temporary Technical Personnel Including Engineers, Designers, Draftsmen, Detailers, Estimaters, Apprentices, Plant Layout Personnel, Quality Control Personnel, Liaison and Sales Personnel, Test Personnel, and others.
First use Aug. 23, 1964.

Class 102—Insurance and Financial

824,251. See Section 1 (Combined Certificate).

Class 105—Transportation and Storage

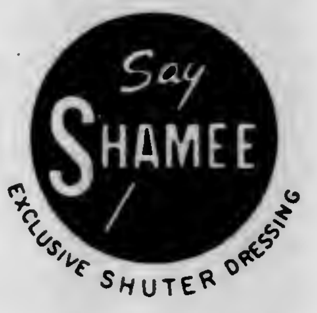
824,253. Gordon N. Zane, Greensboro, N.C. SN 211,135. Filed P.R. 2-1-65; Am. S.R. 11-18-66.

BARGAIN CAR

For Leasing and Renting of Automobiles and Other Vehicles.
First use Feb. 4, 1964.

Class 106—Material Treatment

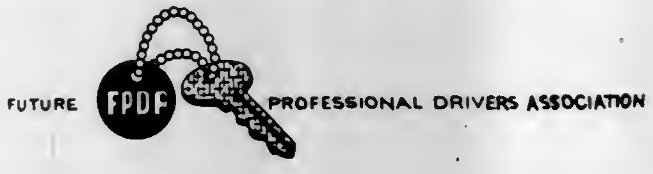
824,254. Elias Shuter's Sons, Inc., New York, N.Y. SN 212,516. Filed P.R. 2-23-65; Am. S.R. 3-25-66.



For Dressing and Treating the Furs of Others.
First use Dec. 23, 1964.

Class 107—Education and Entertainment

824,255. Henry Gregor Felsen, Inc., Des Moines, Iowa. SN 221,590. Filed P.R. 6-21-65; Am. S.R. 10-31-66.

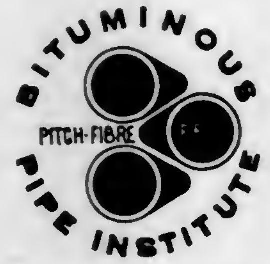


The drawing is lined for gold.
For Assisting and Encouraging Young Persons Who Are Planning on Being Professional Drivers To Become Safe Drivers by Providing Literature, Vocational Training, Organizing Club Activities and in Other Ways.
First use June 7, 1965.

Collective Membership Mark

Class 200

824,256. Bituminous Pipe Institute, South Milwaukee, Wis. SN 199,873. Filed P.R. 8-14-64; Am. S.R. 12-7-66.



For Indicating Membership in Applicant.
First use Jan. 1, 1963.

TRADEMARK REGISTRATIONS RENEWED

30,115. GOLD DUST. Cl. 52. 6-1-1897.
54,223. ALLIGATOR. Cl. 2. 6-19-06.
55,299. CARBO MAGNETIC AND DESIGN. Cl. 23. 8-14-06.
56,123. ACME. Cl. 2. 8-28-06.
56,124. WINNER. Cl. 2. 8-28-06.
56,193. UNION. Cl. 2. 8-28-06.
56,194. GIANT. Cl. 2. 8-28-06.
59,013. EXCELSIOR. Cl. 26. 12-25-06.
59,475. OLD HAMPSHIRE BOND. Cl. 37. 1-8-07.
59,476. TITAN BOND. Cl. 37. 1-8-07.
60,304. WHITE TOP AND DESIGN. Cl. 12. 2-5-07.
61,315. XXX. Cl. 10. 3-12-07.
61,530. DEFENDUM. Cl. 37. 3-26-07.
61,587. SCOTCH. Cl. 37. 3-26-07.
61,589. OLD HAMPDEN. Cl. 37. 3-26-07.
61,626. SUCCESSFUL FARMING. Cl. 38. 3-26-07.
214,412. LION (DESIGN). Cl. 28. 6-22-26.
217,404. WHITE DOT (DESIGN). Cl. 37. 8-31-26.
218,407. PLYLOCK AND DESIGN. Cl. 12. 9-28-26.
221,063. SAG-NO-MOR. Cl. 42. 11-23-26.
222,405. POWDER PUFF LINGERIE AND DESIGN. Cl. 42. 1-4-27.
222,805. ORA. Cl: 46. 1-11-27.
222,873. AUTOFOLD. Cl. 37. 1-11-27.
225,024. MIDO. Cl. 27. 3-8-27.
225,216. EXCELSIOR AND DESIGN. Cl. 23. 3-15-27.
226,306. CORINNE AND DESIGN. Cl. 39. 4-5-27.
226,793. BARCO AND DESIGN. Cl. 46. 4-19-27.
227,527. FIESTA. Cl. 39. 5-10-27.
227,532. IN-WOV-IN. Cl. 39. 5-10-27.
227,823. EXCELSIOR. Cl. 14. 5-17-27.
228,466. DE LUXE. Cl. 44. 5-31-27.
422,432. B BEGA SEWING MACHINE. Cl. 23. 7-23-46.
422,784. RACOR. Cl. 14. 8-13-46.
423,512. RACOR AND DESIGN. Cl. 23. 9-3-46.
423,996. KETCH. Cl. 52. 9-17-46.
423,997. SKURRY. Cl. 52. 9-17-46.
424,479. DEVIL'S HEAD (DESIGN). Cl. 21. 10-8-46.
424,481. INTERCEPTOR. Cl. 21. 10-8-46.
424,628. NBM AND DESIGN. Cl. 34. 10-15-46.
425,115. ANOTOP. Cl. 18. 11-5-46.
425,588. STROBOLUX. Cl. 26. 11-26-46.
426,103. CRUSTENE. Cl. 46. 12-17-46.
426,423. VISA. Cl. 51. 12-24-46.
426,436. CROSS WINDS. Cl. 42. 12-24-46.
426,612. ADA-STIC. Cl. 12. 1-7-47.
426,837. CHRIS-CRAFT. Cl. 23. 1-14-47.
426,905. EXCELLO. Cl. 26. 1-21-47.
426,964. BLACK FLAG AND DESIGN. Cl. 6. 1-21-47.
426,965. BLACK FLAG BANDERA NEGRA AND DESIGN. Cl. 6. 1-21-47.
426,990. ARALEN. Cl. 18. 1-21-47.
427,003. NEOCURTASAL. Cl. 46. 1-21-47.
427,183. CHEMOX. Cl. 44. 1-28-47.
427,240. PYREX. Cl. 33. 2-4-47.
427,455. PLACE. Cl. 51. 2-11-47.
427,477. SOILMASTER. Cl. 23. 2-11-47.
428,094. HOMCO AND DESIGN. Cl. 23. 3-11-47.
428,248. MIDO MULTIFORT SUPER-AUTOMATIC AND DESIGN. Cl. 27. 3-18-47.
428,277. INTERVALLE. Cl. 52. 3-18-47.
428,837. TRU-THREAD AND DESIGN. Cl. 23. 4-8-47.
429,038. GLOSSET. Cl. 11. 4-15-47.
429,134. SUNBEAM. Cl. 32. 4-22-47.
429,366. OKEMCO. Cl. 6. 4-29-47.
429,403. CHAPEL BELLS. Cl. 28. 4-29-47.
429,404. CHASED ROMANTIQUE. Cl. 28. 4-29-47.
429,411. NOCTURNE. Cl. 28. 4-29-47.
429,469. BISULDEX. Cl. 18. 4-29-47.
429,592. OKEMCO. Cl. 52. 5-6-47.
429,673. FLO THRU. Cl. 40. 5-13-47.
429,692. RAYDUCT. Cl. 13. 5-13-47.
429,840. BATHER. Cl. 39. 5-20-47.

TRADEMARK REGISTRATIONS CANCELED

Section 8

The following registrations issued Dec. 27, 1960

708,874. SUNBURST (DESIGN). Cl. 2.
708,875. CAP'N SNAP PAC. Cl. 2.
708,879. MOONGLOW. Cl. 2.
708,880. SPRING BLOSSOM. Cl. 2.
708,881. HARLEQUIN. Cl. 2.
708,882. GOLD PFEIL AND DESIGN. Cl. 3.
708,883. GOLDEN ARROW AND DESIGN. Cl. 3.
708,889. MYSTIK INDUSTRIAL TAPES. Cl. 5.
708,890. EVER-ON AND DESIGN. Cl. 5.
708,892. LF-100-BD. Cl. 6.
708,893. LF-100-UN. Cl. 6.
708,897. DYNO. Cl. 10.
708,898. TURF-LIFE. Cl. 10.
708,902. TENSILAR. Cl. 11.
708,906. ASFALTICO ASFALTITE AND DESIGN. Cl. 12.
708,908. ANNEALITE. Cl. 12.
708,912. MODULUX. Cl. 12.
708,913. LOUVERLUX. Cl. 12.
708,915. ADJUST-A-SHUTTER. Cl. 12.
708,916. SOLO. Cl. 12.
708,919. WEATHER-BAR. Cl. 12.
708,923. MAGNELEX. Cl. 12.
708,927. COMCO. Cl. 12.
708,928. OMNIA AND GLOBE DESIGN. Cl. 12.
708,939. UNI-FLOW. Cl. 13.
708,945. RED SEAL. Cl. 14.
708,951. MOTOR SKIN. Cl. 15.
708,952. GROTESQUE OF OIL DROP. Cl. 16.
708,954. BLACO-THIN. Cl. 16.
708,955. FAIRWAY. Cl. 16.
708,959. RESTRAN. Cl. 18.
708,965. BLACKHERRIN. Cl. 18.
708,972. SCAMPY. Cl. 19.
708,974. FIGURE 1 DESIGN. Cl. 19.
708,977. TAUNUS-TRANSIT. Cl. 19.
708,978. SILVER CRAFT. Cl. 19.
708,980. SARATOGA. Cl. 19.
708,981. MARS MISSILE. Cl. 19.
708,983. LUMA-LAP. Cl. 19.
708,984. THE SHARK. Cl. 19.
708,989. KING NEPTUNE II AND DESIGN. Cl. 22.
708,992. PRESS-GRIP. Cl. 23.
708,993. ECLAIR. Cl. 23.
708,994. VERMOREL AND DESIGN. Cl. 23.
708,997. NU-ERA ETC. AND DESIGN. Cl. 23.
709,019. TEMCO ELECTRONICS. Cl. 26.
709,028. EURA. Cl. 26.
709,021. WALZ. Cl. 26.
709,036. CHRONOTEL. Cl. 26.
709,038. CHIRPPRIHC. Cl. 26.
709,047. DIP-STIK. Cl. 26.
709,052. DE JUR. Cl. 27.
709,064. SYSTE-MATIC. Cl. 34.
709,071. DOUBLE-LIFE. Cl. 35.
709,074. CHAMPAGNE STYLING ETC. AND DESIGN. Cl. 39.
709,085. ROBERTO. Cl. 39.
709,086. PERRY WAYNE. Cl. 39.
709,093. MR. NORTH. Cl. 39.
709,094. GUY D. Cl. 39.
709,106. ONRITE. Cl. 42.
709,113. DEXTEX. Cl. 42.
709,115. DULAINE. Cl. 42.
709,117. BEMBERG ETC. AND DESIGN. Cl. 43.
709,125. NU-HEALTH. Cl. 44.
709,133. SUPERLECTRIC. Cl. 44.
709,138. MELROSE. Cl. 46.
709,140. GELA-TONE. Cl. 46.
709,142. OCTOPUS AND DESIGN. Cl. 50.
709,145. LITTLE BUB. Cl. 50.
709,151. SIPOREX WORLD'S LARGEST ETC. Cl. 12.
709,160. POND'S V ETC. AND DESIGN. Cl. 51.

INDEX OF REGISTRANTS

FEBRUARY 14, 1967

(**Registered** ; **Renewed** ; **Canceled** ; **Amended, Disclaimed, Corrected, etc.** ; **New Certificates** ; **12c Publications.**)

APL Corp., Linden, N.J. 824,122, pub. 11–29–66. Cl. 42.
Albert, Jack C., d.b.a. Mechanical Products Co., Phoenix, Ariz. 823,840, pub. 9–27–66. Cl. 3.
Abex Corp. : *See*—
  American Brake Shoe Co.
Accurate Bushing Co., Garwood, N.J. 708,992, canc. Cl. 23.
Addison Products Co., Addison, Mich. 708,915, canc. Cl. 12.
Adler, Kurt S., New York, N.Y. 823,957, pub. 11–29–66. Cl. 21.
Aeroshade Co., Inc., The, Waukesha, Wis. 823,884, pub. 11–29–66. Cl. 12.
Agway, Inc., Syracuse, N.Y. 823,866, pub. 11–29–66. Cl. 7.
Agway, Inc., Syracuse, N.Y. 823,961, pub. 11–29–66. Cl. 21.
Agway, Inc., Syracuse, N.Y. 824,021, pub. 11–29–66. Cl. 24.
Aiken, Hugh H., d.b.a. Diffusa-Lite Co., Conshohocken, Pa. 708,912, canc. Cl. 12.
Aiken, Hugh H., d.b.a. Diffusa-Lite Co., Conshohocken, Pa. 708,913, canc. Cl. 12.
Aircoustic Co., Inc., San Francisco, Calif. 823,872, pub. 6–28–66. Cl. 12.
Air Shields, Inc., Hatboro, Pa. 823,949, pub. 11–29–66. Multiple Class (Classes 21, 23, 26, 31, 34, and 44).
Aitchison, d.b.a. Chex Co., The, Philadelphia, Pa. 824,158, pub. 11–29–66. Cl. 46.
Akron Brass Mfg. Co., Inc., Wooster, Ohio. 708,939, canc. Cl. 13.
Alabama Sunday Magazine, Inc., Montgomery, Ala. 824,234, canc. Cl. 38.
Allied Chemical Corp., New York, N.Y. 708,919, canc. Cl. 12.
Allied Chemical Corp., New York, N.Y. 823,833, pub. 7–5–66. Cl. 1.
Alvin Corp., The, Providence, R.I. 429,403, ren. 2–14–67. Cl. 28.
Alvin Corp., The, Providence, R.I. 429,404, ren. 2–14–67. Cl. 28.
Ambrose & Co., Kansas City, Mo. 824,172, pub. 10–11–66. Cl. 47.
American Brake Shoe Co., to Abex Corp., New York, N.Y. 422,784, ren. 2–14–67. Cl. 14.
American Brake Shoe Co., to Abex Corp., New York, N.Y. 424,628, ren. 2–14–67. Cl. 34.
American Brake Shoe Co., to Abex Corp., New York, N.Y. 423,512, ren. 2–14–67. Cl. 23.
American District Telegraph Co., New York, N.Y. 823,951, pub. 11–29–66. Cl. 21.
American Home Products Corp., New York, N.Y. 823,941, pub. 11–29–66. Cl. 18.
American Home Products Corp. : *See*—
  Boyle-Midway Inc.
  Fort Dodge Laboratories, Inc.
American Machine & Tool Co., Inc., Royersford, Pa. 824,018, pub. 11–29–66. Cl. 23.
American Monarch Machine Co. : *See*—
  Bodtke, Robert G.
American Photocopy Equipment Co., Evanston, Ill. 824,036, pub. 11–29–66. Cl. 26.
American Precision Industries, Inc., Buffalo, N.Y. 823,948, pub. 11–29–66. Cl. 21.
American Scientific Laboratories, Inc., Madison, Wis. 708,965, canc. Cl. 18.
American Smelting & Refining Co., New York, N.Y. 227,823, ren. 2–14–67. Cl. 14.
American Siporex Corp., Dover, Del., from Internationella Siporex, AB, Stockholm, Sweden. 709,151, canc. Cl. 12.
Ames Shower Curtain Co., Inc., New York, N.Y. 824,217. Cl. 2.
Ames Textile Corp. : *See*—
  Wyner, I. A., & Co., Inc.
Anodex Laboratories, Inc., Ventnor City, N.J. 425,115, ren. 2–14–67. Cl. 18.
Applied Power Industries, Inc., West Allis, Wis. 823,973, pub. 11–29–66. Cl. 23.
Apollo Chemical Corp., Clifton, N.J. 823,845, pub. 8–16–66. Cl. 6.
Aquariums Inc., Maywood, N.J. 823,950, pub. 11–29–66. Cl. 21.
Aquariums Inc., Maywood, N.J. 823,982, pub. 11–29–66. Cl. 23.
Archer-Daniels-Midland Co., Minneapolis, Minn. 823,918, pub. 11–29–66. Cl. 16.
Armour and Co., Chicago, Ill. 709,138, canc. Cl. 46.
Armour Pharmaceutical Co., d.b.a. Reheis Chemical Co., Chicago, Ill. 823,928, pub. 11–29–66. Cl. 18.
Armstrong Beverley Engineering Ltd., Montreal, Quebec, Canada. 823,971, pub. 11–29–66. Cl. 23.
Ascher, B. F., & Co., Kansas City, Mo. 823,929, pub. 11–29–66. Cl. 18.
Associated Dry Goods Corp. : *See*—
  Stix, Baer and Fuller Co.
Auerbach Bath Robe Corp., New York, N.Y. 429,840, ren. 2–14–67. Cl. 39.
Autographic Business Farms, Inc. : *See*—
  Autographic Register Co.
Autographic Register Co., Hoboken, N.J., to Autographic Business Forms, Inc., South Hackensack, N.J. 222,873, ren. 2–14–67. Cl. 37.
Autolert, Washington, D.C. 824,210, pub. 11–29–66. Cl. 104.
Automatic Canteen Co. of America : *See*—
  Canteen Corp.
Automotive Development Corp., Seymour, Conn. 823,942, pub. 11–29–66. Cl. 19.
Auto Union G.m.b.H., Ingolstadt (Danube), Germany. 708,974, canc. Cl. 19.
B.C.R. Inc., Mars, Pa. 708,981, canc. Cl. 19.
B-I-F Industries, Inc., Providence, R.I. 709,036, canc. Cl. 26.
Baka Mfg. Co., Inc., Plainville, Mass. 824,100, pub. 11–29–66. Cl. 39.
Balamundi-Nederland N.V., Huizen, Netherlands. 823,944, pub. 11–29–66. Cl. 20.
Baldwin Bracelet Corp., New York, N.Y. 824,039, pub. 11–29–66. Cl. 28.
Bales, David A., Chicago, Ill. 824,102, pub. 11–29–66. Cl. 39.
Balco, Inc., Wichita, Kans. 824,221. Cl. 12.
Bates Mfg. Co., Inc., Lewiston, Maine. 824,123, pub. 11–29–66. Cl. 42.
Baxter, Raymond S., Jr., d.b.a. Cap'n Snap-Pac Co., Manhasset, N.Y. 708,875, canc. Cl. 2.
Beaunit Mills, Inc., New York, N.Y. 709,117, canc. Cl. 43.
Beebe Bros., Inc., Seattle, Wash. 823,990, pub. 11–29–66. Cl. 23.
Bega Sewing Machine Corp., to Bega Sewing Machine Distributors, Inc., New York, N.Y. 422,432, ren. 2–14–67. Cl. 23.
Bega Sewing Machine Distributors, Inc. : *See*—
  Bega Sewing Machine Corp.
Bergen Drug Data Processing Corp., Hackensack, N.J. 824,206, pub. 11–29–66. Cl. 101.
Best Industries, Inc., Miami, Fla. 708,902, canc. Cl. 11.
Bethlehem Steel Corp. : *See*—
  Bethlehem Steel Co.
Bethlehem Steel Co., to Bethlehem Steel Corp., Bethlehem, Pa. 429,692, ren. 2–14–67. Cl. 13.
Big Dutchman, Inc., Zeeland, Mich. 823,987, pub. 11–29–66. Cl. 23.
Bird Provision Co., Pekin, Ill. 824,167, pub. 11–29–66. Cl. 46.
Bissell Inc., Grand Rapids, Mich. 824,005, pub. 11–29–66. Cl. 23.
Bituminous Pipe Institute, South Milwaukee, Wis. 824,256. Cl. 200.
Blancard & Co., Inc., Newark, N.J., to Columbia Diamond Ring Co., Inc., Jamaica, N.Y. 214,412, ren. 2–14–67. Cl. 28.
Blankin Yarn Co., Philadelphia, Pa. 824,140, pub. 11–29–66. Cl. 43.
Blakeslee, G. S., & Co., Chicago, Ill. 708,954, canc. Cl. 16.
Bodtke, Robert G., d.b.a. American Monarch Machine Co., Peoria, Ill. 823,970, pub. 11–29–66. Cl. 23.
Bonat, Samuel, & Bro., New York, N.Y., to Samuel Bonat & Bro., Inc., West Paterson, N.J. 429,673, ren. 2–14–67. Cl. 40.
Bonat, Samuel, & Bro., Inc. : *See*—
  Bonat, Samuel, & Bro.
Bostitch, Inc., East Greenwich, R.I. 824,003, pub. 11–29–66. Cl. 23.
Boston Herald-Traveler Corp., Boston, Mass. 824,237. Cl. 38.
Botfield Refractories Co., to Botfield Refractories, Inc., Philadelphia, Pa. 426,612, ren. 2–14–67. Cl. 12.
Botfield Refractories, Inc. : *See*—
  Botfield Refractories Co.
Boyle-Midway Inc., Jersey City, N.J., to American Home Products Corp., New York, N.Y. 426,964, ren. 2–14–67. Cl. 6.
Boyle-Midway Inc., Jersey City, N.J., to American Home Products Corp., New York, N.Y. 426,965, ren. 2–14–67. Cl. 6.
Brandenthaler, Anthony, Baker, Oreg. 823,889, pub. 11–29–66. Cl. 12.
Branson Instruments, Inc., Stamford, Conn. 823,959, pub. 10–18–66. Multiple Class (Classes 21, 26, 34, and 44).
Brasher Bros. : *See*—
  Brasher Bros., Inc.
Brasher Bros., Inc., d.b.a. Brasher Bros., Burbank, Calif. 824,240. Cl. 46.
Bristol Flare Corp., Bristol, Pa. 823,868, pub. 11–29–66. Cl. 9.
Brittany Mills : *See*—
  Schreiber, William N.
Brown, D. S., Co., The, North Baltimore, Ohio. 824,008, pub. 11–29–66. Cl. 23.
Brown, D. S., Co., The, North Baltimore, Ohio. 824,009, pub. 11–29–66. Cl. 23.
Brown Co., Kalamazoo, Mich. 824,013, pub. 11–29–66. Cl. 23.
Brown Co., New York, N.Y., from KVP Sutherland Paper Co., Kalamazoo, Mich. 824,062, pub. 10–11–66. Cl. 37.
Brown Co., New York, N.Y., from KVP Sutherland Paper Co., Kalamazoo, Mich. 824,064, pub. 11–18–66. Cl. 37.
Brown Co., New York, N.Y., from KVP Sutherland Paper Co., Kalamazoo, Mich. 824,232. Cl. 37.

Brown Co., New York, N.Y., from KVP Sutherland Paper Co., Kalamazoo, Mich. 824,233. Cl. 37.

Brown, L. S., Co., Atlanta, Ga. 708,989, canc. Cl. 22.

Burpo Co.: *See—*
Headley, Richard.

Burt, F. N., Co., Inc., Buffalo, N.Y. 824,010, pub. 11-29-66. Cl. 23.

Butler Mfg. Co., Kansas City, Mo. 709,064, canc. Cl. 34.

Butler's Shoe Corp., Atlanta, Ga. 824,098, pub. 11-29-66. Cl. 39.

Byron Weston Co.: *See—*
Hampshire Paper Co.

CF & I Steel Corp., from The Colorado Fuel and Iron Corp., Denver, Colo. 824,011, pub. 11-29-66. Cl. 23.

C.O.M. Metal Products Corp., Ingleside, Ill. 708,927, canc. Cl. 12.

Caddo Light Aggregate Co., Inc., Shreveport, La. 708,908, canc. Cl. 12.

Calpp, Otis, & Son, Inc., Boston, Mass. 823,935, pub. 11-29-66. Cl. 18.

Campbell Taggart Associated Bakeries, Inc., Dallas, Tex. 824,161, pub. 11-29-66. Cl. 46.

Canteen Corp., from Automatic Canteen Co. of America, Chicago, Ill. 824,204, pub. 11-29-66. Cl. 100.

Canton Cotton Mills: *See—*
Canton Textile Mills, Inc.

Canton Textile Mills, Inc., from Canton Cotton Mills, Canton, Ga. 824,118, pub. 11-29-66. Cl. 42.

Canton Textile Mills, Inc., from Canton Cotton Mills, Canton, Ga. 824,119, pub. 11-29-66. Cl. 42.

Cap'n Snap-Pac Co.: *See—*
Baxter, Raymond S., Jr.

Carhartt, Inc., Detroit, Mich. 824,085, pub. 11-29-66. Cl. 39.

Carlisle Chemical Work, Inc., Reading, Ohio. 823,853, pub. 11-29-66. Cl. 6.

Carmody Corp., Buffalo, N.Y. 824,228. Cl. 26.

Carr-Harris Products, Ltd., Cooksville, Ontario, Canada. 823,907, pub. 11-29-66. Cl. 13.

Car-Skin Products Corp., Flemington, N.J. 708,951, canc. Cl. 15.

Caruso, Enrico, Hairstylists, Inc., New York, N.Y. 824,184, pub. 11-29-66. Cl. 51.

Cellulo Co., The, Sandusky, Ohio. 824,048, pub. 11-29-66. Cl. 31.

Central Charge Service, Inc., d.b.a. Central Leasing Service, Washington, D.C. 824,203, pub. 11-29-66. Cl. 100.

Central Leasing Service: *See—*
Central Charge Service, Inc.

Central Soya Co., Inc., Fort Wayne, Ind. 824,047, pub. 11-29-66. Cl. 31.

Central Textiles, Inc., Arlington Heights, Ill. 824,095, pub. 11-29-66. Cl. 39.

Central Textiles, Inc., Arlington Heights, Ill. 824,096, pub. 11-29-66. Cl. 39.

Chadbourn Gotham, Inc., Charlotte, N.C. 824,091, pub. 11-29-66. Cl. 39.

Challenge-Cook Bros., Inc., Los Angeles, Calif. 823,996, pub. 11-29-66. Cl. 23.

Champion Dish Washing Machine Co., Winston-Salem, N.C. 823,993, pub. 11-29-66. Cl. 23.

Chapman, Fraser & Co., Ltd., Thurmaston, Leicester, England. 824,141, pub. 11-29-66. Cl. 43.

Chemical Fireproofing Corp., Cincinnati, Ohio. 823,883, pub. 11-29-66. Cl. 12.

Chesebrough-Pond's Inc., New York, N.Y. 709,160, canc. Cl. 51.

Chex Co., The: *See—*
Aitchison, John B.

Chicago Flexible Shaft Co., to Sunbeam Corp., Chicago, Ill. 429,134, ren. 2-14-67. Cl. 32.

Chicken Delight, Inc., Rock Island, Ill. 824,162, pub. 11-29-66. Cl. 46.

Chris-Craft Industries, Inc.: *See—*
Chris-Craft Corp.

Chris-Craft Corp., Algonac, Mich., to Chris-Craft Industries, Inc., Pompano Beach, Fla. 426,837, ren. 2-14-67. Cl. 23.

Ciba Ltd., Basel, Switzerland. 823,837, pub. 11-29-66. Cl. 1.

Cimron Corp.: *See—*
Lear Siegler, Inc.

Cincinnati Milling Machine Co., The, Cincinnati, Ohio. 823,994, pub. 11-29-66. Cl. 23.

City Products Corp., Des Plaines, Ill. 824,081, pub. 11-29-66. Cl. 39.

Clairol Benelux N.A., Brussels, Belgium. 824,244. Cl. 51.

Coles Electronic Corp., Philadelphia, Pa. 824,143, pub. 11-29-66. Cl. 44.

Coles Electronic Corp., Philadelphia, Pa. 824,144, pub. 11-29-66. Cl. 44.

College Pharmacy Inc., Washington, D.C. 823,860, pub. 11-29-66. Cl. 6.

Colorado Fuel and Iron Corp., The: *See—*
CF & I Steel Corp.

Columbia Diamond Ring Co., Inc.: *See—*
Blancard & Co., Inc.

Commuter Airlines, Inc., Sioux City, Iowa. 824,211, pub. 2-8-66. Cl. 105.

Cominco Ltd., from The Consolidated Mining and Smelting Co., Montreal, Quebec, Canada. 823,913, pub. 11-29-66. Cl. 14.

Compur-Werk Gesellschaft mit beschrankter Haftung & Co., Munich, Germany. 824,025, pub. 11-29-66. Cl. 26.

Conchemco, Inc., Kansas City, Mo. 823,916, pub. 11-29-66. Cl. 16.

Concord Fabrics Inc., New York, N.Y. 824,124, pub. 11-29-66. Cl. 42.

Cone Mills Corp., Greensboro, N.C. 824,130, pub. 11-29-66. Cl. 42.

Cone Mills Corp., Greensboro, N.C. 824,131, pub. 11-29-66. Cl. 42.

Consolidated Mining and Smelting Co., The: *See—*
Cominco Ltd.

Corn Products Co., New York, N.Y. 708,897, canc. Cl. 10.

Corning Glass Works, Corning, N.Y. 427,246, ren. 2-14-67. Cl. 33.

Cosart, W. F., Packing Co., Exeter, Calif. 824,171, pub. 11-29-66. Cl. 46.

Creative Bakers, Inc., Brooklyn, N.Y. 824,241. Cl. 46.

Crown Tuft Carpet, Inc., Dalton, Ga. 824,120, pub. 11-29-66. Cl. 42.

Crown Tuft Carpet, Inc., Dalton, Ga. 824,121, pub. 11-29-66. Cl. 42.

Crusher Parts Co.: *See—*
King, Ivan C.

Curtice Mfg. Co., The, Denver, Colo. 823,904, pub. 11-29-66. Cl. 13.

D.E.C. Associates: *See—*

Davis Cordage Co., Portland, Oreg. 824,219. Cl. 7.

De'Caccia, Godfrey L.

De'Caccia, Godfrey L., d.b.a. D.E.C. Associates, Los Alamitos, Calif. 824,051, pub. 11-29-66. Cl. 32.

Decorama, Inc., Dallas, Tex. 824,207, pub. 5-24-66. Cl. 101.

Deering Milliken & Co., Inc.: *See—*
Deering Milliken, Inc.

Deering Milliken, Inc., New York, N.Y. 824,126, pub. 11-29-66. Cl. 42.

Deering Milliken, Inc., New York, N.Y. 824,133, pub. 11-29-66. Cl. 42.

Deering Milliken, Inc., New York, N.Y. 824,134, pub. 11-29-66. Cl. 42.

Deering Milliken, Inc., New York, N.Y. 824,135, pub. 11-29-66. Cl. 42.

Deering Milliken, Inc., New York, N.Y. 824,136, pub. 11-29-66. Cl. 42.

Deering Milliken, Inc., Wilmington, Del., from Deering Milliken & Co., Inc., New York, N.Y. 709,106, canc. Cl. 42.

De Jur Time Co., New York, N.Y. 709,052, canc. Cl. 27.

Dell Publishing Co., Inc., New York, N.Y. 824,238. Cl. 38.

De Luxe Reading Corp., Elizabeth, N.J. 823,968, pub. 11-29-66. Cl. 22.

De Martel, Madeleine, Cosmetics: *See—*
Sherman, Robert M.

Denison, R. B., Mfg. Co., The, Bedford, Ohio. 823,953, pub. 11-29-66. Cl. 21.

Dennis, W. J., & Co., Franklin Park, Ill. 824,227. Cl. 23.

Detrex Chemical Industries, Inc., Detroit, Mich. 823,958, pub. 11-29-66. Cl. 21.

Dexter, C. H., & Sons, Inc., Windsor Locks, Conn. 709,113, canc. Cl. 42.

Diamond Crystal Salt Co., St. Clair, Mich. 823,855, pub. 11-29-66. Cl. 6.

Diana Mfg. Co.: *See—*
Paper Novelty Co., The.

Dietzen, Eugene, Co., Chicago, Ill. 426,905, ren. 2-14-67. Cl. 26.

Diffusa-Lite Co.: *See—*
Aiken Hugh H.

Diversified Chemicals & Propellants Co., Hinsdale, Ill. 823,861, pub. 11-29-66. Cl 6.

Divina Footwear, Inc., St. Louis, Mo. 624,103, pub. 11-29-66. Cl. 39.

Donovan-Calvani of Dallas, Inc., Dallas, Tex. 709,074, canc. Cl. 39.

Dresser Industries, Inc., Dallas, Tex. 824,027, pub. 11-29-66. Cl. 26.

Dumari Textile Co., Inc., New York, N.Y. 222,405, ren. 2-14-67. Cl. 42.

Dunn Engineering Associates, Inc., Cambridge, Mass. 709,038, canc. Cl. 26.

Du Pont de Nemours, E. I., and Co., Wilmington, Del. 823,832, pub. 11-29-66. Cl. 1.

Dynamic Displays Ltd., d.b.a. The Octopus Products Co., Toronto, Ontario, Canada. 709,142, canc. Cl. 50.

E-C Apparatus Corp., Philadelphia, Pa. 824,031, pub. 11-29-66. Cl. 26.

Edco, Inc., Greenwood, S C. 824,213, pub. 11-29-66. Cl. 107.

Edison Bros. Stores, Inc., St. Louis, Mo. 823,905, pub. 11-29-66. Cl. 13.

El Cano Cigar Corp. (Proprietary) Ltd., Cape Town, Republic of South Africa. 824,223. Cl. 17.

Eldred Co., The, Columbus, Ohio. 823,984, pub. 11-29-66. Cl. 23.

Electroid Corp., Union, N.J. 823,965, pub. 11-29-66. Cl. 21.

Elixirs of Light: *See—*
Bordeaux, Edmond S.
Szekely, Edmond B.

Empire Slip-On Hook, Watertown, Mass. 823,906, pub. 11-29-66. Cl. 13.

Engineering Developments Co., Inc., Vicksburgh, Miss. 824,029, pub. 11-29-66. Cl. 26.

Enro Shirt Co., Inc., The, Louisville, Ky. 709,086, canc. Cl. 39.

Ensign-Bickford Co., The, Simsbury, Conn. 823,867, pub. 11-29-66. Cl. 9.

Epstein, Raymond, d.b.a. Vetco Co., Sharon, Mass. 823,937, pub. 11-29-66. Cl. 18.

Erich, Gustav, Maschinenfabrik Firma, Hardheim (Nordbaden), Germany. 824,012, pub. 11-29-66. Cl. 23.

Esco Corp., Portland, Oreg. 824,015, pub. 11-29-66. Cl. 23.

Esso Standard Oil Co.: *See—*
Humble Oil & Refining Co.

Etablissements Pierre Conte & Fils, Societe Anonyme, Jurancon, Basses-Pyrenees, France. 824,084, pub. 11-29-66. Cl. 39.

Euclid Chemical Co., The, Cleveland, Ohio. 823,850, pub. 11-29-66. Cl. 6.

Eurbrid N.V., Boxmeer, Netherlands. 823,835, pub. 11-29-66. Cl. 1.

Eutectic Welding Alloys Corp., Flushing, N.Y. 824,053, pub. 11-29-66. Cl. 34.

Ever-Tex, Inc., Cranston, R.I. 708,890, canc. Cl. 5.

Exchange Services Co., Inc., Waban, Mass. 824,116, pub. 11-29-66. Cl. 39.

Exquisite Form Industries, Inc., New York, N.Y. 824,111, pub. 11-29-66. Cl. 39.

Extraservices, Inc., from Extragirls, Inc., Hartford, Conn. 824,252. Cl. 101.

FMC Corp., New York, N.Y. 823,930, pub. 11-29-66. Cl. 18.

Fabbrv, Ermanno, Vignola, Italy. 823,991, pub. 11-29-66. Cl. 23.

Faber-Castell, A. W., Pencil Co., Inc.: *See—*
Higgins Ink Co., Inc.

Fairbank, N. K., Co., The, Chicago, Ill., St. Louis, Mo., New York, N.Y., and Montreal, Quebec, Canada, to Lever Bros. Co. New York, N.Y. 30,115, ren. 2-14-67. Cl. 52.

Fairway Foods, Inc., St. Paul, Minn. 824,193, pub. 11-29-66. Cl. 51.

Fairway Paint Stores, Inc., Baltimore, Md. 708,955, canc. Cl. 16.

Farah Mfg. Co., Inc., El Paso, Tex. 824,073, pub. 11-29-66. Cl. 37.

Fastab Insulations, Inc., Cleveland, Ohio. 823,876, pub. 11-29-66. Cl. 12.

Federal Distillers Inc., from Federal Liquors Ltd., Cambridge, Mass. 824,174, pub. 8-27-63. Cl. 49.

Federal Liquors Ltd.: *See—*
Federal Distillers Inc.

Felsen, Henry Gregor, Inc., Des Moines, Iowa. 824,255. Cl. 107.

Felton & Son, Inc., d.b.a. Treasure Island Dist. Co., South Boston, Mass. 824,175, pub. 10-20-64. Cl. 49.

Ferrania S.p.A., Milan, Italy. 709,028, canc. Cl. 26.

Ferro Corp., Cleveland, Ohio. 824,058, pub. 11-8-66. Cl. 34.

Fine Products Corp.: *See—*
Fine Products Co., Inc.

Fischer & Porter Co., Warminster, Pa. 824,028, pub. 11-29-66. Cl. 26.

Fluxolder Products Ltd., London, England. 824,052, pub. 11-29-66. Cl. 34.

Fort Dodge Laboratories, Inc., Fort Dodge, Iowa, to American Home Products Corp., New York, N.Y. 429,469, ren. 2-14-67. Cl. 18.

Ford Motor Co., Dearborn, Mich. 823,946, pub. 11-29-66. Cl. 21.

Ford Motor Co., Dearborn, Mich. 824,020, pub. 11-29-66. Cl. 24.

Ford Motor Co., Dearborn, Mich. 824,044, pub. 11-29-66. Cl. 31.

Ford-Werke A.G., Kolln (Rhine), Germany. 708,977, canc. Cl. 19.

Freeport Sulphur Co., New York, N.Y. 824,218. Cl. 46.

Fine Products Co., Inc., from Fine Products Corp., Augusta, Ga. 824,157, pub. 11-29-66. Cl. 46.

Fly Mfg. Co., Inc., Shelbyville, Tenn. 824,112, pub. 11-29-66. Cl. 39.

Forexp S.A. Comercio e Exportacao, Rio de Janeiro, Brazil. 824,177, pub. 11-29-66. Cl. 49.

Gales, Donald M., Silver Spring, Md. 823,999, pub. 11-29-66. Cl. 23.

Garden Galleries, Inc., Geneva, N.Y. 823,829, pub. 11-29-66. Cl. 1.

Garland Corp., from Garland Knitting Mills, Brockton, Mass. 824,101, pub. 11-29-66. Cl. 39.

Garland Knitting Mills: *See—*
Garland Corp.

Gaunt Industries, Chicago, Ill. 823,980, pub. 11-29-66. Cl. 23.

Geartronics Corp., North Billerica, Mass. 823,992, pub. 11-29-66. Cl. 23.

Geigy Chemical Corp., Ardsley, N.Y. 823,925, pub. 8-9-66. Cl. 18.

General Aniline & Film Corp., New York, N.Y. 824,035, pub. 11-29-66. Cl. 26.

General Mills, Inc., Minneapolis, Minn. 824,155, pub. 3-23-65. Cl. 46.

General Radio Co., Cambridge, Mass. 425,588, ren. 2-14-67. Cl. 26.

Gilben Lamp Co., Inc., New York, N.Y. 824,054, pub. 11-29-66. Cl. 34.

Glen Maid, Inc., San Francisco, Calif. 824,165, pub. 11-29-66. Cl. 46.

Goodyear Tire & Rubber Co., The, Akron, Ohio. 823,836, pub. 11-29-66. Cl. 1.

Goldman, Morton D., New York, N.Y. 709,094, canc. Cl. 39.

Gold Pfeil Ludwig Krumm Aktiengesellschaft German Co., Kaiserstreet 39-45, Germany. 708,882, canc. Cl. 3.

Gold-Pfeil Ludwig Krumm Aktiengesellschaft, German Co., Kaiserstreet 39-45, Germany. 708,883, canc. Cl. 3.

Gorham Corp.: *See—*
Gorham Mfg. Co.

Gorham Mfg. Co., to Gorham Corp., Providence, R.I. 429,411, ren. 2-14-67. Cl. 28.

Gould-National Batteries, Inc., St. Paul, Minn. 709,047, canc. Cl. 26.

Grace, W. R., & Co., New York, N.Y. 823,847, pub. 11-29-66. Cl. 6.

Grant-Mann Lithographers Ltd., Vancouver, British Columbia, Canada. 824,074, pub. 11-29-66. Cl. 38.

Grenberg, Charles, & Sons, Inc., New York, N.Y. 824,104, pub. 11-29-66. Cl. 39.

Griffon Cutlery Corp.: *See—*
Silberstein, Albert L.

Groendyk Mfg. Co., Inc., Buchanan, Va. 823,981, pub. 11-29-66. Cl. 23.

Groff, Emory L., Pompano Beach, Fla. 824,243. Cl. 50.

Grosset & Dunlap, Inc., New York, N.Y. 824,236. Cl. 38.

Guilford Mills, Inc., Greensboro, N.C. 824,137, pub. 11-29-66. Cl. 42.

Guth, Edwin F., Co., The, St. Louis, Mo. 823,954, pub. 11-29-66. Cl. 21.

Hamilton Humidity, Inc., Chicago, Ill. 824,230. Cl. 34.

Hampshire Paper Co., South Hadley Falls, to Byron Weston Co., Dalton, Mass. 59,476, ren. 2-14-67. Cl. 37.

Hampshire Paper Co., South Hadley Falls, to Byron Weston Co., Walton, Mass. 59,476, ren. 2-14-67. Cl. 37.

Harbison-Walker Refractories Co., Pittsburgh, Pa. 708,923, canc. Cl. 12.

Harbison-Walker Refractories Co., Pittsburgh, Pa. 823,890, pub. 11-29-66. Cl. 12.

Harris Calorific Co., The, Cleveland, Ohio. 824,055, pub. 11-29-66. Cl. 34.

Hawkins-Hawkins Co., Inc., Berkeley, Calif. 824,179, pub. 11-29-66. Cl. 50.

Headley, Richard, d.b.a. Burpo Co., Santa Barbara, Calif. 824,154, pub. 11-29-66. Cl. 45.

Hearst Corp., The, New York, N.Y. 824,075, pub. 11-29-66. Cl. 38.

Hearst Corp., The, New York, N.Y. 824,076, pub. 11-29-66. Cl. 38.

Hearst Corp., The, New York, N.Y. 824,077, pub. 11-29-66. Cl. 38.

Heldon Products, Plymouth, Conn. 708,984, canc. Cl. 19.

Herbert Products, Inc., Westbury, N.Y. 823,955, pub. 11-29-66. Cl. 21.

Heinzelmann, H., Firma, Reutlingen, Germany. 824,082, pub. 11-29-66. Multiple Class (Classes 39 and 42).

Herman Pneumatic Machine Co., Pittsburgh, Pa. 824,000, pub. 11-29-66. Cl. 23.

Hess Oil & Chemical Corp., Perth Amboy, N.J. 823,851, pub. 11-29-66. Cl. 6.

Hess Oil & Chemical Corp., Perth Amboy, N.J. 823,852, pub. 11-29-66. Cl. 6.

Higgins Ink Co., Inc., Brooklyn, N.Y., from A. W. Faber-Castell Pencil Co., Inc., Newark, N.J. 823,870, pub. 10-18-66. Cl. 11.

Hohner, M., Inc., Hicksville, N.Y. 824,060, pub. 11-29-66. Cl. 36.

Holland-Rantos Co., Inc., New York, N.Y. 823,931, pub. 11-29-66. Cl. 18.

Holliday, Doc, Inc., Valdosta, Ga. 824,163, pub. 11-29-66. Cl. 46.

Holliday, Doc, Inc., Valdosta, Ga. 824,164, pub. 11-29-66. Cl. 46.

Hollister Inc., Chicago, Ill. 824,148, pub. 11-29-66. Cl. 44.

Holmes Packing Corp., Eastport, Maine. 824,168, pub. 11-29-66. Cl. 46.

Honoroff, David, d.b.a. Industrial Plastics, Miami, Fla. 708,906, canc. Cl. 12.

Hooker Chemical Corp., Niagara Falls, N.Y. 823,862, pub. 11-29-66. Cl. 6.

Horowitz, Ph., Inc., New York, N.Y. 824,092, pub. 11-29-66. Cl. 39.

Horton & Converse, Los Angeles, Calif. 708,959, canc. Cl. 18.

House of '67, The: *See—*
Vi-Jon Laboratories, Inc.

Houston Oil Field Material Co., Inc., Houston, Tex. 428,094, ren. 2-14-67. Cl. 23.

Hunt-Wesson Foods, Inc.: *See—*
South Texas Cotton Oil Co.

Humble Oil & Refining Co., Houston, Tex., from Esso Standard Oil Co., New York, N.Y. 708,952, canc. Cl. 16.

Idealware, Inc., Hollis, N.Y. 708,879, canc. Cl. 2.

Idealware, Inc., Hollis, N.Y. 708,880, canc. Cl. 2.

Idealware, Inc., Hollis, N.Y. 708,881, canc. Cl. 2.

Imperial Chemical Industries Ltd., London, England. 823,846, pub. 11-29-66. Cl. 6.

Imperial Chemical Industries Ltd., Milbank, London, England. 824,046, pub. 11-29-66. Cl. 31.

Industrial Plastics: *See—*
Honoroff, David.

Institute of American Poultry Industries, Chicago, Ill. 824,214, pub. 11-29-66. Cl. 200.

International Latex Corp.: *See—*
Purdue Frederick Co., The.

International Paper Co., New York, N.Y. 823,880, pub. 11-29-66. Cl. 12.

Internationella Siporex AB: *See—*
American Siporex Corp.

Interwoven Stocking Co., New Brunswick, N.J., to Powerhouse, Inc., Tallahassee, Fla. 227,532, ren. 2-14-67. Cl. 39.

Ionetics Corp., New York, N.Y. 823,966, pub. 11-29-66. Multiple Class (Classes 21 and 26).

Irresistible, Inc., to The Nestle-Le Mur Co., New York, N.Y. 427,455, ren. 2-14-67. Cl. 51.

Ives, Susan, Stores, Inc., New York, N.Y. 824,090, pub. 11-29-66. Cl. 39.

Jackson Millinery Inc., Buffalo, N.Y. 824,080, pub. 11-29-66. Cl. 39.

Johns-Manville Corp.: *See—*
Johns-Manville, H. W., Co.

Johns-Manville, H. W., Co., to Johns-Manville Corp., New York, N.Y. 60,304, ren. 2-14-67. Cl. 12.

Johns-Manville Perlite Corp., Joliet, Ill. 708,916, canc. Cl. 12.

Jordan Mfg. Co.: *See—*
Jordan, Walter.

Jordan, Walter E., d.b.a. Jordan Mfg. Co., Des Plaines, Ill. 824,143, pub. 11-29-66. Cl. 44.

Jordan, Walter, d.b.a. Jordan Mfg Co., Des Plaines, Ill. 824,146, pub. 11-29-66. Cl. 44.

KVJ Sutherland Paper Co.: *See*—
  Brown Co.
Kangol Wear Ltd., Cumberland, England. 824,078, pub. 11-29-66. Cl. 39.
Kawamura, G., d.b.a. Western Marketing Co. of Calif., and Western Marketing Co., Fullerton, Calif. 824,169, pub. 11-29-66. Cl. 46.
Kenart Sales Corp., New York, N.Y. 824,066, pub. 11-29-66. Cl. 37.
Kendall Co., The, Boston, Mass. 824,147, pub. 11-29-66. Cl. 44.
Keuffel & Esser Co., The, Hoboken, N.J. 59,013, ren. 2-14-67. Cl. 26.
Keyvertising, Inc., Baltimore, Md. 824,205, pub. 11-29-66. Cl. 101.
King, Ivan C., d.b.a. Crusher Parts Co., Portland, Oreg. 823,878, pub. 11-29-66. Cl. 12.
King Kullen Grocery Co., Inc., Westbury, N.Y. 824,043, pub. 11-29-66. Cl. 29.
Kinkead Industries Inc., Chicago, Ill. 823,892, pub. 11-29-66. Cl. 12.
Kinkead Industries Inc., Chicago, Ill. 823,910, pub. 11-29-66. Cl. 13.
Kirby, Block Distributing Corp., New York, N.Y. 824,105, pub. 11-29-66. Cl. 39.
Kistler Instrument Corp., Clarence, N.Y. 824,023, pub. 11-29-66. Cl. 26.
Klopman Mills, Inc., Rockleigh, N.J. 824,128, pub. 11-29-66. Cl. 42.
Klopman Mills, Inc., Rockleigh, N.J. 824,129, pub. 11-29-66. Cl. 42.
Klopman Mills, Inc, Rockleigh, N.J. 824,138, pub. 11-29-66. Cl. 42.
Koninklijke Fabrieken C. J. Van Houten & Zoon N.V.: *See*—
  Van Houten, Inc.
Krebs Engineers, Palo Alto, Calif. 824,016, pub. 11-29-66. Cl. 23.
Krogh Industries, Inc., d.b.a. Krogh Pump Co., San Francisco, Calif. 823,995, pub. 11-29-66. Cl. 23.
Krogh Pump Co.: *See*—
  Krogh Industries, Inc.
Kuriger, Richard, Inc., Yonkers, N.Y. 824,166, pub. 11-29-66. Cl. 46.
L & M-Surco Mfg. Inc., Dallas, Tex. 823,888, pub. 11-29-66. Cl. 12.
Labelette Co., Chicago, Ill. 824,014, pub. 11-29-66. Cl. 23.
Laboratories Roja, Naterre (Seine), France. 824,192, pub. 11-29-66. Multiple Class (Classes 51 and 52).
Lafayette Pharmacal, Inc., Lafayette, Ind. 823,927, pub. 1-29-66. Cl. 18.
Lambeth Designs, Inc., High Point, N.C. 824,050, pub. 11-29-66. Cl. 32.
Lambert-Kay, Inc., Los Angeles, Calif. 824,248. Cl. 52.
Lavigne, Donald S., Inc., Miami, Fla. 824,109, pub. 11-29-66. Cl. 39.
Lear Siegler, Inc., Santa Monica, from Cimron Corp., San Diego, Calif. 824,022, pub. 11-29-66. Cl. 26.
Lee Rubber & Tire Corp., Conshohocken, Pa. 709,071, canc. Cl. 35.
Les Parfums De Dana, Inc., New York, N.Y. 428,277, ren. 2-14-67. Cl. 52.
Lethalite Corp., Pecos, Tex. 823,902, pub. 11-29-66. Cl. 13.
Lever Brothers Co., New York, N.Y. 824,196, pub. 11-29-66. Cl. 51.
Lever Brothers Co.: *See*—
  Fairbank, N. K., Co., The.
Levey, Fred'k H., Co., Inc., New York, N.Y. 429,038, ren. 2-14-67. Cl. 11.
Lewel Mfg. Co., Inc., New York, N.Y. 824,083, pub. 11-29-66. Cl. 39.
Lieb, Ira, Chicago, Ill. 824,181, pub. 4-20-65. Cl. 51.
Lif-O-Gen, Inc., Lumberton, N.J. 823,897, pub. 11-29-66. Cl. 13.
Lignum-Vitae Products Corp., Jersey City, N.J. 823,976, pub. 11-29-66. Cl. 23.
Litton Precision Products, Inc., Minneapolis, Minn. 824,225. Cl. 21.
Lipe Specialty Co., Inc., Skaneateles, N.Y. 824,226. Cl. 22.
Lo-Bel Co., The, New York, N.Y. 824,106, pub. 11-29-66. Cl. 39.
Long, Richard H., Towanda, Ill. 824,242. Cl. 50.
L'Oreal Societe Anonyme, Paris, France. 824,245. Cl. 51.
Lumaside, Inc., Milwaukee, Wis. 823,997, pub. 11-29-66. Cl. 23.
Magna Visual, Inc., St. Louis, Mo. 823,917, pub. 11-29-66. Multiple Class (Classes 16 and 50).
Magnatrol Valve Corp., Hawthorne, N.J. 823,960, pub. 11-29-66. Cl. 21.
Magnavox Co., The, Fort Wayne, Ind. 823,964, pub. 11-29-66. Cl. 21.
Maidenform, Inc., New York, N.Y. 824,117, pub. 11-29-66. Cl. 39.
Manchester Hosiery Mills, Manchester, N.H. 824,094, pub. 11-29-66. Cl. 30.
Marchon Products Ltd., London, England. 823,854, pub. 11-29-66. Cl. 6.
Mark, Clayton & Co., Evanston, Ill. 823,911, pub. 11-29-66. Cl. 13.
Marlene Industries Corp., New York, N.Y. 824,107, pub. 11-29-66. Cl. 39.
Marlene Industries Corp., New York, N.Y. 824,108, pub. 11-29-66. Cl. 39.
Marriot, James E., Jr., d.b.a. Jiffy Gas Co., Greenville, Tex. 823,893, pub. 11-29-66. Cl. 13.
Martin-Marietta Corp., New York, N.Y. 823,864, pub. 11-29-66. Cl. 6.
Martin-Marietta Corp., New York, N.Y. 823,891, pub. 11-29-66. Cl. 12.
Master Mechanics Co., The, Cleveland, Ohio. 823,915, pub. 11-29-66. Cl. 16.
McKesson & Robbins, d.b.a. Tawn Ltd., New York, N.Y., from Vi-Jon Laboratories, Inc., d.b.a. The House of '76, St. Louis, Mo. 824,185, pub. 5-3-66. Cl. 51.
Mechanical Products Co.: *See*—
  Abert, Jack C.
Meiki Co., Ltd., Nagoya City, Japan. 823,988, pub. 11-29-66. Cl. 23.
Mem Co., Inc., Northvale, N.J. 824,247. Cl. 51.
Merck & Co., Inc., Rahway, N.J. 823,926, pub. 11-29-66. Cl. 18.
Meredith Publishing Co.: *See*—
  Successful Farming Publishing Co.
Metal Film Co., Inc., Passaic, N.J. 824,130, pub. 11-29-66. Cl. 43.
Metalflake, Inc., Haverhill, Mass. 823,831, pub. 11-29-66. Cl. 1.
Michel & Pelton Co., Emeryville, Calif. 823,844, pub. 11-29-66. Multiple Class (Classes 6, 16, and 52).
Micro-Measurements, Inc., Romulus, Mich. 824,037, pub. 11-29-66. Cl. 26.
Milco Tank & Boat Co., White Pigeon, Mich. 708,983, canc. Cl. 19.
Miles Laboratories, Inc., Elkhart, Ind. 823,938, pub. 11-29-66. Cl. 18.
Mine Safety Applicances Co., Pittsburgh, Pa. 427,183, ren. 2-14-67. Cl. 44.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 823,947, pub. 11-29-66. Cl. 21.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,017, pub. 11-29-66. Cl. 23.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,222. Cl. 14.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,019, pub. 11-29-66. Cl. 23.
Mississippi Glass Co., St. Louis, Mo. 823,874, pub. 11-29-66. Cl. 12.
Model Builders Inc., Chicago, Ill. 824,024, pub. 5-3-66. Cl. 26.
Monroe International Corp., Orange, N.J. 823,871, pub. 11-29-66. Cl. 11.
Monarch Machine Tool Co., The, Sidney, Ohio. 824,006, pub. 11-29-66. Cl. 23.
Morgan Adhesive Co., Stow, Ohio. 824,072, pub. 11-29-66. Cl. 37.
Morton International, Inc., Chicago, Ill. 824,202, pub. 11-29-66. Cl. 52.
Morton International, Inc., Chicago, Ill. 824 220. Cl. 11.
Montecatini, Societa Generale per l'Industria Mineraria e Chimica, Milan, Italy. 823,830, pub. 11-29-66. Multiple Class (Classes 1 and 12).
Muller, Franz, Firma, Monchengladbach, Germany. 824,007, pub. 11-29-66. Cl. 23.
Munsingwear, Inc., Minneapolis, Minn. 824,114, pub. 11-29-66. Cl. 39.
Mystik Adhesive Products, Inc., Chicago, Ill. 708,889, canc. Cl. 5.
My-T-Veyor Corp., Oxford, Mich. 824,001, pub. 11-29-66. Cl. 23.
NVF Co.: *See*—
  Parsons Paper Co.
National Distillers and Chemical Corp., New York, N.Y. 823,834, pub. 11-29-66. Cl. 1.
National Instrument Co., Inc., Baltimore, Md. 823,977, pub. 11-29-66. Cl. 23.
Nate, Jean, Inc., New York, N.Y. 824,197, pub. 11-29-66. Multiple Class (Classes 51 and 52).
National Stamping & Electric Works, St. Louis, Mo. 823,962, pub. 11-29-66. Cl. 21.
National Tank Co., Tulsa, Okla. 823,900, pub. 11-29-66. Cl. 13.
Nestle-Le Mur Co., The: *See*—
  Irresistible, Inc.
New Tomorrow Scientific Co.: *See*—
  Sawyer, George M.
Nielsen, A. C., Co., Chicago, Ill. 824,208, pub. 10-11-66. Cl. 101.
Normandie Bedspread Co., Inc., New York, N.Y. 824,132, pub. 11-29-66. Cl. 42.
Northland Aluminum Products, Inc., Minneapolis, Minn. 823,895, pub. 11-29-66. Cl. 13.
Northland Aluminum Products, Inc., Minneapolis, Minn. 823,896, pub. 11-29-66. Cl. 13.
Nothing, Inc., Providence, R.I. 824,216, pub. 11-29-66. Cl. 200.
Novo Industri A/S, Copenhagen, Denmark. 823,849, pub. 8-30-66. Cl. 6.
Noxzema Chemical Co., Baltimore, Md. 823,933, pub. 11-29-66. Cl. 18.
Noxzema Chemical Co., The, Baltimore, Md. 823,939, pub. 11-29-66. Cl. 18.
Nu-Era Corp., Rochester, Mich. 708,997, canc. Cl. 23.
Nufold Corp., Philadedlphia, Pa. 823,877, pub. 11-29-66. Cl. 12.
Oakite Products, Inc., New York, N.Y. 429,366, ren. 2-14-67. Cl. 6.
Oakite Products, Inc., New York, N.Y. 429,592, ren. 2-14-67. Cl. 52.
Octopus Products Co.: *See*—
  Dynamic Displays Ltd.
Olin Mathieson Chemical Corp., New York, N.Y. 824,002, pub. 11-29-66. Cl. 23.
Olin Mathieson Chemical Corp.: *See*—
  Squibb, E. R., & Sons, Inc.
Paper Novelty Co., The, to Diana Mfg. Co., Green Bay, Wis. 228,466, ren. 2-14-67. Cl. 44.
Parker Pen Co., The, Janesville, Wis. 824,231. Cl. 37.
Parkway Fabricators, South Amboy, N.J. 823,967, pub. 11-29-66. Cl. 22.

Parsons Paper Co., Holyoke, Mass., to NVF Co., Wilmington, Del. 61,589, ren. 2-14-67. Cl. 37.
Parsons Paper Co., Holyoke, Mass., to NVF Co., Wilmington, Del. 61,587, ren. 2-14-67. Cl. 37.
Parsons Paper Co., Holyoke, Mass., to NVF Co., Wilmington, Del. 61,530, ren. 2-14-67. Cl. 37.
Peck & Peck, New York, N.Y. 227,527, ren. 2-14-67. Cl. 39.
Penn State Metal Fabricators, Inc., New York, N.Y. 823,974, pub. 11-29-66. Cl. 23.
Perfect Seal Corp., Chicago, Ill. 709,145, canc. Cl. 50.
Permaglass, Inc., Woodville, Ohio. 823,882, pub. 11-29-66. Cl. 12.
Pet Pharmaceuticals, Inc., New York, N.Y. 824,224. Cl. 18.
Peter Pan Foundations, Inc., New York, N.Y. 824,115, pub. 11-29-66. Cl. 39.
Pepsico, Inc., New York, N.Y. 824,149, pub. 11-29-66. Cl. 45.
Pepsico, Inc., New York, N.Y. 824,150, pub. 11-29-66. Cl. 45.
Pepsico, Inc., New York, N.Y. 824,151, pub. 11-29-66. Cl. 45.
Pepsico, Inc., New York, N.Y. 824,153, pub. 11-29-66. Cl. 45.
Pepsico, Inc., New York, N.Y. 824,152, pub. 11-29-66. Cl. 45.
Pfizer, Chas., & Co., Inc., New York, N.Y. 824,182, pub. 11-29-66. Cl. 51.
Pfizer, Chas., & Co., Inc., New York, N.Y. 823,940, pub. 11-29-66. Cl. 18.
Pfeiffer Co., The, St. Louis, Mo. 823,921, pub. 6-21-66. Cl. 18.
Pneumafil Corp., Charlotte, N.C. 824,056, pub. 11-29-66. Cl. 34.
Pharmaceutical Laboratories, Inc., Plainfield, N.J. 823,924, pub. 11-29-66. Cl. 18.
Pharmaco, Inc., Kenilworth, N.J. 824,189, pub. 11-29-66. Cl. 51.
Pharmacia Laboratories, Inc., Piscataway, New Market, N.J. 823,934, pub. 11-29-66. Cl. 18.
Phelan-Faust Paint Mfg. Co., St. Louis, Mo. 823,919, pub. 11-29-66. Cl. 16.
Phillips & Pain-Vermorel, Societe Anonyme, Montrouge (Seine), France. 708,993, canc. Cl. 23.
Phillips & Pain-Vermorel, Societe Anonyme, Montrouge (Seine), France. 708,994, canc. Cl. 23.
Piguet, Robert, Inc.: *See*—
  Societe d'Etudes et d'Expansion de la Parfumerie de Luxe.
Pilar, A. J. & J. O., Inc., Newark, N.J. 823,858, pub. 11-29-66. Cl. 6.
Pioneer Aluminum, Inc., Los Angeles, Calif. 708,945, canc. Cl. 14.
Pioneer Parachute Co., Inc., Manchester, Conn. 823,943, pub. 11-20-66. Cl. 19.
Pittsburgh Corning Corp., Pittsburgh, Pa. 823,885, pub. 11-29-66. Cl. 12.
Pittsburgh Plate Glass Co., Pittsburgh, Pa. 824,250. Cl. 100.
Plainville Stock Co., Plainville, Mass. 824,042, pub. 11-29-66. Cl. 28.
Plee-Zing, Inc., Evanston, Ill. 823,869, pub. 11-29-66. Cl. 9.
Pope, W. S., & Son, d.b.a. W. S. Pope & Sons, Philadelphia, Pa. 824,170, pub. 11-29-66. Cl. 46.
Pope, W. S., & Sons: *See*—
  Pope, W. S., & Son.
Portland Mfg. Co., Portland, Oreg., to Simpson Timber Co., Seattle, Wash. 218,407, ren. 2-14-67. Cl. 12.
Potlatch Forests, Inc., San Francisco, Calif. 823,879, pub. 11-29-66. Cl. 12.
Powerhouse, Inc.: *See*—
  Interwoven Stocking Co.
Princeton Knitting Mills, Inc., New York, N.Y. 824,127, pub. 11-29-66. Cl. 42.
Procter & Gamble Co., The, Cincinnati, Ohio. 423,996, ren. 2-14-67. Cl. 52.
Procter & Gamble Co., The, Cincinnati, Ohio. 423,997, ren. 2-14-67. Cl. 52.
Procter & Gamble Co., The, Cincinnati, Ohio. 824,067, pub. 11-29-66. Cl. 37.
Procter & Gamble Co., The, Cincinnati, Ohio. 824,068, pub. 11-29-66. Cl. 37.
Procter & Gamble Co., The, Cincinnati, Ohio. 824,195, pub. 11-29-66. Cl. 51.
Procter & Gamble Co., The, Cincinnati, Ohio. 824,249. Cl. 52.
Produits de Beaute-Parfums-Jean D'Aveze, Societe Anonyme, Paris, France. 824,180, pub. 12-10-63. Cl. 51.
Purdue Frederick Co., The, Yonkers, N.Y., from International Latex Corp., Dover, Del. 823,922, pub. 11-29-66. Cl. 18.
Pylea Industries, Inc., Southfield, Mich. 824,026, pub. 11-29-66. Cl. 26.
Quaker Oats Co., Chicago, Ill. 824,160, pub. 11-29-66. Cl. 46.
R & S Enterprises, Delan, Fla. 823,936, pub. 11-29-66. Cl. 18.
Railton, B. A., Co., Northlake, Ill. 226,793, ren. 2-14-67. Cl. 46.
Rayex Corp., Flushing, N.Y. 824,033, pub. 11-29-66. Cl. 26.
Red Devil, Inc.: *See*—
  Red Devil Tools.
Red Devil Tools, Irvington, to Red Devil, Inc., Union, N.J. 424,479, ren. 2-14-67. Cl. 21.
Rehels Chemical Co.: *See*—
  Armour Pharmaceutical Co.
Rheinbau G.m.b.H., Mainz (Rhine), Germany. 708,928, canc. Cl. 12.
Rice Barton Corp., Worcester, Mass. 823,998, pub. 11-29-66. Cl. 23.
Richardson-Harris, Inc., New York, N.Y. 824,194, pub. 11-29-66. Cl. 51.
Richardson Mfg. Co., Inc., Cawker City, Kans. 823,978, pub. 11-29-66. Cl. 23.
Richardson, Sid, Carbon Co., Fort Worth, Tex. 708,892, canc. Cl. 6.
Richardson, Sid, Carbon Co., Fort Worth, Tex. 708,893, canc. Cl. 6.
Rivetz, A., Co., Inc., Boston, Mass. 824,086, pub. 11-29-66. Cl. 39.
Robosonics, Inc., Bronx, N.Y. 823,956, pub. 11-29-66. Cl. 21.
Rome Machine & Foundry Co., Rome, Ga. 824,004, pub. 11-29-66. Cl. 23.
Rosco Mfg. Co., Minneapolis, Minn. 823,985, pub. 11-29-66. Cl. 23.
Rosco Mfg. Co., Minneapolis, Minn. 823,986, pub. 11-29-66. Cl. 23.
Rose Brothers, Inc., New York, N.Y. 824,110, pub. 11-29-66. Cl. 39.
Rosin Engineering Co. Ltd., London, England. 823,989, pub. 11-29-66. Cl. 23.
Royal Beauty Laboratories, Inc., New York, N.Y. 824,191, pub. 11-29-66. Cl. 51.
Roype S. L., Madrid, Spain. 824,040, pub. 11-29-66. Cl. 28.
Rubel & Co. Decorative Accessories, Inc., New York, N.Y. 824 057, pub. 11-29-66. Cl. 34.
SCM Corp.; New York, N.Y. 824,030, pub. 11-29-66. Cl. 26.
Sagner's, A., Son, Frederick, Md. 709,093, canc. Cl. 39.
Sanford Ink Co., Bellwood, Ill. 824,065, pub. 11-29-66. Cl. 37.
Sanyo Electric Co., Ltd., Osaka, Japan. 824,045, pub. 11-29-66. Multiple Class (Classes 31 and 36).
Sargent Engineering Inc., Fort Dodge, Iowa. 823,983, pub. 11-29-66. Cl. 23.
Sawyer, George M., d.b.a. New Tomorrow Scientific Co., Inglewood, Calif. 708,874, canc. Cl. 2.
Saxe-Freeman Co., Omaha, Nebr. 824,209, pub. 10-11-66. Cl. 103.
Scaffolding (Great Britain) Ltd., Mitcham, Surrey, England. 823,865, pub. 11-29-66. Multiple Class (Classes 7, 19, 23, and 50).
Schaeren, Mido G., & Co. S.A.: *See*—
  Societe Anonyme Mido (Aktiengesellschaft Mido) (Mido Ltd.).
  Societe Anonyme Mido.
Schaffer, F. & M., Brewing Co., The, Brooklyn, N.Y. 823,856, pub. 11-29-66. Cl. 6.
Scampy Craft Ltd., London, England. 708,972, canc. Cl. 19.
Schmidt Baking Co., Inc., Baltimore, Md. 824,156, pub. 11-29-66. Cl. 46.
Schreiber, William N., d.b.a. Brittany Mills, Los Angeles, Calif. 824,239. Cl. 42.
Schwabacher & Co., San Francisco, Calif. 824,251. Multiple Class (Classes 100 and 102).
Schroeder, Luella C., Cabot, Vt. 824,041, pub. 11-29-66. Cl. 28.
Seeger, Cora M., d.b.a. Peg Seeger, Toledo, Ohio. 823,901, pub. 11-29-66. Cl. 13.
Seeger, Peg: *See*—
  Seeger, Cora M.
Seift & Co., Chicago, Ill. 823,873, pub. 11-29-66. Cl. 12.
Servel, Inc., Freeport, Ill. 823,945, pub. 11-29-66. Cl. 21.
Sheaffer, W. A., Pen Co., Fort Madison, Iowa, to Textron Inc., Providence, R.I. 217,404, ren. 2-14-67. Cl. 37.
Sheffer Corp., The, Cincinnati, Ohio. 823,899, pub. 11-29-66. Cl. 13.
Shell Oil Co., New York, N.Y. 823,857, pub. 11-29-66. Cl. 6.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 824,198, pub. 11-29-66. Cl. 51.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 824,199, pub. 11-29-66. Cl. 51.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 824,200, pub. 11-29-66. Cl. 51.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 824,201, pub. 11-29-66. Cl. 51.
Shonback, K. & F., San Francisco, Calif. 823,912, pub. 11-29-66. Cl. 14.
Shur-Antenna-Mount, Inc., Sea Cliff, N.Y., to Winegard Co., Burlington, Iowa. 424,481, ren. 2-14-67. Cl. 21.
Shuter's, Elias, Sons, Inc., New York, N.Y. 824,254. Cl. 106.
Sidney Watch Co., Inc., New York, N.Y. 824,038, pub. 11-29-66. Cl. 27.
Silberstein, Albert L., to Griffon Cutlery Corp., New York, N.Y. 55,299, ren. 2-14-67. Cl. 23.
Silvercraft Plastics, Bremerton, Wash. 708,978, canc. Cl. 19.
Simpson Timber Co., Seattle, Wash. 823,886, pub. 11-29-66. Cl. 12.
Simpson Timber Co., Seattle, Wash. 823,887, pub. 11-29-66. Cl. 12.
Simpson Timber Co.: *See*—
  Portland Mfg. Co.
Singer, Hans S., d.b.a. H. S. Singer, Spartanburg, S.C. 823,908, pub. 11-29-66. Cl. 13.
Smith Industries International, Inc., Whittier, Calif. 823,969, pub. 11-29-66. Cl. 23.
Smith, Jay R., Mfg. Co., New Market, N.J. 823,894, pub. 11-29-66. Cl. 13.
Societe Anonyme Mido (Aktiengesellschaft Mido) (Mido Ltd), Solothurn, to Mido G. Schaeren & Co. S.A., Bienne, Switzerland. 225,024, ren. 2-14-67. Cl. 27.
Societe Anonyme Mido, to Mido Watch Co. of America, New York, N.Y., and Bienne, Switzerland, to Mido G. Schaeren & Co. S.A., Bienne, Switzerland. 428,248, ren. 2-14-67. Cl. 27.
Societe d'Etudes et d'Expansion de la Parfumerie de Luxe, Paris and Asnieres, France, to Robert Piguet, Inc., New York, N.Y. 426,423, ren. 2-14-67. Cl. 51.

- Societe Peugeot & Cie, Levallois-Perret (Seine), France. 823,963, pub. 11–29–66. Multiple Class (Classes 21 and 23).
- Societa per Azioni Fratelli Folonari, Brescia, Italy. 824,173, pub. 11–29–66. Cl. 47.
- Southeastern Tool & Die Co., Inc., Birmingham, Ala. 823,875, pub. 11–29–66. Cl. 12.
- South Texas Cotton Oil Co., Houston, Tex., to Hunt-Wesson Foods, Inc., Fullerton, Calif. 426,103, ren. 2–14–67. Cl. 46.
- Spaugh Mfg. Inc., Elkhart, Ind. 708,980, canc. Cl. 19.
- Spencer, Dean, Seattle, Wash. 824,178, pub. 11–29–66. Cl. 50.
- Spiratone, Inc., Flushing, N.Y. 824,034, pub. 11–29–66. Cl. 26.
- Squibb, E. R., & Sons, Inc., from Olin Mathieson Chemical Corp., New York, N.Y. 824,142, pub. 11–29–66. Cl. 44.
- Stadler Fertilizer Co., The: *See—*
    - Virginia-Carolina Chemical Co.
- Standard X-Ray Co., Chicago, Ill. 823,932, pub. 11–29–66. Cl. 18.
- Stein, Samuel F., Milton, Pa. 824,113, pub. 11–29–66. Cl. 39
- Sterling Drug Inc.: *See—*
    - Winthrop Chemical Co., Inc.
- Stevens, J. P., & Co., Inc.: *See—*
    - Worumbo Mfg. Co.
- Stevens, J. P., & Co., Inc., New York, N.Y. 709,115, canc. Cl. 42.
- Stix, Baer and Fuller Co., St. Louis, Mo., to Associated Dry Goods Corp., New York, N.Y. 226,306, ren. 2–14–67. Cl. 39.
- Stonehill Laboratories, Inc., Setauket, N.Y. 824,246. Cl. 51.
- Strathmore Shoe Co., Inc., Brockton, Mass. 824,087, pub. 11–29–66. Cl. 39.
- Strathmore Shoe Co., Inc., Brockton, Mass. 824,088, pub. 11–29–66. Cl. 39.
- Strathmore Shoe Co., Inc., Brockton, Mass. 824,089, pub. 11–29–66. Cl. 39.
- Stroh, George W., Lancaster, Pa. 824,071, pub. 11–29–66. Cl. 37.
- Successful Farming Publishing Co., to Meredith Publishing Co., Des Moines, Iowa. 61,626, ren. 2–14–67. Cl. 38.
- Sun Oil Co., Philadelphia, Pa. 823,914, pub. 11–29–66. Cl. 15.
- Sunbeam Corp.: *See—*
    - Chicago Flexible Shaft Co.
- Superior Electric Products Corp., Cape Girardeau, Mo. 709,133, canc. Cl. 44.
- Sutherland Publications, Inc., Bethesda, Md. 824.235. Cl. 38.
- Szekley, Edmond B., also known as E. S. Bordeaux, d.b.a. Elixirs of Light, San Diego, Calif. 824,190, pub. 9–20–66. Cl. 51.
- Talon, Inc., Meadville, Pa. 823,903, pub. 11–29–66. Cl. 13.
- Tawn Ltd.: *See—*
    - McKesson & Robbins.
- Temco Aircraft Corp.: *See—*
    - Temco Electronics & Missiles Co.
- Temco Electronics & Missiles Co., from Temco Aircraft Corp., Dallas, Tex. 709,019, canc. Cl. 26.
- Terragno, Charles L., d.b.a. Electro-Matic Sales Co., Ogden, Utah. 823.852 pub. 11–29–66 Cl. 21.
- Tewles, L., Seed Co., Milwaukee, Wis. 708,898, canc. Cl. 10.
- Textron, Inc.: *See—*
    - Schaeffer, W. A., Pen Co.
- Textron Inc., Rochester, N.Y. 824,229. Cl. 26.
- Textron Industries, Inc., Orange, N.J. 823,920, pub. 11–29–66. Cl. 16.
- Thomson Co., Thomson, Ga. 824,099, pub. 11–29–66. Cl. 39.
- Thorndike Mills, Inc., Palmer, Mass. 824,125, pub. 11–29–66. Cl. 42.
- Tire Improvement Co., Inc., Akron, Ohio. 823,842, pub. 11–29–66. Multiple Class (Classes 5 and 35).
- Tip-Top Hosiery Mills, Inc., Asheboro, N.C. 824,079, pub. 11–29–66. Cl. 39.
- Tod Productions, Northridge, Calif. 824,212, pub. 9–14–65. Cl. 107.
- Topco Associates, Inc., Skokie, Ill. 823,909, pub. 11–29–66. Cl. 13.
- Torrington Co., The, to The Torrington Co., Torrington, Conn. 225,216, ren. 2–14–67. Cl. 23.
- Tour, Sam, New York, N.Y. 709,125, canc. Cl. 44.
- Tube-Vend Ltd., Scarborough, Ontario, Canada. 823,838, pub. 11–29–66. Cl. 2.
- Tweedle Footwear Corp., Jefferson City, Mo. 709,085, canc. Cl. 39.
- Ubrich Supply Co., North Kansas City, Mo. 823,972, pub. 11–29–66. Cl. 23.
- Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 54,223, ren. 2–14–67. Cl. 2.
- Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 56,123, ren. 2–14–67. Cl. 2.
- Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 56,124, ren. 2–14–67. Cl. 2.
- Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 56,193, ren. 2–14–67. Cl. 2.
- Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 56,194, ren. 2–14–67. Cl. 2.
- Union Bag-Camp Paper Corp.: *See—*
    - Union Camp Corp.
- Union Camp Corp.: *See—*
    - Union Bag & Paper Co., The.
- Union Camp Corp., from Union Bag-Camp Paper Corp., New York, N.Y. 823,839, pub. 11–29–66. Cl. 2.
- Union Camp Corp., from Union Bag-Camp Paper Corp., New York, N.Y. 823,979, pub. 11–29–66. Cl. 23.
- Union Carbide Corp., New York, N.Y. 823,898, pub. 11–22–66. Cl. 13.
- Union Co., The, Columbus, Ohio. 824,097, pub. 11–29–66. Cl. 39.
- Union Fork and Hoe Co., The, Columbus, Ohio. 427,477, ren. 2–14–67. Cl. 23.
- Unisabi, Strasbourg-Neudorf, Base-Rhin, France. 824,159, pub. 11–29–66. Cl. 46.
- Universal American Corp., Detroit, Mich. 824,049, pub. 11–29–66. Cl. 31.
- Universal Plastics, Inc., Cookeville, Tenn. 824,070, pub. 11–29–66. Cl. 37.
- University of Dayton, Dayton, Ohio. 824,215, pub. 11–29–66. Cl. 200.
- Van Houten, Inc., New York, N.Y., to Koninklijke Fabrieken C. J. Van Houten & Zoon N.V., Weesp, Netherlands. 222,805, ren. 2–14–67. Cl. 46.
- Vanderbilt, R. T., Co., Inc., New York, N.Y. 823,848, pub. 7–19–66. Cl. 6.
- Varley, James, & Sons, Inc., St. Louis, Mo. 823,859, pub. 11–29–66. Cl. 6.
- Vi-Jon Laboratories, Inc.: *See—*
    - McKesson & Robbins.
- Virginia-Carolina Chemical Co., Jersey City, N.J., to The Stadler Fertilizer Co., Cleveland, Ohio. 61,315, ren. 2–14–67. Cl. 10.
- Virginia Lens Co., Inc., Petersburg, Va. 824,032, pub. 11–29–66. Cl. 26.
- Wallace Pencil Co., Maplewood, Mo. 824,063, pub. 11–29–66. Cl. 37.
- Walz Co., Ltd., Tokyo, Japan. 709,021, canc. Cl. 26.
- Wembley, Inc., New Orleans, La. 824,093, pub. 11–29–66. Cl. 39.
- Western Litho Plate Supply Co., St. Louis, Mo. 823.843, pub. 11–29–66. Multiple Class (Classes 6, 50, and 52).
- Western Marketing Co. of Calif.: *See—*
    - Kawamura, G.
- Wheel Trueing Tool Co.: *See—*
    - Wheel Trueing Tool Co. of Delaware.
- Wheel Trueing Tool Co. of Delaware, to Wheel Trueing Tool Co., Detroit, Mich. 428.837, ren. 2–14–67. Cl. 23.
- Wile, Julius, Sons. & Co., Inc., New York, N.Y. 824,176, pub. 11–29–66. Cl. 49.
- Wilhelm Jackstadt & Co., 56 Wuppertal-Elberfeld, Germany. 823,841, pub. 11–29–66. Multiple Class (Classes 5, 14, and 37).
- Wilson & Co., Inc., Chicago, Ill. 709,140, canc. Cl. 46.
- Winegard Co.: *See—*
    - Shur-Antenna-Mount, Inc.
- Winthrop Chemical Co., Inc., to Sterling Drug Inc., New York, N.Y. 426.990, ren. 2–14–67. Cl. 18.
- Winthrop Chemical Co., Inc., to Sterling Drug Inc., New York, N.Y. 427.003, ren. 2–14–67. Cl. 46.
- Worumbo Mfg. Co., Lisbon Falls, Maine, to J. P. Stevens & Co., Inc., New York, N.Y. 426 436, ren. 2–14–67. Cl. 42.
- Wright, Frances W., Crowley, La. 824,061, pub. 11–29–66. Cl. 37.
- Wurlitzer Co., The, Chicago, Ill. 824,059, pub. 11–29–66. Cl. 36.
- Wyner, I. A., & Co., Inc., New York, N.Y., to Ames Textile Corp., Lowell, Mass. 221 063, ren. 2–14–67. Cl. 42.
- Wyrough and Loser, Inc., Trenton, N.J. 823,863, pub. 11–29–66. Cl. 6.
- Xerox Corp., Rochester, N.Y. 824,069, pub. 11–29–66. Cl. 37.
- Yamaska Mills Inc., Quebec, Canada. 823,881, pub. 11–29–66. Cl. 12.
- Yardley of London, Inc., Totowa, N.J. 824,183, pub. 11–29–66. Cl. 51.
- Yardley of London, Inc., Totowa, N.J. 824,186, pub. 11–29–66. Cl. 51.
- Yardley of London, Inc., Totowa, N.J. 824,187, pub. 11–29–66. Cl. 51.
- Yardley of London, Inc., Totowa, N.J. 824,188, pub. 11–29–66. Cl. 51.
- Zane, Gordon N., Greensboro, N.C. 824.253. Cl. 105.
- Zimmer & Francescon, Moline, Ill. 823,975, pub. 11–29–66. Cl. 23.

U.S. GOVERNMENT PRINTING OFFICE: O——1967

U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
February 21, 1967 Volume 835 Number 3

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of January 1967

Examiner affirmed	259
Examiner affirmed in part	39
Examiner reversed	74
Total	372

Classification Order No. 386

Classification Order No. 386, dated January 26, 1967, incorporates changes in the following classes:

Design classes only

D2, Aeration and Bottling (Abolished)
D2, Apparel and Haberdashery (Established)
D3, Apparel
D7, Boots and Shoes (Abolished)
D17, Clasps and Buckles (Abolished)
D20, Crinoline and Corsets (Abolished)
D22, Cutlery (Abolished)
D22, Arms and Equipment for Hunting, Fishing, Vermin and Insect Trapping (Established)
D27, Felting and Hats (Abolished)
D30, Firearms, Shields and Targets (Abolished)
D31, Fishing and Trapping
D47, Knitting and Netting
D50, Locks and Latches
D94, Aeration and Bottling (Established)
D95, Cutlery (Established)

All of the above changes will be incorporated in the Manual of Classification replacement pages dated April 1967.

C. D. ANGEL,
Acting Director, Office of Patent Classification.

Non-Final Second Action Rejection Practice

Experience since September 1, 1966, indicates that the non-final second action rejection practice announced on a trial basis at 829 O.G. 1755 (M.P.E.P. Change Notice 10—1) has worked out satisfactorily for both the Office and the applicants. Effective immediately, that practice as restated below will be followed on a regular basis.

Second actions on the merits will not be made final where the examiner introduces a new ground of rejection not necessitated by amendment of the application by the applicant. Further, in carrying out this policy, a second action on the merits in any application will not be made final if it includes a rejection of any claim not amended by applicant where that rejection relies on newly cited art. Also, amendments complying with objections or requirements as to form are to be permitted after final action in accordance with Rule 116(a).

RICHARD A. WAHL,
Assistant Commissioner.

Jan. 30, 1967.

Patents Available for Licensing or Sale

2,982,508. ADJUSTABLE ANCHOR. Sigwald Larsen, 158 Sandhurst Drive, Venice, Fla., 33595.

3,195,125. TELEVISION AID TO AIRCRAFT INSTRUMENT LANDING. Henry L. Reitler, P.O. Box 785, Nashville, Tenn., 37209.

3,273,238. PLIERS HAVING A CAMMING LEVER MEMBER TRAPPED BETWEEN JAW MEMBERS. Carl Kuhbier, Mauritz, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,288,363. REGISTER TRANSFER DEVICE. Alfred Engelmann, Hanover, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,296,915. CUTTING DEVICE. G. D. Johnson, P.O. Box 4643, Sacramento, Calif., 95803.

Eastman Kodak Company announces that, in accordance with its policy, non-exclusive licenses upon reasonable terms are available to responsible domestic applicants (under the circumstance prevailing at the time) under the following U.S. patent.

2,968,217. LENS ADJUSTING MEANS FOR STEREO PROJECTORS.

This offer is consistent with the present practice of Eastman Kodak Company to grant such non-exclusive licenses for any of its unexpired United States patents on photographic inventions issued prior to 1962 and on inventions made in the course of research or development work for the U.S. Government.

Applications for license may be addressed to the Director, Patent Department, Eastman Kodak Company, 343 State St., Rochester, N.Y., 14650.

Tenneco Chemicals, Inc., is prepared to grant non-exclusive licenses under the following 3 patents upon reasonable terms to domestic manufacturers.

Applications for license may be addressed to: Daniel J. Reardon, Patent Counsel, Tenneco Chemicals, Inc., 300 E. 42nd St., New York, N.Y., 10017.

3,194,786. STABILIZED ASBESTOS CONTAINING VINYL HALIDE RESIN COMPOSITIONS.

3,194,785. VINYL HALIDE RESIN COMPOSITIONS STABILIZED WITH S-TRIAZINE COMPOUNDS.

3,084,135. VINYL HALIDE COMPOSITIONS STABILIZED WITH MELAMINE.

General Electric Company is prepared to grant non-exclusive licenses under the following 53 patents upon reasonable terms to domestic manufacturers.

New Applications Received During December 1966

Patents	8,347
Designs	384
Plant Patents	10
Reissues	17
Total	8,758

Issue—February 21, 1967

Patents	1,319	—No.	3,304,555	to No.	3,305,873, incl.
Designs	58	—No.	206,989	to No.	207,046, incl.
Plant Patents	5	—No.	2,716	to No.	2,720, incl.
Reissues	3	—No.	26,160	to No.	26,162, incl.
Total	1,385				

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Power Transmission Division, General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa., 19142.

3,215,896. FAST RESPONSE OVERLOAD PROTECTION CIRCUIT.
3,262,044. ELECTRIC CONVERTING SYSTEM.

Applications for license under the following 9 patents may be addressed to: Patent Counsel, Major Appliance & Hotpoint Division, General Electric Company, Appliance Park, Louisville, Ky., 40225.

2,946,203. REFRIGERANT COMPRESSOR HAVING THERMAL OVERLOAD PROTECTOR.
3,070,972. AUTOMATIC CONTROLS FOR ROOM AIR CONDITIONING UNIT.
3,160,204. HEAT EXCHANGE INCLUDING IMPROVED SUPPORTING BRACKET.
3,200,621. DRY CLEANING MACHINE.
3,269,789. REFRIGERATOR CABINET CONSTRUCTION.
3,284,877. METHOD OF MANUFACTURING THERMOELECTRIC MODULES.
3,285,030. REFRIGERATION SYSTEM INCLUDING HIGH PRESSURE LIMIT CONTROL MEANS.
3,285,032. REFRIGERANT FLOW CONTROL.
3,289,433. AIR CONDITIONING UNIT.

Applications for license under the following 18 patents may be addressed to: General Electric Company, Power Distribution Division, 100 Woodlawn Ave., Pittsfield, Mass. Attn: Division Patent Counsel.

2,672,540. BANDED MULTIPLE ELEMENT FUSE.
2,800,525. TERMINAL ENCLOSURE.
2,859,373. LIGHTNING ARRESTER.
2,895,637. METER HOUSING.
2,899,399. ETHOXYLINE RESIN-SHELLAC-DICYANDIAMIDE INSULATION COMPOSITION.
2,940,564. SHAFT CONTROL MEANS.
2,961,518. CIRCUIT INTERRUPTER.
2,997,526. ELECTRICAL APPARATUS HAVING INSULATION FOR ELIMINATING CREEPAGE TRACKING.
2,997,528. ELECTRICAL APPARATUS HAVING INSULATION FOR ELIMINATING CREEPAGE TRACKING.
3,035,209. TRANSFORMER COVER.
3,048,648. ELECTRICAL APPARATUS AND GASEOUS DIELECTRIC MATERIAL THEREFOR COMPRISING PERFLUORALKYLNITRILE.
3,073,479. HERMETIC SEAL.
3,106,496. PROCESS FOR COATING AND ANNEALING GRAIN ORIENTED SILICON STEELS.
3,132,205. POROUS COATINGS FOR ELECTRIC CONDUCTORS.
3,138,137. SCALE PLATE MOUNTING MEANS.
3,283,140. STREET LUMINAIRE.
3,287,682. CORE INSULATION FOR PROTECTION AGAINST IMPULSE VOLTAGE.
3,289,280. METHOD OF MAKING A SHELL TRANSFORMER.

Applications for license under the following 24 patents may be addressed to: General Electric Company, Transportation Systems Division, 3001 E. Lake Road, Erie, Pa., 16501. Attn: Patent Counsel.

3,037,398. BRAKE SLACK ADJUSTMENT.
3,037,885. METHOD OF INSULATING AN ELECTRICAL COIL.
3,054,361. INTER-TRUCK GUIDING CONTROL.
3,067,817. AUTOMATICALLY REGULATED RADIATOR TYPE COOLING SYSTEM.
3,068,390. RESISTANCE SWITCHING NETWORK AND MOTOR CONTROL SYSTEM.
3,071,846. PROCESS FOR MAKING COILS.
3,072,779. WELDING FOLLOWER DEVICE.
3,077,549. PERMANENT MAGNET INDICATOR ALTERNATOR.
3,089,931. MOTOR OPERATED CAM CONTACT ASSEMBLY.
3,092,769. MAGNETIC AMPLIFIER.
3,093,399. WHEEL SLIP SUPPRESSION SYSTEM.
3,098,054. COMPOSITION COMPRISING EPOXY RESIN POLYVINYL ACETAL, SILICA, AND A BF_3-AMINE COMPLEX.
3,103,605. WATER-COOLED EDDY CURRENT COUPLING.
3,105,186. HORSEPOWER LIMIT CONTROL AND FUNCTION GENERATOR THEREFOR.
3,105,331. BRUSH SEATING TECHNIQUE.
3,107,956. BEARING LUBRICATION ARRANGEMENT.
3,116,700. LOCOMOTIVE.
3,117,264. WHEEL SLIP CONTROL BY GRADUAL REDUCTION OF GENERATOR EXCITATION.
3,126,080. COUPLING AND DECOUPLING DRIVE UNIT.
3,142,800. IN-PHASE CURRENT DETECTION.
3,147,417. CONTROL SYSTEM FOR DRIVING AND POSITIONING AN OBJECT AT A PREDETERMINED LOCATION.
3,153,163. MOVING ELECTRIC CURRENT COLLECTORS.
3,157,939. METHOD OF INSULATING AND RETAINING CONDUCTORS IN SLOTS.
3,157,940. METHOD OF INSULATING AND RETAINING CONDUCTORS IN SLOTS.

Extensions of Time

Effective immediately, a new liberal policy for interpretation and application of Rule 136(b) will apply with respect to first requests for a one-month extension of time for reply to Office actions where a shortened statutory period for response has been set. Any request under Rule 136(b) for extension of time must state a reason in support thereof; under the above policy the application of the rule will entail only a limited evaluation of the stated reason.

This liberality will not apply to (1) any requests for more than a one-month extension, and (2) second and subsequent requests for extension of time.

In order to provide prompt notification of the action taken on extension requests, the request may be filed in duplicate, accompanied by a stamped return-addressed envelope (including a ZIP code), as announced in the OFFICIAL GAZETTE of August 23, 1966 (829 O.G. 1307).

It is expected that requests for extension of time will continue to be made only when a need exists and will not become a standard operating procedure. Routine use of this practice may necessitate abandoning the new policy and a return to a less liberal interpretation of Rule 136(b).

Jan. 26, 1967.

RICHARD A. WAHL,
Assistant Commissioner.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 19, 1966

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-24-63	10-18-61
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-13-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	8-29-63	10- 3-61
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	7-11-63	3-12-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Metallurgical Apparatus; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7- 2-63	10-23-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-15-63	8-30-62
SECURITY, GROUP 220—S. BOYD, Manager Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-16-64	4-25-62
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	5- 9-63	7- 3-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	5-15-63	12- 1-61
PHYSICS, GROUP 280—R. L. EVANS, Manager Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-13-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager Industrial Arts; Household, Personal and Fine Arts.	9-22-65	3-12-65

Total number of pending applications (excluding Designs)	197,247
Total number of Design applications pending	4,319
Total number of applications awaiting action (excluding Designs)	140,694
Total number of Design applications awaiting action	2,617
Date of oldest new application awaiting action	May 9, 1963
Date of oldest amended application awaiting action	July 3, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during February 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 690. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1953.*

Patents	Numbers 2,496,256 to 2,499,344, inclusive
Plant Patents	Numbers 919 to 925, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	11-23-64	5-31-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	9- 8-64	9-24-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	7- 7-64	6-18-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	3-12-65	1-13-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	12- 3-64	8-20-62
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	7- 8-64	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

In the United States Patent Office
Before the Board of Appeals

Ex parte Elwin B. Ovist and Manley Kjnonaas

Appeal No. 473–63. Decided April 19, 1963

1. Patentability—Reference—Foreign Patents—Foreign Patent as Prior Patent Rather Than as Printed Publication.

"With respect to the Italian patent, appellants concede that its date *as a patent* is sufficiently early to make it available; its later date as a printed publication has been overcome by an affidavit under Rule 131. The question therefore raised for determination is what parts of the Italian patent can be utilized as a basis for rejection of the claims in the instant application when it is used as a prior patent and not as a prior printed publication. Appellants contend that only the claim can be relied on. We cannot agree that the Examiner is restricted to claims only as urged by the appellants. It is well settled that all parts of the specification relating to the claimed invention can be considered, particularly examples coming within the scope of the claim. *In re Fuge*, 47 CCPA 735, 1960 C.D. 73, 751 O.G. 269, 272 F.2d 954, 124 USPQ 105. The claim of the Italian patent is obviously generic and embraces the species shown in the examples. It is not necessary that the claims or resume of the foreign patent recite the specific details which are available as a reference."

2. Same—Same—Same—Same.

In determining what portions of an Italian patent can be relied on as a basis for rejection when it is used as a prior patent and not as a printed publication, *Held* that "In our opinion, the entire disclosure of the Italian patent is germane to the claimed invention [in that patent] and may be properly relied on as a reference for the claims at bar.

Appeal from the Examiner (W. J. Van Balen), of Div. 63. Serial No. 758,663.

AFFIRMED.

Adams, Forward & McLean for appellants.

Before Federico and Rosa, *Examiners-in-Chief*, and Stone, *Acting Examiner-in-Chief*

Rosa, *Examiner-in-Chief*.

This is an appeal from the final rejection of claims 2, 3, 4, 6, 7, 8 and 10, which are all the claims remaining in the application.

Claim 6 is illustrative and reads as follows:

> 6. A process for direct esterification of a reaction mixture selected from the group consisting of a mixture of dicarboxylic acid and about twice the number of moles of acid of a monohydric alcohol; a mixture of a glycol, about twice the number of moles of glycol of a dicarboxylic acid and about twice the number of moles of glycol of a monohydric alcohol; said dicarboxylic acid having 2 to about 28 carbon atoms, said alcohol and glycol being selected from alcohols of up to about 20 carbon atoms and ether alcohols thereof of 1 to 50 ether oxygen atoms which comprises reacting the selected mixture in the presence of a catalytic amount of a material of the formula $Ti(OR)_4$ wherein R is a hydrocarbon radical of up to about 20 carbon atoms, and recovering an ester selected from the group consisting of diesters and complex esters.

Reference relied on is:

Farbenfabriken (Italian), 546,742, July 30, 1956. (Corresponding British, Farbenfabriken, 792,236, Mar. 19, 1958.)

Reference added by Board of Appeals:

Werber, 3,056,818, Oct. 2, 1962 (filed Oct. 13, 1955).

The subject matter claimed is adequately described on page 2 of the appeal brief. The Farbenfabriken (Italian) patent is sufficiently described on page 2 of the Examiner's answer. The newly added Werber patent is directed to the same subject matter as that of the instant application, which is the preparation of esters of carboxylic acids and alcohols employing tetralkyl titanates e.g. tetraisopropyl titanate, as the catalyst.

Claims 2 through 4, 6 through 8, and 10 stand rejected as unpatentable over the Italian Farbenfabriken patent which, for convenience, will hereinafter be referred to as the Italian patent. It is the Examiner's position that the Italian patent discloses a process for producing esters of polycarboxylic acids and polyhydric alcohols utilizing tetraethyl orthotitanate as a catalyst. See Example 2 wherein adipic acid is reacted with diethylene glycol in the presence of trimethylol propane and an organo titanate catalyst.

[1] With respect to the Italian patent, appellants concede that its date *as a patent* is sufficiently early to make it available; its later date as a printed publication has been overcome by an affidavit under Rule 131. The question therefore raised for determination is what parts of the Italian patent can be utilized as a basis for rejection of the claims in the instant application when it is used as a prior patent and not as a prior printed publication. Appellants contend that only the claim can be relied on. We cannot agree that the Examiner is restricted to claims only as urged by the appellants. It is well settled that all parts of the specification relating to the claimed invention can be considered, particularly examples coming within the scope of the claim. *In re Fuge*, 47 CCPA 735, 1960 C.D. 73, 751 O.G. 269, 272 F.2d 954, 124 USPQ 105. The claim of the Italian patent is obviously generic and embraces the species shown in the examples. It is not necessary that the claims or resume of the foreign patent recite the specific details which are available as a reference.

Appellants have submitted a translation of the claim of the Italian patent (page 3*a* of principal brief) which contains obvious errors. Another translation which appears to us to fairly set forth the language of the claim, reads as follows:

> Process for producing, by means of esterification, polyesters from polycarboxylic acids and polyhydric alcohols, possibly using also aliquot parts of a monobasic carboxylic acid and, or, a monohydric alcohol, characterized by the fact that to accelerate the reaction there are used compounds of titanium or zirconium which are soluble in the reaction medium in crystalloidal or colloidal form, in an amount up to about 0.5% by weight.

The word "eventualmente" is translated as "possibly" which is one of its meanings; the specific examples do not include the optional addition referred to. It is noted that the British counterpart of the Italian patent places the optional use of the monocarboxylic acid and/or monohydric alcohol in a separate and dependent claim. [2] In our opinion, the entire disclosure of the Italian patent is germane to the claimed invention and may be properly relied on as a reference for the claims at bar.

Appellants' arguments have been given careful consideration, but for the reasons indicated above, as well as those set forth in the Examiner's answer, we conclude that the appealed claims are not patentable over the Italian patent cited.

A new rejection of all the claims is made under the provisions of Rule 196(b) on the patent to Werber, cited above, which issued since the appeal was taken in this case. The Werber patent has a filing date of Oct. 13, 1955, and is directed to the same subject matter disclosed and claimed in the instant application. This patent discloses the same titanium compound recited in claim 2 employed for the same purpose. Claims 6, 2, 3, 4 and 10 are considered to be fully met by Werber and claims 7 and 8 are considered to be unpatentable thereover in the use of a polyglycol which is a well known esterifying alcohol and clearly suggested by the disclosure in lines 34 to 38 of column 2 of the Werber patent. The Werber patent was cited in a companion application (Serial No. 738,298), of common ownership, wherein one of the joint appellants here is the sole applicant.

The decision of the Examiner is affirmed.

A new rejection of all the claims is made under Rule 196(b).

Any request for rehearing or reconsideration or modification of this decision by the Board of Appeals based upon the same record must be filed within thirty days from the date of the decision (Rule 197). Should appellants elect to have further prosecution before the Primary Examiner in response to the new rejection under Rule 196(b) by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such response is hereby set to expire *sixty days* from the date of this decision.

U.S. Court of Customs and Patent Appeals

IN RE NICHOLAS M. MOLNAR

No. 7590. Decided October 6, 1966

[54 CCPA —; 366 F.2d 782; 151 USPQ 203]

1. PATENTABILITY—PROCESS—OBVIOUSNESS—35 U.S.C. 103.

   "What we think this case comes down to is that Stecker discloses appellant's germicidal mixtures, in soap, within the ranges recited in the appealed claims, and the use of these compositions for germicidal purposes by washing. That is all appellant's 'methods' are. Therefore, appellant's claims were properly rejected as 'unpatentable over' the sole reference. Insofar as any claim may be construed so as *not* to read on conventional *methods* of using toilet detergents (soap), including the washing of 'hard surfaces' (such as the wash basin) or 'fabrics' (such as one's clothing) instead of 'the skin,' it is reasonable to say that such specific 'methods' would be obvious within the meaning of 35 U.S.C. 103."

2. SAME—STATUTORY BASIS FOR REJECTION—35 U.S.C. 102, 103.

   "While the Examiner and Board appear not to have referred specifically to this section of the statute [35 U.S.C. 103], we think it clear that appellant so construed the rejection as to know that he must persuade us that his invention complied with that statute as well as 35 U.S.C. 102. For example, we note that appellant urges that the Board erred in not finding that the appealed claims define a 'new and unobvious result.' To the extent therefore that our decision relies upon 35 U.S.C. 103, we think it is in accord with what appellant acknowledges and cannot be prejudicial to him. *In re Hughes*, 52 CCPA 1355, 345 F.2d 184, 145 USPQ 467."

3. SAME—PARTICULAR SUBJECT MATTER—"SYNERGISTIC MIXTURES OF GERMICIDES."

   The decision of the Board of Appeals, refusing certain claims in an application entitled "Synergistic Mixtures of Germicides," as unpatentable over the prior art, is affirmed.

APPEAL from the Patent Office. Serial No. 99,758.

AFFIRMED.

Abraham J. Nydick for appellant.

Clarence W. Moore (*Jack E. Armore* of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, and MARTIN, SMITH, and ALMOND, JR., *Associate Judges*, and Judge WILLIAM H. KIRKPATRICK, *United States Senior District Judge for the Eastern District of Pennsylvania*

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals,[1] adhered to upon reconsideration, affirming the Examiner's rejection of method claims 23–38 in application Serial No. 99,758, filed March 31, 1961, for "Synergistic Mixtures of Germicides." No claim has been allowed.

The invention is a method of combatting microorganisms, sanitizing hard surfaces or fabrics, and reducing the bacterial count of the skin by subjecting it to a mixture, or a composition containing a mixture, of two known materials, referred to as "DBS" and "TBS."

Appellant's brief says:

> This invention arose from the appellant's discovery that a mixture of 4′,5-dibromosalicylanilide (hereinafter called DBS) and 3,4′,5-tribromosalicylanilide (hereinafter called TBS) has a broad spectrum of anti-microbial activity providing marked degerming effectiveness on both living and non-living surfaces.
>
> Appellant's binary mixture, in the proportions of 40 to 95% of DBS and 60 to 5% of TBS, is synergistic.

In the specification, appellant explains the characteristics of TBS and DBS as follows:

> * * * (TBS) is a very effective germicide for use in soap. It is excellent for degerming skin. However, its effectiveness as a disinfectant of hard surfaces and fibrous material is relatively poor. On the other hand * * * (DBS) is a much better agent for disinfecting hard surfaces and fibrous materials than TBS, but is poorer in action on skin.
>
> * * * * * * *
>
> It is among the principal objects of this invention to provide mixtures of these two halogenated salicylanilides which give anti-microbial action on living and non-living surfaces that is equal or better than that of either component alone.

All claims are method claims, claim 25 being typical:

> 25. Method of combatting microorganisms which comprises subjecting the microorganisms to the action of a composition containing a mixture of 4′,5-dibromosalicylanilide and 3,4′,5-tribromosalicylanilide whereof the 4′,5-dibromosalicylanilide and the 3,4′,5-tribromosalicylanilide in the mixture are present in the proportions of about 40–95% of 4′,5-dibromosalicylanilide and 60–5% of 3,4′,5-tribromosalicylanilide.

Other claims are to methods of using detergent or soap containing said anti-microbial mixture of 40–95% DBS, the balance TBS. More specific claims are to methods of sanitizing hard surfaces, fabrics, and the skin with such compositions. Eight of the 16 claims define the ratio of DBS to TBS as about 50–50. It would appear, from a reading of the specification, that the "degerming" and "anti-microbial" properties of DBS and TBS were known to appellant prior to his invention.

The sole reference is:

Stecker, 2,906,711, September 29, 1959 (filed Apr. 25, 1958).

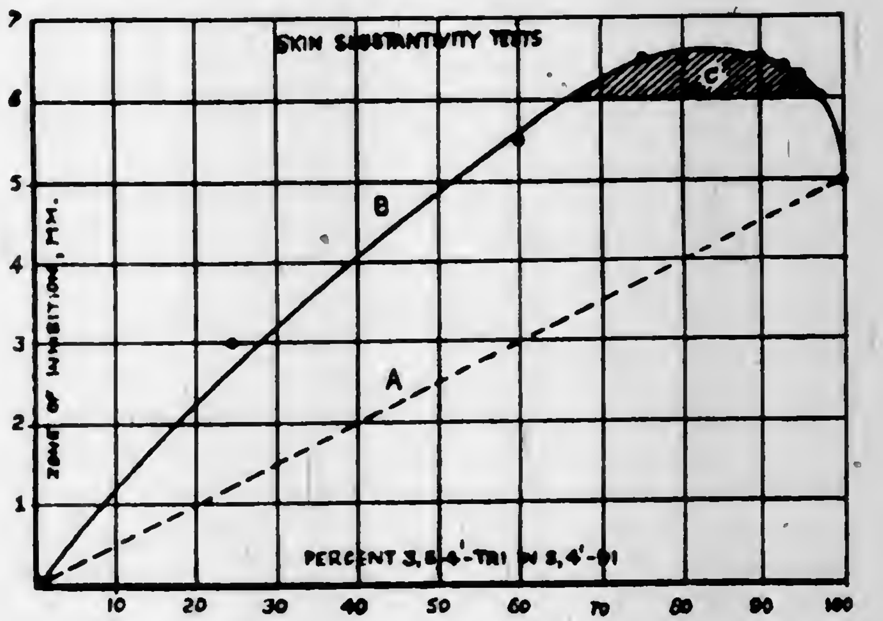
Stecker discloses that mixtures of DBS and TBS are synergistic. The specification contains two examples containing data allegedly resulting from tests of binary mixtures of the two compounds, the data in Example 1 being:

Germicide	Number of Subjects	Percent Reduction in Hand Count
DBS	10	None
TBS	10	65

Stecker states:

> It will be noted from the foregoing results that the 5,4′-dibromosalicylanide [sic, DBS] possessed no substantivity on the skin and showed no reduction in hand count, whereas the 3,5,4′-tribromosalicylanilide [TBS] showed a 65% reduction at the end of the test.

In Example 2, data resulting from "Skin disk substantivity (leaching) tests" are set forth. These data are depicted in a graph in the Stecker specification, here reproduced:



Stecker explains the data depicted on the above graph as follows:

> * * * Curve A is a straight line between the zero and 100% points on which the experimental test points would have fallen if the germicidal effectiveness of the two compounds were arithmetically additive. Actually, however, the test points fall on curve B showing that, in the higher percentages of * * * [TBS in DBS] there was a marked synergistic effect of the otherwise entirely ineffective dibromo derivative in the tribromo compound. At the peak value between 75% and 90% of the tribromo derivative, the effectiveness of the mixture is 165% of the effectiveness of the pure tribromo compound. It also is noted that the shaded area C which includes mixtures containing 65% to 98% of the tribromo derivative are [sic] unexpectedly and unusually high in germicidal effect, having an effectiveness of at least 144% of that of the pure tribromo derivative. It is this range which is being claimed in the present application.

It should be pointed out that the data for the above graph were obtained from tests conducted in triplicate using aqueous solutions of "'Ivory' brand neutral white high grade tallow toilet soap" on calf skin. Actual tests were carried out with mixtures of DBS and TBS of which 0, 25, 60, 75, 80, 90, 93, 95, 98 and 100 percent were TBS. Thus, two runs, those involving 25 and 60% TBS, fall squarely within the range of mixtures claimed by appellant.

The Patent Office position is that, in view of Stecker, DBS and TBS are individually old; that mixtures thereof are old as germicidal agents; and that mixtures of DBS and TBS are known to be, in the words of Stecker, "synergistically active in substantive hand-washing germicidal tests." The Solicitor argues that the use of the claimed compositions as a sanitizing agent on hard surfaces or on fabrics

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[1] Consisting of Examiners-in-Chief Federico and Rosa, the latter writing the opinion, and Acting Examiner-in-Chief Stone.

would be "an obvious expedient for one skilled in the art in view of the teachings in the Stecker patent (35 U.S.C. 103)."

During the prosecution, appellant submitted an affidavit wherein test data resulting from "Skin Disk Substantivity Test" were set forth for purposes of making comparisons with the Stecker disclosure. This comparison is set forth in appellant's brief as follows:

SIDE BY SIDE TABULATION OF MOLNAR'S DATA SET FORTH IN HIS AFFIDAVIT VERIFIED MAY 10, 1962, AND STECKER'S DATA IN THE TABLE, COLUMN 2

Percent		Zones of Inhibition			
DBS	TBS	Molnar		Stecker	
0	100	5.7		5.0	
2	98	5.8		6.0	Range Claimed by Stecker
5	95			6.3	
7	93			6.4	
10	90	6.1		6.5	
20	80	6.0		6.5	
30	70	6.6			
25	75			6.5	
35	65	6.7			
40	60	8.8	Range claimed herein	5.5	
45	55	9.2			
50	50	9.2			
60	40	9.8			
65	35	9.7			
75	25	9.3		3.0	
95	5	8.6			
100	0	8.0		0.0	

Appellant argues that his and Stecker's data differ, first, as to the amount of synergistic activity present in mixtures containing from 0% to 35% TBS, and, second, as to the effectiveness of DBS in skin substantivity tests. Thus, appellant contends that "The basic issue to be decided is whether or not the dibromosalicylanilide component of Stecker's binary mixture is in fact 4′,5-dibromosalicylanilide [DBS]."

The Examiner's position in this regard was:

> The fact that one investigator may start at a given point in observed activity and label this zero inhibition does not go to the issue of what the active material is.

The Board in its opinion adopted the Examiner's reasoning and commented further:

> In column 3, lines 4 to 19, the process of preparing 5,4′-dichloro salicylanilide is disclosed as exemplary of the process for preparing dihalosalicylanilides. From this disclosure it would appear that Stecker actually employed the 5,4′-dibromo derivative.

The Solicitor contends:

> Stecker does *not* teach, as asserted by appellant, that the DBS of Example 2 therein is *germicidally* ineffective; he merely indicates that the *skin* tests reported therein showed inactivity for that compound. This is entirely consonant with appellant's own disclosure that DBS exhibits "poorer action on skin" * * *. Moreover, Stecker discloses in his graph * * * and tabulation * * * as is also indicated by appellant * * * that the DBS of Example 2 synergises the germicidal activity of TBS.
>
> * * * the Molnar affidavit * * * in reporting on 8 mm. zone of inhibition for 100% DBS with calf skin as compared with a 5.7 zone for 100% TBS, is in conflict with the aforementioned disclosure in the present application * * * that DBS "is poorer in action on skin" than TBS. Contrary to appellant's *disclosure*, his *affidavit* indicates that DBS is more effective on skin than TBS. It is apparent that the Stecker results correspond to appellant's own disclosure whereas the latter's affidavit is in conflict therewith. This Court has recognized that where an affidavit is in conflict with the application disclosure, the latter must control; *In re Smith*, 37 CCPA 1142, 183 F.2d 84. Thus, the purported divergent results in appellant's tabulation * * * are based on results reported in his affidavit * * * which are in direct conflict with the appellant's disclosure.

[1] What we think this case comes down to is that Stecker discloses appellant's germicidal mixtures, in soap, within the ranges recited in the appealed claims, and the use of these compositions for germicidal purposes by washing. That is all appellant's "methods" are. Therefore, appellant's claims were properly rejected as "unpatentable over" the sole reference. Insofar as any claim may be construed so as *not* to read on conventional *methods* of using toilet detergents (soap), including the washing of "hard surfaces" (such as the wash basin) or "fabrics" (such as one's clothing) instead of "the skin," it is reasonable to say that such specific "methods" would be obvious within the meaning of 35 U.S.C. 103.[2]

It seems clear to us that what appellant has disclosed as his invention amounts merely to new, and possibly more accurate, data on old germicidal compositions and old methods of using them. This view does not overlook the argument, pressed before the Board and before us, that Stecker could not have been using DBS because of the discrepancy between his test results and those of appellant. Obviously someone's reported test results are wrong if Stecker used what he said he used. However, the disclosure of the use of appellant's mixtures for cleansing purposes is there, wherefore appellant is not entitled to a patent. Compare *In re Jacobs*, 50 CCPA 1316, 318 F.2d 743, 137 USPQ 888.

[3] The decision of the Board is affirmed.

AFFIRMED.

SMITH, *J.*, dissents.

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[2] [2] While the Examiner and Board appear not to have referred specifically to this section of the statute, we think it clear that appellant so construed the rejection as to know that he must persuade us that his invention complied with that statute as well as 35 U.S.C. 102. For example, we note that appellant urges that the Board erred in not finding that the appealed claims define a "new and unobvious result." To the extent therefore that our decision relies upon 35 U.S.C. 103, we think it is in accord with what appellant acknowledges and cannot be prejudicial to him. *In re Hughes*, 52 CCPA 1355, 345 F.2d 184, 145 USPQ 467.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,827,935, G. E. Alexander (assigned to General Plywood Corporation), METHOD FOR TREATING WOOD SURFACES, **filed** Jan. 20, 1960, D.C., W.D. Ky. (Louisville), Doc. 3908, *United States Plywood Corporation* v. *General Plywood Corporation.* Patent held valid and not infringed; complaint and counterclaim dismissed June 15, 1964. **Appealed**, C.C.A., 6th Cir., Docs. 16194–95, *United States Plywood Corporation (plaintiff-appellee)* v. *General Plywood Corporation (defendant-appellant)*, and *United States Plywood Corporation (plaintiff-cross-appellant)* v. *General Plywood Corporation (defendant-cross-appellee)*. Judgment of District Court affirmed Dec. 28, 1966.

2,903,077, I. Kamlukin, SOIL TILLING DEVICE, **filed** Dec. 8, 1966, D.C., E.D. Wis. (Milwaukee), Doc. 66–C–339, *Hahn, Inc.* v. *Simplicity Manufacturing Company.* **Same, filed** Dec. 12, 1966, D.C., S.D. Ind. (Evansville), Doc. EV66–C–92, *Simplicity Manufacturing Company, Inc.* v. *Hahn-Eclipse Co., Division of Hahn, Inc.* **Same, filed** Dec. 12, 1966, D.C., S.D. Ohio (Dayton), Doc. 3377, *Simplicity Mfg. Co., Inc.* v. *The Huffman Co.*

2,907,614, S. Rosen, PRECISION PUMP, **filed** Dec. 7, 1966, D.C., M.D. Fla. (Tampa), Doc. 66–441–T, *Sidney Rosen* v. *James F. Kahlenberg.*

2,925,803, J. B. Ottestad, ACTUATING PRESSURE RELEASE SYSTEM; **2,997,025**, Ottestad and Skeen, EXTERNALLY TRIGGERED ACTUATOR, **filed** Nov. 27, 1962, D.C., C.D. Calif. (Los Angeles), Doc. 62–1549–TC, *Consolidated Vacuum Corp. et al.* v. *Machine Dynamics, Inc. et al.* Stipulation and consent judgment in favor of plaintiffs; patents held valid and infringed Dec. 16, 1966.

2,929,228, E. A. Gould, CABINET COOLING MEANS, **filed** Dec. 7, 1966, D.C., N.D. Okla. (Tulsa), Doc. 6617, *Edward A. Gould, Jr.* v. *Beverage Products Corporation.*

2,932,571, T. B. Tribble, FLAVORED SWEETENER FOR LIVESTOCK FEED PRODUCTS, **filed** Dec. 3, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c2034, *Flavor Corporation of America* v. *Feed Flavors, Inc.* Complaint for patent infringement and counterclaim alleging invalidity and non-infringement of patent dismissed without prejudice Dec. 23, 1966.

2,941,785, A. W. Kammerer, EXPANSIBLE ROTARY DRILL BIT, **filed** Dec. 22, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–2058–PH, *Rotary Oil Tool Co.* v. *Oil Tool Engineering Co.*

2,943,839, R. Birmann, ELASTIC FLUID MECHANISM; **3,032,315**, same, TURBINE BLADING, **filed** Dec. 22, 1966, D.C. Ariz. (Phoenix), Doc. 6214 Phx., *De Laval Turbine, Inc.* v. *The Garrett Corporation.*

2,948,757, Pruitt and Rogers, TRIHYDROXY POLYOXYALKYLENE ETHERS OF GLYCEROL, **filed** Dec. 27, 1966, D.C., S.D. W. Va. (Charleston), Doc. 3559, *The Dow Chemical Company* v. *Union Carbide Corporation.*

2,956,073, Whetstone and Harman, INSECTICIDALLY ACTIVE ESTERS OF PHOSPHORUS ACIDS AND PREPARATION OF THE SAME; **Reg. No. 709,813** (VAPONA), Shell Oil Company, Insecticide, **filed** Mar. 22, 1965, D.C., N.D. Iowa (Cedar Rapids), Doc. 65–C–508–EC, *Shell Oil Company v. Barco Corporation et al.* Consent judgment—Patent No. 2,956,073 and T.M. Reg. No. 709,813 held valid and infringed; defendants enjoined Dec. 12, 1966.

2,967,315, Helbig and Warner, HAND-PROPELLED POLISHING MACHINE, **filed** Dec. 12, 1966, D.C., E.D. Va. (Norfolk), Doc. 5904, *Cyclo-Shine of Virginia, Incorporated v. Cyclo-Floor Machine Corporation et al.*

2,997,025. (See 2,925,803.)

2,999,532, F. K. Fox, TUBULAR DRILL STRING MEMBER, **filed** Dec. 9, 1966, D.C., S.D. Tex. (Houston), Doc. 66–H–874, *Engineering Enterprises, Inc. v. McClinton Toll Company.*

3,032,315. (See 2,943,839.)

3,213,000, R. Ewing, A MULTIPLE STAGE FLASH EVAPORATOR; **Re. 25,232**, R. W. Goeldner, PLURAL STAGE FLASH EVAPORATION METHOD, **filed** Dec. 13, 1966, D.C., E.D. Pa. (Philadelphia), Doc. 41713, *Foster Wheeler Corporation v. Aqua-Chem, Inc.*

3,221,616, G. J. Flegel, INTERLOCKING GRATING AND FRAMING SYSTEM FOR TRENCH DRAINS, **filed** Dec. 16, 1966, D.C.N.J. (Newark), Doc. 1245–66, *Josam Manufacturing Co. v. Jay R. Smith Mfg. Co.*

3,221,637, Small and Herman, APPARATUS FOR BREWING AND DISPENSING BEVERAGES; **3,222,500**, same, WATER STORING AND HEATING APPARATUS IN DEVICES FOR BREWING AND DISPENSING BEVERAGES, **filed** Dec. 27, 1966, D.C., E.D. Pa. (Philadelphia), Doc. 41792, *Coffee-Mat Corp. v. Rudd-Milikian, Inc.*

3,222,500. (See 3,221,637.)

3,250,058, R. F. Baddour, METHOD OF AND APPARATUS FOR CHROMATOGRAPHIC SEPARATIONS, **filed** Oct. 17, 1966, D.C., Del. (Wilmington), Doc. 3272, *Hewlett-Packard Company v. Abcor, Inc.* Stipulation and order of dismissal Dec. 15, 1966.

3,293,094, F. R. Nairn et al., TEXTURED FOAM PROCESSES; **3,293,108**, same, TEXTURED FOAM PRODUCTS, **filed** Dec. 20, 1966, D.C., S.D.N.Y., Doc. 66/4397, *Congoleum-Nairn, Inc. v. New London Mills, Inc.* **Same, filed** Dec. 20, 1966, D.C., E.D. Pa. (Philadelphia), Doc. 41761, *Congoleum-Nairn, Inc. v. The Ruberoid Co.* **Same,** Doc. 41762, *Congoleum-Nairn, Inc. v. Armstrong Cork Co.* **Same, filed** Dec. 20, 1966, D.C.N.J. (Camden), Doc. 1262–66, *Congoleum-Nairn, Inc. v. Mannington Mills, Inc.*

Re. 23,947, H. H. Fox, PROCESS OF AND COMPOSITIONS FOR COMBATING TUBERCULOSIS, **filed** Dec. 16, 1964, D.C., N.D. Ill. (Chicago), Doc. 64c2106, *Hoffmann-La Roche, Inc. v. Kasar Company.* Stipulation of dismissal without prejudice Jan. 17, 1966.

Re. 24,743, W. J. Anderson, ELECTRICAL MUSICAL INSTRUMENT, **filed** July 8, 1963, D.C., N.D. Ill. (Chicago), Doc. 63c1186, *Chicago Musical Instrument Co. v. Wells Gardner Electronics Corp.* Stipulation of dismissal without prejudice Apr. 20, 1965.

Re. 25,232. (See 3,213,000.)

Re. 25,737, W. E. Brainard et al., MACHINE TOOL WITH MECHANICAL CUTTING TOOL CHANGER, **filed** Dec. 21, 1966, D.C., E.D. Mich. (Detroit), Doc. 29404, *Giddings & Lewis Machine Tool Company v. Kearney & Trecker Corporation.*

REISSUES

FEBRUARY 21, 1967

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

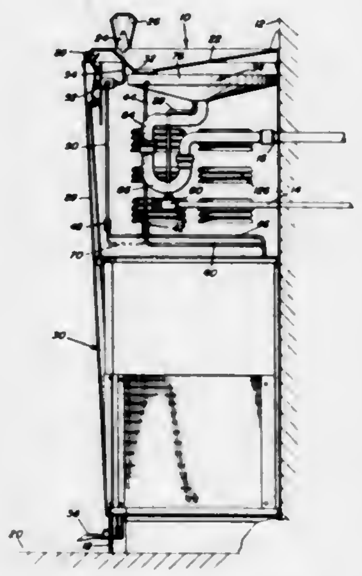
26,160

WATER COOLING SYSTEM

Egon Sorensen, Willow Grove, Pa., and Joseph G. Crost, Woodstock, N.Y., assignors to Sunroc Corporation, Glen Riddle, Pa., a corporation of Delaware

Original No. 3,069,872, dated Dec. 25, 1962, Ser. No. 2,989, Jan. 18, 1960. Application for reissue Dec. 17, 1964, Ser. No. 433,243

13 Claims. (Cl. 62—391)



1. A drinking fountain including a cabinet having a water spout projecting therefrom, a water supply line entering said cabinet and a water drain line emerging therefrom, drain means in said cabinet for collecting spill water from said spout and delivering it to said drain [lines] line, a cooling unit mounted in said cabinet for ready removability, water inlet means in said cabinet for delivering water from said supply line to said cooling unit and water delivery means in said cabinet for delivering cooled water from said cooling unit to said spout, said delivery means including a manually operated control valve, quick detachable connections between said cooling unit and each of said water inlet and water delivery means, said quick detachable connections being located in said cabinet [above said cooling unit] and by-pass means connectible between said water inlet and delivery means for connecting said water inlet means to said spout when said cooling unit is disconnected therefrom.

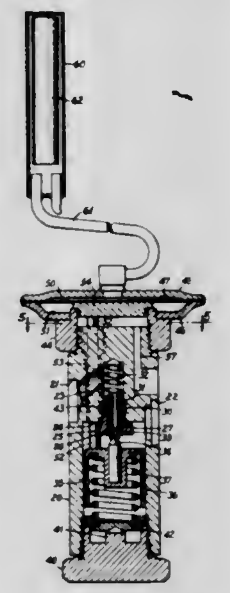
26,161

THERMOSTATIC EXPANSION VALVE WITH AN AUXILIARY PORT

John George Leimbach, Crestwood, and Alan Owens, Ballwin, Mo., assignors to Sporlan Valve Company, St. Louis, Mo., a corporation of Missouri

Original No. 3,252,297, dated May 24, 1966, Ser. No. 304,936, Aug. 27, 1963. Application for reissue Sept. 19, 1966, Ser. No. 589,156

12 Claims. (Cl. 62—225)



1. In a refrigeration system having a compressor, condenser, and evaporator operatively interconnected, an expansion valve connected in the line between the condenser and the evaporator, the expansion valve comprising:

(a) a valve body having an inlet connected to the line leading from the condenser, and an outlet connected to the line leading to the evaporator, the valve body having a passage connecting the valve inlet and outlet,
(b) a main valve means movably mounted for controlling flow through the passage,
(c) a spring means tending to urge the main valve means toward a closed position,
(d) a flexible motor element carried by the body,
(e) means subjecting one side of the motor element to a pressure that is a function of the temperature of the refrigerant at the evaporator outlet,
(f) means subjecting the other side of the motor element to evaporator pressure,
(g) means connecting the motor element and the main valve,
(h) a by-pass passage connecting the valve inlet and outlet, and
(i) a by-pass valve means actuated by the main valve means to control flow through the by-pass passage.

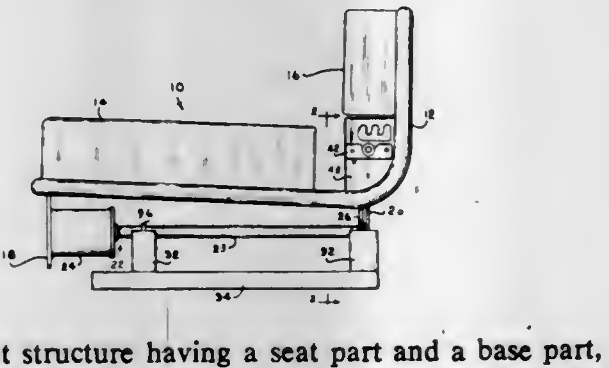
26,162

VEHICLE SEAT REBOUND CONTROL

Allison K. Simons, West Byfleet, England, and Arthur O. Radke, Wauwatosa, and Harvey N. Tengler, New Berlin, Wis., assignors to Bostrom Corporation, Milwaukee, Wis., a corporation of Wisconsin

Original No. 3,061,260, dated Oct. 30, 1962, Ser, No. 811,995, May 8, 1959. Application for reissue May 20, 1963, Ser. No. 282,202

13 Claims. (Cl. 248—400)



1. A seat structure having a seat part and a base part, means for resiliently suspending the seat part from the

base part for vibratory movement with respect thereto, damping means mounted for operative connection between said seat part and said base part, but normally inoperative to influence the relative vibratory movement therebetween, and means automatically responsive to predetermined amplitude of vibratory movement between said parts to operatively connect said damping means to and between said parts to render the damping means operative to dampen vibratory movements between said parts.

PLANT PATENTS

GRANTED FEBRUARY 21, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,716
ORCHID PLANT
Everest McDade, 344 Royal Pines Drive,
Skyland, N.C. 28776
Filed Jan. 21, 1965, Ser. No. 427,194
1 Claim. (Cl. Plt.—68)

A new and distinct variety of orchid plant, substantially as shown and described, characterized particularly by its two crescent shaped white areas in yellow portion of lip; its faintly three-lobed petal shape; its rapid multiplication and exceptionally large and heavy flowers and its branching roots and light controlling flowering season.

2,717
ROSE PLANT
Ralph S. Moore, 2519 E. Mineral King,
Visalia, Calif. 93277
Filed Oct. 11, 1965, Ser. No. 494,992
1 Claim. (Cl. Plt.—6)

A new and distinct variety of miniature rose plant of hardy, much branched, upright, climbing type, as illustrated and described, characterized by buds and flowers resembling the Bobolink (Plant Patent No. 2,009) miniature rose in general form but with smaller and better bud form, the color a darker shade of red and the flowers more high centered and slightly smaller; the general color effect being red; and further characterized by a plant which is vigorous, easy to propagate from cuttings, with small semi-glossy foliage and an abundance of bloom, repeating all season from spring to fall, with flowers borne in rather tight, many flowered clusters or sprays.

2,718
ROSE PLANT
Ralph S. Moore, 2519 E. Mineral King,
Visalia, Calif. 93277
Filed Oct. 11, 1965, Ser. No. 494,993
1 Claim. (Cl. Plt.—9)

A new and distinct variety of miniature rose plant of hardy, dwarf, much branched, bush type as illustrated and described, characterized by buds and flowers resembling in form the variety Bobolink (Plant Patent No. 2,009) but having more tendency to vary in color, often with a darker basic flower color (Tyrian Rose 24/1) with petal tips of decidedly lighter shade giving the mature flower a fringe or halo; the overall effect being either a flower of solid light to deep rose color or a flower of deep rose edged with a lighter colored fringe; easy to propagate from cuttings; and further characterized by low, compact growth, the ability to bloom well as a winter potted plant, abundant, healthy, semi-glossy foliage of dark green color with new shoots and foliage often of a decidedly reddish-bronze color, an abundance of bloom, with flowers sometimes borne singly but usually several to stem in loose clusters.

2,719
ROSE PLANT
Ralph S. Moore, 2519 E. Mineral King,
Visalia, Calif. 93277
Filed Oct. 11, 1965, Ser. No. 494,994
1 Claim. (Cl. Plt.—5)

A new and distinct variety of miniature rose plant of hardy, upright, much branched, climbing type, as illustrated and described, characterized by buds and flowers resembling the Pink Cameo (Plant Patent No. 1,451) miniature rose in general form but of a distinctly red color, rather than pink, and more double flowers; the general color effect being a bright luminous red; and further characterized by a plant which is vigorous in growth, easy to propagate from cuttings, with more abundant foliage in a brighter shade of green than Pink Cameo, with flowers borne singly and in clusters.

2,720
HEBE (VERONICA) PLANT
Louis E. Gavello, 3436 Maricopa Ave.,
Richmond, Calif. 94804
Filed Oct. 21, 1965, Ser. No. 500,459
1 Claim. (Cl. Plt.—54)

A new and distinct variety of Hebe (Veronica) plant, substantially as illustrated and described, characterized as to novelty by:

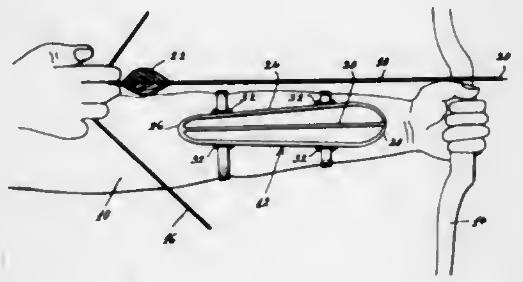
(a) the compact, rounded form of the plant having a low height and a spread greater than its height,
(b) the paired, spaced arrangement of the leaves on its long branches, alternately disposed 180 degrees apart, the leaves being sessile,
(c) the profuse grouping of conical shaped compound racemes, each on a separate peduncle at the end of each branch,
(d) the buds being white-tipped and changing to a lavender color and opening to lavender color florets,
(e) the florets changing from their initial lavender color to white, progressively from base to tip of raceme,
(f) the dark green color of its leaves, effectively contrasting with the lavender color of its flowers, and then the white color thereof as they change from lavender to white,
(g) its resistance to weather and disease, and
(h) its rapid growth and suitability for garden decorative purposes over a blooming season in early summer and fall.

PATENTS

GRANTED FEBRUARY 21, 1967

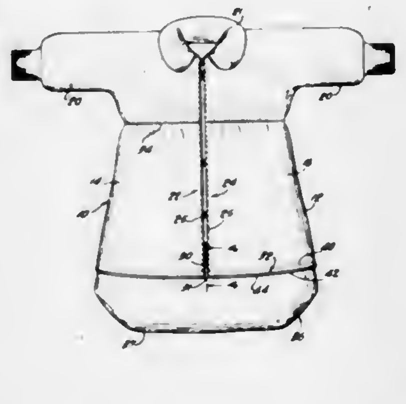
GENERAL AND MECHANICAL

3,304,555
METAL ARM GUARD FOR BOW AND ARROW HUNTERS
Otto L. Anderson, 354 South 11th East, and Marvin L.
Naylor, Box 42, both of Springville, Utah 84663
Filed Oct. 22, 1964, Ser. No. 405,715
6 Claims. (Cl. 2—16)



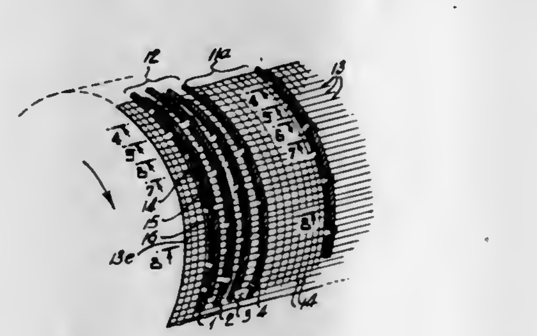
1. A protective cage for use on the arm of a user of a bow and arrow unit, said cage comprising an elongated closed wire frame curved at both ends, a length of wire connecting the ends of the frame and extending in a plane offset outwardly of the plane of the body of the frame, and means for releasably fastening the frame to the arm of the user of the bow and arrow unit.

3,304,556
GARMENTS FOR CHILDREN
Eugene Meyers, Los Angeles, Calif., and Jack Y. Powell,
Morganton, N.C., assignors to Charles Pindyck, Inc.,
New York, N.Y., a corporation of New York
Filed Aug. 14, 1964, Ser. No. 389,641
4 Claims. (Cl. 2—69.5)



1. A convertible garment comprising a child's sleeping garment including a body portion made of fabric, and arm portions, and a bottom sack portion to be assembled with the body portion, the arm portions being fitted and secured to the body portion, the body portion being formed to envelop the body of a child and providing a vertically extending opening for use in placing the garment upon the body of the child, the vertically extending opening having opposed edges, the bottommost portion of the body portion being folded back on itself, means for securing the folded back portion of the body portion in the folded back position to provide a finished bottom edge for the body portion, the sack being constructed to provide an upwardly opening entry thereinto and to provide means for receiving and retaining the feet of the child in fully covered condition, slide fastener means secured to said opposed edges, a binding on the folded back portion and having an end portion extending and apparent just below the finished bottom edge, the binding being secured on the folded back portion by the means securing the folded back portion in the folded back position, the sack and the body portions being assembled in overlapped relation with said bottom edge just slightly below the upwardly opening entry to the sack portion, and stitching passing through the two layers of the body portion at the folded back portion, the binding and the sack portion, the stitching being readily removable merely by pulling on a free end thereof so that the sack and body portions may be separated completely, whereupon the body portion may function as a completely separate garment, the slide fastener means extending continuously along the opposed edges and when the stitching is in place terminating on said edges immediately above and without crossing the position of the stitching.

3,304,557
SURGICAL PROSTHESIS
Seymour Polansky, Riverside, Conn., assignor to Ethicon,
Inc., Somerville, N.J., a corporation of New Jersey
Filed Sept. 28, 1965, Ser. No. 502,801
16 Claims. (Cl. 3—1)

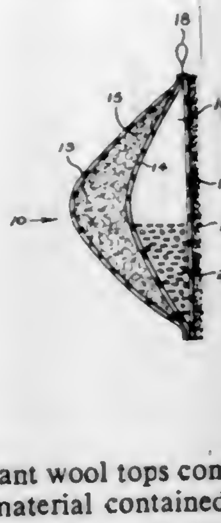


1. As a surgical prosthesis comprising, a tube having a wall fabricated of threads of collagen absorbable in live animal tissue and threads of other material non-absorbable in live animal tissue, and reinforcing means located essentially on the outer surface of said tube and spaced intermittently along the longitudinal axis thereof, said reinforcing means comprising non-absorbable threads circumferentially positioned around said tube perpendicular to said longitudinal axis.

3,304,558
MASTECTOMY FORM
Joyce Mann, Prospect, South Australia, Australia, assignor
of one-half to Lance L. Mann, Prospect, South Australia, Australia
Filed Dec. 3, 1964, Ser. No. 415,644
2 Claims. (Cl. 3—36)

1. A mastectomy form comprising a soft sheepskin backing member with rearwardly projecting wool fibres thereon, a fabric cover secured peripherally to the front of the sheepskin backing member, an intermediate mem-

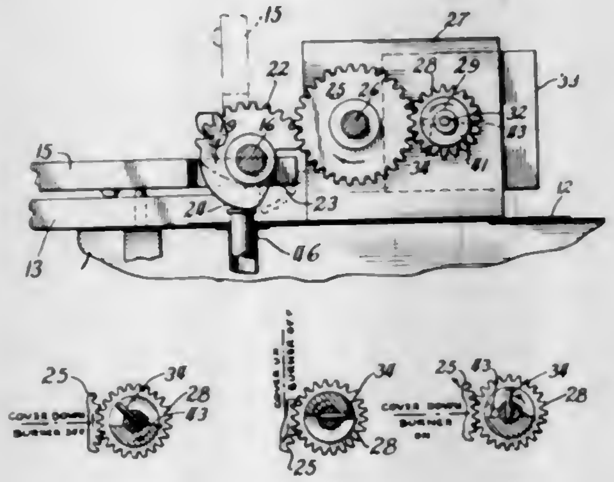
brane between the fabric cover and backing member dividing the pad into a front and rear pouch, a plurality of shrink-resistant wool tops contained in the front pouch, and granular material contained in the rear pouch.



3,304,559
TIMER ASSEMBLY FOR DRY LATRINE OR THE LIKE

Donald P. Frankel, Lake Geneva, and Maurice E. Christenson, Walworth, Wis., assignors to La Mere Industries, Incorporated, a corporation of Delaware

Filed May 21, 1964, Ser. No. 369,057
11 Claims. (Cl. 4—131)



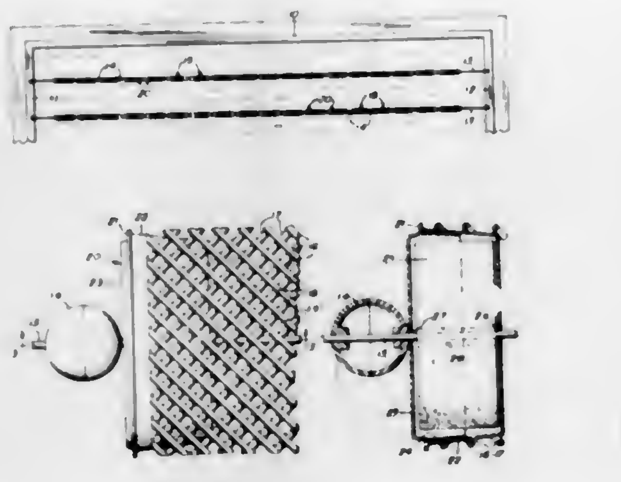
1. In a closet, a receptacle having an inlet, heating means for heating said receptacle, and cover means movable between open and closed positions for opening and closing the inlet, the combination therewith of timer means for timing a preselected total time interval and generating an output signal in response to expiration of at least a portion of the timed interval, means responsive to said timer means for actuating said heating means during said interval and for deactuating said heating means responsive to said output signal, and means responsive to each movement of said cover means to open position for actuating said timer to time said total time interval.

3,304,560
TURBULENCE-REDUCING DEVICE FOR SWIMMING POOLS

Adolph G. Kiefer, Northfield, Ill., assignor to Adolph Kiefer & Company, Northfield, Ill., a corporation of Illinois

Filed Aug. 5, 1964, Ser. No. 387,628
15 Claims. (Cl. 4—172)

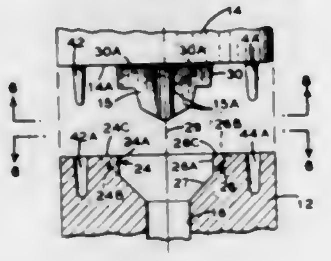
1. In a combination swimming lane marker and turbulence-reducing device, an elongated hollow body having a lengthwise central passage through which a restraining cable may be passed, float means for supporting said body with approximately one-half of the exposed surface of the body above the water line, the surface of the body being foraminous to permit water to pass transversely through substantially the entire body from one side to the other for damping the force of said water movement below the water line and smoothing the level of water waves above the water line.



3,304,561
APPARATUS FOR FORMING THE HEAD ON A FLAT HEAD SCREW

Robert C. Ellsworth, Pacific Palisades, Calif., assignor to American Fastener Corporation, New York, N.Y., a corporation of Nevada

Filed Sept. 18, 1964, Ser. No. 397,449
4 Claims. (Cl. 10—7)



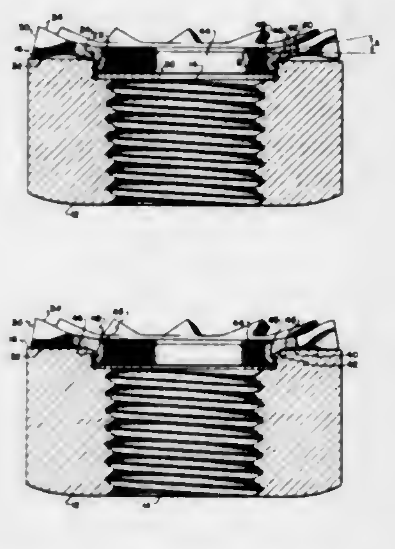
1. Apparatus for shaping a flat head on a screw blank comprising:

- a die and a hammer having a cooperating punch;
- said die having a flat top surface and an axial bore extending inward from said surface to receive a blank whose top end is to be shaped into a head having a slot extending across the entire top of the head for receiving the bit of a screw driver, said die having a chamber end of said bore of inverted, truncated, conical shape with a wall terminating at said surface to define the outer contour limits of the head to be formed on said blank;
- said die also having two integral lugs extending radially inwardly and co-planarly from two diametrically opposite areas of said wall which defines said chamber, with the upper surface of each of said lugs coplanar with the upper surface of said die and the inner surface of each of said lugs exteinding axially into said chamber a distance substantially equal to the depth of the outer ends of the slot to be formed;
- said cooperating punch having a flat bottom surface and a transverse vane axially extending from said bottom surface, said transverse vane centered on and extending laterally from the axis of said punch toward the outer edges of said punch and shaped to be substantially co-planar with the side surfaces of said lugs and in substantially sliding contact with the inner surfaces of said lugs when said punch fully engages said die, said vane extending axially from said flat bottom surface a uniform distance along its length, the distance being substantially equal to the depth of the outer ends of the slot to be formed such that when said die and hammer are in opposed contacting relation the transverse vane of the punch and the lugs will be in alignment and said flat top and bottom surfaces co-planar to define a closed region from which the upset head-forming metal of said blank will be excluded to thereby define a conical region and further define a slot across the entire upset head of the blank.

3,304,562
METHOD OF ASSEMBLING THREADED FASTENER AND LOCK WASHER UNITS

Rudolph Schmidt, Mary Allen Lane, Mountainside, N.J. 07092

Original application Apr. 7, 1964, Ser. No. 357,965, now Patent No. 3,258,048, dated June 28, 1966. Divided and this application Mar. 2, 1966, Ser. No. 531,234
6 Claims. (Cl. 10—86)



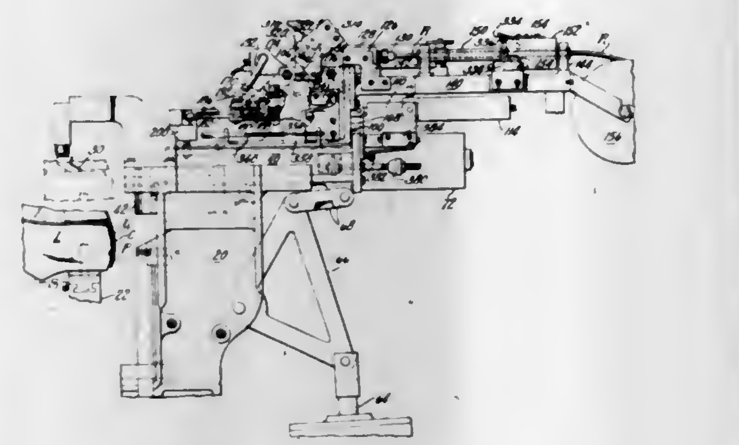
1. The method of assembling a lock washer and threaded fastener into a unit wherein the lock washer is maintained in assembled relationship with the fastener with the lock washer positively retained against disassembly from the fastener and readily rotatable relative thereto, the fastener being provided with a body having a screw-threaded portion and a clamping surface and the lock washer being provided with a unitary body having a generally annular configuration with locking means projecting radially therefrom, the method including:

- providing at least a portion of the lock washer body with a frusto-conical configuration having an apical angle;
- providing a further portion of the lock washer body with flange means displaced axially from and projecting radially over at least a portion of the frusto-conical body portion; and
- pressing the frusto-conical body portion of the lock washer axially against the clamping surface of the fastener body with sufficient force so that a portion of the body of the fastener is permanently deformed by the apical angle axially in the direction of the pressing force and radially into a continuous annular lip projecting between the frusto-conical body portion and the flange means of the lock washer body to retain the lock washer in said assembled relationship with the fastener.

3,304,563
ADHESIVE APPLYING MECHANISMS

Michael John Fino, Revere, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey

Filed July 7, 1966, Ser. No. 563,572
16 Claims. (Cl. 12—12.5)



1. In a machine for lasting the end portion of a shoe having an upper shaping member movable into engagement with the upper materials at the end portion of a shoe to shape the upper materials to the last, wipers for thereafter wiping the lasting margin of the upper materials inwardly over the insole, and means for operating the upper shaping member and the wipers in predetermined sequence, the combination of an adhesive applying mechanism comprising a pair of adhesive dispensing nozzles, means mounting said nozzles for movement first heightwise of the shoe from a position in which they are spaced from the bottom of the end portion of the insole to a position in which the nozzles are close together and in engagement with the insole in a location adjacent said end portion of the shoe, next laterally of the shoe away from each other, to an extent determined by engagement with the lasting margin of the upper materials held upstanding around the end portion of the shoe by the upper shaping member, and lengthwise of the shoe away from said end portion, and lastly in reverse directions, back to their original positions close together and spaced from the bottom of the insole, means for effecting said movements in the aforementioned predetermined sequence and means for extruding adhesive through said nozzles during the lateral and lengthwise movements thereof, immediately after the upper shaping member has been operated, thereby to deposit adhesive on the insole for adhesively securing the lasting margin of the upper thereto in response to the pressure exerted thereon by the wipers as they are subsequently operated.

3,304,564
APPARATUS FOR CLEANING A BODY OF LIQUID AND MAINTAINING ITS LEVEL

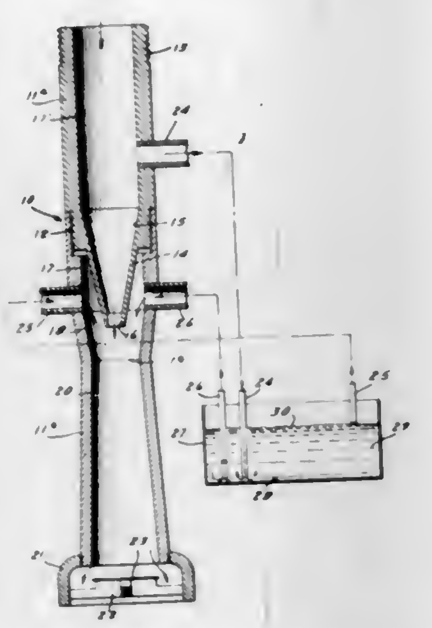
Jack Green, 585 Via Del Monte, Palos Verdes Estates, Calif. 90274, and Jack Henry Osgood, 7901 19th St., Westminster, Calif. 92683

Filed Oct. 4, 1965, Ser. No. 492,422
5 Claims. (Cl. 15—1.7)

1. Apparatus for removing foreign material from a submerged surface in a body of liquid, comprising:

- (a) liquid pumping means having a positive pressure outlet connection and a suction inlet connection;
- (b) means including a conduit connected with said outlet and having its discharge end positioned for discharging pressurized liquid towards the submerged surface to dislodge the foreign material;
- (c) means for injecting a fluid medium into the flow from said positive pressure outlet; and

(d) means including a conduit connected with said inlet and having its inlet end submerged in said body of liquid for collecting the dislodged foreign material therein.

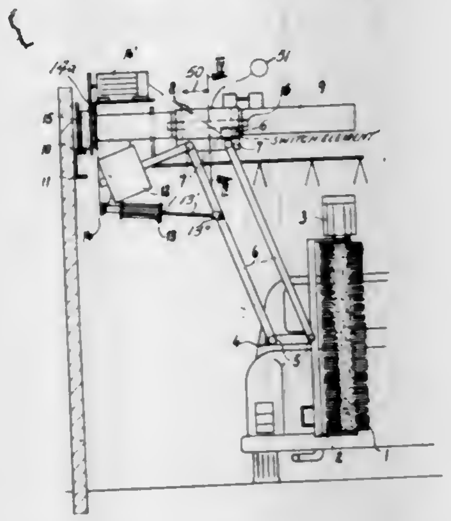


ERRATUM

For Class 15—21 see:
Patent No. 3,304,659

3,304,565
CLEANING INSTALLATIONS FOR VEHICLES

Heinrich Fuhring, Augsburg, Germany, assignor to Böwe, Böhler & Weber K.G., Augsburg, Germany
Filed May 17, 1965, Ser. No. 456,232
Claims priority, application Germany, May 16, 1964, B 76,804
7 Claims. (Cl. 15—21)



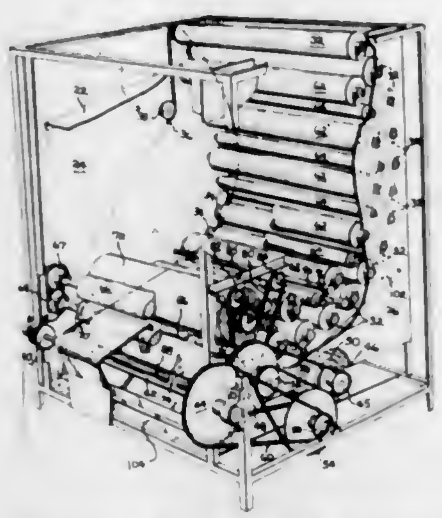
1. In vehicle-washing apparatus having a runway extending longitudinally of a vehicle to be washed and a carriage shiftable along said runway relatively to the vehicle, the improvement which comprises:

washing means rotatable about an axis and engageable with a surface of the vehicle for following the contours thereof and subjecting said surface to a washing treatment; and

a parallelogrammatic linkage swingably mounted on said carriage and carrying said washing means with at least limited freedom of movement thereof in a direction transverse to said axis while maintaining said axis substantially parallel to itself during said movement of said washing means.

3,304,566
MAT CLEANING APPARATUS

Christian Doerschlag, Zanesville, Ohio, assignor to Dura Corporation, Oak Park, Mich., a corporation of Michigan
Filed Jan. 20, 1966, Ser. No. 521,944
9 Claims. (Cl. 15—77)



1. An apparatus for cleaning a substantially flat mat element comprising:

a first and second set of rolls disposed in parallel closely spaced generally vertically extending arcuate paths, the rolls of each set being adapted to rotate about parallel axes to receive the mat element between the outer peripheral surfaces thereof, the rolls of said second set being radially offset from the rolls of said first set to effectively cause the mat element to be directed arcuately upwardly as it passes between the rolls of said first and second sets;

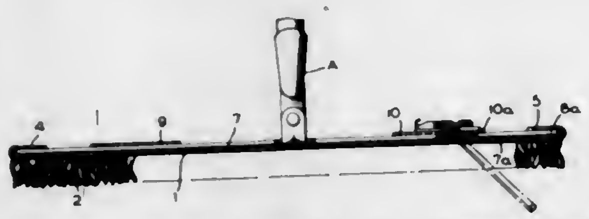
means for driving certain of said rolls;

means for delivering the mat element between said sets of rolls;

means for brushing the surfaces of the mat element; and fluid supply means for delivering fluid to the mat element for cleaning purposes.

3,304,567
COLLAPSIBLE MOP FRAME

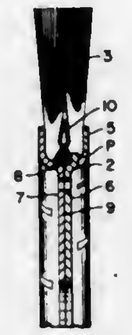
Dietrich Heinrich Sturm, 4020 N. 23rd St., Milwaukee, Wis. 53209
Filed Oct. 19, 1965, Ser. No. 497,611
2 Claims. (Cl. 15—147)



1. For use with an elongated mop structure including a non-stretchable fabric back and inwardly facing terminal pockets above the back, a frame for use with said mop structure comprising an elongated perforated plate and a handle mounted thereon, said plate being formed with a main section and a hinged section at one end, whereby the end frame section can be swung on its hinge downwardly for insertion into one pocket after the free end of the main frame section has been inserted in the other pocket, stop means for holding the end section of said frame in an aligned position with respect to the main section, and means for locking the end section of the plate with the main section when the parts are aligned, including a lever mounted on a pivot on one section of the plate with a loop mounted on said lever at a point spaced from said pivot and a keeper member mounted on the other section of the plate.

3,304,568
BRUSH CONSTRUCTION

Brooks E. Nelson, Chagrin Falls, Ohio, assignor to The Osborn Manufacturing Company, Cleveland, Ohio, a corporation of Ohio
Filed Oct. 16, 1964, Ser. No. 404,384
9 Claims. (Cl. 15—179)

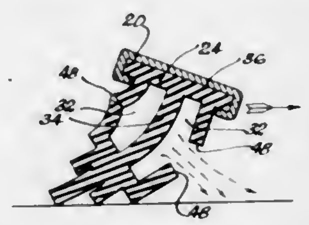


1. An annular rotary brush construction comprising a brush-back having an annular radially outwardly opening sheet metal channel, retaining ring within said channel, brush material tightly interposed between said channel and ring doubled about said ring and extending outwardly therefrom, and sharp edged teeth integrally formed in the lower portion of said channel uniformly spaced around the circumference of said channel and extending radially outwardly into said brush material to prevent said brush material from shifting circumferentially of said brush, said teeth disposed so as to be free from contact with said ring.

7. The method of making an annular rotary brush comprising forming a sheet metal cylinder, placing a body of brush material on said cylinder, positioning a brush material retaining ring closed about said cylinder thereby interposing said brush material between said ring and cylinder in a pres-fitted relationship, forming said sheet metal cylinder into channel shape thereby causing said body of brush material to be tightly packed within said channel in said retaining ring, and subsequently punching a plurality of sharp edged teeth in the lower portion of said channel spaced around the circumference thereof so that said teeth will extend radially outwardly into said brush material to prevent such from shifting circumferentially of said brush, said teeth disposed so as to be free from contact with said ring.

3,304,569
WINDSHIELD WIPER CONSTRUCTION

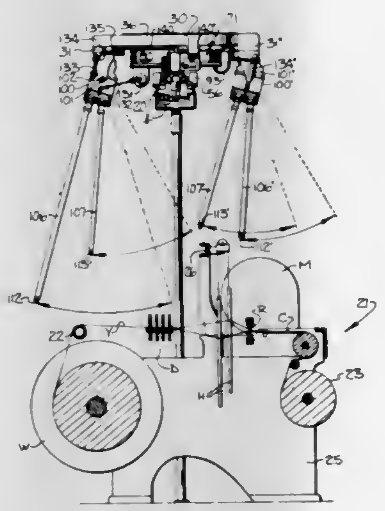
Joseph M. Christensen, 359 W. Belden Ave., Chicago, Ill. 60614
Filed May 19, 1965, Ser. No. 456,972
4 Claims. (Cl. 15—250.04)



1. In a windshield wiper construction comprising a wiper shaft, a wiper supporting arm connected to said shaft, a wiper blade channel element attached to said arm, and a wiper blade carried by said channel element, said shaft and said arm defining passages for the movement of fluid therethrough, the improvement wherein said wiper blade comprises a base portion, a centrally located portion depending from said base portion, and substantially flat side walls depending from said base portion on opposite sides of said centrally located portion, a pair of interior passages defined by the respective side walls and said centrally located portion and extending along the length of said blade, a central hole in said base portion communicating said interior passages with said passages in said shaft and arm, means for connecting the passage in said shaft to a source of hot air, and openings defined by said wiper blade whereby said hot air can be passed onto the windshield surface, said openings comprising longitudinal slits formed in said side walls and dividing the side walls into separate sections whereby bending of the blade in one direction during contact with the windshield surface will open one side of the blade for passage of air out of one of said laterally spaced passages, while bending of the blade in the other direction will open the other side of said blade.

3,304,570
TRAVELING CLEANER FOR LOOMS

George Seress and Woodrow W. Hewitt, Charlotte, N.C., assignors to Parks-Cramer Company, Fitchburg, Mass., a corporation of Massachusetts
Filed May 14, 1964, Ser. No. 367,323
15 Claims. (Cl. 15—312)



1. Apparatus for cleaning upper portions of a plurality of textile looms arranged in a row including drop wires and yarns being processed thereon which comprises a high air velocity blower fan, means for continuously traveling said fan across the looms in said row, said fan having at least one depending air discharge nozzle movable adjacent each side of the arch of each successive loom having a minimum internal diameter of not over 1¼ inches and from which nozzles air from the fan is discharged as a very high velocity fine jet air stream, said nozzles being spaced sufficiently close to the warp level of the looms so that the velocity of the fine jet air streams therefrom is at least 5,000 feet per minute at such level, said means for traveling said fan being operable to cause said nozzles to travel across each successive loom, means for continuously oscillating said nozzles substantially in planes normal to the direction of, and during, travel of the blower fan, and said means for moving said fan being operable to repeat automatically the travel of the blower fan across the looms at sufficiently frequent intervals to maintain the material in process and upper portions of the looms at a high level of cleanliness.

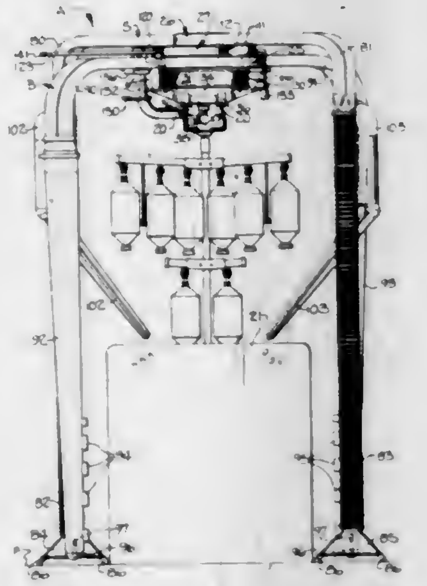
3,304,571
UNITARY BLOWING AND SUCTION TRAVELING CLEANER FOR TEXTILE MILLS

Robert L. Black, Jr., Charlotte, N.C., assignor to Parks-Cramer Company, Fitchburg, Mass., a corporation of Massachusetts
Filed Sept. 1, 1965, Ser. No. 484,298
14 Claims. (Cl. 15—312)

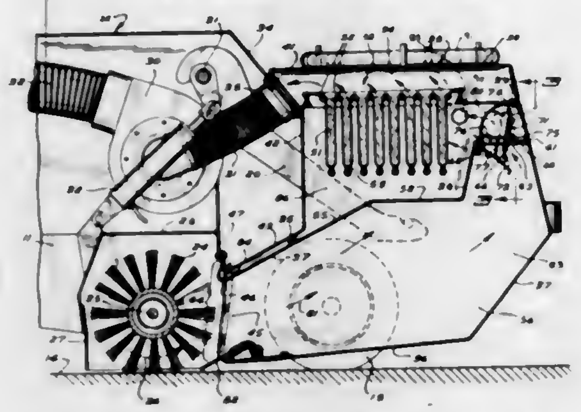
1. A self-propelled traveling cleaner adapted to travel over at least one row of textile machines and combining

in a single compact unitary structure independent systems for blowing cleaning and suction cleaning, comprising

(a) a single horizontally positioned blowing housing having at least one air inlet spaced substantially above the floor for receiving relatively clean air and also having at least two air outlets,
  (1) a flexible blowing air tube communicatively connected to each of said air outlets with at least one of said tubes depending into the aisle space on each side of the row of textile machines and having openings therein for directing blowing air toward the machines for cleaning;
  (2) a rotary blowing air impeller mounted in the blowing housing on a vertical axis and said impeller being constructed to produce blowing air streams flowing from the openings in the blowing air tubes at sufficient velocities and volumes to blow lint and the like from the textile machines;
(b) a single horizontally positioned suction housing having at least two air inlets and at least one air outlet,
  (1) a flexible suction tube communicatively connected to each of said inlets of said suction housing, at least one of said suction tubes depending in the aisle space on each side of the row of textile machines, and said suction tubes having inlet nozzles adjacent the floor for picking up lint and the like on the floor for conveyance upwardly through the suction tubes,
  (2) a rotary suction air impeller mounted on a vertical axis within the suction housing creating a flow of suction air through the suction tubes sufficient to suck up lint and the like and being constructed to permit passage of lint and the like therethrough without clogging,
  (3) a collection chamber connected to said suction housing outlet and including a filter for separating lint sucked up through the suction tubes from the air and collecting it in said chamber,
(c) means for driving said blowing air impeller and said suction air impeller,
(d) said blowing and suction housings being in non-air-communicating relationship, and
(e) said blowing housing, said suction housing, and said driving means all being arranged in closely related superposed relation over the center of the row of machines for travel longitudinally of the row.

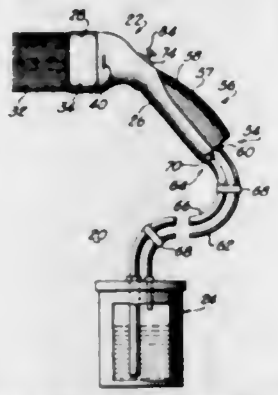


3,304,572
DIVIDED DUST COLLECTOR HOUSING
Adolph H. Wendel, Minneapolis, Minn., assignor to G. H. Tennant Company, Minneapolis, Minn., a corporation of Minnesota
Filed Jan. 6, 1965, Ser. No. 423,720
16 Claims. (Cl. 15—340)



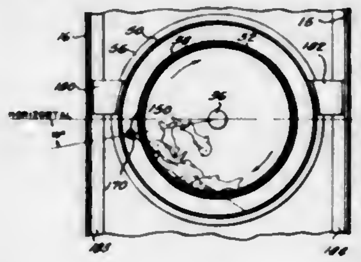
4. In a sweeping machine having a brush and a suction blower thereon, a dust collector housing comprising an enclosure mounted on the machine and having a debris opening adjacent the brush to receive swept debris therefrom and an air outlet, means to connect the air outlet to the suction blower to partially evacuate the housing, a filter barrier in said housing, and an air tight baffle in said housing dividing said housing into upper and lower compartments with the debris opening in the lower compartment and the filter and air outlet in the other compartment, said baffle having an opening defined therethrough to form a predetermined path of air flow from the debris opening to the air outlet of the housing, and the baffle being spaced downwardly from an upper wall defining the upper compartment of said housing to form a dust outlet for the upper compartment adjacent to the debris opening and flexible sealing means on said sweeping machine adapted to cover said dust outlet and substantially prevent movement of air through the dust outlet into the upper compartment when said housing is mounted on said machine in sweeping position.

3,304,573
LIQUID COATING EQUIPMENT
Stephen F. Stefely, 1729 N. Lotus Ave., Chicago, Ill. 60639
Filed Nov. 26, 1963, Ser. No. 325,978
5 Claims. (Cl. 15—553)



4. Apparatus for one-handed application of liquid coating material from a remote reservoir to a surface, said apparatus comprising flexible adsorbent means adapted to engage and deposit liquid coating material on the surface, supporting means for said flexible material including a handle adapted to be held by one hand during the applying operation, air pressure pumping means mounted on said handle and including flexible wall means on the surface of said handle, a first flexible conduit for the passage of pressurized air from said pumping means to the remote reservoir for building up a supply of air pressure within the remote reservoir, a second flexible conduit for the passage of liquid coating material from the remote reservoir to said supporting means, means defining a passageway through said supporting means for the passage of liquid coating material from said second conduit to said flexible adsorbent means, and a flow controlling valve in said last mentioned passageway having a valve adjusting member extending from said handle in a position to be engageable by a digit of the one hand holding said handle during the painting operation.

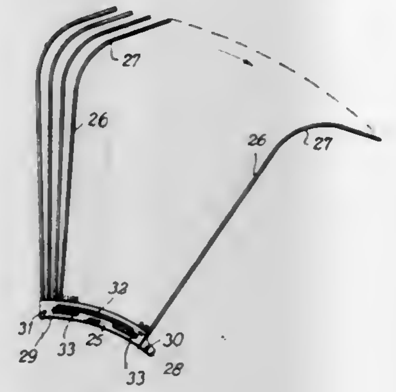
3,304,574
FISH SCALING APPARATUS
Paul D. Ham, Balch Springs, and Amos J. Timpson, Dallas, Tex., assignors to Thomas A. Harwood, Dallas, Tex.
Filed Jan. 25, 1965, Ser. No. 427,872
6 Claims. (Cl. 17—5)



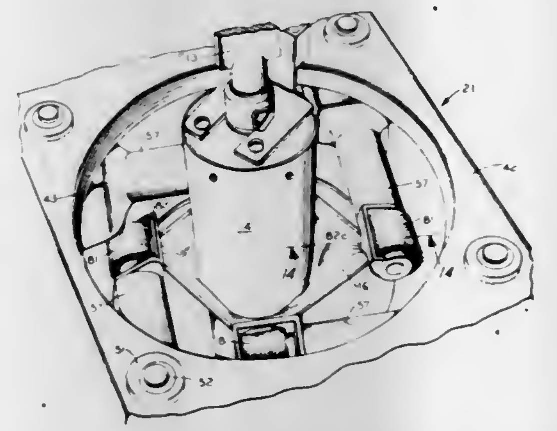
1. Apparatus for scaling fish comprising:
(a) a cylindrical screen basket for holding fish disposed with the axis thereof substantially horizontal and mounted for rotation about said axis,
(b) the wall of said screen basket defining openings therethrough which are smaller than fish to be scaled but large enough to pass scales removed from said fish,
(c) driving means for rotating said basket about said axis at a speed sufficient, in conjunction with the adherent force of said fish to said basket wall, to carry fish contained therein to substantially a horizontal plane passing through said axis,
(d) a perforated pipe disposed in fixed position exterior to the wall of said basket parallel to said axis, the perforations in said pipe being directed toward the bottom of said basket along lines passing through the wall of said basket within an arc thereof defined between 0° and 20° below said horizontal plane, and
(e) means for supplying water to said pipe under sufficient pressure to produce jet streams of water from said perforations of sufficient strength to remove the scales from the fish and tumble the fish from the wall of said basket and cause them to fall to the bottom of said basket.

3,304,575
MACHINE FOR TREATING PIG CARCASSES, MORE PARTICULARLY HEAD AND LEGS
Hans Edvard Frederiksen, Islevdalvej 137–143, Copenhagen-Bronshoj, Denmark
Filed Feb. 10, 1965, Ser. No. 431,650
Claims priority, application Denmark, Feb. 10, 1964, 630/64, 631/64
11 Claims. (Cl. 17—17)

10. A hub member adaptable to be assembled in axial interlocking relation with similar hub members to provide a rotatable brush for treating a pig carcass comprising a substantially rigid annular rail member provided with a plurality of spike members, each of said spike members being integrally attached at one end thereof to the outer surface of said annular rail member and extending substantially radially therefrom and having an axial width at the point of attachment to said rail member substantially equal to the axial width of said rail member, each of said spike members at the other end being curved, opposed sides of said annular rail member being provided with means for axially interlocking said hub member with axially adjacent similar hub members comprising groove means and rib means on each opposed side, the groove means of one of said opposed sides being in substantial alignment with the rib means of the other of said opposed sides, said groove means and rib means adaptable to interlock with rib means and groove means respectively of similar and axially adjacent hub members.



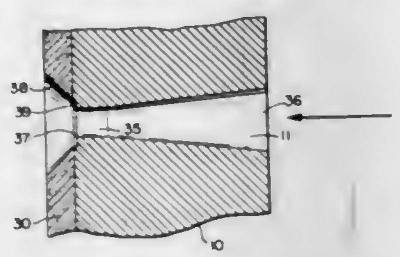
3,304,576
MANUFACTURE OF PLASTIC ARTICLES
Thomas B. Keesling and Anthony F. Rodrigues, Los Gatos, Calif., assignors, by mesne assignments, to Becton, Dickinson of California, Inc., Los Gatos, Calif., a corporation of California
Filed Jan. 24, 1964, Ser. No. 340,037
16 Claims. (Cl. 18—2)



1. In a molding apparatus, an endless conveyor having a series of spaced-apart molds supported thereon, means for driving said conveyor, an endless series of mold stripping heads having respective spaced-apart stripping stations corresponding to the spacing apart of said molds, said series of stripping heads having a stretch extending along and registering with said molds and said stations for a portion of their path of travel, each said stripping head including means for gripping an article on a mold whereby relative movement between a head and a mold results in stripping the article from the mold while turning it inside out, means for driving said heads synchronously with said molds, and means for operating each of said heads to cause said gripping means to first grip an article and then strip the article from the associated mold while in registry therewith.

3,304,577
SPINNERETTE DISK FOR EXTRUSION OF SYNTHETIC POLYMER FIBERS

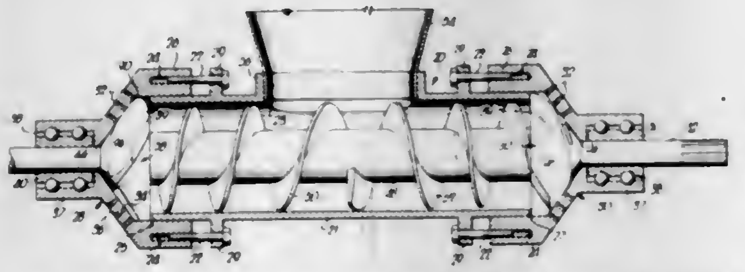
Lambert H. Mott, Farmington, Conn.
(272 Huyshope Ave., Hartford, Conn. 06114)
Filed June 18, 1965, Ser. No. 464,974
3 Claims. (Cl. 18—8)



1. A spinnerette disk for the extrusion of synthetic polymer fibers therethrough, said disk being of metal, said disk having a downstream side, said disk containing a plurality of extrusion orifices, and a porous metal layer on the downstream side of said disk, said porous metal layer containing a substantially conical opening disposed about each extrusion orifice a slight distance away from each extrusion orifice, said porous metal layer containing a lubricant preventing the sticking of extruded polymer fibers to said spinnerette disk at least within said openings.

3,304,578
PELLETING MACHINE

Francis H. Clute, Rocky Ford, Colo., assignor to Francis H. Clute & Son, Inc., Rocky Ford, Colo., a corporation of Colorado
Filed Dec. 29, 1964, Ser. No. 421,934
3 Claims. (Cl. 18—12)



1. In a pelleting machine having a casing provided with an inlet and a screw rotatable in the casing with the screw being provided with a helical blade disposed to advance material to be pelleted from the inlet toward one end of the casing, there being a hollow, perforated head across said one end and provided with a frusto-conical, inner surface presenting an open, material-receiving extremity, the surface increasing in diameter as said casing is approached, the improvement in combination comprising a pressure member within the head, said pressure member comprising:

a cylindrical hub mounted on the screw for rotation therewith; and

a plurality of equispaced fins rigidly secured to said hub and radiating therefrom in the spiral direction of said blade,

each of said fins having a pair of opposed edges extending from corresponding ends of said hub and presenting therebetween a side generally facing said inner surface,

the outermost edges lying in a common plane disposed normally of the hub and adjacent the blade, the edges extending tangentially from the hub,

the innermost edges extending tangentially from the hub and being inclined toward corresponding outermost edges to present a longitudinal surface complementally engaging the inner surface of the head in substantially spanning relationship to the extremities thereof,

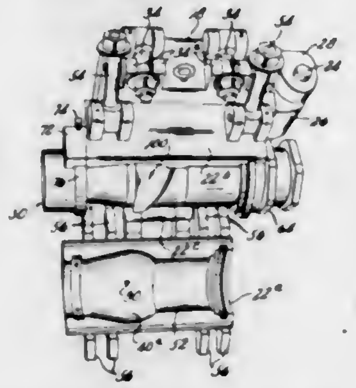
the edges of each fin being joined at their outer ends by an arcuate segment, said segments extending circumferentially and lying complementally within a cylindrical envelope surrounding the member and concentric therewith,

said fins cooperating with said inner surface of the head to present corresponding elongated, spiral pockets communicating with said casing, the pockets extending axially inwardly of said hub, and being of progressively decreasing volume as the innermost edges approach the axis of revolution of said hub,

whereby each of said pockets receives material from said blade and advances the same toward and into the perforations of the head by the pressure exerted on the material by the corresponding side responsive to the rotation of said hub.

3,304,579
DUAL HINGED SIDE DELIVERY HEAD FOR EXTRUDERS

Thomas Ashworth, Jr., 712 Marquerite Ave., Cuyahoga Falls, Ohio 44221
Filed Mar. 30, 1965, Ser. No. 443,977
9 Claims. (Cl. 18—12)



1. In a side delivery head for extrusion apparatus the combination of

an extrusion housing defining a cylinder,

a side delivery head defining an angular open passage operatively mounted on the housing so one end of the passage is in concentric communication with the cylinder, said head being pivotally mounted with respect to the housing and being split longitudinally substantially in half through the center of the other end of the passage, said halves having recesses substantially centrally aligned therein along the axis of the other end,

means to hinge together the split portions of the head,

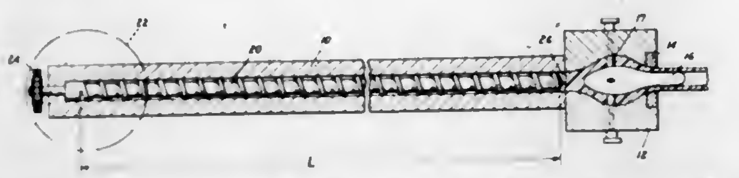
means engaging the split halves to secure them in fluid tight relationship,

a tube removably received in the recesses of the split halves of the head and held in fluid tight relation when the halves are held together in fluid tight relation, one end of said tube being in concentric alignment and lying in the same plane as the other end of the passage, said end of said tube being of similar shape to the other end of the passage but slighily smaller.

3,304,580
APPARATUS PRODUCING PIPE

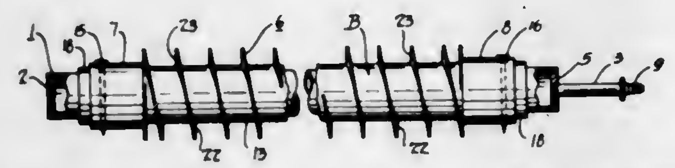
Helmut P. Fochler, Bedford, Ohio, assignor, by mesne assignments, to Continental Oil Company, a corporation of Delaware
Filed Mar. 14, 1963, Ser. No. 265,247
3 Claims. (Cl. 18—14)

1. In an extruding apparatus for producing a polymeric tubing product comprising, an elongated barrel having a passageway extending axially therethrough, said barrel having an inlet means adjacent one end communicating with said passageway and an outlet means adjacent the other end communicating axially with said passageway, die head attached to the other end of said barrel, said die head having a die cavity communicating with said outlet means, a rotatable screw having a substantially uniform flight depth throughout its length disposed within the passageway of said barrel and extending axially from said inlet means into close proximity adjacent said outlet, means for progressively transferring polymeric material in a substantially compression free condition through said passageway, the ratio of the outside diameter of the screw flight to the flight depth being approximately 10:1, and the ratio of the flight length to the outside diameter of the screw flight being approximately 24:1.



3,304,581
APPARATUS FOR MAKING SPIRALLY CORRUGATED RUBBER TUBING

Vance M. Kramer, Perrysburg, Ohio 43551, and Lawrence W. Carlton, North Baltimore, Ohio 45872
Original application Nov. 22, 1960, Ser. No. 71,077, now Patent No. 3,168,604, dated Feb. 2, 1965. Divided and this application Jan. 6, 1965, Ser. No. 423,777
2 Claims. (Cl. 18—45)



1. Apparatus for use in making spirally corrugated rubber tubing from a raw rubber tube blank of substantially uniform cross section,

said apparatus comprising in combination

an elongated hollow cylindrical mandrel adapted to receive the tube blank over it in telescopic supporting relation,

a resilient helical former receivable telescopically over the mandrel and a tube blank supported on the latter,

the former comprising a spring coil element the convolutions of which, in the unstressed condition, lie against one another and yieldingly resist axial separation,

the coil convolutions having internal peripheral edge portions which collectively define a cylinder larger than the external surface of the supported tube blank for which the apparatus is designed whereby to provide an annular clearance between the received former and such supported tube,

the radial cross sectional dimension of the element comprising the spring coil being greater than its axial cross sectional dimension whereby the former exhibits strong resistance to radial deformation forces and yields readily to axial stretching forces,

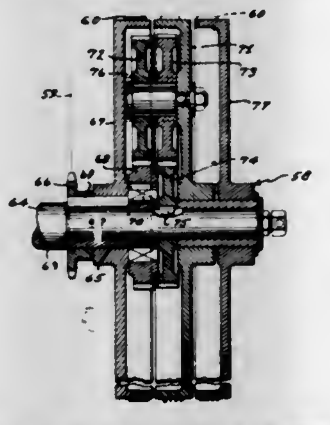
means including means providing passages in the mandrel through which fluid under distending pressure is forced into the interior of such supported and embraced tube to expand the tube into engagement with said internal edge portions of the former,

the former being adapted, upon the application to its ends of opposite axial tensioning forces, to extend and distribute its convolutions along the tube blank over which it is telescoped and being further adapted, upon the application of differential distending fluid pressure to the supported and embraced tube blank to engage the latter and control distension of the tube blank while both the tube blank and the extended former are supported by the mandrel, and

said former when its convolutions are so distributed being further adapted, upon the release of said opposite tensioning forces, to apply through its inherent resiliency contracting axial forces to an expanded and engaged tube, whereby other forces applied to such a tube in collapsing it axially are augmented throughout the collapsing operation by said contracting forces applied by the resilient former.

3,304,582
CARDING MACHINE OPERATING CONTROL MEANS

James Everett O'Neal, Josef Karl Gunter, and Colie Walton Gunter, all of Durham, N.C., assignors to Gunter & Cooke, Inc., Durham, N.C., a corporation of North Carolina
Original application Oct. 2, 1964, Ser. No. 401,274. Divided and this application Sept. 24, 1965, Ser. No. 490,033
3 Claims. (Cl. 19—106)



1. In a carding machine having a doffer roll, means for controlling the operation of said doffer roll comprising a stationary stud shaft mounted on said machine, a bushing disposed for rotation on said stud shaft, a driving element fixed on said bushing for rotation therewith to drive said doffer roll, a first pulley likewise fixed on said bushing for causing rotation thereof, a first gear carried by an overrunning clutch means on said bushing for causing rotation thereof in only one direction, a second pulley mounted on said stud shaft for rotation, at least one set of second and third gears coaxially mounted in planetary fashion on said second pulley with said second gear engaging said first gear and said second and third gears being secured for rotation together, a fourth gear fixed on said stud shaft and engaging said third gear, and a third pulley mounted on said stud shaft in idling relation to said driving element.

3,304,583
WEB CONDENSER AND CALENDER

Virgil A. Burnham, Saco, Maine, and Richard W. Munroe, Gastonia, N.C., assignors, by mesne assignments, to Maremont Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 5, 1963, Ser. No. 321,588
4 Claims. (Cl. 19—150)

1. In a carding machine having a doffer cylinder with means generating a web of fibers across a plane extending transversely of the machine,

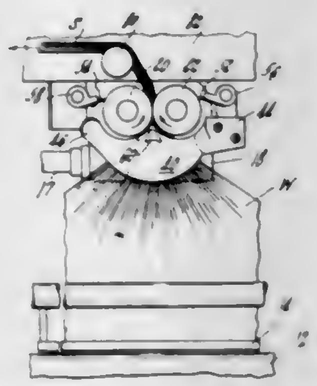
apparatus for forming said web of fibers into a sliver comprising

a pair of cantilever supported calender rolls mounted for rotation about parallel axes generally perpendicular to the plane of said web and projecting outwardly of the machine, said rolls having their projecting unsupported ends open to receive the web in transversely gathered condition, a pivoted arm carrying one of said rolls for movement toward and away from the other while maintaining the axes of said rolls parallel,

spring means biasing said arm to urge said one roll toward engagement with the other to form a nip between said calender rolls,

drive means to rotate at least one of said calender rolls to advance the web through the nip between the rolls,

a pair of closely spaced sliver forming plates with facing web guiding surfaces thereon, cantilever-supported at one end in front of said calender rolls and unsupported and open at the opposite end, the said facing web guiding surfaces of said spaced plates defining between them an open-ended web receiving passageway elongated transversely of the machine, said facing web guiding surfaces on said plates extending generally parallel to one another in closely spaced planes perpendicular to the axes of said calender rolls and parallel to the transverse generating plane of said web on either side of the web,

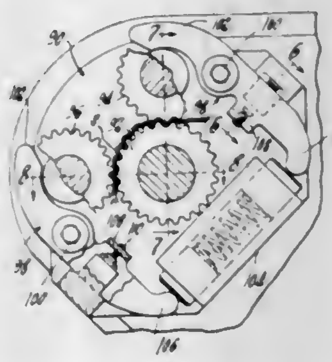


said facing web guiding surfaces having portions terminating close to the nip between said calender rolls, away from the ends of said rolls, and

the unsupported open end of said plates opposite said supported end being outwardly flared to receive a web.

3,304,584
DRAFTING MECHANISM

Paul B. West, Clemson, and Frank E. Brooks, Seneca, S.C., assignors to Maremont Corporation, Chicago, Ill., a corporation of Illinois
Filed Oct. 7, 1964, Ser. No. 402,083
4 Claims. (Cl. 19—261)



1. A textile machine having fiber processing instrumentalities including a calender roll mechanism comprising,

a fluted driving roll,

a first freely rotatable fluted driven roll mounted substantially in a vertical plane above said driving roll and intermeshing therewith,

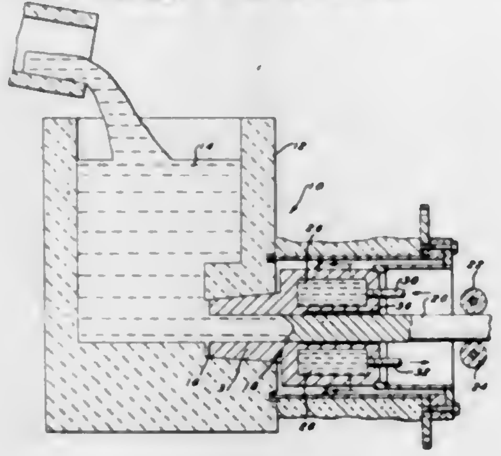
a second freely rotatable fluted driven roll mounted substantially in a horizontal plane alongside said driving roll and intermeshing therewith,

weighting means urging said driven rolls into meshing engagement with said driving roll,

and means for controlling the depth of meshing of said driven rolls with said driving roll, the depth of meshing of said first driven roll being greater than that of said second driven roll.

3,304,585
GRAPHITE CONTINUOUS CASTING MOLD

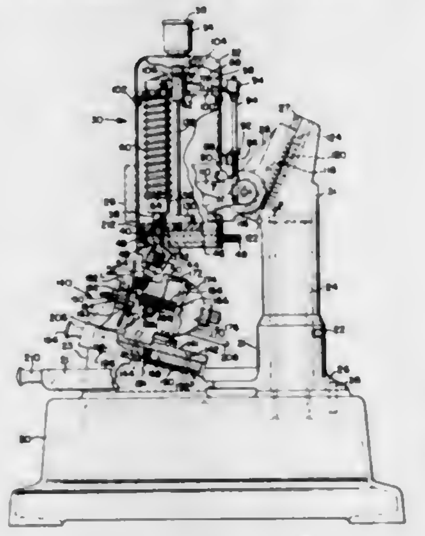
Thaddeus J. Marchlik, Camden, N.J., assignor, by mesne assignments, to Ascast Corporation, Riverton, N.J., a corporation of New Jersey
Filed June 18, 1964, Ser. No. 376,006
4 Claims. (Cl. 22—57.2)



1. Apparatus for casting metals comprising a graphite mold having a bore therethrough adapted to receive a stream of molten metal, said bore having an upstream portion and downstream portion, said graphite mold comprising a material having a fluid permeability of 1 to 100 millidarcys, mold cooling means adjacent the downstream portion of said bore for solidifying molten metal flowing through the downstream portion of said bore, a portion of said mold defining a heat sink adjacent the upstream portion of said bore for maintaining metal in said upstream portion in the molten condition, said heat sink extending between 10 and 60% of the overall mold length, said downstream mold cooling means including means for applying a fluid coolant directly to a surface of said mold, said surface surrounding the downstream portion of said bore and being spaced from said bore by a wall of said graphite material.

3,304,586
APPARATUS FOR BLOCKING LENSES

Lloyd A. Buckminster, Geneva, and William A. Washburn, Phelps, N.Y., assignors to Textron Inc., Providence, R.I., a corporation of Rhode Island
Filed Jan. 20, 1964, Ser. No. 338,702
6 Claims. (Cl. 22—58)



1. Apparatus for molding on a lens blank a lens block for holding the blank in a lens-edging machine, said apparatus comprising

(a) a mold block having therein a cavity open at one side,

(b) means for clamping a lens blank against said open side so that said lens blank covers and closes said cavity,

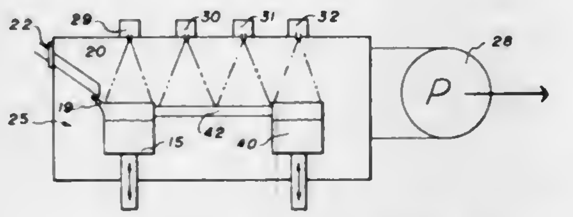
(c) means including a light source mounted on said mold block behind said cavity for directing a plurality of beams of light from said light source through said mold block onto said lens blank to enable the lens blank to be properly positioned on the mold block, and

(d) means for supplying molten metal to said cavity to mold the lens block and adhere it to the lens blank,

(e) said mold block having therethrough a plurality of spaced holes through which said beams of light are directed onto said blank, at least one of said holes opening on said cavity, and at least two other of said holes opening on the front side of said mold block externally of said cavity.

3,304,587
ELECTRON BEAM OVERFLOW MELTING METHOD AND MEANS

Loren J. Hov, Chappaqua, N.Y.
(380 Madison Ave., New York, N.Y. 10017)
Filed May 18, 1964, Ser. No. 367,356
9 Claims. (Cl. 22—73)

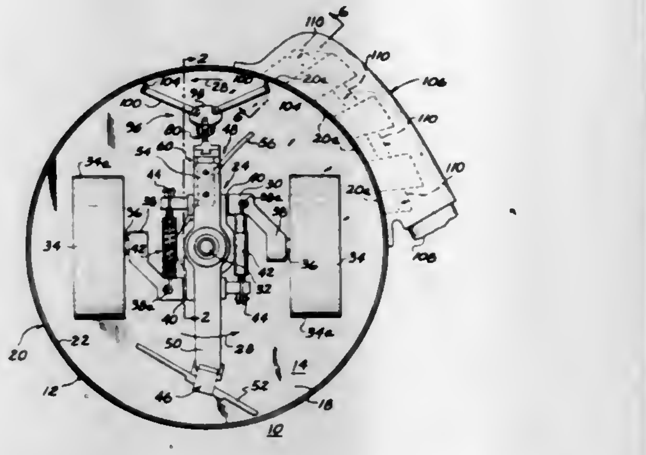


7. An apparatus for melting materials within an evacuated electron beam furnace comprising within the furnace a crucible, said crucible having a flange spout connected to the top of said crucible, extending outwardly and slightly upwardly therefrom, means to feed materials to said crucible at the upper extremity of said flange spout, electron gun means positioned to heat the materials within said crucible, a trough opening to said crucible, said trough being in substantially horizontal position, a second crucible positioned to receive molten material from said trough, and electron beam gun means positioned to heat the material in said trough while flowing between said first and second crucibles, said trough having a width substantially less than the width of said first and second crucibles and having a depth substantially less than said first and second crucibles, and means to position the bottom of said second crucible to such an elevation so as to raise the fluid level in said second crucible to a level approximating the level of the fluid in said trough.

3,304,588
APPARATUS FOR CONDITIONING GRANULAR MATERIAL USING ROTATING SPOKES AND AERATING CLEATS

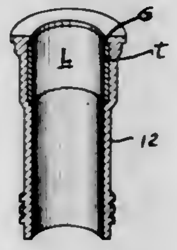
Robert L. McIlvaine, Winnetka, Ill., assignor, by mesne assignments, to National Engineering Company, Chicago, Ill., a corporation of Delaware
Filed Mar. 18, 1965, Ser. No. 440,744
18 Claims. (Cl. 22—89)

1. Apparatus for conditioning granular material and the like comprising a mixing chamber having a bottom wall and an upstanding sidewall, a mixing head assembly mounted in said chamber for rotation about a central axis, said head assembly including shaft means extending outwardly from said central axis and spaced above said bottom wall, and a material aerating structure journaled for rotation on said shaft means, said structure including spokes extending outwardly from said shaft means and a plurality of aerating cleats carried by said spokes adjacent the outer ends thereof, said cleats disposed to extend outwardly toward said sidewall and movable around said shaft means into the material in said chamber toward and away from said bottom wall to lift and aerate the material as said head assembly rotates, said cleats having outer ends disposed to move in close proximity to said sidewall to prevent material buildup thereon.



3,304,589
METHOD OF CASTING A WEAR-RESISTANT LAYER ON CAST-IRON INTERNAL COMBUSTION ENGINE CYLINDER LINERS

Vladislav Valentinovich Vologdin, Prospekt Engelsa 70, Apt. 92, Leningrad, U.S.S.R.; Alexei Dmitrievich Demichev, Prospekt Engelsa 36, Apt. 32, Leningrad, U.S.S.R.; Vladimir Petrovich Suchkousov, Lenin St. 44, Apt. 4, Leningrad, U.S.S.R.; Anatoly Vladimirovich Lakedemosky, Avtozavodskaja St., Korpus B, Apt. 280, Moscow, U.S.S.R.; and Yury Emeljanovich Abramenko, Kievskaja St. 18, Apt. 102, Moscow, U.S.S.R.
Filed July 22, 1963, Ser. No. 296,787
3 Claims. (Cl. 22—200.5)



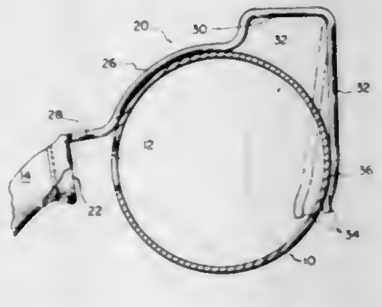
1. A method for increasing the wear resistance of cast-iron internal combustion engine cylinder liners, comprising the steps of forming a continuous groove in the inner periphery of the liner in the area thereof to be strengthened, heating that portion of the liner having the groove therein and simultaneously melting a wear resistant alloy, introducing and uniformly distributing the melted alloy into the groove, and arresting the heating of the liner and the melting of the alloy upon the crystallization of the alloy in the groove.

3,304,590
IRRIGATION APPARATUS

John P. Bremenkamp, Box 511, Colby, Kans. 67701
Filed June 4, 1965, Ser. No. 461,242
1 Claim. (Cl. 24—81)

An irrigation sock clamp for clamping an irrigation sock in position adjacent an opening in an irrigation pipe comprising

a resilient element having
an arcuate portion conforming to the circumferential configuration of said irrigation pipe and engaging said pipe above said opening,
an extension portion projecting outwardly from one end of said arcuate portion,
a single open turn oblong ring portion at the end of said extension portion for receiving and supporting said irrigation sock in spaced relationship to the opening in said irrigation pipe,
said oblong ring portion being disposed at an angle to the vertical to prevent folding of the irrigation sock,



a handle portion extending upwardly from the other end of said arcuate portion, and
a leg portion depending from said handle portion to a point on said irrigation pipe generally diametrically opposite to said oblong ring portion,
the lower end of said leg portion terminating in a tip bent outwardly from said irrigation pipe to cam readily over the surface of said pipe during installation and removal.

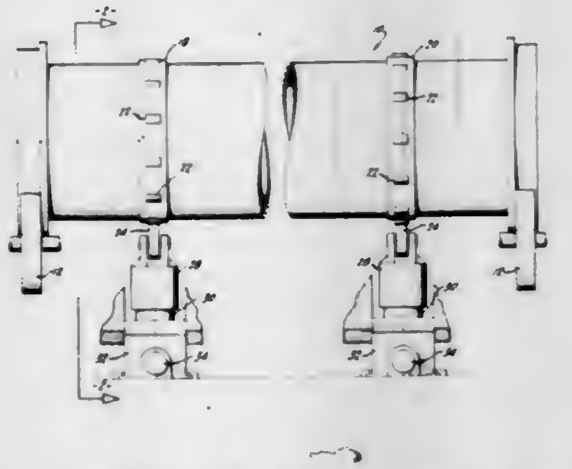
3,304,591

IMPACT-ACTUATED SPRING SYSTEM FOR PRODUCING VIBRATIONS IN A ROTATING FORM

Delbert A. Hausmann, Glendale, Calif., assignor to American Pipe and Construction Co., Monterey Park, Calif., a corporation of California

Filed June 8, 1964, Ser. No. 373,454

6 Claims. (Cl. 25—30)



1. In combination with a rotating form, a vibrating system comprising: stationary resilient means; impact means carried by said resilient means and resiliently biased thereby into engagement with said rotating form; and means on said rotating form for engaging said impact means to compress said resilient means in synchronism with twice the natural frequency of said resilient means.

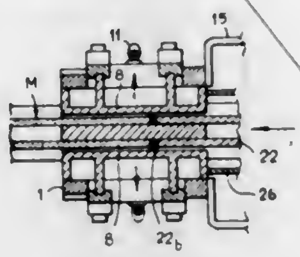
3,304,592

MACHINE WITH MOLD-SECTION-VARYING MEANS FOR MANUFACTURE OF CONCRETE ARTICLES THROUGH SUBSEQUENT COMPRESSION STATES

Mario Fattirolli, Via del Ninfale 2, Florence, Italy

Filed Feb. 12, 1964, Ser. No. 344,463

4 Claims. (Cl. 25—41)



1. In a machine for the manufacture of articles of concrete and like cementitious material,
wall means defining an open-ended mold including at least one longitudinally-extending laterally movable wall part,
means movable longitudinally in said mold to compress said material in the direction from one said open end to the other said open end,
means for moving said compression means within said mold,
means for varying the cross-section of said mold by moving laterally at least said wall part between a predetermined inner position corresponding to the cross-section of the article to be molded and a predetermined outer position, and
means for introducing material to be molded into the cavity defined by the wall means and the compression means,
said compression means being movable longitudinally to mold and compress material when the mold has a cross-section corresponding substantially to the face area of the compression means and said compression means being operable to move the molded article through the mold only when the cross-section of the mold is increased by said mold-section-varying means whereby frictional forces action between the molded material and wall means are substantially reduced.

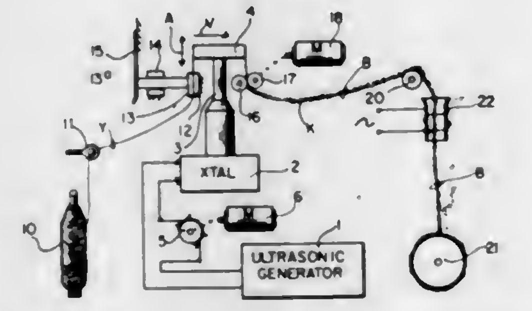
3,304,593

YARN BULKING METHOD AND APPARATUS

Glenn A. Burklund, Fairfax, Va., assignor to Burklund Laboratories, Inc., a corporation of Virginia

Filed Jan. 21, 1965, Ser. No. 427,021

19 Claims. (Cl. 28—1)



11. Apparatus for bulking a yarn of synthetic fibers, comprising
(a) a yarn crimping head;
(b) means for continuously passing yarn over said head and for tensioning the yarn thereagainst; and
(c) means for vibrating said head at a rate which is at least sonic and in a direction alternately increasing and decreasing the tension of the yarn passing thereacross.

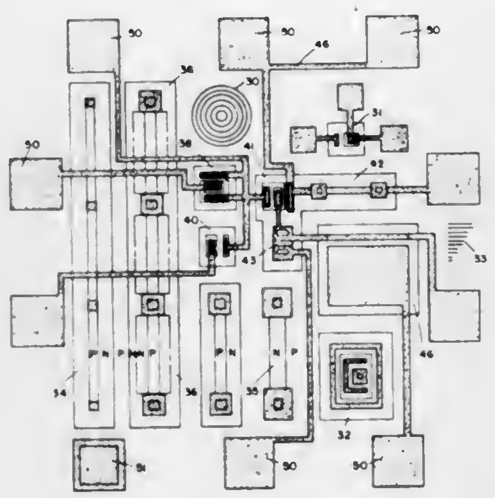
3,304,594

METHOD OF MAKING INTEGRATED CIRCUIT BY CONTROLLED PROCESS

Glen R. Madland, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Aug. 15, 1963, Ser. No. 302,322

8 Claims. (Cl. 29—25.3)



1. A method of inferring the separation distance between parallel planes formed by pairs of superposed PN junctions on a semiconductor substrate by determining the separation of other PN junctions formed on said substrate concurrently in the same processing operations, said method comprising the steps of diffusing an elongated and uniform region of one conductivity type into a region of a second conductivity type in a semiconductor substrate, said diffusion extending into the semiconductor material from the surface thereof and forming a PN junction with said second conductivity type region and with said PN junction extending from said surface to a depth *a*, selectively diffusing over parts of said elongated region three separated regions of second conductivity type material in such a manner as to form PN junctions with said first conductivity type material a distance *b* from the surface of said semiconductor material and less than the distance *a*, thereby creating three buried regions of said one conductivity type material and four contact regions of said one conductivity material extending to the surface of said semiconductor material and connected to said buried regions, electrically probing said contact regions and making electrical measurements with the probes to determine the resistivity of said buried regions, and determining from said resistivity measurements the thickness of said buried regions, said thickness being the distance *a—b* which to a high degree of approximation is the separation distance between all of said superposed PN junctions.

3,304,595

METHOD OF MAKING A CONDUCTIVE CONNECTION TO A SEMICONDUCTOR DEVICE ELECTRODE

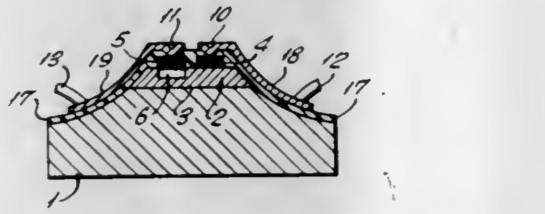
Katsuo Sato and Toshiaki Irie, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan, a corporation of Japan

Filed Nov. 19, 1963, Ser. No. 324,653

Claims priority, application Japan, Nov. 26, 1962, 37/53,080

3 Claims. (Cl. 29—25.3)

1. The method of making a semiconductor device which comprises the steps of
forming first and second regions in a semiconductor material,
forming a soft metal electrode on one of said regions and another electrode on the other of said regions,
providing a layer of insulating material over said electrodes and the surface of said semiconductor material adjacent thereto,
providing a plurality of thin conductive layers separated from one another on the surface of said insulating layer so that at least a portion of each conductive layer overlies a different electrode,
pressing a sharp tool against one of said conductive layers to pierce the insulating layer in the region between said one layer and the electrode associated therewith and to pass a portion of said one layer through the resulting rupture in said insulating layer and also to deform said latter mentioned electrode to make a permanent electrical connection between said latter mentioned electrode and said one layer,



and pressing a sharp tool against the other of said conductive layers to pierce the insulating layer in the region between said other layer and the electrode associated therewith and to pass a portion of said other layer through the resulting latter rupture in said insulating layer and also to deform said latter mentioned electrode to make a permanent electrical connection between said latter mentioned electrode and said other layer.

3,304,596

WORKHOLDER FOR MACHINING PIVOT HOLES IN PINKING SHEARS

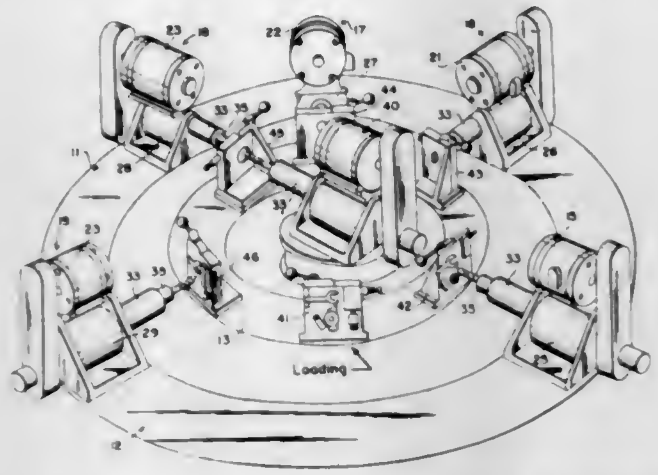
Curt Weidauer, Clinton Corners, N.Y., assignor to Samuel Briskman

Filed Jan. 21, 1965, Ser. No. 427,063

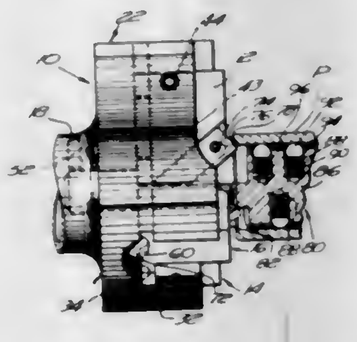
10 Claims. (Cl. 29—38)

1. A workholder adapted to be fixed to an indexing turntable for holding an unfinished pinking shear blade during multiple machining operations to provide a pivot hole in said blade, said blade having a substantially longitudinal ridge adjacent an end thereof to provide teeth by subsequent machining operations, said workholder comprising a vertical standard, means to locate said blade in a vertical position, said means comprising two guide means at the lower portion of said standard to receive therebetween the forward portion of said blade and an adjustably mounted contact member at the upper portion of said standard against which the said end of said blade above said ridge may abut, one of said guide means being pivoted, and the other of said guide means being fixed, resilient means to urge at least a portion of said pivoted guide means against said blade when inserted between said guide means, means to horizontally adjust said contact member, a guide adjustably mounted on said standard below said contact member, means to adjust said guide vertically, said guide having a horizontal guide slot, a key member slidable in said slot, means to slide said key member, said key member when slidable to a forward operable position being adapted to extend over said blade above said ridge when said blade is inserted between said guide means, resilient means to return said key member from said forward position, means to clamp said blade against said standard after said blade is inserted between said guides and against said contact member with said ridge of said blade against the extended portion of said key member, said means to slide said key member to forward portion and said means to clamp said blade comprising cam means, connecting means between said cam means and said slide means and between said cam means and said clamp means, and rotatable means to operate

said cam means, said cam means being disposed with relation to said rotatable means whereby upon rotation of the latter in one direction, said slide connecting means will cause said key member to first extend over said blade and then cause said blade to be clamped against said standard by said clamp means.



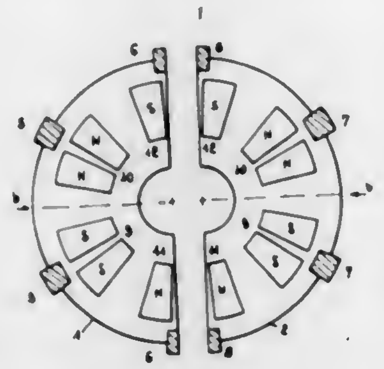
3,304,597
FACING TOOL
Mitchell Kezran, 1157 Narragansett Blvd., Cranston, R.I. 02910
Filed Aug. 5, 1964, Ser. No. 387,651
4 Claims. (Cl. 29—105)



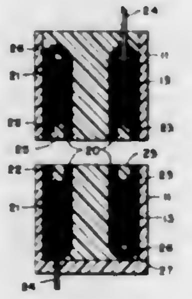
1. A facing tool for pipes and tubes comprising a head adapted to be supported for rotation about its longitudinal axis, three radial channels formed in said head, a cutter holder mounted in each of said channels, means adjustably securing said cutter holders in predetermined radial positions, a cutter secured to each of said cutter holders, two of said cutters being secured so as to present cutting edges inclined to the longitudinal axis and a third of said cutters being secured so as to present a cutting edge in right angular relation to the longitudinal axis whereby chamfers can be formed simultaneously on the inside and outside diameters of a pipe at the same time a planar end face is formed on the pipe, and a pilot member guidingly receivable within a pipe end to be faced, said pilot member including a head having a plurality of bearings rotatably supported at its peripheral surface for rolling contact with the inside of a pipe.

3,304,598
METHOD OF MAKING AN AXIAL AIRGAP ELECTRIC MACHINE
Jacques Henry-Baudot, Antony, France, assignor to Printed Motors Inc., New York, N.Y.
Filed Feb. 14, 1961, Ser. No. 89,228
Claims priority, application France, Feb. 25, 1960, 819,800, Patent 1,257,857
5 Claims. (Cl. 29—155.5)

1. A method of making a rotor and stator assembly for an axial airgap electric rotary machine comprising at least one disc-shaped armature encased between a pair of magnetic stator disc-shaped members at least one of which carries a ring of inductor poles presenting flat pole areas in a common plane, comprising the steps of: forming at least two sectoral partial shells, each including sectors of the stator members spaced apart by the required axial airgap interval, each sectoral part of the ring of inductor poles in said shells comprising a number of poles which number is an integer plus two half-poles terminating at substantially the radial edges thereof; assembling the disc-shaped armature on its shaft, and encasing said armature by the said sectoral partial shells brought together along their radial edges.



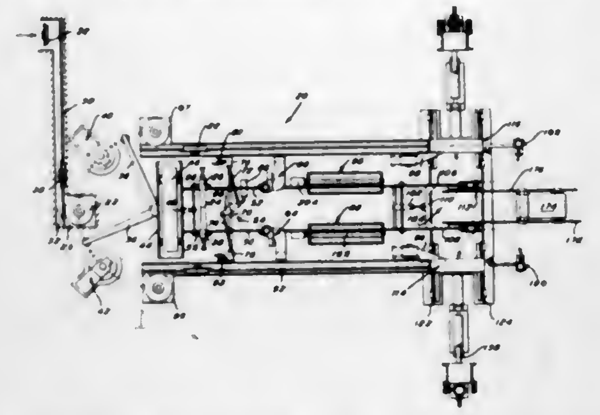
3,304,599
METHOD OF MANUFACTURING AN ELECTROMAGNET HAVING A U-SHAPED CORE
Robert W. Nordin, Skokie, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Mar. 30, 1965, Ser. No. 443,968
4 Claims. (Cl. 29—155.57)



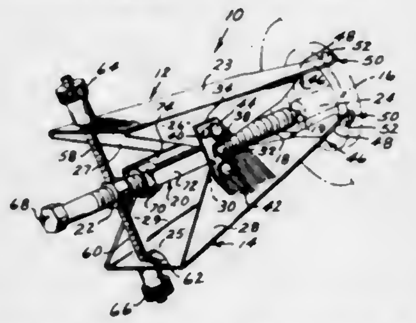
4. A method of making an electromagnet including the steps of:
- enclosing a coil of conductive material in a toroid of continuous magnetic wire; and
- cutting the annulus in a plane substantially perpendicular to the axis of the coil so that the coil is substantially surrounded by U-shaped wires of magnetic material.

3,304,600
METHOD OF ASSEMBLING A PAIR OF RAILROAD WHEELS AND AN AXLE
Hans G. Spler, Media, Pa., assignor to Baldwin-Lima-Hamilton Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Apr. 6, 1964, Ser. No. 357,481
3 Claims. (Cl. 29—168)

1. A method of assembling a pair of wheels and an axle comprising the steps of conveying an axle to a position intermediate a pair of spaced wheels, aligning a bore in each wheel with the wheel seats on said axle so that their axes coincide, shifting said axle along its axes to position it equidistant from each of said wheels, simultaneously applying a pushing force to each of said wheels to press the wheel bores in said wheels onto the wheel seats of said axle, measuring and recording the pushing force applied to each wheel, and comparing said recorded force with a predetermined standard.

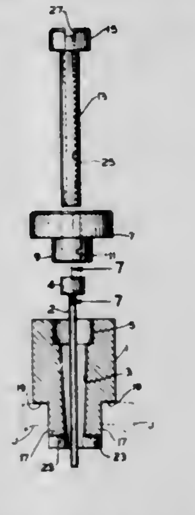


3,304,601
APPARATUS FOR PULLING RETAINERS OR SEALS AND THE LIKE
Henry M. Torres, 5551 Hanbury St., Long Beach, Calif. 90808
Filed Aug. 9, 1965, Ser. No. 478,369
3 Claims. (Cl. 29—261)



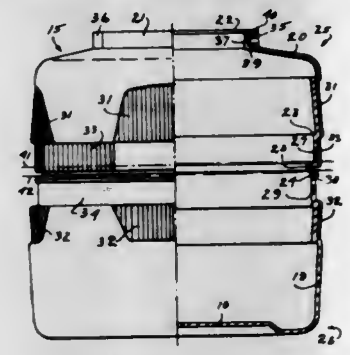
1. Seal-pulling apparatus for drawing a seal from an annular recess around a shaft, comprising:
- a pair of opposing jaw members, each jaw member including a longitudinally extending base having a concave longitudinally extending front end portion and a hole in its rear portion, a radial lip projecting from a front marginal edge of said front end portion and having a flat radial rear surface, said lip being adapted to fit into and behind said seal in said recess with said flat radial surface flush with the back of said seal and said concave front portion flush with the inside of said seal, and a pair of side flanges from a midportion of said base extending toward opposing and like flanges of the other jaw member;
- pivot means between said opposing flanges for pivotally connecting said jaw members together for movement of said lips toward and away from each other;
- a threaded rod;
- a first nut for receiving said threaded rod;
- first and second threaded shafts extending from opposite sides of said first nut through said holes in the bases of said jaw members and normal to said threaded rod, with said threaded rod extending between said jaw members toward the front ends thereof;
- second and third nuts threadedly receiving said first and second shafts, respectively, beyond said jaw members for traveling along said first and second shafts to engage the bases of said jaw members and swing said lips away from each other;
- and guide means connected to and extending rearward from said pivot means for loosely receiving said threaded rod and centering said rod between said jaw members such that an end of said rod is adapted to engage the center of said shaft, whereby a turning of said rod to screw same forward, with said flat radial surfaces of said lips behind said seal and said concave front portions of said jaws supporting the inside of said seal, draws said seal from said socket without damaging said seal.

3,304,602
CLAMPING TOOL
Francis P. Osborne, 1402 Woodlawn, Dallas, Tex. 75208
Filed June 16, 1965, Ser. No. 464,278
8 Claims. (Cl. 29—275)



1. A tool for securing ferrules to cords comprising a die having an aperture with downwardly and inwardly sloping sides, a pin movable axially in said aperture, and a guide for said pin removably mounted in the large end of said aperture whereby to permit the insertion thereinto of a malleable ferrule of greater width than the small end of said aperture.

3,304,603
METHOD OF MAKING AN INSULATED PICNIC JUG OR CONTAINER
Herbert M. Piker, Wyoming, Ohio, assignor to The Hamilton-Skotch Corporation, Hamilton, Ohio, a corporation of Ohio
Original application Jan. 22, 1963, Ser. No. 253,191. Divided and this application May 27, 1964, Ser. No. 370,598
3 Claims. (Cl. 29—416)



2. The method of forming an enclosing member for a container consisting in forming the said enclosing member by a blow method to provide the same with an integral bottom, an upstanding peripheral wall, a top at the upper end of the peripheral wall, and an apertured neck upwardly from the top, said peripheral wall including upwardly and downwardly of a line at a point intermediate the enclosing member bottom and top complementary interlocking portions including a sleeve upwardly and downwardly of said line adapted to be subsequently telescoped with one another, said enclosing member during the formation thereof having formed in the said peripheral wall between one of the sleeves and the aforementioned line a band having an inclined outer surface, severing the enclosing member on the aforesaid line be-

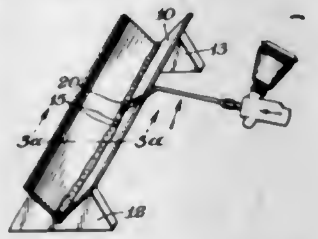
tween the aforesaid complementary locking portions to provide an upper part and a lower part, and subsequently telescoping the upper part and lower part sleeves through the inclined outer surface of the band acting as a cam in telescoping the said sleeve portions of the said interlocking portions for reconnecting the enclosing member upper and lower portions of the container for forming a completely enclosing container.

3,304,604
METHOD FOR PRODUCING CARBIDE CONTAINING MATERIALS

Joseph F. Quaas, Island Park, N.Y., assignor to Eutectic Welding Alloys Corporation, a corporation of New York

Filed May 11, 1964, Ser. No. 366,420

8 Claims. (Cl. 29—527)



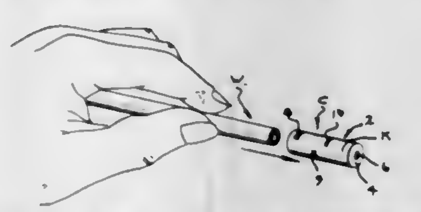
1. A method for producing wearing and cutting surfaces comprising distributing refractory carbide particles in a mold, applying a molten metal base matrix alloy selected from the group consisting of copper, iron, cobalt and nickel base matrix alloys and mixtures thereof over the refractory carbide particles by successive passes thereover with a flame spray torch, cooling and solidifying the molten metal base alloy thereby producing a composite rod, removing the composite from the mold, heating and melting the so-formed composite rod to form a mixture of molten matrix alloy and refractory carbide particles, depositing the mixture on a parent material to which the surface is to be applied, thereby producing a base coating, placing additional refractory carbide particles upon the base coating and applying a molten metal base matrix alloy selected from the group consisting of copper, iron, cobalt and nickel base matrix alloys and mixtures thereof over the refractory carbide particles by successive passes thereover with a flame spray torch thereby producing an overlay coating over the base coating, the matrix alloy used in the production of the base coating being of a different constitution from matrix alloy used in the production of the overlay coating.

3,304,605
CABLE STRIPPING DEVICE

Frank Benjamin Stark, Wormleysburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed June 29, 1965, Ser. No. 467,875

6 Claims. (Cl. 30—90.1)



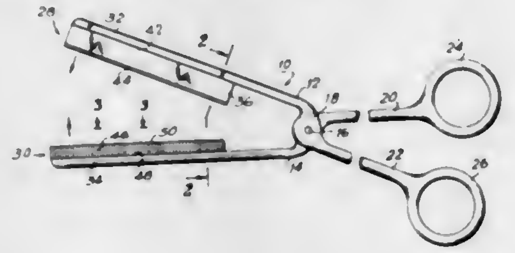
1. A rotary cutter device for dressing the ends of coaxial cable comprising in combination a tubular member and a cutter blade, said tubular member having a series of transverse axially spaced slots of different depths related to the radial thickness of the layers of the cable for imposing spaced cuts of different depths in said cable, said tubular member slots being of a width to receive and limit the insertion of said cutter blade to assure proper cuts in said cable and, said tubular member further having means at one end defining a stop for cable entered therein which is axially spaced from said slots to accurately position the cable within said tubular member relative to said slots and pre-determined lengths of cable conductor, cable dielectric and cable braid to be exposed or removed.

3,304,606
EYELASH THINNER

John S. O'Connell, Suite 901, 113 W. 42nd St., New York, N.Y. 10036

Filed Apr. 1, 1965, Ser. No. 444,598

7 Claims. (Cl. 30—193)



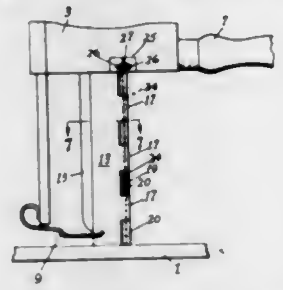
1. A device for thinning a fringe of generally parallel yet somewhat awry eyelash strands, said device including a cutting blade member and an anvil member, and means for moving the members into chopping engagement against one another, said cutting blade member including a cutting edge and said anvil member including a surface sulcated transversely of said cutting edge, said cutting edge when in said chopping engagement pressing against said sulcated surface at a series of spaced severance points, said device severing such strands of the fringe as fortuitously intersect said points whereby severed strands are located spacedly and randomly throughout the fringe.

3,304,607
CUTTING MACHINE

Jack M. Gratsch, 6720 Britton Ave., Cincinnati, Ohio 45227

Filed Aug. 16, 1965, Ser. No. 479,838

9 Claims. (Cl. 30—273)



1. In a device of the character described, a head, a standard and a base, said standard connecting said head with said base, said standard having a front edge and a rear portion, a vertically reciprocal knife mounted at the front edge of said standard, means in said head for reciprocating said knife, a sheath surrounding said standard excepting for said front edge so that said knife projects beyond said sheath, means for imparting motion to said sheath with respect to said standard.

3,304,608
METHOD AND DEVICE FOR TAKING IMPRESSIONS OF TEETH

Hans Ernst Frohnecke, Berlin, Germany, assignor to Frohnecke K.G., Berlin, Germany

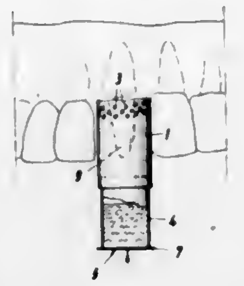
Filed Mar. 24, 1964, Ser. No. 354,330

Claims priority, application Germany, Mar. 27, 1963, F 39,341

2 Claims. (Cl. 32—17)

2. A device for taking impressions of teeth, which comprises, in combination, a ring having a plurality of perforations at one end; a thin-walled hollow cylinder, inserted

in said ring, of a diameter tightly fitting said ring and of shorter length than the same; a cover plate closing one end of said cylinder and of larger diameter than the latter, thus forming a flange stopping entry of said cylinder in said ring at a predetermined length; both said ring and said cylinder being capable of holding a molding compound; said cylinder being inserted in said ring at the end opposite that having the perforations; said cylinder in said ring being adapted to force out excess molding compound and to exert constant pressure on the tooth around which it sits.

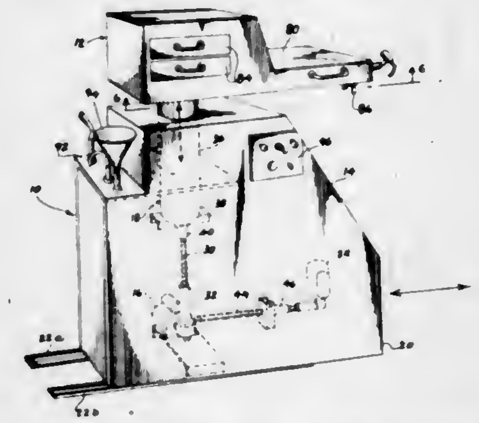


3,304,609
DENTAL EQUIPMENT STAND

Norman Horowitz, 111—21 77th Road, Forest Hills, N.Y. 11375, and Philip Spigner, 1460 Park St., Atlantic Beach, N.Y. 11509

Filed Feb. 16, 1966, Ser. No. 527,859

8 Claims. (Cl. 32—22)



1. A dental unit adapted for use adjacent a dental chair and comprising an instrument head having electrically powered instrument means and air and water appliances, and mounting means adjustably supporting said instrument head for vertical and rotational movement relative to said mounting means and such dental chair and for horizontal movement relative to such dental chair, said mounting means including motor-driven elevator means for raising and lowering the instrument head relative to said mounting means and to said dental chair, said elevator means including a generally vertical, hollow column, said instrument head being mounted on said hollow column for rotational movement about its longitudinal axis, said mounting means also including a motor-driven horizontally movable floor-mounted support for said hollow column for imparting horizontal movement to said hollow column and instrument head relative to such dental chair.

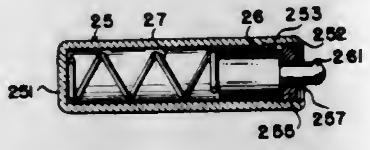
3,304,610
DENTAL PROSTHESIS

Bernard Weissman, 387 Ave. S, Brooklyn, N.Y. 11223

Filed Apr. 11, 1957, Ser. No. 652,135

4 Claims. (Cl. 32—5)

1. A detent device for removably securing a dental prosthesis in position, said device comprising a tubular casing, a detent plunger disposed in said casing, said plunger having an end portion projecting externally of said casing, a spring disposed within said casing urging said plunger externally thereof, stop means carried by said casing for limiting the external projection of said plunger therefrom, said stop means being adjustable to variably adjust the extent of projection of said detent plunger from said casing and including an adjusting nut of uniform diameter throughout its length disposed completely in the tubular casing adjacent an end thereof, said nut being movable longitudinally in the casing.

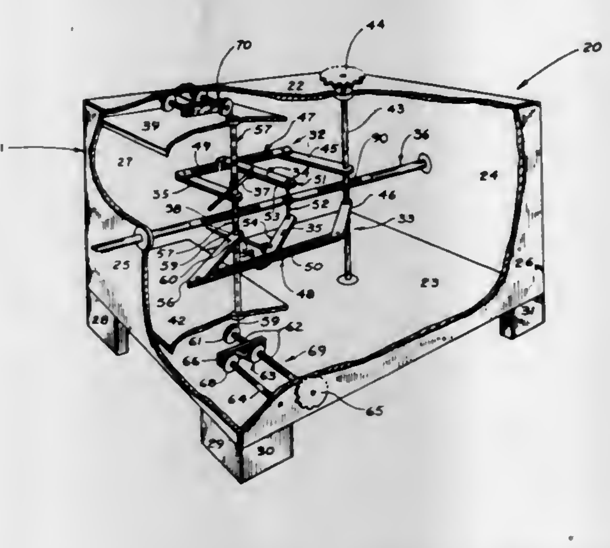


3,304,611
COMPONENT COMPUTERS

Donald J. Abel, 712 Summit Ave., Franklin Lakes, N.J. 07417

Filed Oct. 7, 1963, Ser. No. 314,311

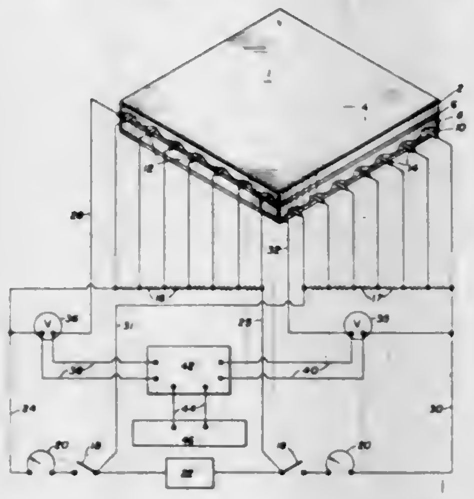
7 Claims. (Cl. 33—1)



1. A component computer having an external support, comprising in combination, an elongate rotary input member rotatively mounted in said support, a drive link extending outwardly from and fixed to said elongate rotary input member, an intermediate link with a longitudinal opening fixed to but rotatable with respect to said drive link, an elongate rotary output member in spaced parallel position with respect to said elongate rotary input member, an end link in spaced parallel position with respect to said drive link and fixed to but rotatable with respect to the intermediate link, said end link attached to and extending outwardly from the elongate rotary output member, a linear input member slidably mounted in said support transversely of said rotary input and output members, a following link extending outwardly from and fixed to but rotatable with respect to said linear input member, and element fixed to the outer end of said following link for sliding movement within the opening of the intermediate link, a tooth surface on one edge of said following link, an elongate component member having a tooth roller rotatively mounted at one of its ends, means mounting said component member on said rotary output member for rotation therewith and for endwise movement relative thereto, means urging said component member along its length toward said following link whereby said tooth roller and the tooth edge of said following link are in mesh, and means on said support indicating the position of said component member relative to said rotary output member.

3,304,612
METHOD AND APPARATUS FOR CONVERTING CARTOGRAPH COORDINATES TO PERMANENT DIGITAL FORM

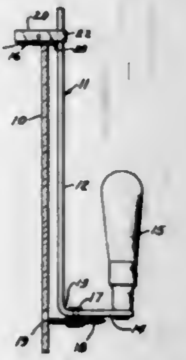
Ronald R. Proctor and Robert G. Moyer, Crystal Lake, Ill., assignors, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed Dec. 23, 1963, Ser. No. 332,486
11 Claims. (Cl. 33—1)



1. In a measuring device for converting the coordinates of a point on a cartograph to permanent digital form, a first grid comprising a plurality of spaced, substantially parallel conductors; a second similar grid also comprising a plurality of substantially parallel, spaced conductors; said grids being in normal relationship with respect to each other; said grids being supported by at least one electrically con-conductive member; first and second electrically conductive means disposed in juxtaposition to the corresponding grids; resilient means adapted to maintain said grids and said conductive means out of electrical contact with respect to each other but to permit contact upon the application of compressive force thereby causing a discrete number of conductors in both said first and second grids to make electrical contact with said conductive means; a voltage-dividing means connected to said conductors; a power source means to connect said voltage-dividing means to said power source; means for measuring the voltages impressed by said voltage dividing means on said conductors; means for translating said voltages into decimal digit signals and means for recording said signals.

3,304,613
BOX SCORER

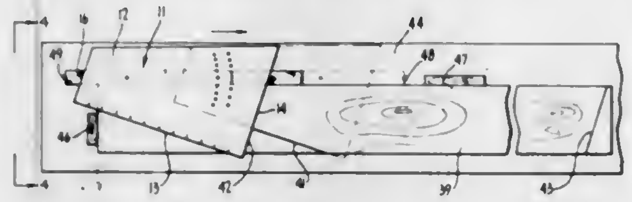
Harry H. Shawhan, 1751 Filbert St., Paso Robles, Calif. 93446
Filed Mar. 25, 1965, Ser. No. 442,579
4 Claims. (Cl. 33—42)



1. A box scorer adapted to impress a score on a box at a predetermined spacing from an edge thereof, comprising: an elongated rail; a bend in said rail; a flange joined to the rail by said bend; a handle mounted to said flange, which handle is spaced from and generally parallel to the rail; a scoring wheel journaled to the flange on the opposite side thereof from the handle, said wheel having a portion of the periphery of the wheel projecting beyond the rail; a spacer slidably mounted to said rail; and adjustment means carried by the spacer adapted to hold the spacer at selected locations along the rail.

3,304,614
SELECTABLE PITCH RAFTER CUTTING GUIDE

Arthur A. Adams, 1764 Bayovista Ave., San Pablo, Calif. 94806
Filed Oct. 27, 1964, Ser. No. 406,753
1 Claim. (Cl. 33—75)

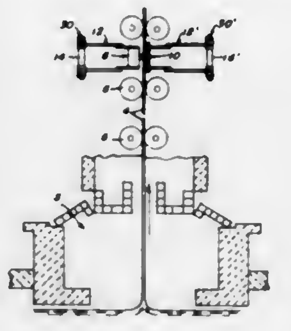


A method of marking rafters for cutting by means of a guide including a plate having right angularly intersecting straight edges with a first of said edges calibrated in units of linear measure, and an elongated pitch selecting member pivotally secured to said plate for selective movement to different positions of inclination with respect to said first straight edge respectively corresponding to different rafter pitches, said member projecting beyond the margin of said plate, comprising the steps of supporting a rafter on a surface at a predetermined location thereof, placing said guide upon said rafter with said plate engaging the exposed face of said rafter and a side edge of said member engaging a side edge of said rafter, moving said guide along said rafter to a first position wherein said first straight edge intersects the opposite side edge of said rafter from that engaged by said member at a predetermined point, marking a cut guide line on said exposed face of said rafter along said first straight edge, securing a first stop to said surface at a position of engagement with a first end of said member in said first position of said guide, measuring a predetermined distance inward from said opposite side edge of said rafter along said line with the calibrations of said first straight edge, moving said guide along said rafter to a second position wherein said second straight edge intersects said line at said predetermined distance from said opposite side edge of said rafter, marking a second cut guide line on said exposed face of said rafter along said second straight edge, securing a second stop to said surface at a position of engagement with the second end of said member in said second position of said guide, removing said rafter from said support surface, supporting a second rafter upon said surface at said predetermined location, placing said guide upon said second rafter with said plate and member respectively engaging the exposed face and a side edge thereof and said first end of said member engaging said first stop, marking a cut guide line on the exposed face of said second rafter along said first straight edge, moving said guide along said second rafter to engage said second end of said member with said second stop, and marking a second cut guide line on the exposed face of said second rafter along said second straight edge.

3,304,615
THICKNESS MEASURING SYSTEM

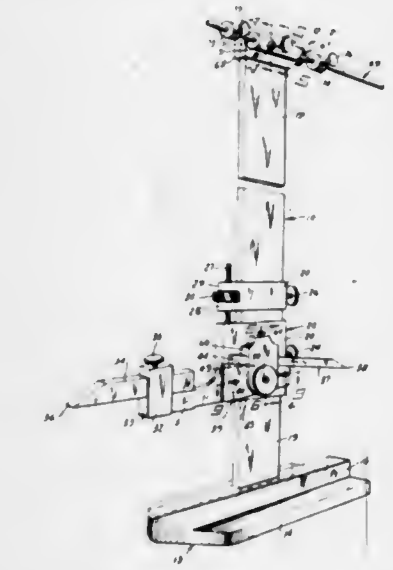
Cecil R. Ward, Gibsonia, and Frank J. Rau, Pittsburgh, Pa., assignors to Pittsburgh Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 28, 1963, Ser. No. 261,719
1 Claim. (Cl. 33—143)

Apparatus for determining the thickness of a sheet of material, said apparatus having a cooperating pair of electromagnetic measuring elements disposed in facing relationship to each other and in contact with opposite sides of the material, each of said measuring elements having three projections contacting said material and oriented in parallel relation to the surface of said material, means supporting each of said measuring elements for universal movement from a transversely movable carriage, means biasing each said measuring element against said material, a first of said measuring elements having means for receiving a signal independent of its carriage and indicative of the actual distance and the magnetic reluctance between said elements, and the other said measuring element having dimensions which are greater than those of said first element in planes parallel to the plane of the material.



3,304,616
SHRINK GAGE

Frank Coulman, 30032 Cousino Drive, Warren, Mich. 48092
Filed Jan. 27, 1965, Ser. No. 428,391
9 Claims. (Cl. 33—170)



1. A shrink gage for scribing dimensions with shrinkage allowances included, comprising:

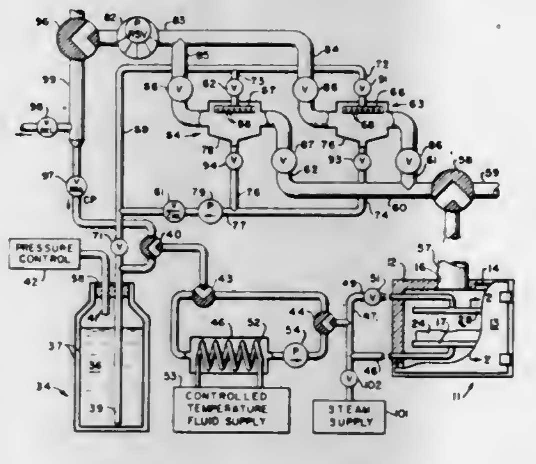
(a) an elongated post having a zero dimension reference means on one end thereof;

(b) support means adjustably mounted on said post for supporting the post in an inclined position relative to a drawing and the like, with the zero dimension reference means aligned with a base line on the drawing; and,

(c) scribing means adjustably mounted on said post and including at least one scriber point outwardly extended from the post in one direction and a dimension pickup member extended outwardly from the post in the opposite direction, with the scriber point and dimension pickup member being adapted to be adjustably disposed relative to each other along the longitudinal axis of the post so that when the dimension pickup member is disposed at a point on the drawing at a predetermined dimension from said drawing base line, the scriber point will be disposed at a distance away from the base line equal to the predetermined dimension plus a shrinkage allowance.

3,304,617
METHOD AND APPARATUS FOR FREEZE-DRYING FOODS

Morris R. Jeppson, Danville, Calif., assignor to Cryodry Corporation, San Ramon, Calif., a corporation of California
Continuation of application Ser. No. 201,609, June 11, 1962, now Patent No. 3,222,796, dated Dec. 14, 1965. This application Oct. 20, 1965, Ser. No. 498,499
6 Claims. (Cl. 34—5)



6. In a method for freeze-drying a solid substance, such as meat, at atmospheric pressure the steps comprising freezing said substance, then reducing the water vapor content from the environment about said substance by employing a spray of liquid cryogenic gas to convert the vapor into ice, and drying said substance of substantially all its water content.

3,304,618
METHOD OF STABILIZING CRYSTALS

James J. Leddy and Dale L. Schechter, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 21, 1964, Ser. No. 339,093
4 Claims. (Cl. 34—9)

1. A method of stabilizing sodium peroxide octahydrate crystals having surface water thereon which comprises, contacting said crystals with an effective amount of a water sorbing solvent to reduce the surface water to a level whereby maximum crystal stability is attained, and separating the solvent from the crystals.

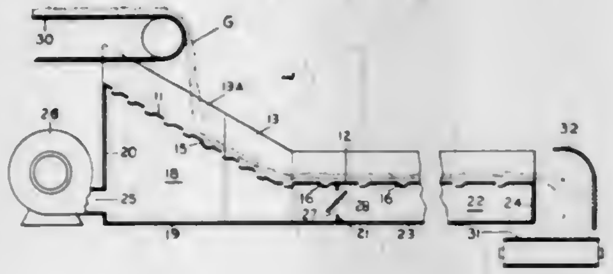
3,304,619
METHOD AND MEANS FOR CHANGING THE TEMPERATURE OF GRANULAR MATERIAL BY GAS JETS

Rudolph E. Futer, 1401 Eastshore Highway, Piedmont, Calif. 94710
Filed Jan. 27, 1965, Ser. No. 428,315
10 Claims. (Cl. 34—10)

1. Method of changing the temperature of granular material which comprises the steps of:

(a) feeding said granular material onto the feed zone of a conveyor table which includes an elongated temperature-conditioning zone juxtaposed downstream from said feed zone, both said zones having a multitude of longitudinally spaced passages extending there-through and inclined to the table in a common downstream direction;

(b) imparting to said material on said feed zone a horizontal momentum toward said conditioning zone by flowing gaseous acceleration jets through the said passages in the feed zone of said table with strong downstream components, said jets having temperatures materially different from the temperature of said material, thereby moving said material onto said conditioning zone;



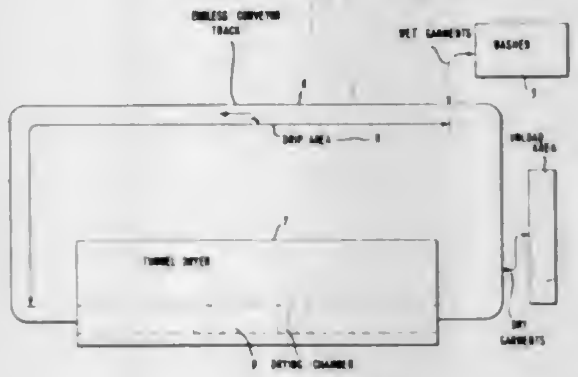
(c) propelling said material downstream on said temperature-conditioning zone and changing the temperature thereof by projecting through said passages in the temperature-conditioning zone of said table a multitude of temperature-conditioning jets having temperatures materially different from the temperature of said material, the principal flow components of said conditioning jets being in said downstream direction, and

(d) controlling the flow of said jets so that the kinetic energy of said downstream components per unit area of the conveyor table is less in the conditioning zone than in the feed zone.

3,304,620
PROCESS FOR DRYING LAUNDERED GARMENTS OF POLYESTER FIBERS

Philip Edmund Ebert, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Oct. 10, 1963, Ser. No. 315,234
3 Claims. (Cl. 34—31)

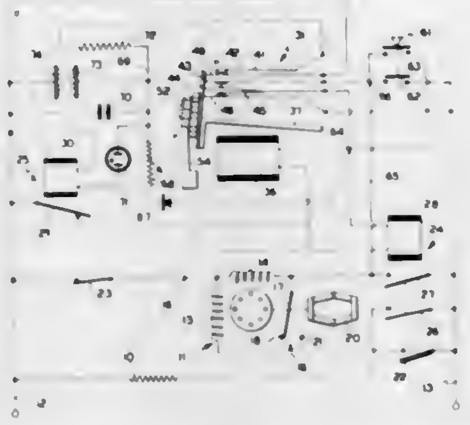


1. In the process of drying laundered garments in a tunnel-type dryer, the improvement for producing dry, essentially wrinkle-free garments from dripping wet garments containing at least 65% polyethylene terephthalate fibers, which comprises hanging said wet garments on racks, continuously conveying the garments through the dryer, blowing moist air at a dry-bulb temperature of 145° to 155° C. and and a web-bulb temperature of 85° to 90° C. through the garments within the dryer until said wet garments dry in an essentially wrinkle-free condition, and then removing the dry garments from the conveyor.

3,304,621
DRYER CONTROL SYSTEM

Max A. Nelson, Logansport, Ind., assignor to Essex Wire Corporation, Fort Wayne, Ind., a corporation of Michigan

Filed Oct. 22, 1965, Ser. No. 509,253
10 Claims. (Cl. 34—45)



1. In a control system for a clothes drying machine having an electric motor for rotating a drum in order to tumble clothes contained therein to be dried, heater means including a heating unit for heating the interior of said drum in order to evaporate moisture from clothes therein, and spaced electrodes positioned within said drum and exposed to clothes therein in order to be electrically bridged by damp clothes tumbled in said drum; the combination therewith of:

an electric supply circuit including at least first and second supply lines;

a first relay having a first coil and first and second normally open switches closed upon energization of said first coil;

a heating unit energizing circuit including said first switch connecting said heating unit to said supply circuit;

a motor energizing circuit including said second switch connecting said motor to said supply circuit, said motor energizing circuit including means connecting said second switch to said first supply line;

a normally open momentary contact start switch connected to said first supply line;

means connecting said first coil between said start switch and said second supply line;

a second relay having a second coil, a third normally open switch closed upon energization of said second coil, and a fourth normally open sequence switch closed only upon alternate deenergization of said second coil;

a first shunt circuit connected in parallel with said start switch and including said second and third switches serially connected between said first supply line and the junction of said start switch and said first coil;

a second shunt circuit connected in parallel with said start switch and including said fourth switch connected between said first supply line and said junction;

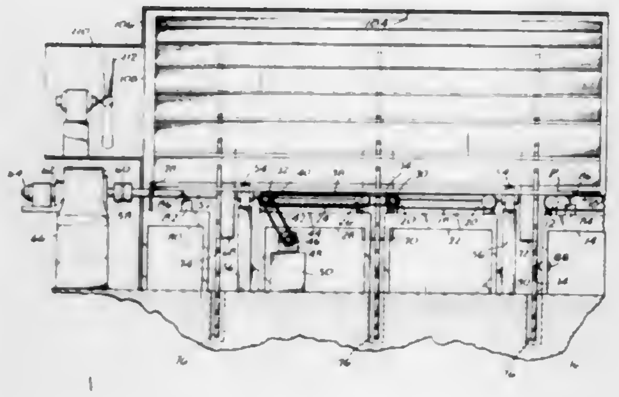
means including a normally closed electrically controlled switching device connecting said second coil between said junction and said second supply line;

and a moisture-sensing circuit connected between said junction and said second supply line, said moisture-sensing circuit including time delay means connected to said electrodes and controlling said switching device, said moisture-sensing circuit being responsive to the electrical resistance condition of the clothes engaging said electrodes to open said switching device only when the electrical resistance of the clothes is above a predetermined value for a predetermined period of time subsequent to each successive energization of said moisture-sensing circuit.

3,304,622
HOT PRESS OUTFEED COOLING APPARATUS

Glenn W. Stevens and Alan A. Siewert, Salem, Oreg., assignors to Stevens Steel and Equipment Co., Salem, Oreg., a corporation of Oregon

Filed July 22, 1963, Ser. No. 296,701
2 Claims. (Cl. 34—55)



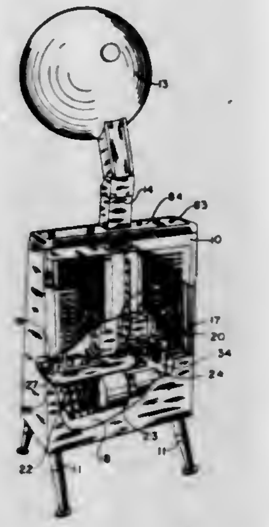
1. Apparatus for cooling the panel outfeed from a hot press, comprising horizontal infeed conveyor means spaced outwardly from a hot press outfeed conveyor and having rear and front ends, a pair of spoke assemblies mounted for rotation on a horizontal axis and spaced one adjacent each end of the infeed conveyor means, electrically actuated drive means for the spoke assemblies having an electric circuit, each spoke assembly including a plurality of radially extending elongated spokes, each aligned in a radial plane with a spoke of the other assembly, each aligned pair of spokes being arranged upon rotation of the assemblies to intercept the path of travel of a panel on the infeed conveyor means, whereby to engage under the panel and elevate the latter from the infeed conveyor means, first switch means in said electric circuit positioned adjacent the front end of the infeed conveyor means and operatively engageable by the leading end of a panel on the infeed conveyor means to activate the electrically actuated drive means and rotate the spoke assemblies, upon positioning of the panel for elevation by a spoke pair second switch means in parallel with the first switch means in said electric circuit operatively engageable by a spoke of each aligned pair to deactivate the electrically actuated drive means and stop the rotation of the spoke assemblies with an aligned pair of spokes positioned slightly below the plane of the infeed conveyor means and third switch means in series with the first switch means and in parallel with the second switch means and positioned adjacent the rear end of the infeed conveyor means for establishing the minimum length of panel capable of activating the electrically actuated drive means.

3,304,623
HAIR DRYER

Carroll R. Reiss, Green Township, Hamilton County, and James H. Diehl, Indian Hill, Ohio, assignors to The Realistic Company, Cincinnati, Ohio, a corporation of Ohio

Filed July 13, 1964, Ser. No. 382,219
3 Claims. (Cl. 34—80)

1. A hair dryer which comprises a pair of desiccant units, a blower, a duct connecting each of the desiccant units to the blower, a damper in each duct to close the duct associated therewith, means connecting the dampers to open alternatively, whereby when one of the dampers is open the other damper is closed and air is drawn in through the desiccant unit associated with the open damper to dry the air, means for heating the dried air leaving the desiccant unit, a conduit receiving the dried and heated air from the blower, a hood connected to the conduit to receive and discharge the dried and heated air, and means connecting the conduit to the desiccant units to bypass a portion of the dried and heated air

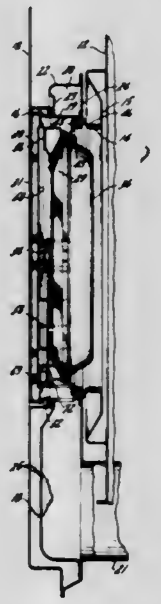


through the desiccant unit for drying thereof, switch means for starting the blower, and means for reversing the damper positions when the switch means is actuated.

3,304,624
DRYER DOOR AND FILTER ASSEMBLY

Clifford F. Czech, Ripon, Wis., assignor to McGraw-Edison Company, Ripon, Wis., a corporation of Delaware

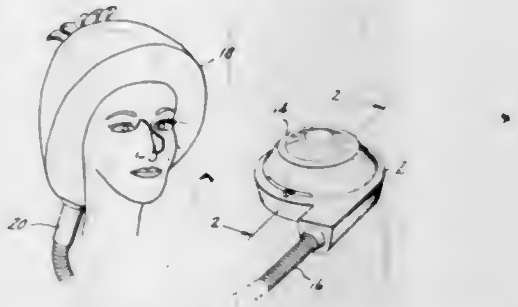
Filed July 6, 1964, Ser. No. 380,704
8 Claims. (Cl. 34—82)



1. In a laundry dryer, the combination comprising a rotatable clothes drum having an axial loading opening, a cabinet surrounding said clothes drum having an access opening alined with said loading opening, means for exhausting drying air from said clothes drum including a perforated cylindrical flange between said drum and said cabinet around said openings, a door on said cabinet for closing said access opening, a perforate shield panel positioned in the path of exhaust air from said drum to said flange, means for removably supporting said panel on said door in rearwardly spaced relation thereto, said supporting means including a releasable connection engageable upon sliding movement transverse of said openings and manually operable means releasably holding said panel against transverse movement, and a slidably removable filter screen positioned intermediate said panel and said door for removing lint from exhaust air passing through said panel, said panel supporting means having an opening for removal of said screen.

3,304,625
PORTABLE HAIR DRYER WITH HEATERS ON BOTH ENDS OF FLEXIBLE HOSE

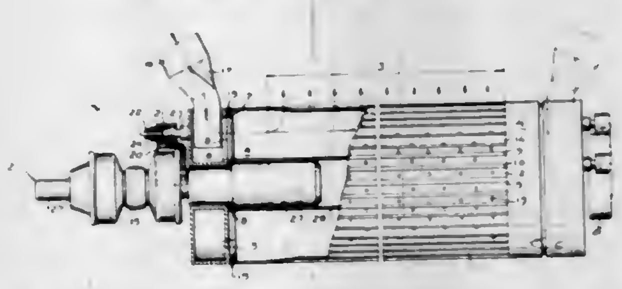
Jorgen Gesmar, Westport, and Ralph B. Seymour, Monroe, Conn., assignors to General Electric Company, a corporation of New York
Filed May 25, 1964, Ser. No. 369,678
12 Claims. (Cl. 34—99)



1. In a portable hair dryer including a housing containing an electric motor driven fan and first electric heating means in the air stream of the fan, a lightweight, flexible plastic hose having one end connected to the housing and the fan air output; a flexible hair drying bonnet adapted to fit over the user's hair and having an air inlet; a lightweight, tubular plastic casing having one end connected to said bonnet air inlet and having its other end connected to the downstream end of said hose; a heater enclosure supported within said casing and spaced from the inner walls of the casing; electric heating means mounted within said enclosure; conductor means extending through said hose and connecting the heating means in said housing to the heating means in said enclosure, and switch means to control the energization of said first and second heating means, said first and second heating means being connected through said switch means to a power line input for simultaneous energization of said first and second heating means.

3,304,626
FELT DRYING ROLLERS AND THE LIKE

Börje Valentin Leckner, Linnegatan 20, Jonkoping, Sweden
Filed Apr. 27, 1964, Ser. No. 362,629
5 Claims. (Cl. 34—115)

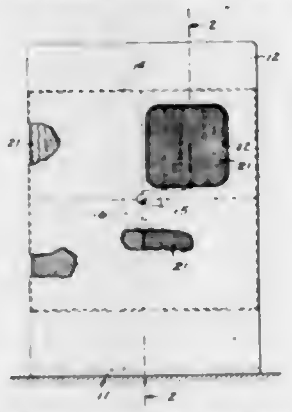


1. A rotatable drying roller for drying a web, running over part of the circumference of said drying roller in engagement therewith, comprising in combination:

a rotatable shaft carrying said drying roller;
a pair of journalling means for said shaft;
a duct for the passage of hot, gaseous drying medium;
a stationary manifold into which one end of said duct opens, said manifold being located at one end of said drying roller in close juxtaposition thereto and having an opening for the passage of said drying medium in that one of its walls which faces said drying roller;
a plurality of axially extending walls forming part of said drying roller and having their inner, longitudinal edge secured to said shaft and their outer, longitudinal edge located substantially on the circumference of said roller for momentary engagement with the web while said roller rotates, said walls thus defining an equal plurality of axially extending channels which are in momentary communication with said manifold for the passage of drying medium therethrough and through the portion of the web being in momentary engagement with the drying roller;
an equal plurality of axially extending strips, each located in an individual channel and having its longitudinal edges secured to said walls of the channel, said strips being provided with perforations of such a number, size and distribution as to ensure a predetermined distribution of the flow of the drying medium through the web while in momentary engagement with the drying roller; and
a plurality of axially extending vanes, each vane being disposed in one of said channels and having its inner, longitudinal edge secured to the strip located in its channel and its outer longitudinal edge located substantially on the circumference of said roller for momentary engagement with the web while said roller rotates.

3,304,627
EDUCATIONAL DEVICE

Richard T. Cella, 35 Park Ave., New York, N.Y. 10016
Filed Feb. 4, 1966, Ser. No. 525,097
1 Claim. (Cl. 35—8)

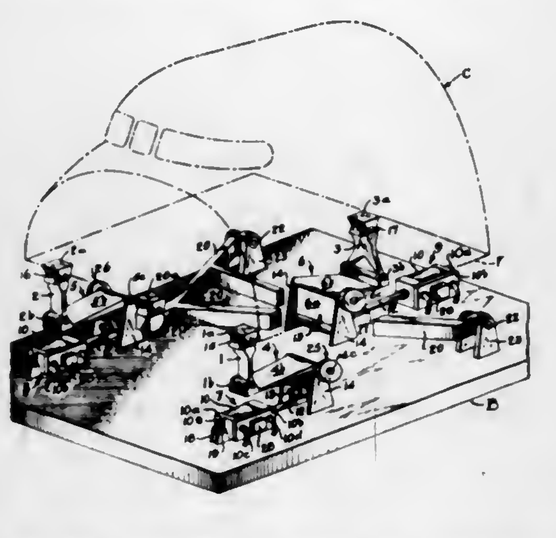


The method of determining at a glance by an instructor the answers to a multiple choice question which have been selected by a plurality of students each of whom is provided with an educational device comprising a base carrying at its forward edge an upstanding support panel, said support panel being rearwardly inclined over said base for stability, an indicator disc rotatably mounted on the rear face of said support panel, said indicator disc having its rear face exposed and carrying a series of designations to be selectively positioned at a predetermined point by suitable rotation of said indicator disc, said indicator disc having a forward face concealed by said support panel and a series of designations registering with said first mentioned designations, said support panel having an opening registering with one of said last designations on said indicator disc to indicate thereby the selected position of said disc, which method comprises selectively setting each indicator disc in accordance with the selected answer while the support panel is held face down by the student, then positioning each such device on its base to expose the front of the support panel to view by the instructor whereby the answer selected by each student can be determined at a glance by viewing the designation exposed through the opening in said support panel.

3,304,628
COCKPIT MOTION SYSTEM FOR AIRCRAFT SIMULATORS

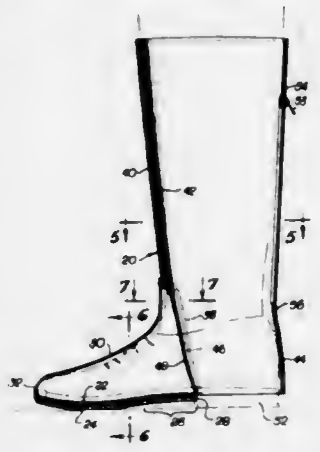
Louis Kaplan, Englewood Cliffs, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed May 21, 1965, Ser. No. 457,671
9 Claims. (Cl. 35—12)

9. In combination, a movable platform, a supporting base therefor, and means for bodily moving said platform within restricted limits of vertical translation, tilting about transverse and longitudinal axes of the platform and combinations of said vertical and tilting movements comprising a plurality of separate mechanical force transmitting structures pivotally mounted on said base and pivotally connected to said platform at spaced points thereon respectively, said mechanical structures supporting said platform at said points and bracing it with respect to lateral stresses incident to any sway characteristics of the platform, and an independently controlled servo actuator connected to each mechanical force transmitting structure for individual operation thereof in reciprocal direction, said servo actuator being separately mounted on said base and isolated by said force transmitting structure with respect to said lateral stresses.



3,304,629
SIMULATED COSTUME OR THEATRICAL FOOTWEAR

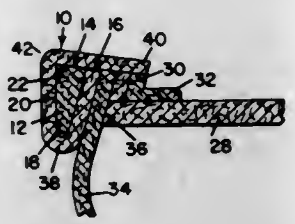
Michael D. Meyers, 9627 Burnet Ave., Sepulveda, Calif. 91343
Filed Oct. 22, 1965, Ser. No. 501,458
6 Claims. (Cl. 36—7.2)



1. A simulated costume boot made of relatively unyieldable material for use with a conventional shoe comprising: a vamp portion; a sole secured to said vamp, said vamp portion and said sole defining a shoe receiving pocket; a boot upper united to said vamp portion by a flexible seam extending from the front of a wearer's ankle to the arch of said wearer's shoe so as to provide a flexible juncture about which said boot can be bent and so as to provide a cover which fits around at least a portion of a wearer's leg; said boot upper including a curved lower rear counter portion whereby an opening is defined between the rear edge of said sole and the counter portion of the boot upper conforming to and through which the heel of a wearer's shoe can protrude; and said vamp, sole and upper conceal a wearer's entire shoe except for the heel thereof.

3,304,630
WRAP-AROUND WEDGE WELT FOR GOODYEAR WELT CONSTRUCTION

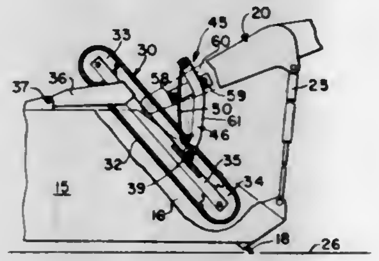
Victor A. Sherbrook, 164 Colonel Hunt Drive, Abington, Mass. 02351
Filed Sept. 30, 1963, Ser. No. 312,429
6 Claims. (Cl. 36—17)



1. A Goodyear Welt shoe construction comprising an insole, a sewing rib thereon, an upper secured to the rib, a welt strip secured to the upper and to the rib along a longitudinal edge of the welt strip, a wedge strip on the welt strip adjacent the edge of the welt strip that is secured to the upper and rib, the welt strip extending along the upper, under the wedge strip, and about the wedge strip, said wedge strip being substantially enclosed by the welt strip, said wedge strip lying in at least a partial overlapping relation to the outside edge of the insole, the wedge strip gradually lessening in thickness from a terminal edge inwardly thereof to the opposite terminal edge.

3,304,631
EARTH MOVING IMPLEMENT

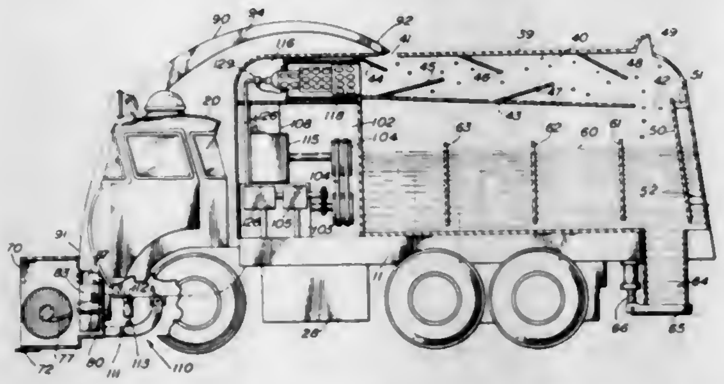
Harold C. Welser, Rock Island, Ill., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed May 25, 1964, Ser. No. 369,796
9 Claims. (Cl. 37—8)



5. In a scraper-carrier having a material carrying bowl structure including a rear wheel assembly supporting the rear end of a bowl with upright side walls and a floor structure, a forward transverse blade on the bowl, a yoke including a pair of fore-and-aft extending arms pivotally connected at their rear ends to the side walls and rigidly interconnected at their forward ends, the yoke structure further having a forwardly directed drawbar adapted for connection at its forward end to a wheeled assembly, and power means between the yoke structure and bowl for raising and lowering the bowl to vertically adjust the blade in relation to the ground level, the combination therewith comprising: a flight type elevator structure disposed adjacent the forward end of the bowl disposed to engage material passing over the blade, the elevator being inclined from a lower forward end adjacent the blade to an upper rear end and having opposite sides adjacent the side walls; means pivotally supporting opposite sides of the elevator on the side walls whereby the lower end of the elevator may float in accordance with the material passing over the blade; latch mechanism extending between the elevator and the yoke structure, the mechanism having a lost motion interconnection whereby it is ineffective when the bowl is lower than the position placing the blade substantially at ground level and becomes effective when the blade is substantially at the ground level to thereby resist upward movement of the elevator.

3,304,632
SNOW AND ICE MELTING APPARATUS

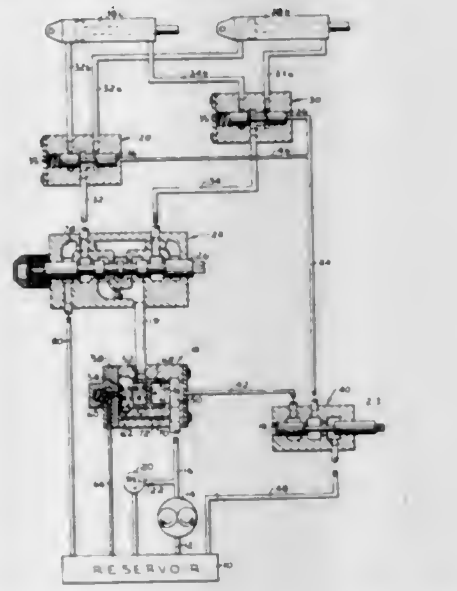
Rudolph Joseph Kotlar, 2515 S. 59th Court, Cicero, Ill. 60650; Albert Henry Raack, 1815 S. 20th Ave., Maywood, Ill. 60153; and Charles A. Truckenbrodt, 361 Fairview Ave., Elmhurst, Ill. 60126
Continuation of application Ser. No. 299,047, July 31, 1963. This application Nov. 26, 1965, Ser. No. 516,828
14 Claims. (Cl. 37—12)



1. Apparatus for removing snow and ice from roadways and the like comprising: a wheeled vehicle; a snow plow mounted to said vehicle and positioned to harvest snow and ice from a roadway and the like as said vehicle moves forward, a tank for collecting melted snow and ice mounted on said vehicle having a top member with a first and a second aperture therein; snow conveying means for conveying snow and ice harvested by said plow into said tank through said first aperture, combustion means for forced draft burning of fuel mounted on said vehicle, said combustion means having discharge sleeves, a venturi throat communicating with said discharge sleeves, said first aperture positioned adjacent said venturi throat whereby hot combustion gases are exhausted at a high velocity into said tank to create a venturi effect at said first aperture for accelerating the movement of snow and ice into said tank and to disperse and melt said snow and ice which collects in said tank; the spent gases from said combustion means being vented through said second aperture.

3,304,633
HYDRAULIC CIRCUIT

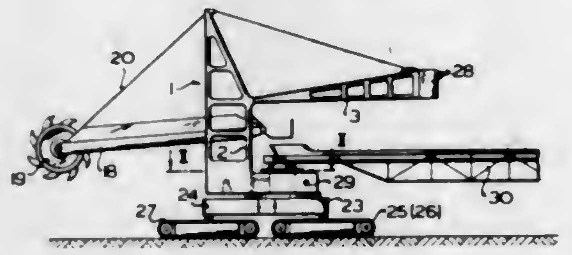
Allyn J. Hein and James E. Scheidt, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed May 8, 1964, Ser. No. 366,029
9 Claims. (Cl. 37—129)



1. A hydraulic control circuit for selectively individually operating at least two hydraulic motors comprising: a hydraulic circuit for actuating said motors, selectively operable control means for effecting actuation of said motors in a desired sequence, means for supplying fluid under pressure to said circuit, switch valve means being operable to effect operation of either one of said motors, a hydraulic pilot pressure circuit for actuating said switch valve means to permit pressure fluid energization of one of said motors, and control valve means in communication with said motor actuating hydraulic circuit and said pilot pressure circuit for rendering said pilot pressure circuit ineffective to operate said switch valve means in order to permit pressure fluid energization of the other of said motors.

3,304,634
EARTH WORKING MACHINE, SUCH AS A BUCKET WHEEL DREDGE, OR THE LIKE

Anton Becker, Neuss, Germany, assignor to Maschinenfabrik Buckau R. Wolf Aktiengesellschaft, Grevenbroich, Germany
Filed Sept. 7, 1965, Ser. No. 485,202
Claims priority, application Germany, Sept. 10, 1964, M 62,388
12 Claims. (Cl. 37—190)

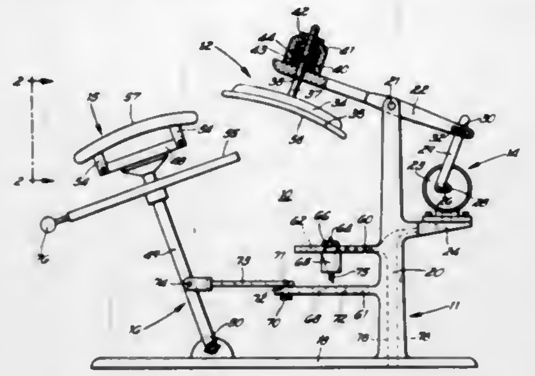


1. In an earth working machine, such as a bucket wheel dredge or the like, in combination, a lower support structure adapted to rest on the ground; an upper support structure having a substantially upright portion and a substantially horizontal lower portion projecting to one side of said upright portion; means permanently tending to tilt said upper support structure in direction of said one side thereof; a working boom connected at one end thereof to said upright portion projecting to the other side therefrom; a turntable having a turning axis; an annular thrust bearing carried by said lower support structure coaxially with said turning axis of said turntable and supporting the latter turnably about said turning axis; mounting means mounting said lower portion of said upper support structure on said turntable tiltable about a tilting axis located laterally of and substantially normal to said turning axis; and cooperating means on said turntable and said upper support structure for limiting tilting movement of said upper support structure relative to said turntable, whereby change of a load on the free end of said working boom said upper support structure may tilt relative to said turntable without affecting the position of the latter relative to said thrust bearing.

3,304,635
PRESSING APPARATUS

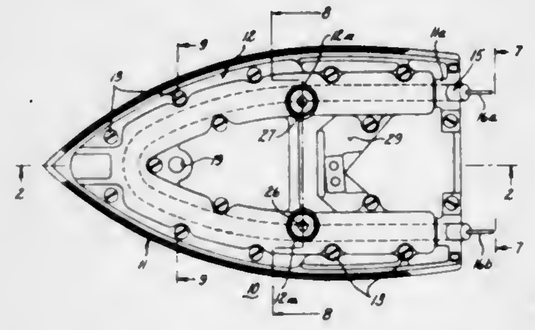
Monte F. Huebsch, Sr., Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Sept. 29, 1965, Ser. No. 491,272
5 Claims. (Cl. 38—25)

1. In a pressing device, the combination of, a generally elongate buck having a relatively large upper pressing area, a generally elongate head disposed generally above said buck and having a relatively large lower pressing area generally coextensive with the pressing area of said buck, a support base, first means for supporting said buck on said support base for generally transverse movement into and out of registry with said head, second means for supporting said head above said buck, cyclic drive means coupled to said second means and operative to move said head in rapid oscillatory motion for cyclically moving said head into and out of pressing contact with said buck, and third means to initiate the operation of said drive means when said buck is moved into registry with said head and to terminate the operation thereof when said buck is moved out of registry with said head.



3,304,636
HEATING AND STEAM GENERATING SUB-ASSEMBLY FOR A PRESSING IRON

Joseph L. Vieceli, La Grange, and Stanley Walczak, Chicago, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed Aug. 5, 1963, Ser. No. 299,750
7 Claims. (Cl. 38—77)

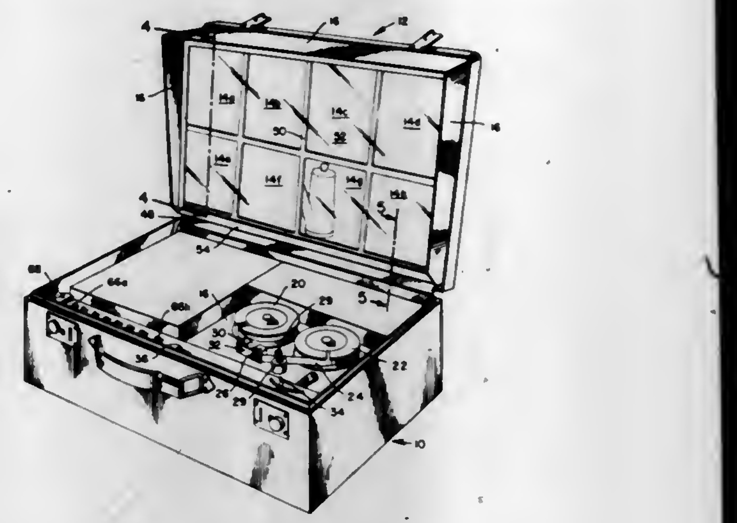


1. For use with a pressing iron, a sole plate, a heating element embedded in said sole plate including terminals accessible from one end of said sole plate, means including portions of said sole plate defining a steam generating chamber extending over substantially the entire embedded portion of said heating element, and a plurality of ports interconnecting said steam generating chamber with the ironing surface of said sole plate, said ports being disposed on both sides of said heating element and distributed along almost the entire length thereof.

3,304,637
AUDIO-VISUAL DEVICE

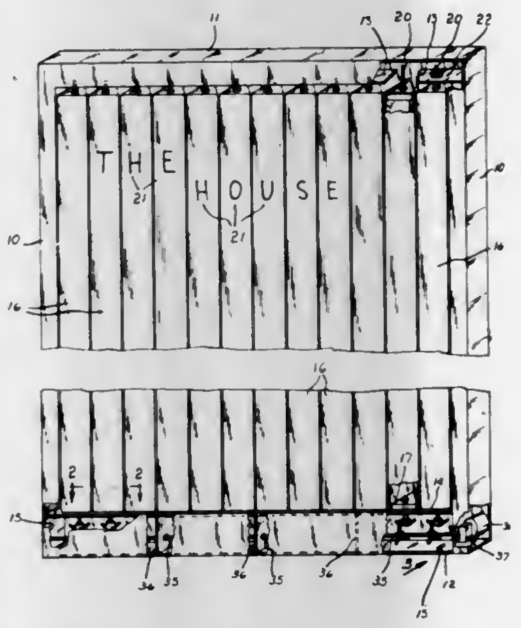
Thomas Conley Tyndale, 55 Austin Place, Staten Island, N.Y. 10304
Filed Oct. 28, 1964, Ser. No. 407,181
3 Claims. (Cl. 40—28.1)

1. A cordless audio-visual demonstration aid comprising, a house having a cover, a frame for supporting a plurality of pictures mounted on the interior of said cover, a plurality of pictorial transparencies mounted in said frame for viewing when the cover is open, a corresponding plurality of electric lamps mounted in said cover, each of said lamps being mounted behind a respective one of said transparencies for illumination thereof, said cover further containing light dispersing means mounted on said frame between each of said lamps and its associated transparency, a battery powered magnetic tape mounted in said housing, said playback unit comprising a loud speaker and a movable magnetic tape containing audio and control information, battery means in said housing, and switching means connected in circuit with said battery and said plurality of lamps, said switching means being responsive to said control information for connecting said battery means to selected lamps in a desired sequence to illuminate said transparencies and thereby provide a preselected visual accompaniment to said audio information.



3,304,638
ACTIVATED CHANGEABLE ADVERTISING SIGN

William A. Grandell, Worth, Ill.; James M. Wasson, 2930 S. Harlem Ave., Riverside, Ill. 60546; and Richard Z. Wasson, 356 E. Walnut St., Frankfort, Ind. 46041; said Grandell assignor to said James M. Wasson
Filed Apr. 3, 1964, Ser. No. 357,104
10 Claims. (Cl. 40—76)

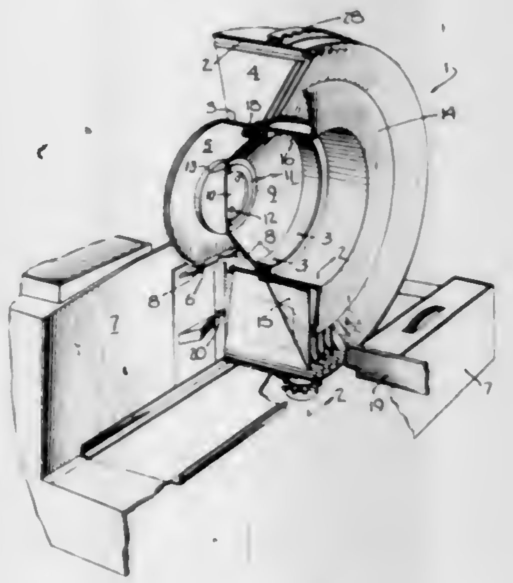


1. In an advertising sign;
comprising a casing having a display opening;
said casing having upper and lower apertured metal
  mounting bars;
a plurality of upwardly extending spaced apart triangularly faced sign-bearing units,
each of said sign-bearing units having mounted thereon a journalled upper shaft and a depending parallel lower shaft;
said shafts rotatably mounting said sign units relative
  to said bars;
a plurality of hub members operatively mounted on said lower shafts respectively, each of said hub members having a plurality of radial studs mounted in different vertical planes;
a transverse power driven shaft journalled in the lower portion of said casing;

a plurality of driving sprockets mounted in transversely spaced apart relation on said driven shaft, each of said sprockets having a plurality of radial arms of varying lengths thereon;
said arms when rotated, being adapted to engage and push said studs of said hubs respectively to cause intermittent partial rotation of said sign-bearing units;
to thereby successively present to view the correspondingly matching faces of said sign units;
each one of said arms being adapted to engage only one of said studs whereby obstructed stoppage of rotation of any one or more of said sign units will cause one of said arms to upwardly elevate said obstructed sign unit into upper non-operating position wherein the studs connected to said obstructed unit will not be contacted by the arms of the adjacent sprocket.

3,304,639
SLIDE MAGAZINE

Carl H. Wiklund, Brookfield, Conn., assignor to Airequipt Inc., New Rochelle, N.Y., a corporation of New York
Filed Sept. 29, 1964, Ser. No. 400,137
8 Claims. (Cl. 40—79)

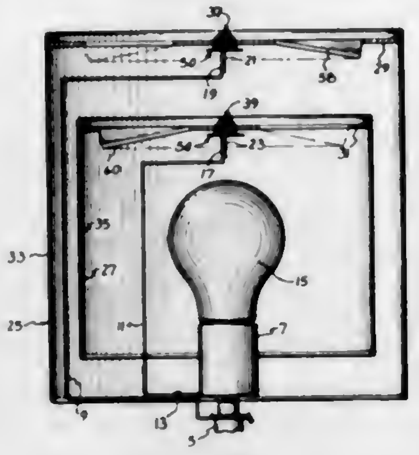


1. A slide magazine comprising the combination of spaced wall members, dividers positioned intermediate said wall members forming a plurality of slide storage compartments, a member cooperating with one of said walls forming a channel opening into said compartments, an elongated resilient slide retaining member of generally circular cross section in the plane of the dividers positioned in said channel and having a portion extending into said compartments for being displaced transversely of its axis by and for releasably engaging the edges of slides for retaining the slides in said magazine.

3,304,640
HEAT MOTOR AND DUST SHIELD THEREFOR

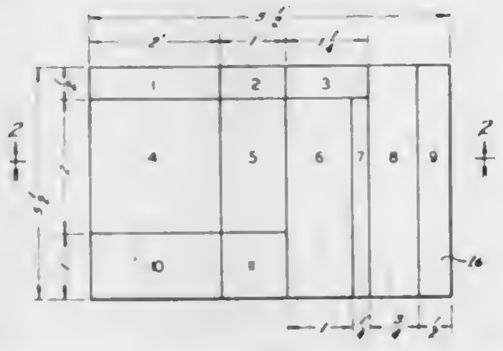
William M. Swartz, 1430 W. Wrightwood Ave., Highland Park, Ill. 60614
Filed Dec. 6, 1963, Ser. No. 328,696
4 Claims. (Cl. 40—106.54)

1. An air driven motor comprising an impeller rotatable upon axial flow of air therethrough, thrust-bearing means rotatably supporting the impeller and from which the impeller is suspended, said thrust-bearing means including a member terminating in a needle point, means for inducing a flow of air past the thrust-bearing means and axially through the impeller, and means adjacent to the thrust-bearing means for shielding the needle-pointed member from particles of foreign matter carried by the induced flow of air, said shielding means comprising an element that is pre-formed of a solid material having lubricating properties and in which particles of the material will rub off onto the needle point when the element is assembled with the needle-pointed member upon projecting the needle point therethrough so as to provide a lubricant for said thrust-bearing means.



3,304,641
PICTURE POSTCARD

Donald L. Gonczy, 24650 N. Cromwell, Franklin, Mich. 48025
Filed Oct. 2, 1964, Ser. No. 401,140
4 Claims. (Cl. 40—158)



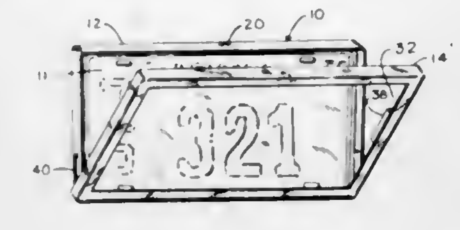
1. A postcard for adhesively attaching any one of various common sizes of rectangular photographs thereto comprising a surface adapted to receive a mailing address on one side thereof and an adhesive surface on the other side thereof, and various sized respectively integral rectangular means covering said adhesive surface for selective removal therefrom to provide any one of a number of different rectangular areas of adhesiveness which vary in size and are respectively commensurate with areas of common sizes of rectangular photographs, whereby a photograph of a particular size may be adhesively attached to said postcard by removing the appropriate ones of the various sized means to provide an area of adhesiveness substantially equal to the size of the photograph while the rest of said adhesive surface remains covered.

3,304,642
LICENSE HOLDING DEVICE

Gilbert W. Dardis, 301 E. 9th St., Spencer, Iowa 51301
Filed Oct. 28, 1963, Ser. No. 319,340
1 Claim. (Cl. 40—209)

In a license plate holding device,
a back-up plate,
a flange on the perimeter of said back-up plate extending at right angles with respect to the plane of said plate,

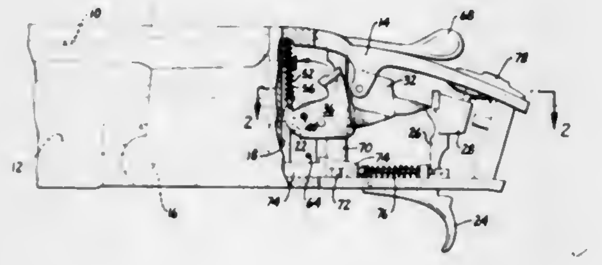
a rectangular cover plate having a display opening therein,
a flange on the perimeter of said cover plate and extending at right angles thereto to receive the flange of said back-up plate,
hinge pins pivotally interconnecting said back-up plate and said cover plate,



a coil spring having a coil portion and first and second spring arms extending therefrom, said coil portion embracing one of said hinge pins, one of said spring arms being secured to said cover plate adjacent said flange thereon, the other of said spring arms having a terminal arm portion detachably received by said flange on said back-up plate, said coil spring yieldably resisting the pivotal movement of said cover plate away from said back-up plate,
a resilient means secured to said back-up plate adjacent its perimeter adapted to engage the license plate to prevent the movement thereof.

3,304,643
FIREARM ACTION

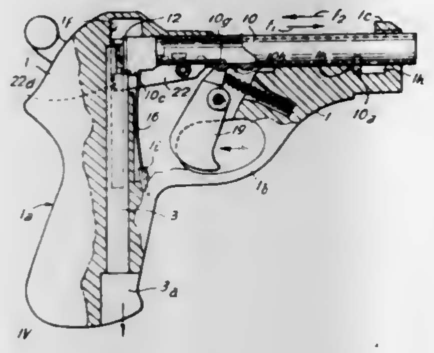
William J. Nittler, 2110 32nd Ave., San Francisco, Calif. 94116
Filed June 23, 1965, Ser. No. 466,324
3 Claims. (Cl. 42—42)



1. In a firearm having a barrel, a receiver mounted at the rearward end of the barrel and having a forward receiver wall which closes the rearward end of the barrel, a firing pin extending through said forward receiver wall with said firing pin lying in a plane, and a trigger, the improvement comprising a hammer laterally spaced from said plane and pivotally mounted in said receiver at an axis which is laterally spaced from said firing pin and generally perpendicular to said plane, a coiled compression spring mounted under compression between said hammer and a wall of said receiver with said spring having a central axis extending past said hammer and positioned between said forward receiver wall and said hammer axis generally parallel to said plane, an extension on said hammer extending from said hammer laterally through said plane and forwardly toward said firing pin with the forwardly extending dimension of said extension exceeding the diameter of said spring whereby engagement of said extension with said firing pin prevents said hammer from striking said spring, means for cocking said hammer, and firing means including a sear interconnecting said hammer and said trigger.

3,304,644
TOY GUN INTENDED TO SIMULATE THE EJECTION OF SPENT CASES AT EACH FIRING OF AN EXPLOSIVE CAP

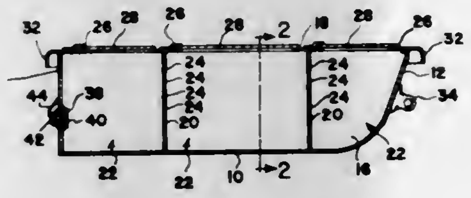
Giampiero Ferri, Via Stoppani 38, and Jori Marinai, Via Stoppani 29, both of Florence, Italy
Filed Aug. 12, 1965, Ser. No. 479,157
Claims priority, application Italy, Aug. 21, 1964, 18,290/64
8 Claims. (Cl. 42—54)



1. In a cap-firing toy firearm for use with caps arranged in strip form,
cap-firing means, and
severing and ejector means operable substantially simultaneously with the cap-firing means whereby to sever a spent cap from the strip of interconnected caps and eject said spent cap from the firearm while an adjacent cap is being fired.

3,304,645
LIVE BAIT AND FISH CONTAINER

Richard D. Hardesty, 2900 Gibson, Muskogee, Okla. 74401, and Thomas J. Moreland, 19724 Pine, Tulsa, Okla. 74138
Filed Nov. 12, 1964, Ser. No. 410,676
4 Claims. (Cl. 43—55)

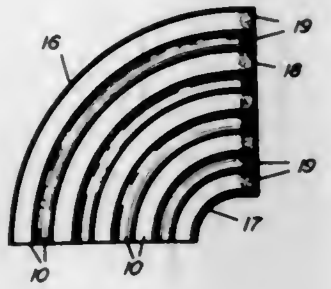


1. A container for live bait and fish comprising,
(a) an enclosed box comprising a bottom wall, side walls, a front wall, a rear panel, and a top panel, all of said walls being completely imperforate,
(b) at least one partition wall extending vertically upwardly from said bottom wall and having a horizontally extending edge secured to said top panel and vertically extending edges secured to said side walls to divide the interior of said box into a plurality of compartments,
(c) said partition wall being provided with a plurality of apertures with all of said apertures being positioned above a line substantially parallel with and spaced from said bottom wall whereby an imperforate portion of said partition wall is provided adjacent said bottom wall,
(d) an opening being provided in said rear panel, a screen member covering said opening, and means for selectively closing said opening, and
(e) means for securing a towing rope to said front wall.

3,304,646

TRAP FOR BUGS AND THE LIKE

Thomas G. Staley, Eagle Point, Oreg. 97524
Filed Nov. 9, 1964, Ser. No. 409,779
2 Claims. (Cl. 43—131)

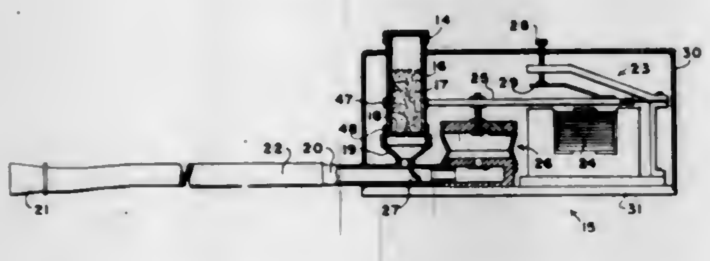


1. A trap for insects, rodents and the like comprising a sector-shaped casing having side, top and bottom walls curving through an arc of substantially 90°, a corrugated insert secured within said casing and conforming to the curvature of said casing walls to provide a plurality of longitudinally curved channels, said channels being closed at one end by a wall of said casing, and a poison located in said channels at said one end thereof.

3,304,647

DUSTER DEVICES

George Szekely, 916 Pelham Parkway, Bronx, N.Y. 10462
Filed Oct. 2, 1964, Ser. No. 401,010
3 Claims. (Cl. 43—147)



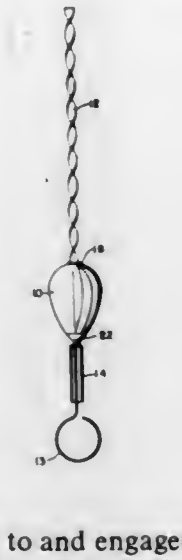
1. In a duster device of the character described, the combination of a tube having an intake end and a discharge end for the flow of air therethrough, a downwardly-discharging, powder-sprinkling container, means connecting said tube to said container whereby said container constitutes an upwardly extending branch of said tube; at least part of said connection means being extensible and contractable whereby said container is shakable in relation to said tube, a vibratable armature connected to said container, an electro-magnetic means for actuating said vibratable armature, an air pump connected to discharge into the intake end of the tube and means connecting said vibratable armature to said pump, whereupon actuation of said electro-magnetic means, the pump is operated and the container is shaken.

3,304,648

SPINNING TOP WITH HELICAL ACTUATOR

Paul J. Tritschler, 5165 Fishburg Road, Dayton, Ohio 45424, and Edward G. Tritschler, 250 Indiana Ave., Dayton, Ohio 45410
Filed May 19, 1964, Ser. No. 368,489
2 Claims. (Cl. 46—68)

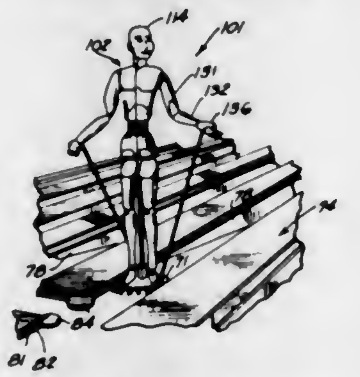
1. In combination, a top including a body having an axial bore and a nose piece mounted in a lower end portion of said bore, said nose piece having a substantially spherical exposed face, there being a slot in said face spaced from the axis of the body, a helical actuator adapted to extend lengthwise of the bore through and in engagement with edges of the slot, and a hollow cylindrical driving sleeve surrounding the actuator, the driving sleeve having a face complementary to and engageable with the spherical face of the nose piece for driving the top along the actuator to initiate spinning of the top.



3,304,649

PUPPET THEATER APPARATUS

William B. Fosser, 1415 N. Astor St., Chicago, Ill. 60610
Original application Oct. 23, 1961, Ser. No. 146,840, now Patent No. 3,229,411, dated Jan. 18, 1966. Divided and this application Sept. 29, 1965, Ser. No. 491,217
7 Claims. (Cl. 46—126)

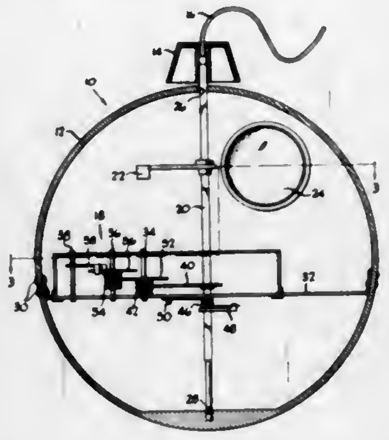


5. In puppet apparatus of the kind adapted to be movable along trackways formed in a stage and manipulated from beneath the stage: support means for supporting the puppet apparatus on the stage, said support means comprising a platform member slidable within said trackways and a vertically extending support shaft connectable to the platform member at a fixed axial position on said support shaft; a puppet supported on an upper end of said support shaft and having component parts connected together in articulated connections whereby the parts are movable to simulate various movements of corresponding parts of the human body, said puppet comprising a lower torso rigidly affixed to said support shaft, an upper torso joined to said lower torso in a flexible connection including spaced parallel like coil springs and formed with a socket in the upper end thereof, a neck rotatable within said socket, and a head supported on said neck; and control means extending through said platform member and connected to the component parts of the puppet for selectively moving desired parts of the puppet, said control means including a rod rigidly connected at an upper end to said neck for turning the head by rotating the neck within said socket, said rod extending downwardly through said upper and lower torsos and said support shaft and including a universal joint in the portion of the rod aligned with the flexible connection between said torsos.

3,304,650

TOY BOMB

Marvin I. Glass, Gordon A. Barlow, and Henry Stan, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Jan. 21, 1964, Ser. No. 339,303
4 Claims. (Cl. 46—177)

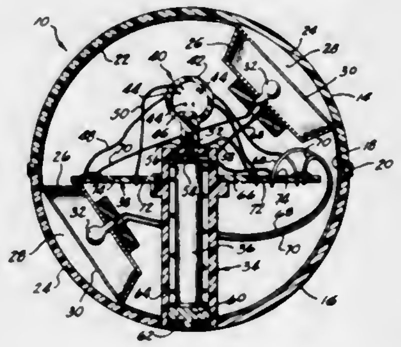


1. A toy bomb comprising a housing, a spring operated timer mechanism supported within the housing and including means for producing a ticking sound, a simulated fuse means on the exterior of said housing including a part which is rotatable to wind said timer mechanism, and a sound making means within said housing including a diaphragm and a striking element which is operably connected with said timer mechanism so that said striking element is released to strike the diaphragm and thereby produce an exploding sound upon completion of the operation of said timer mechanism.

3,304,651

INTERMITTENTLY AND SELECTIVELY ILLUMINATED BALL

Herman F. Deyerl, Ann Arbor, Mich., assignor to R. J. Reynolds Manufacturing Co., Ann Arbor, Mich., a corporation of Michigan
Filed Apr. 23, 1964, Ser. No. 362,009
10 Claims. (Cl. 46—228)

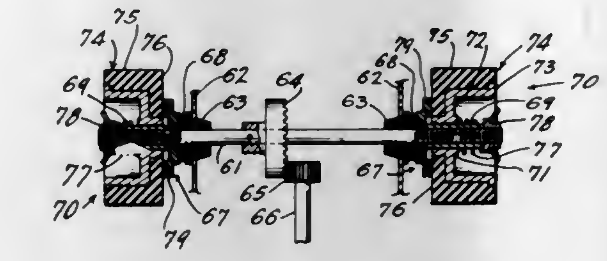


1. An intermittently illuminating device comprising a hollow housing having sections with light transmitting properties in its outer surface, partitions within said housing separately enclosing each of said sections and defining with said sections a plurality of separate enclosures, electric lamps positioned in each of said enclosures, a source of electrical energy carried within said housing, a mercury switch device supported within said housing, and electrical circuit means separately interconnecting said source with each of said lamps respectively through separate pairs of spaced contacts in said switch device, said switch device including a closed casing in which a globule of mercaury can move freely, said pairs of spaced electrical contacts extending into said casing and being adapted to be bridged selectively by said globule of mercury for selectively energizing the lamp associated with the bridged pair of contacts.

3,304,652

MODEL SLOT TYPE RACING CAR WITH DIFFERENTIAL FRONT WHEEL DRIVE

William T. Donofrio, Toledo, Ohio, assignor to Donofrio & Company, Toledo, Ohio, a corporation of Ohio
Filed Feb. 7, 1966, Ser. No. 525,439
2 Claims. (Cl. 46—243)

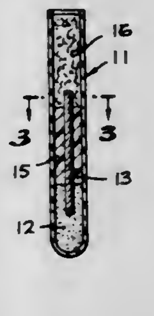


1. A model racing car of the type designed to be guided along a slotted raceway, said car comprising in combination, a generally horizontally extending frame, front and rear axles mounted by said frame, road wheels journaled for rotation adjacent the ends of said axles, a motor mounted on said frame adjacent said front axle whereby the center of gravity of said racing car is toward the front of said car, means operatively connecting said motor in driving relationship to said front axle, a slot guide pivotally mounted on said frame at a position forward of said front axle, and differential means for applying power on curves to the inside one of said front road wheels, said differential means comprising a drive member coupled to and rotatable with said driven front axle adjacent the inner side of each of said front road wheels, and means normally biasing each of said front road wheels into frictional engagement with a respective one of said drive members, whereby axial forces upon said wheels caused by curves in said slotted raceway will reduce the frictional engagement of the outside one of said road wheels with its respective drive member and will cause power to be applied to the inside one of said road wheels such that racing car drive control and racing car electrical control is substantially maintained upon lateral movement of the rear end of the model racing car.

3,304,653

FERTILIZING MEANS

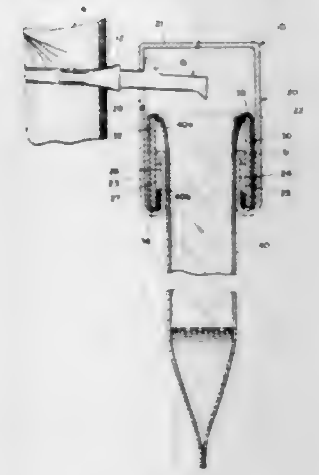
Ludwik J. Zadarnowski, 528 Grace Ave., Inglewood, Calif. 90301
Filed Aug. 14, 1964, Ser. No. 389,558
6 Claims. (Cl. 47—48.5)



1. A combination for impregnating soil and water with fertilizing chemicals, said combination including: a vial closed at the bottom end; fertilizing chemicals in the lower portion of said vial; an elongated moisture-transmitting element having one end embedded in said chemicals; a sealing mass over said chemicals and surrounding said element; and moisture-absorbent material in said tube above said mass and surrounding the other end of said element.

3,304,654
DEVICE FOR COLLECTING POURABLE MATERIALS

Adin C. Reynolds, Aniwa, Wis. 54408
Filed Oct. 12, 1965, Ser. No. 495,263
8 Claims. (Cl. 47—50)

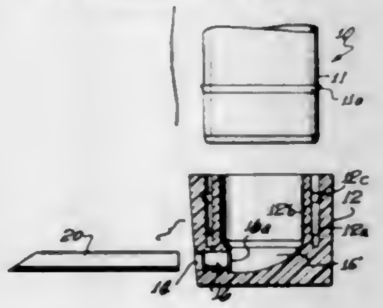


8. A sap collecting device for use in connection with a sap spout, said device comprising:

(a) a substantially rigid, water impervious, open-ended cover member,
(b) said cover member having a top wall and a front and a rear wall depending from said top wall,
(c) said rear wall having a hole therein for receiving said sap spout for suspending said cover member from said sap spout,
(d) each of said front and rear walls having an inwardly and upwardly extending retainer portion,
(e) said retainer portions forming front and rear grooves with the front and rear walls of said cover member,
(f) a substantially rigid band having front and rear portions connected by end portions and having a top edge and a bottom edge,
(g) the front and rear portions of said band being respectively received in the front and rear grooves formed by said retaining portions,
(h) said top wall of said cover member extending outwardly over the ends of said band, and
(i) a transparent plastic bag having an open top portion extending upwardly through said band and outwardly over the top edge of said band and inwardly around the bottom edge of said band for receiving sap from said spout.

3,304,655
METHOD OF INJECTING PLANTS

James J. Mauget, 1043 Bilton Way,
San Gabriel, Calif. 91776
Original application July 26, 1965, Ser. No. 478,525. Divided and this application Oct. 20, 1965, Ser. No. 498,800
2 Claims. (Cl. 47—57.5)

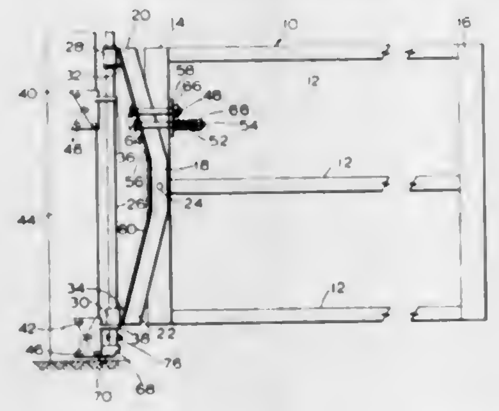


1. The method of injecting a toxic liquid into a plant from a hermetically sealed container, that includes the steps of:

placing the liquid in a container and sealing the container;
pressurizing the container;
setting one end of a hollow tube into a plant to be treated;
engaging the other end of the tube in fluid-tight relation with the container;
and driving said tube through the container wall to breach the wall and to destroy permanently the hermetic character of the container and thereby to discharge the liquid from the container through the tube in response to pressure on the liquid.

3,304,656
FARM GATE

Wencil C. Dvorak, Rte. 2, Dodge, Nebr. 68633
Filed Aug. 17, 1964, Ser. No. 389,919
1 Claim. (Cl. 49—247)

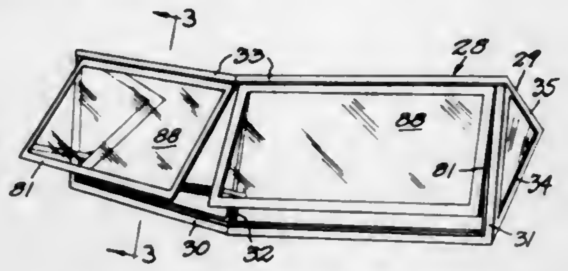


A farm gate assembly of the character described comprising a gate post and a pair of bearings; means by which said bearings are adapted to be secured to said gate post in vertically spaced alignment with each other; a vertically disposed shaft rotatably mounted in said bearings; a hinge member comprising a mid section and a pair of inclined end sections one of which extends upwardly and rearwardly from said mid section and the other of which extends downwardly and rearwardly from said mid section; means secured to the free end of each of said end sections by which said hinge member is secured to said shaft for vertical adjustment thereon and for rotation therewith; a gate having a vertically disposed end plate, means by which said gate is connected to said hinge member for vertical swinging movement with respect thereto, said means comprising a pivot pin by which the midsection of said hinge member is pivotally connected to said end plate intermediate the upper and lower ends thereof; adjustable interconnecting means between the upper inclined end of said hinge member and the said end plate of said gate which is operative to limit the downward swinging movement of said gate; and adjustable counterbalancing and cushioning means which is connected to and between the upper inclined end of said hinge member and the said end plate of said gate which is operative to counter-balance said gate and to cushion the downward swinging movement thereof.

3,304,657
SKIFF WINDSHIELD FOR BOATS

Benoit M. Singleton, Goshen, Ind., assignor to O. S. Keene Company, Inc., Middlebury, Ind., a corporation of Indiana
Filed Sept. 29, 1964, Ser. No. 400,019
11 Claims. (Cl. 49—399)

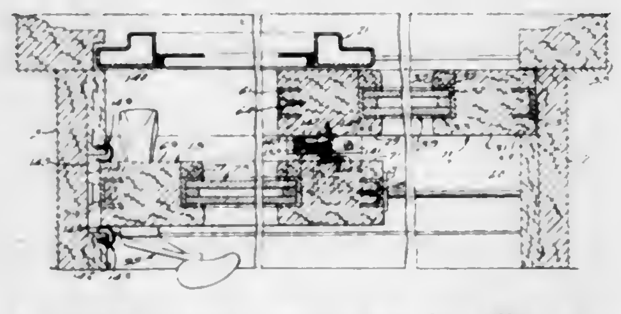
1. A skiff windshield for boats, comprising
a frame and a windshield panel carried by said frame, said frame having two similar sections extending at an angle to each other and comprising a plurality of interconnected frame members of which at least some extend at angles displaced from right angular relationship,
each frame member having a stepped margin at one face thereof to define a longitudinal shoulder intermediate its width and a second longitudinal shoulder at its margin offset from said first shoulder, similar shoulders of said members being substantially coplanar in each frame section,



each frame member having a cross-sectional configuration, including a hollow part spaced from said second shoulder and communicating at its ends with the hollow parts of connected frame members,
each hollow part defining a pair of spaced key-receiving sockets, and
a key secured in each socket,
each key spanning the joint between frame members, one key being located adjacent said first shoulder and being substantially L-shaped.

3,304,658
SLIDING CLOSURE CONSTRUCTION

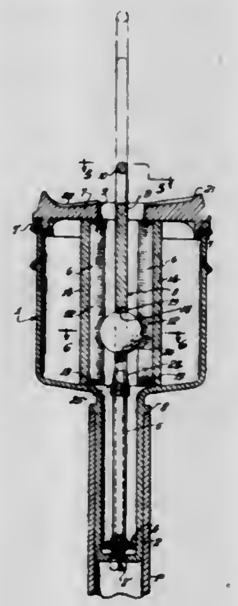
Fred W. Kreger, Grosse Pointe, Mich., assignor to Sash Controls, Inc., Detroit, Mich., a corporation of Michigan
Filed May 21, 1964, Ser. No. 369,247
8 Claims. (Cl. 49—425)



7. A sliding closure construction including a rectangular wall frame having a horizontal sill, at least one rectangular closure panel fixedly mounted in said wall frame, at least one rectangular slidable closure panel formed by at least one glass pane enclosed by a pair of spaced horizontal top and bottom rails interconnected at their ends to a pair of spaced vertical stile members, said slidable closure being disposed in said wall frame for movement from an open position to a closed position; a first pair of longitudinally extending reinforcing members disposed along the outer longitudinal surface of each said stile members and extending from end to end thereof, respectively; a second pair of longitudinally extending reinforcing members disposed along the outer longitudinal surface of each said rail members and extending from end to end thereof, respectively, each said reinforcing member of said second pair having a tab extending generally perpendicular thereto from each end thereof; and means interconnecting each said tab with an adjacent reinforcing member end portion at the outer surface thereof, a notch formed in the bottom of said bottom rail adjacent each end thereof, said reinforcing member of said second pair disposed along said bottom rail comprising an elongated channel member fixed to the bottom of said bottom rail, a pair of roller assemblies carried by said channel member one adjacent each said notch, a cam surface formed on each said roller assembly and positioned to engage a portion of said channel member, and means for moving said roller assemblies in a longitudinal direction relative to said channel member when said slidable closure panel is mounted in said wall frame to vertically adjust said slidable closure relative to said wall frame, sealing means mounted on said wall frame and said closure panels to provide a weathertight seal between said panels and between said panels and said wall frame when the slidable panel is in its closed position, a plate member mounted on said sill, a resilient pad carried by said plate member, the upper surface of said plate member being sloped downwardly away from said resilient pad on either side thereof, a wedge carried by said slidable panel and adapted to engage said resilient pad when said slidable panel is in its closed position, and a plastic strip disposed along the upper portion of said sill adapted to act as a temperature barrier to resist the formation of frost on the interior portion of said sill.

3,304,659
GOLF BALL WASHING MEANS

Charles W. Eichhorn, 26718A Oak Crossing Road,
Newhall, Calif. 91342
Filed June 7, 1966, Ser. No. 555,816
11 Claims. (Cl. 15—21)



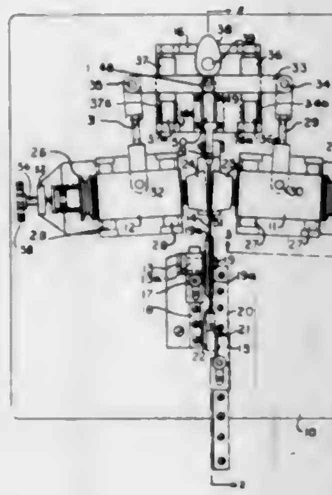
1. In a golf ball washing means, a tank for holding a quantity of water and having a bottom wall and a cover having a golf ball receiving opening extending therethrough, a golf ball carrying plunger reciprocable through said cover, guide means for said plunger associated with said opening, a golf ball receiving opening in said plunger, brush means in said tank so disposed at opposite sides of the path of reciprocation of a golf ball carried by said plunger as to engage the ball to clean the surface thereof, means on the outer face of said cover effective to use the force of gravity to cause the automatic insertion of a golf ball into said opening in said plunger, and cooperating means on said plunger and on the outer face of said cover effective to use the force of gravity to effect the discharge of a golf ball from said opening in said plunger.

3,304,660
AUTOMATIC CUTTER GRINDER

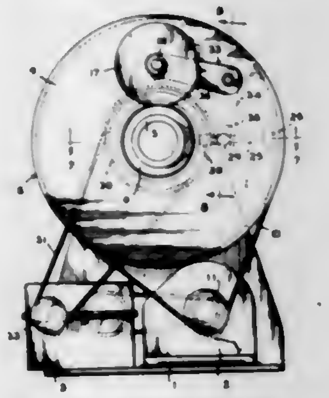
William Bindszus, 140 Hepburn Road, Apt. 19G,
Clifton, N.J. 08809
Filed July 9, 1964, Ser. No. 381,432
2 Claims. (Cl. 51—56)

1. In an automatic cutter grinder, means for supporting a cutter independently and rotatably mounted upon a machine table; two rotary grinding heads mounted on said table with their axes nearly parallel to the axes of the cutter to be ground but at a certain radial distance from same, said grinding heads being individually adjustable as to grinding angle and relation of said cutter and also being

slidable radially toward said cutter on individual sliding ways; a cross bar hingedly connected between said grinding heads; a motor-driven shaft having a first cam thereon and a cam follower on said cross bar so arranged as to slide said grinding heads in unison; a second cam and cam follower driven by the same cam shaft operating a stop device preventing said cutter from moving while being ground, and a third cam and cam follower with associated linkage operating an indexing mechanism which will advance the cutter one tooth after a given tooth has been ground.

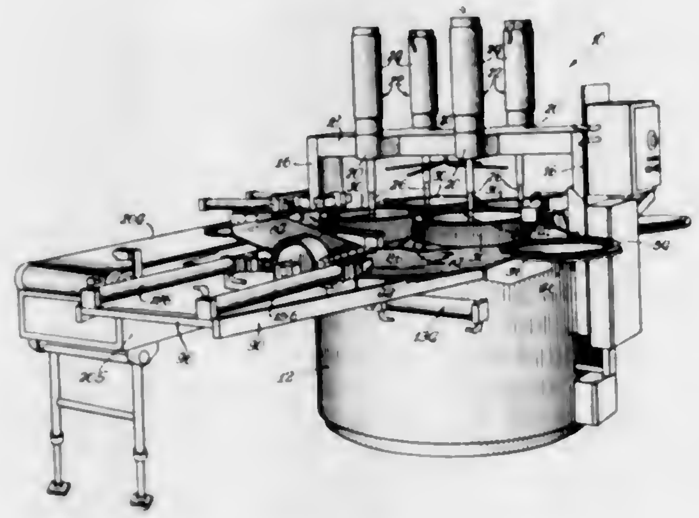


3,304,661
WORK MACHINES WITH TOOLS IN PLANETARY AND AXIAL MOVEMENT
Edward Christopher Maguire, deceased, late of Baltimore, Md., by Helen T. Maguire, 108 Homeland Ave., Baltimore, Md. 21212, and Leon Pierson, 2210 Chilham Road, Baltimore, Md. 21209, executors
Filed Sept. 10, 1964, Ser. No. 395,618
1 Claim. (Cl. 51—90)



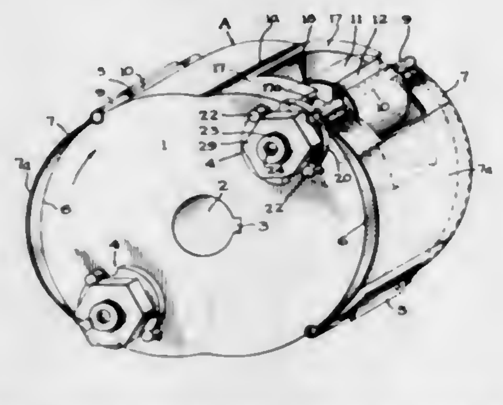
A polishing machine for operating on a workpiece having an axial center by a planetary moving polishing tool, said machine including a base, a horizontally disposed tubular member supported on said base against movement thereon, adjustable chuck means associated with said tubular member for holding a workpiece therein, a turret member carried on said tubular member for rotation thereon in a plane fixed angularly with respect to said chuck means, said turret member having a face portion, a lever mounted on a lever pivot on one side of said face portion only, for reciprocating movement of the lever toward and away from said tubular member, a polishing tool mounted directly on said reciprocating lever, means mounted on the face portion of said turret member for progressively moving said polishing tool inwardly toward said tubular member to polish said workpiece, power means for rotating said turret member upon said tubular member, power means for rotating said polishing tool, whereby planetary movement of the polishing tool around the workpiece proceeds while the polishing tool rotates on its axis and revolves with said turret member; in which power is transmitted to the means on the turret for progressively moving the tool through a friction drive mechanism.

3,304,662
APPARATUS FOR LAPPING
Stephen A. Boettcher, Deerfield, Ill., assignor to Speedlap Corporation, Skokie, Ill., a corporation of Illinois
Filed Apr. 28, 1964, Ser. No. 363,196
17 Claims. (Cl. 51—131)



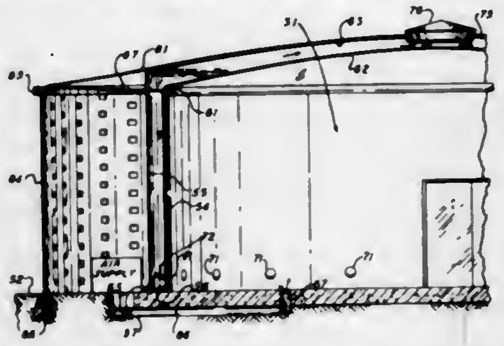
1. In a lapping machine having a framework and a lapping disc rotatably mounted on the framework, means for moving an entire retaining member adapted to confine a plurality of work pieces therein onto the lapping disc where the one sides of the work pieces may be lapped, and means independent of said last-named means for moving the entire retaining member and work pieces therein off of the lapping disc after the said one sides of the work pieces have been lapped.

3,304,663
SHARPENING HEAD
Thomas R. Arden, 3 Deer Hill Drive, Danbury, Conn.; Ruth B. Arden, executrix of said Thomas R. Arden, deceased
Filed Jan. 31, 1964, Ser. No. 341,563
10 Claims. (Cl. 51—384)



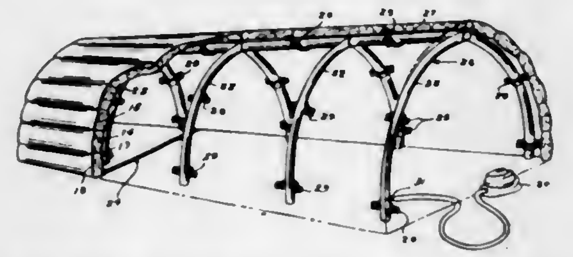
1. A sharpening head comprising a rotatable body portion having an arcuate peripheral surface, a flexible sharpening web disposed adjacent said peripheral surface, and means carried by said body portion attaching each of two ends of said web to said body portion to permit radial displacement of the medial portion of the web from the juxtaposed area of said peripheral surface, said attaching means including spring means engaging one end of said web to retain said web against said peripheral surface when the body portion is not rotating, whereby, upon rotation of said body portion said web is radially displaced by centrifugal force against the action of said spring means.

3,304,664
TENSION-RESTRAINED AIR SUPPORTED STRUCTURE
William L. Duquette, 38647 Drexel Court, Fremont, Calif. 94536
Original application Oct. 3, 1963, Ser. No. 313,501, now Patent No. 3,256,895, dated June 21, 1966. Divided and this application May 19, 1965, Ser. No. 457,066
4 Claims. (Cl. 52—2)



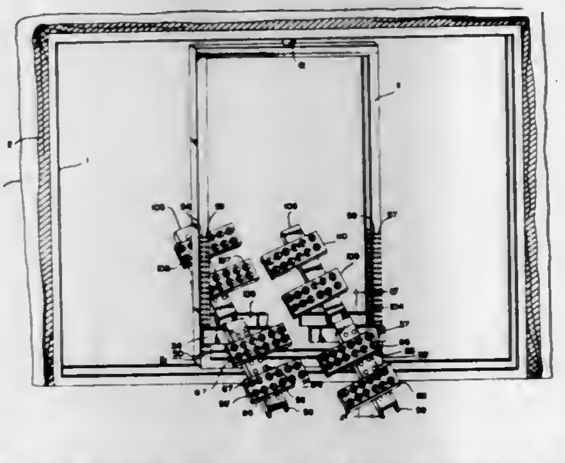
1. An air supported structure for use upon a base area comprising a plurality of substantially concentric upstanding walls upon the base area, the inner wall defining an inner volume, a first top wall covering the volume defined by the upstanding walls, a second top wall extending outwardly and substantially horizontally beyond the upstanding walls, means for circulating air in the inner volume and in the space between the upstanding walls, means for discharging the circulated air to atmosphere including a one-way valve communicating through the first and second top walls to atmosphere, a structural ring defining the periphery of the second top wall, and at least one tension member extending between the structural ring and the base area.

3,304,665
SURVIVAL SHELTER FOR SUBZERO CLIMATES
John F. Lee, Fort Wainwright, Alaska, assignor to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 9, 1965, Ser. No. 478,497
2 Claims. (Cl. 52—2)



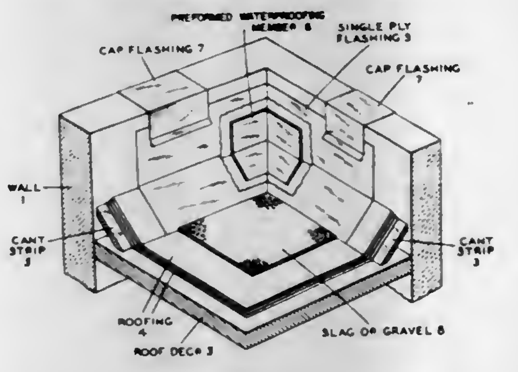
1. A low profile completely closed shelter for providing protection for a man at extremely low temperatures; comprising a first arcuate-shaped end wall; a second arcuate-shaped end wall larger than said first end wall; a tapered arcuate wall member connecting said first end wall and said second wall; said first end wall and said second end wall and said tapered arcuate wall member having n inner wall member of low air permeability material, an outer wall member of low air permeability material and an air permeable insulating material between said inner wall member and said outer wall member to permit breathing within the shelter and to substantially prevent wind passage heat radiation through said walls; a floor member, of low air permeability material, secured to said first and said second end walls and said tapered arcuate wall member; a plurality of rib separators connected between the inner wall member and the outer wall member of said first and second end walls and said tapered arcuate wall member; said second end wall having two overlapping separated wall members for providing an entrance to said shelter: said overlapping wall members having interfitting edges, with a total thickness substantially equal to the thickness of said second end wall; means for securing said interfitting edges together to close said entrance; an inflatable support within said shelter attached to the inner tapered arcuate wall of said shelter; said inflatable support having means for providing an air space between the man occupying the shelter and the top and sides of said shelter; and means on said inflatable support for receiving a pump fitting whereby said support may be inflated to erect the shelter.

3,304,666
CONVERTIBLE FURNITURE WALL
Robert C. Burroughs, 1906 Sunderland Place NW., Washington, D.C. 20036, and Norman C. Burroughs, 6905 Old Mill Road, Norfolk, Va. 23518
Filed Oct. 25, 1962, Ser. No. 233,119
2 Claims. (Cl. 52—29)



1. A convertible furniture wall comprising an inner movable wall pivotally mounted within an outer stationary wall, said inner movable wall having means for mounting, unmounting, replacing and adjusting articles for length, width and depth of said articles on at least one side of said inner movable wall, said adjusting means comprising at least one mounting bar vertically adjustable and secured to the inner wall, said mounting bar having at least one support arm secured thereto, said support arm having an extension thereon, said mounting bar, support arm and extension having means associated therewith for allowing adjustment of length, width and depth of furniture mounted thereon.

3,304,667
ROOF CONSTRUCTION AND FLASHING MEANS THEREFOR
Joseph W. Donegan, Morris Plains, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Jan. 30, 1964, Ser. No. 341,262
13 Claims. (Cl. 52—60)

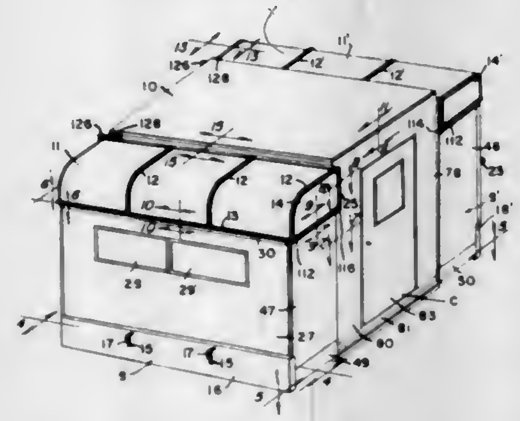


1. In a roof construction, a roof member supporting a weather resistant roofing surface; a member extending upwardly therefrom having intersecting laterally extending portions; cant strips, disposed in the angle between and adjacent to said roof member and each of said laterally extending portions, intersecting one another at the

intersection of the portions to provide a corner intersection of four surfaces angularly disposed to each other, said weather resistant roofing overlying at least a portion of said cant strips; a single ply flexible polymeric flashing adhered to the roofing on said cant strips and to the adjacent laterally extending portions, said sheets of flashing intercepting one another in said intersection to form a water pervious joint; and a preformed waterproofing member providing four intersecting surfaces adhesively secured at said corner intersection and extending over the intersection between said upwardly extending portions, between said cant strips, and between said cant strip and said last named portions.

3,304,668
COLLAPSIBLE CABIN

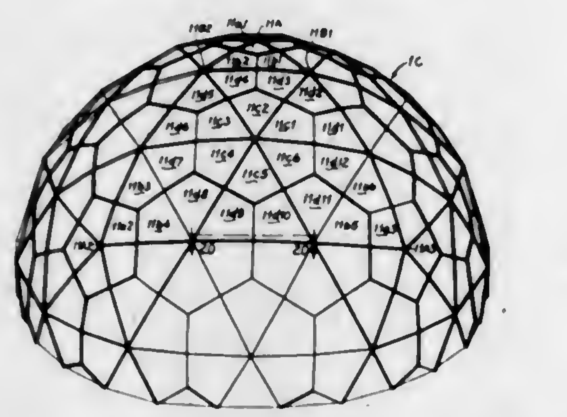
Earl E. Edmonds, 8495 Grandview Ave.,
Arvada, Colo. 80002
Filed June 24, 1964, Ser. No. 377,635
13 Claims. (Cl. 52—67)



1. A multi-component, collapsible cabin comprising:
(a) a rectangular central section having a floor panel; a lower wall portion secured to each end thereof, an upper wall portion hinged to each lower wall portion, normally upstanding therefrom but adapted to fold inwardly and over the floor, and an outwardly disposed slide channel means across each lower wall portion;
(b) a pair of opposing side sections, each having a width approximating one-half the width of the central section, each having a lower side wall portion and a lower end wall portion at each end thereof, an upper side wall hinged to the lower side wall portion normally upstanding therefrom but adapted to fold inwardly and over the floor, and an upper end wall hinged to each lower end wall portion and normally upstanding therefrom but adapted to fold inwardly over the floor, said lower end wall portions of each side section embracing the lower wall portion of the central section and being carried in said slide channel means whereby to permit the side sections to be shifted laterally from a normally open position with each side section extended outwardly from the central section to a retracted position with the side section overlapping the central section, and a side roof panel section normally overlying each side section but adapted to be removed when the side section and the walls thereof are to be retracted;
(c) a floor extension extending from each side of the central section floor when the side sections are extended;
(d) a central roof panel section overlying the walls of the central section and the inward edges of the side roof sections when the latter are mounted upon the side sections; and
(e) means at the edges of each section lap-contacting abutting edges of the adjacent sections.

3,304,669
CONTAINERS AND SPACE-ENCLOSING STRUCTURES

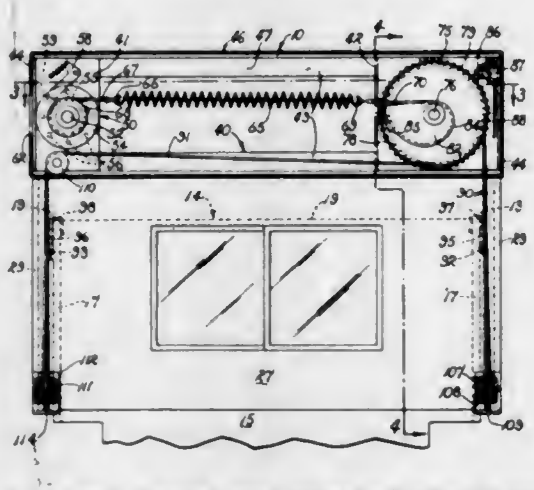
Robert C. Geschwender, Lincoln, Nebr., assignor to Lancaster Research and Development Corporation, Lincoln, Nebr., a corporation of Nebraska
Filed Apr. 19, 1961, Ser. No. 104,114
28 Claims. (Cl. 52—81)



1. A space-enclosing structure comprising an assembly of generally triangular modules each side of which is constituted by two straight rigid frame members angularly interconnected end-to-end at a junction, and at least three additional straight rigid frame members each respectively interconnected between one of the three junctions thereby formed and a single common point, each of said additional frame members respectively extending perpendicularly relative to the two angularly interconnected frame members forming the junction at which it is connected.

3,304,670
COUNTERBALANCING SYSTEM

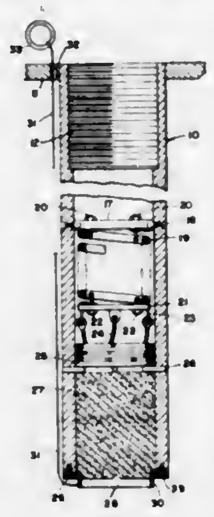
James R. Logan, 2229 Logan Court,
Modesto, Calif. 95351
Filed Feb. 24, 1964, Ser. No. 346,665
8 Claims. (Cl. 52—66)



3. In a closure having two telescopically mounted elements in relative upper and lower positions, the combination of a counterbalancing system adapted to exert a substantially constant force to maintain the upper element in a selected position of adjustment and comprising a mounting frame; resilient energy storage means; means anchoring said storage means to the frame; a primary sheave rotatably mounted on the frame; means connecting said energy storage means to the sheave including means to vary the effective lower arm of said sheave; a plurality of cables anchored to the sheave to permit winding thereabout at a constant lever arm, said cables providing individual free ends; means individually anchoring said free ends to said lower element; guide sheaves affording peripheral surfaces for guiding said cables between their respective anchors and said primary sheave; and means anchoring said guide sheaves to said upper element.

3,304,671
ICE OR FROZEN EARTH ANCHOR

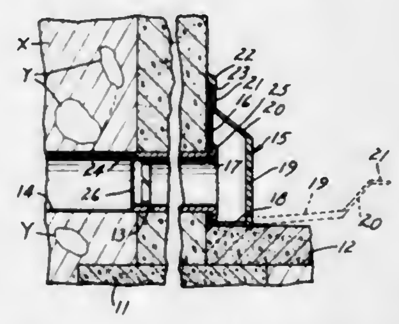
Irving L. Kintish, Rockaway, and Thomas M. Roach, Denville, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Dec. 3, 1964, Ser. No. 415,835
5 Claims. (Cl. 52—155)



1. An ice or frozen earth anchor comprising
an elongate tubular member,
a combustible thermite-type charge disposed in the lower end portion of said tubular member,
ground engaging means disposed in said tubular member above said combustible charge having its upper end fixed to said tubular member,
heat insulating means disposed in said tubular member between said ground engaging means and said combustible charge,
means disposed in said tubular member above said ground engaging means urging a downwardly directed force on said ground engaging means, and
means for igniting said combustible change whereby generated heat energy will effect temporary melting of ice when said anchor is vertically disposed in ice or frozen earth.

3,304,672
APPARATUS FOR RELIEVING BASEMENTS FROM EXTERNAL HYDROSTATIC PRESSURE

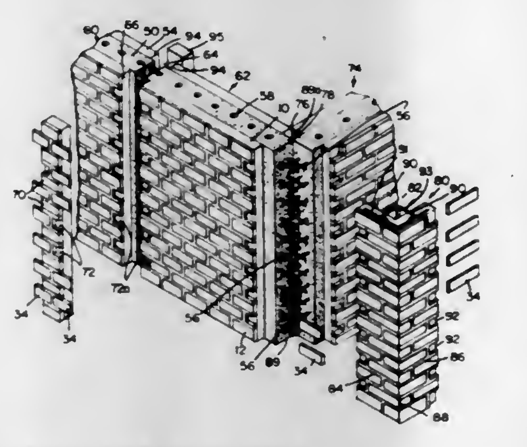
Ole S. Bakke, Rapid City, S. Dak., assignor to Aqua Drain, Inc., Rapid City, S. Dak., a corporation of South Dakota
Filed Jan. 6, 1964, Ser. No. 335,723
4 Claims. (Cl. 52—169)



1. In basement construction which includes cementitious side walls which are supported on subterranean footings and which are connected by a subterranean floor immediately above the level of said footings, the improvements which comprise:
(a) a plurality of longitudinally spaced apertures formed in at least one of said side walls each of which extends through said side wall generally at the level of said floor;
(b) a substantially horizontally disposed elongated primary fluid conduit formed from flexible resilient material and including
(1) an upstanding rear wall element, having sealing engagement with said one basement wall and having longitudinally spaced apertures therein in coaxial alignment with said apertures formed in said side wall,
(2) an imperforate bottom wall, and
(3) a front wall element the upper end portion of which has abutting relationship with the upper end portion of said rear wall element and defines therewith a self-closing continuous mouth;
(c) one end of said primary conduit communicating with a drain below the level of said floor;
(d) a plurality of branch conduits one each positioned within said coaxial apertures in said side wall and said rear wall element of said primary fluid conduit with the inner end of each branch conduit in communication with said primary conduit; and
(e) the outer ends of said branch conduits communicating with the subsoil exteriorly of said side wall through perforate end portions.

3,304,673
SIMULATED BRICK STRUCTURE

Louis V. Ramoneda, 2116 St. Denis St.,
New Orleans, La. 70122
Filed Mar. 26, 1964, Ser. No. 356,008
11 Claims. (Cl. 52—220)



6. A precast wall comprising,
a pair of wall sections each having a precast concrete core and inner and outer panels with the core of each section extending beyond the sides of the outer panels,
said sections being disposed end-to-end with their cores spaced from one another to provide a cavity and the outer panels being spaced a greater distance to provide a gap,
a narrow outer panel section disposed over the ends of the cores and fitting into the gap between the spaced ends of the outer panels,
and a concrete core section filling the cavity behind the narrow panel section.

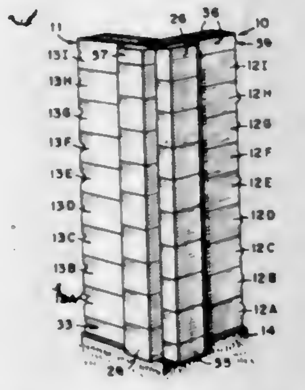
3,304,674
BUILDING CONSTRUCTION

Thomas H. Ward, Box 85, Valley Park, Mo. 63088
Filed Oct. 29, 1964, Ser. No. 407,353
16 Claims. (Cl. 52—233)

14. In a cabin:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) means connecting the spaced boards together,

(d) the boards being provided with aligned transverse notches defined by a substantially L-shaped margin leading to one end to provide reduced board end portions, and

(e) a block provided with a transverse notch defined by a substantially L-shaped margin that leads to its inner side to provide a reduced block end portion that matches and engages the reduced board end portions,



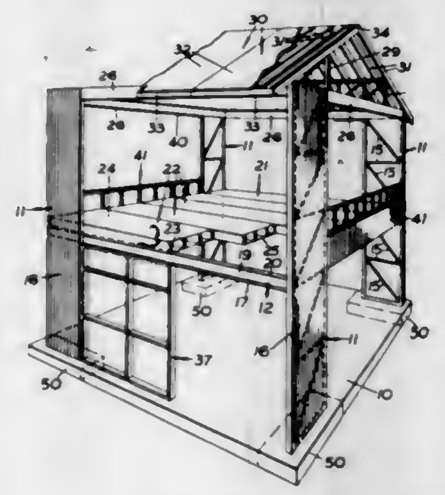
(f) the block notch communicating with and complementing the board notches to provide an open, substantially U-shaped recess receiving a coacting wall member of the other wall,

(g) the coacting wall member seating on and being embraced by the substantially L-shaped notches formed in the board ends and block, one side of the recess embracing the boards of the coacting wall member while the opposite side of the recess embraces the block of the coacting wall member.

3,304,675

BUILDING CONSTRUCTIONS

Edward Graham-Wood, Northwich, Frank Berry and James Frederick Horridge, Bolton, and John Foxwell, Leigh, England, assignors to Lowton Construction Group, Limited, Warrington, England
Filed May 11, 1964, Ser. No. 366,270
Claims priority, application Great Britain, Sept. 20, 1963, 37,026/63
6 Claims. (Cl. 52—236)

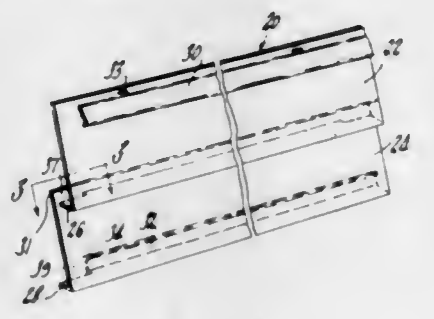


1. A basic structural framework of a building structure comprising,
 a base,
 a plurality of columns disposed vertically-upwardly of said base each in the form of a rectangular frame of channel-sectioned corner side and inside side members and upper and lower end members defining within the marginal edges thereof spaced inboard and outboard vertical panel areas,
 the outboard vertical panel area of each said column being disposed at a respective side of the building structure with its corner side member defining a respective corner of the structure, a plurality of horizontally-disposed coplanar floor beams each substantially Z-shaped in cross section and defining upper inboard-facing and lower outboard-facing supporting flanges, the lower outboard-facing supporting flange of each said floor beam being inset with a column-receiving recess at one end thereof, each said floor beam being disposed in the plane of and secured at its recessed end in right angular mating relationship to one of said vertical columns substantially midway of the height thereof and being disposed in the plane of and secured at its non-recessed end in right angular mating relationship to the corner side member of the next adjacent said column,
the inwardly-projecting flanges of said floor beams defining means for supporting flooring elements of the building structure, the outwardly-projecting flanges of said floor beams and said columns defining means for supporting wall elements of the building structure.

3,304,676

SIDING CONSTRUCTION

Stanley H. Sallie, Mansfield, and Norman D. Olson, Sherborn, Mass., assignors to Bird & Son, inc., East Walpole, Mass., a corporation of Massachusetts
Filed Jan. 29, 1964, Ser. No. 340,917
2 Claims. (Cl. 52—276)



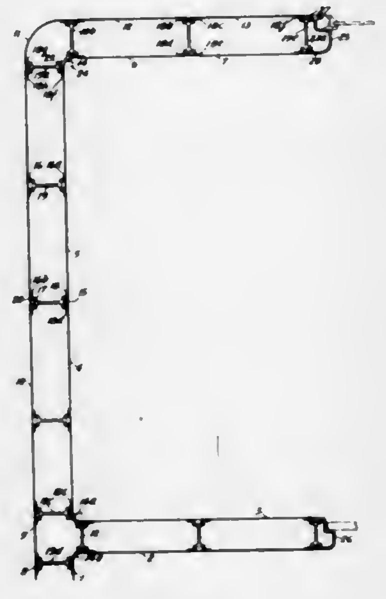
1. In a generally rectangular multiple panel clapboard-simulating siding unit adapted to interlock with other units of the same type along opposite terminal edges,
 said unit comprising an integral piece of material providing
  a plurality of flat, parallel, clapboard-side-simulating panel portions and
  a plurality of flat, parallel, clapboard-edge-simulating strip portions,
  said panel portions being located in spaced parallel planes providing parallel edges with adjacent edges of said panel portions spaced from one another in a plane perpendicular to the plane of said panel portions and
  said strip portions being located in spaced parallel planes generally perpendicular to the planes of said panel portions and extending between adjacent edges of said panel portions and along one terminal edge of said unit with strip portions located along opposite edges of a panel portion extending in opposite directions therefrom,
 that improvement comprising
  an integral flange portion on one side of the strip portion located between adjacent edges of adjacent panel portions of said unit, said flange portion being spaced from the one of said adjacent panel portions extending from said strip portion in the same direction as said flange portion,
  said flange portion, strip portion and said last mentioned panel portion thereby forming an integral tri-planar channel,

  said strip portion being slotted inwardly from its end for a predetermined distance, said slot being located parallel to and beside said flange on the side thereof toward said panel portion which extends from said strip portion in the same direction as said flange portion,
  said slot receiving the flange portion of an adjacent overlapping siding unit positively to lock together adjacent siding units at the strip portions thereof located between their panel portions.

3,304,677

INTERLOCKED PANEL STRUCTURE

John Pavlecka, 8797 Capital, Oak Park, Mich. 48237
Filed Nov. 30, 1964, Ser. No. 414,670
20 Claims. (Cl. 52—277)



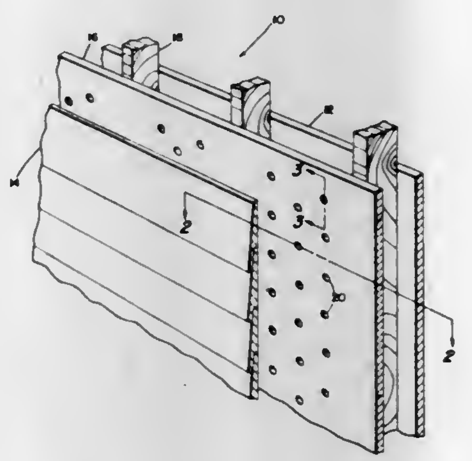
1. In a wall structure, two angularly related panel units convergent to an intersection having parting lines spaced apart from each other thereat, a transition member occupying the quadrantal span between said parting lines, a pair of juxtaposed reentrant mortise and tenon formations extending on the inward face of each panel unit and on said transition member at and along each of said parting lines, flat lands extending along and by the side of each pair of said formations on said panel units and transition member, said lands along each pair of said formations extending in a distanced relationship to the panel unit inward face, and two linear keys bearing reentrant mortise and tenon formations, flat lands borne on said keys along and by the side of said formations, each key being in a slidable frontal and lateral engagement with one pair of said panel unit and transition member formations and said key lands being in contiguity with said lands along and by the side of each pair distantly from each panel unit face.

3,304,678

FRAME WALL CONSTRUCTION

Joseph J. Morell, 2387 E. 290th St., Wickliffe, Ohio 44092
Filed Feb. 7, 1963, Ser. No. 256,998
5 Claims. (Cl. 52—303)

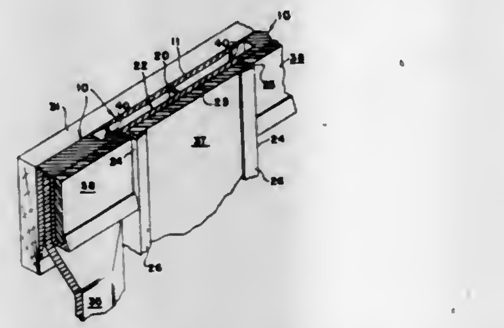
1. A prefabricated insulation board for immediate on-site installation in the construction of a wall and effective to minimize blistering in said wall construction due to moisture condensation and subsequent vaporization, said board comprising a porous slab-shaped heat insulation body of fibrous material having a multiplicity of substantially uniformly spaced-apart perforations extending through the body between opposed major faces of the body, a layer of moisture sealant covering and adhered to said major faces, except for the perforations, moisture-impermeable rigid ferrules pre-positioned within each perforation, said ferrules having outwardly flared ends, each flared end being sealed to a sealant layer on a major face, said ferrule-lined perforations being open at all times readily to conduct moist air through said body while precluding entry of the moist air into said body laterally of said perforations and subsequent condensation of the moisture therein.



3,304,679

CONSTRUCTION ELEMENT

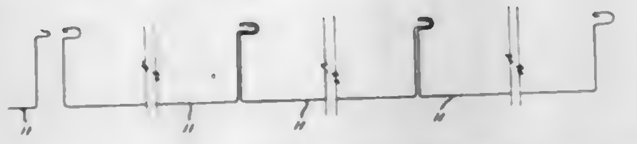
Jack Benkin, Margate, N.J., assignor to Amplex Manufacturing Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed July 14, 1964, Ser. No. 382,596
2 Claims. (Cl. 52—312)



1. A construction element for holding panels, said element being integrally fabricated of extrudable material and comprising an elongate relatively flat base adapted to be secured with one face engaging a support, a rib extending longitudinally along and outstanding from the other face of said base spaced medially between the longitudinal edges thereof, a channel disposed longitudinally along the outer edge of said rib spaced from said base and facing outwardly therefrom, said channel extending laterally beyond said rib on opposite sides thereof terminating short of the side edges of said base, and inturned longitudinal flanges on opposite sides of said channel, whereby a pair of panels are engageable edgewise between said base and channel on opposite sides of said rib and an insert is engageable in said channel beneath said flanges, the outer surface of said flanges being beveled toward the interior of said channel to reflect light from an insert in said channel.

3,304,680
INTERLOCKING STRUCTURAL SYSTEM FOR BUILDINGS

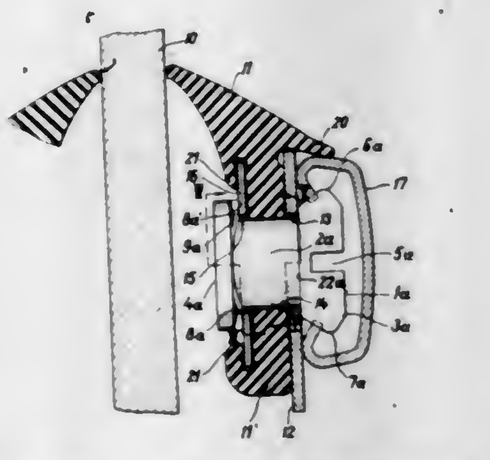
Benjamin F. Birdwell, Memphis, Tenn., assignor to Anel Engineering Industries, Incorporated, Winona, Miss., a corporation of Mississippi
Filed Dec. 13, 1963, Ser. No. 330,397
8 claims. (Cl. 52—332)



4. A structural system for use in a building comprising a plurality of elongated sections; each of said sections comprising a channel-like member including a substantially flat and rectangular mid-portion, and a pair of spaced and substantially parallel side members respectively fixedly attached to said mid-portion along the side edges thereof and perpendicularly extending from said mid-portion in the same direction; said sections being arranged in side-by-side relationship with the adjacent side members of adjacent ones of said sections being in abutment with one another and with said mid-portions of said sections establishing one face of said structure, snap-lock interlocking means respectively interconnecting said adjacent side members adjacent the distal edges of said adjacent side members, each of said sections additionally including a concrete member and reinforcing means embedded therein received in said channel-like member, a concrete slab attached to said plurality of elongated sections remote from said mid-portions thereof to establish another face of said structure remote from said one face, said interlocking means including abutment means attached to one of said adjacent side members and edge means attached to the other of said adjacent side members locked behind said abutment means for preventing movement of said adjacent side members away from one another in a direction parallel to said mid-portion.

3,304,681
DECORATIVE-STRIP MOUNTING ASSEMBLY

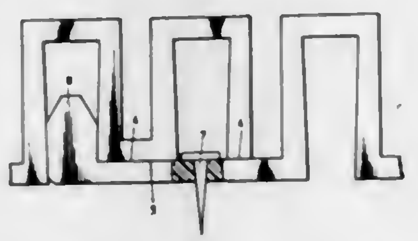
Joachim Wunderlich, Ingolstadt, Germany, assignor to Auto Union G.m.b.H. (Gesellschaft mit beschrankter Haftung), Ingolstadt (Danube), Germany, a corporation of Germany
Filed Sept. 21, 1964, Ser. No. 397,792
Claims priority, application Germany, Sept. 20, 1963, A 44,096
3 Claims. (Cl. 52—397)



1. A decorative-strip mounting assembly comprising, in combination with a wall portion of a vehicle body lying along a window pane thereof, a rotatable fastening element having a foot portion, a shank and a head portion and insertable through an opening in said wall portion and rotatable for locking said fastening element in said opening; a resiliently compressible strip behind said wall portion and bearing upon said pane and compressed between said foot portion and said head portion of said fastening element; and a decorative strip extending along said wall portion on a side thereof opposite that upon which said resilient strip is provided and engaging said head portion of said fastening element while completely enclosing same.

3,304,682
CONNECTION BETWEEN SHAPED ELEMENTS

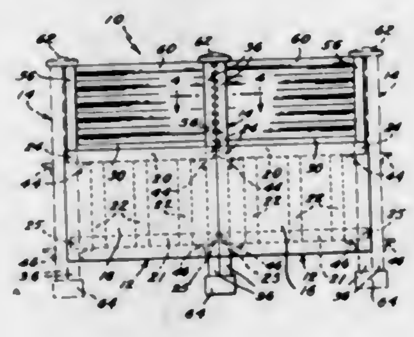
Henri de Moustier, Toulon, France, assignor to Plastival S.A., Clerval, Doubs, France
Filed Mar. 24, 1964, Ser. No. 354,337
Claims priority, application France, Mar. 27, 1963, 929,490
2 Claims. (Cl. 52—475)



1. A structure comprising a system of successive coplanar shaped elements having longitudinal edges the transverse cross-section of said elements being defined by a winding outline constituted by a succession of projecting and recessed sections having generally flat portions, means carried along one longitudinal edge of each element and engaging a recessed section in the adjacent element, a quadrangular frame of a uniform cross-section including four sides each provided with a longitudinal housing and securing means consisting of a tenon engaging said housing in the corresponding lateral side of the frame and an elongated prismatic extension engaging longitudinally a recessed section in a corresponding element thereby to hold the elements enclosed within the frame.

3,304,683
WALL STRUCTURE

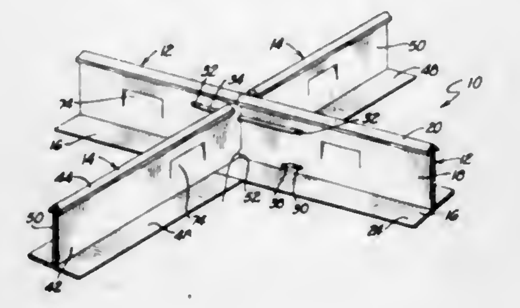
Anthony F. Ferreira, Attleboro Falls, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,635
5 Claims. (Cl. 52—497)



1. A wall structure comprising a vertical support member, said support member having a substantially U-shaped portion in cross section having a retaining lip thereon; an L-shaped bracket; retaining means interconnected with said bracket and engaging said lip to slidably mount said bracket on said support member; an upstanding pin on said bracket; a panel member having an aperture therein which receives said pin to mount said panel member in abutting engagement on a portion of said supporting member.

3,304,684
SUSPENDED CEILING STRUCTURE

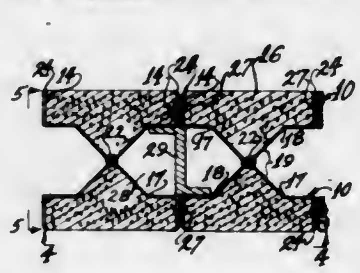
Donald E. Mock, Covina, Joseph Banner, Whittier, and Arthur Banner, Pico Rivera, Calif., assignors to Anjac Plastics, Inc., El Monte, Calif., a corporation of California
Filed Dec. 26, 1963, Ser. No. 333,566
1 Claim. (Cl. 52—665)



A suspended ceiling structure adapted to be secured to the overhead of a room to form a ceiling in said room, said suspended ceiling structure including longitudinal and cross members adapted to retain ceiling tile to form the ceiling, said longitudinal and cross members having a cross sectional configuration of an inverted T, said T having a head and an upright center web, said longitudinal and cross members having ends, engagement holes in said center web of said longitudinal T members adjacent the ends thereof, said longitudinal T members adapted to be associated in end to end relationship, securing means secured in said engagement holes in said center web to retain said longitudinal T members in end to end relationship so that said longitudinal T members can be assembled to the length required in the suspended ceiling structure, slots in said center web of said longitudinal T members at the end to end engagement thereof, said center web of said cross T members having a side, tongues formed on the ends of said cross T members, barbs formed on said tongues opposite said side, said tongues being adapted to be engaged in said slots and said barbs being adapted to be engaged on said center web of said longitudinal T member to secure said cross T members to said longitudinal T members, said head of said cross T members being symmetrical with respect to said side so that when said tongues of two of said cross T members are engaged in said slot in side to side relationship, said heads of said cross T's are colinear with each other.

3,304,685
BACKING UNIT FOR RECEIVING PLASTIC BUILDING MATERIAL

William D. Whetstone, City National Bank Bldg., Sylacauga, Ala. 35150
Filed June 29, 1964, Ser. No. 378,609
4 Claims. (Cl. 52—670)



1. In a backing unit for receiving a plastic building material:

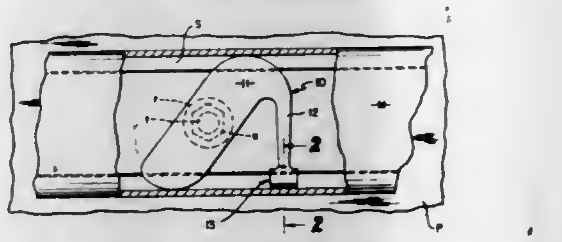
(a) an elongated sheet of perforated material having a base panel formed integrally with end panels, said end panels extending outwardly from one side of said base panel generally parallel to each other and generally perpendicular to said base panel,

(b) the central portion of said base panel extending outwardly from the other side of said base panel in spaced relation to said end panels and defining a longitudinally extending V-shaped projection as viewed in transverse cross section, and

(c) the ends of said V-shaped projection being cut away to define a centrally disposed, outwardly opening recess at each end of said base panel.

3,304,686
PLASTIC MOLDING FASTENER

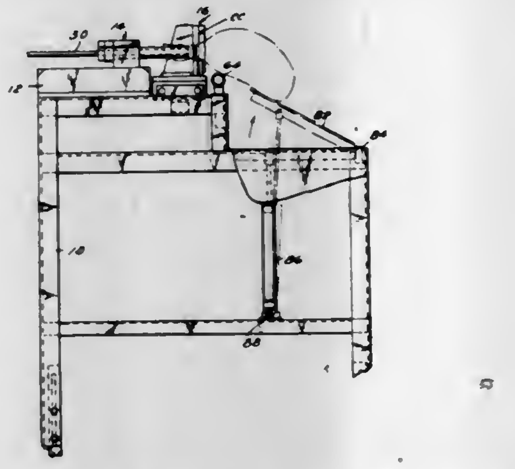
Robert A. Munse, Perrysburg, Ohio, assignor to The Bishop and Babcock Corporation, Toledo, Ohio, a corporation of Ohio
Filed June 22, 1964, Ser. No. 377,014
1 Claim. (Cl. 52—718)



A molding attachment assembly comprising, in combination, a hollow longitudinally extending molding having spaced inturned longitudinal flanges, and an attaching fastener for connecting said molding to a supporting panel, said fastener having a body adapted to be rocked to a position crosswise with respect to said flanges, an arm having an end integral with an end portion of said body, a pair of integral flaps of resilient plastic material at the free end of said arm, one flap inclining upwardly for imposing upward pressure against the under side of the molding and the other flap being disposed between the respective molding flange and the supporting panel, said flaps forming therebetween a recess or cavity into which the respective molding flange projects when the body is rocked to said position, and means for securing said fastener body to a supporting panel.

3,304,687
EVACUATION OF PLASTIC FILM PACKAGES

Roman M. Tomczak, Willow Springs, and Michael J. Myles, Downers Grove, Ill., assignors to Union Carbide Corporation, a corporation of New York
Filed Aug. 6, 1963, Ser. No. 300,238
13 Claims. (Cl. 53—22)



1. A method for packaging an article in flexible plastic film comprising placing said article in an open pouch of flexible plastic film; evacuating air from said pouch by drawing a vacuum through the pouch opening by means of a horizontally disposed, nozzle so as to draw said film into tight engagement with said article; retaining said article and said pouch in the same plane as said nozzle such that a free flow path is maintained for evacuating

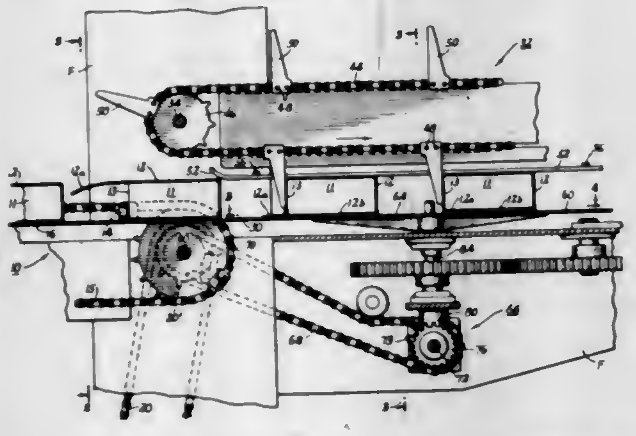
said air therethrough; evacuating the air from said pouch without tensioning said film; tensioning the film of the mouth of said pouch by changing the plane of said article from the horizontal while simultaneously retaining the mouth of said pouch in the same plane as said nozzle; closing and sealing the pouch opening at a point adjacent to said article while maintaining a vacuum on said opening; and applying a metal clip to the thusly tensioned film.

3,304,688
WRAPPING DEVICE AND METHOD

Alfred Heilbrunn, Brooklyn, N.Y., assignor to RPM, Incorporated, Brooklyn, N.Y., a corporation of New York

Filed Mar. 26, 1964, Ser. No. 354,973

10 Claims. (Cl. 53—32)



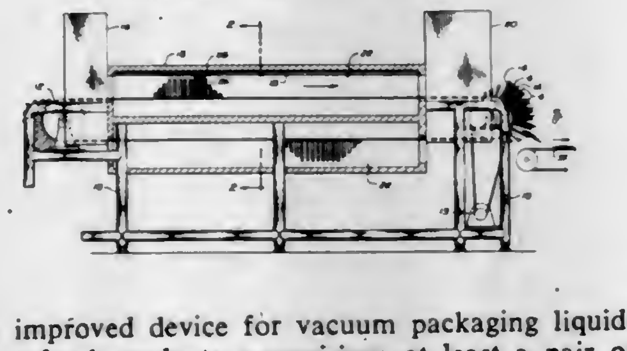
1. In an underlap forming device, a rotating member having an article support surface, generally radially directed slot means formed in said surface of said member, advancing means for moving an article having a wrapper engaging the top of said article and having front and rear flap portions, respectively leading and trailing said article across said support surface of said rotating member, said advancing means moving at a lesser rate than the rate of movement of the portion of said slot means furthest from the axis of rotation of said member, said advancing means and rotating member being moved in timed relation to align said flaps with said slot means as said article moves across said support surface, to permit said rear flap and said forward flap to extend simultaneously through said slot means while said article is supported on said surface, guide means for pressing said bottom of said article against said support member, and means for folding said front flap over said rear flap after the latter has been pressed against the bottom of said article by said rotating member.

3,304,689
CONTINUOUS CHILLING AND VACUUM PACKAGING DEVICE

Howard G. Reichel, Western Springs, Ill., assignor to Swift & Company, Chicago, Ill., a corporation of Illinois

Filed Jan. 7, 1963, Ser. No. 249,884

3 Claims. (Cl. 53—112)



1. An improved device for vacuum packaging liquid-containing food products comprising: at least a pair of internally open platens for supporting a container along a given path; a fluid filling unit for introducing the liquid-containing food products into the container at one end of said path; a chilling tunnel surrounding a portion of said path; a chilling unit passing chilled air through the platens and in contact with the unsupported sides of the container until the viscosity of the liquid in the food containers has increased to a point where the vacuum sealing of the container will not draw the liquid into the vacuum system; and a vacuum sealing unit at the end of said continuous path for vacuum sealing the container.

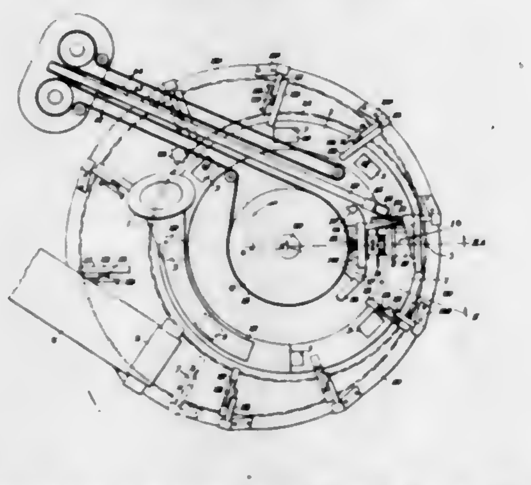
3,304,690
WRAPPING MACHINES

Matthew Parker and Geoffrey Gordon Lebeter, Leeds, England, assignors to The Forgrove Machinery Company Limited, Leeds, England, a company of Great Britain

Filed Mar. 11, 1965, Ser. No. 438,961

Claims priority, application Great Britain, Mar. 13, 1964, 10,749/64

11 Claims. (Cl. 53—122)



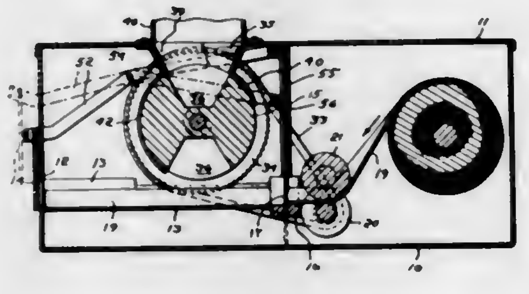
1. A wrapping machine, which includes a plurality of wrapping units, each of which is effective completely to wrap an article in a wrapper, means for moving the wrapping units continuously in a predetermined path in relation to an assembly of fixed cams which impart operating movement to the wrapping units, an article feeding mechanism arranged to present articles in succession to the wrapping units as they reach a predetermined point in their path of travel, and a wrapper feed mechanism for presenting wrappers to the wrapping units at the same predetermined point, the wrapping units delivering the wrapped articles at a common discharge point.

3,304,691
APPARATUS FOR DISPENSING AND SEMI-WRAPPING UNWRAPPED FOOD PARTICLES

John O. Parker, Spring St., Marion, Mass. 02738

Filed July 22, 1964, Ser. No. 384,369

8 Claims. (Cl. 53—183)



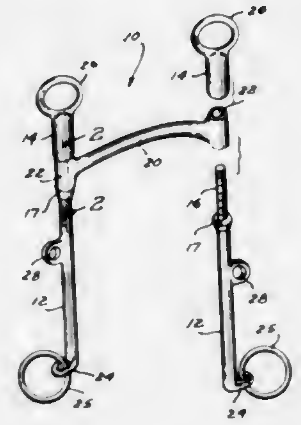
1. In a dispenser for loose, unwrapped food particles such as peanuts and loose candies, a paper roll, a recessed receiver, means to draw paper from said roll and deliver a predetermined length thereof to said receiver, means to discharge a plurality of particles on said delivered length over said receiver, a gate blocking access to the delivered length and its load of food particles, and means operable by opening said gate to separate the delivered length from the paper roll rearwardly of said particle discharge means.

3,304,692
REMOVABLE MOUTHPIECE TYPE BIT

Cash A. Lovell, Jr., Rte. 4, Fraternity Church Road, Winston-Salem, N.C. 27107

Filed Mar. 23, 1965, Ser. No. 441,971

1 Claim. (Cl. 54—7)



An improved bit assembly for detachable connection with a horse bridle and reins comprising: a pair of shank members for supporting the hereinafter mentioned mouthpiece and for connecting the assembly to the bridle end reins, each of said shank members comprising a lower shank member having a laterally extending ring formed integrally between the ends thereof for attaching a chin strap from the bridle harness to said lower shank members; said lower shank members having a threaded end portion and upper shank members having complementary threaded socket portions for detachably connecting said portions together in coaxial relationship and a mouthpiece of a size and shape formed to extend across the mouth of a horse and project beyond the sides thereof; said mouthpiece having tubular attaching fittings integrally formed therewith at its opposite ends; said attaching fittings formed with openings extending therethrough and said attaching fittings being assembled around the threaded stud portions of said lower shank members with the upper shank members being disposed above said fittings; a laterally extending flange formed integrally with said lower shank members and disposed adjacent said threaded portion thereon so as to form a stop when said tubular attaching fittings formed at each end of the mouthpiece are mounted in fixed position around said threaded stud portion of the lower shank members; said upper shank members having a ring formed at the upper ends thereof and said lower shank members having a ring holder formed at the lower ends thereof for mounting a slidable ring therein so that said bridle end reins are adapted to be detachably attached to the rings at each end of the bit assembly.

3,304,693
DEHYDRATION PROCESS

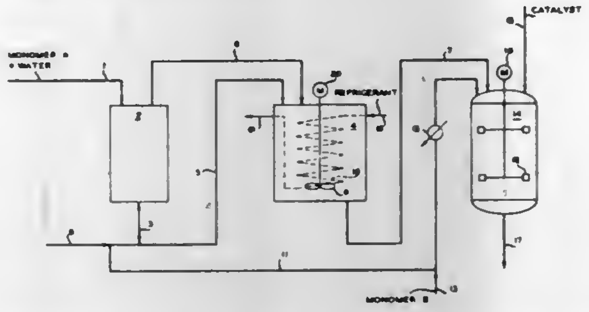
Glenn O. Ebrey, Copan, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 12, 1963, Ser. No. 330,043

5 Claims. (Cl. 55—33)

1. A process for dehydrating a first fluid consisting essentially of monomer which will tend to polymerize if subjected to hot air regeneration and water which comprises:

in a first step passing a quantity of said first fluid through a dehydrating adsorbent for a period of time insufficient to exhaust the adsorptive capacity of said adsorbent; and in a second step passing a second fluid consisting essentially of a liquid solvent for said monomer through said adsorbent to flush the residual first fluid therefrom;



repeating said first and second steps until the adsorption capacity of said adsorbent is exhausted;

and then regenerating said adsorbent by passing heated air therethrough.

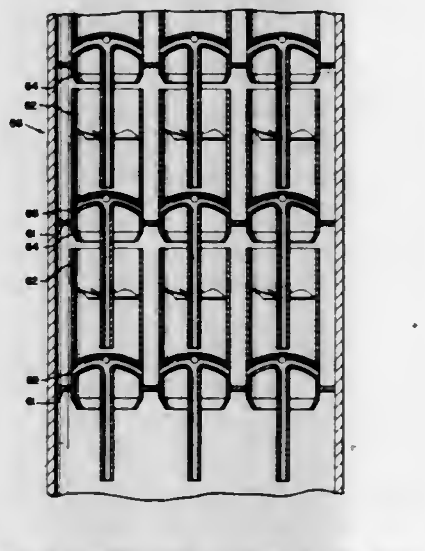
3,304,694
GAS-LIQUID CONTACTOR WITH CENTRAL SUPPLY CONDUIT

Willem H. Manger and Hendrik Verburg, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Oct. 22, 1964, Ser. No. 405,696

Claims priority, application Netherlands, Oct. 30, 1963, 299,913

4 Claims. (Cl. 55—238)



1. Apparatus for effecting contact of gas and liquid which comprises:

- (a) a hollow, vertical column;
- (b) a plurality of horizontal trays mounted within said column at vertically spaced locations, each tray having a plurality of openings in vertically adjacent trays; and
- (c) a corresponding plurality of contacting units mounted at each said tray opening, each contacting unit to form a part of a corresponding plurality of vertical series of contacting units, each unit including:
  - (1) a vertically elongated tubular chamber bounded by a substantially cylindrical confining sidewall of substantially the same diameter as that of said other chambers and open at the top and bottom, each said chamber being in vertical alignment with another chamber and in close proximity thereto for the direct flow of gas from a lower chamber into the next higher chamber without change in flow direction, and having a downwardly convergent, frusto-conical portion at the bottom thereof forming a gas-entrance of reduced area;
  - (2) means for admitting a gas into a lower chamber of said series for upward flow through the chambers of the series;

(3) liquid supply means including a tube situated centrally within each said chamber for flowing liquid downwardly and discharging it from a lateral extension on the lower end of said tube into an annular trough adjoining said confining wall in a liquid supply zone at a lower level of the respective chamber for entrainment by said gas at said zone, said annular trough providing a central space within said zone for the flow of gas therethrough;

(4) whirl means within each said chamber situated above the said liquid supply zone thereof for imparting whirling motion to the ascending mixture of gas and entrained liquid and hurling liquid against said confining wall; and

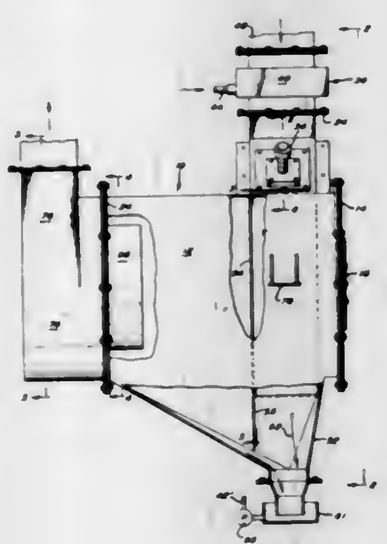
(5) liquid discharge means at an upper level of each said chamber for discharging the liquid from said confining wall including an opening in an upper part of said confining wall which is in free-flow communication with the space above said contacting unit mounting tray, said space being common to the several units mounted on said tray, and an annular collar of greater internal diameter than the top of each contacting chamber adjacent said opening and depending from the tray next above the respective units for guiding the flow of the discharged liquid, said discharge means being in flow communication with the upper end of a central liquid supply tube which discharges liquid to the supply zone of a lower contacting unit, said upper end of said central liquid supply tube of said lower contacting unit extending upward into said higher unit and into liquid-receiving communication with said space above said higher contacting unit mounting tray through an opening in a lower part of the confining wall of said higher unit to receive liquid that accumulates on said higher tray.

3,304,695
HORIZONTALLY DISPOSED CENTRIFUGAL GAS SCRUBBER

Harry Krochta, East Northport, N.Y., assignor to The Ducon Company, Inc., Mineola, N.Y., a corporation of New York

Filed Mar. 29, 1965, Ser. No. 443,412

5 Claims. (Cl. 55—238)



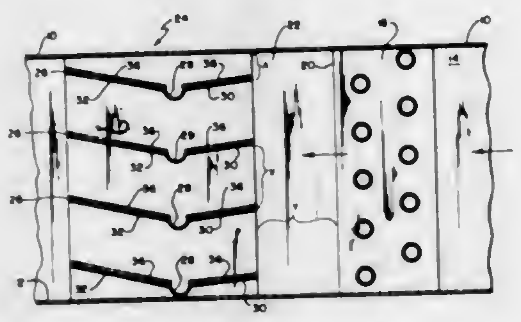
1. A gas scrubber for removing particulate from a gas stream comprising a generally cylindrical housing having its longitudinal axis substantially horizontally disposed, a baffle within said housing dividing said housing into first and second chambers, a vertical tangential inlet to said housing in communication with said first chamber, a base section below said housing for receiving liquid and particulate from said first and second chamber, baffle means extending into said base section to obstruct free communication between said chambers proximate said base section, said housing having an outlet port disposed along said axis and communicating with said second chamber, said first chamber including means for causing said gas to exit from said first chamber at a high velocity, port means providing communication between said chambers adjacent the outer periphery of said chambers and means for introducing a liquid into the scrubber for scrubbing the gas stream, said means for introducing a liquid being located proximate said tangential inlet, said port means including a generally crescent-shaped opening formed by the periphery of said baffle and the inner periphery of said housing, said opening being disposed generally opposite said base section.

3,304,696
WATER ELIMINATOR

Frederic W. McKenna, Webster Groves, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky., a corporation of Delaware

Filed Nov. 24, 1964, Ser. No. 413,543

3 Claims. (Cl. 55—268)



1. Apparatus for capturing condensate droplets blown off the downstream face of a cooling coil through which high velocity air moves generally horizontally, comprising:

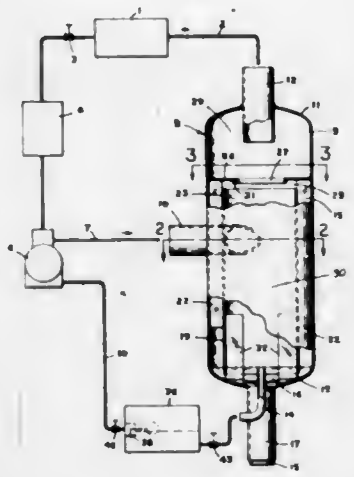
a tier of vertically-spaced, relatively shallow horizontal trays extending for substantially the height of the downstream face of sail coil, said trays being spaced apart a selected distance to provide substantially open spaces therebetween to form unobstructed generally horizontally directed linear air flow paths between successive trays, each of said trays extending substantially horizontally to present an upper face encompassing an area through which said droplets blown off a given height of the downstream face would be carried at the selected velocity of air passing through said coil, with successively higher and successively lower trays being spaced accordingly so as to encompass the areas through which droplets blown from successively higher portions and successively lower portions of the downstream face of said coil would be carried when following a normal gravity induced trajectory; trough means cooperatively disposed in the lower portion of said shallow horizontal trays to receive condensate from said shallow trays and to conduct such condensate from said shallow trays; and, moisture permeable materials covering the upper surfaces of said shallow trays to receive condensate droplets carried into contact with said upper surfaces and to conduct such condensate to said trough means for removal from said trays.

3,304,697
OIL SEPARATOR

Melvin A. Ramsey, Glen Ridge, N.J., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware

Filed May 21, 1964, Ser. No. 369,073

1 Claim. (Cl. 55—459)



In a centrifugal separator for separating the gaseous and non-gaseous components of a composite fluid stream, generally upstanding shell means of generally cylindrical configuration having fluid-tight end cap means sealing the lower extremity thereof to form a sump for the collection of said non-gaseous components therein, dividing means extending generally transversely across said shell means and fluid-tight with respect thereto for dividing the latter into upper and lower compartments, generally upstanding baffle means of generally cylindrical configuration disposed within the shell means in generally concentric relationship relative thereto to form first and second chambers therein, with said first chamber defining a vortex chamber and said second chamber defining a non-gaseous component collection chamber, inlet means communicating with said vortex chamber for introducing a high velocity flow of said composite fluid stream thereto to form a rapidly swirling stream thereof in said vortex chamber for flow through the latter toward said dividing means, the upper extremity of said baffle means being disposed below and spaced from said dividing means to form a first passage communicating said vortex chamber and said second chamber for receiving non-gaseous components from said rapidly swirling stream, the lower extremity of said baffle means being spaced from said end cap means to form a second passage between the said vortex chamber and said second chamber for receiving non-gaseous components from said second chamber, deflector means disposed in the radially outer region of the lower portion of said vortex chamber for deflecting said rapidly swirling stream and providing a generally static atmosphere in said lower portion, spacer means extending between said shell means and baffle means through at least part of said collection chamber for deflecting swirling gases and providing a generally static atmosphere therein, means for maintaining a level of said non-gaseous components in said sump means above said lower extremity of said baffle means to substantially fill said second passage and thus substantially prevent the flow of said gaseous components from said vortex chamber to said non-gaseous components collection chamber through said second passage, outlet means communicating with said sump means to enable the flow of the thusly collected non-gaseous components from said sump means, and at least one opening in said dividing means communicating said first compartment and said first chamber for receiving gaseous components from said rapidly swirling composite fluid stream.

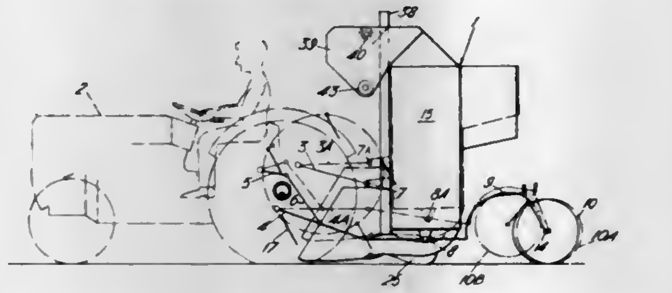
3,304,698
THREE-POINT HITCH MOUNTED CROP GATHERING AND TREATING APPARATUS

Franz Herbsthofer, Eschwege, Werra, Germany, assignor to Massey-Ferguson G.m.b.H., Kassel, Germany

Filed Oct. 27, 1964, Ser. No. 406,728

Claims priority, application Great Britain, Oct. 30, 1963, 42,748/63

16 Claims. (Cl. 56—20)



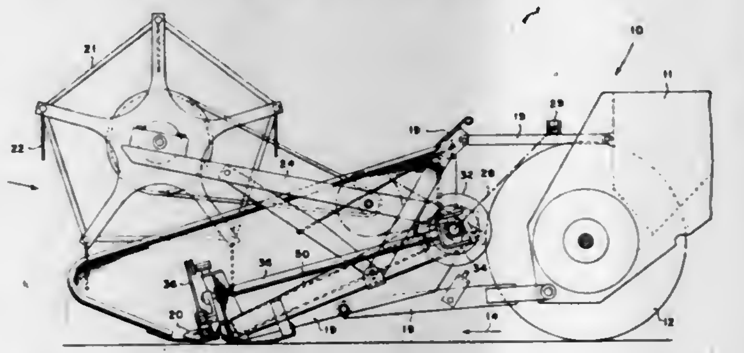
1. For use with a tractor having a power lift with upper and lower links, a combine harvester, a support having attachment points pivotally connected to said lower links, a ground wheel on said support spaced rearwardly of said attachment points, means pivotally mounting the harvester on said support intermediate said wheel and attachment points, and a further attachment point on the harvester pivotally connected to said upper link, whereby the harvester may be raised and lowered by the power lift through the intermediary of said support pivoting about the wheel and substantially without canting relative to the tractor.

3,304,699
HARVESTER HEADER CONSTRUCTION

Earl E. Koch, Mohnton, and Horace G. McCarty, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed Aug. 11, 1964, Ser. No. 388,773

4 Claims. (Cl. 56—23)

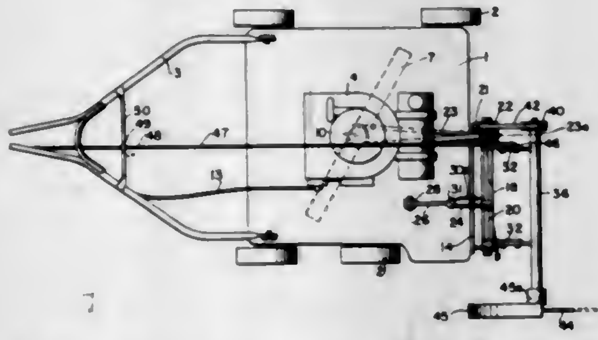


1. A windrower comprising, in combination, a tractor unit supported on wheels for ground travel forwardly, a header in front of said tractor unit and carried thereon, said header having a frame, a first draper conveyor on one side of said frame, a second draper conveyor on the opposite side of said frame, said conveyors being laterally spaced relative to each other to define a space to receive discharged crop material, both conveyors being inclined and having a forward end closer to the ground than a rearward end, each conveyor comprising an outside roller remote from said space and extending in a fore-and-aft direction, an inboard roller adjacent said space and extending parallel to said outside roller, an endless belt extending around said rollers, means supporting said outside roller for rotation in a given location relative to said frame, a gear box on said frame and drivingly connected to a rearward end of said outside roller, power means connected to said gear box to drive said outside roller in such direction that an upper reach of said endless belt travels toward said space, said upper reach being on the slack side of said endless belt and the lower reach

of the belt being on the tight side, a pair of supporting plates, one on each end of said inboard roller and slidable on said frame for movement toward and away from said outside roller to control the tightness of said belt, a rod between the reaches of said belt and extending adjacent and parallel to said inboard roller, said rod extending through said header frame and being rotatably adjustable in a fixed location relative thereto, a pair of lever arms on said rod, one adjacent each end of said inboard roller, a pair of links each having one end pivotally connected to one end to one of said lever arms and an opposite end connected to the adjacent roller supporting plate, whereby when said rod is rotated said lever arms are pivoted to shift said links and thereby slidably move said plates on said frame, and a ratchet and pawl operatively associated with said rod to provide means for releasably holding and supporting plates in adjusted position.

3,304,700
COMBINED LAWN MOWER AND EDGER

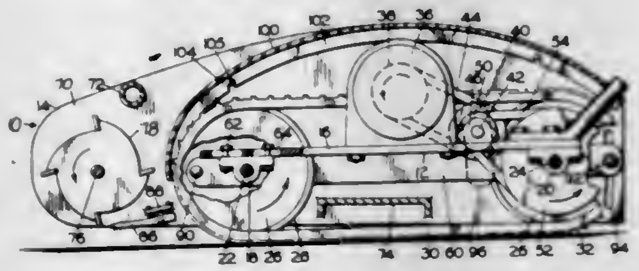
**Thomas R. Barber, 423 Pablo Trail,
Lakeland, Fla. 33803
Filed Apr. 7, 1964, Ser. No. 357,925
12 Claims. (Cl. 56—25.4)**



1. A lawn mower comprising a wheeled carriage having a substantially horizontal deck, a motor having its base supported by said deck and having a substantially vertical shaft extending through said deck, an elongated rotatable blade secured to said shaft underneath said deck, means interposed between said deck and motor base for spacing the latter a substantial distance vertically above the former, a power take-off pulley secured to said shaft at a point above the horizontal plane of the deck, and within the space between said deck and motor base, and a driving belt running over said pulley.

3,304,701
LAWN MOWER

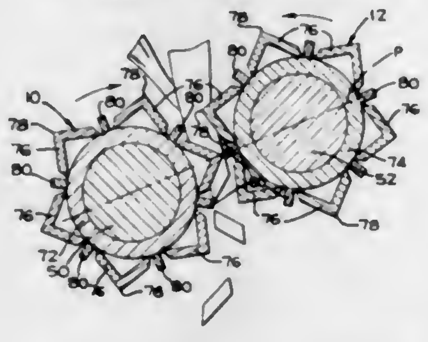
**Forrest A. Jackson, 5417 2nd Ave. S., Apt. C,
Seattle, Wash. 98108
Filed Sept. 1, 1964, Ser. No. 393,570
1 Claim. (Cl. 56—26)**



A lawn mower construction comprising a main frame, a pair of forward supporting wheels and a pair of rearward supporting wheels, a continuous, cleated, longitudinally disposed track member operative on longitudinally aligned sets of said forward and rearward supporting wheels, an elongated side bar secured to said main frame at each side thereof, a side plate extending along the outer side of each of said side bars and projecting forwardly of said side bars, pivot means pivotally attaching said side plates to said side bars adjacent the forward end of said side bars, a vertically adjustable connection between said side bars and respective ones of said side plates at the rearward end of said side bars whereby the forward end of said side plates is adapted to be raised and lowered relative to the lawn mower supporting wheels upon vertical adjustment of said side plates relative to said side bars, transversely extending cutter means rotatably supported on the forward end of said side plates, said cuter means being disposed forwardly of the lawn mower supoprting wheels, and power drive means operably connected to said wheels and said cutter means for driving the same.

3,304,702
CUTTER ROLLS FOR CORN HARVESTERS

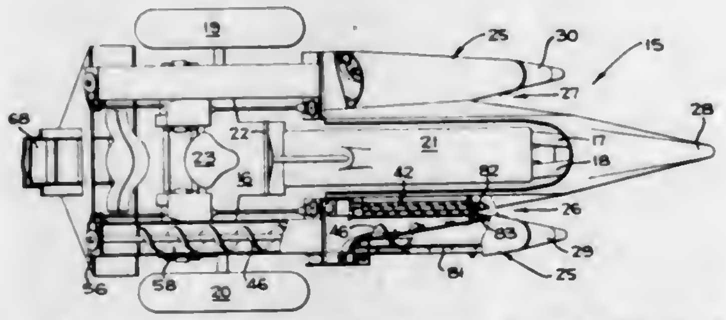
**Dean E. Russell, Hoopeston, Ill., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed July 17, 1964, Ser. No. 383,277
7 Claims. (Cl. 56—104)**



1. In a corn harvester, the combination of a first driven cutter roll, a second driven cutter roll positioned parallel to and closely adjacent said first roll, a plurality of evenly spaced cutter bars secured to each roll and each bar having a blunt cutting edge defined by surfaces disposed at an angle of at least 90° to each other, a pressure resisting bar on each roll disposed between each adjacent pair of cutter bars on the roll, and drive means interconnecting said first and said second rolls for rotating said rolls in timed relation so that a cutter bar on one of said rolls will oppose and be positioned immediately adjacent to a pressure resisting bar on the other roll when moving through a cutting plane, said pressure resisting bars each being rectangular in cross section.

3,304,703
CORN HARVESTING MACHINE

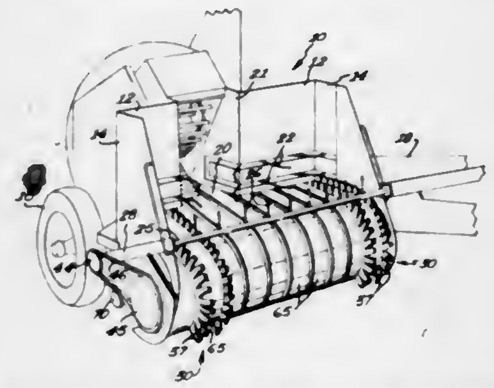
**Edward Jacob Schaaf, Hoopeston, Ill. 60942
Filed July 30, 1964, Ser. No. 386,311
3 Claims. (Cl. 56—117)**



1. A corn harvesting machine comprising a frame, a pair of laterally spaced, downwardly inclined rolls rotatably mounted in said frame, means for rotating said rolls in opposite directions with their adjacent inner side portions moving downward, one of said rolls comprising an elongated helix with a peripheral, rearwardly facing cutting edge, a corn butt supporting bar above the other roll, said bar being parallel to but laterally spaced from said helix, a vertical corn ear alignment deck plate above said helix and spaced inwardly of the inner side portion of the helix, means for guiding corn stalks between said rolls substantially within the radial confines of the cutting edge of said helix, and between adjacent convolutions of the helix as the machine advances along a row of corn, said bar supporting an ear butt as the cutting edge of said helix slices through the ear shank, and conveyor means for removing the ears.

3,304,704
GRAIN PICKUP ATTACHMENT

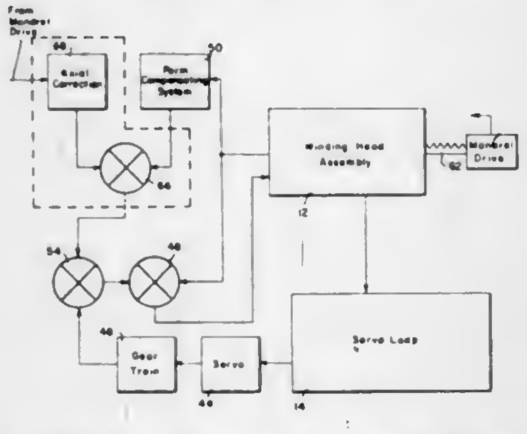
**Robert E. Lee, Larimore, N. Dak. 58251
Filed June 16, 1964, Ser. No. 375,533
14 Claims. (Cl. 56—364)**



1. In a device of the class described in combination, a belt like member having a center section with a plurality of fingers extending from opposite sides of the center section, each of said fingers being formed to have a predetermined shape such that the fingers on opposite sides of said center section are directed generally in opposite directions, said belt like member with said fingers integral therewith being formed of a flexible material, a pair of pulley means mounting said belt like member such that the belt member rotates on the pulley means, means drivingly connected to said pulley means for rotating said belt like member on said pulley means, cam means positioned on the side of one of said pulley means and adapted to engage the fingers thereof as said belt like member rotates on said pulley means to deflect the fingers toward one another at said one of said pulley means.

3,304,705
FILAMENT WINDING APPARATUS

**David Shephard Rathje, 10820 Molony Road, Culver City, Calif. 90230, and Herbert Baker, 3218 Corinth Ave., Los Angeles, Calif. 90066
Filed Sept. 16, 1964, Ser. No. 396,903
12 Claims. (Cl. 57—18)**

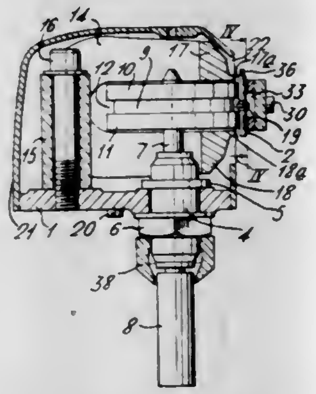


1. In a high speed winding apparatus for winding a filament about a core, the apparatus having a winding head rotatable about the core, a filament supply spool rotatably mounted on the winding head and means for rotating the winding head at relatively high rotational velocities to form a coil about the core, apparatus for maintaining a predetermined tension in the filament comprising:

- tension sensing means coupled to the winding head and interposed in the path of filament travel and adapted to provide a signal proportional to and representative of the tension in the filament being wound on the core;
- tension reference means adapted to provide a signal proportional to and representative of a desired, predetermined tension in the filament;
- error sensing means coupled to said tension sensing means and said tension reference means for providing an error signal proportional to and representative of a deviation in measured tension from desired tension; and
- servo correcting means connected to said error sensing means and operable in response to said error signal for changing the rotational velocity of the supply spool during rotation of the winding head to modify the filament tension in accordance with said error signal, whereby said servo means affects the rotational velocity of the supply spool to change the filament tension in a sense tending to decrease the magnitude of the error signal.

3,304,706
APPARATUS FOR DRIVING AND SUPPORTING A SPINDLE

**Denis Albert Edward Mattingly, London, England, assignor to The Klinger Manufacturing Company Limited, London, England, a British company
Filed June 16, 1965, Ser. No. 464,284
Claims priority, application Great Britain, June 25, 1964, 26,273/64
16 Claims. (Cl. 57—77.45)**



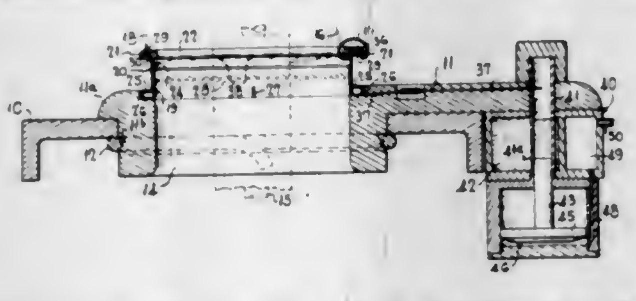
1. Apparatus for transmitting a drive to a spindle comprising transmission means having at least one track for contacting and rotating the spindle, supporting means yieldably urging the spindle into a normal running position in driving engagement with the transmission means, and guard means having operative surfaces dimensioned and disposed to arrest movement of the spindle out of said normal running position at a position where the yieldable supporting means returns the spindle into said normal running position.

3,304,707
SPINNING OR TWISTING RING ASSEMBLY

**Walter A. Kluttz, Gastonia, N.C., assignor to Kluttz Machine & Foundry Co., Gastonia, N.C., a partnership composed of Jo Ann, Jean, Jennie W. and Walter A. Kluttz
Filed Mar. 25, 1964, Ser. No. 354,672
11 Claims. (Cl. 57—120)**

1. In a spinning or twisting ring, the combination of: a cylindrical web portion, a laterally and outwardly extending annular flange portion joined to the upper end of said web portion, said flange portion having therein an annular lubricant reservoir disposed adjacent said junction of the web and flange portions, an endless

flange portion forming a closure for said reservoir and extending laterally inwardly from the upper end of said web portion, means adjacent said junction for conducting lubricant from said reservoir to the inwardly extending outer surface of said endless flange portion, means for reversibly securing said endless flange portion in closed position over said reservoir, a traveler slidably mounted upon said flange portions, a second cylindrical web portion concentrically secured to the inside surface of said first-named web portion, the upper end of said second web portion and the proximate face of said endless flange portion being disposed in spaced relation to one another and projecting laterally inwardly from the inside surface of said outer web portion to provide an annular groove for reception of the adjacent end of the traveler and a reduced ring web thickness for supporting said inner and outer flange portions, resilient circumferentially contractible means at the lower end of said second web portion, and an endless annular ring holder interengageable with said last-named means for detachably securing said holder and second web portion together.



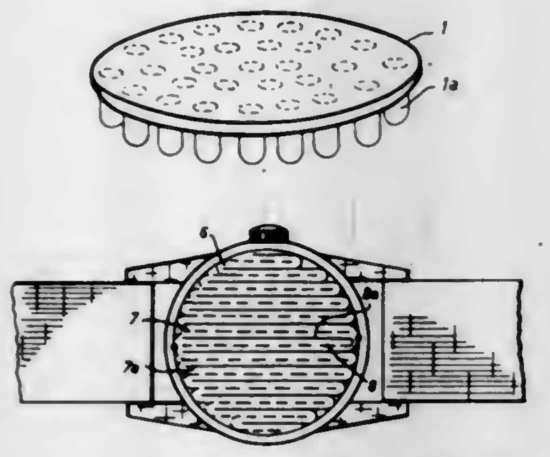
3,304,708
ELECTRIC WRISTWATCH AND ELECTRIC POWER CELL HAVING ELECTRODE PLATES HAVING ONE PLATE OF PROJECTIONS FITTING IN APERTURES OF ANOTHER PLATE

Thomas Baehni, Rue du Mussee-Bienne, Switzerland, assignor to Baehni & Co., Bienne, Switzerland, a company of Switzerland

Filed May 11, 1965, Ser. No. 459,143

Claims priority, application Switzerland, Mar. 8, 1961, 2,804/61

6 Claims. (Cl. 58—23)



1. A galvanic cell for generating an external electrical current when brought in contact with human skin, comprising an anode consisting of a material selected from the group consisting of magnesium, zinc, aluminum, beryllium and alloys thereof, a cathode consisting of a material taken from the group consisting of silver, gold platinum, nickel, copper, iron and alloys thereof, carbon and graphite; means securing said electrodes to a support in insulated relation with one another; said electrodes having substantially coplanar exposed surfaces to engage different areas of skin when in operation, said electrodes being formed of two superimposed plates, one of said plates being formed with apertures and the other plate being formed with projections fitting in said apertures and being slightly smaller than said apertures to provide electrical insulation therefrom, said projections terminating flush with the surface of said apertured plate, whereby when said cell is brought into contact with the skin, both said electrodes will make contact therewith; and means connecting an external electrical circuit to said electrodes to receive and utilize the current developed when said electrodes are in contact with the skin.

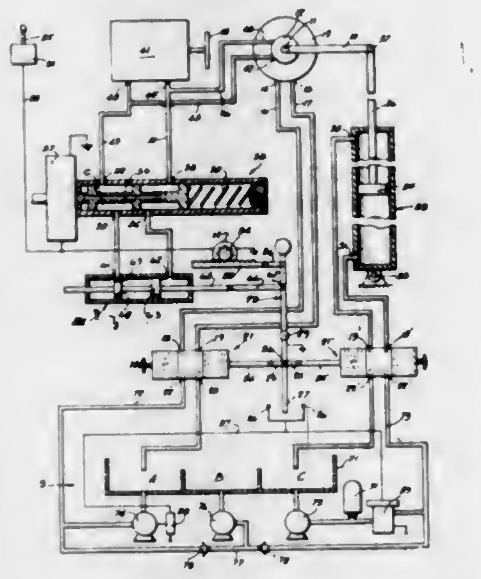
5. In an electrical wrist-watch having a transistor oscillator; the improvement in combination therewith being means supplying electric power to the transistor of said transistor oscillator, said means consisting of a galvanic cell for generating an external electrical current when brought in contact with human skin and comprising an anode consisting of a material selected from the group consisting of magnesium, zinc, aluminum, beryllium and alloys thereof, a cathode consisting of a material taken from the group consisting of silver, gold, platinum, nickel, copper, iron and alloys thereof, carbon and graphite; means securing said electrodes to a support in insulated relation from each other, said electrodes having substantially coplanar exposed surfaces to engage different areas of the skin when in operation; said electrodes being formed of two superimposed plates, one of said plates being formed with apertures and the other of said plates being formed with projections fitting in said apertures and being slightly smaller than said apertures to provide electrical insulation therefrom, said projections terminating flush with the surface of said apertured plate, whereby when said cell is brought into contact with the skin, both said electrodes will make contact therewith; and means connecting said electrodes to said transistor oscillator.

3,304,709
ELECTRO HYDRAULIC CONTROL SYSTEM

Jean Mercier and Bernard Mercier, both of New York, N.Y.; said Bernard Mercier assignor to Jean Mercier, Caldwell, N.J.

Filed June 11, 1964, Ser. No. 374,451

15 Claims. (Cl. 60—10.5)



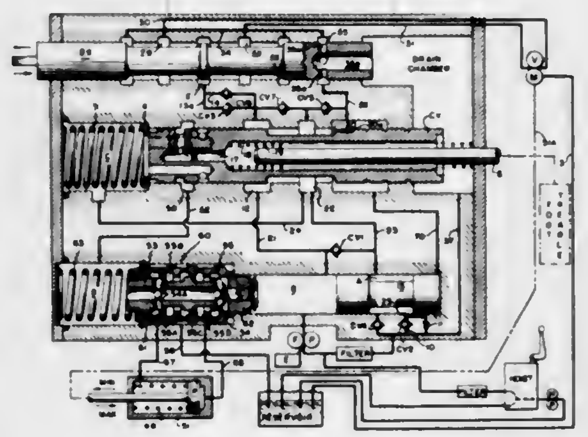
1. A hydraulic control system for effecting rotary movement of a shaft on each side of a neutral position, comprising hydraulic actuating means operatively connected to said shaft to rotate the latter, said actuating means having control ports, a valve assembly having fluid pressure inlet and return ports, a source of fluid under pressure connected to the pressure ports of said valve assembly, a reservoir connected to said return ports, said valve assembly having movable valve means, resilient means reacting against said valve means normally retaining the latter in neutral position to block flow of fluid to said actuating means, a manually operable fluid pressure source operably connected to said valve assembly to effect movement of the valve means thereof to connect said source of fluid under pressure to said hydraulic actuating means, an electrically operable control means operably connected to said valve assembly to effect such movement of the valve means, and means to short circuit said manually operable fluid pressure source when said electrically operable control means is actuated.

3,304,710
HYDROSTATIC TRANSMISSION

George F. Quayle, Jenkintown, Pa., assignor to Eaton Yale & Towne Inc., a corporation of Ohio

Filed May 3, 1965, Ser. No. 452,816

16 Claims. (Cl. 60—19)



1. In a combination of the class described, an engine driven pump, a control valve in communication with said pump for receiving fluid from said pump, a bypass passage through which fluid may flow from the pressure side of said pump to the low pressure side thereof, a flow retarder in said bypass passage adapted to develop pressure at the pump pressure side of said flow retarder so as to present fluid pressure to said control valve to move said valve, a pair of relief valves of different pressure settings for said flow retarder, and means for controlling which of said relief valves limits the degree of fluid pressure developed by said flow retarder.

3,304,711
EXHAUST CONVERTER

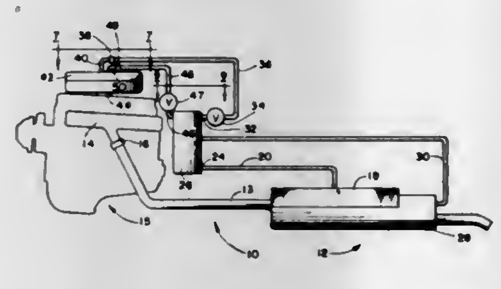
Ernest A. Eastman, Smith St., Box 73, Sedona, Ariz. 86336

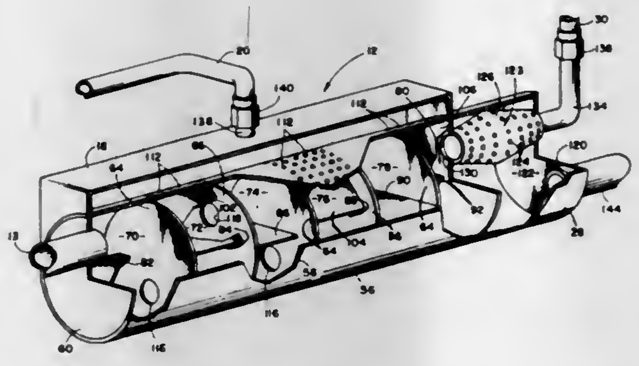
Filed Sept. 21, 1965, Ser. No. 493,611

11 Claims. (Cl. 60—29)

1. A device for separating heavier constituents from lighter constituents in the exhaust stream of an internal combustion engine having a carburetor comprising:

- a body portion having an encompassing sidewall, a closed front wall forming a first vertical partition at its upstream end and a closed rear wall forming a second vertical partition at its downstream end, said first vertical partition being provided with an aperture at its upper portion, said second vertical partition being provided with an aperture in its lower portion;
- inlet means mounted in said aperture in said front wall in fluid communication with said body portion for receiving said exhaust stream from said engine; and
- outlet pipe mounted in said aperture in said rear wall in fluid communication with said body portion for discharging fluids therefrom;
- partition means mounted in said body portion in the flow path from said inlet means to said outlet means, said partition means comprising:
  - (a) a third vertical partition mounted in said body portion downstream of said front wall, said third vertical partition having an aperture mounted in a bottom portion thereof;
  - (b) a first horizontal partition means mounted in said body portion between said front wall and said third vertical partition, said first horizontal partition means forming a first arcuate passageway with said encompassing sidewall;
  - (c) a fourth vertical partition mounted in said body portion downstream of said third vertical partition, said fourth vertical partition having an aperture provided in the upper portion thereof;
  - (d) second horizontal partition means mounted in said body portion between said third and fourth vertical positions, said second horizontal partition means forming a second arcuate passageway with said encompassing sidewall, said second horizontal partition means being mounted intermediate said apertures in said third and fourth vertical partitions;



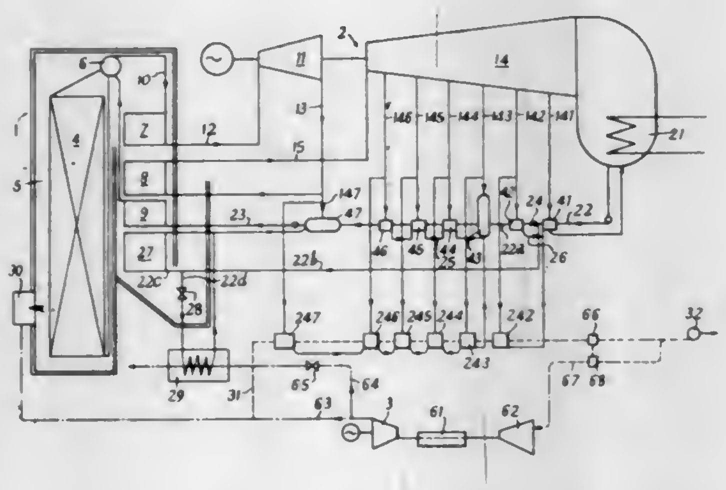


  - (e) third horizontal partition means mounted in said body portion between said fourth vertical partition and said end wall intermediate their associated apertures, said third horizontal partition means forming a third arcuate passageway with said encompassing sidewall, said encompassing sidewall having aperture means provided therein above said second horizontal partition means intermediate said third and fourth vertical partitions;
  - (f) fourth horizontal partition means mounted in said body portion between said aperture means and said second horizontal partition means, said fourth horizontal partition means including a portion extending outwardly adjacent said aperture means and lower edges forming a passageway with said second partition means for the flow of the lighter constituents of said exhaust stream under said fourth partition means; and
  - (g) a collection chamber connected to said body portion above said aperture means for collecting said heavier constituents from said apertures in said sidewall portion.

3,304,712
STEAM AND GAS TURBINE POWER PLANT

Pierre Henri Pacault, 11 Ave. Balzac, Ville de'Avray, France, and Bernard Chlique, 120 Ave. Jean-Jaures, Montrouge, France

Filed Nov. 3, 1964, Ser. No. 408,642
Claims priority, application France, Nov. 9, 1963, 953,292; Feb. 28, 1964, 965,495
17 Claims. (Cl. 60—39.18)

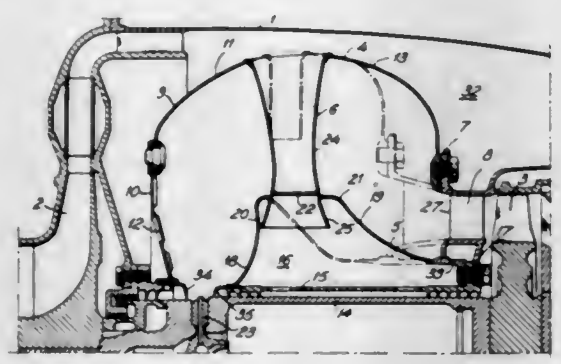


1. A power plant comprising steam turbine means, a fuel-fired steam generating unit for supplying steam thereto and air heating means operating by exchange of heat and using a heating medium drawn from said unit, and further comprising gas turbine means with air compressor means and a combustion chamber for intermittently supplementing the plant power production, with gaseous fluid connecting means, connecting said fuel-fired unit to a source of combustion air for circulating air in parallel through said air heating means and through said air compressor means, combustion chamber and gas turbine means.

3,304,713
ANNULAR COMBUSTION CHAMBERS FOR GAS TURBINE ENGINES

Joseph Szydlowski, Usines Turbomeca, Bordes, France

Filed Aug. 4, 1965, Ser. No. 477,184
Claims priority, application France, Aug. 14, 1964, 985,179, Patent 1,419,665
7 Claims. (Cl. 60—39.65)

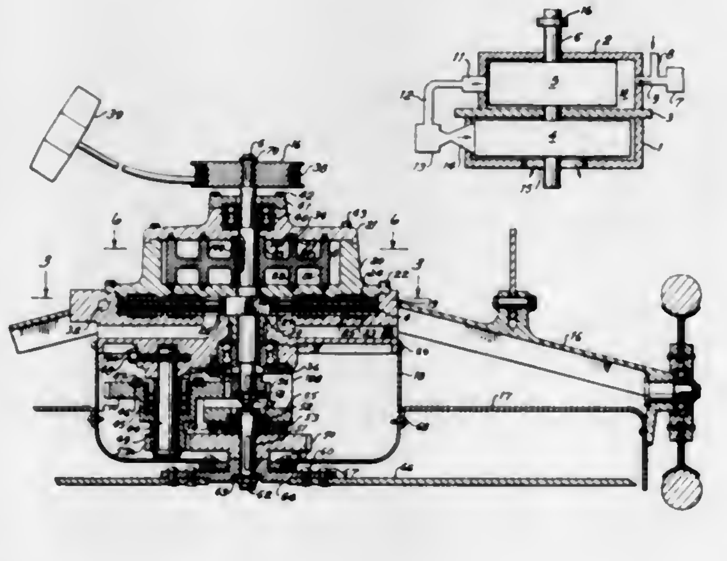


1. A rotary fuel injection type annular combustion device particularly of the L-shaped kind as used in a gas-turbine engine, having a casing positioned between the compressor and the turbine, an external wall and an internal wall in said casing bounding a combustion chamber having combustion and dilution regions, said internal wall defining an interval cavity therein, said walls being provided with holes for admitting gas dilution air therebetween, and radial air ducts extending from the external wall and opening in front of corresponding holes in said internal wall for feeding said combustion chamber with air via said internal cavity and the other of said holes in said internal wall, the improvement according to which said radial air ducts are of decreasing cross-section from their entrance at the external wall, and diffusers on said internal wall fixedly surrounding the holes therein facing said ducts, said diffusers extending radially inwards of said internal wall into said cavity defined thereby.

3,304,714
TURBINE ENGINE

Harold Becher, 932 Carroll St., Brooklyn, N.Y. 11225

Filed July 20, 1965, Ser. No. 473,418
7 Claims. (Cl. 60—39.75)



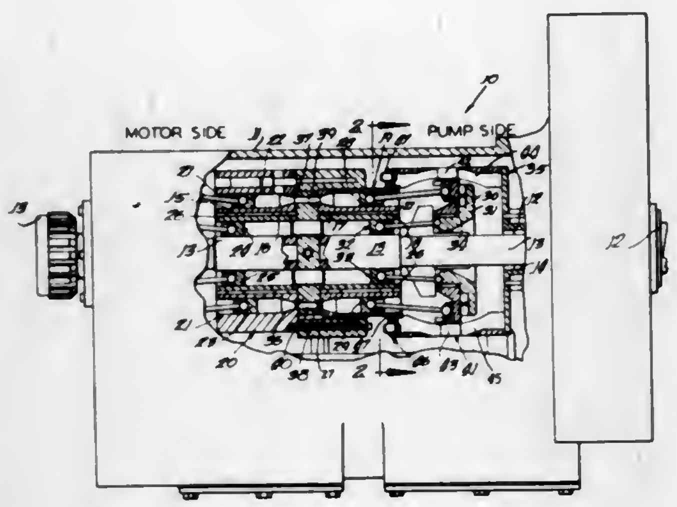
1. A power generator, comprising, in combination, a plate, a shaft passing through said plate, a cup abutting its open end on said plate eccentrically to said shaft, a second cup abutting its open end on the opposite side of said plate concentrically to said shaft, a compressor-rotor in said eccentric cup concentric to said shaft, a Tesla disk turbine in said concentric cup concentric to said shaft, an intake port in said eccentric cup adapted to draw a mixture of air and fuel into said eccentric cup to be compressed by said compressor-rotor, an exhaust port in said eccentric cup adapted to discharge the compressed mixture, a combustion chamber communicating with said exhaust port, an intake opening in said concentric cup, a converging-diverging nozzle communicating at its inlet with said combustion chamber and communicating at its outlet tangentially with said opening, an opening on the roof of said concentric cup peripheral to said shaft adapted to exhaust the combustion products after they have passed through said Tesla disk turbine, and means on said shaft to initiate rotation thereof.

3,304,715
TORQUE TRANSMITTING MECHANISM IN AN AXIAL PISTON TYPE HYDRAULIC POWER TRANSMISSION UNIT

Walter H. Page and Ralph E. Wallace, Elmhurst, and John F. Swift, Chicago, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of New Jersey

Filed May 21, 1965, Ser. No. 457,645
20 Claims. (Cl. 60—53)

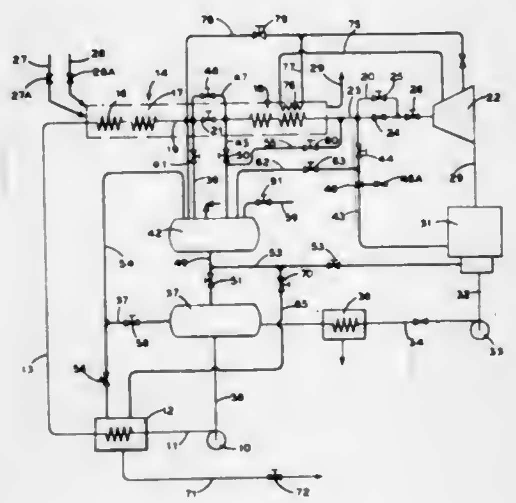
1. A hydraulic unit having a cylinder block member with a plurality of axially movable pistons in cooperative relation with a swash plate, a valve plate member abutting said cylinder block member in pressure seal relation forming an interface for valving fluid to and from said pistons, a rotatable drive device and, in combination, a torque transmitting mechanism connecting one of said members with said rotatable drive device in torque transmitting relation including means for preventing transverse forces from being transmitted to said members from said drive device whereby said pressure seal at said interface is uninterrupted thereby substantially eliminating fluid leakage at said interface.



3,304,716
START-UP SYSTEM FOR FORCED FLOW VAPOR GENERATOR

Edwin M. Griffin, Leroy, and Richard J. Gray, Akron, Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

Filed Aug. 4, 1964, Ser. No. 387,374
7 Claims. (Cl. 60—105)

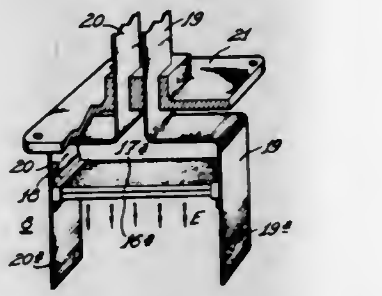


1. In a power plant having a turbine and a forced flow vapor generator having a through-flow circuit including a superheater connected for series flow of fluid to the turbine, means for starting up the vapor generator and turbine comprising a flash tank for separating vapor and liquid, means for supplying a vaporizable liquid under pressure to the through-flow circuit, means for passing liquid from said circuit from a position upstream of the superheater to the flash tank while reducing its pressure to the extent that a protion of the liquid flashes into vapor, and means for passing separated vapor at the saturation temperature corresponding to the pressure in the flash tank from the flash tank to the discharge side of the superheater for mixing of such saturated vapor with the superheater outflow.

3,304,717
ELECTRICAL PROPULSION UNIT FOR USE IN RAREFIED ATMOSPHERES

Henri Gutton, Neuilly-sur-Seine, and Maurice Pierre Joseph Fournet, Vincennes, France, assignors to Sud-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France

Filed June 24, 1964, Ser. No. 377,745
Claims priority, application France, July 2, 1963, 940,046, Patent 1,369,470
9 Claims. (Cl. 60—202)

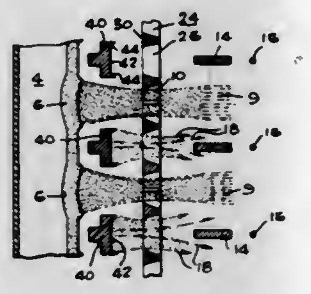


1. An electric propulsion unit for use in rarefied atmospheres comprising, in combination, means for generating current pulses of short duration with a steep leading edge and, within an ambient atmosphere in which the prevailing pressure is below a few tenths of a gram per square centimetre, a conductor made of a graphite rod, two very closely spaced metal strips substantially parallel to said rod and respectively connected to the ends thereof, a strip of insulating material disposed between said metal strips, means for connecting said metal strips to said pulse generating means, whereby when said rod is fed by said pulse generating means it ejects elementary particles at very high velocities, while remaining cold and is surrounded by a plasma, and a mirror of reflecting material surrounding said rod and the parts of said metal strips connected thereto.

3,304,718
DOUBLE OPTIC SYSTEM FOR ION ENGINE

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Robert L. Zimmerman, Northridge, Calif.

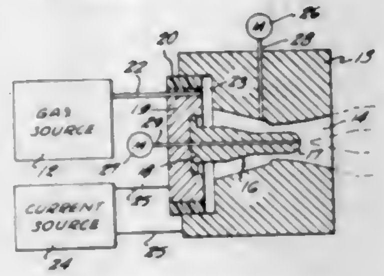
Filed Aug. 4, 1965, Ser. No. 477,333
7 Claims. (Cl. 60—202)



1. In an ion engine, the combination comprising: a source of ionizable propellant, an ionizing means for receiving said propellant and producing a stream of ions, a focus electrode downstream of said ionizing means and an accelerator electrode downstream of said focus electrode, said accelerator electrode having a main aperture for receiving said ion stream and a secondary aperture for receiving spurious ions originating from said focus electrode.

3,304,719
APPARATUS AND METHOD FOR HEATING AND ACCELERATING GAS

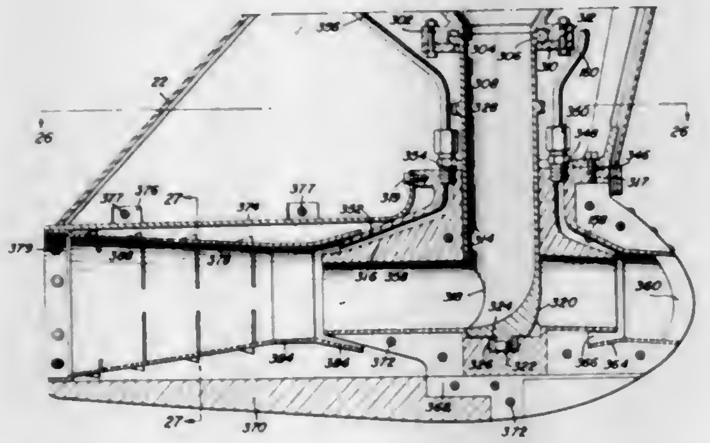
Adriano C. Ducati, Newport Beach, Calif., assignor to Giannini Scientific Corporation, Santa Ana, Calif., a corporation of Delaware
Filed July 28, 1964, Ser. No. 385,702
13 Claims. (Cl. 60—203)



10. A method of effecting propulsion of a space vehicle, which comprises:
- providing on a space vehicle an electrode having an arcing portion adapted to sustain a high-current electric arc,
- discharging in contact with said arcing portion and into the ambient space a gas having a pressure, when passing in contact with said arcing portion, which is only a small fraction of atmospheric, and
- maintaining a high-current electric arc to said arcing portion and thereby effecting heating of said gas prior to discharge thereof from said space vehicle.

3,304,720
WATER JET PROPELLED OUTBOARD BOAT MOTOR

Thomas J. Craig, 117 Kensington Drive, Utica, N.Y. 13501
Filed Dec. 7, 1964, Ser. No. 416,544
8 Claims. (Cl. 60—222)

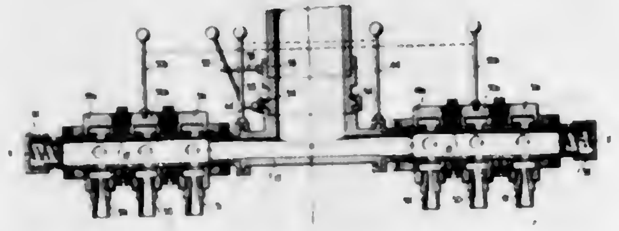


1. In an outboard motor, a plurality of combustion chambers in the form of elongated tubes oriented about a substantially vertical shaft, a rotary compressor connected to an upper portion of said shaft, a rotary combustion head connected to said shaft and located below said compressor, said combustion head having a recess in the top thereof with inclined wall surfaces and an orifice in the low point of said wall surfaces for selective registry with said combustion chambers, a rotary exhaust rotor connected to said shaft below said combustion chambers and having an aperture therein for selectively opening the combustion chambers, said exhaust rotor aperture having a plurality of blades therein for driving said shaft, seal means disposed between the combustion head and said combustion chambers, means for injecting fuel into said chambers and means for igniting said fuel.

5. In an outboard motor as defined in claim 1, a propulsion tube having one end opening in the direction of movement of the motor and the other end opening in trailing relation thereto, and means conveying combustion products discharged through the aperture in the exhaust rotor into said tube and discharging the same in a selected longitudinal direction for producing a driving thrust.

3,304,721
AIRCRAFT THRUST VECTOR CONTROL ASSEMBLY

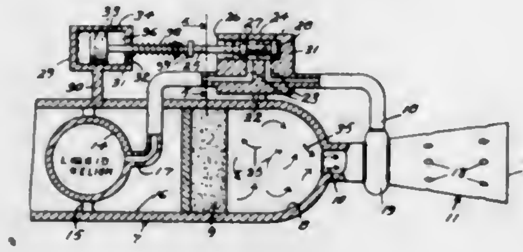
George U. Oppel, Buchen, Odenwald, Germany (17 Putzstrasse, 5321 Niederbachem, Germany)
Filed Sept. 8, 1964, Ser. No. 394,678
14 Claims. (Cl. 60—232)



1. A thrust vector control assembly of the character described for varying the magnitude and direction of the thrust vector of an aircraft of either the vertical or short take-off and landing type having a propulsion system with at least one outlet for thrust production, including at least two reaction nozzles adapted to be rotatably mounted on the aircraft gas outlet in relatively close adjacent relation, and control means operatively connected to said reaction nozzles to simultaneously rotate the nozzles in equal but opposite directions relative to each other in one direction, from a position of zero thrust wherein the nozzles are directed in opposite direction, to a position of substantial alignment in the same direction to produce a maximum thrust in a first direction, and said control means operatively connected to simultaneously rotate the nozzles in equal but opposite directions relative to each other in the opposite direction from the zero thrust position to a position of substantial alignment with each other in the opposite direction to produce a maximum thrust in a second direction opposite to the thrust in the first direction, to thereby vary the magnitude and direction of the thrust vector of the aircraft.

3,304,722
MEANS FOR SUPPLYING COLD GAS TO A PROPULSION JET IN OUTER SPACE

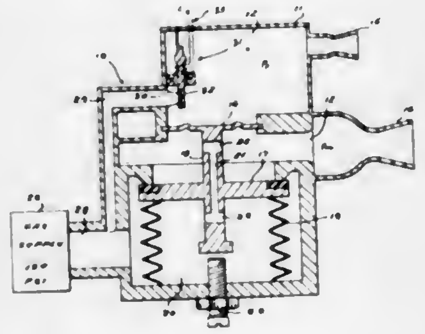
James L. Culpepper, 2539 W. Ogden, Downers Grove, Ill. 60515
Filed Feb. 16, 1965, Ser. No. 433,027
2 Claims. (Cl. 60—233)



1. In a jet-type propulsion unit, a substantially conical rocket nozzle having a restricted throat at its forward end adapted to communicate with and receive exhaust gases from a combustion chamber, said nozzle having a plurality of ports extending therethrough and arranged uniformly therearound for admitting cool air from the atmosphere to the interior of the nozzle for increasing the thrust of the exhaust jet and for cooling the nozzle, a manifold mounted on and surrounding a part of said nozzle, a conduit having an outlet end discharging into said manifold and an inlet end adapted to be connected to a source of supply of a cold gas, valve means interposed in said conduit, means responsive to atmospheric pressure for holding said valve means closed, means for opening the valve means when the atmospheric pressure is diminished for supplying the gas to the manifold through said conduit, and said nozzle having ports communicating with the manifold and opening into the nozzle through which the cold gas enters the nozzle to mix with the exhaust gases to increase the thrust exerted thereby and to cool the nozzle.

3,304,723
PROPORTIONAL THRUST VALVE FOR SPACE VEHICLE CONTROL SYSTEM

Robert E. Gaura, Campbell, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 10, 1965, Ser. No. 478,778
3 Claims. (Cl. 60—233)

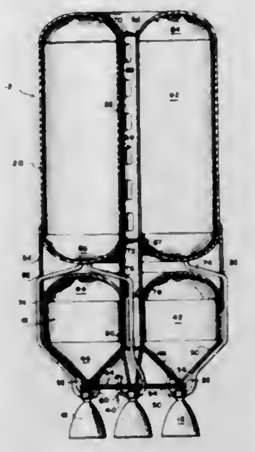


1. A thrust device comprising: a housing having a first chamber and a second chamber separated by a wall; a first convergent-divergent nozzle connected to said first chamber; a second convergent-divergent nozzle of smaller throat diameter connected to said second chamber; a high pressure gas supply connected to said housing; valve means within said housing for controlling the flow of gas to said first chamber; a spring bellows hermetically connected to said valve means and the wall of said housing for holding said valve in its closed position; means, in said valve means for, admitting gas into said bellows when said valve is open to balance the pressure on said valve means; a diaphragm, in the wall between said first chamber and said second chamber, and operatively connected to said valve means; means for controlling the flow of gas into said second chamber to control the flow of gas to said second nozzle and the movement of said diaphragm to control the opening and closing of said valve means.

3,304,724
TANK CONSTRUCTION FOR SPACE VEHICLES

Josef F. Blumrich and Carl A. Loy, Huntsville, Ala., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Jan. 28, 1965, Ser. No. 428,882
13 Claims. (Cl. 60—257)

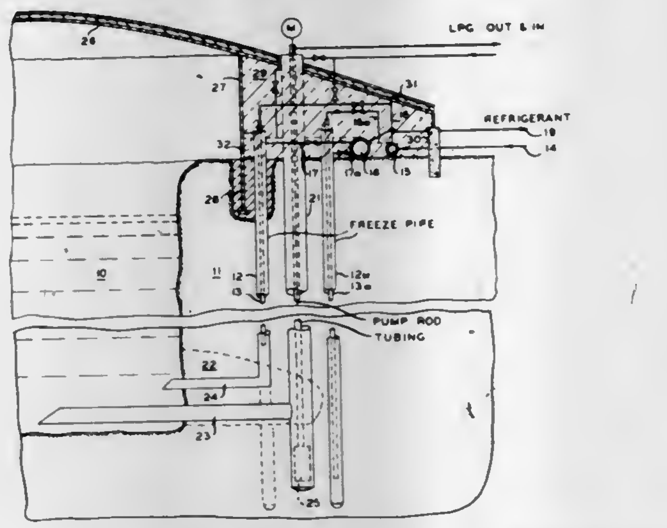
1. A space vehicle comprising, in combination:
- (A) a thrust structure;
- (B) a rocket engine connected to said thrust structure;
- (C) a propellant tank having a cylindrical body and bulkheads secured to the opposite ends thereof;
- (D) a supporting column attached to said bulkheads and extended through the center of said cylindrical body;
- (E) one of said bulkheads having a semitoroidal configuration; and



- (F) one end of said supporting column connected to said thrust structure.

3,304,725
PREPARING A RESERVOIR FOR STORAGE OF VOLATILE LIQUIDS

William M. Faulconer, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 19, 1963, Ser. No. 302,883
2 Claims. (Cl. 61—.5)



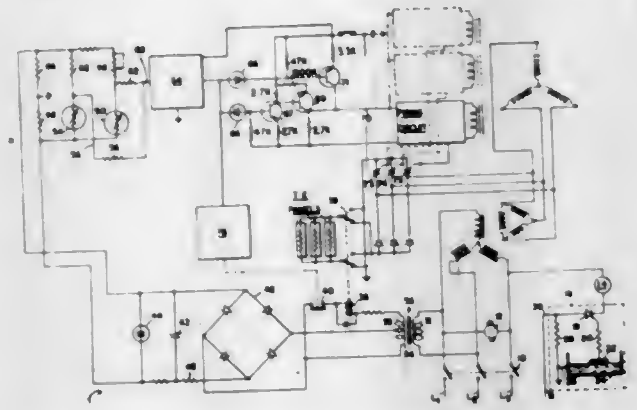
1. The method of installing a pump for discharging liquid from, and a conduit for introducing liquid to, a reservoir in frozen earth wherein the earth adjacent the reservoir is maintained frozen by a plurality of freeze pipes vertically positioned in the earth which comprises excavating a passageway from the wall of the completed reservoir to one of said freeze pipes; cutting an opening in said freeze pipe adjacent said passageway; connecting one end of a conduit section to said opening so as to communicate with said reservoir; placing a pump in said one freeze pipe; connecting said pump to one end of a discharge conduit; and connecting said freeze pipe to one end of an inlet conduit.

3,304,726
THERMOELECTRIC REFRIGERATION CONTROL MEANS

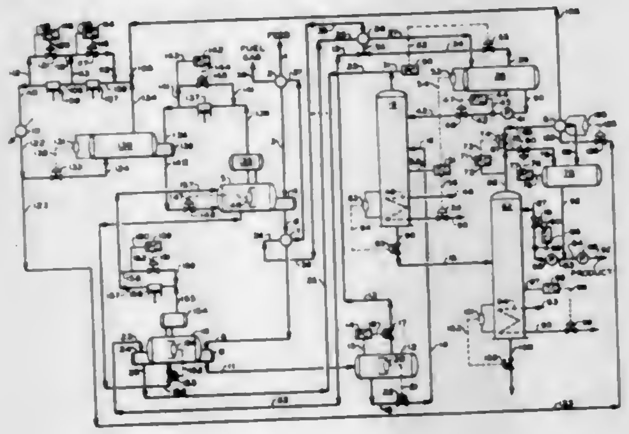
Arnold A. Beck, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Feb. 18, 1965, Ser. No. 433,737
2 Claims. (Cl. 62—3)

1. A control for an air conditioning unit including thermoelectric panel means by said control regulating the electric current supplied to the panel means, comprising a source of electrical energy, a bridge circuit connected to said source of electrical energy, said circuit including a leg including means sensing the temperature of the air

in the enclosure served by said unit, a leg including means sensing the temperature of the air flowing from the unit to the enclosure to produce a resultant compensated electrical signal indicative of a heating or cooling requirement, silicon rectifier means associated with said thermoelectric panel means for regulating supply of current to the panel means, means responsive to the signal generated by said bridge circuit for firing said silicon rectifier means.

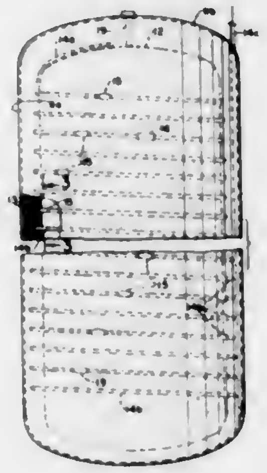


3,304,727
REFLUX CONDENSATION BY HEAT EXCHANGE WITH A COMPOSITE STREAM
Carleton H. Roskamp, Donald R. Bates, Robert D. Heckart, and Luther F. Mayhue, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 412,929
4 Claims. (Cl. 62—28)



1. A method of purifying an ethylene-hydrocarbon feed containing hydrocarbons and other compounds that boil at a lower temperature than ethylene which comprises cooling said feed to a temperature and pressure at which substantially all the components in said feed are liquefied except said hydrocarbons and other compounds, removing at least a part of said hydrocarbons and other compounds to form a first vaporous stream, fractionating the remaining liquid feed portion to remove overhead substantially the remainder of said hydrocarbons and other compounds in said feed and to form a second vaporous stream, heat exchanging the second vaporous stream with a composite stream to liquify a portion of said second vaporous stream and leave a third vaporous stream formed from said second vaporous stream, lowering the pressures of said first and third vaporous streams to expand and to cool same, combining said cooled first and third vaporous streams to form the composite stream, contacting in the said heat exchange relationship said composite stream and said second vaporous stream to cool and therefore condense at least in part said second vaporous stream, thereafter contacting in heat exchange relationship at least one time said composite stream with incoming ethylene-hydrocarbon feed which is to be purified to cool and condense at least a part of said feed for subsequent separation therefrom of hydrocarbons and other compounds that boil at a lower temperature than ethylene.

3,304,728
GAS COOLED STORAGE CONTAINER
James R. De Haan, Boulder, Colo., assignor to Cryogenic Engineering Company, Denver, Colo.
Filed Oct. 15, 1965, Ser. No. 496,431
36 Claims. (Cl. 62—45)



1. In a fluid storage vessel of the type in which an insulation comprising a plurality of radiant heat barrier layers is wrapped about an inner wall which defines the storage volume of said vessel and wherein a space between said inner wall and an outer wall is evacuated, the combination comprising:

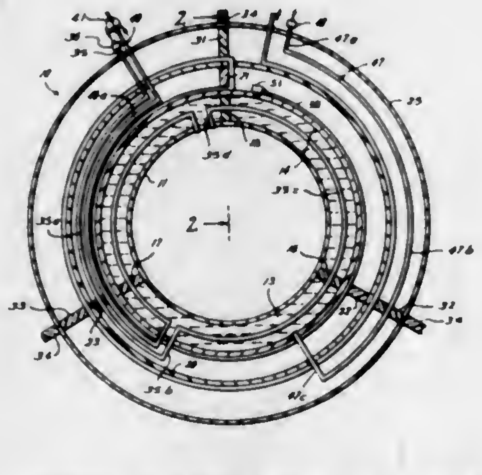
conduit means extending through said vacuum space from said inner wall to said outer wall;

means for connecting said conduit means to said storage volume;

said conduit being continuously spirally wrapped between successive radiant heat barrier layers as said conduit approaches said outer wall;

and means for diverting at least part of the flow of gas from said storage volume to said outer wall after said gas passes between only those radiant heat barrier layers which are nearer to said inner wall.

3,304,729
CRYOGENIC STORAGE SYSTEM
William A. Chandler, Dickinson, and Robert R. Rice, South Houston, Tex., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 22, 1965, Ser. No. 502,729
7 Claims. (Cl. 62—45)



1. In a cryogenic storage system for a dense gas, the combination comprising an inner pressure vessel for holding said dense gas;

a second pressure vessel for containing a more expendable cryogenic gas in the liquid state, said second pressure vessel surrounding said inner pressure vessel;

support means of low thermal conductivity material for holding said first and second vessels in spaced relationship to one another;

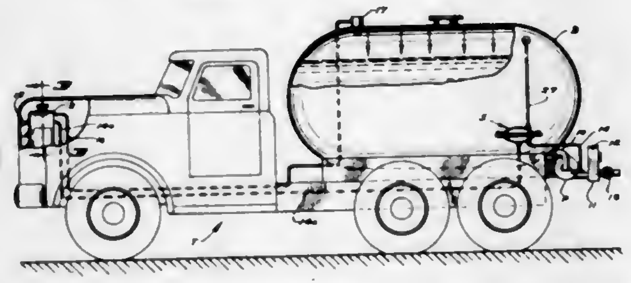
an outer shell surrounding said second pressure vessel in spaced apart relationship thereto, and providing a vacuum space therebetween;

a heat-conductive shield surrounding said second pressure vessel within said vacuum space between said second pressure vessel and said outer shell;

a venting conduit fluidly communicating with said second pressure vessel and passing through said heat conductive shield and the outer shell for venting vaporized cryogenic gas, said conduit being disposed over a first part of its length in heat-exchanging engagement with said second pressure vessel and over another part of its length in heat-exchanging relationship with said heat conductive shield; and

a throttling valve in said venting conduit for reducing the pressure and temperature of the vaporized cryogen which is vented through said conduit whereby the heat conductive shield and the second pressure vessel are subject to vapor cooling by the flow of vaporized refrigerant cryogen through the heat-exchanging venting conduit.

3,304,730
DEVICE TO AID PUMPING OF VOLATILE GASES
Robert B. Gorham, Mora, Minn. 55051
Filed June 9, 1965, Ser. No. 462,538
4 Claims. (Cl. 62—53)



1. Apparatus to provide a pressure head to aid in pumping liquid gas from bulk tanks including:

(a) pump means arranged to receive liquid gas from said tank and deliver the same;

(b) liquid gas vaporizer means for converting liquid gas to vapor;

(c) conduit means extending from said tank discharge to said vaporizer means delivering liquid thereto;

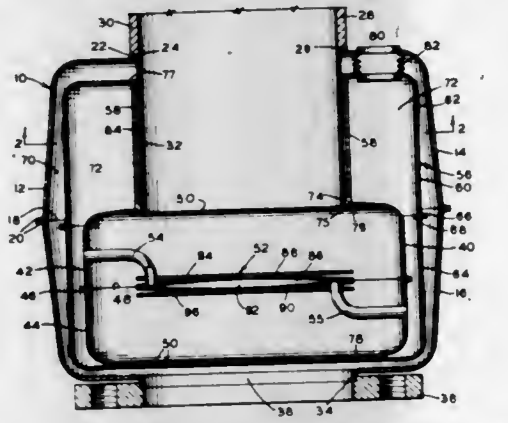
(d) pressure responsive valve means controlling the flow of liquid fluid to said vaporizer;

(e) a vapor conduit receiving vapor from said vaporizer and discharging the same into the bulk tank to create a pressure head above the liquid level therein; and

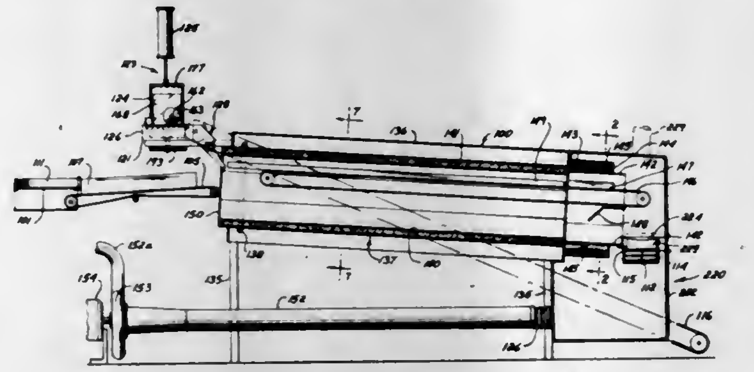
(f) conduit means communicating with the vapor in the bulk tank and said pressure responsive valve means to permit liquid to flow through said valve means only upon reaching a predetermined discharge pressure from said bulk tank.

3,304,731
HIGH VACUUM COLD TRAP
Daniel G. Bills and Keith A. Warren, both of Boulder, Colo., assignors to Granville-Phillips Company, Boulder, Colo., a corporation of Washington
Filed Mar. 13, 1964, Ser. No. 351,689
4 Claims. (Cl. 62—55.5)

4. A cold trap for use between a diffusion pump and a closed system to be evacuated thereby which comprises: a gas-impervious shell having sidewalls forming a gas flow passage therethrough with an inlet opening in the top for connection to a system and an outlet opening in the bottom for connection to a pump; a coolant reservoir having inner and outer walls surrounding said shell with that portion of the inner wall of the coolant reservoir surrounding the lower portion of said flow passage being contiguous with the lower portion of said shell sidewalls which define a lower contiguous wall portion while that portion of the inner wall of the coolant reservoir surrounding the upper portion of the flow passage is spaced from the upper portion of said shell sidewalls which define an upper spaced wall portion serially connected to said contiguous wall portion, said coolant reservoir being of a configuration and having a normal coolant level such that the major portion of the coolant volume is located above the junction between the lower contiguous wall portion and the upper spaced wall portion of said flow passage, said upper wall portion of said shell, spaced from said inner reservoir wall, extending upwardly from said contiguous wall portion and terminating above the normal liquid level of coolant in the reservoir to provide a heat conductance path from said contiguous wall portion along the entire length of the spaced wall portion to the upper extremity of the trap; conduit means for introducing a cryrogenic coolant into said reservoir; and, baffle means positioned in said shell within the flow passage wherein a substantial portion of the total surface area of said flow passage forms a portion in common with the surface of said coolant reservoir and wherein the remaining portion of said total surface area of said flow passage is spaced from the surface of said reservoir defining the major portion of the total volume of said coolant reservoir.



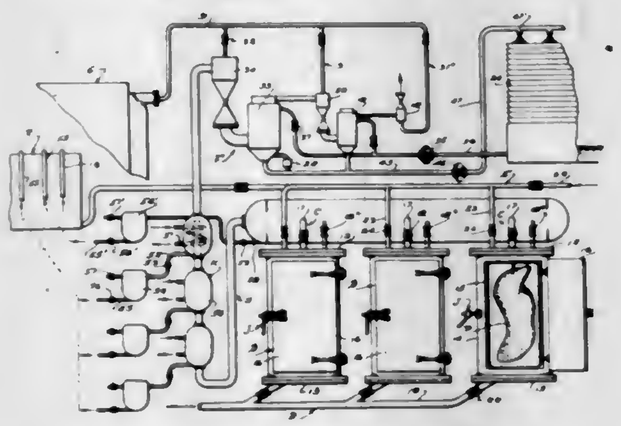
3,304,732
METHOD AND APPARATUS FOR CHILLING ARTICLES, ESPECIALLY FOOD ITEMS
Julius Rubin, Franklin Square, Nassau, N.Y., assignor to Thermice Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Dec. 29, 1965, Ser. No. 517,287
18 Claims. (Cl. 62—63)



6. A method of chilling articles comprising: advancing a mixture of the articles with powdered solid carbon dioxide downstream through a moving bed having input and output ends, tumbling the mixture during said downstream advancement, feeding the articles to be chilled into the input end of the bed, in the region of the input end of the bed shaving solid carbon dioxide in block form

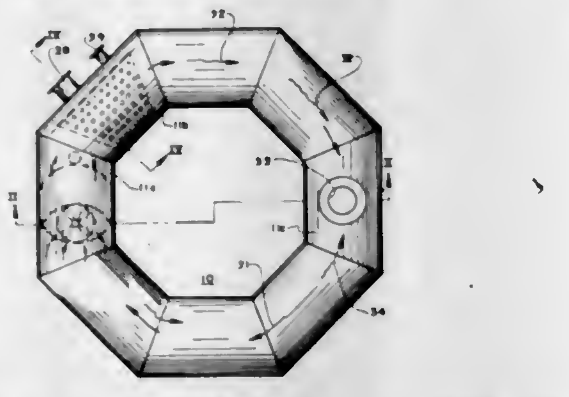
at a preselected rate to produce powdered solid carbon dioxide, introducing the shaved powdered solid carbon dioxide into the bed at a rate substantially equal to the rate at which said powdered carbon dioxide is formed by shaving, and discharging the chilled articles from the output end of the bed.

3,304,733
VACUUM COOLING METHOD AND APPARATUS
Wilson R. Coffman, 2812 Newell St., Whittier, Calif. 90039
Filed Oct. 22, 1965, Ser. No. 500,570
16 Claims. (Cl. 62—100)



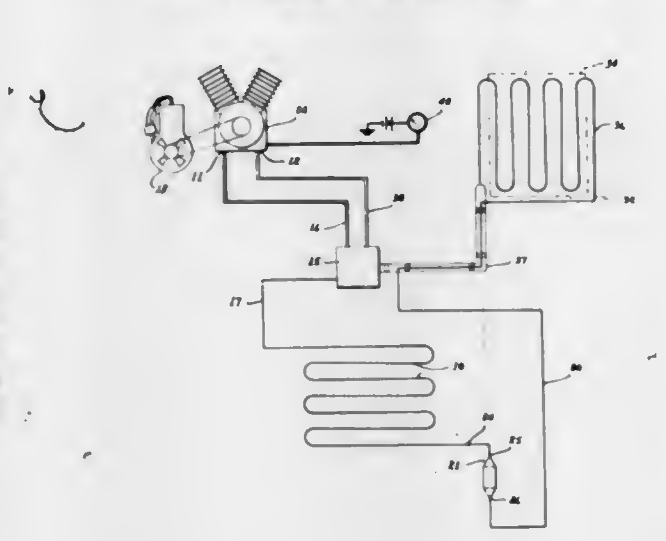
12. The method of vacuum cooling hydrate food products comprising; first, subjecting the product to be cooled to sub-atmospheric pressures to vaporize a portion of the water therein and to effect cooling the product; second, submerging the product in a body of chilled water while maintaining said sub-atmospheric pressure on the product and said body of water; third, subjecting said body of water and the product therein to atmospheric pressure to rehydrate the product and finally, removing the cooled hydrate food product from the body of water.

3,304,734
CONTINUOUS CRYSTALLIZERS
William Earl Dunn, Pittsburgh, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed Jan. 20, 1966, Ser. No. 521,777
6 Claims. (Cl. 62—123)



1. In a saline water freezing system apparatus comprising, in combination, a substantially horizontal enclosed annular chamber, said chamber being relatively shallow and adapted to have a slurry of ice and saline water circulated therein in a selected direction along an endless path defined by said chamber, said chamber having a downwardly extending portion adapted to make said slurry dip below the normal level of said path in the course of its flow therealong, means to circulate said slurry along said path positioned adjacent said portion, means for admitting saline water to be refrigerated and recirculated brine separated from the slurry on the downstream side of said last-named means in said chamber, means for supplying an immiscible vaporizable liquid into said slurry below the surface thereof and on the downstream side of said means to circulate, preferably adjacent said means for admitting saline water and brine to said chamber, means to maintain temperature and pressure conditions within said chamber such that said vaporizable liquid as aforesaid will rise through said slurry and vaporize to form additional ice crystals and augment the size of existing ice crystals in said slurry, said vaporized liquid rising to a vapor space in said chamber above the surface of said slurry, a vapor outlet for vaporized liquid positioned downstream of said means for supplying and upstream of said means to circulate, and withdrawal means adjacent said portion to withdraw a portion of said slurry with separable ice crystals therein corresponding in quantity to the quantity of material of saline water and brine added by said means for admitting.

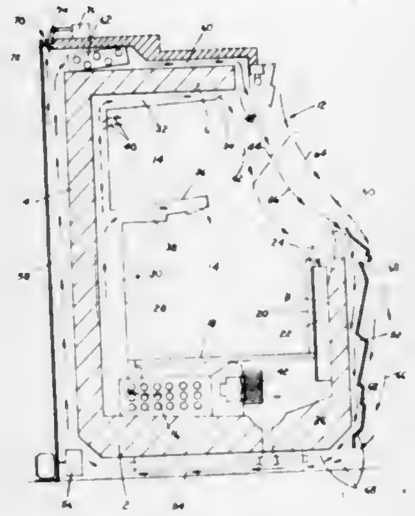
3,304,735
AUTOMOTIVE HEAT PUMP
Marvin H. Alexander, 3301 E. Mescal St., Phoenix, Ariz. 85028
Filed Jan. 13, 1965, Ser. No. 425,292
1 Claim. (Cl. 62—160)



In an automobile having an engine and a passenger compartment, an automotive heat pump system comprising:

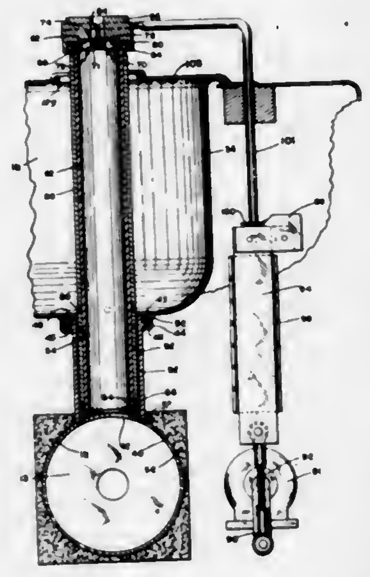
(a) a compressor, driven by the engine of said automobile, and having an inlet and an outlet for receiving low pressure refrigerant and discharging high pressure refrigerant,
(b) a thermostat positioned in the passenger compartment of said automobile for controlling the amount of refrigerant from said compressor by connecting or disconnecting said compressor to or from the engine of said automobile,
(c) a condenser connected to said compressor outlet for cooling high pressure refrigerant delivered from said compressor and for changing the phase of said refrigerant from gaseous to liquid,
(d) a receiver sump having an outlet connected to said condenser for receiving refrigerant from said condenser, said receiver sump including an outlet positioned beneath said inlet arranged to be immersed in liquid refrigerant at all times that liquid refrigerant is present in said receiver sump,
(e) a capillary tube connected to the outlet of said receiver sump,
(f) an evaporator connected to said capillary tube,
(g) means connecting said evaporator to said compressor inlet, and
(h) a reversing valve for reversing the connections to the inlet and outlet of said compressor.

3,304,736
REFRIGERATED DISPLAY CASE
James H. Brennan, Trenton, N.J., and Malcolm D. MacMaster, Yardley, Pa., assignors to Embhart Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Aug. 6, 1965, Ser. No. 477,730
12 Claims. (Cl. 62—176)



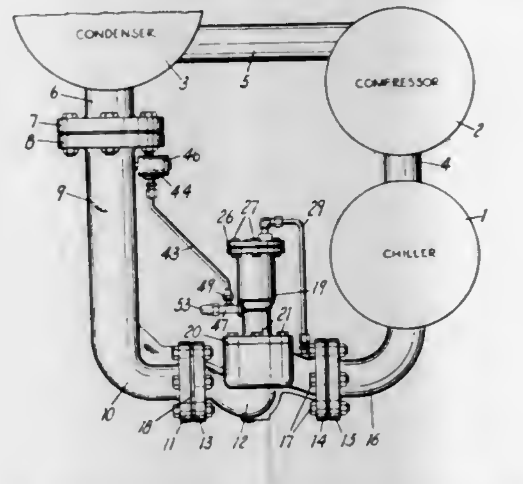
1. A refrigerated display case having a storage space provided with an access opening, means for circulating air in the form of an air curtain across said access opening, an air outlet located at one side of said access opening formed to produce a protective layer of air directed across said access opening between said storage space and air ambient to the case on the side of the air curtain remote from the storage space, air inlet means on the opposite side of said access opening so located and of such capacity as to be capable of receiving both said protective layer of air and ambient air entrained with the protective layer of air during passage thereof across the access opening, a conduit extending from said air inlet means to said air outlet, a blower in said conduit, and means located between said air inlet means and said air outlet for venting from said conduit excess air not utilized in producing said protective layer of air.

3,304,737
AUTOMATIC FILLER FOR ICE CREAM FREEZER
Peter Strutynski, Chicago, Ill., assignor to The Bastian-Blessing Company, Chicago, Ill., a corporation of Illinois
Filed Jan. 10, 1966, Ser. No. 519,480
11 Claims. (Cl. 62—179)



1. In a dispensing freezer having a freezing chamber with a dasher to whip and freeze therein a soft frozen mix of comestible liquid and air, the combination of a dispensing valve for the chamber at one end thereof, a storage container for reserve liquid, conduit means interconnecting the chamber and container in open communication for conducting reserve liquid to the chamber to replenish the mix dispensed through said valve, standpipe means removably supported on said conduit means in sealed relationship therewith extending at its upper end above the level of reserve liquid in the container and having a valve port adjacent to the bottom of the container for draining reserve liquid into the chamber through said conduit means, a valve tube means slidable in said standpipe having a lower end in its resting position extending well below the valve port in valve port closing relationship and terminating above said freezer chamber, valve means at the top of the valve tube for admitting air to said valve tube at atmospheric pressure, means for reciprocating the valve tube between its resting position and a retracted position opening said valve port, said reciprocating means including an element stopping said reciprocating means when the valve tube fails to reach its resting position at the end of reciprocation excursion therefrom.

3,304,738
VALVE APPARATUS WITH FLOAT MEANS
Adam E. Armstrong, Three Rivers, Mich., assignor to Armstrong Machine Works, Three Rivers, Mich.
Filed June 26, 1964, Ser. No. 378,146
19 Claims. (Cl. 62—218)

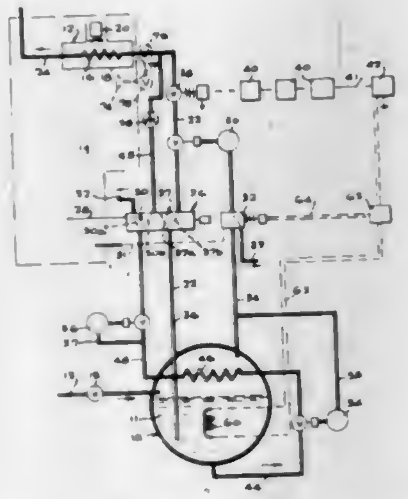


17. A valve assembly comprising a valve casing having a valve chamber therein and inlet and outlet passages, said casing having a valve guide cylinder and a float chamber disposed above and spaced from said valve guide cylinder, there being a passage connecting said float chamber to the outer end of said valve guide cylinder, a main valve reciprocatingly mounted in said valve guide cylinder in coacting relation to the inlet to said valve chamber and constituting a sealing means for said cylinder, a discharge conduit for said float chamber connecting it to said outlet passage of said valve casing, a valve for the float chamber discharge conduit a float disposed in said float chamber and operatively connected to said float chamber discharge valve, and an automatically seated pressure actuated valve for said passage connecting said float chamber to said valve guide cylinder.

3,304,739
COOLING SYSTEM FOR PASSENGER COMPARTMENTS OF VEHICLES
Edward H. Erath, Los Angeles, Calif., assignor to Douglas Aircraft Company, Inc., Santa Monica, Calif., a corporation of California
Filed Aug. 31, 1965, Ser. No. 483,940
13 Claims. (Cl. 62—244)

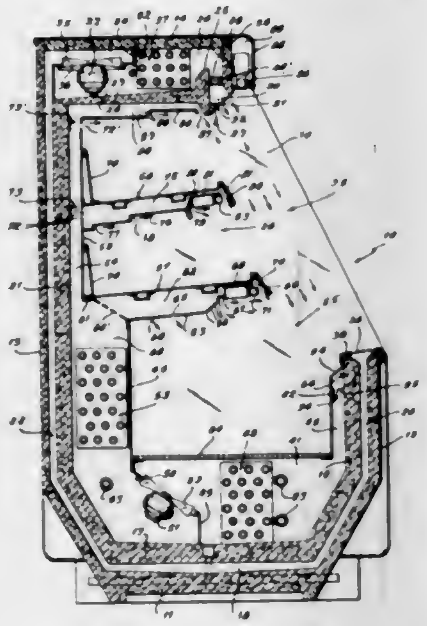
1. A cooling system for a compartment of vehicles to be occupied by persons, which comprises in combination an enclosed reservoir containing an expendable liquefied gas refrigerant, a compartment adapted for occupation

by persons, a liquid supply conduit one end of which is positioned in said reservoir below the level of liquid gas therein, the opposite end of said conduit being in heat exchange relation with the atmosphere in said compartment, means for sensing and venting excess gas pressure



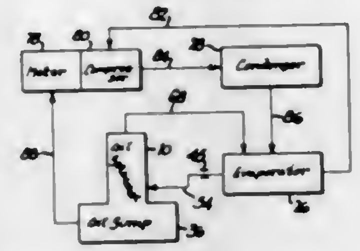
in said reservoir, a control valve in said conduit, and a thermostat for actuating said control valve in response to variations in temperature in said compartment, thereby selectively supplying liquid gas refrigerant to said compartment for heat exchange therein.

3,304,740
OPEN FRONT DISPLAY CASE
Edgar V. Dickson, Ladue, and Joseph Balk, St. Louis, Mo., assignors to Pet Incorporated, a corporation of Delaware
Filed Nov. 9, 1962, Ser. No. 236,649
11 Claims. (Cl. 62—256)



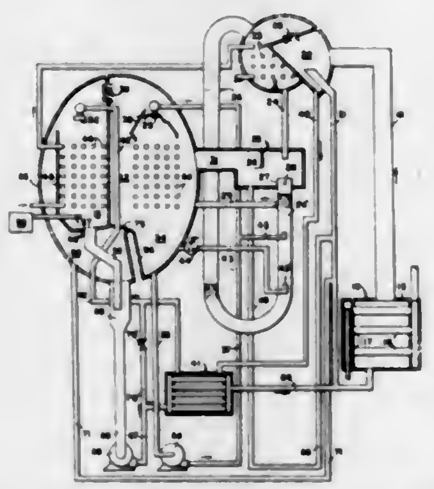
1. A refrigerated display case having a display area with an open front side and at least one shelf therein, lamp means mounted below and adjacent to the front of said shelf for lighting the display area below said shelf, first means for cooling a primary air stream to low refrigeration temperatures and circulating said primary stream through said display area to cool products therein, second means receiving air from said first means and forming a wall of primary air across said open front side, said first means including duct means below said shelf and extending toward said lamp means, and means for discharging primary air out of said duct means into circumscribing relation with said lamp means.

3,304,741
OIL SEPARATOR ARRANGEMENT FOR A REFRIGERATION SYSTEM
Peter A. Weller, Farmington, Mich., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 31, 1965, Ser. No. 483,948
9 Claims. (Cl. 62—471)



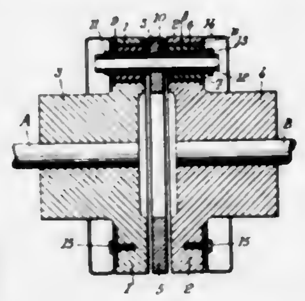
8. In a refrigerant system including a compressor, condenser and evaporator, said refrigeration system having an associated oil lubricating system, said lubricating system having a fixed volume of oil, portions of said oil entering said refrigeration system as the result of the lubricating process, said evaporator being of the flooded type operative with a pool of liquid refrigerant therein, said pool of refrigerant desirably having an amount of oil intermixed therein, an oil separator arrangement for separating oil from the refrigerant while still retaining the desired amount of oil in said pool, said oil separator comprising a compartment for receiving liquid from said pool for subsequent separation of the oil from the refrigerant, a portion of said compartment being positioned above the level of the pool and a portion of said compartment being positioned below the level of the pool, means connecting said compartment to the evaporator for gravity flow of liquid from the pool into the compartment whereby flow will cease when the level of liquid in the compartment equals the level of the pool in the evaporator, the volume of the portion of said compartment beneath the level of said pool being predetermined with respect to the total volume of oil in the lubricating system to always maintain the desired volume of oil in the evaporator.

3,304,742
ABSORPTION REFRIGERATION SYSTEMS
Keith V. Eisberg, Camillus, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed July 28, 1965, Ser. No. 475,492
8 Claims. (Cl. 62—476)



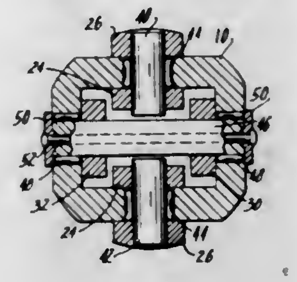
1. In an asorption refrigeration system adapted to heat as well as cool having a generator section, a condenser section, an evaporator section including a sump, and an absorber section operatively interconnected one to the other in a closed system, and a refrigeration separating chamber between the condenser section and the evaporator section, the combination of first conduit means connected between the condenser section and the separating chamber, said first conduit means being adapted to hold liquid refrigerant during cooling cycle operation whereby a liquid seal is established in said first conduit means, gaseous refrigerant driving said liquid refrigerant from said first conduit means into said separting chamber during system heating cycle operation; and means for passing liquid refrigerant from said evaporator section sump to said generator section during heating cycle operation including second conduit means between said evaporator section sump and said first conduit means, said second conduit means being arranged to convey liquid refrigerant from said evaporator section sump into the stream of gaseous refrigerant passing through said first conduit means whereby said gaseous refrigerant carries said liquid refrigerant into said separating chamber; said second conduit means including valve means effective to prevent flow of refrigerant from said first conduit means through said second conduit means into said evaporator section sump; and third conduit means between said separating chamber and said generator section adapted to convey liquid refrigerant from said separating chamber to said generator section.

3,304,743
ELASTIC COUPLINGS
Jean-Félix Paulsen, Chateaudun, France, assignor to Societe Luxembourgeoise de Brevets et de Participations, Luxembourg, France
Filed Nov. 2, 1964, Ser. No. 408,172
Claims priority, application France, Nov. 7, 1963, 953,041
5 Claims. (Cl. 64—11)



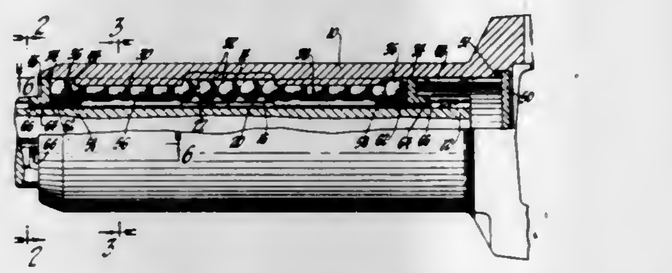
1. A coupling for connecting together a pair of shafts comprising:
- a pair of hub members rigid with said shafts respectively, and comprising connecting plates facing each other, each of said plates being provided with a plurality of peripheral holes,
- an intermediate plate between said connecting plates carrying on its both sides a plurality of projections extending into the holes of both said connecting plates,
- means for elastically attaching said connecting plates to each of the projections of said intermediate plate, each of said means comprising an elastic tubular element and rigid inner and outer sleeves affixed to the inner and outer surfaces of said elastic tubular element, said inner sleeve engaging the corresponding projection and said outer sleeve fitting within the corresponding connecting plate hole,
- means for fixing the outer sleeves of said attaching means within said connecting plate holes,
- means for fixing the inner sleeves of said attaching means on said projections, and
- a pair of rings surrounding said hub members on either side of said intermediate plate, said rings having central bores whose diameters are sufficient to clear said hub members in positions of misalignment thereof, said rings engaging solely the ends of said projections for holding the same against the action of centrifugal forces.

3,304,744
NEEDLE BEARING MOUNTED UNIVERSAL JOINT
Cranston W. Folley, Kennebunk, Maine, assignor to Maremont Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 2, 1964, Ser. No. 408,235
1 Claim. (Cl. 64—18)



A needle bearing mounted universal joint having, in combination, a band-shaped spider having rectangularly placed sides and opposed bearing apertures formed in opposite sides along perpendicularly intersecting axes, needle bearings comprising a series of needles lining each said spider bearing aperture, a yoke having two pairs of inner and outer arms embracing two opposite sides of said spider and having apertures in alignment with the needle-lined bearing apertures in said sides along one said axis, a second yoke having a pair of arms supported inwardly of opposed sides of said spider and having apertures aligned with the needle-lined bearing apertures in said sides along the other said axis, separate short bearing pins press fitted into the apertures in each pair of inner and outer arms of said double yoke, and passing through the aligned needle-lined bearing apertures of said spider, thereby forming a closure for said needles between said inner and outer arms enclosing the two ends of said bearing apertures, a long bearing pin press fitted through the apertures in the arms of the second said yoke and at each end extending outwardly through the aligned needle-lined bearing apertures of said spider, and covers secured to the ends of said long bearing pin thereby providing closures for the needles between said covers and the arms fitted against the inner ends of said needle-lined bearing apertures.

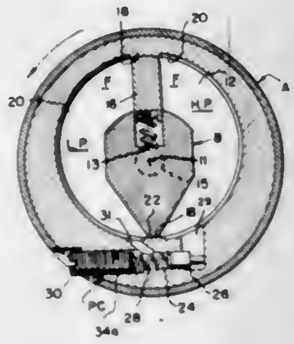
3,304,745
BALL SPLINE ASSEMBLY
Kenneth K. King and Donald P. Marquis, Saginaw, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 29, 1965, Ser. No. 451,937
13 Claims. (Cl. 64—23)



1. In combination, a cylindrical member having a pair of grooves, antifriction elements in each of said grooves, retainer means including bridge means and rail means for retaining said antifriction elements on said cylindrical member and permitting said antifriction elements to extend a substantial distance beyond said retainer means only along the length of said rail means, guide means on said cylindrical member for cooperating with said bridge means to guide said antifriction elements in an endless train to and from one groove, to and from the other groove and said guide means having means for supporting said retainer means on said cylindrical member.

3,304,746
TORQUE CONTROL DEVICE

Leo Kramer, Chester, and Robert P. Gillis, Somerville, N.J., assignors to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 1, 1965, Ser. No. 429,307
10 Claims. (Cl. 64—26)



1. For an impulse tool for applying torque to an object and having housing means provided with a cavity for sealingly containing a fluid, spindle means in said housing means and in said fluid, one of said housing means and said spindle means being rotatable relative to the other of said housing means and said spindle means, said other being adapted to engage said object, sealing means on one of said housing means and said spindle means, a first sealing portion on said housing means, a second sealing portion on said spindle means, said first sealing portion and said second sealing portion being disposed in sealing relation during a relatively small portion of each revolution of said relative rotary movement; said first sealing portion and said second sealing portion and said sealing means being operative during said relative small portion on each revolution of said relative rotary movement to dynamically seal off said cavity into a high pressure portion and a low pressure portion, a pressure control device having:

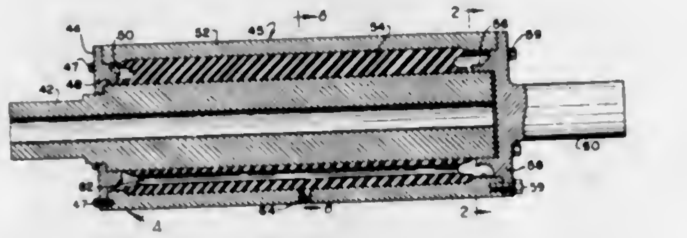
- (a) one of said housing means and said spindle means being provided with a cavity means in communication with said high pressure portion;
- (b) piston means slidably mounted in said cavity means and movable to a forward limit position in said cavity means wherein the volume of said cavity means is reduced to a minimum volume;
- (c) biasing means urging and holding said piston means forwardly in said forward limit position with a preloading force;
- (d) said piston means being operable when the fluid pressure in said high pressure portion overcomes the preloading force of said biasing means to move in the other direction in said cavity means to increase the volume of said cavity means and prevent further compression of said fluid and attendant increase of fluid pressure in said high pressure portion.

3,304,747
ELASTOMER SHOCK ABSORBER FOR A DRIVE SYSTEM

Wayland D. Elenburg, Wichita Falls, Tex., assignor to Walker-Neer Manufacturing Co., Inc., Wichita Falls, Tex.
Filed Mar. 26, 1965, Ser. No. 442,959
6 Claims. (Cl. 64—27)

1. A shock absorber for installation between axially aligned, rotatable drive and driven shafts, which shock absorber comprises:

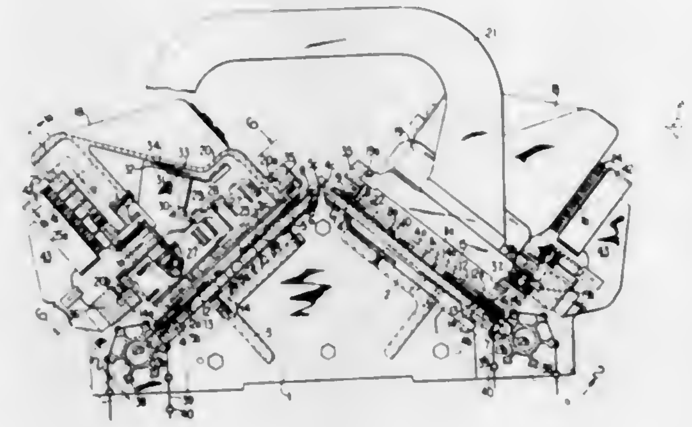
- (a) a first shaft,
  - (1) said first shaft having a shoulder formed thereon to form a bearing surface,
- (b) a cylindrical, elastomer sleeve surrounding said first shaft and being bonded thereto,
- (c) a cylindrical member surrounding said cylindrical, elastomer sleeve and being bonded thereto,
  - (1) a cap secured to an end of said cylindrical member,
  - (2) a second shaft secured to said cap and extending outward therefrom and being in axial alignment with said first shaft,



  - (3) a cover plate secured to the other end of said cylindrical member, which cover plate has a shouldered opening formed therein to form a complementary bearing surface to receive said shouldered first shaft in journaled relation.

3,304,748
CAM-BOX FOR A JACQUARD FLAT KNITTING MACHINE

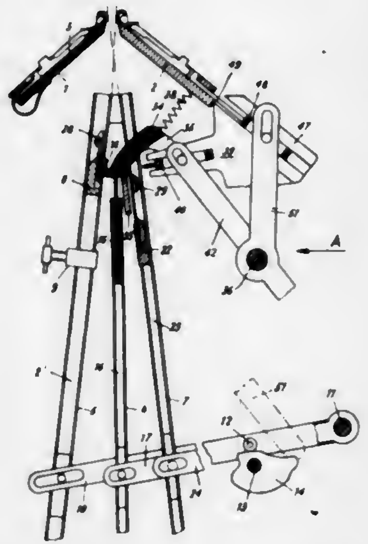
Fritz Seiler, Neuchatel, Switzerland, assignor to Edouard Dubied et Cie (Societe Anonyme), Neuchatel, Switzerland
Filed Jan. 31, 1963, Ser. No. 255,369
4 Claims. (Cl. 66—64)



1. In an automatic Jacquard flat knitting machine of the type having a pair of needle beds arranged in an inverted V-shape and having a plurality of independent transfer-knitting needles having butts thereon, and having a plurality of main jacks for individually controlling the needles and having butts thereon, and having a plurality of auxiliary jacks and lifters for alternatively selecting each of the main jacks, each of the auxiliary jacks having butts thereon, and having a Jacquard device having a prism and steel cards with two rows of stamping thereon for aiding actuation of the auxiliary jacks and lifters; a cam box therefor, said cam box comprising a pair of identical cam sets each of which is located opposite the other, each one of said pair of cam sets having three distinct groups of cams arranged in three distinct parallel zones, a first group of said groups of cams having a plurality of combined sinkable transfer cams between a pair of stitch cams whereby the needle butts may be actuated, a second group of said groups of cams having fixed and movable cams whereby the main jacks may be actuated, and the third group of said groups of cams having fixed and movable cams whereby the auxiliary jacks may be actuated.

3,304,749
TRANSFER ARRANGEMENT FOR KNITTED RIB BORDERS

Rainer Stövhase, Moerikestrasse 20, Boll, Germany
Filed June 16, 1964, Ser. No. 375,549
Claims priority, application Germany, June 19, 1963, St 20,744
14 Claims. (Cl. 66—147)

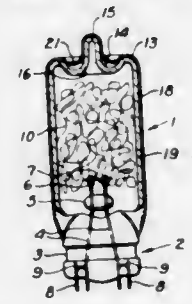


1. In a knitting machine, in combination:

- (a) a support defining a knitting area;
- (b) knitting means movable on said support toward and away from said area for sequentially knitting a plurality of courses in said area, each course including a plurality of yarn loops, and said courses jointly constituting a rib border;
- (c) drawing means engageable with a first course of said plurality of courses in said area for drawing said first course in a direction away from said knitting area while the remainder of said courses is being knitted;
- (d) releasable holding means for holding a last course of said rib border in said knitting area when knitting thereof is completed;
- (e) a transfer member releasably mounted on said support for movement toward and away from said area;
- (f) a plurality of point means on said transfer member, said point means being engageable with the loops of a course held in said area by said holding means during movement of said transfer member; and
- (g) actuating means for actuating said knitting means, said drawing means, said holding means, and movement of said transfer member in timed sequence.

3,304,750
PHOTOFLASH LAMP

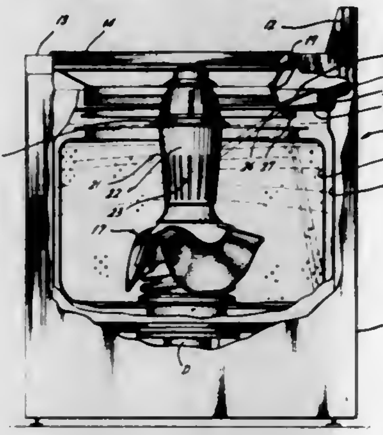
Robert M. Anderson, Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed June 29, 1965, Ser. No. 467,831
4 Claims. (Cl. 67—31)



1. A photoflash lamp comprising a hermetically sealed tubular bulb containing ignition means, combustible material, and a combustion-supporting atmosphere, said bulb being closed at one end by an exhaust tip, the bulb wall at said one end being re-entrant into the tubular bulb to provide a retroverted well, essentially symmetrical about the axis of the tubular bulb, with the exhaust tip arising outwardly from said well.

3,304,751
LAUNDRY APPARATUS

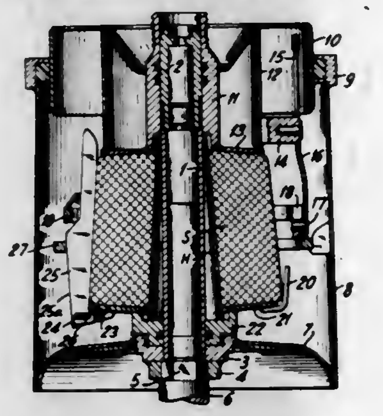
Joseph A. Schwing, Penndel, Pa., assignor to Philco-Ford Corporation, a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,664
7 Claims. (Cl. 68—23)



7. A washing machine comprising: a centrifugally rotatable, generally cylindrical basket for containing fabrics; a tub disposed about said basket in spaced relation thereto; a generally centrally located post affixed to said basket for rotation therewith about a common axis, said post including a portion disposed exteriorly of said basket but interiorly of said tub; and means disposed and adapted to direct a stream of liquid for impingement on said post as the basket is centrifugally rotated, rotation of said post with said basket causing portions of said liquid impinging on said post to be centrifuged therefrom for secondary impingement upon surface portions of fabrics centrifugally held against cylindrical walls of said basket, such rotation causing other portions of said liquid impinging on said post to be centrifuged from the exteriorly extending portion thereof for impingement on said tub, whereby to rinse both said tub and said fabrics simultaneously.

3,304,752
DEVICE FOR CENTRIFUGING YARN LAPS

Hans Frauchiger, Seilerweg 3, Zofingen, Switzerland
Filed Sept. 1, 1964, Ser. No. 393,583
Claims priority, application Switzerland, Sept. 3, 1963, 10,914/63
12 Claims. (Cl. 68—150)

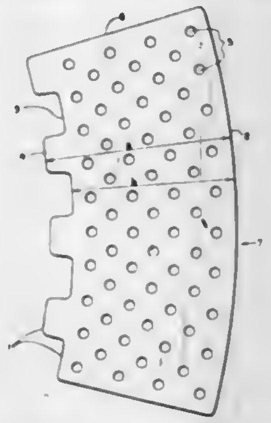


1. A device for centrifuging yarn laps, comprising a central tube with means for coupling the tube with a drive shaft, a basket for carrying the yarn adapted to be fitted over the central tube for driving engagement therewith, a lid being removably connected with said central tube, a pressure lever pivotally mounted on the lower portion of said basket and having a radially extending slot,

a pin carried on the basket extending into the slot and pivotally supporting said lever for pivotal movement in one axial plane for radial displacement in relation to said basket, means biasing said lever radially outwardly, and a stationary ring surrounding said basket and said lever and coacting with the lever to restrict the pivotal movement thereof in the working position.

3,304,753
YARN TREATMENT DEVICE

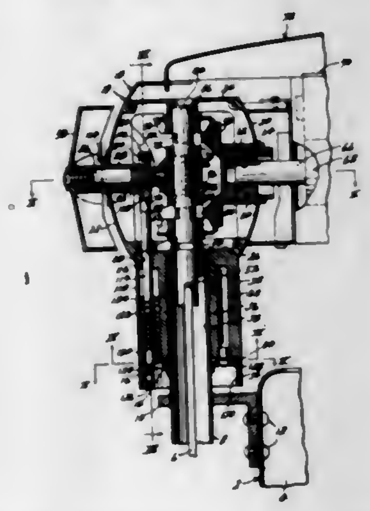
Hendrikus J. Leijser, Duiven, Netherlands, assignor to American Enka Corporation, Enka, N.C., a corporation of Delaware
Filed Aug. 11, 1964, Ser. No. 388,854
Claims priority, application Netherlands, Aug. 13, 1963, 296,627
5 Claims. (Cl. 68—198)



1. A perforated elastic plate having curved top and bottom edges and side edges capable of overlapping to form a frusto-conical insert for yarn packages, at least one of said top and bottom edges having notches spaced along its length capable of displacement under compression stresses along the axis of said insert.

3,304,754
WRINGER HEAD FOR WASHING MACHINES

William B. Beuscher, 5244 Mohawk Drive, Shawnee Mission, Kans. 66205
Filed Jan. 11, 1965, Ser. No. 424,769
9 Claims. (Cl. 68—255)



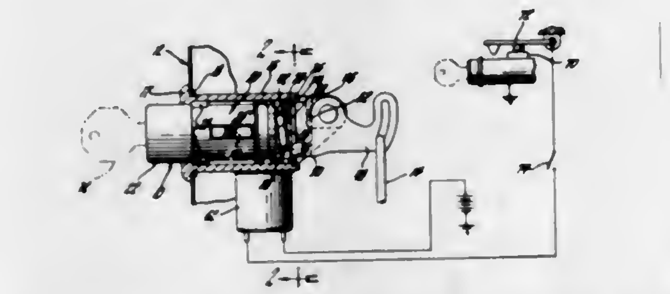
1. For use in connection with a wringer assembly having horizontal rolls and adapted to be operated by a rotatably driven vertical drive shaft, a fixed tubular column coaxial with and enclosing said drive shaft, a planar index plate secured concentrically to said column in spaced relation from the upper end thereof, said index plate being notched at regularly spaced intervals around the edge thereof, and a wringer head carrying the wringer assembly, said wringer head comprising a housing having a socket formed in the lower portion thereof which fits for rotary and vertical movement on the upper end portion of said column, said housing including a hollow cylindrical skirt surrounding said index plate, a finder button fixed in said housing and adapted to engage successively by gravity the notches of said index plate as said housing is rotated on said column, said finder button being conically bevelled whereby said housing is elevated on said column when said finder button is moved intermediate any successive pair of notches of said index plate, a driving connection carried in said housing between said drive shaft and said wringer assembly, a clutch operable to selectively engage, disengage, or reverse said driving connection, a shaft carried rotatably by said housing and adapted when turned to operate said clutch, a cam fixed to said clutch shaft, a locking pin carried for vertical movement by said housing, resilient means carried by said housing and urging said locking pin against said cam, whereby when said clutch shaft is turned to move said clutch to either of its operative positions, said locking pin will be extended downwardly to a position with its lower end below said finder button, whereby to enter one of the notches of said index plate to lock said housing against rotation on said column, said locking pin being so positioned that it can enter a notch of said index plate only when said finder button is aligned with another of said notches, a safety device comprising:

(a) a radially outwardly projecting stop carried by said index plate in the plane thereof and enclosed by said skirt, and

(b) a radially inwardly projecting stop affixed to said skirt, the radius of the orbit of the inner end of said skirt stop being less than radial dimension of the outer end of said index plate stop, said skirt stop being disposed at a lower elevation than said index plate stop when said finder button is engaged in any one of said index plate notches, but being elevated into the plane of said index plate whenever said housing is elevated either by the cam action of said finder button on said index plate when said housing is rotated, or further elevated by the downward crowding action of said locking pin against said index plate if said clutch should be engaged with said finder button intermediate any successive pair of notches of said index plate, whereby interengagement of said stops will arrest and prevent rotation of said housing at either of said elevated positions.

3,304,755
CYLINDER LOCK ACTUATOR

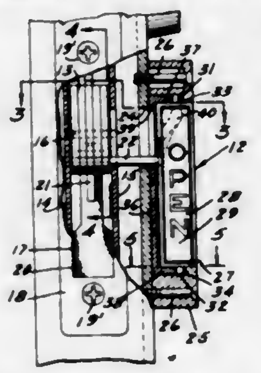
Theodore H. Johnstone, New Baltimore, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 28, 1964, Ser. No. 407,192
1 Claim. (Cl. 70—279)



A cylinder lock actuator, comprising, casing means, a lock cylinder mounted within said casing means for combined rotatable and axially slidable movement relative thereto, said cylinder being adapted to be selectively locked against rotation within said casing means and being freely slidable therein at all times, a mechanism operating member to be actuated, an actuating disc mounted on said cylinder for rotation as a unit therewith or rotation independently thereof and for sliding movement therewith relative to said casing means, said disc including an actuating lug extending axially of said cylinder and an ear extending radially thereof, lost motion pin and slot means connecting said disc and said cylinder for rotation of said disc either in response to selected rotation of said cylinder or independently thereof between an operative position juxtaposing said lug to said operating member for engagement therewith in response to sliding movemnt of said cylinder and an inoperative position locating said lug remote from said operating member to prevent such engagement, power-operated means mounted on said casing means, means connecting said power-operated means to said radial ear for rotation of said disc between said positions thereof by said power-operated means independently of rotation of said cylinder and for sliding movement of said disc with said cylinder relative to said power-operated means, and means for selectively energizing said power-operated means.

3,304,756
LOCK POSITION INDICATOR

Charles L. Eads, Palm Springs, Calif., assignor to Adams Rite Manufacturing Company, Glendale, Calif., a corporation of California
Filed Nov. 23, 1964, Ser. No. 413,095
5 Claims. (Cl. 70—432)



1. A surface mountable indicator mechanism for a door lock, comprising:

(a) an elongate hollow housing for mounting adjacent said lock, said housing having an open back and a front viewing opening therein;

(b) bearing shoulders in said housing positioned respectively on opposite ends of said viewing opening;

(c) an elongate indicator member in said housing having end pivots respectively laterally engaged with said bearing shoulders and supporting the indicator member for rotational movement, said indicator member having longitudinally extending adjacent indicia bearing surface areas;

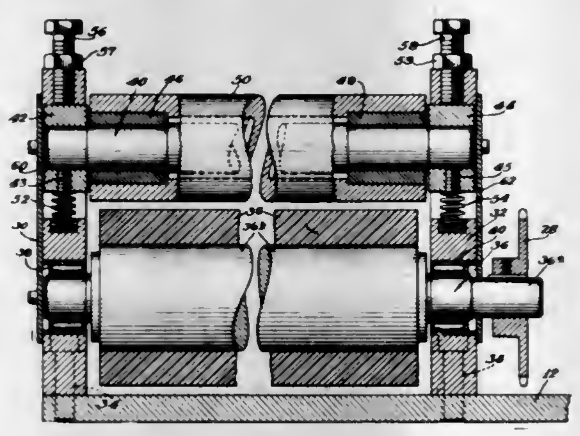
(d) a closure for the open back of the housing having parts engaged with said pivots to retain them against said shoulders when the housing is surface mounted; and

(e) motion transmitting means, connectable between said indicator member and a movable part of said lock, for rotating said member to positions respectively placing said indicia bearing surfaces in said viewing opening in accordance with the actuation of the lock to a "locked" and an "unlocked" condition.

3,304,757
MACHINE FOR ROLLING ARCUATE SHEET METAL SHAPES

Howard S. Achler and Harold Kaufmann, both of Chicago, Ill., assignors to Kaufmann Tool and Engineering Corp., a corporation of Illinois
Filed Apr. 6, 1964, Ser. No. 357,413
4 Claims. (Cl. 72—166)

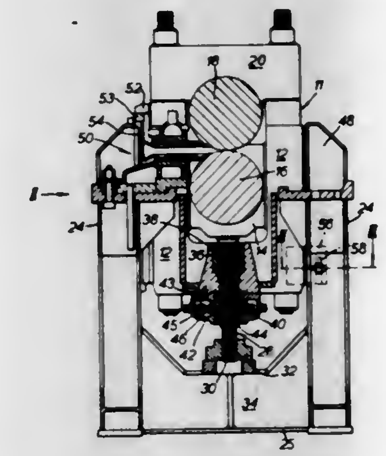
1. A two-roller machine for rolling, by utilization of only two rollers to roll into arcuate form, with virtually unnoticeable flats, sheet metal, such as steel, having thicknesses in the range of gauge sizes; said two-roller machine comprising, in combination: first roller means providing a sheet metal engaging periphery of urethane rubber; second roller means including a roller with a relatively rigid periphery; means for maintaining a fixed pre-selected spacing between the axes of said first and second roller means, so that said periphery of urethane rubber is caused to deform and acts to roll the sheet metal



passing between said roller means to a desired final arcuate form with substantially uniform radius of curvature and with relatively no flats; drive means coupled to only said first roller means for selectively rotating said first roller means; and the hard periphery roller of the second roller means being caused to rotate by the relative movement of a metal sheet as it passes between said first and second roller means.

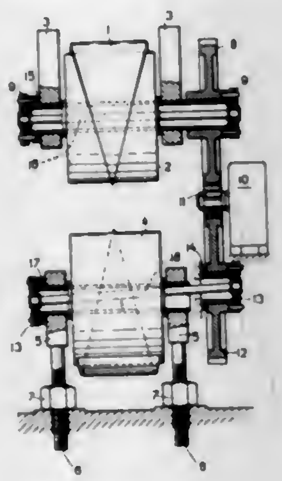
3,304,758
ROLLING MILLS

Dennis Stubbs, Sheffield, and Ronald Dingwall, Middlesbrough, England; said Stubbs assignor of one-half to Davy and United Engineering Company, Sheffield, England, a British corporation
Filed Feb. 17, 1964, Ser. No. 345,320
Claims priority, application Great Britain, Feb. 19, 1963, 6,745/63
11 Claims. (Cl. 72—240)



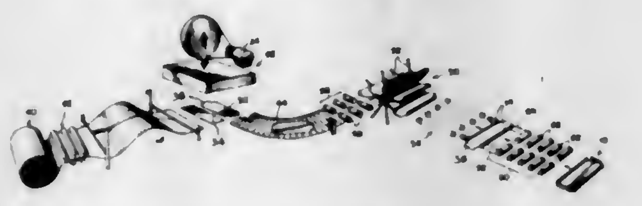
1. A rolling mill stand comprising a pair of horizontal work rolls rotatably mounted in a housing with their axes in the same vertical plane, the housing being mounted on a support structure for movement normal to the pass line and the axes of the rolls, a first of the rolls being adjustable relative to the housing to vary the roll gap, a first shaft having a first screw thread co-operating with a first nut secured to the foundation structure and a second screw thread co-operating with a second nut secured to the housing, the first roll being arranged to follow the axial movement of the shaft, the pitch of the first thread being half the pitch of the second thread, and means for rotating the shaft.

3,304,759
ROLLING MACHINE
Jiří Holub, Prague, Czechoslovakia, assignor to Smeralovy Zavody, narodni podnik, Brno, Czechoslovakia
Filed June 26, 1964, Ser. No. 378,374
Claims priority, application Czechoslovakia, July 6, 1963, 3,919/63
4 Claims. (Cl. 72—243)



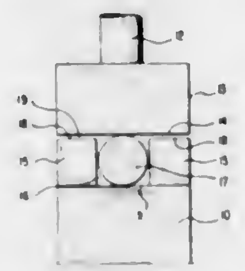
1. A rolling machine comprising
(1) at least a single pair of coacting working rolls,
(2) a first and a second shaft, said shafts fixedly supporting said pair of rolls and being rotatably supported, said first shaft being hollow,
(3) a first driving spindle passing through said first and hollow shaft,
(4) gear means for transmitting motion to said shafts, said gear means including a first gear wheel,
(5) first elastic coupling means on said first driving spindle, coupling one end of said first driving spindle and said first gear wheel,
(6) second coupling means on said first driving spindle, coupling the other end of said first driving spindle and said first shaft, and
(7) adjusting means for transversely adjusting said first shaft and thus said shafts relative to each other.

3,304,760
SHELF HANDLING AND FORMING APPARATUS
Milton E. Handler, Evanston, Ill., assignor to S. A. Hirsh Mfg. Co., Skokie, Ill., a corporation of Illinois
Filed Aug. 19, 1964, Ser. No. 390,647
11 Claims. (Cl. 72—324)



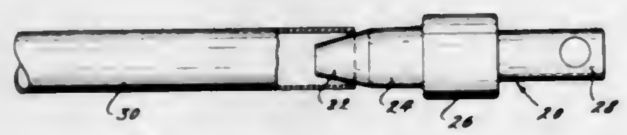
10. A method of formng a generally rectangular sheet metal shelf having a rectangular planar body portion provided with marginal depending longitudinal side flanges and transverse end flanges, said method comprising: removing the four corner regions of a flat rectangular sheet metal blank by cutting rectangular notches therein by a metal removing operation so as to provide said rectangular planar body portion and establish elongated narrow rectangular strip portions along the longitudinal side edges of said body portion and in the plane thereof, and short narrow strip portions along the transverse end edges of said body portion and in the plane thereof, passing the thus notched blank endwise and in the plane of said body portion through successive opposed pairs of forming rolls and causing said elongated narrow rectangular strip portions along the longitudinal edges of said body portion to be rolled downwardly out of the plane of the body portion to produce said marginal depending longitudinal side flanges, moving the blank laterally so that said side flanges are disposed normal to the line of blank movement, and passing the blank sidewise and in the plane of said body portion through successive opposed pairs of forming rolls and guiding said short narrow strip portions solely from contact with the ends of said side flanges along the transverse end edges of said body portion to be rolled out of the plane of the body portion to produce said marginal transverse end flanges.

3,304,761
SHAFTING HAVING FLATS AND METHOD OF PRODUCING SUCH FLATS AND SHAFTING
Carl Herzog, 11 38th Place, Long Beach, Calif. 90806
Filed Mar. 13, 1964, Ser. No. 351,789
4 Claims. (Cl. 72—377)



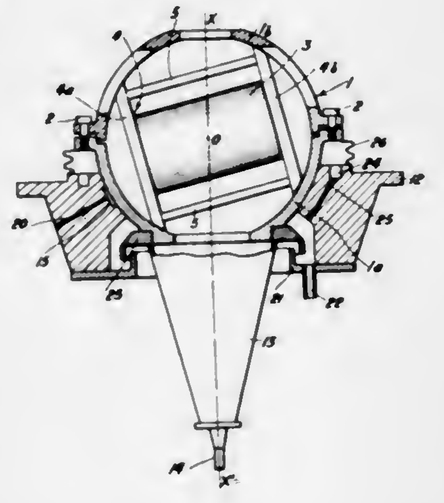
1. A method of producing highly accurate and uniform minute flat surfaces by compression alone on an initially cylindrical shaft which is formed of metal having a hardness range of approximately 20 C to 48 C Rockwell, said method comprising arranging the cylindrical shaft between a pair of opposed parallel flat-faced pressure-applying elements, moving said elements relatively toward each other and thereby compressing the shaft diametrically between the flat-faced elements so that the metal of the shaft in the local regions thereof engaged by the flat-faced elements is stressed slightly beyond the elastic limit of the metal but well below its yield point, the remainder of the shaft then being subjected to modest stressing only well below the elastic limit of the metal, positively limiting said relative movement of the flat-faced elements toward each other so that the stress in said local regions will not greatly exceed said elastic limit and so that the degree of stress may be controlled with high accuracy, and then releasing said shaft, the released shaft having permanent minute flat surfaces thereon at diametrically opposite sides thereof and the remainder of the shaft retaining its original cylindrical shape and being undeformed.

3,304,762
SWAGING MEANS
Earl Ray Skinner, Old Cape Road, Jackson, Mo. 63755
Filed Dec. 23, 1963, Ser. No. 332,529
11 Claims. (Cl. 72—479)



1. A tool for enlarging an end portion of a tubular member comprising a member having a first portion with an outer annular surface of a diameter greater than the internal diameter of a tubular member to be enlarged thereby, said annular surface having a taper of less than approximately one degree from one end of said first portion to the other, a second annular tapered portion integral with smaller diameter end of the aforesaid first portion and axially aligned therewith, said second tapered portion having a larger diameter end adjacent to one end of the aforesaid first portion, said diameter being substantially the same as the diameter of said adjacent end of the first portion and a small diameter opposite end having a diameter that is smaller than the internal diameter of the tubular member to be enlarged, an anvil portion on the opposite end of the first portion from the tapered portion on which force can be applied to force the first portion axially into an end of a tubular member, and means on said tool for limiting movement thereof into the tubular member.

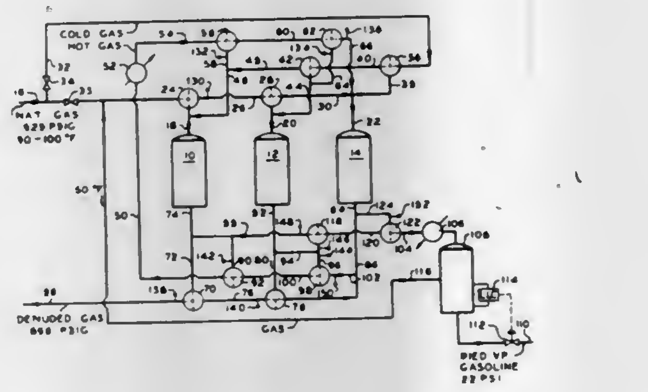
3,304,763
CONICAL-MOTION TESTING MACHINES
Jean Pierre René Rodallec, Annecy, France, assignor to Societe Anonyme: Societe Alsacienne de Constructions Atomiques de Telecommunications et d'Electronique "Alcatel," Paris, France, a corporation of France
Filed Apr. 21, 1964, Ser. No. 361,349
Claims priority, application France, Apr. 26, 1963, 932,919
9 Claims. (Cl. 73—1)



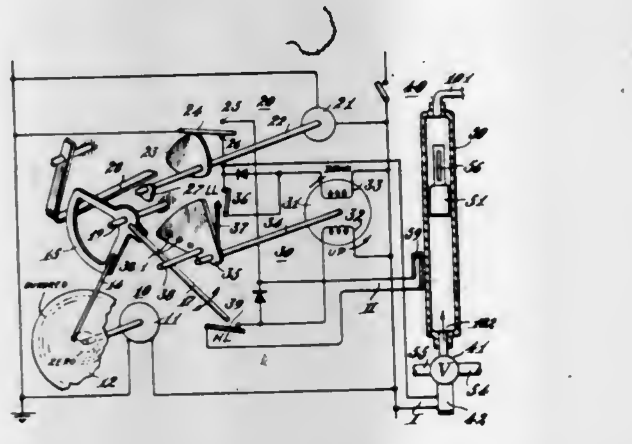
1. A conical-motion testing machine comprising a highly stable shock absorbing frame structure, a container for carrying a work piece to be tested, said container being composed of an upper hollow semi-sphere portion apertured to enable visual observation of the work piece being tested and a lower hollow semi-sphere portion complemental to said upper semi-sphere portion, means for rigidly coupling said sphere portions together, said frame having a socket portion having a central aperture and rockingly mounting said lower sphere portion about a fixed point of said container, fluid joint means between said lower hollow semi-sphere portion and said socket portion, a hollow cone-like driving member extending from said lower sphere portion and having an axial pin adjacent its apex portion, fly-wheel means, an adjustable eccentric means for engaging said axial pin to drive said cone-like member, said eccentric means being carried by said fly-wheel means, and means for adjusting the eccentricity of said pin relative to the center of said fly-wheel means.

3,304,764
METHOD AND APPARATUS FOR DETECTING LEAKS IN THREE-WAY VALVES
Robert C. Bracken and De Wayne Maddox, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Mar. 16, 1964, Ser. No. 352,137
7 Claims. (Cl. 73—46)

1. A method of detecting a leak in a 3-way valve connected with three separate lines carrying three different fluids during a cycle of operation and positionable during said cycle of operation to alternately communicate one of said lines with each of the others, at least one of said lines being a feed line and at least one being a delivery line, one position of said valve communicating said feed line with said delivery line and the remaining line having access to a fluid at a substantially different temperature and pressure than the temperature and pressure of the fluid in said delivery line when said valve is in said one position, which comprises sensing the temperature in the one of said delivery line and said remaining line at the lower pressure during said cycle of operation while said valve is functioning properly to establish normal temperature at a specific point of said cycle; thereafter, sensing the temperature in said one of said delivery line and said remaining line during said cycle of operation at said specific point; and comparing the last sensed temperature with the normal temperature at said point whereby a substantial temperature difference between sensed and normal temperature indicates a leak in said valve.



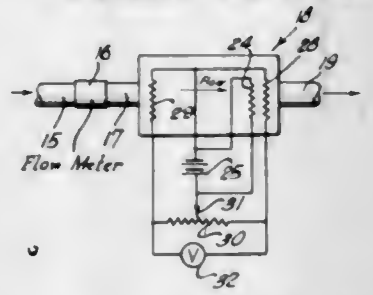
3,304,765
SYSTEM OF VISCOSITY DETECTION
Austin S. Norcross, 247 Newtonville Ave., Newton, Mass. 02158
Filed Feb. 14, 1964, Ser. No. 344,892
11 Claims. (Cl. 73—57)



1. Method of measuring the viscosity of fluids comprising the steps of:
passing fluid at alternately different speeds other than zero through a channel containing a body with predetermined clearance and biased against the fluid flow,
moving the body with the fluid against the bias during one period of the higher speed and then forcing the liquid through the clearance by the bias during another period of a speed sufficiently low to permit movement of the body against the flow, and
measuring the time required by the body to move through a given distance during said other period.

3,304,766
METHOD FOR MEASURING TWO-PHASE FLUID FLOW

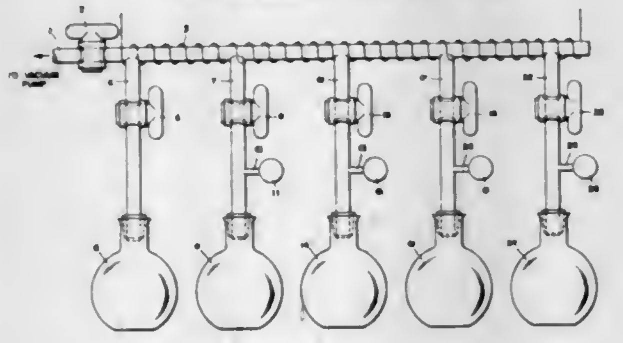
Laurence M. Hubby, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 17, 1964, Ser. No. 338,500
3 Claims. (Cl. 73—61.1)



1. A method of simultaneously measuring rate of flow of the oil and water constituents of a fluid mixture, comprising measuring the rate of flow by volume of said mixture, measuring the rate of flow by thermal capacity of said mixture, and determining the percentage of oil in the total fluid by comparing said two measured flow rates with respect to predetermined compared values for known percentages of said constituents.

3,304,767
METHOD FOR DETERMINING THE CRITICAL RELATIVE HUMIDITY OF FERTILIZER

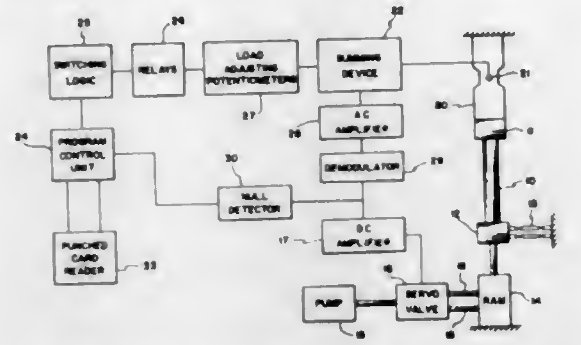
Paul R. Geissler, Metuchen, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Dec. 23, 1964, Ser. No. 420,657
11 Claims. (Cl. 73—73)



1. A process for determining the critical relative humidity of a mixed fertilizer which comprises the steps of:
- (a) placing a sample of dried mixed fertilizer in a confined chamber,
- (b) reducing the pressure within said confined chamber to less than 0.001 mm. of mercury,
- (c) filling said chamber with pure degassed water vapor,
- (d) isolating the water vapor filled chamber, and
- (e) measuring the equilibrium pressure.

3,304,768
FATIGUE TESTING DEVICE

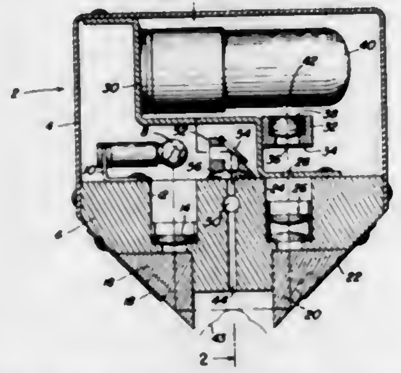
Eugene C. Naumann and Emmett L. Bryant, Newport News, Va., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed June 24, 1964, Ser. No. 377,777
8 Claims. (Cl. 73—90)



1. A fatigue testing machine for applying a predetermined load program consisting of a series of discrete load levels, to a test specimen comprising: means including a strain gage for producing a discrete electrical signal proportional to one of said discrete load levels; means for applying a load to said test specimen in accordance with an error electrical signal; means for producing a nondiscrete electrical signal proportional to the load on said test specimen and negative with respect to said discrete electrical signal; means for summing said discrete electrical signal and said nondiscrete electrical signal to form said error signal; and means to cause said means for producing a discrete electrical signal to produce another discrete electrical signal proportional to the next load level in said predetermined load program when said error signal reaches a predetermined level whereby the load levels in said predetermined load program are successively applied to said test specimen.

3,304,769
AIR PUFF TONOMETER

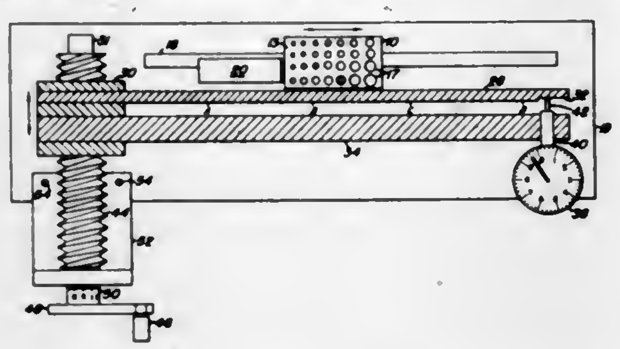
Norman L. Stauffer, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed May 29, 1964, Ser. No. 371,208
6 Claims. (Cl. 73—80)



3. A non-contacting tonometer comprising a light source means, a light detector for producing an output signal in accordance with the light energy impinging thereon, means defining a controlled optical path between said light source means and said detector defining a sensing light beam, said optical path defining means including means defining a sensing zone into which an object under test extends, said optical path being transverse of said sensing zone with respect to said object whereat said beam is partially obscured by said object, and means for directing a calibrated puff of air into said sensing zone, substantially normal to said optical path therein and toward the surface of said object whereby to produce a momentary deformation of said object in accordance with the internal pressure of said object, said deformation of said object producing a corresponding change in the obscuration of said beam whereby to produce a change in said output signal of said detector in accordance with said deformation.

3,304,770
STRAW BENDING DEVICE

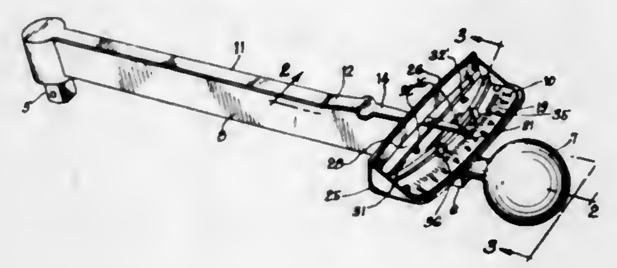
Charles A. Dixon, Jr., Frederick, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Jan. 25, 1966, Ser. No. 522,994
1 Claim. (Cl. 73—100)



An apparatus for measuring the physical properties of straws comprising a straw holder, guide means therefor, the straw holder being maneuverable along said guide means, a flexible beam movable at right angles to the axis of a straw contained in said holder, means for moving the beam against said straw and means for measuring the tip bending of said beam as its motion is opposed by the straw, said straw holder comprising a block having a plurality of constant depth holes of varying diameter therein for holding the straw and measuring its diameter.

3,304,771
TORQUE WRENCH

Paul Ochs, Glen Ellyn, Ill., assignor to P. A. Sturtevant Co., Addison, Ill., a corporation of Illinois
Filed Aug. 10, 1961, Ser. No. 130,646
1 Claim. (Cl. 73—139)

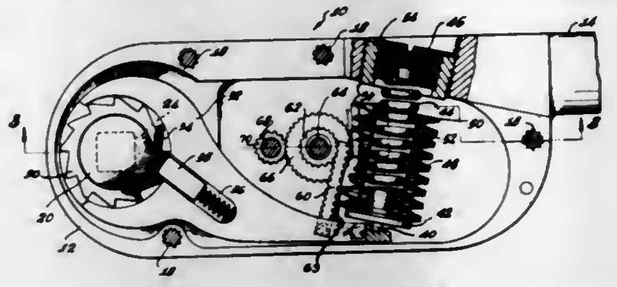


A torque measuring wrench comprising a work-engaging member, a head member, a resilient member disposed between said head member and said work-engaging member, means for indicating the force applied to the work for registering the extent of relative rock movement of said work-engaging member and said head member, and a handle member at one end of said head member, said force indicating means including a graduated scale in fixed relation to said head member, a pointer having a free end cooperating with said scale to indicate the force applied at said handle through said resilient member to said work-engaging member, a platelike member secured to said scale, said platelike member being so formed as to provide a track adjacent to the graduations of said scale, slidable indicating members having portions riding in said track, said indicating members being provided each with a second portion engageable by the tip of said pointer and each having a third portion cooperating with the graduations of said scale, the said tip of said pointer and said third portion of each indicating member being in registering alignment with each other when the indicating member is moved by said pointer.

3,304,772
TORQUE WRENCH

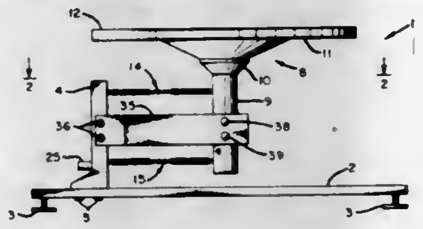
Theodore A. Campbell, Newport Beach, Calif. (3113 W. Burbank Blvd., Burbank, Calif. 91505)
Filed Oct. 30, 1963, Ser. No. 322,272
9 Claims. (Cl. 73—139)

1. In a torque wrench, the arrangement comprising:
- a tool post;
- a torque arm coupled to said tool post for rotation therewith about a specified axis;
- a first spring resisting rotation of said arm about said axis;
- and a second spring concentric with said first spring and adapted to resist rotation of said arm about said axis after said first spring has been compressed to a predetermined degree.



3,304,773
FORCE TRANSDUCER

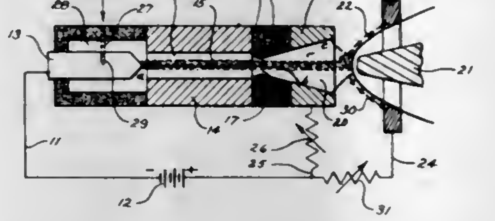
Vernon L. Rogallo, Los Altos, Calif., assignor to the United States of America as represented by the National Aeronautics and Space Administration
Filed Mar. 26, 1964, Ser. No. 355,129
20 Claims. (Cl. 73—141)



14. A force transducer comprising a support, an attachment member, a flexible piezoelectric beam having its ends secured normal to said support and said attachment member, respectively, said attachment member having a longitudinal axis at the portion wherein said beam is secured, electrodes secured to opposite faces of said beam, a target for receiving impinging forces, said target being supported by said attachment member and the center of mass of said target being positioned on the perpendicular bisector of said beam, said impinging forces causing compound flexure of said beam, motion of said target and said attachment member and voltages at said electrodes, and said longitudinal axis remaining perpendicular to said beam end secured thereto as said attachment member is moved.

3,304,774
ELECTRIC ARC TORCH

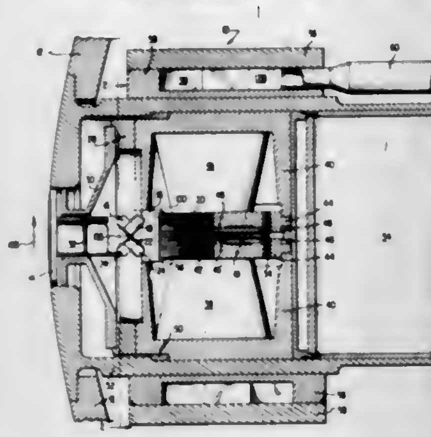
John W. Poole, Hanover, N.H., assignor to Thermal Dynamics Corporation, Lebanon, N.H., a corporation of New Hampshire
Filed July 27, 1964, Ser. No. 385,141
2 Claims. (Cl. 73—147)



1. The method of operating a plasma forming electric arc torch with an arc terminus external to said torch comprising establishing an electric arc in said torch; stabilizing said arc with a gas to create a heated and at least partially ionized gaseous effluent; impinging said effluent upon an object to create a shock wave; transferring said arc to said shock wave, and employing said shock wave as a conductor to complete the electrical circuit for said arc.

3,304,775
SKIN FRICTION GAUGE

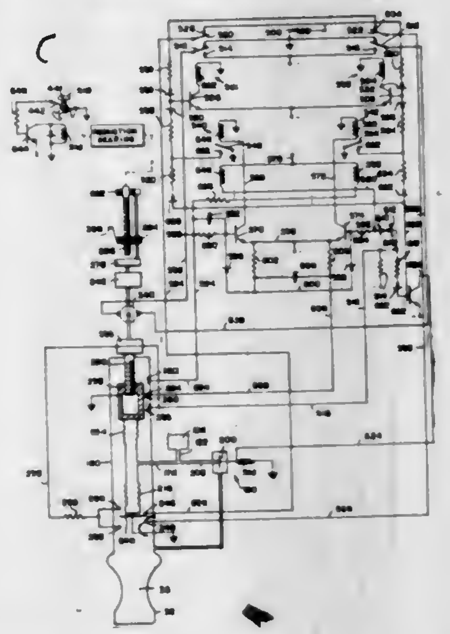
Walter P. Kistler, Clarence, N.Y., assignor to Kistler Instrument Corporation, Clarence, N.Y.
Filed Aug. 3, 1964, Ser. No. 386,915
10 Claims. (Cl. 73—147)



1. A skin friction gauge comprising an elongated sensing element having a drag surface at one end, a forcer coil and movable capacitor plate at the other end of said sensing element, a flexible arm suspension arrangement intermediate the ends of said element restricting said element against translation and permitting pivotal movement of said element about only a single axis parallel to said drag surface, and electrical means coupling said movable plate to said forcer coil for applying a restoring force to said body offsetting the skin friction forces acting on said drag surface.

3,304,776
DIFFERENTIAL PRESSURE MEASURING INSTRUMENT

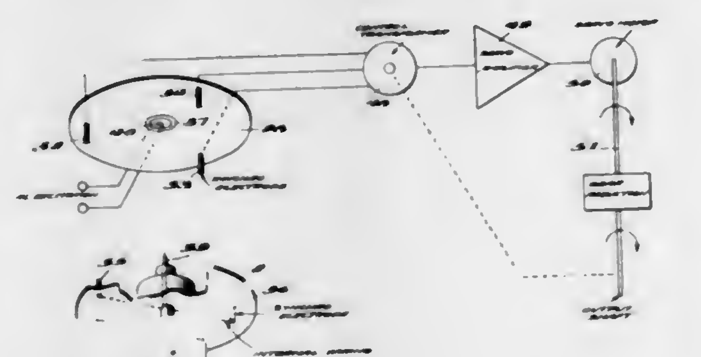
John D. Bennett, Richardson, Preston E. Chaney, Dallas, and Jack Weir Jones and Fred M. Mayes, Richardson, Tex., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Filed May 7, 1963, Ser. No. 278,556
4 Claims. (Cl. 73—151)



1. A pressure responsive measuring and recording instrument for use in a bore hole comprising a housing adapted to be lowered into said bore hole, means providing within said housing an expansible chamber having a pair if walls movable independently to control the volume of said chamber, one of said walls being exposed to bore hole pressure to vary the volume of said chamber, servo means having a normal zero position and operable to move the second of said walls to vary the volume of said chamber, means sensitive to movement of the first wall to control said servo means to move the second wall to a position to change the pressure within said chamber to substantial equality with the bore hole pressure, thereby to restore said first wall substantially to a predetermined position, means sensitive to a predetermined limit movement of said servo means from its normal zero position to subject the interior of said chamber to said bore hole pressure to provide for flow of fluid to equalize the pressure in the interior of the chamber with the bore hole pressure, means for simultaneously restoring said servo means fully to its zero position and means for then isolating the interior of said chamber from the bore hole pressure, and means operated by said servo means to record the position of said servo means and thereby provide a record of bore hole pressure changes.

3,304,777
FLUID DIRECTION SYNCHRO

Albert A. Elwood, Pompano Beach, and Herbert A. Cook, Fort Lauderdale, Fla.; said Elwood assignor to Airpax Electronics Incorporated, Fort Lauderdale, Fla., a corporation of Maryland
Filed Mar. 30, 1964, Ser. No. 355,592
6 Claims. (Cl. 73—188)



1. A transducer for transmitting a signal which is a measure of relative rotational displacement of one body to another, comprising two sets of electrodes immersed in a conductive fluid medium, a first set including a dipole mounted symmetrically about an axis, a second set including three electrodes symmetrically mounted about said axis in such a manner that relative rotational motion can be effected between said two sets of electrodes, said dipole and said tripole being spaced a fixed distance apart along said axis whereby each is positioned substantially in the plane of the electric field of the other, means to place an electric signal on one of said sets of electrodes to induce an electric signal in the other of said sets of electrodes so that the electric signal output of one of said sets of electrodes will induce a signal in the other of said sets of electrodes that is a measure of the rotational displacement of said one set of electrodes with respect to the said other set of electrodes.

3,304,778
WIND VELOCITY SENSOR FOR SAILBOAT

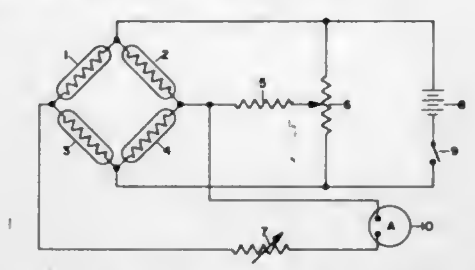
Marvin Wooten Stuart, Box 188, Russellville, Ky. 42276
Filed Oct. 28, 1963, Ser. No. 319,608
3 Claims. (Cl. 73—189)

1. A wind velocity sensor for a sailboat having a sail, comprising:

(a) a port transducer unit fixed to the port side of said sail at the maximum point of effort and exposed to the wind,

(b) a starboard transducer unit fixed to the starboard side of said sail at the maximum point of effort and exposed to the wind,

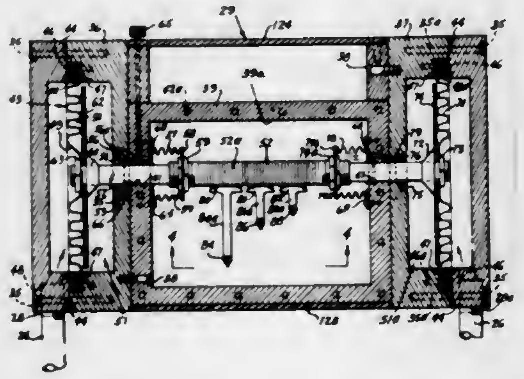
(c) said transducer units being connected into an electrical bridge circuit to transmit an electrical signal which is a function of the difference in the wind velocities on both sides of said sail, and



(d) means in said sailboat electrically connected to said bridge circuit to indicate the magnitude of said electrical signal.

3,304,779
PRESSURE DIFFERENTAL INDICATING SYSTEM FOR FLUID FLOW

John H. Reed, Kermit, Tex., assignor to Tri-Meter Mfg. Co., Kermit, Tex., a corporation of Texas
Filed Jan. 2, 1964, Ser. No. 335,032
10 Claims. (Cl. 73—205)

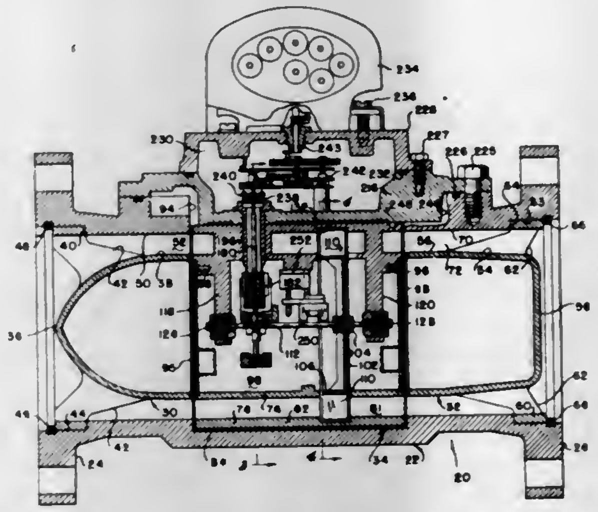


5. A pressure differential measuring device comprising:
a frame having a pair of pressure chambers;
a reciprocably mounted rod, extending into each of the chambers;
expansible and collapsible diaphragm means, in each chamber, fixed adjacent each end of the rod for reciprocating the rod in proportion to the magnitude of the pressure differential between the chambers;
a plurality of rotatable pointers of varying scale for indicating the pressure differential sensed by the diaphragm means; and
an individual motion transmitting linkage for each pointer separately and unrelatedly connecting the rod to each pointer for translating the reciprocable movement of the rod into varying degrees of rotary movement of each pointer, the motion transmitting linkage of each pointer being independent from every other motion transmitting linkage.

3,304,780
FLUID METER

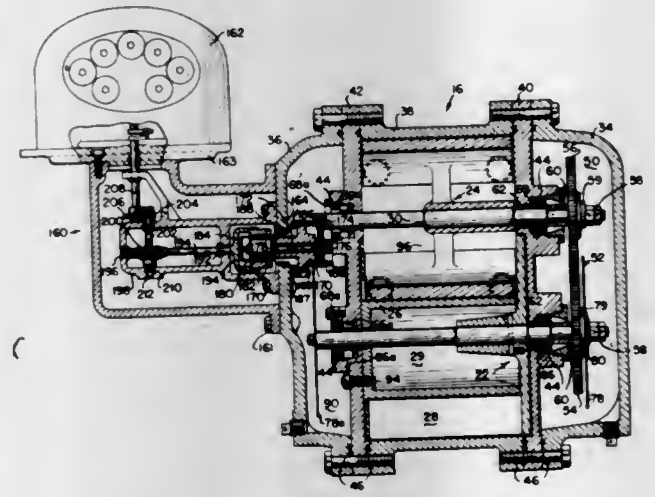
Winston F. Z. Lee, Verona, Harry W. Fisher, Pittsburgh, and Howard J. Evans, Dubois, Pa., assignors to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 25, 1963, Ser. No. 319,027
11 Claims. (Cl. 73—231)

2. In a fluid flow meter, a housing having fluid inlet and outlet openings, a fluid tight register assembly rigidly removably mounted on said housing and including a multi-component envelope and a register unit mounted in said envelope, a multi-part fluid guide structure disposed in said housing to define an annular passage between said inlet opening and said outlet opening, said fluid guide structure comprising axially aligned spaced apart end cores separately and independently rigidly supported by said housing and a central core, a hollow, non-magnetic tubular portion forming a part of said envelope and extending transversely through said passage and into said central core, means securing said central core to said tubular portion for removal from said housing independently of said end cores, a peripherally bladed rotor rotatably carried by said central core to be driven by fluid flow through said passage, and drive means comprising magnetically coacting means disposed interiorly and exteriorly of said tubular portion for transmitting the rotation of said rotor to actuate said register unit.



3,304,781
POSITIVE DISPLACEMENT METER

James R. Stevenson, Du Bois, Pa., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 4, 1963, Ser. No. 321,056
7 Claims. (Cl. 73—253)



1. A positive displacement rotary fluid metering apparatus comprising:

(a) a body having a lubricant sealed, fluid transmitting chamber and fluid influent and effluent openings communicating with said chamber;

(b) first and second spaced apart shafts journalled in said body;

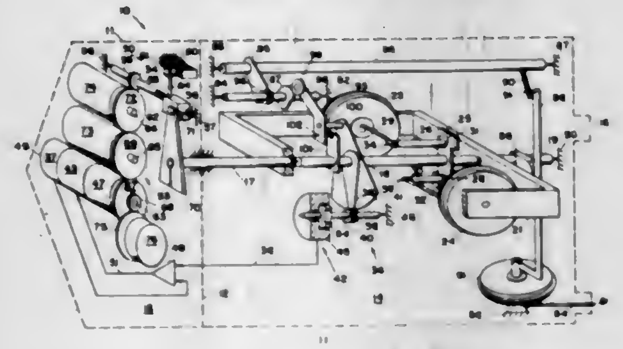
(c) timing gears mounted on said shafts;

(d) a fluid driven rotor having vanes and being mounted spacedly within said fluid transmitting chamber on said first shaft;

(e) a rotary abutment mounted spacedly within said fluid transmitting chamber on said second shaft and driven by said rotor through said timing gears, said rotary abutment being shaped to spacedly receive with said vanes during rotation;

- (f) stationary abutment means mounted in said body within said rotor and adjacent said rotary abutment to maintain at least two area seals between said influent and effluent openings during all operative positions of said rotor and said rotary abutment; and
- (g) adjustment means mounted concentrically about each of said shafts for spacedly maintaining said rotor and said rotary abutment in said fluid transmitting chamber within tolerances sufficient to prevent contact between the moving and stationary parts and to prevent unmetered fluid leakage between said influent and said effluent openings.

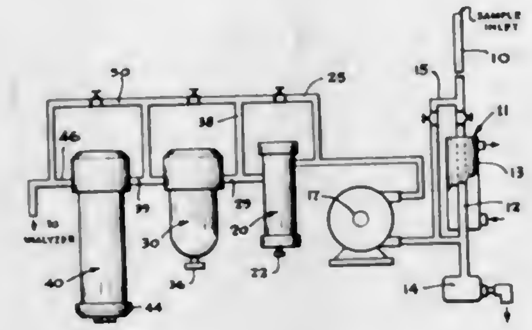
3,304,782
PRESSURE SENSOR
Carl E. Johanson, Davenport, Iowa, assignor to The Bendix Corporation, Davenport, Iowa, a corporation of Delaware
Filed Jan. 4, 1965, Ser. No. 422,940
15 Claims. (Cl. 73—386)



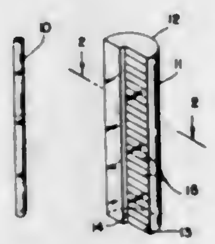
1. A pressure sensitive flight conditioin sensor for producing a true signal of a flight condition which varies as a function of the sensed flight condition comprising
- (a) a support,
- (b) first means for producng a signal proportional in value to said sensed flight condition including
  - (1) a shaft having the ends thereof disposed for rotation in said support,
  - (2) pressure responsive means mounted on said support and connected to said shaft for rotating said shaft as a function of said sensed flight condition,
- (c) second means for correcting the errors in said sensed flight condition including
  - (1) error correction means for providing a true signal of said flight condition and
  - (2) means for driving said error correction means in response to the rotation of said shaft,
- (d) means interconnecting said error correction means and said support for rotating said support as a function of the true flight condition.

3,304,783
APPARATUS AND METHOD FOR CONTINUOUSLY SAMPLING GAS
John J. Quigley, Highland, Ind., assignor to Inland Steel Company, Chicago, Ill., a corporation of Delaware
Filed June 10, 1964, Ser. No. 373,946
2 Claims. (Cl. 73—421.5)

1. A gas sampling apparatus for collecting a representative gas sample from an atmosphere of 1000–3000° F. furnace gas having a concentration of up to about 50% by weight moisture and an average concentration of solid particulate matter of about 25 grains per standard cubic foot which comprises in combination; a fluid cooled heat exchanger which is adapted to remove a major proportion of the moisture from said gas sample with said heat exchanger disposed in direct communication with a gas sampling tube adapted to continuously withdraw said gas sample from said atmosphere, a coarse mechanical filter adapted to remove suspended particles larger than about 100 microns and additional moisture from said gas sample, a fine mechanical filter adapted to remove suspended particles larger than about 75 microns and residual moisture, and an ultra fine mechanical filter adapted to remove suspended particles larger than about 1 micron, each of said filters having associated therewith by-pass means enabling said gas sample to be conducted around any said filters, and a gas pump disposed in series with said heat exchanger and said filters for regulating the flow of said gas sample through said heat exchanger and filters.



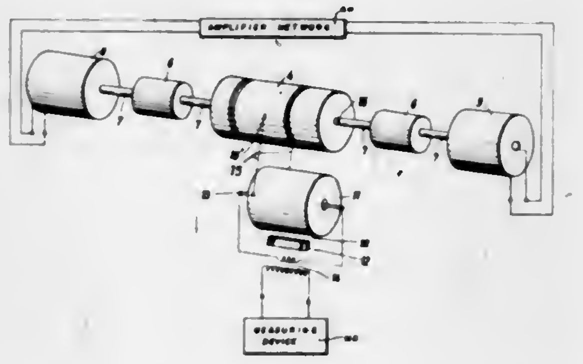
3,304,784
APPARATUS FOR MEASURING MINUTE AMOUNTS OF FLUIDS
Thomas M. Asher, Studio City, Calif., assignor to Hyland Laboratories
Filed Mar. 24, 1964, Ser. No. 354,233
2 Claims. (Cl. 73—425.4)



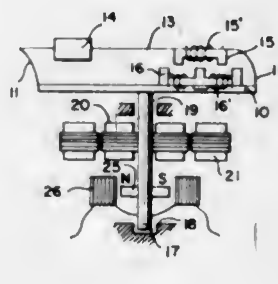
1. An apparatus for measuring and delivering a minute amount of fluid, said apparatus comprising an ungraduated capillary tube of known inner diameter and open at both ends and means of temporarily magnifying and graduating said tube, said means comprising a generally semi-cylindrical transparent member having a curved wall and a substantially flat wall, the substantially flat wall of said member being provided with capillary tube retaining means and with graduation indication means, said retaining means comprising a step formed in the substantially flat wall.

3,304,785
ANGULAR VELOCITY TRANSDUCER
Manfred Börner, Ulm (Danube), Germany, assignor to Telefunken Patentverwertungs G.m.b.H., Ulm (Danube), Germany
Filed Jan. 27, 1964, Ser. No. 340,243
Claims priority, application Germany, Jan. 26, 1963, T 23,385
7 Claims. (Cl. 73—505)

2. In a device for measuring angular velocities including a resonant system whose moment of inertia with respect to an axis of rotation is periodically variable by means of external electromechanical excitation for producing torsional oscillations within the resonant system in dependence upon rotation about the axis of rotation, the improvement wherein a symmetrical resonator excitable to longitudinal oscillations of the $n\lambda/2$ resonance in the direction of the axis of rotation is the most essential part of the resonant system, said resonator being constructed so that the $n\lambda$ resonance of the torsional oscillation of the resonator is also at least near the resonant frequency of the longitudinal oscillations, where n is equal to 1, 2, 3, . . ., means for exciting the resonator to longitudinal oscillations at the $\lambda/2$ resonance so that torsional oscillations of the λ resonance are carried out at rotations about an axis in the direction of the longitudinal oscillation, said means including an input transducer connected to said resonator, an output transducer connected to said resonator, a source of alternating voltage, said transducers being excitable to longitudinal oscillations by means of the alternating voltage, means mechanically coupling said transducers with the resonator, the output transducer having electrical terminals connected with the input terminals of said source and the output terminals of said source being connected with the terminals of the input transducer, and further comprising a torsion transducer connected to said resonator for feeding to a voltage measuring device, a voltage which is proportional to the torsional oscillations.

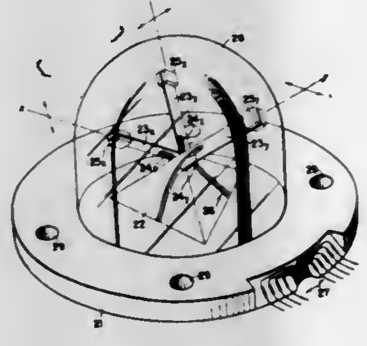


3,304,786
ACCELEROMETER ESPECIALLY FOR NAVIGATIONAL PURPOSES
Carl-Erik Granqvist, Lidingo, Sweden, assignor to AGA Aktiebolag, a corporation of Sweden
Filed Feb. 27, 1961, Ser. No. 91,728
Claims priority, application Sweden, Apr. 25, 1960, 4,077/60
2 Claims. (Cl. 73—517)



1. An accelerometer for measuring horizontal acceleration comprising a disc rotating about a vertical axis, two mass bodies spaced from the axis, each one supported by a wire diametrically disposed on the disc and connected therewith by means of springs for supporting the mass body for movement along a straight path extending diametrically to the disc and in a plane perpendicular to the axis, a reader connected with the mass body for measuring movements of the mass body due to forces acting thereon, means for feeding the reader with a high frequency alternating current, means cooperating with the reader for modulating said alternating current with a modulating voltage representing the forces acting on the mass body, the wire supporting one mass body being perpendicular to the wire supporting the other mass body.

3,304,787
THREE-DIMENSIONAL ACCELEROMETER DEVICE
Takewo Chiku, Nishikamo-gun, Aichi, and Isemi Igarashi, Nagoya, Aichi, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya, Japan
Filed Dec. 6, 1963, Ser. No. 328,703
Claims priority, application Japan, Dec. 29, 1962, 37/59,797
8 Claims. (Cl. 73—517)

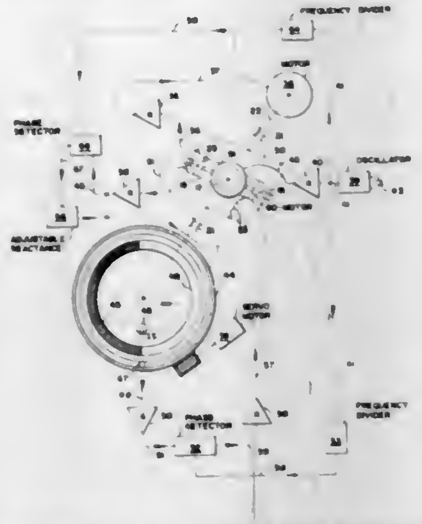


1. A three-dimensional accelerometer device for measuring acceleration at a point on an object comprising a common support member, three thin, small elongated rectangular piezoresistive transducer elements extending respectively in three directions orthogonal to each other and secured at one end to said common support member to form a unitary structure with the main faces of said elements perpendicular to each other and with three elongated axes extending through said elements parallel to the longitudinal central axes thereof at positions lying no farther from the longitudinal central axes thereof than the longitudinal edge surfaces of said elements, said elongated axes intersecting each other substantially at a common point adjacent the fixed ends of the elements, each of said piezoresistive elements being essentially responsive to a component of an acceleration applied to the device in a direction normal to the main face of the element to change an electrical resistance of the same in proportion to the magnitude of said component of the acceleration, and a set of electrical leads connected to each of said piezoresistive elements, said common support member serving to mount the device to an object to be measured with said common point adjacent the point at which acceleration is to be measured.

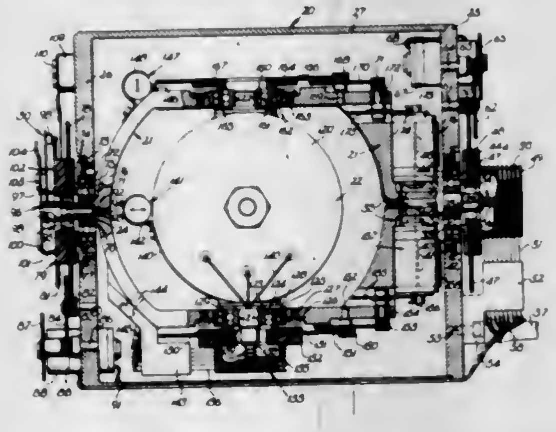
3,304,788
EARTH ROTATION COMPENSATING IN INERTIA NAVIGATION
Carl-Erik Granqvist, Lidingo, Sweden, assignor to AGA Aktiebolag, a corporation of Sweden
Filed Feb. 3, 1961, Ser. No. 86,975
Claims priority, application Sweden, Feb. 8, 1960, 1,222/60
13 Claims. (Cl. 74—5.4)

1. Apparatus for obtaining a fixed direction in space comprising a gyroscope rotor, a first gimbal supporting said rotor and a second gimbal journalling said first gimbal, said second gimbal being subjected to a precessional force generated by said rotor, means journalling said second gimbal about an axis perpendicular to the journal axis between said first and second gimbals, resilient means between said first and second gimbals, for counteracting said precessional forces, means operatively connected to said second gimbal, for sensing the angle of

precession and for generating a signal proportional thereto, and motor means connected to said signal generating means and responsive to said signal for rotating said second gimbal about the journal axis thereof.



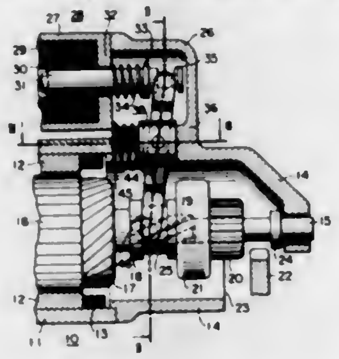
3,304,789
ERECTION SYSTEM FOR GYROSCOPE
Thomas O. Summers, 4097 Valley Meadow Road, Encino, Calif. 91316
Filed May 23, 1962, Ser. No. 197,830
18 Claims. (Cl. 74—5.45)



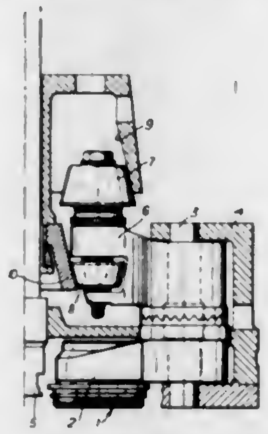
1. An erecting mechanism for a gyrovertical having inner and outer gimbals comprising:
  a gravity sensor carried by one of said gimbals for producing an erection signal when said one gimbal moves away from its gravity vertical position;
  a shaft for supporting the other of said gimbals;
  friction producing means rotatable relative to said shaft thereby producing kinetic friction torque about said shaft; and
  motor means energized by said erection signal for rotating said friction producing means to produce a net kinetic friction torque on said shaft in a direction to return said one gimbal to its gravity vertical position.

3,304,790
DEVICE FOR SHIFTING PINION ON STARTING MOTOR
Akira Takami, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki-Kaisha, Chiyoda-ku, Tokyo, Japan
Filed Apr. 16, 1965, Ser. No. 448,806
Claims priority, application Japan, Apr. 30, 1964, 39/24,503
2 Claims. (Cl. 74—6)

1. A device for shifting a pinion on the shaft of a starting motor for an internal combustion engine, said pinion being axially movable on said shaft into engagement with a ring gear on the engine; said device comprising a pinion shifting sleeve on said shaft and connected with said pinion for axial movement therewith, a pinion shifting lever having one end pivotally engaging said pinion shifting sleeve, a cylindrical supporting member having an axially extending diametrical slot receiving an intermediate portion of said pinion shifting lever, a pivot pin extending across said slot and through said pinion shifting lever to support said lever pivotally in said supporting member, bearing means for supporting said supporting member for rotational movement and for axial movement approximately parallel to said shaft, stop means engageable with said supporting member in one direction, electromagnetic means connected with the other end of said pinion shifting lever and operable to move said lever about its pivot in a direction to move said pinion toward said ring gear, and spring means yieldably pressing said supporting member against said stop means and yieldably resisting axial movement of said support member away from said stop means, said spring means being yieldable to permit axial movement of said supporting member when said pinion abuts said ring gear without meshing therewith upon actuation of said electromagnetic means.

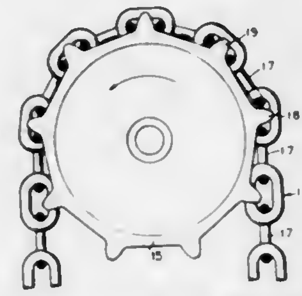


3,304,791
PRELOADED CAM FOLLOWER
Robert Ernest Geeson, Croydon, England, assignor to The Metal Box Company Limited, London, England, a British company
Filed Jan. 19, 1965, Ser. No. 426,649
Claims priority, application Great Britain, Jan. 28, 1964, 3,659/64
7 Claims. (Cl. 74—54)



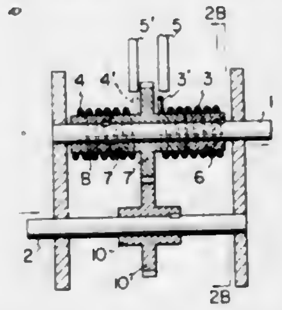
1. An operating mechanism which includes cam means engaged by a pair of follower rollers arranged to reduce backlash and impact due to the taking up of clearance at the commencement of a cycle, a supporting member carrying first and second studs; one of the rollers being arranged for concentric rotation about the axis of the first stud carried by the supporting member and the second roller being rotatable about the second stud carried by the supporting member; mounting means including a spring for facilitating the movement of said second roller laterally of the axis of the second stud against the action of said spring; said spring providing means for exerting a pre-loading force along the direction of the axis of the second stud whereby if a force exerted against the second roller in a direction radial to the axis of the second stud exceeds the value of the pre-loading force the second roller is displaced from concentricity with the axis of the second stud until a state of equilibrium exists between the radial force and the axial force exerted by the spring.

3,304,792
CHAIN GEARING
Gerard J. Kardol, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
Filed June 16, 1964, Ser. No. 375,481
Claims priority, application Netherlands, June 19, 1963, 294,269
1 Claim. (Cl. 74—219)



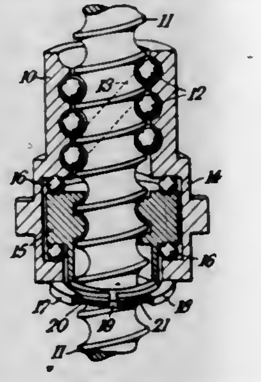
A toothed wheel and open-link, looped chain assembly wherein alternate loops of the chain engage recesses on the periphery of the wheel between adjacent teeth, said wheel having a one-half pitch which is smaller, by an amount up to 3% smaller, than the nominal largest inner dimension of a link of the chain, said one-half wheel pitch being defined as the circumference of the pitch circle divided by 2 times the number of teeth, whereby frictional wear of the chain and wheel is reduced and whereby intermittent operation caused by slippage between wheel and chain is reduced.

3,304,793
TRANSMISSION WITH BI-DIRECTIONAL CLUTCHING MECHANISM
Masaharu Nishimura, Kodaira-shi, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed June 16, 1964, Ser. No. 375,550
Claims priority, application Japan, June 18, 1963, 38/30,834
6 Claims. (Cl. 74—368)



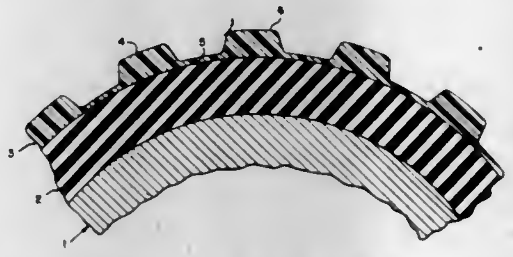
1. In a transmission having a clutch mechanism for coupling first and second parallel rotary drive shafts, the combination of parts constituting a universal clutch mechanism and consisting of said first and second shafts being cylindrical and devoid of any taper; three equidiameter annular collars, devoid of tapers and disposed closely and coaxially about the first shaft, the outer two collars being fixed to said shaft and the inside collar being free to rotate about said shaft; means for transmitting rotation from the second shaft to said inside collar; two like helical clutching spring with their windings facing in the same direction, each fitted firmly about one of said outer collars and the end part nearest thereto of the inside collar, at least one end of said springs being adapted to be controllably actuated to vary the clutching force of said springs; and outside actuating means for said springs.

3,304,794
MECHANISMS INCORPORATING RECIRCULATING BALL SCREW-JACKS
Walter John Bird, Feltham, Middlesex, England, assignor to British Aircraft Corporation (Operating) Limited, London, England, a British company
Filed Jan. 21, 1965, Ser. No. 426,778
Claims priority, application Great Britain, Jan. 23, 1964, 3,005/64; June 25, 1964, 26,377/64
6 Claims. (Cl. 74—409)



1. The combination of a recirculating ball nut and a plain nut element of conventional irreversible form, operatively connected to operate tandemwise upon the same screw and connected together for limited relative rotational motion on the thread of said screw, the arrangement being such that in normal operation the rotation of the screw is first effective to rotate the plain nut until the clearance of the recirculating ball nut on the screw has been taken up, whereupon the load is transferred to the recirculating ball nut.

3,304,795
NONLUBRICATED FORMED GEARING
William S. Rouverol, 2120 Haste St., Berkeley, Calif. 94704
Continuation of application Ser. No. 336,231, Jan. 7, 1964. This application Feb. 28, 1966, Ser. No. 534,578
9 Claims. (Cl. 74—411)

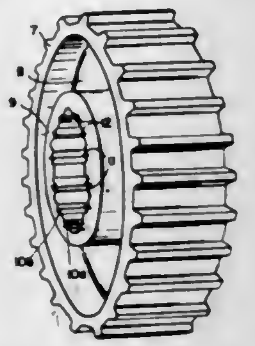


2. A gear construction that includes a pair of mating gears each provided with a power transmitting rim,
  the rim of each of said gears comprising a toothed ring of yieldable material and a backing ring of yieldable material on the side of said toothed ring opposite the mating gear,
  said rim providing substantially less rigidity in a radial direction than in a tangental direction.

3,304,796
PLASTIC HUB AND INSERT ASSEMBLY FOR WHEELS AND SPROCKETS
James W. Leege, Greendale, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 27, 1964, Ser. No. 392,571
6 Claims. (Cl. 74—464)

1. The combination of a wheel including a hub of molded plastic construction and a separate insert for said hub having a central, axial bore for shaft mounting, said insert having a regular polygonal cross-section and relatively shallow, spaced circumferential grooves intermediate the ends thereof defining a series of spaced, radially projecting, circumferentially extending, flat ribs; said hub having inwardly facing sides defining an opening similar

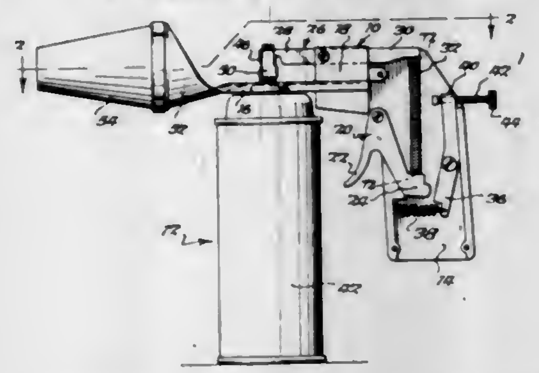
to the cross-section of said insert but slightly larger than said cross-section and including ribs formed integrally therewith and extending axially thereof, the ribs of each side of the hub projecting angularly inwardly of the opening and oppositely away from a plane intermediate the ribs and normal to the side of the hub, the several ribs of the hub being dimensioned such that they are deflected by said insert when the latter is pressed into the hub opening and the subsequent continued stressing effects the flow of the plastic material between the ribs of the hub to effect a positive mechanical securement of the hub on the insert.



3,304,797

ACTUATING DEVICE

Oscar W. Graveley, Sanborn, N.Y., assignor to Niagara Frontier Services, Inc., Buffalo, N.Y.
Original application June 26, 1964, Ser. No. 378,193, now Patent No. 3,276,699, dated Oct. 4, 1966. Divided and this application Mar. 18, 1966, Ser. No. 535,472
8 Claims. (Cl. 74—491)



1. An actuating linkage comprising a first pivotable lever movable from a first position through a second position to a third position, a second pivotable lever adapted for actuating engagement with a member to be actuated, a collapsible section between said first and second levers operable to pivot said second lever from a first to a second position when said first lever is pivoted from said first position to said second position, and means automatically collapsing said collapsible section to enable pivoting of said second lever back from its second position to its first position when said first lever is pivoted from said second position to said third position.

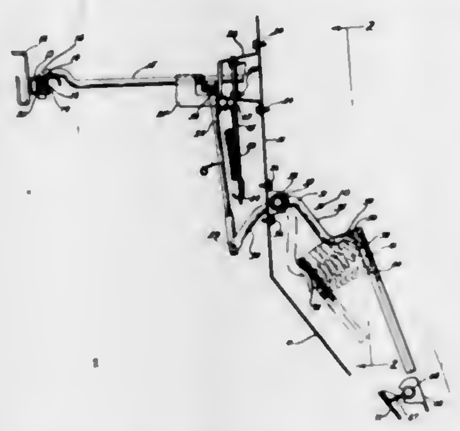
3,304,798

THROTTLE CONTROL LINKAGE

Stanley V. Puidokas, Kenosha, Wis., assignor to American Motors Corporation, Kenosha, Wis., a corporation of Maryland
Filed Dec. 21, 1964, Ser. No. 419,999
9 Claims. (Cl. 74—513)

1. A throttle control linkage for use with the throttle valve of a carburetor for an internal combustion engine comprising:

(a) a shaft adapted to be connected to the throttle valve of a carburetor for opening and closing thereof;
(b) a lever connected to said shaft for rotation therewith;
(c) a rod pivotally connected to said lever;
(d) a bellcrank having a pair of legs, one of said legs being pivotally connected to said rod, the end of said other leg having a bearing surface thereon, said bearing surface being generally an elongated curved surface extending from said end along said leg;
(e) first support means for pivotally mounting said bellcrank;
(f) an accelerator pedal contacting said bearing surface at said end of said other bellcrank leg;

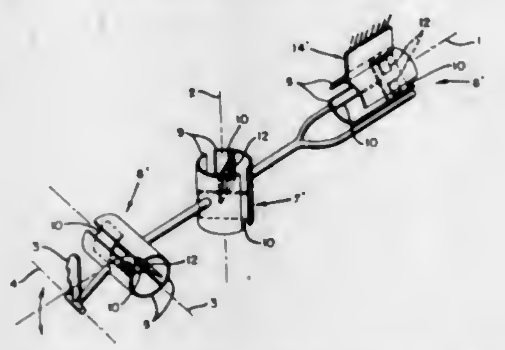


(g) second support means for pivotally mounting said pedal, whereby upon pivoting said pedal, said pedal moves said other bellcrank leg to open the valve and the radial distance of said other leg from said bellcrank pivot to contact with said pedal along said bearing surface in the final position of said pedal travel is substantially less than the radial distance in the starting pedal position for slow and then rapid opening of the throttle.

3,304,799

PROPORTIONAL CONTROLLER

Earl O. Menefee, Mountain View, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 5, 1965, Ser. No. 430,776
20 Claims. (Cl. 74—519)

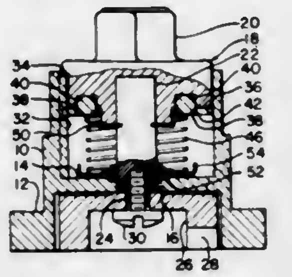


1. A controller comprising a support frame and a handle, first and second pivot members each comprising two attachment sections and a flexural member interconnecting said attachment sections, said two attachment sections of said first pivot member being disposed on a first pivot axis and said two attachment sections of said second pivot member being disposed on a second pivot axis which is perpendicular to said first pivot axis, means rigidly connecting one of said attachment sections of said first pivot member to said frame, means connecting one of said attachment sections of said second pivot member to the other attachment section of said first pivot member, and means connecting said handle to the other attachment section of said second pivot member, one of said attachment sections of said first pivot member being movable relative to the other of said sections in response to movement of said handle about said first axis, and one of said attachment sections of said second pivot member being movable relative to the other of said attachment sections in response to movement of said handle about said second pivot axis.

3,304,800

SWITCH OPERATING UNIT

William J. Russell, Malvern, Pa., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Sept. 9, 1963, Ser. No. 307,575
4 Claims. (Cl. 74—527)

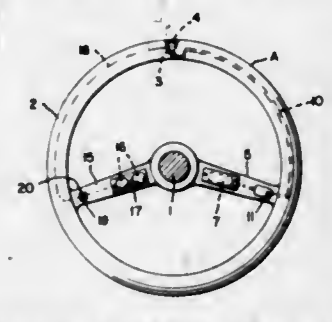


1. In a rotary select operating unit, the combination including a support having an opening, first and second members, said first member journalled in said support for rotation relative to said support and said second member, said first member having a central projection extending into said opening, said second member being positioned between said first member and said opening, a sealing member engaging said central projection and said support adjacent said opening, a retainer for said sealing member positioned between said sealing member and said second member, a detent ball carried by one of said members with a portion of said ball always extending above the surface of said one member toward said other member, the other of said members having a series of recesses positioned to selectively receive said portion of said detent ball as said first member is rotated and a spring compressed between said second member and said retainer holding said retainer in contact with said sealing member and resiliently biasing second member toward said first member whereby said first member is resiliently held in various angular positions, a different position being established each time said detent ball is received in a different recess of said series of recesses as said first member is rotated.

3,304,801

STEERING WHEEL OF AN AUTOMOBILE AND THE LIKE EQUIPPED WITH A CIGARETTE GAS LIGHTER

Yoichi Sakita, 5807 1-chome, Higashi-Momotani, and Masami Maruta, 49 1-chome, Matsuda-cho, both of Osaka, Japan
Filed June 8, 1964, Ser. No. 373,292
Claims priority, application Japan, Dec. 30, 1963, 39/52
2 Claims. (Cl. 74—552)

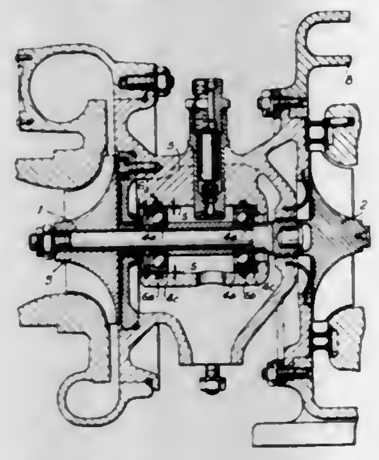


1. In combination, a steering wheel, a combustible gas storage container removably mounted in said steering wheel, a source of current removably mounted in said steering wheel, a combustible gas burning cigarette lighter mounted in said steering wheel in the portion thereof which is normally at the top of the steering wheel when the steering wheel is in a position to steer the vehicle straight, said cigarette lighter having an electric ignition element, electrical conductor means embedded in said steering wheel and extending between the said source of current and said cigarette lighter, electric switch means in said electrical conductor means and positioned adjacent a point where one hand of a driver would normally grasp the steering wheel, gas conduit means embedded in said steering wheel and extending between said gas storage container and said lighter, and valve means in said gas conduit means and positioned adjacent a point where the other hand of a driver would normally grasp the steering wheel.

3,304,802

RESILIENT BEARING SUPPORT MEANS FOR ROTATABLE SHAFT

Siegfried Kofink, Zell (Neckar), Germany, assignor to Geratebau Eberspacher OHG, Esslingen (Neckar), Germany
Filed June 8, 1964, Ser. No. 373,444
Claims priority, application Germany, June 26, 1963, G 38,035
12 Claims. (Cl. 74—573)



1. A rotatable shaft assembly comprising, in combination, a shaft; antifriction bearing means rotatably supporting and embracing said shaft, said bearing means including an inner race directly engaged with said shaft, an outer race, and antifriction elements disposed between and directly engaged with said inner race and said outer race; bearing housing means surrounding said bearing means and having an inner cylindrical surface spaced radially from the outer surface of said outer race; and a radially relatively narrow ring of elastic material disposed between and in direct engagement with said outer surface of said outer race and said inner surface of said bearing housing means; said ring having an axial width which is a minor fraction of the axial width of said outer race, and absorbing the radial loading on said shaft while providing for said shaft to tilt about its centroidal axis to compensate unbalanced dynamic loading.

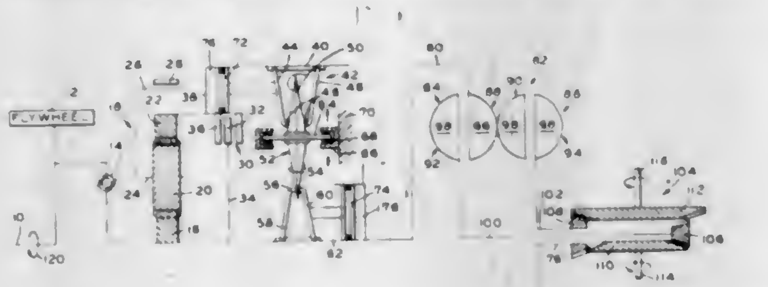
3,304,803

MOTOR VEHICLE TRANSMISSION PROVIDING HIGH TRACTION DRIVE

Thomas R. Stockton, Northville, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 30, 1964, Ser. No. 422,173
6 Claims. (Cl. 74—665)

1. An infinitely variable speed torque transmitting mechanism for connecting a forwardly rotating power input shaft to a pair of rear axle drive shafts comprising, in combination, a planetary gearset and an adjustable infinitely variable speed friction drive device and a hydrodynamic drive device all serially connected, said gearset and friction drive device each having a plurality of rotatable members including drive and driven and reaction members, means operably connecting said gearset drive member to said input shaft and said gearset driven member

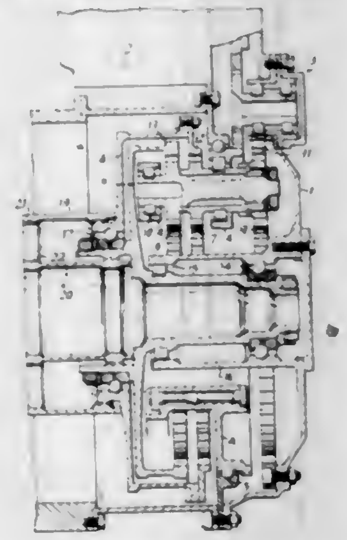
and friction device drive member together, means for holding said reaction members stationary, said latter means for said gearset reaction member being releasable to condition said gearset for a reverse drive of its said driven member, direct drive clutch means engageable at times to connect said gearset drive and driven members for a forward direct drive through said gearset, said hydrodynamic drive device having a plurality of pump members and a plurality of turbine members, means operably connecting said pump members together and to the friction drive driven member, and means operably connecting said turbine members each to a different one of said rear axle shafts, the respective engagement or release of said clutch means and release or engagement of the gearset reaction member holding means providing alternately a forward and reverse infinitely variable speed drive to said axle shafts, the faster rotation of one of said axle shafts relative to the other effecting a greater application of torque from said pump to the remaining axle shaft for greater tractive effort.



3,304,804
MECHANICAL ACTUATORS

Thomas A. Oldfield, Warsash, and Leonard T. Tribe, Waltham Chase, near Southampton, England, assignors to Plessey-UK Limited, Ilford, England, a British company

Filed Jan. 11, 1965, Ser. No. 424,767
Claims priority, application Great Britain, Jan. 10, 1964, 1,139/64
2 Claims. (Cl. 74—665)

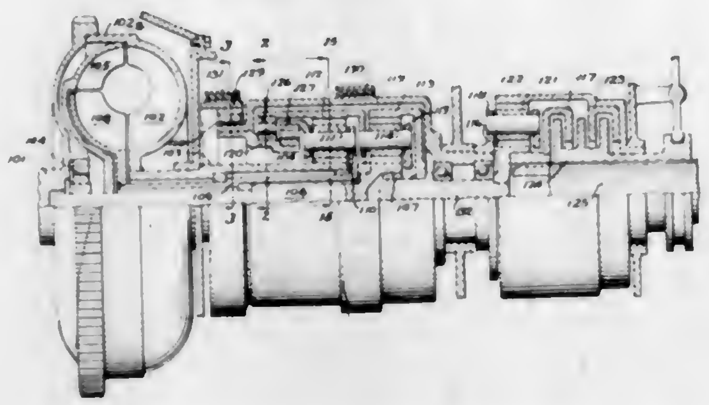


1. A mechanical actuator comprising three coaxial gears, two of which are rotatable and the third of which is fixed against rotation, a planet gear carrier, means for driving said planet gear carrier about the axis of said gears, three planet gears mounted on said carrier, cooperating respectively with said three gears, and interconnected for simultaneous rotation about a common axis which is parallel to the axis of said gears, and two coaxial driven elements coupled respectively to said two rotatable gears, the planet gear co-operating with the fixed gear having a diameter intermediate the diameters of the other two planet gears and differing respectively from said diameters by approximately equal amounts.

3,304,805
TURBOMECHANICAL DRIVE MECHANISMS

Joseph W. Parker, 2648 Forest Hill Drive, San Jose, Calif. 95130

Filed July 1, 1964, Ser. No. 379,484
21 Claims. (Cl. 74—677)



1. A transmission having input and output structures and pump and first and second turbine members of hydrodynamic torus means, said pump being driven by said input structure, including, in combination therewith,

first and second epicyclic gear trains each having an input member, a planet gear carrier and planet gears, and an output member,

said first epicyclic gear train having its planet gear carrier connected to the output member of said second epicyclic gear train, for rotation together when either one of them rotates,

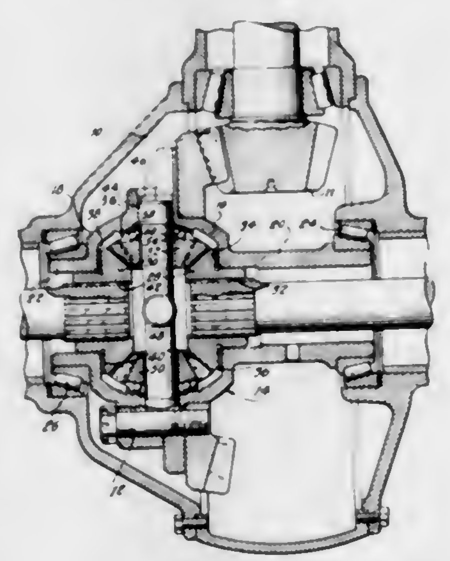
said second epicyclic gear train having its input member and planet gear carrier so operatively connected to said input structure and said first turbine member as to combine the rotations of said input structure and first turbine member, said output member of said first gear train being connected to said output structure, and

said second turbine member being connected to said input member of said first gear train and thereby driving said output structure through said first epicyclic gear train.

3,304,806
POSITIVE DRIVE DIFFERENTIAL GEARING

Dale C. Adams, Garden City, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed May 10, 1965, Ser. No. 454,262
6 Claims. (Cl. 74—711)

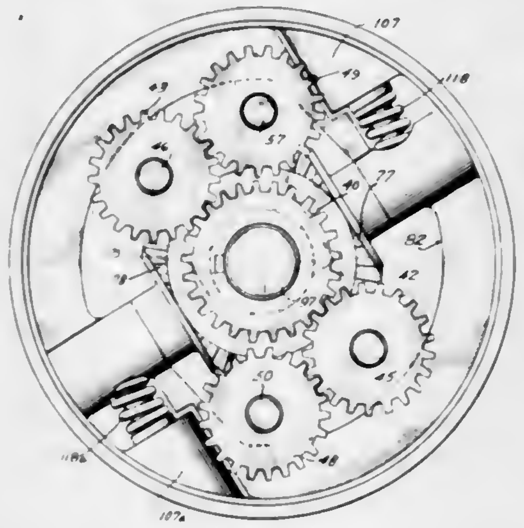


1. A positive drive differential mechanism comprising a differential carrier, a pair of differential side gears in said carrier, means for connecting each side gear to a separate driven axle shaft, a plurality of differential pinions rotatably supported by said carrier in meshing engagement with said side gears, a ring gear carried by said carrier, a plurality of radial grooves formed in each pinion, a reaction surface carried by said carrier directly adjacent said pinions and cooperating with said grooves to define radial channels, centrifugally operated clutch elements movably situated in said channels, said clutch elements being urged under the influence of centrifugal force in a radially outward direction with respect to the axis of said side gears during normal driving operation of said assembly and being urged in a radial direction with respect to the axis of said pinions when one side gear is overspeeded with respect to the other.

3,304,807
POWER TRANSMISSION MECHANISM

Ole I. Stangeland, 3300 N. New England Ave., Chicago, Ill. 60634

Filed Mar. 30, 1964, Ser. No. 355,863
8 Claims. (Cl. 74—751)



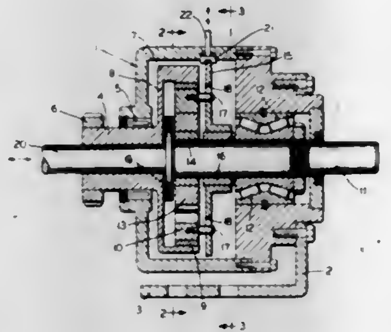
1. A torque transmission mechanism comprising
a housing,
an input member journalled in said housing and including a spur gear section and a bevel gear section,
a second bevel gear,
an idler bevel gear intermeshing with said bevel gear section and said second bevel gear,
a spur gear section fixedly connected to said second bevel gear,
a pair of spur gears fixedly interconnected and rotatable about the axis of a shaft mounted in said housing parallel to the axis of rotation of said input member,
one of sid spur gears meshing with one of said spur gear sections,
an idler gear meshing with the other of said spur gears and the other of said spur gear sections, and
means for adjustably loading said idler bevel gear to prevent rotation thereof when the torque differential between said input member and said housing is less than a preselected value.

3,304,808
REVERSING AND REDUCTION GEAR

Arthur F. Grant, Shaker Heights, Ohio, assignor to Allied Machine & Engineering Corporation, Cleveland, Ohio, a corporation of Ohio

Filed Nov. 5, 1964, Ser. No. 409,114
7 Claims. (Cl. 74—760)

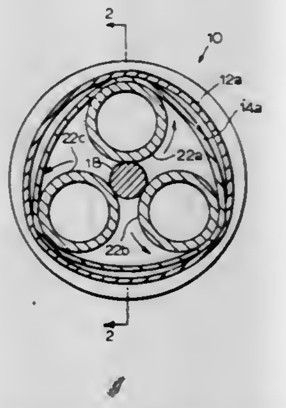
1. A reversing and reduction gear comprising an input shaft, means for rotating said input shaft, an output shaft journalled in alignment with the input shaft, a pinion gear, an overruning clutch mounting the pinion gear on the output shaft, a ring gear meshing with the pinion gear, said ring gear having a greater number of teeth than the pinion gear, means operatively connected to the input shaft for moving the ring gear eccentrically, a rotatable braking means, a second overrunning clutch mounting the rotatable braking means on the output shaft, said second overrunning clutch operating in direction opposite to the first-named overrunning clutch, interengaging means on the ring gear and the rotatable braking means, brake means for holding the rotatable braking means against rotation for preventing the ring gear from turning on its axis while permitting its eccentric motion, and a second brake means for holding the pinion gear against rotation and causing the ring gear to rotate on its axis around the pinion gear, whereby the application of one of said brake means will cause the output shaft to rotate in one direction and application of the other brake means will cause the output shaft to rotate in the opposite direction, and whereby the release of both brake means will disconnect the input shaft from the output shaft.



3,304,809
TORQUE TRANSMISSION DEVICE

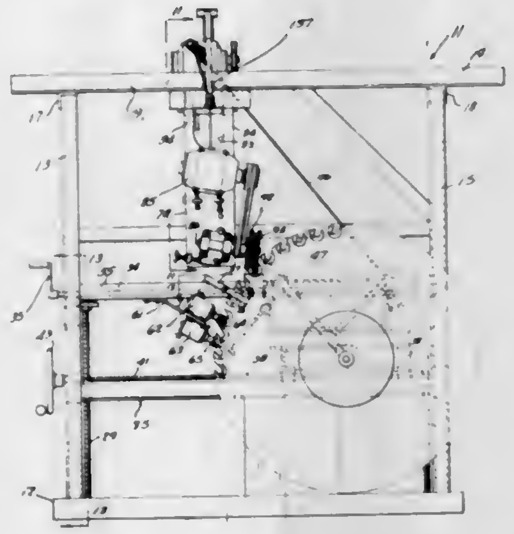
James S. Hellen, Wayne, N.J., assignor to General Precision Inc., Little Falls, N.J., a corporation of Delaware

Filed Dec. 18, 1964, Ser. No. 419,379
19 Claims: (Cl. 74—798)



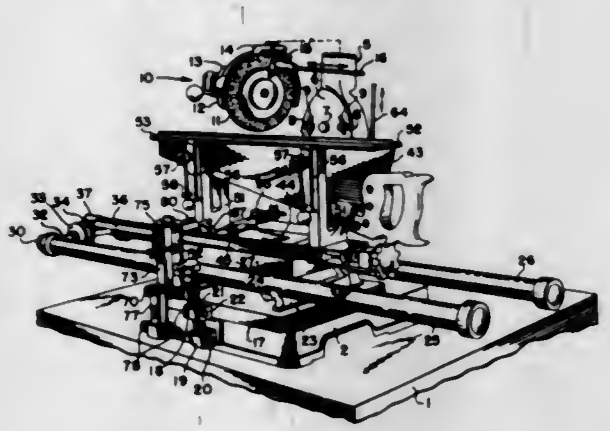
1. A torque tranmission device, comprising:
a pair of coaxially-nested members of generally tubular configuration, both of said members having relatively thin side walls formed of resilient material, whereby they are radially distortable to a significant degree, one of said members being adapted to be fixed against rotational displacement, there being a finite difference between the inner diameter of the outer member and the outer diameter of the inner member; and
means for producing contact between the circumferences of said tubular members and conjoint distortion thereof radially outwardly at a localized region and for angularly displacing said region about said circumferences.

3,304,810
SAW SHARPENING MACHINE
Cecil English, Rte. 355, Frederick Pike,
Rockville, Md. 20850
Filed Feb. 26, 1965, Ser. No. 435,609
10 Claims. (Cl. 76—40)



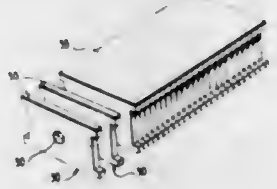
1. A circular saw blade sharpening machine comprising a supporting frame, means to rotatably support a circular saw blade on said frame, a swinging member hingedly connected to said frame, blade-abrading means on said swinging member, said swinging member being swingable to move said blade-abrading means against a tooth surface of a circular saw blade mounted on said supporting means, means to oscillate said swinging member, means to rotate said supporting means through an angle corresponding to the angular spacing between successive teeth on the circular saw blade responsive to each cycle of oscillation of said swinging member, respective side abrading wheels mounted on said frame adjacent to and on opposite sides of the plane of the circular saw blade, and drive means connected to said side abrading wheels.

3,304,811
HAND SAW GRINDER
Raymond H. De Witt, Plymouth, Ohio, assignor to The Fate-Root-Heath Company, Plymouth, Ohio, a corporation of Delaware
Filed Sept. 24, 1964, Ser. No. 398,935
14 Claims. (Cl. 76—43)



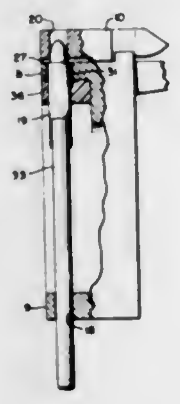
1. In combination in a hand saw grinder, saw supporting and feeding means comprising a track assembly, a carriage mounted on said track assembly for movement therealong in a feeding direction and in reverse return direction, spring means biasing said carriage in such return direction and resiliently resisting the movement of the carriage in the feeding direction, thereby to maintain the carriage under advance-resisting tension, saw clamping means on the carriage for holding the saw to be ground extending in the direction of carriage movement, and drive means for advancing the carriage and the saw thereon in a series of steps in the feeding direction against the return force exerted by said spring means.

3,304,812
METHOD OF MANUFACTURING BLADES
Ross E. Hopkins, 428 Peyton, Emporia, Kans. 66801
Filed Sept. 23, 1964, Ser. No. 398,712
8 Claims. (Cl. 76—101)



1. A method of applying a wear-resistant surface to a group of blades for a hand tool, each blade having front and rear faces with a hole therethrough and an elongated side having a continuous, even surface, the junctures between said faces and said surface forming the working edges of the blade; said method comprising the steps of placing the group of blades on a rod so that the rod passes through the holes in the several blades; aligning the surfaces of the several elongated sides; holding the group of blades together in tight face-to-face relationship; depositing a coating of a wear-resistant material evenly over the several surfaces of the elongated sides while the blades are on the rod; and then separating the blades from one another thereby breaking the wear-resistant material along the working edges of the blades but leaving the wear-resistant material extending over the surfaces and along the working edges.

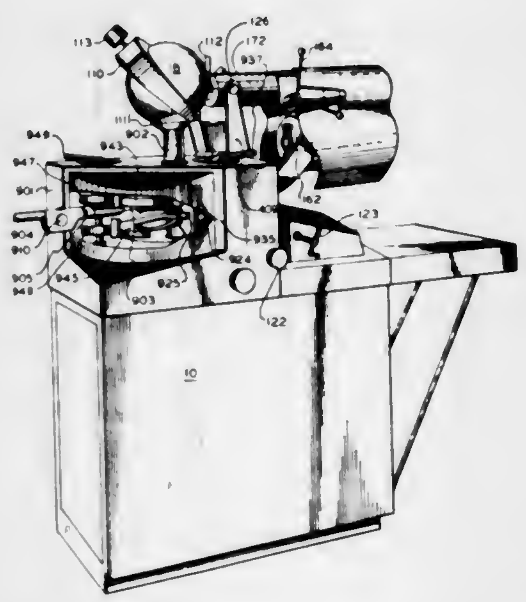
3,304,813
PUNCH BLOCK AND THE METHOD OF MAKING IT
Edward D. Hennigan, River Forest, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Dec. 5, 1963, Ser. No. 328,214
5 Claims. (Cl. 76—107)



1. The method of making a punch block assemblage using a punch block with an attached die plate, which comprises the steps of:

forming a punch pin receiving aperture in the die plate;
forming an aperture in the punch block aligned with the aperture in the die plate;
disposing a punch pin guiding sleeve within the aperture in the punch block;
inserting a guide mandrel through the punch pin guiding sleeve and the punch pin receiving aperture in the die plate;
surrounding the punch pin guiding sleeve with a casting material to provide a punch pin guiding sleeve retaining means;
removing the mandrel; and
inserting a punch pin in place of the mandrel.

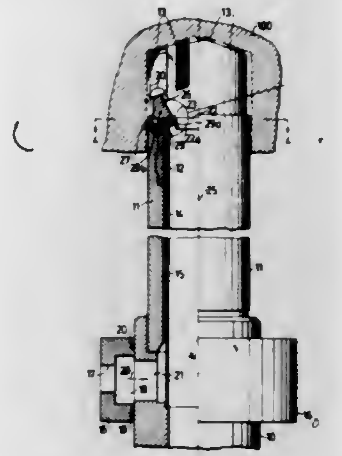
3,304,814
DRILLING APPARATUS
David B. Scott, 53 Liberty St., Walton, N.Y. 13856
Filed Feb. 3, 1964, Ser. No. 341,850
12 Claims. (Cl. 77—31)



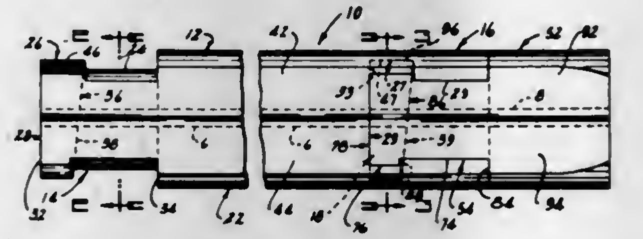
1. Drilling apparatus, comprising, in combination: a movable workpiece supporting means; a movable powered tool-carriage means; between said supporting means and said tool carriage means, and adjustable stop apparatus for limiting relative movement in two opposite directions, said adjustable stop apparatus including a shaft having first and second threaded portions, said first threaded portion having a thread pitch twice that of said second threaded portion, third threaded means attached to one of the aforesaid means and connected to threadedly engage said second threaded portion, thereby to translate said shaft in a first translational direction as said shaft is rotated in a first angular direction, a first stop means connected to be moved in accordance with translation of said shaft to establish a stop position of said supporting means relative to said tool-carriage means in a given direction, and a second stop means connected to engage said first threaded portion, thereby to translate said second stop means to establish a stop position of said supporting means relative to said tool-carriage means in a direction opposite to said given direction.

3,304,815
DRILL
Kurt Heinrich Albert Erich Faber, Sandviken, Sweden, assignor to Sandvikens Jernverks Aktiebolag, Sandviken, Sweden, a corporation of Sweden
Filed Dec. 11, 1964, Ser. No. 417,538
Claims priority, application Sweden, Dec. 14, 1963, 13,940/63
8 Claims. (Cl. 77—68)

1. A drill for chip cutting drilling of a metal workpiece comprising a tubular shaft having an inner and an outer wall with a space therebetween, cutting edges on the front end of said shaft, at least one of said cutting edges extending laterally beyond the outer surface of said tubular shaft, means for delivering flushing medium to said space, a first aperture having its outlet at the outer surface of said outer wall rearwardly of said cutting edges for delivering a forwardly directed first flow of flushing medium from said space to said cutting edges, a passageway permitting return flow of flushing medium from said cutting edges to the cavity within said inner wall and a second aperture having its outlet at the inner surface of said inner wall for delivering a second flow in the form of a rearwardly directed jet of flushing medium from said space into said cavity.



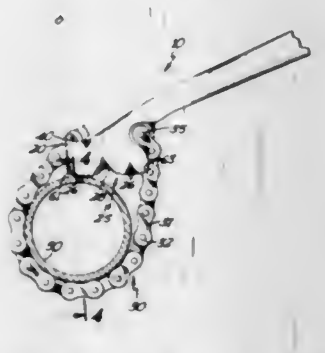
3,304,816
DETACHABLE DRILL TIP AND COUPLING MEANS
Louis C. Galorneau, 931 S. Gulley Road,
Dearborn, Mich. 48120
Continuation of application Ser. No. 343,529, Feb. 10, 1964. This application Apr. 7, 1965, Ser. No. 453,534
8 Claims. (Cl. 77—68)



1. In a cutting tool for use in the machine tool industry, the combination of,
a driver member;
a detachable cutting tool;
at least one cutting edge on said detachable cutting tool;
a single undercut in the cutting tool body forming a cylindrical section thereon;
an enlarged flange portion on said cylindrical section;
two opposed non-parallel surfaces on said enlarged flange portion, one edge surface having a helix thereon, while the other edge of said enlarged flange is flat throughout its full length and perpendicular to the rotational axis of said tool;
a back taper on the helical edge of said flange;
a hollow, generally flat bottom sleeve portion on one end of said driver member;
a single cylindrical undercut in said sleeve;
two opposed non-parallel edge surfaces on said undercut, one edge surface thereof having a helix thereon, while the other surface is flat throughout its full length and perpendicular to the rotational axis of the tool;
rotational engagement of said driver and said detachable cutting tool between said non-parallel edges of said enlarged flange and said undercut joining said members as a single unit assembly.

3,304,817
WRENCH WITH CONCAVE JAW TEETH

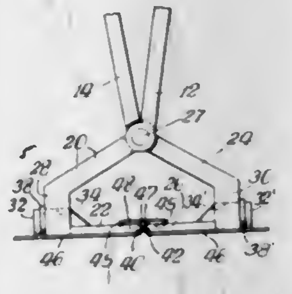
John E. Swanstrom, Jr., and Swan Elmer Swanson, Duluth Minn., assignors to Diamond Tool and Horseshoe Co., Duluth, Minn., a corporation of Minnesota
Filed Feb. 26, 1965, Ser. No. 435,452
4 Claims. (Cl. 81—67)



3. A hand held gripping tool comprising, a fixed head and a cooperative moving part adapted to engage an object to be gripped to urge the same against the fixed head, handle means connected to the fixed head, the fixed head having an inner gripping surface formed by a plurality of teeth, substantially all of the tips of the teeth at the outer edges of the head being disposed in the same plane with each tooth having a gripping surface formed by the crest of all the teeth being concave and having substantially the same radius of curvature.

3,304,818
PIVOTED DUCT ASSEMBLY TOOL HAVING LATERALLY EXTENDING PIVOTED JAWS

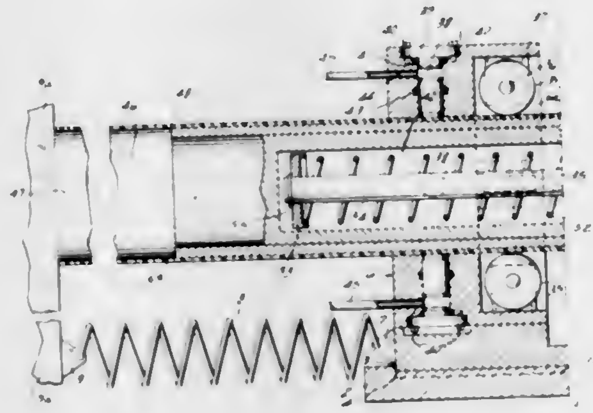
Eugene M. Heaton, Round Lake, Ill., assignor of one-half to Thomas D. Ahern, Chicago, Ill.
Filed June 11, 1965, Ser. No. 463,228
2 Claims. (Cl. 81—5.1)

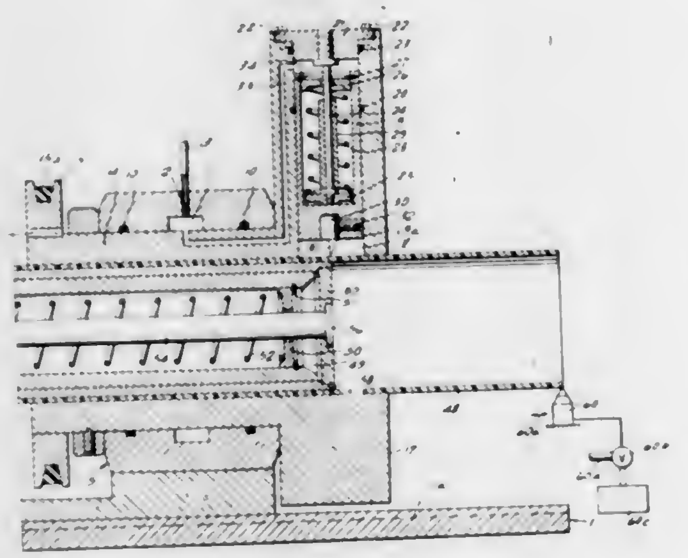


1. A clamping tool for use in assembling duct work wherein duct sections including re-entrant generally C-shaped flanges have their respective flanges brought into abutment to receive generally C-shaped channel members to hold the flanges in such an abutting relation to form a duct comprised of a plurality of duct sections, said clamping tool comprising, in combination: a first elongated member having a handle portion at one end and a duct flange engaging portion at the other end thereof; a second elongated member having a handle portion at one end and a duct flange engaging portion at the other end thereof; means pivotally interconnecting said first and second members at a point intermediate their ends for movement of said duct flange engaging portions toward and away from each other in response to manual manipulation of said handle portions; each of said duct flange engaging portions comprising a member having a first relatively narrow rounded side of a width of sufficiently small size so as to be freely enterable into a C-shaped duct flange, a second side of a length sufficient to allow said first side to contact the bight of a C-shaped duct flange while precluding contact between a duct flange and said elongated members, and a third elongated side of a length sufficient to allow said first side to contact a duct flange over a substantial portion of the length of the latter whereby clamping force exerted by said tool on duct flanges is distributed over a substantial portion of the length of the latter to preclude distortion thereof; and means pivotally connecting each said duct flange engaging portions to its respective one of said elongated members, each said connecting means comprising a stub shaft secured at one end to said duct flange engaging portion and having an annular groove at the other end thereof, said stub shaft being received in an aperture in its associated elongated member, and a locking ring disposed in said groove to preclude movement of the stub shaft within the aperture along the longitudinal axis of the stub shaft while permitting rotational movement of the duct flange engaging portion relative to its associated elongated member whereby said clamping tool may be used within a relatively small area.

3,304,819
APPARATUS FOR SEVERING PLASTIC PIPES AND THE LIKE

Horst Pasternack, Essen, Germany, assignor to Wasag-Chemie Aktiengesellschaft, Essen, Germany
Filed Feb. 2, 1965, Ser. No. 429,792
Claims priority, application Germany, Feb. 7, 1964, W 36,185
25 Claims. (Cl. 82—53.1)



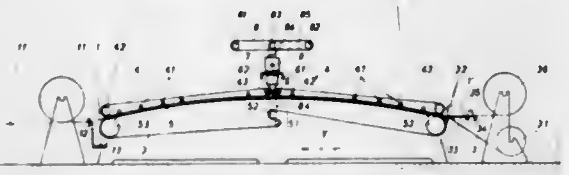


1. An apparatus for severing plastic pipes and other types of elongated workpieces into sections of predetermined length while such workpieces travel lengthwise, comprising elongated guide means; a back support mounted on said guide means for movement with the workpiece; bearing means surrounding at least a portion of said back support; coupling means mounted on said bearing means and operative to clamp the workpiece against said back

support so that the back support and said bearing means travel with and at the speed of the workpiece in response to operation of said coupling means; and cutter means mounted on said bearing means and operative to sever the workpiece while the workpiece is clamped.

3,304,820
FABRIC-CUTTING MACHINE AND METHOD

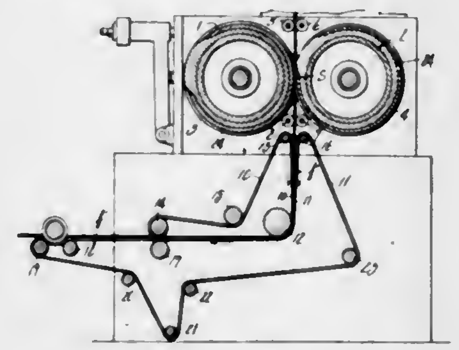
Nicolaus Müller, Trier, and Fritz Schumann and Bruno Bystron, Ingolstadt, Germany, assignors to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Ingolstadt, Germany, a corporation of Germany
Filed July 26, 1965, Ser. No. 474,716
Claims priority, application Germany, Aug. 1, 1964, Sch 35,571
22 Claims. (Cl. 83—25)



1. The method of cutting garment components from a piece of fabric by a cutting implement in accordance with a predetermined pattern, which comprises moving the fabric piece along a given linear path relative to the cutting implement, translating the cutting implement relative to the fabric piece transversely of such given linear path in which the fabric piece is moved, and during such linear movement of the fabric piece and translation of the cutting implement relative to the fabric piece turning the cutting implement as necessary in order to maintain its cutting edge directed forward with respect to the relative movement of the cutting implement and the fabric piece effected by such conjoint movements of the fabric piece relative to the cutting implement and of the cutting implement relative to the fabric piece.

3,304,821
METHOD AND APPARATUS FOR CUTTING CONTINUOUS FIBER TOWS

Mitsuyoshi Matino, Kurita-gun, and Tadashi Sigematsu, Toshimoto Matsubara, Masaaki Tabata, and Shigeki Kitazawa, Otsu-shi, Japan, assignors to Osaka Kiko Kabushiki Kaisha, Osaka-shi, Japan
Filed Sept. 28, 1965, Ser. No. 490,853
Claims priority, application Japan, Apr. 1, 1965, 40/19,369
6 Claims. (Cl. 83—26)



1. In a method of producing slivers from continuous fiber tows which comprises the steps of

(a) severing continuous fiber tow being moved longitudinally of its fibers by cuts extending completely through the fibers and directed obliquely across the width of the tow and separating it into echelons of cut fiber tows, and

(b) conveying the cut fiber tows substantially horizontally to a delivery point;

the improvement which comprises preventing the deformation of leading ends of the cut fibers of the tows by

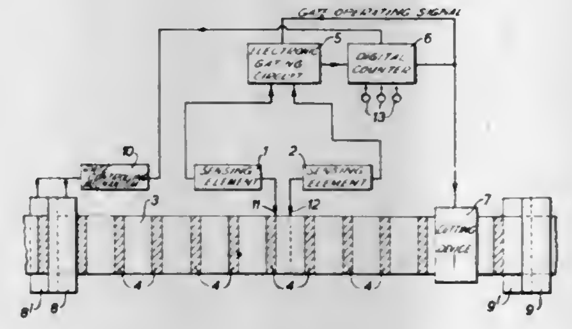
(c) effecting the severing of step (a) while longitudinally moving the continuous fiber tows and resulting echelons vertically downwardly,

(d) nipping the vertically downwardly moving echelons of cut fiber tows leaving the point of severance and delivering them longitudinally of the fibers thereof into a vertically downwardly contracting nip region between vertically downwardly moving conveyer surfaces paralleling the width of the tows, at least one of which surfaces is in the form of a belt guided to move substantially vertically at said nip region and substantially horizontally at said delivery point, and

(e) holding the echelons of cut fiber tows against said belt for preventing relative displacement of the fibers thereof while the cut fiber tows are carried longitudinally by and turned with said belt from a substantially vertical position at said nip region to a substantially horizontal position for delivery at said delivery point.

3,304,822
APPARATUS AND METHOD WHICH MAY BE USED IN THE MANUFACTURE OF HONEYCOMB STRUCTURES

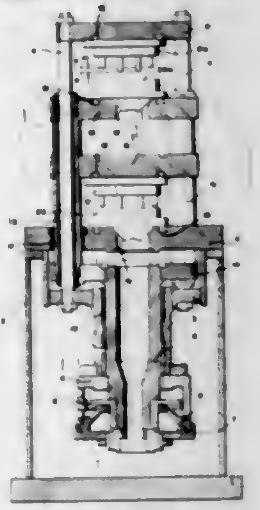
James Keith Barnes, Fowlmere, and Roger William Upton, Rugeley, England, assignors to Ciba Limited, Basel, Switzerland, a corporation of Switzerland
Filed Jan. 11, 1965, Ser. No. 424,714
Claims priority, application Great Britain, Jan. 17, 1964, 2,270/64
7 Claims. (Cl. 83—29)



1. An apparatus for handling sheet material, upon one surface and across the width of which material spaced areas of adhesive have been applied, which includes means for feeding the material through the apparatus, two signal generating sensing elements having their sensing points spaced apart a predetermined distance and arranged to detect the presence of the adhesive, counting means, gating means connected between the outputs from the sensing elements and the input to the counting means to allow signals from only one element to reach the counting means at any one time, a cutting device arranged to cut the material into lengths after the material has passed the sensing points, a connection between an output from the counting means and the cutting device whereby the cutting device is operated when the counting means has counted a given number of areas of adhesive as a result of signals from the one of the sensing elements, and a connection from the output from the counting means to the gating means whereby when the given number of areas of adhesive has been counted the gating circuit is operated to cause signals from the other of the sensing elements to be connected to the counting means, whereby when the counter has counted the same given number of signals from the other of the sensing elements the cutting device is operated.

3,304,823
METHOD AND APPARATUS FOR PUNCHING SHEET MATERIAL

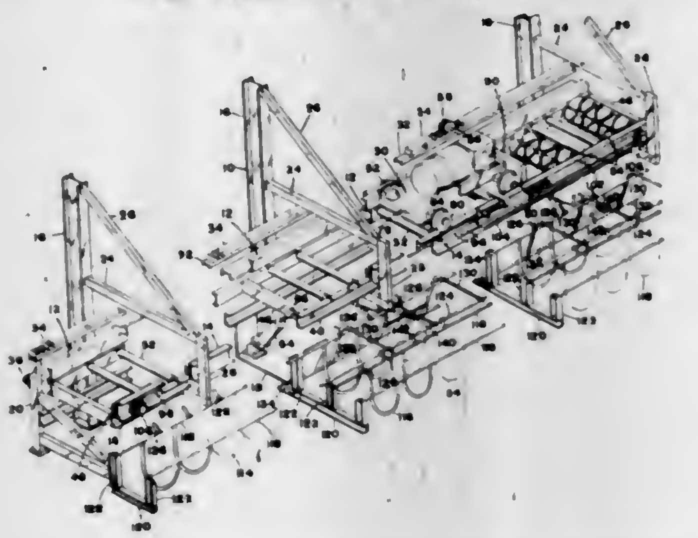
Edmund Franciszek Nowak, Krozanska St. 20/16, Warsaw, Poland
Filed Mar. 29, 1965, Ser. No. 443,525
Claims priority, application Poland, Mar. 17, 1965, P 104,192
4 Claims. (Cl. 83—55)



4. A method of punching sheet metal comprising the steps of: (1) placing the sheet metal on a die spaced from a member having a plurality of sets of punching tools, (2) moving the member relative to the die so that the punching tools move towards the metal sheet on the die until the punching edges of a first set of tools on the member engage the metal sheet, (3) moving the member towards the metal sheet so that the punching tools of the first set penetrate the metal sheet to a deph of approximately $\frac{3}{10}$ the thickness of the metal sheet at which time the cutting edges of the second set of tools engage the surface of the metal sheet, and (4) moving the member towards the metal sheet so that both the first and second sets of tools completely penetrate the metal sheet, the cutting edges of the first set being spaced from the cutting edges of the second set at all times by a distance of approximately $\frac{3}{10}$ the thickness of the metal sheet.

3,304,824
BAR HANDLING AND SHEARING MACHINE

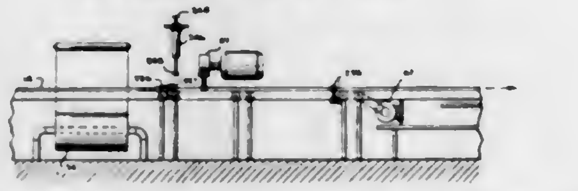
Thurlow H. Hess, Sr., Red Lion, and Werten Dale Brougher, York, Pa.; said Hess assignor to Werton Dale Brougher, doing business as Brocker Mfg. & Supply Co., York, Pa.
Filed July 2, 1965, Ser. No. 469,067
13 Claims. (Cl. 83—104)



1. A bar handling and shearing machine comprising in combination, a stationary elongated base frame defining at least one side of an elongated path along which bar stock is moved for shearing to desired lengths, shear means adjacent one end of said frame, power means connected to said shear means to operate the same, stop means positionable along said path at desired distances from said shear means and engageable by the leading ends of bar stock as advanced along said path past said shear means into engagement by said stop means, a frame-like bed extending along said base frame and supporting a plurality of rollers extending transversely between opposite sides of said bed to form the bottom of said path and being operable to support and move bar stock upon said bed and along said path, means pivotally supporting one side of said bed for movement of the bed between substantially horizontal position to support and move bar stock therealong and a sloping discharge position extending downwardly from the axis of said pivotally supported side of said bed to permit bars to slide by gravity from the lower side of said bed and from said main frame, elongated receptacle means positioned along and laterally outwardly from said one side of said main frame, fluid-operated power means connected to the side of said bed opposite the pivotally supported side and operable respectively to maintain said side in uppermost supporting position and to instantly release said side to drop to said sloping discharge position and thereafter operable to quickly restore said bed to said uppermost supporting position after such discharging operation, additional elongated receptacle means mounted outwardly from said first-mentioned receptacle means in side-by-side relationship therewith, and deflecting means supported adjacent said first-mentioned receptacle means and movable from a retracted position to an extended position over the top thereof to shunt sheared bars discharged from said bed over the top of said first receptacle by gravity and into said outermost receptacle.

3,304,825
TRIGGERING CONTROL FOR SEVERING DEVICE

Henry M. Preusser, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed June 11, 1963, Ser. No. 287,086
4 Claims. (Cl. 83—292)

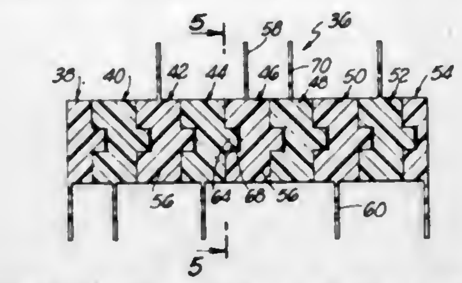


1. A triggering system for initiating operation of a severing means to separate continuous materials overlaid on separate lamina while all materials are being conveyed during a production run comprising: means to detect the flow of a substantially full size lamina; a means to detect the passing of the trailing edge of said lamina; and means of controlling energy supplied to the severing means which initiates its operation responsive to the sequential operation of the full size lamina detection means and the passing lamina edge detection means.

3,304,826
MULTI-PICK STRUCTURE

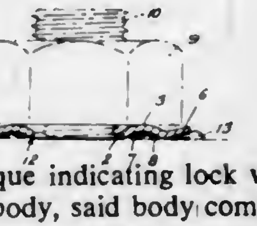
Conradin Caron, Garden Grove, Calif. (8171 Whitestone Drive, Huntington Beach, Calif. 92646)
Filed Dec. 13, 1965, Ser. No. 513,165
9 Claims. (Cl. 84—322)

1. A multi-pick structure, said multi-pick structure comprising:
- a plurality of pick elements, each of said pick elements comprising a spacer and a pick, each of said picks being secured to its spacer of said pick element in such a manner that said picks are spaced apart substantially equal to the spacing of the strings of a stringed instrument when said pick elements are adjacent each other so that a plurality of strings on the stringed instrument are adapted to be simultaneously picked by said plurality of pick elements, said pick elements being adapted to be secured to each other.



3,304,827
SPRING TYPE TORQUE INDICATING LOCK WASHER

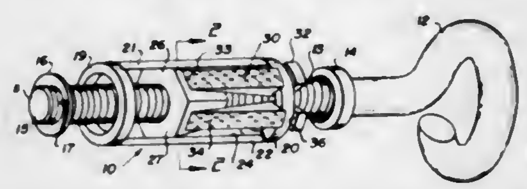
Clarence C. Bush, Bel Air, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 13, 1965, Ser. No. 495,736
2 Claims. (Cl. 85—62)



1. A spring type torque indicating lock washer including an annular dished body, said body comprising an upwardly rounded, annular portion and an annular skirt depending from the outer periphery of said rounded portion and inclining downwardly from said rounded portion, a series of circumferentially spaced radially directed louvered passageways formed in the underside of said skirt and extending from said rounded portion to the outer circumference of said skirt and first and second concentrically arranged rings of differently colored extrudable indicating material carried by the underside of said rounded portion, said first and second rings of material being extruded in succession through said passageways upon sufficient or over compression of said washer.

3,304,828
EXPANSION BOLT

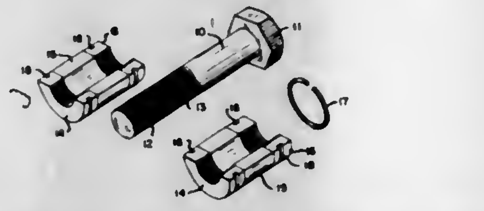
Esko Karhu, 426 E. 10th St., North Vancouver, British Columbia, Canada
Filed Sept. 18, 1964, Ser. No. 397,548
3 Claims. (Cl. 85—66)



1. An expansion bolt assembly comprising an elongated casing formed as a pair of spaced coaxially aligned collars and a pair of spaced parallel elongated rigid guide members extending between the collars, one of said collars being an outer collar and the other an inner collar, a pair of elongated gripping dogs arranged between the guide members, each of said dogs being connected at an end to the outer one of the collars for pivotal movement away from and towards the casing, a threaded shaft rotatably and slidably extending through the casing between the gripping dogs, a pair of stop members, larger than the holes in the collars through which the threaded shaft passes, secured to the latter in longitudinally spaced relationship externally of the ends of the casing, and an expanding nut threadedly engaged with the shaft and in longitudinal slidable engagement with the guide members for non-rotative longitudinal movement relative to the casing, whereby upon rotation of the shaft relative to the casing the nut is moved into and out of spreading engagement with the dogs.

3,304,829
BLIND FASTENERS

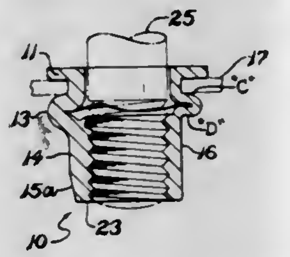
George Raynovich, Jr., Pittsburgh, Pa., assignor to Edward M. Citron, Pittsburgh, Pa.
Filed Apr. 27, 1964, Ser. No. 362,580
5 Claims. (Cl. 85—70)



1. A blind fastener comprising a member having a shank of substantially constant dimension, said shank having right and left hand threads adjacent one end thereof and an enlarged head at the other end, a pair of deformable half sleeves constructed and arranged to be positioned around said threaded shank intermediate the ends thereof, first engaging means formed in two halves with said halves being permanently fixed to one end of each of said half sleeves, second engaging means formed in two halves with said halves being permanently fixed to the other end of each of said half sleeves, said first and second engaging means halves fitting together and cooperating with said threaded shank when said half sleeves are positioned around said threaded member, said first and second engaging means and said half sleeves being non-rotatable relative to each other said first and second engaging means and said half sleeves being non-rotatable relative to each other, right hand threads disposed on one of said engaging means and left hand threads disposed on the other engaging means to mate with the threads of like hand on said shank, said first engaging means moving axially toward said second engaging means when said threaded member is rotated relative to said half sleeves to thereby distort said half sleeves.

3,304,830
EXPANSIBLE HOLLOW RIVET HAVING A POLYGONAL SHANK

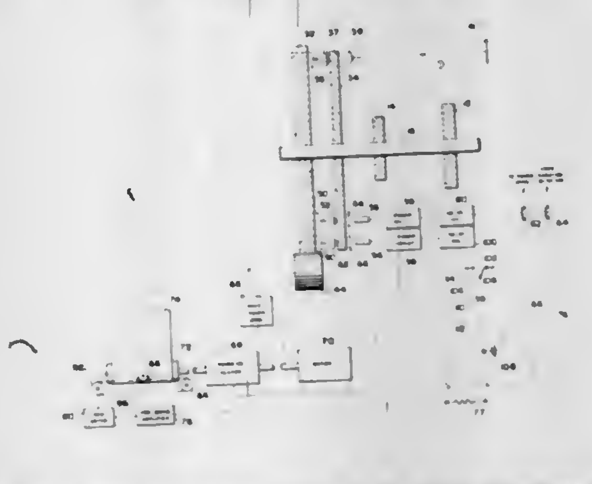
James R. Shackelford, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Continuation of application Ser. No. 401,270, Oct. 2, 1964, which is a continuation of application Ser. No. 48,433, Aug. 9, 1960. This application Mar. 14, 1966, Ser. No. 534,250
8 Claims. (Cl. 85—70)



1. An expansible hollow rivet comprising
(1) a head and
(2) an integral axially-extending peripherally continuous shank having a polygonal external configuration with ap lurality of planar parallelogram faces extending continuously from the head along the shank in parallel relation to the longitudinal axis of the rivet with adjacent faces meeting in corners at the intersection of their planes,

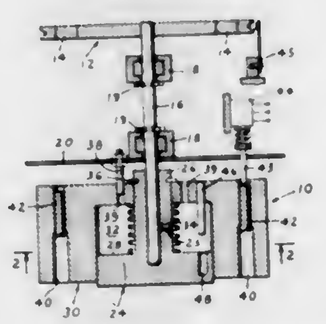
(3) said shank including an outwardly expansible portion adjacent and extending axially in the direction away from said head to a hollow non-expansible portion of the shank spaced from said head,
(4) the outwardly expansible portion having a central bore of circular cross-section extending axially therethrough to a concentric bore of lesser diameter in said non-expansible portion of the shank providing
(5) a non-uniform wall thickness in said expansible portion and in said non-expansible portion which continuously increases peripherally from a minimum at the zones midway the corners thereof to a maximum at said corners,
(6) the number of said planar parallelogram faces being such that, when the peripherally continuous wall of said expansible portion is radially outwardly bulged to contact a side of the work, the bulged portion has a polygonal external periphery and maximum clamping force is exerted locally on the work at the said corners of the bulged wall, while the external surface of the bulged wall between each pair of corners and facing the work has a slightly curved contour in the axial direction away from the work but the opposite external surface between said each pair of corners has a curved contour in the opposite axial direction.

3,304,831
CONTINUOUS SPECTRAL RECORDING SPECTROPHOTOMETER
Joseph Ashley, La Habra, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Continuation of application Ser. No. 175,460, Feb. 26, 1962. This application Dec. 31, 1962, Ser. No. 248,477
8 Claims. (Cl. 88—14)



1. In a spectrophotometer of the type having a monochromator including a cyclically oscillating grating, a grating cam having working and non-working surfaces mounted on a shaft, and a cam follower and linkage mechanism for oscillating the grating in response to rotation of the shaft and the grating cam; a recorder including a chart, a chart drive mechanism, a pen for making a record on said chart and a pen motor for driving said pen; a motor, said motor being coupled to said shaft and said chart drive mechanism for driving said shaft and said chart drive mechanism; and a radiation detector responsive to radiation passing through said monochromator for controlling said pen motor, the improvement comprising:
- a disc mounted on said shaft for rotation therewith and with said cam;
- a source of radiation positioned adjacent said disc;
- a radiation detector positioned adjacent said disc;
- pattern means mounted on said disc cooperating with said source and said detector to produce an output signal, said pattern means corresponding to said non-working surfaces of said cam as said disc, cam and shaft rotate; and
- means coupled to said detector and responsive to said output signal to decouple said motor from said chart drive mechanism and to deactivate said pen motor.

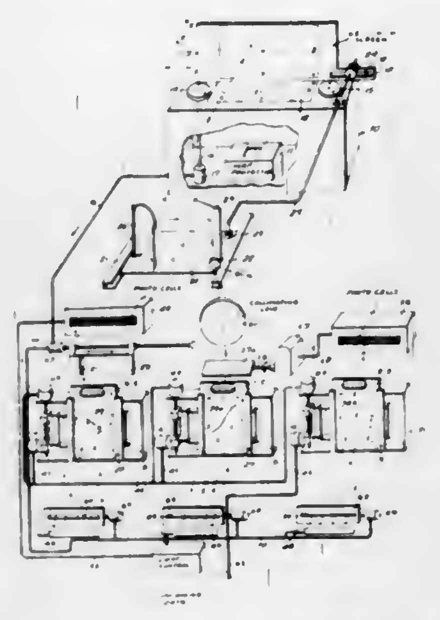
3,304,832
FILTER SWITCHING AND BIAS ADJUSTING MEANS FOR USE IN A COLORIMETER
Edward L. Lewis, Sharon, Mass., and Vartan Vartanian, Rumford, R.I., assignors to Kollmorgen Corporation, Northampton, Mass., a corporation of New York
Filed Apr. 19, 1963, Ser. No. 274,242
2 Claims. (Cl. 88—14)



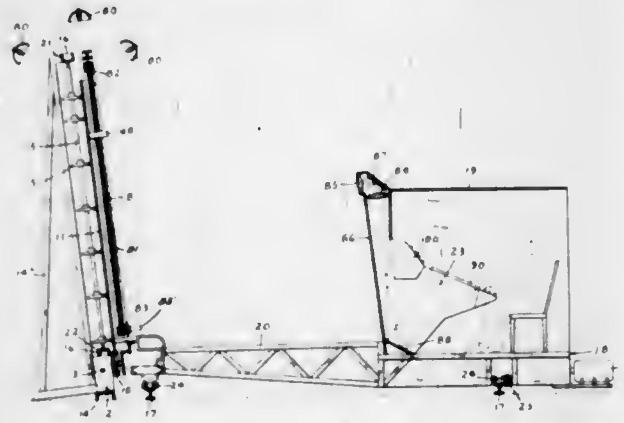
2. In a color measuring device including a plurality of selectable optical filters and signal measuring means,
- a filter switching device comprising a shaft,
- a rotatable member carrying a plurality of filters therein secured to one end of said shaft,
- a hub secured to the other end of said shaft,
- a rotatable position adjusting member mounted on said hub and axially movable relative to said hub,
- spring means mounted between said hub and said adjusting member,
- a snap ring on said hub to limit axial movement of said adjusting member,
- a plurality of adjusting screws located in said adjusting member,
- a potentiometer having a slide mounted for selective engagement by said screws, said potentiometer being electrically energized to supply a biasing signal to the signal measuring means,
- and means for restraining said adjusting member against rotation when one of said adjusting screws is in contact with the potentiometer slide.

3,304,833
THREE DIMENSIONAL DISPLAY
Richard W. Bullard, Las Cruces, N. Mex., assignor to the United States of America as represented by the Secretary of the Army
Filed Aug. 30, 1965, Ser. No. 483,888
8 Claims. (Cl. 88—24)

1. A three dimensional display for presenting an object in space as a spot on a screen comprising, in combination, first, second and third scribing assemblies responsive to incoming data, a map cabinet having a horizontal top arranged in spaced relation in front of said scribing assemblies, a map projection on said horizontal top, a screen disposed vertically over said map projection, means carried by said map cabinet and connected to said screen adapted to oscillate said screen forward, backward and laterally over said map, a source of illumination arranged behind each said scribing assembly, a reflecting means moving in synchronism with said screen and disposed between said map cabinet and said scribing assemblies, a first searching means arranged in front of said first scribing assembly and in synchronism with said screen and responsive to a light beam passing through a scribed mark on said first assembly to light said illuminating means behind said second and third scribbing assemblies, a second searching means disposed in front of said third scribing assembly for collimating a light beam passing through a scribed mark on said second assembly and onto said reflecting means and said screen, and means synchronized with said screen and arranged in front of each illuminating source adapted to cause a narrow slit of light emanating from said illuminating means behind each scribing assembly whereby scribed marks on said scribing assemblies from said incoming data will be searched for a scribed mark thereon and a scribed mark on said middle scribing assembly to be projected onto said screen intermittently to produce a stroboscopic effect thereon.

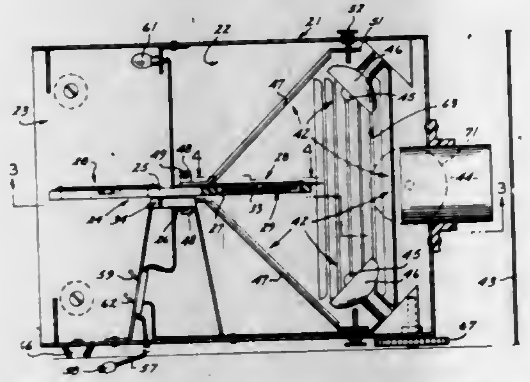


3,304,834
METHOD AND APPARATUS FOR SEVERING GLASS PANELS
Ferdinand Ollfisch and Heinz Reinmold, Merkstein, Germany, assignors to Compagnie de Saint-Gobain, Neuilly-sur-Seine, Seine, France
Filed Sept. 7, 1965, Ser. No. 485,522
Claims priority, application France, Dec. 14, 1961, 881,944, Patent No. 1,322,159
31 Claims. (Cl. 88—24)



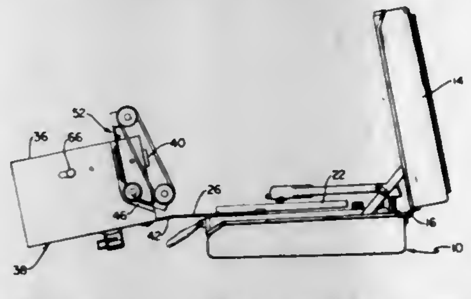
1. In an apparatus for handling and translating sheets, roller means operable to engage and support the sheets for translation in succession in a first direction in a common plane of the sheets, lift means movable from a first position free of a sheet on said roller means, to a second position engaging and lifting the sheet free of said roller means, first power driven means connected with said roller means and operable to rotate the same to translate a sheet supported thereby, second power driven means connected with said lift means and operable to move the same between said first and second positions, means mounting said lift means for translation in said first direction independently of a sheet on said roller means, third power means connected with said mounting means and operable to translate said lift means in said first direction, a control station on said mounting means, and controls at said station for selectively and individually effecting operation of said first, second and third power means.

3,304,835
PROJECTOR FOR DUAL IMAGES OF OPPOSITE SIDES OF OPAQUE MEANS
Ralph M. Weisner, 23008 Mobile St., Canoga Park, Calif. 91304
Filed Aug. 5, 1963, Ser. No. 299,710
8 Claims. (Cl. 88—26)



6. A projector for dual images of opposite sides of an opaque means having substantial thickness with the opposite side surfaces of said opaque means appreciably spaced apart, comprising: housing means provided with and defining an interior chamber therein and provided with an access opening communicating with said interior chamber from the anterior of said housing means; mounting means positioned for mounting an opaque means within said housing means with the spaced side surfaces in a dual image projection position; and dual path optical projection means carried by said housing means in predetermined optical relationship with the respective spaced surfaces of said opaque means, and the portion of said mounting means mounting and carrying same, and optically cooperable therewith for illuminating opposite sides of said opaque means and projecting same along dual optical projection paths into closely adjacent similarly erected projected dual image form for viewing same in similarly erected relationship after impingment thereof upon an effective projection screen, a projection lens, at least one of said dual path optical projection means includes reflecting means upon which the image of one side of the opaque means is impinged upon and reflected to said lens; and means for adjusting said reflecting means to compensate for the thickness of said opaque means.

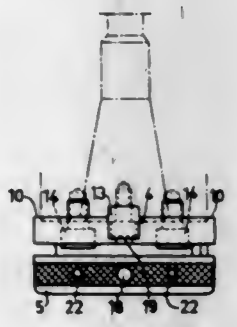
3,304,836
AUDIO-VISUAL DISPLAY APPARATUS
Jesse D. Wolf, Aurora, Colo., assignor to Audio-Visual Dynamics, Inc., Denver, Colo., a corporation of Colorado
Filed Dec. 28, 1964, Ser. No. 421,181
6 Claims. (Cl. 88—28)



1. An audio-visual display apparatus comprising the combination of a sound reproduction device and a projector; said second reproduction device including means to emit a series of signals at predetermined intervals, each signal having an appreciable time of duration; said projector including a projection zone; means responsive to

each signal to complete a circuit from an electrical power source to said drive means to initiate its action, said signal responsive means remaining active for the duration of each signal; means responsive to initial movement of said drive means to disconnect it from said first circuit and to complete a second circuit from an electrical power source to said drive means and responsive to completion of a predetermined cycle of movement of said drive means to disconnect said second circuit and reconnect said first circuit; and additional means also responsive to initial movement of said drive means to break said first circuit and establish a holding circuit to said power source; said additional means remaining active for the duration of said signal to hold open said first circuit and prevent repetitious actuation of said drive means through its cycle of motion in response to the same signal.

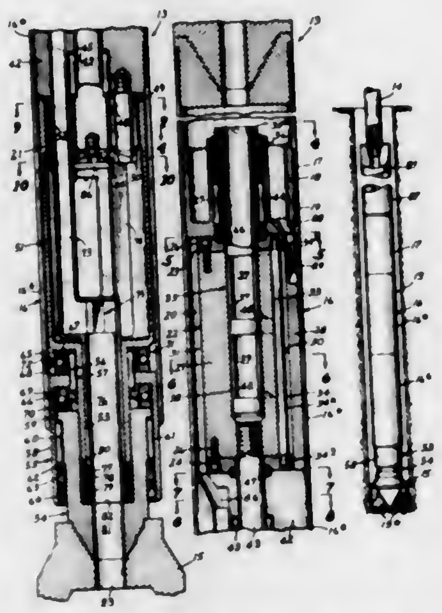
3,304,837
MEANS FOR QUICKLY CHANGING TOOLS IN MACHINE SPINDLES
Gustav Einar Perman, Furugatan 4, Eskilstuna, Sweden
Filed Dec. 7, 1964, Ser. No. 416,394
Claims priority, application Sweden, Dec. 13, 1963, 13,922/63
2 Claims. (Cl. 90—11)



1. A device for the rapid change of a tool on a machine spindle, said spindle having a tapered central cavity, an annular end surface, screw holes in said end surface and at least one laterally extending lug and said tool having a tapered end portion and a shank portion having an annular flange and a groove below said flange and a gap in said flange opening to said groove, said device comprising a nose ring having screw holes adapted to be alined with said screw holes in said end surface and at least one internal recess adapted to receive said lug, said nose ring having also a ring of depending externally threaded projections between said screw holes therein, the threads on said projections being arranged in a circle of smaller diameter than said ring, an internally threaded locking ring adapted to be screwed on to said ring of externally threaded projections on said nose ring, said locking ring having at least one inwardly extending projection adapted to pass through said gap in said flange on said tool shank and to engage in said annular groove and external markings on said nose ring and said locking ring for indicating when said locking ring is in its initial position.

3,304,838
FLUID OPERATED MOTOR FOR DRILLING MECHANISM
Harry W. McDonald, 1828 E. Windsor, Apt. 13, Phoenix, Ariz. 85016
Filed Feb. 12, 1965, Ser. No. 432,229
10 Claims. (Cl. 91—142)

1. In a fluid operated rotary motor adapted to be attached at one end to a source of fluid pressure,
(a) a barrel,
(b) a coupler having a head for attaching said barrel to a source of fluid pressure,
(c) means in said barrel spaced axially from said head and cooperating with said barrel and head to define a chamber,
(d) a rotor in said chamber,
(e) a cam element in said chamber at one side thereof which is coextensive with said chamber,
(f) a plurality of circumferentially spaced axially extended grooves in the peripheral surface of said rotor,
(g) a vane pivotally mounted in each of said grooves and axially coextensive with said chamber,
(h) said rotor having an axial bore formed therein,
(i) a stationary tubular manifold having one end portion secured to and carried by said head, with the other end portion thereof received in said bore, and defining a fluid inlet,
(j) said manifold having a radially opening port formed in the side wall thereof,

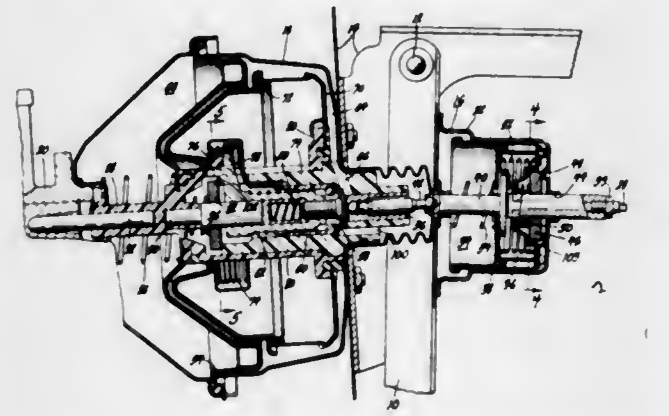


(k) said rotor having a plurality of radially extended passages formed therein, one each communicating with one of said grooves and said axial bore whereby to urge said vanes radially outwardly under fluid pressure when a given radial passage associated with a respective groove is in register with the radially opening port of said manifold to thereby effect rotation of said rotor with respect to said manifold and said barrel,
(l) stop means defined by each of said grooves limiting outward swinging movements of its respective vane to its radially outwardly extended operative position,
(m) a power output shaft extending axially from said rotor and journaled for rotation in said first mentioned means, and
(n) one of said barrel and said first mentioned means defining a fluid outlet in one end portion of said chamber.

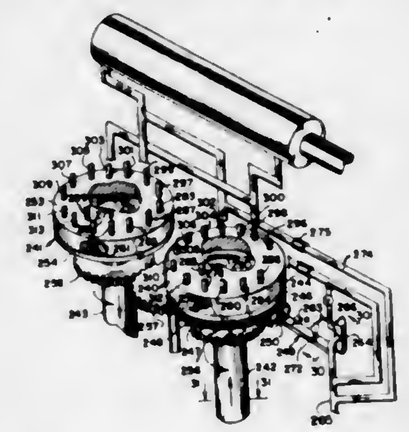
3,304,839
LOW TRAVEL VACUUM SUSPENDED BOOSTER
Robert M. Van House and Edward J. De Hoff, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 22, 1965, Ser. No. 450,040
8 Claims. (Cl. 91—372)

1. A brake booster for hydraulically operated vehicle brakes, said brake booster comprising: a vacuum pressure source; a booster housing in pressure communication with said vacuum pressure source input means including a driving portion slidably carried in one portion of said booster housing and adapted to have an input force external therein; output means from said booster housing to a master cylinder; first control means slidably

disposed in said booster housing for selectively routing pressure from said vacuum pressure source to portions of said housing whereby an input force is intensified and made available to said output means; and second control means carried by said input means and being movable therewith, said second control means including vacuum responsive means cooperating with friction means to variably grip said driving portion of said input means in response to pressure in said booster housing thereby adapting said input means to exert a varying force on said first control means in proportion to pressure changes in said booster housing.

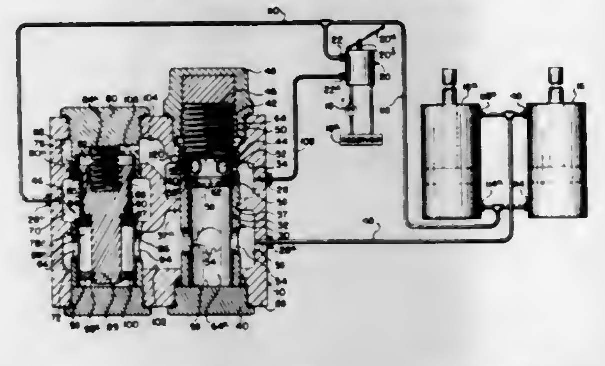


3,304,840
MEANS FOR SELECTIVELY OPERATING PLURAL WORKING MEMBERS
Elmer L. Erickson, 3435 7th Ave. S., Great Falls, Mont. 59401
Filed Oct. 11, 1965, Ser. No. 494,779
6 Claims. (Cl. 91—411)



1. In a device having multiple fluid cylinders for producing prestressed concrete articles, a fluid pressure system comprising an input distributor head having fixed and rotatable portions, a discharge distributor head having fixed and rotatable portions, a first series of fluid lines connected to at least certain of said fluid lines, whereby head, each line being connected at the opposite end to one of said cylinders, a second series of fluid lines connected at one end to the fixed portion of said discharge head, the opposite end of each of said second series of lines being connected to said cylinders, means providing selective communication between the fixed and movable portions of said input and discharge heads, means connecting said input head with a source of fluid under pressure, said discharge head being connected to a reservoir, and means for simultaneously rotating the rotatable portions of said input and discharge heads, whereby fluid under pressure will be directed to and discharged from certain of said cylinders and thereafter the rotatable portions of said input and discharge heads will be moved so that fluid will be directed to and discharged from certain other cylinders.

3,304,841
FLUID POWER SYSTEM AND VALVE MECHANISM THEREFOR
Anthony Nevulis, Wickliffe, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Jan. 2, 1964, Ser. No. 335,175
14 Claims. (Cl. 91—436)

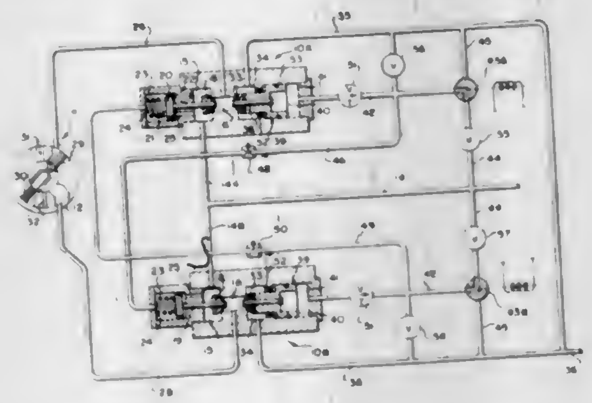


1. A control valve for use in a power system for providing a regenerative circuit for an associated fluid powered, double acting motor unit comprising, a valve body having first and second chambers therein, a first passageway communicating said chambers with one another, a first valve mechanism disposed in said passageway and extending into said first and second chambers, said first valve mechanism comprising an axially movable sleeve-like member, resilient means urging said sleeve-like member in one axial direction, said sleeve-like member having axially spaced aperture means communicating the first chamber and the second chamber respectively with the interior of said sleeve-like member, a port communicating each of said chambers with the exterior of the valve body, an orifice plate disposed interiorly in said sleeve-like member intermediate said spaced aperture means and adapted to create a pressure drop across said plate upon application of fluid pressure to one of said ports, surface means in said valve body adapted for coaction with certain of the aperture means, to close the same upon predetermined axial movement of said sleeve-like member against the resistance to compression of said resilient means, another valve mechanism disposed in said body and extending into a third chamber, a port communicating said third chamber with the exterior of the valve body, said other valve mechanism including a piston member axially movable in a cylinder chamber, passageway means communicating said cylinder chamber with said first chamber, resilient means urging said piston member outwardly of said cylinder chamber, said piston member including a stem portion projecting therefrom, a poppet-like valve member slidably mounted on said stem portion, resilient means extending between said poppet-like valve member and said piston member and urging said poppet-like valve member away from said piston member, a valve seat disposed in said valve body, passageway means communicating the valve seat with said second mentioned chamber, said poppet-like valve member being adapted for sealing engagement with said valve seat for closing said third chamber from the fluid pressure in said second chamber, but being disengageable from said valve seat upon movement of said piston member in a direction away from said poppet-like valve member and said predetermined axial movement of said sleeve-like member.

3,304,842
NON-HAMMER POPPET VALVE CONTROL
Homer J. Shafer, P.O. Box 83, Mansfield, Ohio 44901
Filed Apr. 20, 1964, Ser. No. 361,096
7 Claims. (Cl. 91—454)

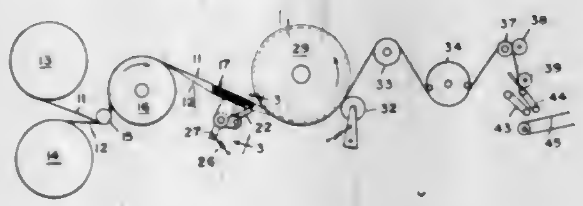
1. A fluid control for a double-acting fluid motor operator for a valve comprising, first and second dispensing chambers connected to opposite sides of said motor means, a fluid power source, an individual input

valving means connecting each dispensing chamber with said power source, spring means normally biasing each said input valving means to close the dispensing chamber to said power source, a discharge means, an individual exhaust valving means connecting each dispensing chamber with said discharge means, a piston means connected to each said input valving means, each said piston means slidably disposed in a chamber to form fiirst and second opposed work chambers, one on each side of said piston, means connecting said first work chamber with said power supply to open said input valving means, a closing chamber for each exhaust valving means in selective communication with said power source, restrictive flow means connecting the closed chamber of the exhaust valving means communicating with the fisrt dispensing chamber with the second work chamber of the piston means connected to the input valving means communicating with said second dispensing chamber, and simliar restrictive flow means connecting the closing chamber of the exhaust valving means communicating with said second dispensing chamber with the second work chamber of the piston means connected to the input valving means communicating with said first dispensing chamber, the effective work area of the piston exposed to said first work chamber being greater than the effective work area of the input valving means exposed to said fluid power source.



3,304,843
MANUFACTURE OF PLASTIC PACKAGES

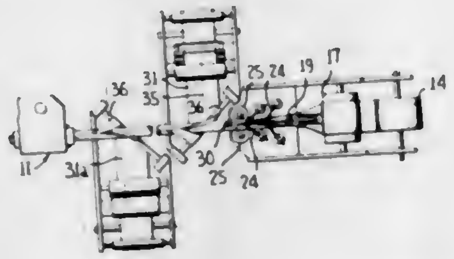
William S. Cloud, Jr., 315 Pebblebrook Road,
Northbrook, Ill. 60062
Filed Oct. 18, 1963, Ser. No. 317,325
6 Claims. (Cl. 93—8)



1. A method of forming plastic heat-sealed packages comprising continuously introducing two elongated webs of heat-sealable plastic sheet material into a package forming equipment line, forming from one of the webs and superposing upon one running longitudinal edge portion of one web a narrow continuous strip of the same sheet material and maintaining the corresponding running edge of the other web adjacent but laterally of said strip and in the same plane therewith, maintaining the opposite running edges of both webs in registration, next, heat-sealing on a rotary marginal sealer the said strip to the first web and heat-sealing said opposite edges together, thereafter on a rotary transverse sealer heat-sealing the two webs together transversely of their widths at longitudinally spaced apart uniform intervals while leaving the aforesaid corresponding edge of the other web free and unsealed except at said transverse seals thereby defining with said strip a filling opening, and subsequently severing the webs transversely along the middle of each transverse seal successively to separate the completed packages.

3,304,844
CAN BODY CONSISTING OF SEVERAL LAYERS, AND PROCEDURE AND DEVICE TO MANUFACTURE IT

Klaus M. Hosenfeld, Lubeck-Kucknitz, Germany, assignor to J. A. Schmalbach Aktiengesellschaft, Braunschweig, Germany
Filed Dec. 3, 1964, Ser. No. 415,693
Claims priority, application Germany, Dec. 4, 1963,
Sch 34,271
9 Claims. (Cl. 93—82)



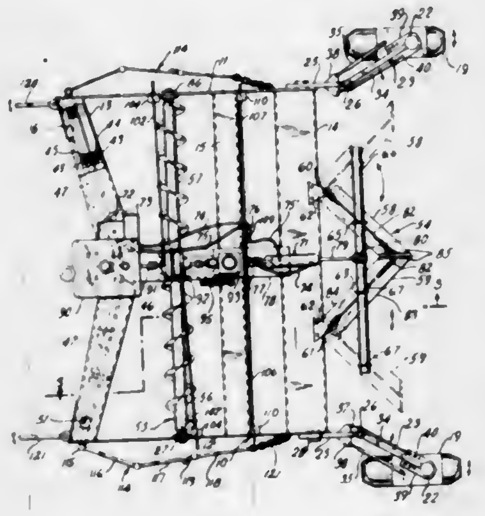
4. In apparatus of the character described, a longitudinally extending shaping mandrel, individual layer tape supply rolls, means for drawing individual tapes off said rolls and onto and along said mandrel, means for applying an adhesive to each said tape on its way to the mandrel, and means for shaping the tapes in tubular form on the mandrel to provide individual tubular layers one within another and bonded to each other each with longitudinal lapped margins presenting an inner and an outer circumferentially presented terminal edge and with all said terminal edges of the layers except the outermost and innermost thereof contacting bluntly and intimately in butt-joint relation; wherein each tape is brought to the mandrel individually over a direction change guide in a manner for placing the tapes on the mandrel sequentially, said guides being placed to bring about the desired lapping of the layers in circumferentially staggered relation about the mandrel.

3,304,845
SPREADER WITH AGGREGATE SPREADING AND REMIXING MEANS

Alexander G. Mentes, 630 Terrace Ave.,
Hasbrouck Heights, N.J. 07604
Filed Jan. 17, 1966, Ser. No. 530,756
1 Claim. (Cl. 94—44)

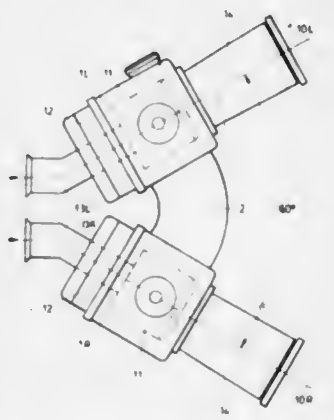
In a spreader for spreading and remixing aggregate arranged in at least one windrow of a width narrower than the spreader and which is laid down in advance thereof, a container, means rollably supporting said container at its forward end, said container having opposite side walls and a rear wall and with an open bottom and an open front between said side walls, said rear wall including oppositely disposed side portions extending outwardly and rearwardly in angular relation, a plow adapted to engage and spread the aggregate forwardly of the container during the forward movement of the spreader, said plow including oppositely disposed plow portions arranged in forwardly directed converging relations and the width between the outer ends of the plow portions when in converging relation being narrower than said container, means carried by said container adjustably supporting said plow adjacent the open front of said container, bracket means carried by said container pivotally mounting said plow portions at their inner ends for horizontal and vertical swinging, said plow portions being supported

by said adjustable supporting means for lateral sliding relative thereto at points forwardly of said bracket means whereby said plow portions may be manually swung from converging to diverging relation, a screw, said screw having right and left hand laterally extending screw portions journalled for rotation between said side walls rearwardly of said plow for remixing and spreading the aggregate spread by said plow and for piling the aggregate against said rear wall, power means carried by said container operatively connected with said screw for turning the same, and a strike-off blade carried by and located rearwardly of said rear wall and beneath which the aggregate is discharged from the container with the forward movement of the spreader and which is adjustable with reference to said rear wall for varying the depth of the discharge of the aggregate therebeneath.



3,304,846
METHOD OF AND APPARATUS FOR GUN FIRING PRACTICE

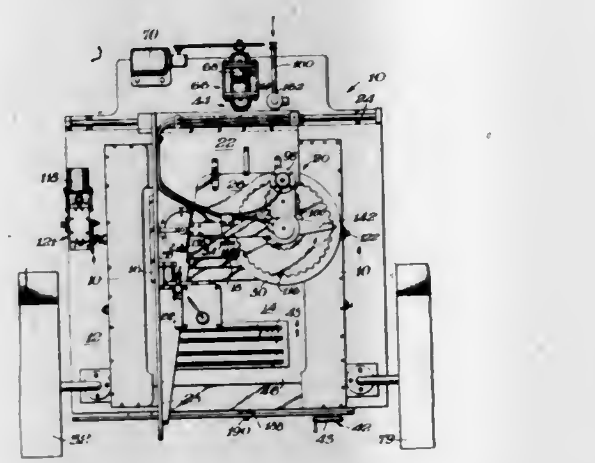
Iwan Kahn, Wallisellen, Switzerland, assignor to Contraves AG, Zurich, Switzerland
Filed Feb. 24, 1964, Ser. No. 346,691
Claims priority, application Switzerland, Feb. 22, 1963,
2,251/63
14 Claims. (Cl. 95—1)



1. A surveying apparatus, comprising, in combination, a first surveying means for furnishing directional data of a first remote object in terms of polar coordinates in a first polar coordinate system; a second surveying means for furnishing directional data of a second remote object in terms of polar coordinates in a second polar coordinate system, said first and second polar coordinate systems being angularly offset relative to each other a predetermined angle and having a common pole; and optical means in the region of said pole for producing superimposed images of said remote first and second objects.

3,304,847
APPARATUS FOR COMPOSING MUSIC COPY

Henry Blake Wilson, Wilmington, Del., and Allen W. Mickel, Chadds Ford, Pa., assignors to Kaumagraph Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 21, 1965, Ser. No. 427,024
13 Claims. (Cl. 95—4.5)



1. An apparatus for composing musical copy comprising a stationary frame, a table mounted upon said frame for supporting a sheet of light sensitive material, movable support means connected to said frame, a symbol magazine incorporating light passing images of a variety of musical symbols connected to said support means, a source of light mounted upon said support means for directing light upon the light sensitive material, an exposure station on said support means positioned in front of said source of light, symbol image feeding means connected to said magazine for selecting a predetermined symbol image and disposing it at said exposure station between said light source and the light sensitive material, vertical translating means for varying the vertical orientation of the sheet disposed upon said table relative to said exposure station, lateral translating means for moving said movable support means laterally over said table, a reference surface on said table for holding a master copy of the music to be reproduced on the light sensitive paper, and sensing means including illuminating means on said support means disposed for positioning above said reference surface for detecting and illuminating a symbol to be printed, said sensing means being connected to inactivate said lateral translating means when the center line of a symbol is detected whereby each symbol may be accurately reproduced on the light sensitive paper with respect to a corresponding symbol on said reference surface.

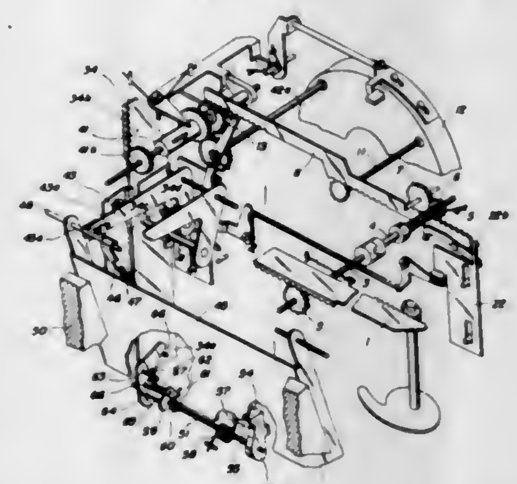
3,304,848
LOCKING MEANS FOR THE COVER FLAP AND/OR MIRROR OF A SINGLE-LENS REFLEX CAMERA

Kurt Steisslinger, Stuttgart-Hedelfingen, and Helmut Ettischer, Ruit, Kreis Esslingen, Germany, assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Sept. 15, 1964, Ser. No. 396,535
8 Claims. (Cl. 95—42)

1. In an improved locking mechanism for a cover flap or the like that is movable between operative and inoperative positions, the combination comprising:

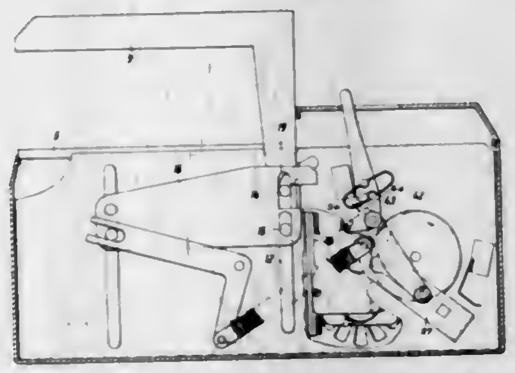
locking means movable between a locking position in which it locks said cover flap in an operative position, and an unlocking position in which it unlocks said cover flap for movement to its inoperative position;

first resilient means for biasing said locking means toward its unlocking position; and actuating means having a lost motion connection with said locking means, and including a second resilient means interconnecting said locking means and actuating means, and having a force greater than said first resilient means, said actuating means being movable between a first position in which said second resilient means is effective to move said locking means to its locking position against the bias of said first resilient means, and a second position in which said second resilient means is disabled and said first resilient means is effective to move said locking means to its unlocking position.



3,304,849
COPYING APPLIANCES

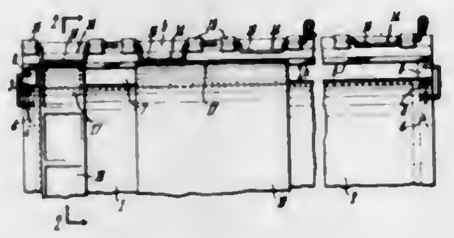
Georg Cranskens, Wedel in Holstein, and Werner Salger, Hamburg-Langenhorn, Germany, assignors to Lumoprint Zindler K.G., Hamburg, Germany, a corporation of Germany
Filed June 1, 1964, Ser. No. 371,549
Claims priority, application Germany, June 5, 1963, L 45,025
10 Claims. (Cl. 95—73)



1. A copying apparatus comprising a housing with a radiation-permeable wall forming a supporting surface for an original and a copy sheet; a source of radiation in said housing; a cover mounted outside said housing for movement toward and away from said supporting surface; actuating means on said housing for moving said cover from an outwardly swung open position to a closed position proximal to said supporting surface preparatorily to energization of said source; and guide means for swinging said cover from said open position into an intermediate position parallel to said supporting surface prior to movement of said cover into said closed position upon operation of said actuating means, said guide means including a wall member of said housing with a guide slot having a straight portion perpendicular to said supporting surface terminating in a bend, a carriage slidable along said guide slot, an arm on said cover having a first pin traversing said carriage and said guide slot, a second pin on said arm received in said guide slot in spaced relationship with said first pin, and link means connecting said carriage with said actuating means for moving said carriage with said first pin along the straight portion of said guide slot, said second pin entering said bend in a limiting position of said carriage for tilting said arm and swinging said cover outwardly upon a return of said cover to said open position.

3,304,850
APPARATUS FOR PROCESSING PHOTOGRAPHIC MATERIALS

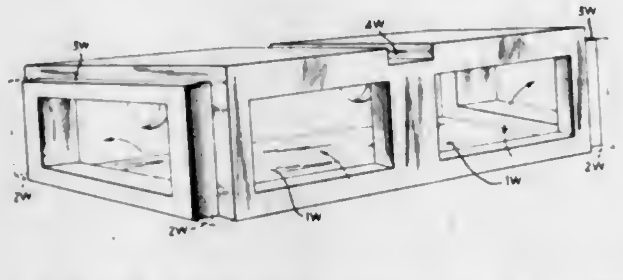
Kurt Gall, Welfenstrasse 22, Stuttgart-Birkach, Germany
Filed Mar. 12, 1964, Ser. No. 351,476
Claims priority, application Germany, Mar. 16, 1963, G 37,292
15 Claims. (Cl. 95—93)



1. An apparatus for processing exposed photographic sheet material such as films or prints, comprising a container adapted to receive a processing liquid, a drum immersed into said liquid and adapted to rotate continuously in one direction therein, and mechanism for connecting said photographic material to said drum for treatment by said processing liquid; said mechanism comprising at least one bar, support means for securing said bar to said drum adjacent the outer peripheral surface of said drum and substantially parallel to the axis of said drum, said bar having an inner edge portion radially spaced from said outer surface and forming therewith a continuous slot for the passage of said processing liquid therethrough during the rotation of said drum, and gripper means disposed near the ends of said slot for removably connecting said photographic sheet material to said bar.

3,304,851
BUILDING EMPLOYING HOLLOW BLOCK

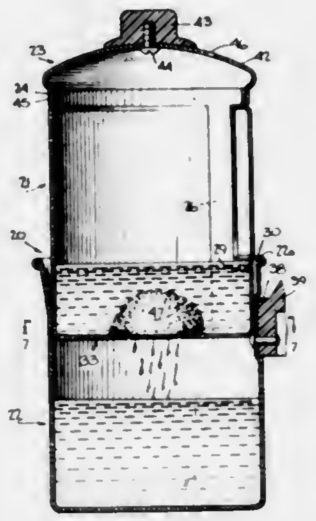
Bert Joseph O'Neill, New York, N.Y.
(210—20 53rd Ave., Bayside, N.Y. 10019)
Filed June 26, 1964, Ser. No. 378,112
4 Claims. (Cl. 98—31)



1. In a building having a foundation, a floor structure adapted for the distribution of air, said structure comprising a first hollow block abutting against a wall of the foundation, said first hollow block having a substantially open front wall facing the foundation, substantially open opposed end walls and a back wall having restricted openings therethrough, a plurality of second hollow blocks, said second hollow blocks each having a substantially open rear wall facing away from the foundation and substantially open opposed end walls, said second hollow blocks being arranged end-to-end at each of said ends of said first hollow block and in alignment with said ends of said first hollow block, a set of third hollow blocks, each of said third hollow blocks having substantially open opposed end walls and being arranged side-by-side in rows and end-to-end in columns with one of the substantially open end walls of the blocks of a first of the rows abutting the rear wall of the first block and the rear walls of the second blocks, and a plurality of fourth hollow blocks, said fourth hollow blocks having a substantially open front wall and a top wall having at least one slot therethrough, said fourth hollow blocks being arranged end-to-end in a single row with said front walls thereof facing one of said ends of a last of the rows of said fourth blocks.

3,304,852
BEVERAGE MAKING APPARATUS

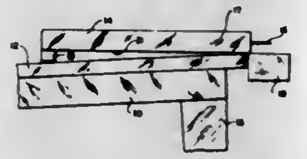
Morris M. Lande, 601 W. 110th St., New York, N.Y. 10025
Continuation of application Ser. No. 339,466, Jan. 22, 1964. This application May 31, 1966, Ser. No. 559,665
10 Claims. (Cl. 99—319)



1. A beverage making device, comprising an outer vessel having an open top and an imperforate bottom and adapted to contain a quantity of a beverage-making liquid, an inner vessel having a rigid bottom provided substantially in the plane thereof with a perforated central portion within its otherwise imperforate expanse and adapted to contain a quantity of a comminuted solid beverage-making substance, the inner cross-sectional contours of said outer vessel being mated to the outer cross-sectional contours of said inner vessel for guiding the latter for sliding inward and outward telescoping movement relative to said outer vessel, and cooperable means on said inner and outer vessels adapted to be rendered active upon an outward telescoping movement of said inner vessel to an elevated position within said outer vessel and a subsequent rotary movement of the former relative to the latter for retaining and tightening said inner vessel in said elevated position, whereby during such inward telescoping relative movement of said vessels said liquid is displaced from said outer vessel into said inner vessel through said perforated bottom portion of the latter to become admixed with said solid substance, the latter upon an imparted vortical flow of said liquid settling as a self-building filter bed centrally atop said bottom over said perforated portion, while upon an outward, telescoping movement of said inner vessel to and retention thereof at said elevated position within said outer vessel the finished liquid beverage is permitted to filter from said inner vessel through said perforated portion thereof and said bed of solid substance into said outer vessel.

3,304,853
FOOD PREPARING APPARATUS

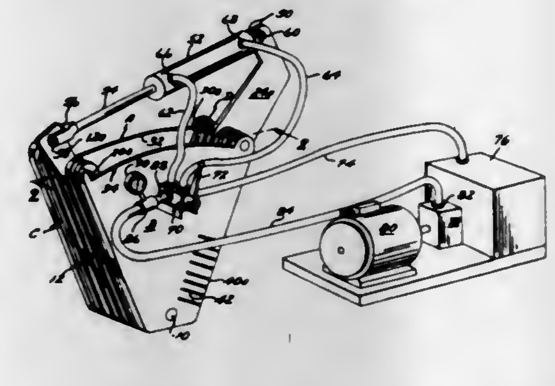
Eugene Le Roy, Green Township, Hamilton County, Ohio (2922 Blue Rock Road, Cincinnati, Ohio 45239), and Louis M. Groen, Green Township, Hamilton County, Ohio (6034 Countryhills Drive, Cincinnati, Ohio 45238
Filed Dec. 11, 1963, Ser. No. 329,789
4 Claims. (Cl. 99—421)



1. In combination, a food carrier comprising a main frame, a plurality of spaced parallel elongated spikes mounted for reciprocation on said main frame axially thereof, and means for connecting the spikes to reciprocate in unison, and a food holder comprising a body, a rack mounted on the body, said rack having a plurality of parallel elongated pockets for holding a plurality of food blocks in parallelism, and means on the body engageable with the carrier to guide the spikes of reciprocation lengthwise of the blocks in the pockets to impale the blocks on the spikes, and means on the main frame for hanging the carrier with blocks on the spikes in heated liquid to cook the blocks.

3,304,854
FEED FORMING DEVICE

Richard Harrison Davis, Bakersfield, Calif., assignor of one-half to Earl A. Ernst and Martin Etcheverry, jointly, Bakersfield, Calif.
Filed Aug. 13, 1965, Ser. No. 479,507
7 Claims. (Cl. 100—98)



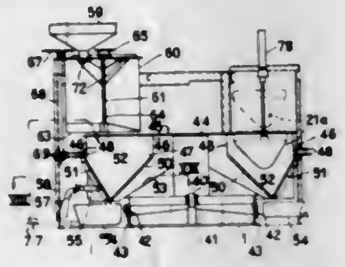
1. A device for forming bulk fodder into a plurality of relatively small bodies having a transverse cross section of a desired shape and area, comprising:

(a) first and second end walls extending upwardly and outwardly from one another, the lower end portions of which are adjacently disposed, with the upper portions thereof defining a continuous surface, and with the lower portions of each of said end walls having a plurality of spaced passages extending therethrough;
(b) first and second parallel, laterally spaced side walls, said first side wall having an interior outer edge portion rigidly connected to said first end wall, with an interior outer edge portion of said second side wall being rigidly connected to said second end wall;
(c) first means for pivotally connecting at least the lower portions of said first and second end walls for providing an open-topped hopper defined by said first and second end walls and said first and second side walls, with said first end wall and first side wall being capable of moving as a unit relative to said second end wall and second side wall to vary the volume of space in said hopper; and

(d) power means for intermittently pivoting at least said first end wall and first side wall in opposite directions relative to said second end wall and second side wall to alternately enlarge and reduce said space, with said bulk fodder when introduced into said hopper being initially compressed between said upper portions and then moving downwardly in said hopper space by force of gravity where it is further compressed and forced through said passages to be extruded therefrom as said small bodies.

3,304,855
EXTRACTOR MEANS FOR EXTRACTING LIQUID FROM A LIQUIDS CONTAINING MASS

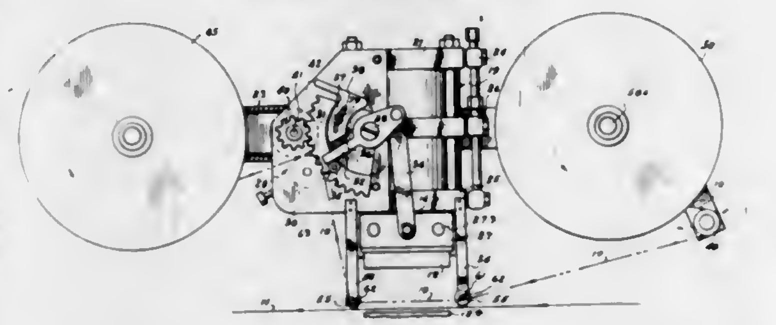
Wolfgang Willi Erich Oebell, Wellington, Cape Province, Republic of South Africa, assignor to H. G. Molenaar & Company (Proprietary) Limited, Cape Province, Republic of South Africa
Filed May 15, 1964, Ser. No. 367,648
Claims priority, application Republic of South Africa, May 15, 1963, 63/2,116
8 Claims. (Cl. 100—116)



1. Extractor means which includes a stationary and rigid frame structure, a rotatably driven frame work on and within the rigid frame structure and rotationally movable about a vertical axis, a substantially circular row of similar receptacles circumferentially mounted on the frame-work and defined by a radially spaced pair of wall members and radial partition wall members between said radially spaced wall members, a downwardly sloping wall of liquids permeable material for each receptacle extending from one of said radially spaced wall members, a pivoted door-like member for each receptacle and extending between the lower edge of said sloping bottom and the other of said pair of radially spaced wall members, means for retaining the door members in closed positions, means for successively opening and closing the door members at a discharge station, means for successively charging each receptacle at a charging station when the door member is in the closed position, a number of vertically displaceable press heads having an underface corresponding to the shape of the convergent sloping bottom and co-acting door member of each receptacle, each press head being arranged to intermittently extend into receptacles at positions between the charging and discharging stations, power operated advancing means for intermittent moving and stopping of the frame-work and associated parts about the vertical axis, means for effecting synchronised movement of material charging means, intermittent advancement of the frame-work and associated parts, opening of the door member of a receptacle and extension and retraction of the press heads, a trough below the receptacles commencing from and terminating at positions adjacent the discharge station; the arrangement being such that the material from which liquid is to be extracted is successively discharged in substantially measured quantities into successive receptacles when the frame-work is stationary and in which receptacles liquid drain from the material while the material within the receptacles are subjected to pressure by the press-heads for final extraction of the liquid whereas the residue is discharged from the receptacle on opening of the door member during a stationary period of the frame work and before reaching the charging station.

3,304,856
MARKING APPARATUS

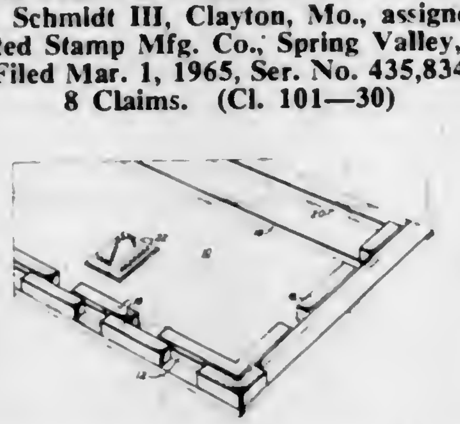
Ian Harry Birch, Ealing, England, assignor to Adolph Gottscho, Inc., Hillside, N.J., a corporation of New York
Filed Sept. 13, 1965, Ser. No. 486,669
Claims priority, application Great Britain, Oct. 8, 1964, 41,131/64
8 Claims. (Cl. 101—27)



1. In a marking apparatus for applying markings to a web advanced intermittently in a predeterminied path to a web utilizing machine; a fluid pressure operated ram assembly for moving a heated die toward and away from said path of the web; guide means extending a hot roll leaf stamping tape between the heated die and the web so that the heated die, when moved toward said path, presses said tape against the web and thereby marks the latter; a feeding mechanism for said tape comprising a rotatable feeding roller engaging said tape for effecting feeding movement thereof when said roller is turned in one direction so as to expose a fresh length of the tape to the action of the heated die, an oscillatable quadrant member having two spaced abutments thereon, a rockable lever extending between said abutments of the quadrant member so as to have a lost motion connection therewith, means mechanically connecting said lever with said ram assembly so as to be rocked in response to movement of the die by operation of the ram assembly, and means connecting said quadrant member with said feeding roller to effect turning of the latter only in said one direction when said quadrant member is rocked with said lever in response to operation of said ram assembly causing movement of the die away from said path of the web; and means controlling the supplying of fluid under pressure to said ram assembly in synchronism with the intermittent advancement of the web to said machine so that said die is moved toward said path to mark the web when the latter is at rest and said die is moved away from said path to free said tape and web and to effect feeding movement of the tape during each advancement of the web.

3,304,857
PUNCH PRINTING ELEMENTS AND KITS

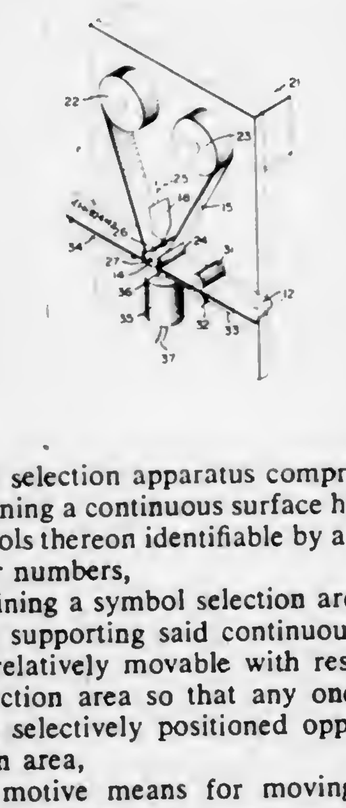
Arthur W. Schmidt III, Clayton, Mo., assignor to Consolidated Stamp Mfg. Co., Spring Valley, N.Y.
Filed Mar. 1, 1965, Ser. No. 435,834
8 Claims. (Cl. 101—30)



1. A punch printing element adapted to punch print at least one of a group of characters, said element comprising a right quadrilateral base of substantially rigid material having a substantially uniform thickness of about .050–.150 inch and having a length and width substantially exceeding said thickness, said base having opposite and parallel faces, and a plurality of substantially evenly spaced tapered punches on the base and extending from one of said faces and including points extending uniformly to about .200–.300 inch from said one face, said tapered punches having a linear alignment corresponding to the configuration of each character represented and having a density of about five to ten punches per inch, said punches having an apex angle of about ten to thirty-five degrees.

3,304,858
ELECTROMECHANICAL PRINTING SYSTEM FOR DIGITAL SYSTEMS

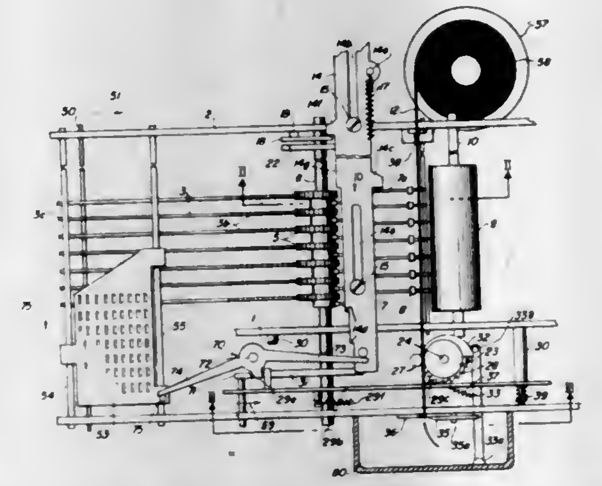
Roy W. Reach, Sudbury, and William M. Kahn, Brighton, Mass., assignors to Mathatronics, Inc., Waltham, Mass., a corporation of Massachusetts
Filed Dec. 23, 1963, Ser. No. 332,614
13 Claims. (Cl. 101—93)



1. Symbol selection apparatus comprising,
means defining a continuous surface having a succession of symbols thereon identifiable by a consecutive series of order numbers,
means defining a symbol selection area,
means for supporting said continuous surface defining means relatively movable with respect to said symbol selection area so that any one of said symbols may be selectively positioned opposite said symbol selection area,
pulsating motive means for moving said continuous surface in pulses to position successively in step-wise increments each of said symbols opposite and relatively stationary to said symbol selection area for at least a first duration less than the time interval between successive ones of said pulses,
means for pulsing said pulsating motive means to advance the next of said symbols opposite said symbol selection area on each pulsation,
means for providing an indexing signal indicative of the first of said symbols being opposite said symbol selection area,
means for providing a count signal representative of one of said symbols selected for retention opposite said symbol selection area,
means responsive to each pulsation of said pulsating motive means for providing a position signal referenced to said index signal representative of which of said symbols is then opposite said symbol selection area,
and means responsive to correspondence of said position signal with said count signal for interrupting the pulsation of said motive means with said symbol selected for retention then opposite said symbol selection area and for maintaining said continuous surface and said symbol selection area relatively stationary for a second duration greater than the time interval between successive ones of said pulses.

3,304,859
RIBBON-DISPLACING DEVICE FOR THE PRINTING MECHANISM OF CALCULATING MACHINES AND THE LIKE

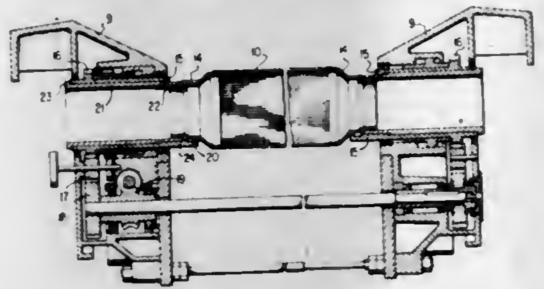
Gustav Schenk, Darmstadt, Germany, assignor, by mesne assignments, to Monroe Calculating Machine Company, Amsterdam, Netherlands
Filed Apr. 6, 1964, Ser. No. 357,641
Claims priority, application Germany, June 14, 1963, M 57,195
16 Claims. (Cl. 101—102)



1. A ribbon-displacement mechanism for a machine having a plurality of type elements arranged in consecutive spaces along a printing position selectively engageable with a ribbon to imprint at least one character of a type face carried by at least one of said elements upon a web juxtaposed with said ribbon, said mechanism comprising feed means engageable with said ribbon for advancing it past said type elements; and control means for said feed means engageable with an actuated type element to sense the number of type elements actuated to imprint respective characters upon said web, for advancing said ribbon past said type elements by a distance portional to said number of actuated type elements.

3,304,860
SCREEN PRINTING MACHINE AND CYLINDRICAL SCREEN MOUNTING

Johannes Bernardus van der Winden, Amstelveen, Netherlands, assignor to Gebr. Stork & Co's Apparatenfabriek N.V., Amsterdam, Netherlands
Filed Sept. 11, 1964, Ser. No. 395,878
Claims priority, application Netherlands, Sept. 12, 1963, 297,819
7 Claims. (Cl. 101—116)

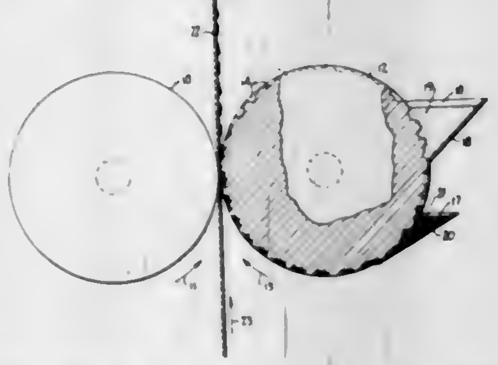


1. A screen printing machine comprising a movable surface for supporting material to be printed upon, a cylindrical screen disposed adjacent said surface for printing on material supported by said surface, said screen having an adaptor ring on each end thereof, a bearing device for supporting said screen, said bearing device having means for supporting each screen adaptor ring and including a driven sleeve having a segmental arcuate projection having an arc not greater than 180° and extending from one end thereof toward the screen and constituting a saddle seating said screen adaptor ring beyond said one end of said sleeve for ready mounting and removal of said ring relative to said saddle, means in said

sleeve releasably retaining said ring in said saddle, and lock means between said saddle and said ring for rotatively securing said sleeve and screen.

3,304,861
INTAGLIO METHOD AND APPARATUS FOR MULTI-DECORATING SHEET MATERIAL

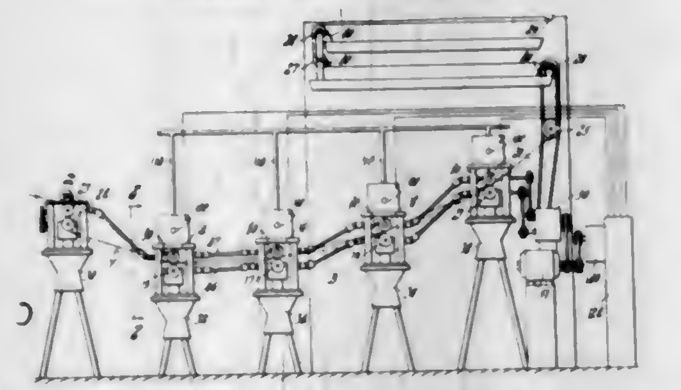
Eugene A. Magid, 1610 Cloverly Lane, Rydal, Pa. 19046
Filed July 30, 1964, Ser. No. 386,305
8 Claims. (Cl. 101—152)



1. In the method of decorating sheet material, the steps which comprise providing a patterned rotary intaglio roll and a rotary back-up roll in generally tangential relation, separately and successively applying directly to the entire circumferential surface of said intaglio roll different decorating materials and immeriately wiping each said successively applied decorating material with its own doctor blade bearing directly against said intaglio roll before the next successive decorating material is so applied, the last applied decorating material remaining near the trailing edge of each pattern recess for eventual application to the trailing edge of its respective sheet-decoration, and passing a sheet to be decorated between said two rolls whereby said sheet is decorated with said decorating materials to present the appearance of shading in accordance with the patterned configuration of said intaglio roll.

3,304,862
TEXTILE COLORING APPARATUS WITH FLUID MOTOR INTERRUPTING MEANS

Edward W. Lawrence, Johnston, R.I., and William H. Angevine, Hendersonville, N.C., assignors to Cranston Print Works Company, Cranston, R.I., a corporation of Rhode Island
Filed July 17, 1964, Ser. No. 383,485
2 Claims. (Cl. 101—172)

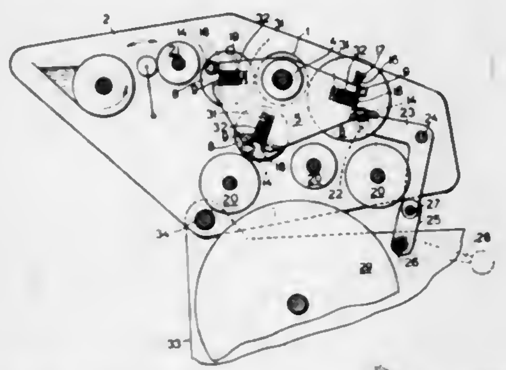


1. A textile coloring machine comprising:
at least three printing couples, each said couple including a metallic, upper, yarn supporting roll and a metallic, lower, yarn coloring roll,
said supporting and coloring rolls being disposed in a horizontally spaced and downwardly bowed path, the yarn to be colored being passed between the convex surface formed by the lower portions of said supporting rolls and the concave surface formed by the upper portion of said coloring rolls,
means to rotate each of said rolls,
a horizontally movable adjustment member for setting the vertical position of each said coloring rolls,
arms, pivotally secured to said machine, for rotatably mounting each of said supporting rolls,
a drive shaft,
a member eccentrically connected to said drive shaft and to said supporting arms, for moving said supporting roll to and from said coloring roll,
a fluid motor for rotating said drive shaft between a first position whereby said supporting roll is in a retracted inoperative position supporting said yarn out of contact with said coloring roll and a second position supporting said yarn in contact with said coloring roll,
a first piston movable in a first cylinder for driving said shaft,
an aperture in said first cylinder,
a second cylinder and a second piston movable therein for driving said shaft, and a third cylinder and a third piston movable therein for driving said shaft, said first, second and third pistons each having a connecting rod connected to a common eccentric point on said drive shaft, said second and third pistons being relatively positioned so that they move in opposite direction to one another and transversely to the movement of said first piston so that when said shaft is in said first position said second piston is in a fully retracted position away from said shaft and when said shaft is in said second position said third piston is in a fully retracted position away from said shaft, said first piston being in a dead center location at said first and second positions of said shaft,
a first duct connecting said aperture in said first cylinder to said second cylinder and a second duct connecting said aperture in said first cylinder to said third cylinder,
a valve,
a first conduit connecting said second cylinder to said valve, and a second conduit connecting said third cylinder to said valve, and
a first passage through said second piston for connecting said first duct to said first conduit when said pistons are in a first position, and a second passage through said third piston for connecting said second duct to said second conduit when said pistons are in a second position,
said valve selectively connecting one of said conduits to a source of pressurized fluid while connecting the other of said conduits to an exhaust outlet.

3,304,863
INK ROLLER SEPARATING MEANS

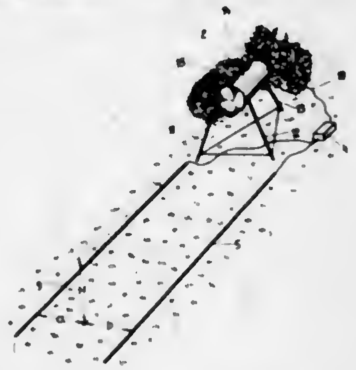
Josef Jurný, Sebranice u Kunstatu, Czechoslovakia, assignor to Adamovské strojírny, národní podnik, Adamov, Czechoslovakia
Filed Nov. 4, 1964, Ser. No. 408,860
8 Claims. (Cl. 101—351)

1. In a printing press, frame means, a rotary plate cylinder supported for rotary movement by said frame means, pivot means carried by said frame means, a pair of primary side pieces pivotally carried by said pivot means for turning movement with respect to said frame means about a common axis defined by said pivot means, an ink-distributing roller supported for rotary movement by said primary side pieces, said ink-distributing roller having a shaft fixed coaxially thereto, a pair of secondary side pieces supported for turning movement by said shaft of said distributing roller, said secondary side pieces each being formed with at least one notch, at least one form roller supported for rotary movement by said primary side pieces and engaging said plate cylinder when said primary side pieces are in a normal operating position, at least one ink-transfer roller situated between and engaging said distributing roller and said form roller when said primary side pieces are in their normal operating position, stop means carried by said primary side pieces, first spring means urging said secondary side pieces into engagement with said stop means, when said primary side pieces are in their normal operating position, for situating said transfer roller in engagement with said distributing and form rollers, second spring means urging said transfer roller away from said distributing roller, and lever means carried by said frame means and operatively connected to said primary side pieces for turning the latter with respect to said frame means about said pivot means away from said operating position to a location where said form roller is spaced from said plate cylinder, said lever means also coacting with said secondary side pieces for turning the latter about said shaft of said distributing roller in opposition to said first spring means away from said stop means to a location where said transfer roller is displaced away from said form roller releasing said second spring means to displace said transfer roller also away from said distributing roller, so that said lever means may be actuated to displace said primary side pieces away from their normal operating position to said location where all of said rollers are out of engagement with each other.



3,304,864
APPARATUS FOR FIRING AN ANTI-VEHICLE GROUND-TO-GROUND ARMOR PIERCING EXPLOSIVE CHARGE

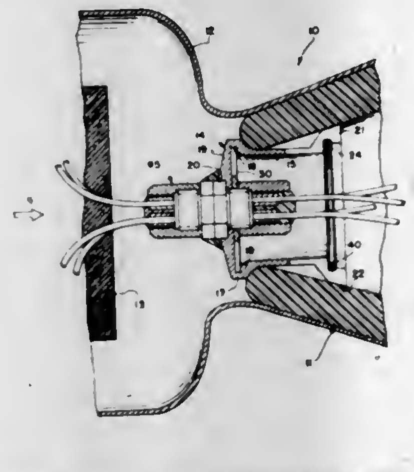
Franz Rudolf Thomanek, Sandizell 38¼, Landkreis Schrobenhausen, Germany
Filed Oct. 2, 1963, Ser. No. 313,394
Claims priority, application Germany, Oct. 4, 1962, B 69,095
5 Claims. (Cl. 102—19.2)



5. Apparatus for fighting ground vehicles travelling along a path comprising, in combination, an explosive charge; a stationary firing base supporting said charge above the ground with its firing direction axis extending substantially parallel to the ground toward such path; an igniting device operable, when activated, to detonate said charge; and a pair of relatively elongated ground engaging electric contact thresholds connected in series with each other to said igniting device and extending from said igniting device and intersecting such path of travel in laterally spaced relation with each other, and symmerically on either side of said axis, to define, along said such path, a detection zone centered on such axis, the width of said zone being of the order of, but less than, a horizontal dimension of the ground contacting portion of the ground vehicle to be attacked; said electric contact thresholds constituting an activating circuit for said igniting device which is closed only upon engagement of a vehicle concurrently with both of said electric contact thresholds.

3,304,865
SELF-SEALING, UNBONDED, ROCKET MOTOR NOZZLE CLOSURE

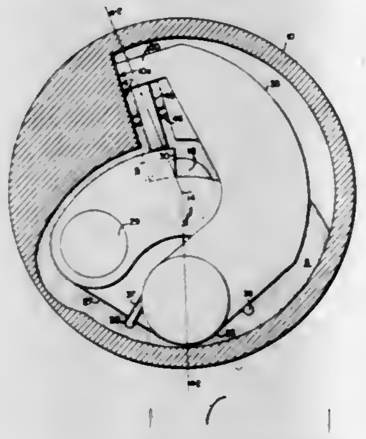
Robert L. Gungle, Hampton, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 21, 1965, Ser. No. 449,901
12 Claims. (Cl. 102—49)



12. A nozzle closure assembly or the like comprising: nozzle closure means for insertion in the nozzle; and separate means engaging the interior of the closure means fore and aft of the nozzle constriction for expanding the closure member into sealing and retaining position with the nozzle.

3,304,866
CENTRIFUGALLY ARMED FUZE

Richard C. Johnson, Hopkins, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Apr. 16, 1965, Ser. No. 448,760
6 Claims. (Cl. 102—79)



6. A fuze for a munition subject to rotational forces after launch, comprising:
(a) a housing;
(b) a first eccentrically mounted arm member mounted for partial rotation in said housing through release, safe, and armed positions;
(c) latching means mounted in said housing adjacent said first arm member for movement from a first to a second position in response to the centrifugal force developed by the rotating munition, said latching means in said first position abutting said first arm member in said safe position to prevent said first arm member from rotating to said armed position;

(d) a second eccentrically mounted arm member mounted for partial rotation in said housing between release and locking positions, said second arm member in said locking position abutting said latching means to prevent movement of said latching means from said first position;

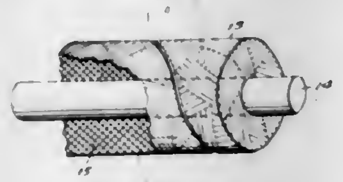
(e) biasing means mounted in said housing to bias said first arm member toward said armed position and said second arm member toward said locking position;

(f) detonating means mounted in said first arm member; and

(g) initiating means mounted in said housing, said first and second arm members being rotated to said release positions by the centrifugal force developed by said rotating munition to thereby release said latching means, said latching means being substantially moved to said second position by the centrifugal force, said first arm member being rotated to said armed position by said biasing means upon the decay of said centrifugal force to place said detonator in line with said initiating means.

3,304,867
SOLID PROPELLANTS IN TEXTILE FORM

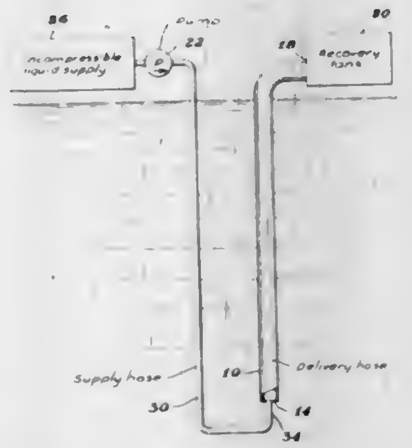
Isidore G. Nadel, 628 Highland Ave., Little Falls, N.J. 07424
Filed Feb. 10, 1965, Ser. No. 431,745
15 Claims. (Cl. 102—98)



10. A spun propellant charge comprising a plurality of continuous filaments, a central core, said filaments being wound as a plurality of layers on said central core, said filaments consisting essentially of a nitrocellulose composition having a nitrogen content of from about 12.6 to 13.25 percent.

3,304,868
DEEP WATER PUMPING METHOD

William O. Swan, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed July 31, 1964, Ser. No. 386,658
5 Claims. (Cl. 103—1)



1. A method of pumping water from great depths which comprises:

(a) immersing a delivery hose into a body of water to the desired depth;

(b) immersing a supply hose into said water so that the end of said supply hose farthest from the water's surface is located at about the end of said delivery hose farthest from the water's surface, said supply hose having a smaller diameter than said delivery hose;

(c) injecting a substantially incompressible liquid into said supply hose under a pressure which is not less than P_s in accordance with the formula:

$$P_s=\frac{f_s l_s v_s^2}{2d_s g}+h_s(D_w-D_f)$$

wherein:

f_s is the friction factor in the supply hose,
l_s is the supply hose length,
v_s is the liquid velocity down the supply hose,
g is the acceleration of gravity,
h_s is the depth of the supply hose,
D_w is the density of the water,
D_f is the density of the substantially incompressible liquid;

(d) lifting and pumping water through said delivery hose in a direction toward the surface of said water at a velocity of v_d and a volume flow rate of Q calculated by employing measured values in accordance with the following formulae:

$$v_d=\sqrt[3]{\left(\frac{h_d}{l_d}\right)\frac{8gQ_f(D_w-D_f)}{\pi f_d d_d}}$$

and

$$Q=\sqrt[3]{\left(\frac{h_d}{l_d}\right)\frac{\pi^2 g d_d^5 Q_f(D_w-D_f)}{8f_d}}$$

wherein:

Q_f is the volume flow rate of the liquid in the supply hose and is equal to

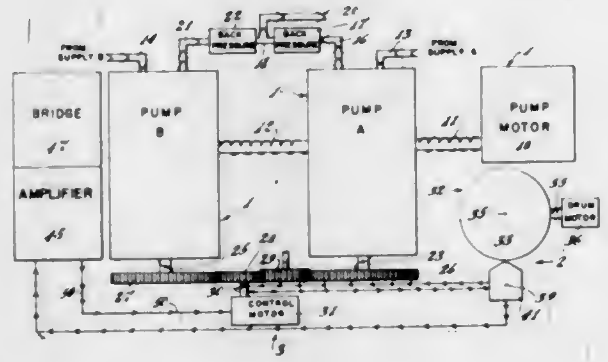
$$\frac{\pi d_s^2 v_s}{4}$$

l_d is the delivery hose length,
h_d is the depth of the delivery hose,
d_d is the diameter of the delivery hose,
f_d is the friction factor in the delivery hose; and

(e) recovering the water lifted from great depths to the surface.

3,304,869
PHOTOELECTRIC DUAL PUMP CONTROL PROVIDING A CONSTANT COMBINED OUTPUT

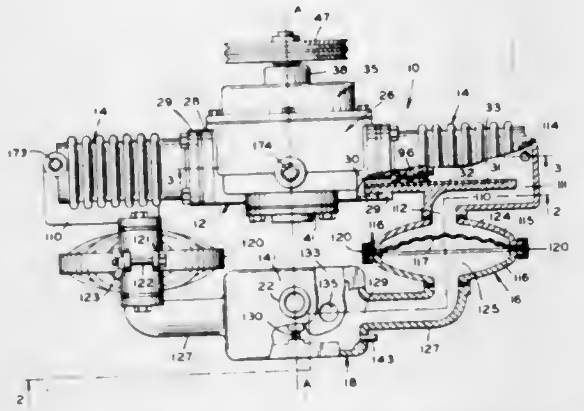
Horst K. Blume, Philadelphia, Pa., assignor to Phoenix Precision Instrument Co., Philadelphia, Pa., a corporation of Pennsylvania
Filed Oct. 29, 1963, Ser. No. 319,884
2 Claims. (Cl. 103—11)



1. In a gradient producing device, a pump assembly having a constant given output, a curve and curve follower assembly, a servo system drive assembly connected to the pump and curve and curve follower assemblies, the pump assembly comprising a pair of variable volume pumps, a drive for the pumps, adjustments for varying the capacity of each of the pumps so that the pump assembly output is constant, and means for moving the adjustments, the curve and curve follower assembly comprising a cylindrical drum having a longitudinal axis, a drive for the drum to rotate the drum on its axis, the surface of the drum being divided into two portions to form a curve between the portions, the surface of the first portion having a first light reflectivity and the surface of the second portion having a second light reflectivity different from the reflectivity of the first portion, means for rotating the drum on its longitudinal axis, a photoelectric detector head slidably mounted on a second axis extending parallel to said drum axis, a detector head drive for moving the detector head longitudinally on the second axis, the photoelectric detector head including a light source for imparting light to the surface of the drum and two photoelectric cells within the detector head for intercepting the reflected light from the drum, one of the photoelectric cells being positioned to intercept light from the first of the portions on the drum surface and the second of the photoelectric cells being positioned to intercept light from the second of the portions, and electrical means for transmitting from the detector head a signal indicating the light reflected to each of the photoelectric cells, and said servo system drive assembly comprising a bridge circuit and amplifier for receiving the signal from the detector head and amplifying and transmitting the signal, a motor for receiving the signal and moving the pump adjustment means and detector head drive responsive to said signal whereby the detector is positioned continually along the curve on the drum while the drum rotates and the pumps are adjusted to produce a gradient corresponding to the curve on the drum.

3,304,870
PLUNGER DIAPHRAGM PUMP

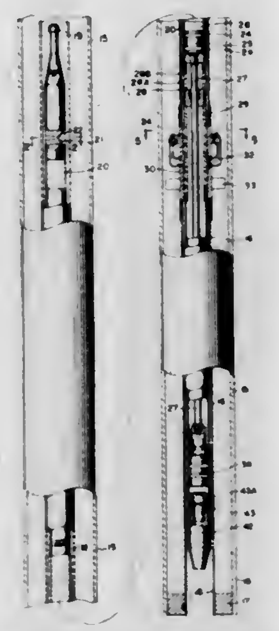
William H. Growall and James Wiseman, Detroit, Mich., assignors to Growall Manufacturing Company, Detroit, Mich., a corporation of Michigan
Filed Feb. 15, 1965, Ser. No. 432,526
20 Claims. (Cl. 103—44)



1. A plunger-diaphragm type pump structure, comprising a pair of reciprocatory plunger units each including a plunger head operating in a cylinder space to discharge a pressure fluid from an end of said space, a drive unit including a lobe cam common to said plunger units to operate the plunger heads in synchronism, said drive unit comprising a follower device pivotally mounted on each of said heads in radial relation to said cam, each follower device comprising a cradle pivoted on a plunger head, each cradle having means journaling a pair of follower rolls thereon in laterally spaced relation to one another for simultaneous rolling engagement with a lobe surface of said cam, and a diaphragm unit having diaphragm means in communication with said cylinder spaces to be operated by said pressure fluid, said diaphragm unit in turn pressurizing a fluid to be pumped.

3,304,871
PUMP ASSEMBLY

Elva J. Scroggins, 528 Doris St., New Iberia, La. 70560
Filed Apr. 20, 1965, Ser. No. 449,435
13 Claims. (Cl. 103—46)



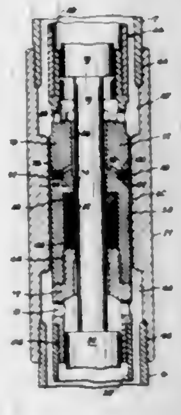
1. A pump assembly for positioning in tubing of a well casing by means of a cable comprising a top sub having means for securing a cable thereto and means to secure a gas receiving cylinder thereto, a gas receiving cylinder secured to said top sub in fluid tight relation, means to introduce gas under pressure into said gas receiving cylinder, a lift piston slidably mounted in said pressure cylinder, a center connecting sub secured to said gas receiving cylinder, a connecting rod secured to said lift piston and passing through said center connecting sub, means to provide a fluid-tight seal between said connecting rod and said center connecting sub, a pump seating nipple securing adjacent sections of tubing together, a pump cylinder secured to said center connecting sub, a pump piston in said pump cylinder and secured to said connecting rod, said pump seating nipple and center connecting sub being provided with openings providing communication between the fluid in the annular space between the casing and the tubing and one of said pistons, valve means normally closing the openings in said pump seating nipple, means to operate said valve means, a produced fluid passageway from said pump piston to one of said tubing and casing, check valve means in said pump assembly for preventing retrograde movement of said produced fluid, said pump assembly operating by filling the pressure cylinder with compressed gas to a desired pressure for the depth of fluid being pumped, applying pressure fluid to the other of said tubing and said casing in excess of the pressure in the pressure cylinder thereby moving the lift piston in a direction to operate said pump piston in a produced fluid raising direction and forcing such produced fluid through the passageway to the one of said tubing and casing whereby the produced fluid passes upwardly in the said one of said tubing and casing as pressure is intermittently exerted on the column of fluid in the other of said tubing and casing to cause the pressure piston and the pump piston to reciprocate.

3,304,872
SEALING MEANS

Charles L. English, 2204 E. 25th Place, Tulsa, Okla. 74114
Filed May 3, 1965, Ser. No. 452,718
10 Claims. (Cl. 103—46)

1. In an improved sealing device, the combination of: a first member having a bore extending there-through and a counterbore formed in one end thereof with the counterbore being of larger diameter than said bore;

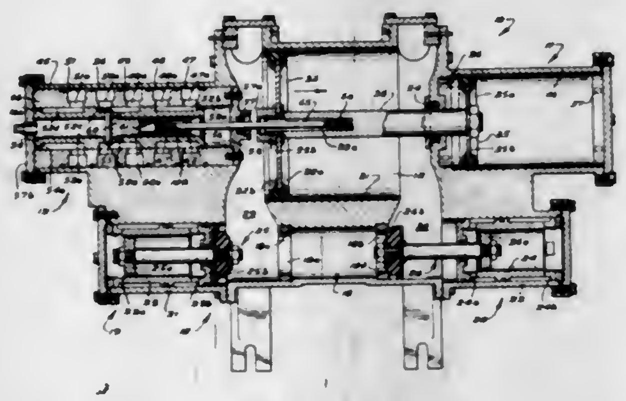
- a cylindrical member slidingly disposed in said bore forming an annulus with said first member and having
  - an annular groove encircling said cylindrical member adjacent said first member, and
  - a passageway extending from said groove through a portion of said cylindrical member into communication with said counterbore, said passageway having a cross-sectional area greater than the cross-sectional area of said annulus; and,



- a resilient annular seal member disposed in said groove and sized to be fully received therein, said seal member being moved in said grove in response to pressure in said passageway into sealing engagement with said first member to form a fluid-tight seal between said cylindrical member and first member and being moved into said groove out of engagement with said first member in response to pressure in said annulus on the side of said seal member remote from said counterbore, said cylindrical member being reciprocably disposed in said first member and movable to a position in which said groove and seal are positioned in said counterbore.

3,304,873
HYDRAULICALLY ACTUATED PUMPING SYSTEM FOR SEWAGE

Arthur E. Broughton, Glens Falls, N.Y., assignor to Broughton Corporation, Glens Falls, N.Y., a corporation of New York
Filed Feb. 26, 1965, Ser. No. 435,632
7 Claims. (Cl. 103—48)

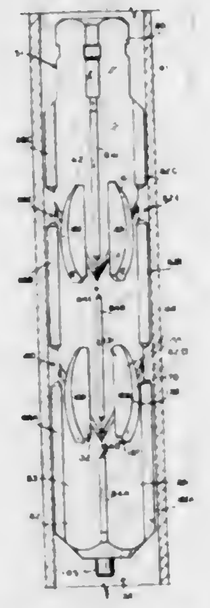


1. A pumping system for pumping disposable matter under pressure, said system including:

- (a) a receptacle for accumulating the disposable matter therein and having a discharge outlet;
- (b) liquid supply means for supplying liquid under pressure;
- (c) a hydraulically actuated pumping system connected to said receptacle including:
  - (1) a reciprocating actuator responsive for reciprocation for liquid supplied thereto;
  - (2) a pump arranged for actuation by said actuator communicating with the discharge outlet from said receptacle and arranged to direct material received therein to a remote discharge;
  - (3) check valve means positively preventing back flow from said pump through said discharge outlet into said receptacle;
  - (4) valve means receiving liquid from said supply means and controlling the delivery thereof to said actuator, said valve means controlled by said pump; and
- (d) a control valve for controlling the liquid supplied to said valve means.

3,304,874
WELL UNLOADING PROCESS AND APPARATUS THEREFOR

Cecil Ray Lyles, Box 836, Farmington, N. Mex. 78103
Filed Apr. 23, 1965, Ser. No. 450,492
12 Claims. (Cl. 103—52)

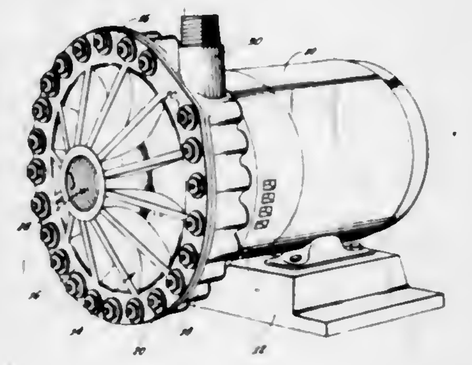


1. An apparatus for unloading an oil and gas producing formation comprising

- (a) a well extending from said formation to the ground surface thereabove, said well comprising a string of oil well tubing within a casing, openings from said casing to said formation and from the interior of said casing into the bottom of said string of tubing, and an outlet from said tubing to above said surface,
- (b) an upper shocking stop in said tubing string near to the top of said string of tubing, a lower shocking stop in the tubing string near the bottom of said tubing string, the internal diameter of said tubing string being substantially the same between said stops,
- (c) a reciprocating piston within said tubing, said piston comprising a body elongated in the direction of the length of said string, a series of sealing elements encircling said body; each of said sealing elements being movably mounted on and extending laterally of said body, and sealing element support means pivotally supporting each of said sealing means on said body, means attached to and holding each said sealing element in either of two positions, a sealing position extending across said body length or an open position parallel thereto, each said sealing element having two ends and an outer curved surface between said ends, one end of each of said sealing elements in said series engaging an end of an adjacent sealing element in said series, the outer surface of each of said sealing elements in sealing position engaging and matching substantially all of a series of adjacent portions of said interior surface of said tubing surrounding said piston neighboring to said series during upward passage of said piston in said tubing between said lower and upper stops, said sealing elements each then extending from said piston body to said outer surface of said sealing element and the outer curved surface of each of said sealing elements then forming a fluid-tight seal with said interior surface of said tubing, and said series of sealing elements forming with said body a fluid-tight seal across the interior of said tubing, said sealing elements being movable at said upper stop, to a position whereat the ends of adjacent sealing elements are spaced apart from each other.

3,304,875
PUMP

Wayne E. Copeland, Los Angeles, Calif., assignor to Aetna Chemical Corporation, Burbank, Calif., a corporation of California
Filed Feb. 23, 1965, Ser. No. 434,450
4 Claims. (Cl. 103—87)

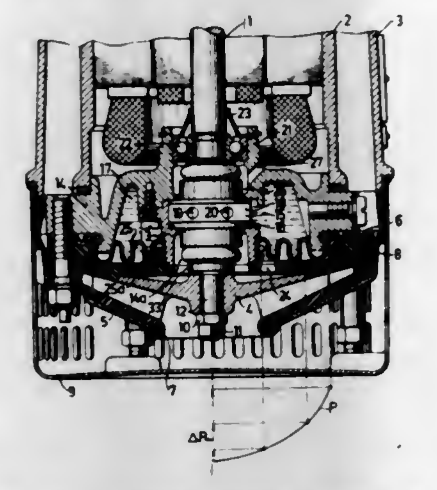


1. A pump and drive motor combination for corrosive liquids including: a drive motor comprising a drive shaft and a casing; a pump shaft coupled to said drive shaft; a pump impeller mounted on said pump shaft; a pump housing enclosing said impeller and having a generally cylindrical configuration and formed of a front section and a rear section; a multiplicity of bolts extending axially through said front and rear sections of said housing at spaced angular positions around the periphery thereof for holding said sections in an assembled condition, said rear section having a plurality of axially-extending protuberances formed on the outer surface thereof; a mounting ring affixed to said protuberances and surrounding the axis of rotation of said pump shaft; and means securing said mounting ring to said motor casing.

3,304,876
VISCOSITY PUMP FOR COOLING FACE SEALS

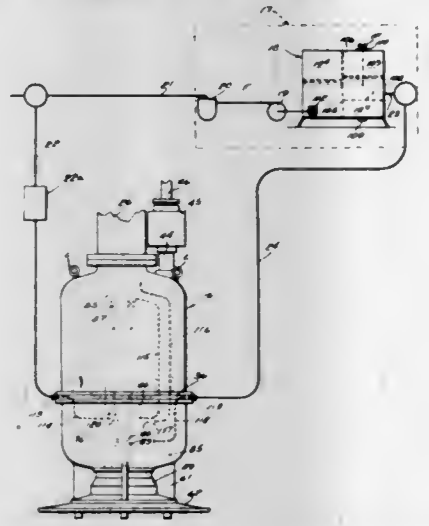
Filip Torvald Stahl, Alvsjo, Sweden, assignor to Aktiebolaget Flygts Pumpar, Solna, Sweden
Filed May 7, 1965, Ser. No. 454,030
Claims priority, application Sweden, May 15, 1964, 6,002/64
3 Claims. (Cl. 103—87)

1. A viscosity pump for cooling face seals in centrifugal pump units, particularly those of a submersible nature comprising a drive shaft adapted to be interconnected between a drive motor and a pump impeller, slip ring holder means disposed about and spaced from said shaft, housing means connected to said holder to define a lubricant containing chamber, annular slip ring means supported by said holder and disposed in spaced concentric relation to said shaft, sealing means disposed on opposite sides of said slip ring in sealing relation to said shaft and said slip ring and channel means extending through said slip ring tangentially to said shaft and in fluid communication with said chamber and said shaft whereby said shaft and said slip ring provide a viscosity pump for supplying lubricant under pressure from said chamber to said sealing means.



3,304,877
SUBMERGED MOTOR DRIVEN PUMPING SYSTEM

James C. Carter, Pasadena, Louis R. Smith, Costa Mesa, and Donald A. Kaessen, Downey, Calif., assignors to The J. C. Carter Company, Costa Mesa, Calif., a corporation of California
Filed June 8, 1965, Ser. No. 462,230
9 Claims. (Cl. 103—87)

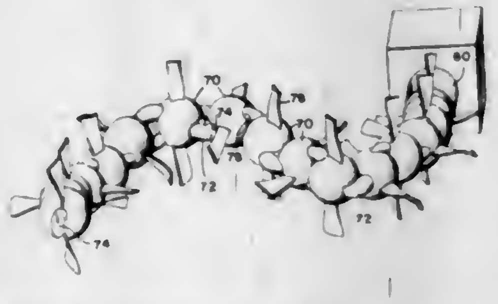


1. A submerged motor driven cargo pumping system adapted for scavenging tanker ships and the like which comprises a plurality of centrifugal pump and motor units having means for mounting the same in the bottoms of the tanks of a tanker ship in completely submerged relation with the medium to be pumped from the ship, said pump and motor units each having a sealed casing with a pump compartment and a motor compartment, said motor compartment being sealed from said pump compartment, said pump compartment having an inlet communicating freely with the medium to be pumped, and a support system for mounting above the tanks of the tanker ships for circulating oil through all of said pump and motor units, said system including a source of lubricating oil, a filter for cleaning the lubricating oil, a pump for circulating the lubricating oil and piping conveying filtered oil to each pump and motor unit and for returning the oil from each pump and motor unit back to the source,

and each pump and motor unit having internal tubing distributing oil to the wearable parts of the unit while flooding the motor compartment with oil, and purging air or gas from the motor compartment.

3,304,878
MOTION TRANSMITTING MEANS

Daniel R. Sabre, 560 Bryn Mawr Ave.,
Bryn Mawr, Pa. 19010
Filed Oct. 22, 1965, Ser. No. 507,612
30 Claims. (Cl. 103—93)

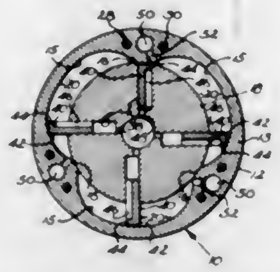


1. A motion transmitting means for the transmission of rotary motion comprising a pair of shafts, a plurality of first members, and a plurality of second members having a periphery defining a circle and an annular tapered portion converging toward the periphery thereof, said first and second members being alternately arranged in engagement with each other for the transmission of rotary motion therebetween and extending between the shafts, the outer members being in driving engagement with the corresponding shaft, each of said first members having a pair of cavities in opposed peripheral portions thereof, each of said cavities extending in a plane perpendicular to the plane of the other cavity and along an axis of said first member, each second member between a pair of first members having its annular portion received in a cavity in each of said pair of members for relative movement therein with respect to said first members, said cavities having a tapered configuration conforming to and mating with said taper of said second members, said cavities of said first members and said second members providing contacting wall cooperating to confine the movement of said second members relative to said first members in the planes of said cavities and to guide said second members for unlimited rotational movement so that the entire circumference of each of said second members is movable through a cavity receiving the same, said shafts being maintained under axial compression to minimize backlash between said members.

3,304,879
FLUID OPERATED DEVICE

Elliott F. Hanson, 19746 Parthenia,
Northridge, Calif. 91324
Original application May 22, 1963, Ser. No. 282,394, now Patent No. 3,230,840, dated Jan. 25, 1966. Divided and this application Nov. 15, 1965, Ser. No. 507,832
14 Claims. (Cl. 103—121)

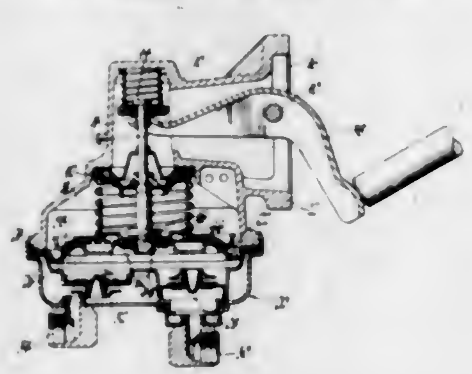
1. A fluid device comprising:
a casing member having a bore therein, said bore having an upstream and a downstream side;
a rotor member mounted in said casing member and having a plurality of substantially radially extending vane slots;
a vane slidably mounted in each of said vane slots, each of said vanes comprising valve means for controlling a fluid to said bore through passage means leading to the side of said vane towards the downstream side of said bore, said vanes being movable in said slots for opening and closing said passage means;
a first fluid inlet passageway for communicating fluid to said passage means;
fluid outlet means connected to the downstream side of said bore for exhausting fluid therefrom; and
a second fluid inlet passageway connected to the upstream side of said bore for admitting a fluid into said bore;



said casing member and said rotor member being rotatable relative to each other with one member being fixed and the other member being subjected to a force producing device.

3,304,880
PUMP AND DIAPHRAGM PLUNGER SUB-ASSEMBLY

John Gold and Dimitar Toschkoff, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 6, 1964, Ser. No. 409,380
2 Claims. (Cl. 103—150)

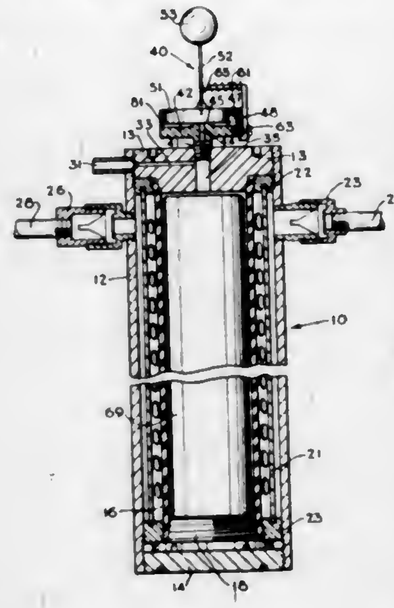


1. A fuel pump including a housing, a diaphragm of yielding flexible material cooperating with said housing in defining a pumping chamber, two stiff retainer plates, one of said plates having a large annular ridge extending into said pumping chamber, a small annular ridge on the other of said plates, a coiled spring in said housing having one end centered by said small annular ridge, a plunger extending through said coiled spring, plates and diaphragm, an annular bead on said diaphragm closely surrounding said plunger and contributing to the immediate thickness of said diaphragm, and means on said plunger urging said plates into clamping relation with said bead and said diaphragm so that creeping of said diaphragm material between said plates is minimized.

3,304,881
FLUID ACTUATED PUMP

Frederick G. J. Grise, Pleasant St., Barre, Mass. 01005
Filed Mar. 10, 1965, Ser. No. 438,535
12 Claims. (Cl. 103—152)

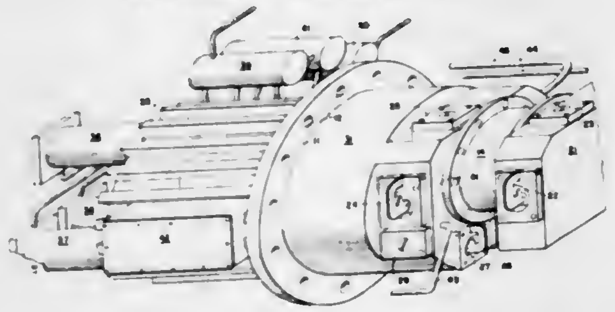
1. A self-cycling control valve assembly rhythmically operable to confine and then release a pressurized fluid, comprising a valve body arranged to be mounted in the wall of a container, a passage through said valve body terminating in an outlet opening, a valve member mounted for reciprocating movement into and out of a position in engagement with said valve body in which the outlet opening is closed and sealed by said valve member, an elongated resilient member fixedly secured to and projecting from said valve member, an inertial weight secured to said elongated resilient member remote from said valve member, and a fixed stop means mounted so that it limits displacement of said valve member from its position in engagement with said valve body in which the outlet opening is closed and sealed by said valve member, said elongated resilient member being arranged



when movement of said valve member relative to said valve body is arrested first to yield to and then to recover from the continued relative movement of said inertial weight to reverse the direction of movement of the inertial weight after a predetermined time delay.

3,304,882
CRYOLIQUID PUMP

James D. Yearout, Waynesboro, Va., assignor to The La Fleur Corporation, Los Angeles, Calif., a corporation of California
Filed June 5, 1964, Ser. No. 372,747
6 Claims. (Cl. 103—153)

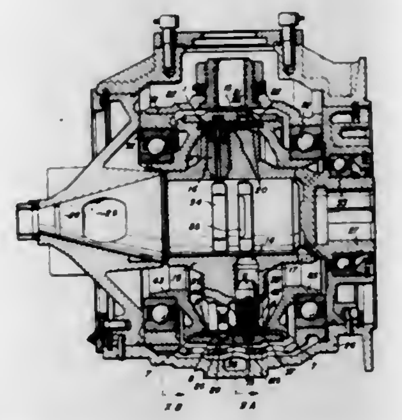


3. A cryoliquid pump having an axially movable primary impeller for said liquid, a shaft carrying and driving said impeller, a housing for said impeller and said shaft with said shaft extending externally thereof, said housing forming an axially extending bore around and spaced from said shaft, spaced apart means sealing the ends of said bore, a conduit external of said housing and having its opposite ends in spaced apart communication with said bore, and a secondary impeller carried by said shaft in said bore for circulating fluid thru said conduit to the opposite ends of said bore as said shaft moves axially.

3,304,883
PISTON SHOES AND GUIDE MEANS IN RADIAL PISTON MACHINES

Karl Eickmann, 2420 Isshiki, Hayama-machi, Japan
Filed Aug. 12, 1964, Ser. No. 389,130
Claims priority, application Germany, Aug. 14, 1963,
B 73,121
7 Claims. (Cl. 103—161)

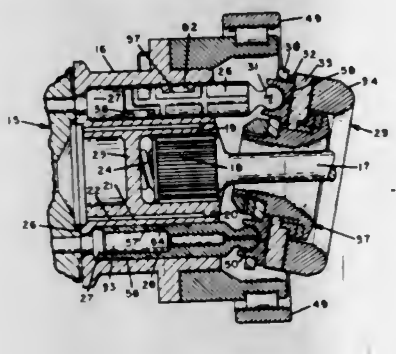
1. In a radial piston machine having a casing, a rotor disposed within said casing for rotary movement relative thereto and including at least one axial group of radially disposed cylinders, and a piston disposed within each cylinder for reciprocatory movement relative thereto, a piston shoe arrangement which comprises a piston shoe guide means including a guide ring supported within said casing and having at least one annular guide surface dis-



posed in surrounding relation to said rotor, and a plurality of shoe members each pivotally connected to an associated piston, each shoe member having a guide portion disposed for sliding contact engagement with a corresponding guide surface of said ring to regulate the reciprocatory motion of its associated piston.

3,304,884
HYDRAULIC FLUID ENERGY TRANSLATING DEVICE

Herbert H. Kouns, Camarillo, Calif., assignor to Abex Corporation, a corporation of Delaware
Filed Jan. 18, 1965, Ser. No. 426,243
10 Claims. (Cl. 103—162)



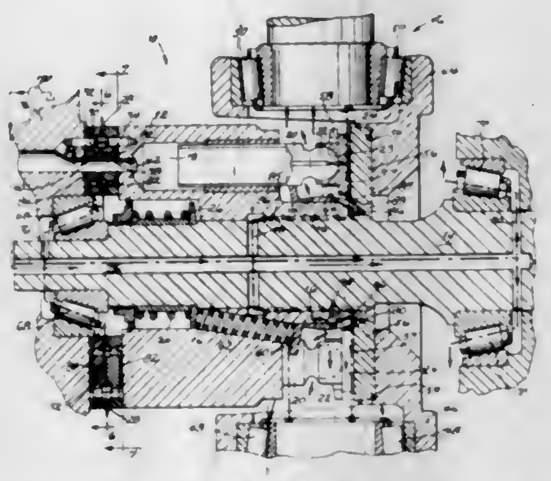
1. A hydraulic fluid pressure energy translating device comprising,
a rotatable body having a plurality of cylinder bores within each one of which a cylindrical piston is rotatable and reciprocable;
a cylindrical piston mounted within each of said cylinder bores;
a force transmitting shoe engageable with one end of each of said pistons;
a plate-like cam means for imparting reciprocating motion to each of said pistons within its bore through said shoes;
means on each of said pistons forming a pair of axially spaced hydrostatic balance pads in opposite sides thereof operable between each of said pistons and its bore to counterbalance lateral force imparted to said piston by said plate-like cam means; and
a knuckle joint between each of said shoes and pistons operable to permit rotation of said piston in its bore while simultaneously preventing rotation of said piston about its own axis to maintain said axially spaced hydrostatic balance pad means oriented counter to the lateral force imparted to said piston by said cam means.

3,304,885
PISTON PUMP LUBRICATION STRUCTURE

Harold R. Orth, La Grange, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey

Filed Apr. 30, 1965, Ser. No. 452,090

6 Claims. (Cl. 103—162)



1. In an axial piston pump including a housing, a rotatable drive shaft extending through said housing, said shaft having first and second ends, first and second antifriction bearings supporting said shaft at its first and second ends respectively for rotation within said housing, said shaft having an outer area having a plurality of splines extending axially from a first point at an intermediate location on said shaft and extending to a second point adjacent the second end of said shaft, a cylinder block having first and second spaced ends and a plurality of axially extending splines being complementally positioned to the splines on said shaft for rotation therewith, said cylinder block having a plurality of axial cylinder bores, a plurality of pistons, each of said bores housing one of said pistons for reciprocation therein, said pistons each having a ball portion at one end thereof, said ball portions extending outwardly from said cylinder bores toward the second end of said shaft and being fitted within socketed bearing surfaces, a swash plate assembly being positioned about the shaft at its second end adjacent the socketed bearing surfaces, said bearing surfaces being positioned within said swash plate assembly for controlled reciprocation of said pistons, said housing and said cylinder block having respectively first and second complementary relatively rotatable annular valve plates to control the flow of fluid through said piston pump, said valve plates being positioned adjacent said first anti-friction bearings, said first and second valve plates having mating relatively rotating complementary face portions the improvement comprising:

means providing at least one of said first and second valve plates with radially extending fluid passageways therethrough; said passageways being adjacent said face portions,

means providing an axial shaft passageway extending axially through said rotating shaft between said first and second anti-friction bearings;

means providing said shaft with first radially extending passageways positioned adjacent said first anti-friction bearings and extending communicatively between said axial shaft passageway and said first anti-friction bearings;

means communicatively connecting said first anti-friction bearings and said radially extending valve plate passageways;

means providing said shaft with second radially extending passageways positioned adjacent said splined area of said shaft between said first end of said shaft and said intermediate location on said shaft,

means providing splined fluid passageways extending axially between said splined area of said shaft and said cylinder block, said splined fluid passageways communicatively connecting said second radially extending shaft passageways with said swash plate assembly;

and means providing a source of lubricating fluid under pressure to said axially extending shaft passageway,

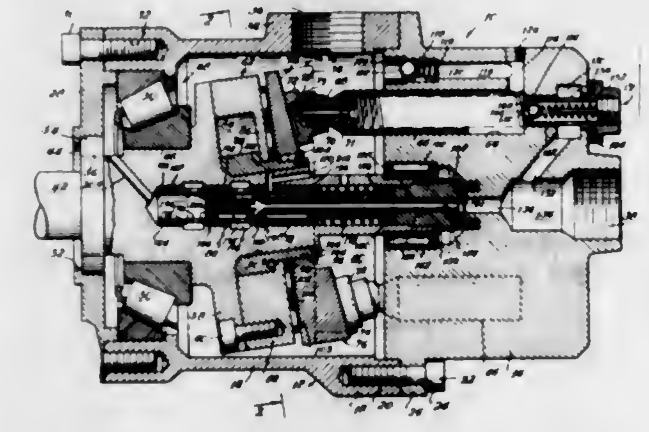
whereby lubricating fluid under pressure is directed in a lubricating and cooling stream through said first antifriction bearings, said valve plates, about the splined area of said shaft and said swash plate assembly.

3,304,886
VARIABLE DISPLACEMENT CHECK VALVE PUMP

Richard W. Roberts, Lombard, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Nov. 12, 1965, Ser. No. 507,494

7 Claims. (Cl. 103—173)



1. In a pump having a housing provided with an inlet and an outlet, means defining a plurality of circumferentially spaced cylindrical bores in said housing, a piston mounted for reciprocation in each of said bores, a rotary drive shaft, a cam mounted on said drive shaft for reciprocating said pistons, actuator means responsive to output pressure for rotating said cam to a position in which the effective stroke of said pistons is varied as required, a thrust member carried by said drive shaft and being angularly disposed with respect to the axis of said drive shaft, said cam mounted for rotation with said thrust member, and including a surface operatively associated with said pistons, said cam being of wedge cross section and being relatively rotatable with respect to said thrust member so as to present said surface angularly disposed with respect to said drive shaft or perpendicular to said drive shaft, and said actuator means effecting rotation of said cam with respect to said drive shaft in response to output pressure from said pump.

3,304,887
TOP HOLE TRAVELLING SEAL

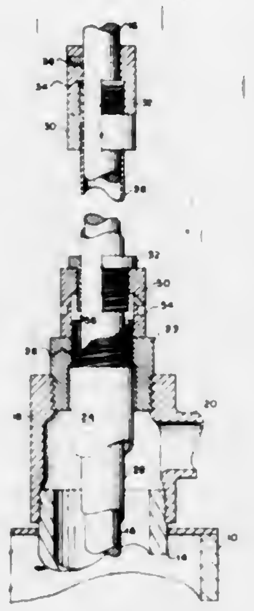
Leon E. Macklem, 3113 Blossom Lane, Odessa, Tex. 79760

Filed May 20, 1965, Ser. No. 457,266

6 Claims. (Cl. 103—202)

1. In an oil well having
- (a) a production tube extending deep within the ground,
- (b) a downhole pump connected to the production tube deep within the ground,
- (c) a sucker rod telescoped within the production tube connected to the downhole pump to operate same, and
- (d) a flow line connected near the top of the production tube for flowing oil which has been pumped from the well to a remote point;

in combination with the above the improvement comprising:
- (e) a barrel sealingly connected to the top of the tubing and telescoped within the tubing,
- (f) said rod telescoped within the barrel,
- (g) a sleeve telescoped around the rod and within the barrel,



- (h) the top of the sleeve extending above the top of the tubing and sealingly connected to the rod, and
- (j) packing surrounding the sleeve at the bottom of the sleeve,
- (k) said packing forming a seal between said sleeve and said barrel.

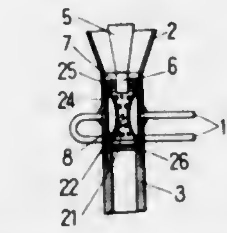
3,304,888
SUCTION APPARATUS FOR MEDICAL AND OTHER USES

Masayuki Kuwahara, 1074 Takahata-bodai-cho, Nara, Japan

Filed Aug. 21, 1964, Ser. No. 391,269

Claims priority, application Japan, Aug. 28, 1963, 38/64,564

2 Claims. (Cl. 103—271)



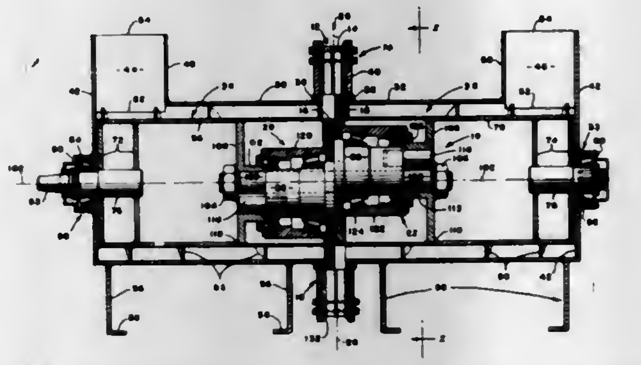
1. A suction apparatus for medical and other uses, comprising the hollow main body, a discharge pipe connected to the lower end of said main body, a jet pipe for jetting water under pressure projecting into the upper part of said main body and having the end thereof directed toward the said discharge pipe, a cylindrical body of elastic material in said discharge pipe and having the upper and lower edges fixed to the inner surface of the discharge pipe, a penstock connected to said discharge pipe between the ends of said cylindrical body for supplying fluid pressure to the space between the discharge pipe and the cylindrical body, an inner Venturi shaped rigid body having a plurality of holes therein and positioned inside the said cylindrical body and having the ends thereof attached to the inside of said discharge pipe, and a connecting pipe adapted to communicate with a material to be sucked extending into the upper part of the main body.

3,304,889
CROP MATERIAL PELLETER

John P. Tarbox, deceased, late of Delray Beach, Fla., by Frank K. Tarbox, executor, Philadelphia, Pa., and Joseph M. Bender, Leola, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed July 12, 1965, Ser. No. 471,477

2 Claims. (Cl. 107—14)



1. A pelleting machine comprising a die ring having a pair of axially adjoining angular series of dies and interiorly coacting therewith a pair of radially overlapping and axially adjoining rotatable rollers, said rollers being eccentrically mounted and having axes of rotation spaced 180° apart, each of said rollers coacting with a different but adjoining series of dies, means for relatively revolving said die ring and rollers about an axis through the center of said die ring, an integral one piece common roller journalling structure partially positioned within said die ring and having adjoining eccentric portions, said rollers being mounted for rotation upon said adjoining eccentric portions, auger means adapted for rotation about the axis of the die ring to feed pelleting material to each roller separately, said auger means including two auger flight bearing cylinders of opposite pitch, one of said cylinders being located on each axial side of the die ring, said cylinders being fastened by a rigid connection to the roller journalling structure, the periphery of each roller encircling the axis of the die ring and in axial projection running substantially tangent to the adjacent auger cylinder and to the interior periphery of the series of dies with which it coacts, and said rigid connection being comprised of diaphragms secured interiorly of the respective cylinders and having bolted connection with the opposite ends of the roller journalling structure.

3,304,890
ELECTRICALLY HEATED ICE CREAM SCOOP

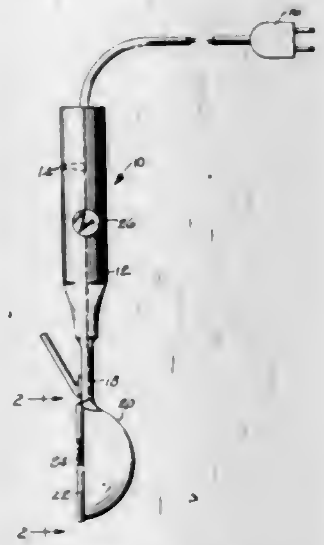
Flora M. Sloan and Howard J. Sloan, both of P.O. Box 1402, Glendale, Calif. 91209

Filed Sept. 18, 1964, Ser. No. 397,410

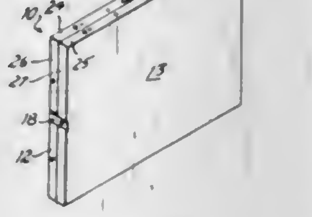
3 Claims. (Cl. 107—48)

1. An electric ice cream scoop comprising, in combination, an insulated handle member, a hemi-spherical hollow cup member carried by one end of said handle member, providing a means for scooping and depositing ice cream, an annular electrical heating element embodied within an annular insulating bead carried by said cup member providing a means for electrically heating said cup member to immediately release said ice cream from said cup, electrical circuit means extending through said handle for electrically connecting said heating element to a source of power, a push button switch carried by said handle member providing means for opening and closing said electrical circuit means from said power source to said electrical heating element, said handle member being hollow and being provided with a hollow shank, said electrical circuit means comprising a pair of insulated wires extending through the hollow handle and handle shank and electrically connected at one end to said heating element and at the other end to external cord and plug means

extending rearwardly of said handle member to provide means for connecting said electric heating element to a receptacle to provide current for said ice cream scoop, said bead being made of a hard insulating material and being secured to the outer surface of said cup member closely adjacent the rim thereof and said heating element forming the core of said bead, said bead being of tear-drop cross-sectional configuration with the narrow edge thereof extending toward the rim of said cup member and being secured by a suitable non-toxic adhesive to the outer surface of the rim of said cup, and the outer surface of the insulating bead and the outer surface of the cup member not covered by the bead being exposed.

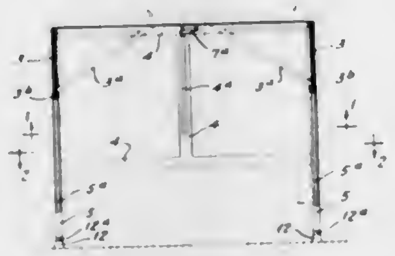


3,304,891
PORTABLE FOLDING TABLE
Isadore B. Rachman, Philadelphia, Pa., assignor to Metal Dynamics Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 17, 1965, Ser. No. 456,442
12 Claims. (Cl. 108—36)



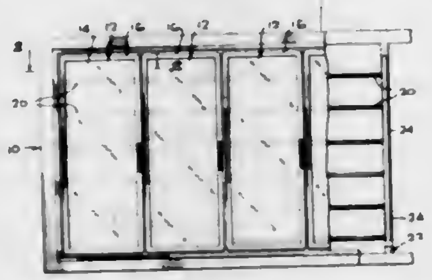
1. A portable collapsible folding table comprising: a rectangular top divided into a pair of abutting demi-sections each having peripheral border flanges; reinforcement flanges affixed to said border flanges along inside periphery thereof; a hinge connecting said demi-sections at juxtaposed border flanges, said hinge extending along substantially the entire length of said juxtaposed border flanges, said hinge being fastened to each juxtaposed border flange and its respective reinforcement flange; a pair of slideways on each of said sections, a rigid bar slidably received by slideways on each of said sections for extension therealong between said sections to rigidly fasten said sections in co-planar alignment; lock means on one of said sections for locking said bars when the sections are in co-planar alignment; cam means supported by one of said sections for cooperation between said bars and slideways for jamming said bars into a rigid and locked position; a pair of collapsible legs pivoted in each of said sections on said reinforcement flanges so that said legs may be collapsed within said sections to effect a parallel folding thereof, said slideways being channels, and said bars having an inclined surface at one end thereof for cooperation with said cam means.

3,304,892
ARRANGEMENT IN FURNITURE WHICH CAN BE RAISED AND LOWERED
Gunnar Gerhard Bengtson, 1A Eriksbergsgatan, Stockholm O, Sweden
Filed Oct. 22, 1965, Ser. No. 501,648
4 Claims. (Cl. 108—136)



1. An arrangement in furniture or furniture sections which can be raised and lowered, substantially comprising a frame, the top section of which is capable of being attached to a wall or the like and at least two brackets supporting the furniture and mounted in the frame so as to be displaced by two transmission means each having at least one pulley mounted in said displaceable frame, and at least two pulleys mounted at a crankshaft-like section for operating the transmission means for the purpose of adjusting the height of the piece of furniture, characterized in that each of the transmission means engages the pulley mounted at the crankshaft-like section and having one side of said transmission means engaging the furniture over one of the pulleys while the opposite side of the transmission means is engaging a balancing means secured to the frame over at least one of the remaining pulleys.

3,304,893
ADJUSTABLE SHELVING AND SUPPORTING MEANS THEREFOR
Michael E. Stromquist, Los Angeles, Calif. (6112 Longridge Ave., Van Nuys, Calif. 91401), and Gerald A. Lingelbach, 2922 Graceland Way, Glendale, Calif. 91206
Filed May 15, 1964, Ser. No. 367,836
6 Claims. (Cl. 108—146)



1. Adjustable shelving and supporting means therefor comprising:

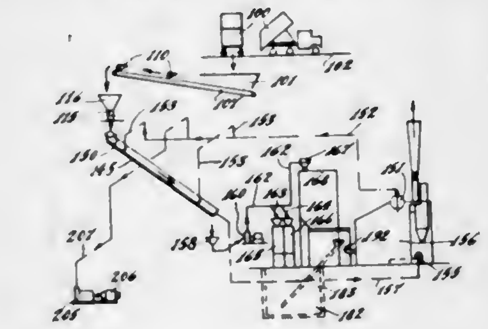
(a) two or more vertical front shelf support means having rearwardly extending ribs,
  a plurality of first slots extending forwardly from the rear edge of said ribs and terminating in downwardly directed notches therein defining front hooks;

(b) two or more vertical rear shelf support means having forwardly extending ribs,
  a plurality of second slots extending rearwardly from the forward edge of said ribs and terminating in downwardly directed notches therein defining rear hooks;

(c) shelves adapted to engage selected ones of said front hooks in adjacent pairs of said front shelf support means and having moveable clips adapted to engage selected ones of said rear hooks in adjacent pairs of said rear shelf support means;

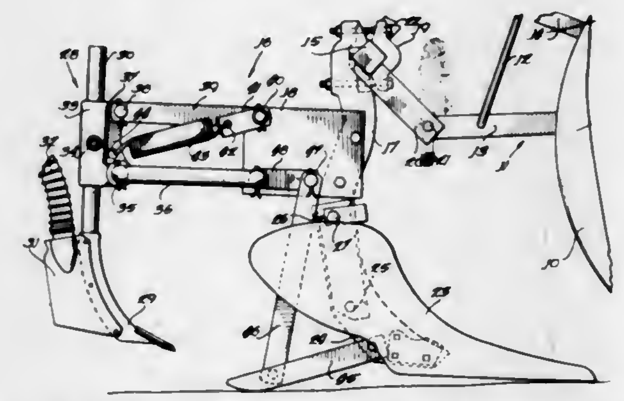
(d) shelving extensions adapted to fit between said adjacent pairs of front shelf support means forwardly of said shelves and in abutting relationship therewith, and
  supporting arms connected to said shelving extensions and having outwardly extending portions adapted to engage selected ones of said front hooks.

3,304,894
WASTE PROCESSING METHOD AND APPARATUS
Arthur S. Cox, Jenkintown, and Frederick G. McMullen, Gwynedd Valley, Pa., assignors to Sui Generis Process, Inc., Glenside, Pa., a corporation of Pennsylvania
Filed Oct. 16, 1963, Ser. No. 316,591
2 Claims. (Cl. 110—15)



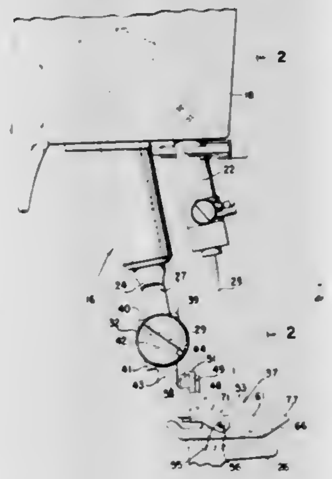
1. In a system for processing waste and sewage into fuel, an attrition mill for reducing waste to a size having a maximum dimension of one-half inch, a centrifugal mill, means for conveying the attritioned waste into the centrifugal mill, means within the centrifugal mill for mixing the waste and sewage into a mixture, means for extracting liquid from said mixture to convert said mixture into a condition resembling semi-dried paper pulp, and means for drying said mixture after the liquid has been extracted.

3,304,895
EARTHWORKING APPARATUS
John W. Orendorff, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed Aug. 17, 1964, Ser. No. 389,978
8 Claims. (Cl. 111—83)



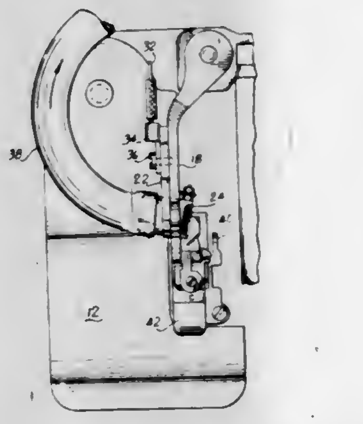
1. In an implement, a supporting frame adapted to be vertically moved between operating and transport positions, an earthworking tool carried by the frame and connected therewith for vertical movement with respect thereto, means in the connection of said tool with the frame biasing said tool upwardly relative to the frame, a ground engaging member operatively connected to said frame for vertical movement with respect thereto and engageable with the ground upon lowering the implement, prior to engagement thereof by said tool, and linkage operatively connecting said member and said tool for urging the latter downwardly in response to engagement of said member with the ground.

3,304,896
PRESSER FOOT FOR SEWING BUTTONHOLES
Manfred R. Laidig, Whippany, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 7, 1966, Ser. No. 525,769
3 Claims. (Cl. 112—235)



1. A sewing machine presser foot comprising a shank member adapted to be connected to the presser bar of a sewing machine, an apertured wall formed as part of said shank member, a U-shaped yoke, an apertured wall formed as part of said yoke, a pivot-rivet passing through apertures in both of said walls, a tilt stop rivet passing through apertures in both of said walls, one of the apertures through which said tilt stop rivet passes being larger in diameter than the diameter of said tilt stop rivet and thereby permitting said yoke to have limited tilting movement with respect to said shank, a pair of pintles carried on said yoke, and a sole plate mounted for see-saw motion on said pintles.

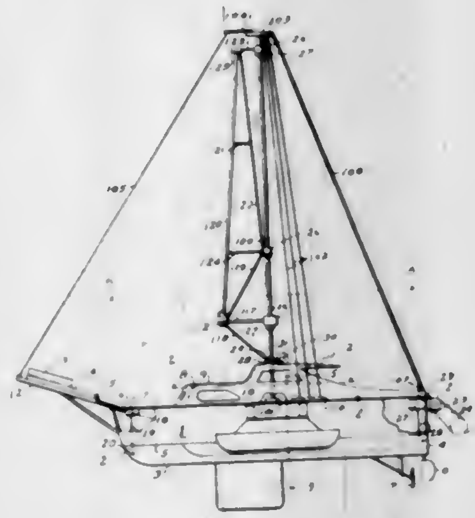
3,304,897
SEWING MACHINE HAVING THREAD TRIMMING DEVICE MOUNTED THEREON
Julius Rubin, 94 Reed Drive, Roslyn, N.Y. 11576
Filed Dec. 3, 1964, Ser. No. 415,655
4 Claims. (Cl. 112—252)



1. A sewing machine having a needle plate including a chaining finger having its longitudinal axis extending parallel to the path of travel of material through said sewing machine, a feed dog, a presser arm, and a thread-trimming device, means connecting said thread trimming device to said presser arm, said thread trimming device being positioned above the needle plate of said machine and said thread-trimming device including a

suction tube which has the inlet end thereof disposed at substantially a right angle with respect to the longitudinal axis of said chaining finger and in closely spaced relationship with said chaining finger.

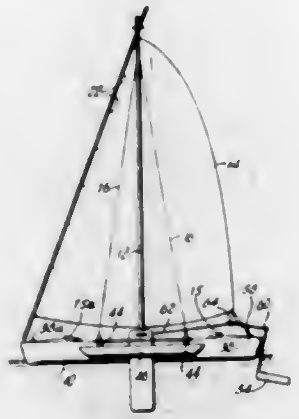
3,304,898
SHIP CONTROLS
Joseph D. Sainte-Claire, 5920 Wadsworth Ave., Highland, Calif. 92346
Filed Mar. 30, 1964, Ser. No. 355,573
5 Claims. (Cl. 114—39)



1. A sailing vessel provided with various rope and wire rigging to support a main mast means and the like, the rigging extending from the port and starboard sides of the vessel to a top poriton of a main mast, a substantially upright main mast supported by the vessel, an auxiliary mast in combination with the main mast and materially spaced therefrom and continuously in substantial alinement therewith, means for shifting the auxiliary mast about the main mast to various radial degrees in a plane at substantially right angles to the main mast, a boom means extending from and attached to a lower portion of the auxiliary mast and extending in alinement on opposite sides of the auxiliary mast and which is adapted to be attached to the lower portion of a sail means, so that when the auxiliary mast is shifted around the main mast, the boom means clears all said rigging at an outer side thereof.

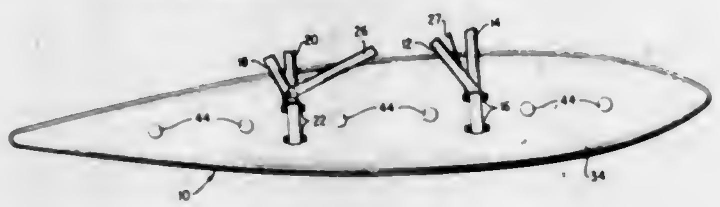
3,304,899
REVERSIBLE SAILING VESSEL
Goodhue Weatherly, 77 Park Ave., Manhasset, N.Y. 10016
Filed Oct. 22, 1965, Ser. No. 501,437
9 Claims. (Cl. 114—39)

1. A reversible sailing craft comprising
a hull having its opposed ends shaped for easy encounter with the water so that a given end thereof may serve as the bow when the hull travels in a given direction and so that the opposite end thereof may serve as the bow when the hull travels in the opposite direction,
means for mounting a sail on said hull, said sail being maintained to one side of the longitudinal axis of said hull, said sail having a leading edge,
said sail further being mounted on sail reversing means,
said leading edge being located generally at said given end of said craft for travel in said given direction and being located generally at said opposite end of said craft for travel in said opposite direction,
means for holding the rear end of said sail,
a rudder located at one end of said hull,
said rudder having a first position for travel of said craft in said given direction and a reversed second position for travel of said craft in said opposite direction,



balancing means extending outward of said hull on the side thereof opposite the side of the location of said sail,
and keel means located on the same side of said hull as said balancing means.

3,304,900
AIRCRAFT FLOAT
Alfred P. Greenwood, Manitou Beach, Mich. 49253
Filed Dec. 1, 1965, Ser. No. 510,900
4 Claims. (Cl. 114—66.5)

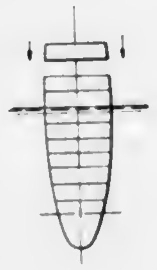


1. An aircraft float structure comprising:
a main elongate body portion havin a forward and an aft end, said body having an upper section and a mating lower section cooperating to form a hollow interior, said lower section having a substantially flat bottom water engaging surface;
a plurality of bulkheads disposed in spaced relation from the forward to the aft end within the hollow interior of said body portion, thereby forming a plurality of water tight compartments;
a plurality of air guiding channels formed in the bottom surface of the lower section of said body portion, said air guiding channels extending in parallel spaced relation with the longitudinal axis of said body portion, said air guiding channels being generally inverted V-shaped in cross-section and decreasing in cross-sectional area from the forward end to the aft end of said body portion, said air guiding channels terminating forward of the aft end of the flat bottom surface of said body portion; and
means for attaching the upper section of said body portion to an associated aircraft.

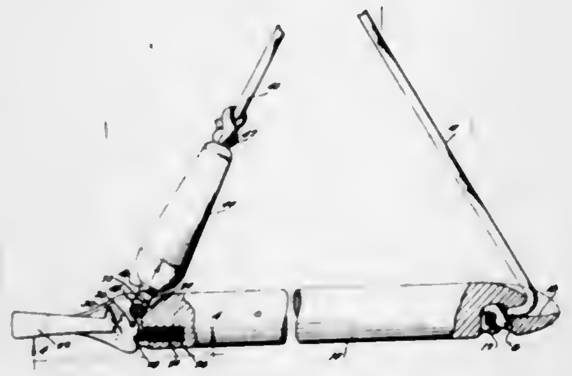
3,304,901
METHOD OF BUILDING A SHIP'S HULL
Hans Christer Georgii, Rindogatan 42, Stockholm, Sweden
Filed Sept. 20, 1965, Ser. No. 488,577
Claims priority, application Sweden, Sept. 21, 1964, 11,333/64
2 Claims. (Cl. 114—77)

1. A method of building a ship's hull having a completely closed cross-section which comprises the steps of fabricating a comparatively short end section of the

hull having a closed end and an opposite open end; floating said end section on the surface of a body of water with said open end facing upwards with the fore-and-aft axis in said end section of the hull substantially vertical and with the upper edge of said end section at a level above the surface of said water; progressively building the hull from the upper edge of said end section vertically upwards in a direction parallel to the fore-and-aft axis of the hull and progressively lowering the fabricated portion of the hull in concurrence with the building thereof by simultaneously filling a liquid, preferably water, into the fabricated portion of the hull so that it sinks vertically downwards in the surrounding water but is maintained substantially independently floating therein with its fore-and-aft axis substantially vertical and its upper edge above the surface of the surrounding water and with the weight of the fabricated portion of the hull substantially balanced by the upward thrust from the surrounding water; building the hull to its desired length and closing subsequently the upper end of the hull while leaving sufficient openings for removing the liquid present within the hull; removing the liquid present within the hull at least partially until the hull is independently floating in the body of water with its fore-and-aft axis substantially horizontal.

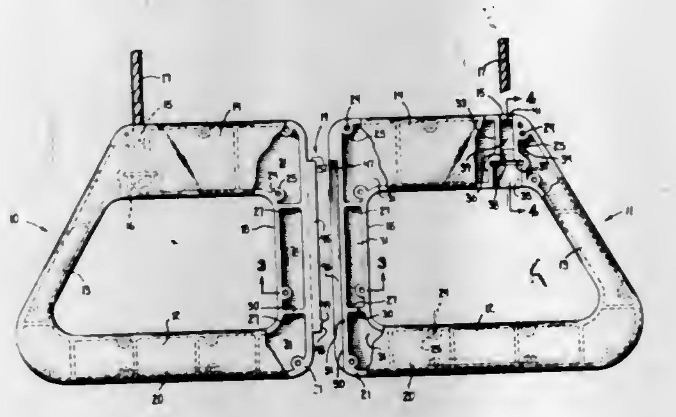


3,304,902
SKI TOW ROPE HANDLE
James H. Byrne, Box 82, Bomoseen Vt. 05732, and Emil Hansen, 141 Warburton Ave., Yonkers, N.Y. 10701
Filed June 2, 1965, Ser. No. 460,806
4 Claims. (Cl. 115—6.1)



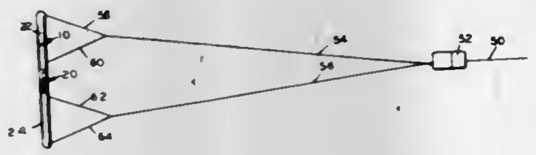
1. A water ski tow rope handle comprising a handle bar having one end thereof connected to a tow rope, a pivoted handle disposed at the end distal from said rope end, said handle having a significant surface adapted for contact with the water surface so that as the handle may be towed through the water, the handle is deflected upon impact with the water surface, a bias means to normally position the pivoted handle in alignment with said handle bar, an auxiliary line connected to said tow rope and having a hook engaging portion, said pivoted handle having a hook means for retaining said hook engaging portion when said handle is in alignment and for releasing said hook engaging portion upon said handle being deflected by said water surface.

3,304,903
SEPARABLE WATER SKI BAR
Parfitt S. Emery, Jr., 200 N. 3rd St., Elwood, Ind. 46306
Filed Oct. 6, 1965, Ser. No. 493,497
10 Claims. (Cl. 115—6.1)



1. A handle for a water ski towrope or the like, comprising two generally allochiral handle segments, each handle segment comprising a hand bar and a longitudinal bar substantially perpendicular to said hand bar, said longitudinal bars being adapted to be arranged in juxtaposition when said hand bars are aligned, and cooperating means carried by said longitudinal bars for releasably connecting said handle segments together, said cooperating means being releasable and engageable by relative movement of said handle segments in directions perpendicular to said hand bars.

3,304,904
MULTIPLE WATER SKI HANDLE
A. D. Spurlock, Dawson, Ga. 31742
Filed June 24, 1959, Ser. No. 822,650
19 Claims. (Cl. 115—6.1)

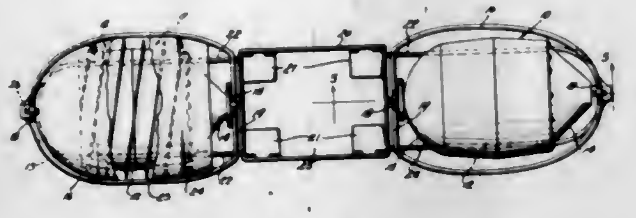


1. A hand hold device for water skiing comprising an elongated member composed of at least two separable parts, said parts being readily detachable to form separate members, engagement means on the ends of said parts to effect joinder thereof into a unitary rigid member and separation of said parts, and at least four separate attachment means one located approximate the ends of each of said parts for attachment to four branches of a tow rope, whereby said hand hold device may be used as a unitary member and as a plurality of separate members with sufficient space between the attachment means of each part for receiving the hand of a water skier.

3,304,905
UNSINKABLE BOAT
Abe A. Slaughter, 1139 Broadway, El Cajon, Calif. 92021
Filed May 10, 1965, Ser. No. 454,600
4 Claims. (Cl. 115—19)

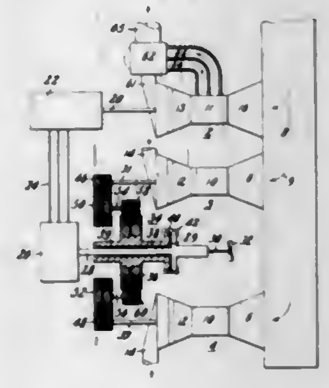
1. An unsinkable boat comprising two hollow floats in line, one in front of the other, each of which embodies a hollow shell filled with cork and having a spherical rear end and a removable front end having the configuration of a frustum of a cone; and two tubular frameworks that are likewise filled with cork, each said tubular

framework encompassing a float and rotatably supporting it; and a passenger compartment likewise made of a tubular framework filled with cork, the said passenger



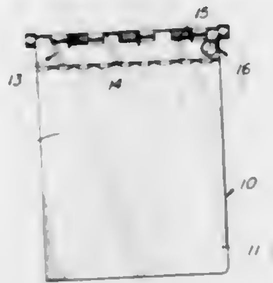
compartment being located between the two ends of the said floats and their supporting frameworks to which the said passenger compartment is secured.

3,304,906
PROPULSION POWER SYSTEM
John F. Nace, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed July 1, 1965, Ser. No. 468,812
1 Claim. (Cl. 115—34)



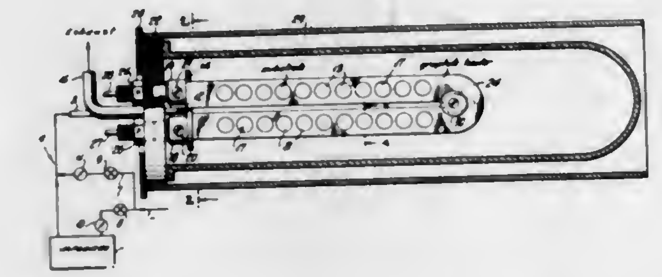
A propulsion system for driving ships comprising
a propeller,
a rotatable shaft integral with said propeller having a flange thereon,
a first propulsion drive comprising
  a plurality of gas operated turbines,
a second propulsion drive comprising
  a gas operated turbine having a compressor combustion area, turbine wheel and regenerator,
regenerative means connected to said second propulsion drive to increase the efficiency thereof comprising
  a passageway for feeding compressed air from the combustion area to the hot regenerator and another passageway for returning the heated air to said combustion area, said regenerator being heated by the hot exhaust gas exiting from said combustion area,
a generator driven by said second propulsion drive,
a motor, which is electrically driven by said generator, which directly drives said rotatable shaft and thereby said propeller to propel the ship in a substantially silent manner,
a gear, which surrounds said rotatable shaft, having a flange which is adaptable to be connected to said flange on said rotatable shaft,
a gear train, driven by said first propulsion drive, which in turn drives said gear, and
clutch means which is adapted to connect the flange of said gear and the flange of said rotatable shaft so that power from said first propulsion drive may be employed when desired to propel said propeller in conjunction with the power of said second propulsion drive.

3,304,907
HOSPITAL CHART HOLDER WARNING SIGNAL UNIT
George P. Block, Park Ridge, Ill., assignor to The Algonquin Corporation, Skokie, Ill., a corporation of Illinois
Filed Sept. 22, 1966, Ser. No. 581,252
3 Claims. (Cl. 116—133)



1. A hospital chart holder warning signal unit comprising, in combination, with a hospital chart holder which includes a top cover member,
(1) a relatively stationary indicia-bearing disc mounted on the upper surface of the said top cover member,
(2) a movable disc rotatably mounted on the said relatively stationary disc above the latter, the said movable disc having
  (a) a sight opening therein through which a portion of the said relatively stationary indicia-bearing disc may be seen; and
(3) latching means for releasably latching the said movable disc in preselected positions upon and to the said relatively stationary indicia-bearing discs.

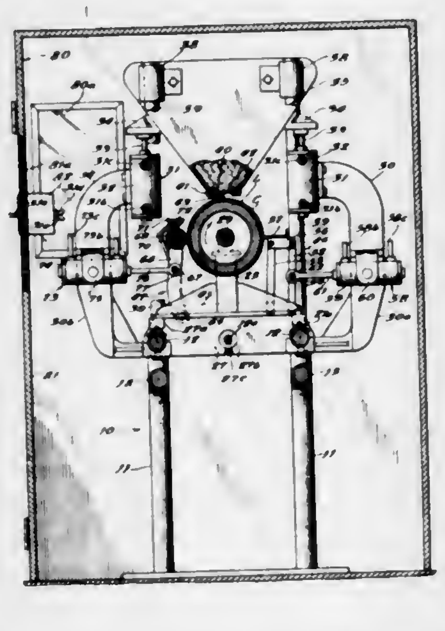
3,304,908
EPITAXIAL REACTOR INCLUDING MASK-WORK SUPPORT
Heinrich Gutsche and John P. Yorkovich, Danville, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
Filed Aug. 14, 1963, Ser. No. 302,061
2 Claims. (Cl. 118—49.5)



1. An epitaxial reactor system for depositing uniform epitaxial silicon layers from the vapor phase onto silicon substrate wafers which comprises:
(a) a horizontal reactor chamber,
(b) an elongated graphite support generally horizontally positioned in said reactor for said substrate wafers having a silicon carbide layer thereon with a silicon overlayer on said silicon carbide layer except where the silicon substrate wafers are to be placed when in operation, said silicon layer being substantially of the same thickness as said substrate wafers,
(c) means for maintaining said support in said position,
(d) electric means for heating said support thereby to heat said wafers from heat from said support to a reaction temperature,
(e) a nozzle for admitting reactant gases into said chamber below the level of said support so as to pass said gases around said support, and

(f) an outlet tube substantially concentric with the inlet tube through which the exit gases can pass.

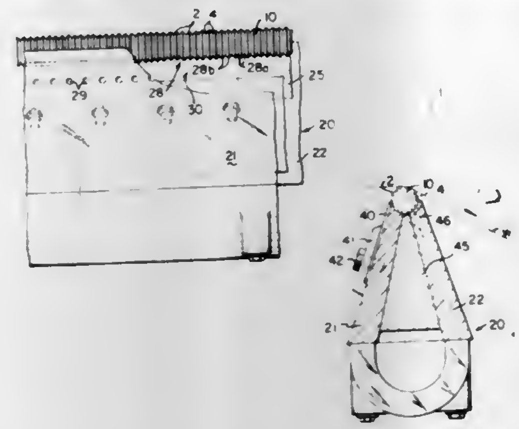
3,304,909
APPARATUS FOR COATING CYLINDERS WITH URETHANE
Wilbert S. Hart and John A. Scudder, Chicago, Ill., assignors, by direct and mesne assignments, to Chemechanical, Inc., South Holland, Ill., a corporation of Illinois
Filed May 13, 1963, Ser. No. 279,831
8 Claims. (Cl. 118—103)



2. Apparatus for coating a cylinder with urethane or like material comprising, a frame, a pair of cylinder supporting spindles on the frame on a generally horizontal axis; means for driving one of said spindles at a relatively slow rate to rotate a cylinder supported thereon; one of said spindles being axially adjustable to accommodate cylinders of different lengths; hopper means for continuously aplying coating material at a controlled arte to substantially the entire length of the cylinder; said hopper being radially movable with respect to said cylinder to thereby accommodate cylinders of different diameters; the hopper outlet being juxtaposed to and above the cylinder and comprising a material feed slot to which is substantially as long as the longest cylinder which can be coated in the apparatus; means for selectively restraining the length of the slot to coincide with the length of the cylinder; a coating material guide coextensive with the side of said slot towards which the cylinder to be coated first approaches; said guide extending to the cylinder surface and extending in the direction of cylinder rotation; a doctor blade on the frame for continuously smoothing the coating material along the entire length of the cylinder as it is applied; a pressure roller on the frame for continuously compressing the smoothed coat of material on the rotating cylinder; said blade and roller being each mounted for movement which is generally radial with respect to the cylinder; and means to effect radial movements of the blade and roller.

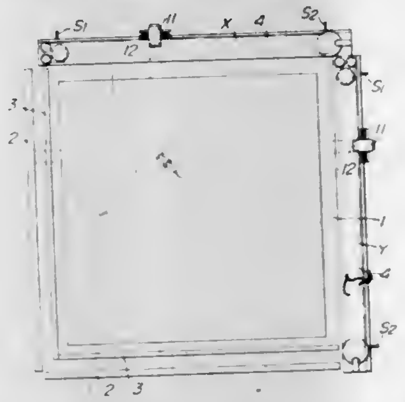
3,304,910
DOCTOR BLADE FOR COATING APPARATUS
Edgar Warner, Middletown, Ohio, assignor to Champion Papers Inc., Hamilton, Ohio, a corporation of Ohio
Filed Feb. 20, 1963, Ser. No. 259,943
6 Claims. (Cl. 118—104)

1. In the combination of a revolvable cylindrical doctor rod and a magnetic holder means having magnetic members for maintaining said rod in position during the forming of a coating on a web, the improvement comprising
a doctor surface on said rod composed of a series of alternately arranged annular ribs and grooves;



said magnetic members having a seat in contact with said doctor surface and supporting said rod; and
a means for cleaning said doctor surface.

3,304,911
APPARATUS FOR AUTOMATICALLY MEASURING THE MOVEMENT OF AN ANIMAL
Hiroshi Hakata, Nara-shi, Keizo Maeda, Kobe, and Katsumi Higuchi, Osaka, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Aug. 23, 1965, Ser. No. 481,473
Claims priority, application Japan, Aug. 24, 1964, 39/48,295
11 Claims. (Cl. 119—1)

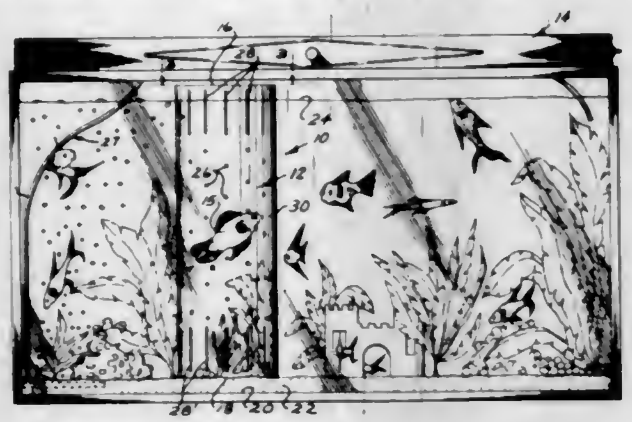


1. An apparatus for automatically measuring the movement of an animal comprising: two linear light sources so disposed as to form two coordinate axes, two automatic tracking means for generating electrical signals representing the coordinates of said animal disposed in such a manner that each tracking means may face one of said light sources and having light receivers adapted to travel in parallel with said light sources to which they face, means for moving said light receivers in response to movement of said animal, said two light sources and said two automatic tracking means defining a field of movement for said animal, and a recorder for recording continuously the positions of said animal in response to said electrical signals.

3,304,912
FISH CONFINER FOR USE IN AQUARIUMS
James G. Hackman and La Vona R. Hackman, both of 7816 Topia St., Long Beach, Calif. 90808
Filed Oct. 12, 1965, Ser. No. 495,152
2 Claims. (Cl. 119—5)

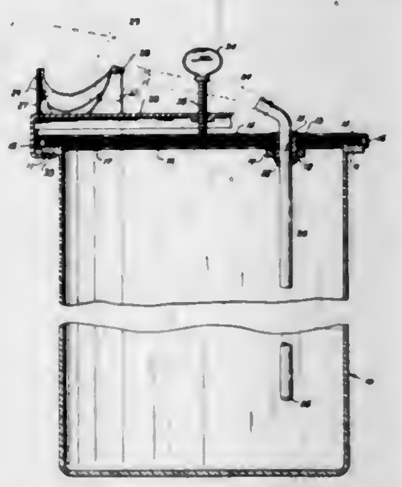
1. A fish confiner for separating and confining particular tropical fish and the like in a larger aquarium, comprising:
a transparent, self-supporting, tubular member for mounting vertically in the aquarium without contacting the sidewalls thereof, said tubular member including a completely open bottom for resting firmly

on the bottom of the aquarium, the transparency of said tubular member providing a clear view of the fish confined therein and rendering said member substantially invisible in said aquarium, said tubular member having a vertical height greater than the water level in said aquarium and including a plurality of apertures large enough to allow water to circulate from the aquarium through said tubular member around the fish confined therein and small enough to prevent the fish from swimming therethrough.



3,304,913
RECEPTACLE CLOSURE

Alexander G. Nesher, Rosemont, Pa., assignor to Air Control, Inc., Norristown, Pa., a corporation of Pennsylvania
Filed July 26, 1965, Ser. No. 474,783
6 Claims. (Cl. 119—15)

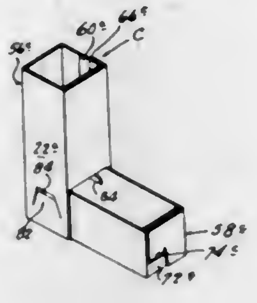


3. For use with a receptacle for housing viruliferous animals, said receptacle having bottom and side wall portions and a mouth comprising the only access to the interior of said receptacle; a closure device for the mouth of such a receptacle comprising a filter member of size greater than the receptacle mouth so as to extend over the edge of the mouth, and the closure device further comprising a foraminous cover plate overlying the filter, means adapted to secure the cover device to the receptacle with the filter member clamped between the cover plate and the edge of the mouth, said plate having an imperforate area, a tube extending through said imperforate area and through said filter for supplying liquid to the interior of the receptacle, and means providing an air-tight seal between the tube and the surrounding imperforate area.

3,304,914
DISPENSING CONTAINER

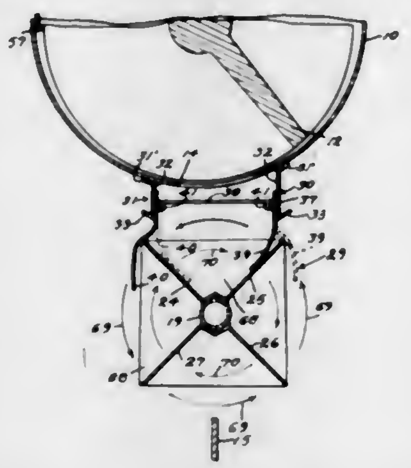
Julius C. Tucci, 181 W. 2nd St., Weston, W. Va. 26452
Filed Mar. 26, 1965, Ser. No. 442,935
7 Claims. (Cl. 119—18)

1. A device of the character described, comprising a vertically elongated tube of rectangular cross section, said tube having a back wall, side walls extending forwardly from the back wall, front wall means extending between the side walls, a bottom wall on the back wall extending forwardly beyond the tube, an open top trough composed of said bottom wall and upstanding side walls extending along the inner sides of the tube side walls, said trough having an upstanding front wall extending between the trough side walls, tab means on the tube side walls, said trough side walls being formed with slit means through which the tab means extend.



3,304,915
ROTARY DIVERTER FOR LIVESTOCK FEEDER

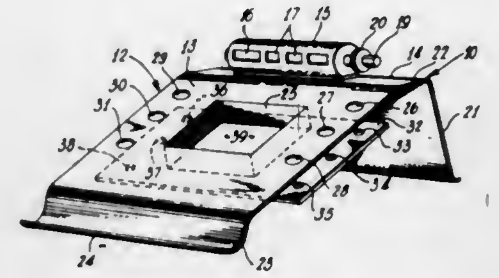
Eugene W. Cauffman, Claypool, Ind., assignor to Parker Feeders, Inc., Silver Lake, Ind., a corporation of Indiana
Filed Aug. 4, 1965, Ser. No. 477,127
4 Claims. (Cl. 119—56)



1. In combination with an elongated feeder trough having a discharge opening in the bottom thereof, a conveyor operating in the trough for conveying feed to the discharge opening, and a divider board disposed in a vertical plane beneath and spaced from the trough; a rotary diverter disposed betwen the trough and divider board including a plurality of pockets of V-shaped cross section connected together to revolve about an axis disposed substantially parallel to the axis of the trough, and means for intermittently turning the rotary diverter in either direction whereby the pockets will successively assume and dwell in an upright loading position beneath the discharge opening to receive feed from the trough and will thereafter turn to a gravity discharging position for supplying the feed to a bunk on either side of the divider board and while another pocket is in a loading position a shaft constituting said axis of the diverter, vanes connected to and extending radially from the shaft, adjacent ones of the vanes combining to form the pockets, and flexible drapery members depending from the trough and straddling the discharge opening, said drapery members extending substantially below upper edge portions of the vanes of the loading pocket and engaging said vanes for confining the feed therein while said pocket is in a loading position and during the movement to a partial discharging position of the loading pocket.

3,304,916
COMBINATION PEN AND PENCIL HOLDER

Robert R. Abernethy, 240 Logan St.,
Bedford, Ohio 44014
Filed Sept. 27, 1965, Ser. No. 490,446
1 Claim. (Cl. 120—3)



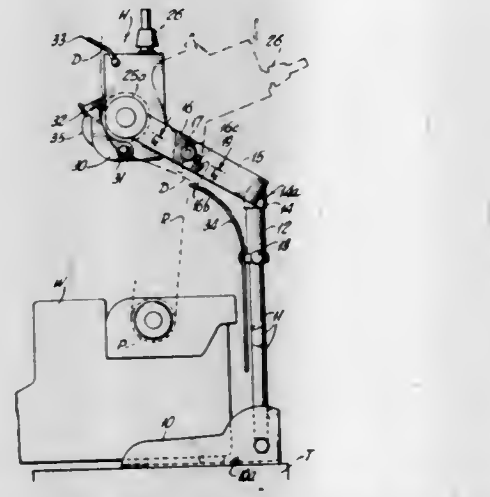
A device for holding miscellaneous office supplies, comprising:

- (a) a support for resting on a flat surface such as a desk top, the support having a surface sloped in relation to the flat surface;
- (b) a well disposed in the sloped surface of the support, for holding paper clips and like dimensioned objects;
- (c) a hollow formed in the sloped surface adjacent the flat surface, for holding pens and pencils laying flat in relation to the flat surface;
- (d) a ledge formed in the support adjacent the sloped surface, the ledge lying in a plane which is substantially parallel in the plane of the flat surface;
- (e) a calendar for telling the month, day and date mounted on the ledge;
- (f) a leg secured to the ledge and extending towards the flat surface for holding the sloped surface in sloping relation to the flat surface; and
- (g) means coacting with the support for holding pens and pencils adjacent the well and in a position such that their axes are angularly disposed to the plane of the sloped surface, said means including:
  - (1) a plurality of apertures formed in the sloped surface adjacent the well;
  - (2) a plate secured to the support in spaced parallel relation from the sloped surface and in closer relation to the flat surface, said plate having a plurality of smaller diametered apertures correspondingly aligned with the larger diametered apertures in the sloped surface, the spaced apertures holding the pens and pencils in angularly disposed position relative to the flat surface.

3,304,917
COPY HOLDER

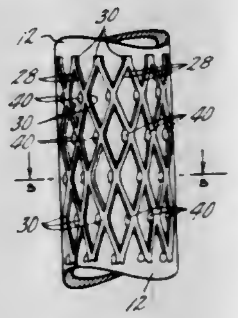
Edwin B. Vincent, East Norwich, N.Y., assignor to Pres-to-Line Corporation of America, New York, N.Y., a corporation of New York
Filed July 14, 1965, Ser. No. 471,885
4 Claims. (Cl. 120—32)

1. A copy holder to present line-by-line source data on a data sheet to the view of the operator of a desk machine, such as a typewriter or other data utilization desk machine, to be copied or entered in the desk machine; the copy holder having a head provided with means, including a face plate and a platen, to hold the data sheet in line-indexed exposed position at the front of the head, an upright framework to be stationed behind the desk machine and to reach above the height of the desk machine, a pair of horizontally spaced first arms rigidly cantilevered forwardly and upwardly from the extremes of width of the upright framework, a pair of horizontally spaced second arms respectively associated with the first arms, the second arms bodily carrying between their free, front ends the copy holder head, swivel connections between the rear ends of the second arms and the forward ends of the first arms to enable the second arms to be swung through an upward and rearward angle from a forwardly and upwardly extended relation generally aligned with the first arms to a retracted relation, thereby to displace the copy holder head bodily from a forward, operative data viewable position to a rear, idle position, and stop elements between the associated first and second arms for limiting the swinging movement of the second arms to the aforesaid angle, so as to establish the alternative operative and idle positions of the copy holder head, said first arms being of substantially the length of said second arms, and said angle being limited by said stop elements to at least no greater than substantially 90°, whereby in its idle position the copy holder head will be stored in an elevated position substantially contained within the space above and forward of said upright framework.



3,304,918
CHEMICAL RECOVERY UNIT

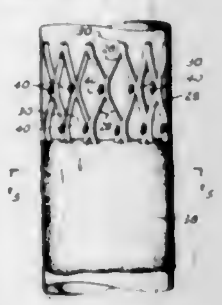
Everett C. Lewis, Avon, and Robert G. Tallent, East Granby, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Dec. 29, 1965, Ser. No. 517,299
2 Claims. (Cl. 122—7)



1. A chemical recovery unit having an upright furnace into which black residual liquor produced from kraft pulping process is introduced for burning and smelting, said furnace having the inner surface of its upright walls lined with steam generating tubes forming part of a steam generating system operative to generate steam of at least 900 pounds per square inch, these walls having primary air induction ports therein spaced somewhat above the furnace bottom for directing air inwardly toward a pile or smelt and burnables on the bottom of the furnace, the tubes at the lower region of the furnace having their surface that is directed inwardly of the furnace bare but provided with extended surface constructed and arranged to hold a solidified layer of molten chemical produced in the furnace in engagement with this tube surface, said extended surface comprises stainless steel sheet-like means generally conforming to the tubes and welded to the tubes, said sheet-like means having numerous relatively closely spaced openings dispersed throughout its area.

3,304,919
CHEMICAL RECOVERY UNIT

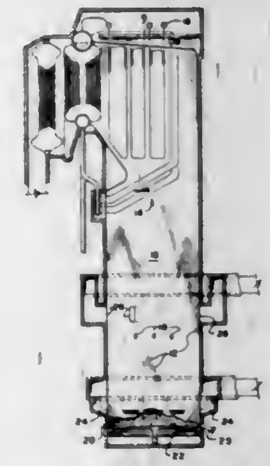
Robert A. Funk, Hazardville, and James Jonakin, Simsbury, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Dec. 29, 1965, Ser. No. 517,304
5 Claims. (Cl. 122—7)



1. A chemical recovery unit having an upright furnace into which black residual liquor produced from kraft pulping process is introduced for burning and smelting, said furnace having the inner surface of its upright walls lined with steam generating tubes forming part of a steam generating system operative to generate steam of at least 900 pounds per square inch, these walls having primary air induction ports therein spaced somewhat above the furnace bottom for directing air inwardly toward a pile of smelt and burnables on the bottom of the furnace, said steam generating tubes at the region below said ports having secured to their surface that is directed inwardly of the furnace a stainless steel metallic sheet-like means generally conforming to said tube surface, said metallic means having numerous relatively closely spaced openings dispersed throughout its area with a portion of this means being retained in spaced relation from the tubes such that a refractory in a semifluid state may be received therebetween, said metallic means being welded to the tube at numerous loactions throughout the area of said means and a layer of refractory material disposed over and about said metallic means such that the metallic means is embedded therein, whereby the metallic means retains said layer of refractory material in place intermediate said tube region and the interior of the furnace.

3,304,920
CHEMICAL RECOVERY UNIT

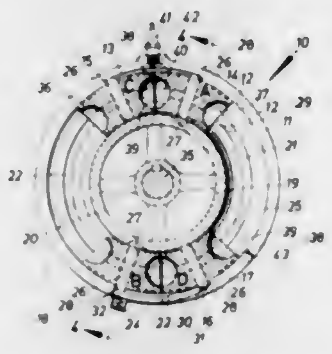
Edward Corbin Chapman, Lookout Mountain, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Dec. 29, 1965, Ser. No. 517,343
3 Claims. (Cl. 122—7)



1. A chemical recovery unit having an upright furnace into which black residual liquor produced from kraft pulping process is introduced for burning and smelting, said furnace having the inner surface of its upright walls lined with steam generating tubes forming part of a steam generating system operative to generate steam of at least 900 pounds per square inch, these walls having primary air induction ports therein spaced somewhat above the furnace bottom for directing air inwardly toward a pile of smelt and burnables on the bottom of the furnace, said steam generating tubes at the region below said ports having secured to their surface that is directed inwardly of the furnace a stainless steel sheet member conforming to the tube surface and having numerous generally uniformly distributed openings throughout the area thereof, each of said members being plug welded to its associated tube by filling the openings with weld metal and with said weld metal also being of stainless steel whereby there is provided at this region of the furnace a stainless steel protection that extends all the way around the furnace.

3,304,921
ROTARY COMBUSTION ENGINE

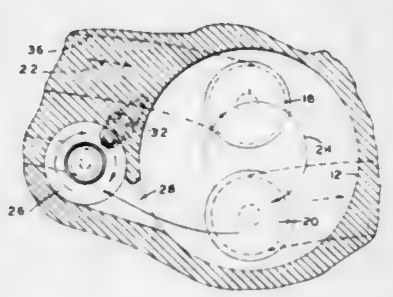
Jindrich Prochazka and Marta Prochazka, both of 115 Oxford St., Toronto, Ontario, Canada
Filed Mar. 23, 1965, Ser. No. 442,060
3 Claims. (Cl. 123—11)



1. a rotary motor comprising an engine housing in the form of a cylindrical stator, an annular ring-formed piston chamber formed in said stator, bearings axially aligned in said stator concentric with said piston chamber, a rotor rotatably mounted within said stator in said bearings, two annular grooves recessed into internal side walls of said piston chamber, one on each side of said piston chamber, an annular connecting ring slideably located within each said grooves, a first pair of pistons slideably located within said piston chamber, said pistons of said first pair being situated diametrically opposite to each other, and secured to one of said annular connecting rings, a second pair of pistons slideably located within said piston chamber, intermediate of said first pair of pistons, said pistons of second pair of pistons being situated diametrically opposite to each other and secured to the other of said connecting rings, said first and said second pairs of pistons with respectively attached connecting rings sliding independently of each other within said piston chamber, said annular piston chamber having a circular cross section, at least one piston ring circumferentially located within piston ring grooves in each of said pistons, a substantially diametrical transverse bore located in each said piston, said transverse bore being radially aligned with regard to said annular piston chamber, and having two ends, a transversely slideable locking pin slideably located within each said transverse bore, each said locking pin having an outer end and an inner end, each said locking pin having a length larger than the diametric width of said piston, a portion of said locking pin thereby always protruding through one end of said two ends of said transverse bore of said piston, a portion of a locking pin annular groove being located at an upper end of said piston chamber at the largest annular diameter thereof, a second portion of said annular locking pin groove being located at a diametrically opposite lower end of said piston chamber, said first lock pin groove having a first end and a second end, said pistons, during operation of said engine, travelling from said first end toward said second end, said first end having a wall perpendicular to said annular groove, said second end being chambered thereby to bias said locking pins into said pistons as each said piston moves past said chamber, two diametrically opposite cut out notches in said rotor for receiving and holding inwardly protruding portion of two opposing locking pins upon said locking pins being biased towards centre of said engine, a pivotable locking pin release bar pivotably located longitudinally within said second groove portion, said release bar being pivoted substantially centrally thereof to permit said release bar to pivot in a plane parallel to and centrally through said annular piston chamber, one outlet end of said release bar being biased by spring means toward said piston chamber, opposite inlet end of said release lever being located in the path of each said locking pin as said locking pin traverses over said second groove portion, said release lever thereby providing holding means for one said pair of pistons and biasing means for locking pin in one of said second pair of pistons, to bias said locking pin in said one of said second pair of pistons into said cut out in said rotor open upon said cut out reaching a position opposite said locking pin in said piston of said second pair of pistons, thereby to release said second pair of pistons for movement in said piston chamber, a flash chamber located in said upper end of said piston chamber substantially centrally of said upper groove portion, spark plug means located in said flash chamber, said inlet end of said release lever being spaced apart from said outlet end of said release lever a distance suitable to permit successive engagement therein of said protruding ends of said locking pins of oncoming pistons, thereby to release said oncoming pistons from said rotor, said release lever temporarily arresting said oncoming pistons until said rotor has proceeded to locking pin of a preceding piston, said release lever thereby biasing locking pin of said preceding piston into one of said notches in said rotor to permit further continued movement of said pistons in said piston chamber, a fuel inlet port located at lower end of said piston chamber toward the direction of movement of said pistons, and an exhaust port located in lower end of said piston chamber directly behind a piston temporarily arrested by said release.

3,304,922
ENGINE CONSTRUCTION

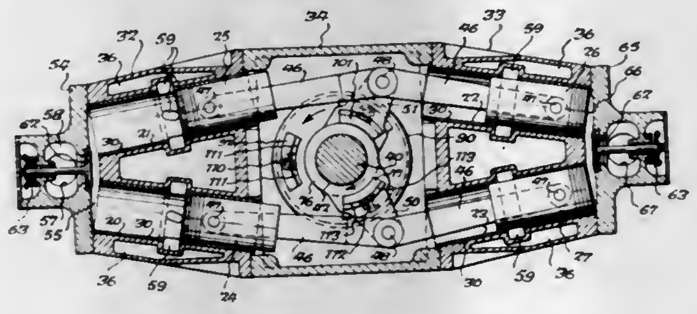
Laszlo Hideg, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Sept. 29, 1964, Ser. No. 400,094
5 Claims. (Cl. 123—32)



1. An internal combustion engine of the reciprocating piston type having a cylinder with a piston slidably movable therein for defining a variable volume chamber between one end of said cylinder and said piston, a swirl type combustion chamber offset laterally from the axis of said cylinder and having air-fuel mixture ignition means therein, laterally extending passage means connecting said combustion and cylinder chambers, first intake valve means for charging said cylinder with air having a swirling motion in a direction towards one end of said passage means, secondary intake valve means for introducing a mixture of fuel and air directly into said combustion chamber with a swirling motion in a direction away from the opposite end of said passage means to contain said mixture within said chamber, the volume of said combustion chamber being greater than the minimum clearance volume of said cylinder whereby the early stages of compression of said air by said piston transfers air from said cylinder through said passage into said combustion chamber at a rate promoting mixing of the air with the swirling fuel-air mixture therein, the later stages of compression effecting an increase in the rate of transfer of the cylinder chamber air into said combustion chamber sufficient to compress the mixture and move it to a point adjacent said ignition means substantially without mixing of said charge with the later stage compression air moving it, the latter stage of operation providing an ignitible mixture charge adjacent said ignition means at the time of ignition spreadable subsequent to ignition through said chamber and said passage into said cylinder to consume all fuel therein.

3,304,923
ENGINE

Joseph S. Parenti, Rte. 1, Bemus Point, N.Y. 14712
Filed Sept. 2, 1964, Ser. No. 394,077
17 Claims. (Cl. 123—51)



8. An engine comprising two pairs of cylinders with pistons mounted to reciprocate therein,

(a) a cylinder of each pair communicating with a combustion chamber having a single head,
(b) said cylinders having discharge openings therein for exhaust gases which are uncovered by pistons upon completion of their power strokes,
(c) means for forcing air into said compression chamber for passage through both cylinders when said pistons are at the ends of their power strokes to purge burnt gases therefrom,
(d) drive arms oscillatable about a common axis and to which the pistons of each pair are connected,
(e) each piston of a pair through its power stroke moving the other piston of its pair through its compression stroke,
(f) and means for transmitting the power from said drive arms to a common shaft.

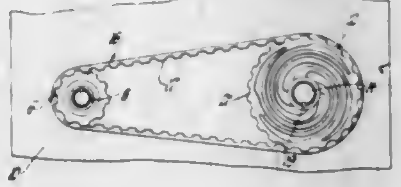
3,304,924
TENSIONING PULLEY

John Dolza, 810 State St., Fenton, Mich. 48430
Filed Jan. 20, 1964, Ser. No. 338,922
38 Claims. (Cl. 123—90)

1. A rotary motion transmitting mechanism comprising:

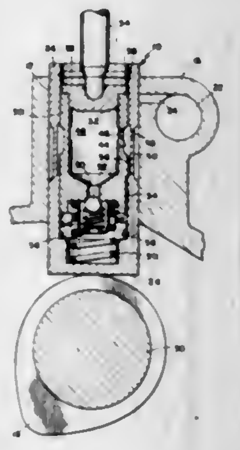
a first rotary member;
a second rotary member having an axis of rotation spaced from the axis of rotation of said first rotary member;

a closed flexible loop of substantially fixed length interconnecting said rotary members to transmit the rotary motion of one of said rotary members to the other of said rotary members;
at least one of said rotary members having a hub, a rim, and a resilient connection between said hub and said rim to permit eccentricity between said hub and said rim during rotation thereof;
and damping means between said hub and said rim and operable to absorb vibrations therein.



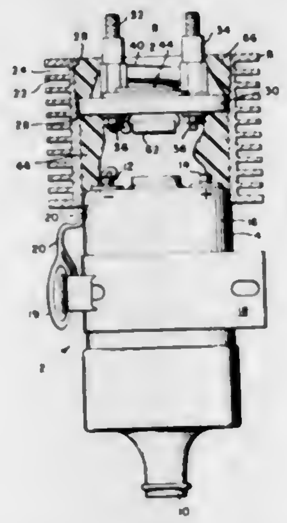
34. An internal combustion engine having a crankshaft, a camshaft spaced from and generally parallel to said crankshaft, a rotary member connected to said crankshaft, a rotary member connected to said camshaft, and a closed loop of substantially fixed length interconnecting said rotary members to transmit rotary motion of one to the other, at least one of said rotary members having a hub, a rim, and a plurality of circumferentially spaced spiral spokes wound between said hub and said rim and integral therewith, said spokes being capable of radial deflection to permit eccentricity between said hub and said rim and thereby allow for any variation in the spacing between said crankshaft and said camshaft.

3,304,925
HYDRAULIC VALVE LIFTER
James E. Rhoads, 8888 Lemon Ave.,
La Mesa, Calif. 92041
Filed June 20, 1966, Ser. No. 558,907
7 Claims. (Cl. 123—90)



1. In a hydraulic valve lifter having a hollow cylindrical body with a closed lower end for engagement with a cam; a hollow cylindrical plunger axially slidable in said body and enclosing a pressure chamber in the lower end of the body; an external collecting channel on said body to receive oil from a pressurized source; a port opening into said body from said channel; a port in said plunger communicating with said first mentioned port to admit oil into the plunger; and a one-way valve in said plunger opening into said pressure chamber;
the improvement comprising:
at least one restricted oil bleed channel extending from said pressure chamber along the outside of said plunger;
an oil return opening from the interior of said body to said collecting channel;
said bleed channel terminating short of said return opening when pressure in said pressure chamber is low and moving into registration therewith when said plunger is raised to a predetermined level by pressure in the pressure chamber;
the cross sectional area of said bleed channel being insufficient to sustain oil bleed beyond a predetermined flow rate at high engine speed.

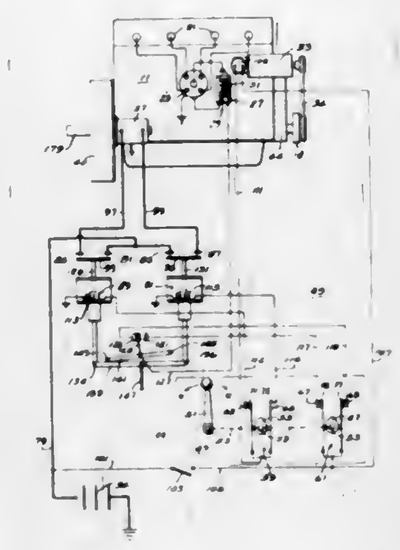
3,304,926
TRANSISTORIZED IGNITION APPARATUS
Clinton E. Maiden, Canoga Park, and Mindaugas E. Gedgaudas, Inglewood, Calif., assignors to Clinton-Augis Company, Canoga Park, Calif.
Filed May 7, 1964, Ser. No. 365,706
4 Claims. (Cl. 123—148)



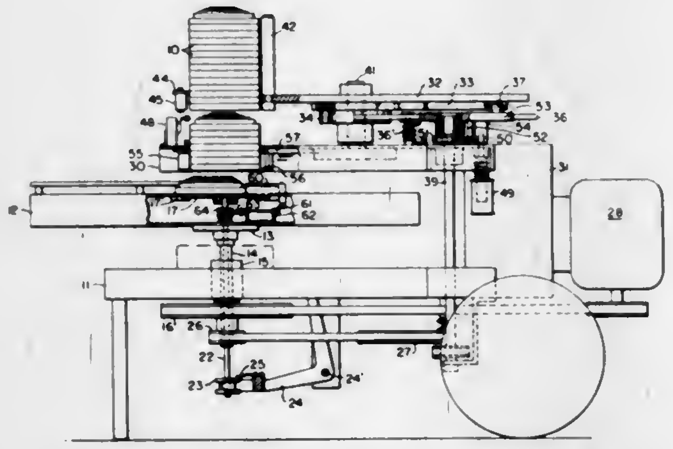
1. In an internal combustion engine of the spark ignition type, electrical ignition apparatus comprising, in combination:
(A) a spark coil member for developing a high voltage discharge;
(B) a thermo-setting plastic casing for said spark coil member;
(C) a heat-radiating casing affixed to said casing for said spark coil member and including:
  (1) a finned external wall;
  (2) and a thermally conductive mounting plate affixed to said casing and in good thermally conducting relationship with said finned wall;
(D) a temperature sensitive electronic circuit disposed in said heat-radiating casing including electrical components affixed to and in good thermally conducting relationship with said mounting plate, and electrically connected to said spark coil member for controlling said high voltage discharge;
(E) and a thermo-setting plastic filling in said heat-radiating casing surrounding said mounting plate and said electronic circuit and bonded to portions of said thermo-setting plastic casing for said spark coil member.

3,304,927
ENGINE
Michael Gorski, 2108 S. Muskego Ave.,
Milwaukee, Wis. 53215
Filed Sept. 30, 1964, Ser. No. 400,320
4 Claims. (Cl. 123—179)

1. A starting circuit for an internal combustion engine having starting motor means for reversibly starting the engine, said circuit comprising the combination of a source of electrical current, a pair of solenoids operable selectively to energize the motor means for engine starting in opposite rotative directions, first switch means electrically coupled to said current source and operable to selectively energize said solenoids, an ignition coil, second switch means electrically coupled to said ignition coil and including a pair of contacts selectively electrically coupled to said ignition coil, third switch means electrically coupled to said current source and to said pair of contacts, said third switch means being operable to selectively electrically couple said contacts to said current source, and means mechanically connecting said second switch means and said solenoids to electrically couple one of said contacts with said ignition coil in response to energizing of one of said solenoids and to electrically couple the other of said contacts with said ignition coil in response to energizing of the other of said solenoids.

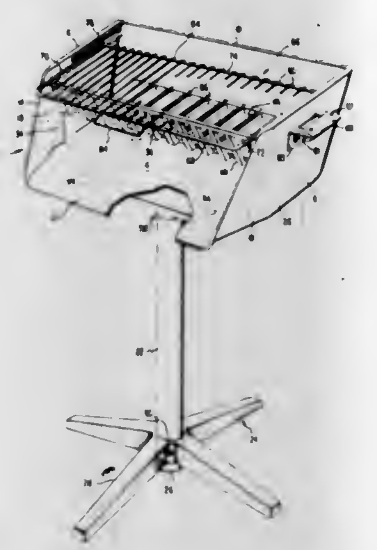


3,304,928
ROTARY TRAP MAGAZINE WITH TWO-STAGE TARGET FEED
George H. Darrell, 25 Chestnut St.,
Dedham, Mass. 02026
Filed Mar. 31, 1964, Ser. No. 356,111
5 Claims. (Cl. 124—47)



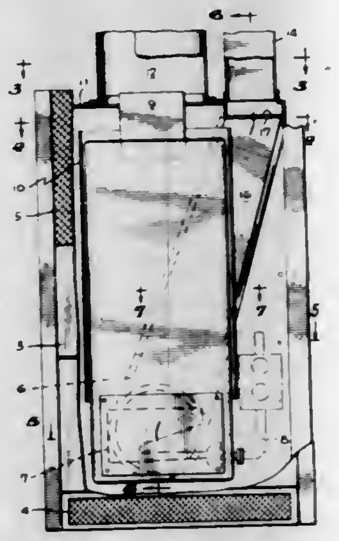
3. A target trap having a rotary throwing arm and a turret rotatable about an axis offset with respect to the axis of the throwing arm and carrying a series of target stacks, target-gripping means carried by the turret and arranged to be automatically released when a target stack is presented by the turret in line with the axis of the throwing arm, means for supporting an auxiliary stack in line with and between a turret stack and the throwing arm, means for delivering targets from the turret stack to the auxiliary stack, and separate gripping means for the lowermost target of the auxiliary stack arranged to be intermittently released for the transfer of successive targets from the auxiliary stack to the throwing arm.

3,304,929
COOKING GRILL
William D. Brunig, Norwich, N.Y., assignor to Bennett-Ireland Inc., Norwich, N.Y.
Filed Apr. 8, 1965, Ser. No. 446,642
13 Claims. (Cl. 126—25)



1. A portable cooking grill comprising a body having solid bottom, side and back walls with an open top and front, a grate of generally L-shaped cross-section insertable therein, said grate having a floor and an upstanding front wall located at the front of said body for containing solid fuel, and a grill insertable into said body and interfitting therewith to permit both sliding and pivotal movement of said grill, the bottom wall of said body including a curved lip at said open front forming an air scoop for directing air into said body.

3,304,930
WALL FURNACE CONSTRUCTION
Lynn B. Cayot, 2127 W. Commonwealth Ave.,
Alhambra, Calif. 91803
Filed Mar. 22, 1965, Ser. No. 443,778
2 Claims. (Cl. 126—116)

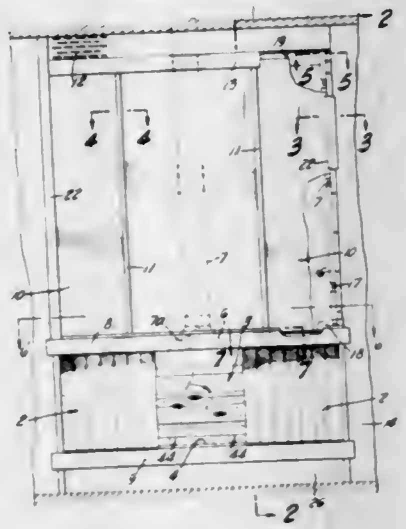


1. A wall furnace construction for a space to be heated, said space having a roof, said wall furnace comprising a housing, said housing having walls and a top, a combustion space in the lower end of said housing, an air inlet to said combustion space, a combustion vent pipe connected to said combustion space and extending upwardly from said furnace, a duct structure including an air inlet conduit extending upwardly from said furnace and spaced from said vent pipe, an angularly diagonally extending channel air conduit mounted on said wall, said air conduit offset from said air inlet conduit and connected to said

air opening and to said air inlet conduit, said connection including a baffle in said duct structure, said baffle diverting the air from said air inlet conduit to said angularly extending conduit.

3,304,931
PREFABRICATED FIREPLACE

Bernard R. Rose, West Los Angeles, Calif., assignor to Dyna Mfg. Co., Los Angeles, Calif., a corporation of California
Filed Jan. 27, 1965, Ser. No. 428,416
3 Claims. (Cl. 126—121)

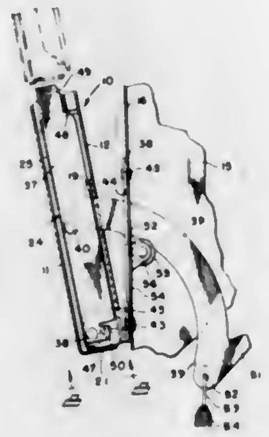


1. A prefabricated fireplace, comprising: spaced upright side members; lower and intermediate transverse members extending between said side members adjacent the lower ends thereof; a firebox supported by said lower and intermediate transverse members and having a floor substantially at the level of said lower transverse member, a rear wall, side walls and a top wall, said firebox having an open front facing outwardly between said lower and intermediate transverse members; an enclosure spaced from and extending around said side and rear walls inwardly of said side members; an uppper transverse member extending between the tops of said side members, said upper member comprising a louvered ventilating panel; a cover panel removably resting on said intermediate member and extending upwardly to said upper member and from one side member to the other; and cover strips removably carried by said side members and covering the juncture between said panel and said side members.

3,304,932
REMOVABLE OVEN DOOR

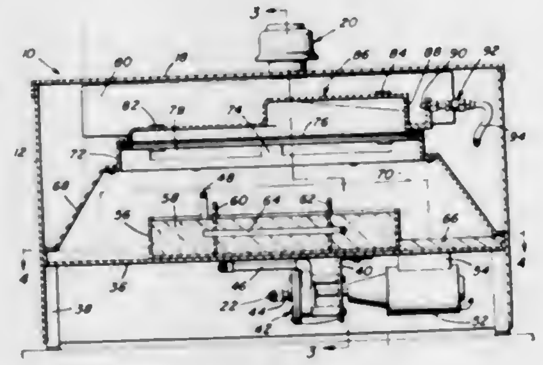
John W. Gilliom, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio, a corporation of Ohio
Filed Oct. 15, 1965, Ser. No. 496,637
3 Claims. (Cl. 126—194)

1. In a cooking range having a front range frame defining an oven cavity, an oven door for selectively closing and exposing said oven cavity, said door being formed relatively adjacent each side thereof with an elongated slot communicating with an opening formed in the bottom of said door, channel means mounted interiorly of said door adjacent each of said slots, a hinge assembly for mounting said oven door comprising a mounting bracket mounted on said front frame relatively adjacent each side thereof, a cam lever pivotally mounted on each of said brackets and extending upwardly into the associated channel means for pivotally mounting said door, a cam arm pivotally attached to each of said cam levers and extending through aligned slots formed in said bracket and said front frame, cam roller means mounted on each of said brackets, spring means operatively connected to said cam arms for continuously biasing said cam arms into contact with said cam roller means thereby biasing said door to a closed position, first means on each of said cam arms for frictionally engaging the associated cam roller means thereby to overcome the bias of said spring means and retain said door in a predetermined, slightly open position, second means on each of said cam arms for frictionally engaging the associated cam roller means thereby to overcome the bias of said spring means and retain said door unattended in a fully open position, each of said mounting brackets being formed with a forward flange portion carrying a laterally bent tab, said tabs being fully registrable with portions of the associated openings in said bottom wall of said oven door when said door is in such slightly open position thereby to permit upward withdrawal and removal of said door only when in such position.



3,304,933
SWIMMING POOL HEATING DEVICE

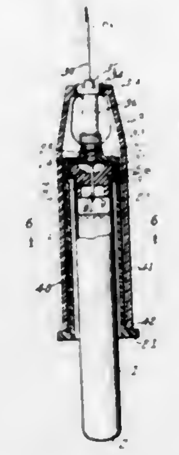
Bobby Lewis Bates, 20007 Lanark, Canoga Park, Calif. 91306
Filed May 6, 1966, Ser. No. 548,176
9 Claims. (Cl. 126—350)



1. A water heating device for swimming pools or the like comprising, an enclosure, means containing a heat storing material within said enclosure, a heating coil embedded in said heat storing material, a housing forming a heating chamber about the heat storing material and having an inlet opening and an exhaust opening, burner means mounted in close spaced relation to said inlet opening for emitting an elongated flame through said inlet opening into the heating chamber when supplied with fuel, a flame arrestor mounted within the housing between the inlet and exhaust openings, power operated pump means connected to the heating coil for circulating water therethrough, fuel supply valve means connected to the burner means for controlling a supply of fuel thereto and temperature control means connected to the pump means and the valve means for intermittently operating the pump means and opening the valve means to regulate the temperature of a predetermined quantity of water circulated through the heating coil.

3,304,934
BLOOD DRAWING DEVICE

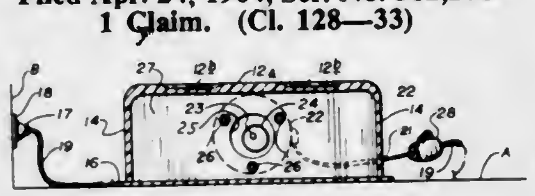
Dionisio O. Bautista, 4610¼ Hollywood Blvd., Los Angeles, Calif. 90027
Filed Sept. 29, 1964, Ser. No. 400,024
1 Claim. (Cl. 128—2)



A blood drawing device as disclosed, including: two cannulas with attached hubs, a tubular valve joining the hubs, a tubular holder attached to one hub for releasably mounting a vial, an outer sleeve surrounding the tubular holder and attached to the other hub, upper and lower apertures in said sleeve providing means whereby rotation of the tubular holder relative to the outer sleeve closes or opens the tubular valve.

3,304,935
FOOT VIBRATOR

Delbert B. Kennedy, 908 Mendocino Drive, Ukiah, Calif. 95482, and Marvin E. Cannon, Ukiah, Calif.; said Cannon assignor to said Kennedy
Filed Apr. 24, 1964, Ser. No. 362,276
1 Claim. (Cl. 128—33)



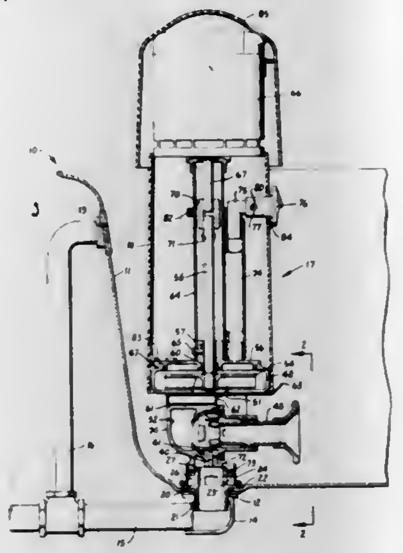
Apparatus for stimulating circulation in the feet and legs of the human being comprising: a housing consisting of, in a unitary integral structure of relatively rigid material, a top plate of size sufficient to support the feet of a human being, four side walls of a rectangular configuration for supporting said top plate in spaced relation to a horizontal floor surface, and a planar brace extending between a pair of opposite side walls beneath said top plate and being formed integral with said opposite walls and said top plate; said brace having a hole therethrough substantially midway between said sidewalls; an electric motor having a casing and a driven shaft extending from said casing to said brace with the shaft projecting through said hole and aligned substantially normal to said brace; and a disc secured to said shaft eccentrically thereof on the side of said brace opposite said motor casing so that on energization of said motor vibratory motion is imparted to said housing.

3,304,936
HYDROTHERAPY APPARATUS WITH MEANS FOR MOUNTING IN BATHTUB DRAIN

Peter L. Kosta, Lafayette, Calif., assignor to Jacuzzi Bros. Inc., Richmond, Calif., a corporation of California
Filed June 15, 1964, Ser. No. 375,196
13 Claims. (Cl. 128—66)

10. A fixture for locking a hydrotherapy unit to the drain opening of a bathtub, said fixture comprising:

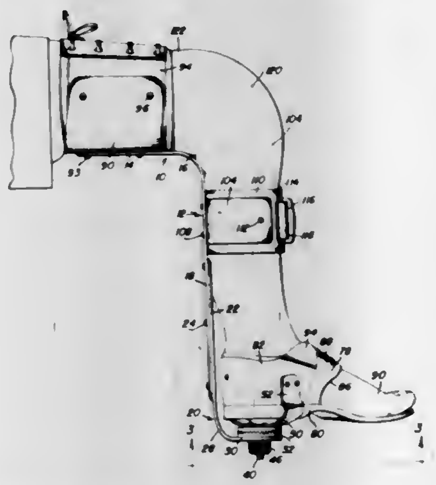
(A) a tube having an open lower end and a port therethrough in spaced relationship to said lower end;
(B) securing means on said tube adapted to sealingly lock said open lower end in the drain of a bathtub while maintaining said port above the opening;
(C) closure means to selectively open and close said port; and,



(D) mounting means formed on the tube above said port including an annular seat adapted to be complementally interfitted with and support a hydrotherapy unit.

3,304,937
DEROTATION BRACE FOR TIBIA DEFORMITIES

George R. Callender, Jr., 1308 Quarrier St., Charleston, W. Va. 25301
Filed July 24, 1964, Ser. No. 384,883
5 Claims. (Cl. 128—80)

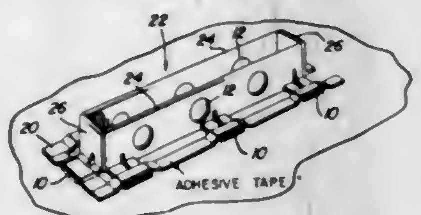


1. A derotation leg brace for treatment of internal torsion or external torsion of the tibia bone comprising a rigid vertical brace bar means adapted to be positioned vertically alongside the posterior of the calf portion of the leg of a wearer, means carried by said vertical brace bar means adapted to embrace the leg of a wearer at the calf portion and dispose the vertical brace bar means in positive position, said vertical brace bar means having a rigid upper end portion disposed at a substantially 90 degree angle thereto and extending rearwardly therefrom and adapted to underlie the thigh portion of a wearer's leg with the leg being bent at approximately a 90-degree angle at the knee, means carried by the upper end portion adapted to embrace the thigh portion of the leg of a wearer, said vertical brace bar means having a rigid lower end portion disposed at a substantially 90-degree angle thereto and extending forwardly therefrom in an opposite direction from the upper end portion, said lower end portion being adapted to underlie the heel of the foot of a wearer's leg, means adapted to embrace and support the hindfoot portion of a wearer's foot, means mounting

the hindfoot support means to the lower end portion of the vertical brace bar means for rotation about a vertical axis spaced from the vertical brace bar means and parallel thereto so as to be in substantial vertical alignment with the tibia bone of a wearer's leg and directly beneath the shaft of the tibia bone and means for locking the hindfoot support means in selected positions of rotation relative to the said lower end portion.

3,304,938
BANDAGE SUPPORT

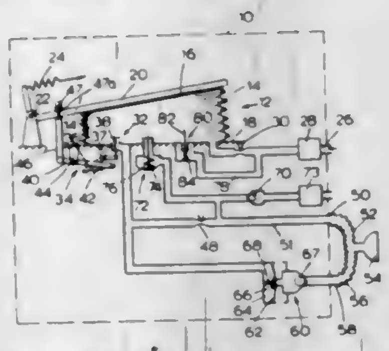
John E. Perkins, Jr., Box 1145, Baton Rouge, La. 70821
Filed Nov. 19, 1964, Ser. No. 412,506
5 Claims. (Cl. 128—132)



1. For use in diminishing the likelihood of infection and for promoting rapid but safe healing of wounds, burns, cuts and sores, infection preventing means comprising: a bandage bridging, elevating and orientation member having the capability of supporting a bandage contiguous to but free of contact with the vulnerable area requiring bandaging, said member being manually variable in shape and size and accordingly adapted to marginally and conformingly circumscribe said area, said member comprising an elongated strip of thermo-plastic material which can be cut to assume the length and height required, said material being pliant and manually bendable to assume and maintain conformable shape and contour desired, said strip member having a longitudinal bottom edge provided with integral longitudinally spaced outwardly projecting positioning holddown tabs and said tabs being adapted to be fastened by strips of adhesive tape.

3,304,939
VENTILATING MACHINES

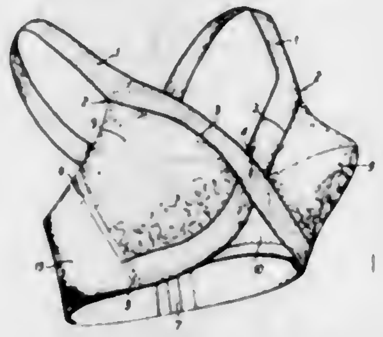
Roger Edward Wentworth Manley, Chorleywood, England, assignor to Blease Anaesthetic Equipment Limited, Northwood, England
Filed Dec. 13, 1963, Ser. No. 330,355
Claims priority, application Great Britain, Dec. 17, 1962, 47,546/62
4 Claims. (Cl. 128—145.7)



1. A ventilation machine for supplying gas to a user comprising: a variable volume bellows; gas supply means comprising a pressure reducing valve having an output port in series with a flow regulator for feeding gas at a preset pressure and volume rate to the bellows; a first outlet valve for the bellows; an overcenter mechanism arranged to open the outlet valve when the volume of the bellows exceeds a first predetermined value and to close the outlet valve when the volume of the bellows falls below a second predetermined value; a tube connecting the outlet valve to a breathing mask for the user; a fluid pressure responsive valve constituting a second outlet valve for the bellows and located in a path for gas that is in parallel with at least a portion of the said tube and connected thereto, means opening said second outlet valve when the pressure applied by the user to the second outlet valve is a negative pressure; and a further valve which constitutes an inlet valve for the bellows and is connected to the gas supply means between the output port of the pressure reducing valve and the said flow regulator, means responsive to a contraction of the bellows beyond the said second predetermined value consequent upon the application of said negative pressure by the user of the machine, for opening said last named inlet valve.

3,304,940
BRASSIERE

Heinrich Hölscher, Heubach, Wurttemberg, Germany, assignor to Triumph-Universa G.m.b.H., Bern, Switzerland, a corporation of Switzerland
Filed Nov. 19, 1964, Ser. No. 412,570
Claims priority, application Germany, Nov. 20, 1963, T 25,100
6 Claims. (Cl. 128—483)



1. A brassiere comprising in combination:

(1) a pair of breast-receiving cups each having an upper edge, an inwardly slanting inner top edge, an outwardly slanting inner bottom edge, and a lateral outer edge,

(2) a pair of at least partially elastic body-encircling side panels each secured at one end to one of said lateral edges and terminating in a pair of back portions fitted with cooperating fastening means,

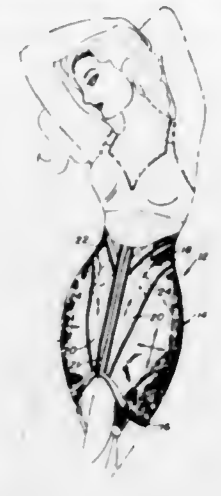
(3) a pair of elastic straps each having a front end portion secured to and extending along the inner top edge of one of said cups to the inner bottom edge of the other cup to points adjoining the lateral edges of the cups, whereby said straps cross one another in the front of the brassiere, and each of said straps having its back end portion secured to the edge of and terminating in the back portions of said side panels, to provide free intermediate shoulder portions by the straps, and

(4) a triangular at least partially transversely elastic insert disposed with its apex coinciding with the crossing point of said straps and having its side edges secured to the adjoining inner bottom edges of said cups the side edges of said insert extending from said crossing point to a position directly below the tips of said cups.

3,304,941
FOUNDATION GARMENT

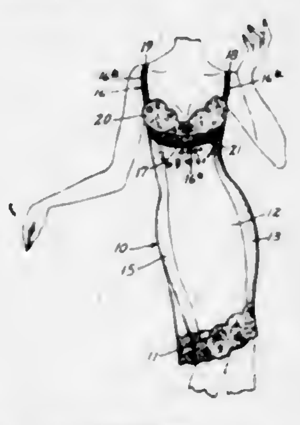
Marion M. Chubby, Chicago, Ill., assignor to A. Stein & Company, Inc., Chicago, Ill., a corporation of Delaware
Filed July 8, 1965, Ser. No. 470,366
6 Claims. (Cl. 128—528)

1. In a foundation garment of the type which includes a generally tubular body adapted to encircle the hips of the wearer, the improvement which comprises an elongated waist band stretchable in the direction of its length incorporated into said body with its two ends secured in side by side relation at the front of the garment in overlying relation to the abdomen of the wearer to provide abdominal supporting sections extending upwardly toward the waist and with the remainder of said band extending outwardly and rearwardly so as to encircle the waist, said band being effectively a single piece so that stretch imparted to the waist portion thereof is transmitted through the band in the direction of its length, thereby stretching said supporting sections and causing same to impart an upward and inward pull on the abdomen of the wearer.



3,304,942
LADY'S SLIP

Alice Norman Hall, Minneapolis, Minn., assignor to Munsingwear, Inc., Minneapolis, Minn., a corporation of Delaware
Filed Mar. 1, 1965, Ser. No. 436,110
2 Claims. (Cl. 128—454)



1. A lady's slip comprising:

(a) a tubular portion substantially form fitting about the waist and hips;

(b) an elongated stabilizing strap having a somewhat U shape with the mid-section of said U fixedly attached to the upper edge of the front of said tubular portion and adapted to lie under the breasts of the wearer;

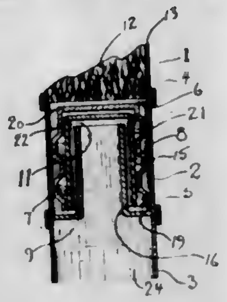
(c) a strip of elastic material having one longitudinal edge fixedly attached to the upper edge of said tubular portion along the back and sides and each end of said strip fixedly attached to said stabilizing strap along an arm of said U in juxtaposition to the closed end of said U;

(d) means adjustably attaching the ends of said stabilizing strap in a spaced apart relationship to the upper edge of said strip at the back of said slip, said attaching means and said stabilizing strap being sufficiently long to form a pair of shoulder straps; and

(e) a strip of elastic material fixedly attached at its ends and lower longitudinal edge to the stabilizing strap within the bight of the U and adapted to partially embrace the underside of the breasts for partial uplifting thereof.

3,304,943
CIGARETTES WITH SMOKE COOLERS

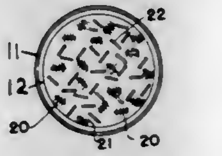
Roland E. Gunther, 100 Joanne St., Princeton Junction, N.J. 08550
Filed Mar. 6, 1964, Ser. No. 349,949
1 Claim. (Cl. 131—10.5)



In a cigarette having a wrapper and a charge of tobacco therein, a tubular filter mouthpiece and a cooling means intermediate the mouthpiepe and the cigarette, the said cooling means comprising a large metallic outer tubular portion of a diameter substantially the same as that of the mouthpiece and the cigarette and adapted to be secured thereto and provided with a smaller inner tubular section shorter in length than the outer section and which is connected by an annular flat sealing web portion to the lower edge of the outer tubular portion to form an annular well, the inner tubular portion housing a filter element which is continuous with the filter in the mouthpiece, a double element cup shaped baffle element having an outer helical rib disposed within the well with the bases of said baffle element disposed over the top of the inner tubular section and in spaced relationship thereto, in such wise that a helical and then reversely extending smoke path is provided for the smoke to follow from the tobacco, first, between the outer helical wall of the baffle and the inner wall of the large tubular element, then under the cap-like baffle and then between the inner element of the baffle and the outer and top walls of the inner tubular section and finally after a second reversal of its path through the filter, to the mouthpiece.

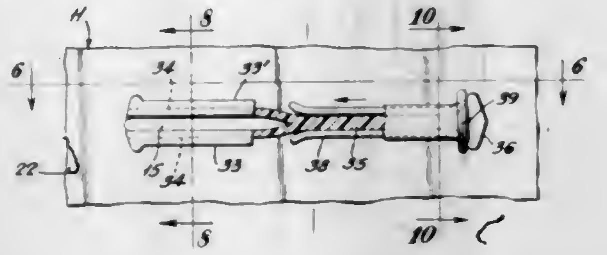
3,304,944
FILTER CARTRIDGE FOR TOBACCO PRODUCTS

Allen E. Badertscher, 18300 Ash St., East Detroit, Mich. 48021
Filed May 4, 1964, Ser. No. 364,423
4 Claims. (Cl. 131—267)



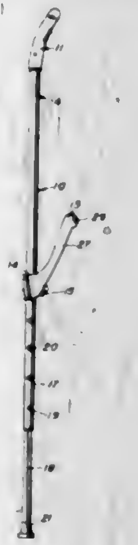
1. A cartridge for the condensation and absorption of tar, nicotine, moisture, and condensable chemicals and compounds present in tobacco smoke comprising:
- a cylindrical body;
- a multiplicity of condensing and absorbing ribbon assemblies nested within the body;
- each ribbon assembly consisting of a thin and narrow moisture absorbing ribbon support;
- a plurality of smoke restricting and moisture absorbing fibers at their one ends bonded to and projecting from said supports; and
- a plurality of elongated spaced heat absorbing ribbons of a high heat absorbing material, intermingled with said ribbon assemblies;
- said heat absorbing ribbons and the smoke restricting and moisture absorbing fiber ribbon supports being parallel to the body axis and the path of smoke;
- said smoke restricting and moisture absorbing fibers being perpendicular to the path of said smoke.

3,304,945
HAIR TREATMENT CAP FOR SELECTIVELY TREATING LOCKS OF HAIR
George W. Anderson, 1020 N. Quincy St.,
Arlington, Va. 22201
Filed Mar. 12, 1964, Ser. No. 351,419
1 Claim. (Cl. 132—9)



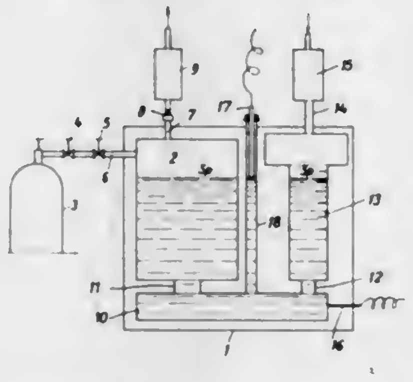
A protective covering for the scalp during hair treatments which comprises a cap adapted to completely cover the scalp of the wearer, said cap being formed of a flexible material which is impervious to materials used in said hair treatment, and having a plurality of slits therein for a lock of hair in said cap, clamping means integral with said cap at each of said slits for engaging a lock of hair and substantially sealing said slit against passage of fluid therethrough, said clamping means comprising two parallel jaws projecting outwardly of said cap and forming the opposing edges of said slit, each of said jaws having a longitudinally extending groove provided at the outer side thereof, a bifurcated spring clip secured to each of said clamping means, each spring clip having a pair of generally parallel limbs slidably mounted in said grooves on the respective jaws from a clamping position in which the respective slit is closed to an open position in which the slit is open, and stop means comprising an enlargement at one end of said jaws, the spring clip in the open position thereof abutting said stop means so that further movement thereof away from the open position is prevented to thereby prevent inadvertent disassociation of the spring clip from the respective clamping means.

3,304,946
CRUTCH
William J. Lutes, 230 Monroe Drive, Apt. 13,
Mountain View, Calif. 94040
Filed June 1, 1965, Ser. No. 460,153
3 Claims. (Cl. 135—50)



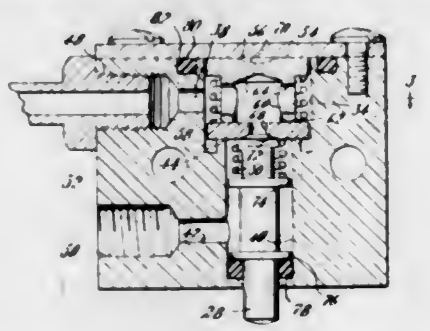
1. A crutch comprising
a telescopically adjustable straight staff portion,
an armpit support portion having a socket in its lower end to receive the upper end of the staff portion in fitted relation therein,
means for retaining the staff portion rotatably within the socket of the armpit support portion,
releasable anchor means for securing the staff in rotatably adjusted position in its socket,
a stirrup-like hand grip portion comprising
  a mounting element mounted for axial and rotative adjustment on the staff portion,
  a grip support element mounted on the mounting element and disposed at an acute angle to the longitudinal center line of the staff portion, and
  a grip element mounted on the outer end of the grip support element and disposed perpendicular to, and in laterally offset relation to the staff portion, and anchor means for securing the hand grip support portion in rotatably and axially adjusted position on the staff portion.

3,304,947
APPARATUS FOR SUPPLYING GAS AT LOW PRESSURE FROM A HIGH PRESSURE SOURCE
Erich Hartleb, Nievern, Kreis Bad Ems, Germany
Filed Mar. 19, 1965, Ser. No. 441,121
Claims priority, application Germany, Mar. 23, 1965,
L 47,389
9 Claims. (Cl. 137—209)



1. An apparatus for supplying gas at low pressure from a high pressure source comprising spaced chambers, a conduit connecting said chambers, and a liquid in said chambers and conduit; means for supplying gas under predetermined pressure to one of said chambers above the liquid therein, a conduit leading from said one chamber above the level of the liquid therein for conducting the gas from said one chamber and a conduit connecting the other chamber above the liquid therein to atmosphere, said other chamber being of a transparent material and having index marks thereon whereby to indicate the pressure of the gas in the first chamber by indicating the level of the liquid in the second chamber.

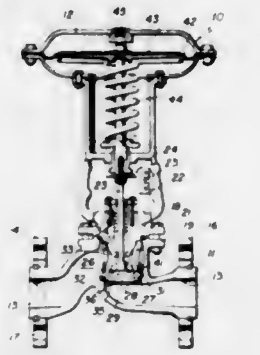
3,304,948
MINIATURE PNEUMATIC VALVE
Nicholas L. Demeo, Medford, Mass., assignor to United Electric Controls Company, Watertown, Mass., a corporation of Massachusetts
Filed Mar. 12, 1965, Ser. No. 439,363
8 Claims. (Cl. 137—270)



1. A valve comprising a valve body containing a valve chamber and three passages in communication with the chamber; two of which constitute inlet and outlet passages for conducting fluid through the valve and the third of

which constitutes a bypass for modifying flow through the valve, a valve element and actuator disposed in the chamber and bypass respectively, and means yieldingly holding the actuator spaced from the valve element; characterized in that the valve element is adapted to be reversibly mounted in the valve chamber so that movement of the actuator, in the same direction, in one position of the valve element will effect an increase in flow through the chamber and in the other position of the valve will effect a decrease in flow through the chamber.

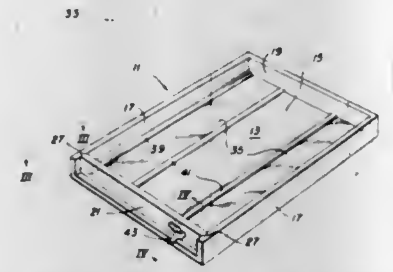
3,304,949
VALVE
Hans D. Baumann, Decatur, Ill., assignor to Riley Stoker Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Mar. 22, 1965, Ser. No. 441,649
5 Claims. (Cl. 137—270)



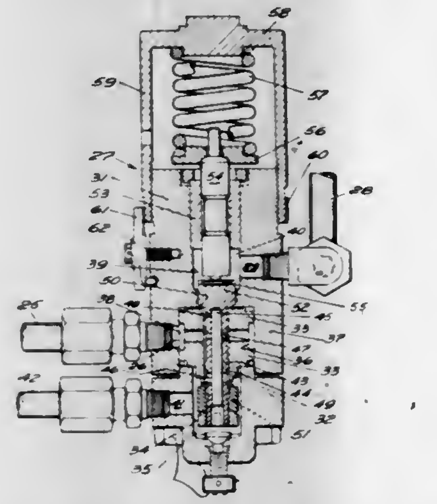
1. A valve, comprising
(a) a housing having a chamber and having an inlet opening and an outlet opening into the chamber, the housing having a wall extending across the chamber, which wall is provided with an aperture,
(b) a seat member of generally cup-shaped configuration having a tubular side wall, the exterior of the side wall having a flange extending radially outwardly therefrom, a second flange extending inwardly from one end of the said tubular side wall to define a bore which is coaxial of the side wall, the seat member residing in the aperture in the said wall with the flange supported on the wall around the aperture, the seat member being reversible in the said aperture,
(c) a plug member residing in the seat member and contacting the second flange of the seat member around the bore, the inner surface of the said tubular side wall being geometrically formed to give accurate control of the space between the plug and the surface when the plug is not contacting the said second flange, and
(d) a stem extending from the plug member to the exterior of the housing for the control of the relative positions of the plug member and the seat member.

3,304,950
WATER CATCHER FOR WASHING MACHINE
Claudine P. Hubert, 805 Centennial Drive,
Champaign, Ill. 61820
Filed Oct. 31, 1963, Ser. No. 320,486
6 Claims. (Cl. 137—312)

1. A water catcher for a domestic type clothes washer comprising wall means including a rectangular horizontally disposed substantially flat bottom wall and three side walls attached to and extending a short distance upwardly from three respective sides of said bottom wall, an elongated gate, means removably and sealingly securing said gate across the remaining and fourth side of said bottom wall and between the parallel spaced side walls of said three side walls, said wall means and said gate being of substantially rigid plastic material and with said wall means being integrally formed, runner means of substantially heavy gauge sheet metal, and attachment means attaching said runner means on said bottom wall with said runner means being in flat engagement with said bottom wall; said water catcher being adapted to be placed on the floor with said gate removed, a washer to be slid along said sheet metal runner means, and then with said gate installed being adapted to catch water leaking from a washer.



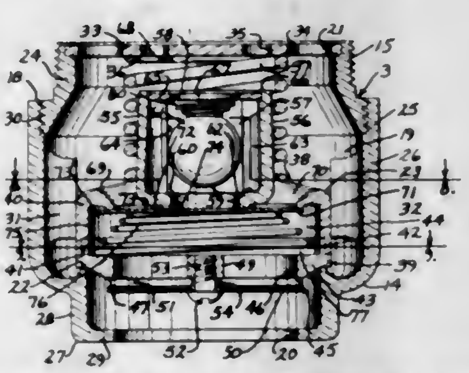
3,304,951
SAFETY VALVES
Victor W. Farris, 104 Woodland St.,
Englewood, N.J. 07631
Filed Aug. 30, 1965, Ser. No. 483,542
1 Claim. (Cl. 137—492)



A safety valve for protecting a fluid-containing vessel against excessive fluid pressure generated therein comprising: a main valve body having main inlet and outlet ports and a main valve disc controlling communication therebetween; said main valve disc being adapted to be exposed to the fluid in said vessel to develop first and second forces thereagainst in directions tending, respectively, to open and close the same; said second force normally exceeding said first force whereby said main valve disc is normally closed; a pilot mechanism for controlling the exposure of said main valve disc to said second force; said pilot mechanism including a housing having first, second and third chambers therein; said first chamber communicating with said fluid-containing vessel, said second chamber communicating with said main valve body above said main valve disc, and said third chamber communicating with exhaust means; a plunger slidably mounted in said housing; said plunger being ported to provide communication between said first and second chambers and between said second and third chambers; first and second pilot mechanism valves carried at opposite ends of said plunger and cooperating with seats formed on opposite end faces of a block incorporated in said housing whereby said first pilot mechanism valve controlling communication between said first and second chambers, and said second pilot mechanism valve controlling communication between said second and third chambers; means exerting a force against said plunger to normally maintain said first pilot mechanism valve open and said second pilot mechanism valve closed; and means for adjusting the magnitude of said last-named force to set the fluid pressure at which it is desired to bring about the opening of said main valve disc; the effective area of said first pilot mechanism valve being greater than the effective area of said second pilot mechanism valve whereby once the pressure generated in said fluid-containing vessel equals or exceeds said set fluid pressure, said first pilot mechanism valve closes, said second pilot mechanism valve opens, and the sending of the pressure generated in said fluid-containing vessel is transferred from said second pilot mechanism valve to said first pilot mechanism valve until the pressure generated in said fluid-containing vessel is reduced to below said set fluid pressure.

3,304,952
VENT CONTROL DEVICE

Howard C. Krone, Overland Park, Kans., assignor to William A. Knapp Company, Kansas City, Mo., a corporation of Missouri
Filed Mar. 15, 1965, Ser. No. 439,554
14 Claims. (Cl. 137—493.9)

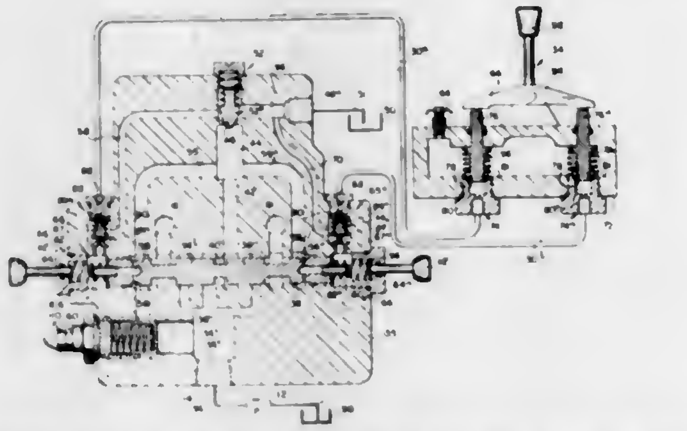


1. A vent control device for flammable liquid storage receptacles comprising,
  (a) a vent housing for connection to a receptacle and having a passage with a bottom opening in communication with a receptacle interior and a top opening to the atmosphere,
  (b) an upwardly facing seat surrounding said passage and spaced from said bottom opening,
  (c) a pressure-responsive relief valve member movably guided in said housing and biased into seating engagement with said seat,
  (d) said pressure-responsive relief valve member having an inner chamber with a bottom opening in communication with said passage below said upwardly facing seat and top ports communicating with the passage above said upwardly facing seat,
  (e) valve means normally closing said ports,
  (f) and a flow-responsive spill-prevention valve engageable with the valve member around said bottom opening thereof and normally sustained away therefrom for substantially unimpeded low rate flow thereabout.

3,304,953
FLUID POWER SYSTEM AND VALVE MECHANISMS THEREFOR

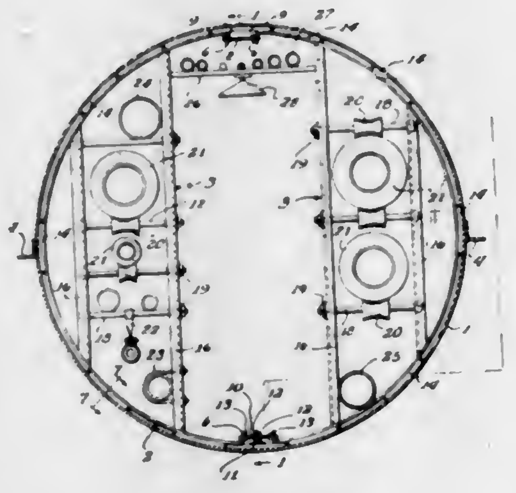
William A. Wickline, Willowick, Anthony Nevulis, Wickliffe, and John Barry Evans, Willoughby, Ohio, assignors to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Jan. 2, 1964, Ser. No. 335,190
14 Claims. (Cl. 137—596.12)

1. A control valve for use in a pressurized fluid power system for controlling the actuation of an associated fluid powered double-acting motor unit comprising, a body, an inlet port in said body, said port being adapted for attachment to a source of pressurized fluid, a pair of distributing ports in said body, each of said distributing ports being adapted for attachment to a respective end of the motor unit, an axially movable spool for controlling the application of pressurized fluid from said inlet port to a selected one of said distributing ports, and the return of pressurized fluid from the motor unit through the other of the distributing ports, fluid pressure means for applying said pressurized fluid at a predetermined relatively low pressure equally to opposite ends of said spool for maintaining said spool in neutral position wherein said distributing ports are cut off from said inlet port, and means for selectively changing the fluid pressure at said opposite ends of the spool, for unbalancing the spool and causing movement thereof to an active position, whereby said pressurized fluid from said inlet port may be applied to a selected one of said distributing ports at a relatively higher pressure than said relatively lower pressure, the last mentioned means including a poppet-like valve member which upon actuation reduces the supply of said pressurized fluid to one end of said spool, and means for applying additional pressurized fluid to the valve member at a pressure lower than said relatively low pressure for actuating the same in a predetermined direction.



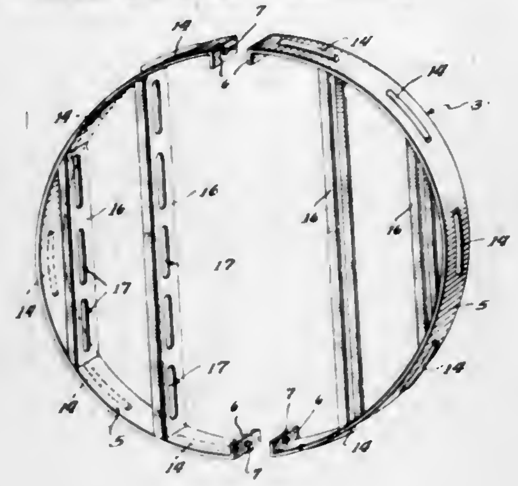
3,304,954
HOUSING DUCT FOR UTILITY DEVICES

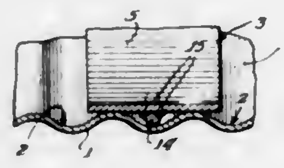
Edward W. Kaiser, 2011 W. Arthur,
Chicago, Ill. 60645
Filed Aug. 13, 1963, Ser. No. 301,760
1 Claim. (Cl. 138—112)



A prefabricated walk-through duct comprising in combination:
  (a) a length of preformed circumferentially-corrugated duct;
  (b) a plurality of sectional circular bands in spaced relation within the duct, each adjustable in diameter for bracing and supporting engagement with the inner sides of said duct and each adjustably connected at certain of their adjacent ends to the duct;

  (c) relatively spaced pairs of stanchions spanning the circular bands connected at their opposite ends to adjacent portions of said bands; and
  (d) relatively vertically spaced horizontally disposed struts between the stanchions and connected thereto for vertical adjustment therealong;

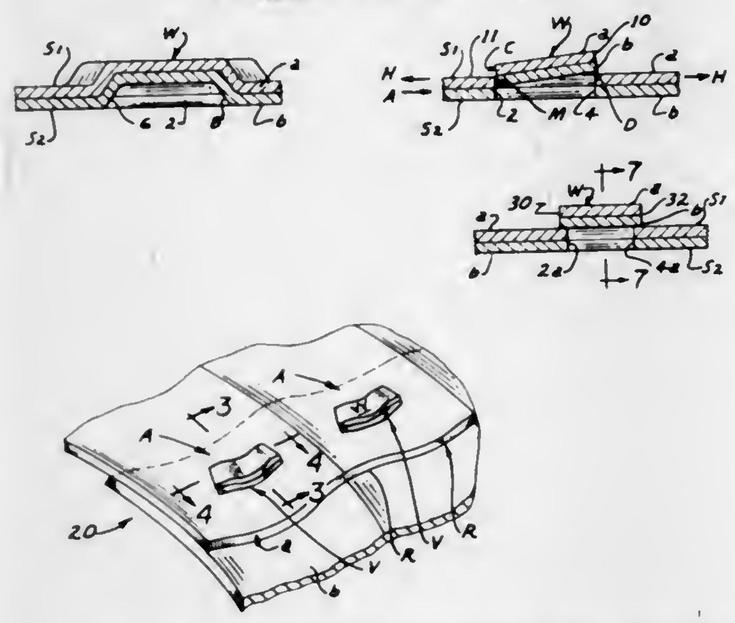




  (e) solid tongues circumferentially disposed about and secured to the outer peripheries of said bands and engaged in certain of the corrugations of said duct to thereby prevent longitudinal shifting of said bands.

3,304,955
CORRUGATED SHEET METAL CULVERT

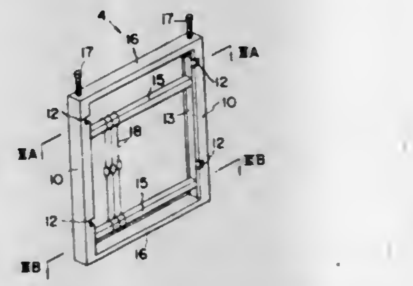
Theodore C. Zinniger, Hayward, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware
Filed Aug. 1, 1963, Ser. No. 299,372
2 Claims. (Cl. 138—162)



1. In a stitched metallic culvert pipe seam made up of overlapping corrugated sheets, a stitch for said seam located in a pair of mated valleys at a point of overlap of said sheets and comprised of integral portions of the overlapping sheets displaced out of the respective normal planes of said integral portions of said sheets, each of said displaced integral portions of said sheets forming a displaced composite web defined by a pair of laterally spaced-apart incisions in said sheets and a pair of folds in said sheets, each of said folds fully intersecting each of said incisions in said sheets at other than interior angles of 90°, said laterally spaced-apart incisions being arranged generally parallel to the culvert seam and the folds being arranged at angles to the culvert pipe seam to resist the shear forces to which said stitch is subjected during use and said displaced composite web lying wholly within the confines of the said pair of mated valleys at the point of overlap of said sheets whereby said displaced composite web is protected on both sides by the outwardly projecting ribs of the corrugations in the overlapping sheets.

3,304,956
HEALD FRAME OF POWER LOOM

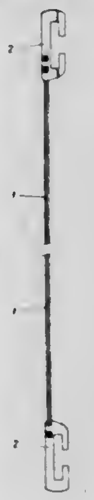
Akira Matsushita and Chikara Uchida, both of Tokyo-to, Japan, assignors to Toko Kabushiki Kaisha, Tokyo-to, Japan, a company of Japan
Filed June 2, 1965, Ser. No. 460,746
Claims priority, application Japan, June 4, 1964 (utility model), 39/44,139
1 Claim. (Cl. 139—92)



A heald frame of a power loom comprising: two opposed vertical frame members provided respectively with mutually facing vertical grooves, each said vertical frame member being provided with upper and lower horizontal recesses positioned in a predetermined spaced relation; upper and lower horizontal cross-members; two vertical movable members each having upper and lower horizontal recesses adapted to receive the two ends of said horizontal cross-members, said recesses of said vertical movable members being spaced and formed so as to match the space and form of said horizontal recesses of said vertical frame members, and said vertical movable members being respectively fitted in said vertical grooves; and stop screws adapted to set said vertical movable members after said upper and lower horizontal cross-members have been engaged in said recesses of said vertical movable members and said cross-members have been slid downwardly.

3,304,957
WEAVING HEDDLE

Bernhard Robert Koch, Zurich, Switzerland, assignor to Grob & Co. A.G., Horgen, Switzerland
Filed Nov. 23, 1964, Ser. No. 413,171
Claims priority, application Switzerland, Dec. 19, 1963, 15,693/63
11 Claims. (Cl. 139—93)

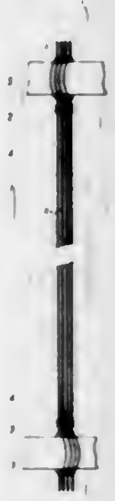


1. A weaving heddle including at least one end loop and a heddle body secured thereto, said end loop having

superimposed parts forming inner and outer walls between which the heddle body extends, one end of said heddle body being held in position by said parts against frictional displacement, said inner and outer walls being provided with at least one cut-out and said heddle body being provided with a laterally extending offset portion extending into said cut-out to securely hold said heddle body end between said superimposed parts.

3,304,958
THREAD GUIDE DEVICE

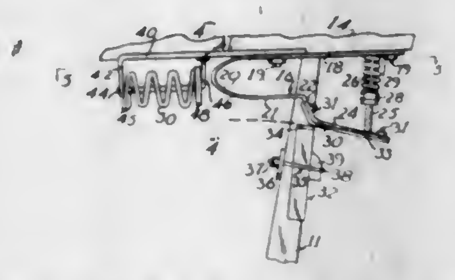
Robert Bernhard Koch, Zurich, Switzerland, assignor to Grob & Co. Aktiengesellschaft, Horgen, Switzerland
Filed Nov. 30, 1964, Ser. No. 414,909
Claims priority, application Switzerland, Nov. 29, 1963, 14,615/63
7 Claims. (Cl. 139—96)



1. A thread guide comprising a metal strip, at least one integral pressed metal protrusion thereon, said protrusion being adapted to engage an adjacent thread guide device to provide a predetermined spacing of adjacent thread guide devices, and said protrusion being of such dimensions as to lie within the confines of the whole width of the metal strip.

3,304,959
PICKER CHECK MECHANISM

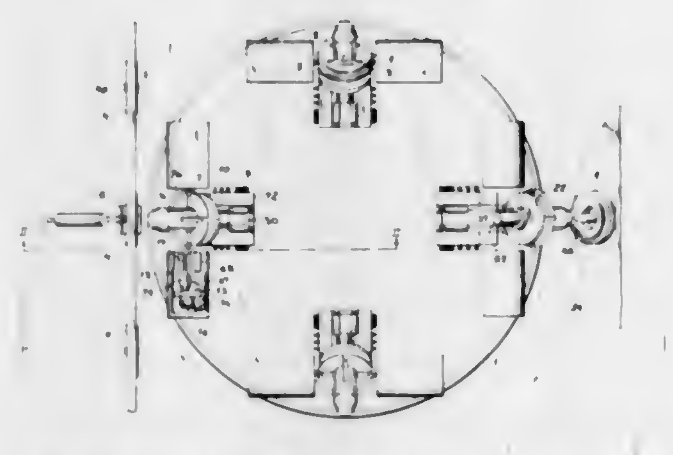
James A. Studdard, 1214 Walker St., Trion, Ga. 30753
Filed Feb. 1, 1965, Ser. No. 429,365
7 Claims. (Cl. 139—164)



1. A loom including a pair of opposed pickers and picker sticks having successive inward and outward movement, a lay beam between the pickers, and a shuttle, wherein the pickers alternately propel the shuttle across the lay beam upon inward movement thereof and receive the impact of the shuttle at the end of its travel over the lay beam, the combination therewith of picker check assemblies disposed on either side of the lay beam and each including an elongate yieldable surface mounted below the lay beam adjacent but laterally of the outer terminal paths of travel of each picker stick, each of said yieldable surfaces being supported at one end by cantilever means and at its other end by spring means, and means on each picker stick to engage said elongate yieldable surface as it approaches its outer movement.

3,304,960
WIRE-TYING APPARATUS

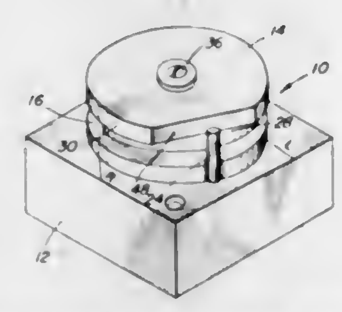
Hans Heinrich Keusemann and Heinz Walpersdorf, both of Rheinhausen, Germany, assignors to Beteiligungs- und Patentverwaltungsgesellschaft mit beschränkter Haftung, Essen, Germany, a corporation of Germany
Filed June 1, 1964, Ser. No. 371,427
Claims priority, application Germany, May 31, 1963, H 49,322
15 Claims. (Cl. 140—93.6)



1. An apparatus for the tying of wire coils, comprising a turntable provided with a wire-coil support adjacent its periphery, a dispenser for tie wire on said turntable adjacent said support, and mechanism on said turntable for looping a length of tie wire from said dispenser about a coil carried by said support and severing said length from the remainder of the wire, said turntable being rotatable for transporting said coil from a supply station to a removal station during operation of said mechanism, said support including a disk having a boss rising centrally therefrom, a plurality of outrigger arms extending radially from said boss, said arms being retractable for facilitating the deposition of a coil on said disk and its subsequent removal therefrom, and means for axially displacing said arms toward said disk for compressing the deposited coil.

3,304,961
WIRE BENDING JIG AND GARMENT HANGER PRODUCED THEREWITH

Adam M. Gorski, 138 S. Yale Ave., Villa Park, Ill. 60181
Filed June 29, 1964, Ser. No. 378,698
3 Claims. (Cl. 140—104)



1. A wire bending jig adapted for shaping a one-piece wire garment hanger of an originally generally triangular configuration and including shoulder supporting bars and a cross bar to provide a shortened cross bar and shoulders carrying integral inwardly extending and opening loop portions below said cross bar at opposed ends thereof, said jig comprising:

a block-like base;

a forming post supported on said base;

said post having a circumferential, annular, wire-receiving groove therearound and extending radially inwardly of a peripheral lateral surface of said post; said groove being adapted to receive and retain laterally superimposed incremental lengths of wire of said shoulder supporting bars and said cross bar during a wire loop forming operation wherein said hanger is bent upon itself to form a bight portion and an inwardly opening double wire hook below and spaced from said cross bar;

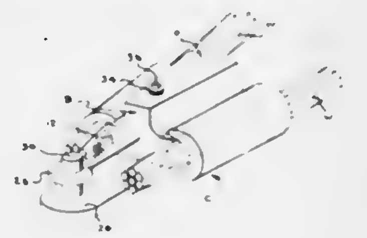
a wire loop anchoring pin embedded in said base and stabilized to resist lateral tipping forces applied thereto;

said pin extending upwardly of said base adjacent the periphery of said forming post and transversely of a plane defined by said annular groove of said forming post;

said pin being adapted to receive a corner of said hanger thereabout and to retain said corner in fixed position during forming of said loop portions of said hanger in said annular groove about said forming post.

3,304,962
EXPLOSIVELY-OPERATED TERMINATING DEVICE

William F. Broske, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Dec. 18, 1964, Ser. No. 419,521
7 Claims. (Cl. 140—113)



1. A device for securing wires together comprising: a pair of relatively movable connecting members adapted to secure a wire therebetween, and explosively-operated means disposed in one of said members for causing relative motion between said members.

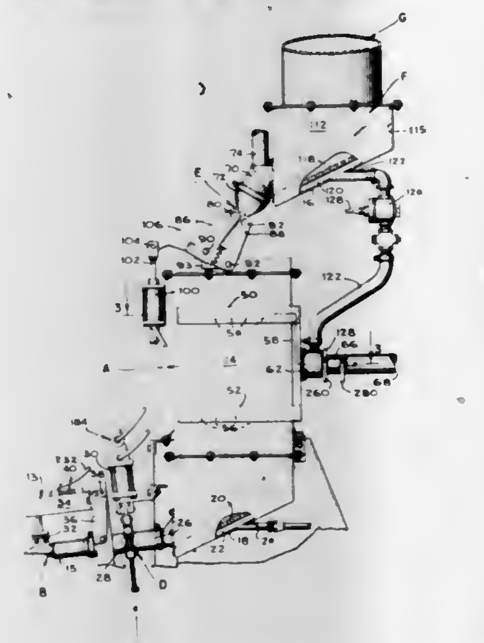
3,304,963
METHOD FOR FILLING A COLLAPSIBLE CONTAINER

Harry R. Greenlee, Detroit, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Feb. 20, 1964, Ser. No. 346,204
6 Claims. (Cl. 141—4)

1. A method of inflating a collapsible container comprising the steps of directing a first flow of dry air to the interior of said container from a first source wherein said dry air is pressurized to a first pressure, maintaining said flow of dry air to said interior until the pressure of said dry air within said first source decreases to a second pressure, directing a second flow of carbon dioxide through said first source to said interior of said container from a second source wherein said carbon dioxide is pressurized to a third pressure substantially greater than said first pressure, and maintaining said second flow until said collapsible container is inflated to the degree causing said interior to attain at least a predetermined fourth pressure.

3,304,964
APPARATUS FOR FILLING POWDERED OR GRANULAR MATERIAL INTO CONTAINERS

Boyd W. Rose, Riverside, Calif., assignor to FMC Corporation, a corporation of Delaware
Filed July 13, 1960, Ser. No. 42,687
2 Claims. (Cl. 141—68)



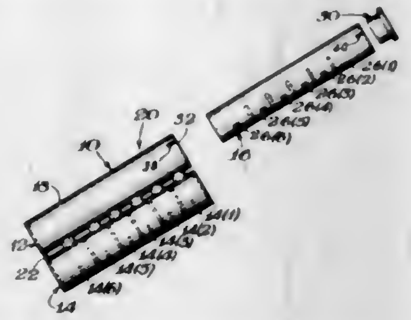
1. Apparatus for filling powdered or granular material into containers comprising a substantially air-tight pressurizing chamber having a discharge spout at the lowermost portion thereof, means for supplying fluidizing air to said chamber at said lowermost portion thereof, a high volume-low pressure air source, a first air conduit connecting said air source with said chamber at a position spaced above said lowermost portion, a material supply chamber positioned above said pressurizing chamber, conduit means connecting said chambers for permitting said material to gravitate from the material supply chamber to the pressurizing chamber and including a valve therein for sealing off said pressurizing chamber, a second air conduit connected to said air source and to the lowermost portion of said material supply chamber for supplying fluidizing air thereto, valve means operatively associated with said first and second air conduits and being arranged for movement to a first position to cause said first air conduit to be blocked while said second air conduit is open to flow therethrough and to a second position to cause said second air conduit to be blocked while said first air conduit is open to flow therethrough, and control means for moving said valve means to said first position when the valve in said conduit means connecting the chambers is open to permit said material to enter the pressurizing chamber and for moving said valve means to said second position when the valve in the conduit means connecting the chambers is closed and said discharge spout is open to permit the pressurized discharge of material from said pressurizing chamber.

3,304,965
DEVICE FOR COLLECTING SEPARATE QUANTITIES OF LIQUID

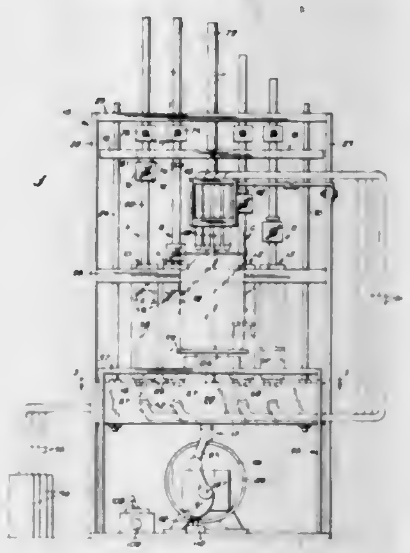
Kenneth B. Tate, Englewood, N.J., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,711
6 Claims. (Cl. 141—325)

1. A device for conveniently collecting separate small quantities of a liquid comprising an elongated dispensing chamber having a wall and open and closed ends, a series of open-ended baffles extending inwardly from said wall into said chamber to provide a series of segregating chambers, a valve means in said wall in each of said segregating chambers in the portion of said wall to which said

baffles are connected remote from their open ends, operating means connected with said valve means for dispensing the quantities of liquid segregated in said segregating chambers after said device is filled by pouring liquid into its open end in a substantially vertical position and then turning it to a substantially horizontal position, said dispensing chamber comprising a cylindrical chamber having a cylindrical barrel rotatably inserted within, said baffles being disposed within said barrel, said valve means comprising longitudinally aligned ports in said barrel and said cylindrical chamber, said barrel being inserted snugly within said cylindrical chamber to provide a substantially liquid-tight seal with said cylindrical chamber, and said valve operating means comprising means for rotating said barrel within said cylindrical chamber.

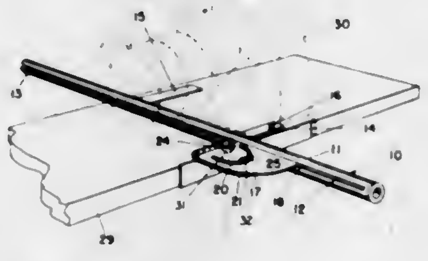


3,304,966
AUTOMATIC MULTI-CHANNEL REAGENT DISPENSER
Jack P. Reed, 21 Glendale Drive,
Little Rock, Ark. 72204
Filed Jan. 11, 1965, Ser. No. 424,866
5 Claims. (Cl. 141—359)



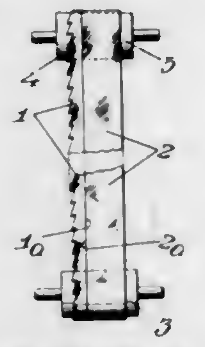
1. A fluid dispensing apparatus comprising a plurality of measuring and pumping devices, each said device including a metering reservoir having a tubular discharge element at one end thereof, and a piston cyclically displaceable therein to and from said one end, a manifold having a corresponding plurality of separate fluid flow passages, each passage defining three apertures in said manifold, a first of said apertures in each said passage having secured therein one of said discharge elements, a second of said apertures in each passage having secured therein a unidirectional valve operative to allow fluid flow into said passage, and said third of said apertures in each passage having secured therein a further unidirectional valve operative to allow fluid flow out of said passage, corresponding pluralities of fluid storage containers and discharge nozzles, separate conduit connections between respective ones of said in-flow valves and individual ones of said fluid storage containers, and further separate conduit connections between respective ones of said outflow valves and individual ones of said discharge nozzles, a cyclic drive means, displacement regulating means adjustably secured to each of said pistons, a drive connector means operatively linking said cyclic drive means to said displacement regulating means to cyclically displace said pistons regulated distances, each said piston includes a piston head enclosed by said metering reservoir thereof and having integral therewith a piston rod projecting beyond said reservoir, said displacement regulating means including a multiplicity of parts fastened to said piston rods, and said drive connector means comprising a unitary element attached to said cyclic drive means and spanning about said piston rods so as to dwell between said multiplicity of parts of said displacement regulating means whereat said unitary element acts on said parts to control said pistons to pump fluid into and out of said flow passages and through said conduit connections whereby predetermined quantities of fluid received from said storage containers are concurrently dispensed through said discharge nozzles.

3,304,967
SAW GUIDE
Edward J. Kujan, 914 Sill Ave., Erie, Pa. 16505
Filed Apr. 28, 1965, Ser. No. 451,456
3 Claims. (Cl. 143—6)



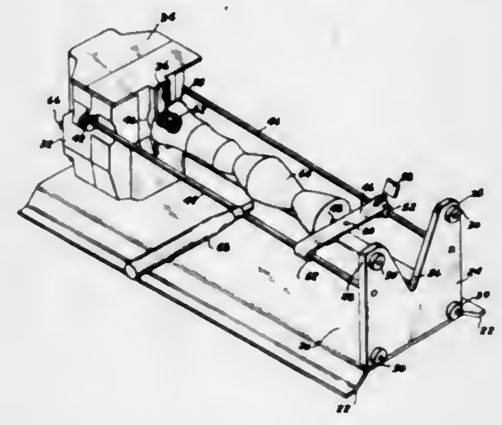
1. A saw guide comprising
a tubular track section,
follower means slidably received in said tubular track section,
means for attaching a saw to said tubular track section,
and means attached to said track section to engage a member to be sawed,
said means attached to said track section being attached thereto by means of a protractor,
said protractor having two relatively movable parts whereby said means may be adjusted relative to said track section.

3,304,968
BAND SAW AND THE SAWING DEVICE THEREOF
Shinnosuke Funakubo, 19 3-chome, Fukagawa
Takabashi, Koto-ku, Tokyo, Japan
Filed Feb. 19, 1964, Ser. No. 346,015
Claims priority, application Japan, Apr. 11, 1963,
38/17,756, 38/17,757
2 Claims. (Cl. 143—17)



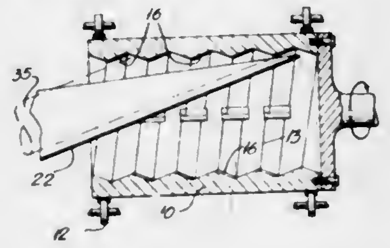
1. In a band saw machine having supporting wheels, a saw blade of narrow width having tooth projections on the leading edge and a supporting blade of broad width, said blades being mounted on the wheels, and being in abutting contact with each other at the trailing edge of said saw blade and the leading edge of said supporting blade.

3,304,969
TOY CUTTING APPARATUS
Edward A. MacDougall, 24231 Oneida Ave.,
Oak Park, Mich. 48237
Filed Feb. 27, 1964, Ser. No. 347,926
21 Claims. (Cl. 144—1)



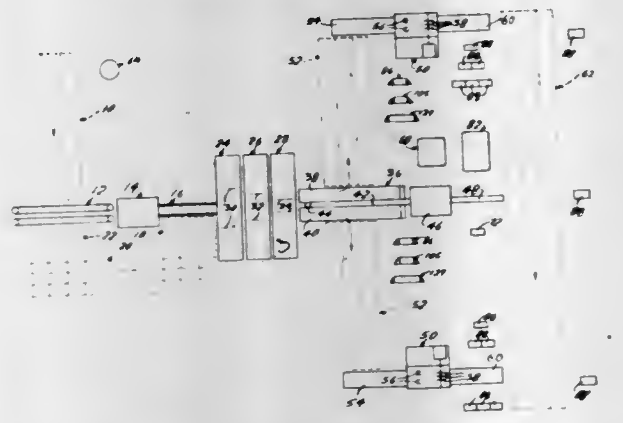
16. Toy cutting apparatus, comprising:
(a) an elongated base;
(b) a frame fixed to one end of said base;
(c) a spindle rotatable in said frame and extending in the direction of the other end of said base;
(d) a support fixed to the other end of the base;
(e) a pair of rods each having one end fixed to the frame and the other end fixed to the support;
(f) a guide extendable and moveable along the rods;
(g) a dead center on the guide in opposing relationship to said spindle disposed on an extension of the axis of the spindle;
(h) a cam-shaped lock member moveable between a first position wherein it bears against said guide member and causes said guide member in turn to bear against at least one of said rods, said guide member thereby being locked against parallel movement along said rods, and a second position wherein said guide member is released for sliding movement along said rods.

3,304,970
AXIAL FEED WAFERIZER
Heino Altosaar, Baie d'Urfe, Quebec, Canada, assignor to Dominion Tar & Chemical Company, Limited, Montreal, Quebec, Canada
Filed Mar. 3, 1964, Ser. No. 349,038
16 Claims. (Cl. 144—162)



1. A waferer for reducing random length logs to wafers including: a wafering head, a surface on said head, a plurality of discrete cutting edges arranged in a spiral path about said surface, each of said cutting edges comprising a main cutting edge and an auxiliary cutting edge, a V-shaped cross section projection extending from said surface between each consecutive knife in said path, one surface of said V-shaped projection being substantially parallel and trailing each said main cutting edge, the other surface of each said V-shaped projection being substantially parallel to and trailing each said auxiliary cutting edge, the length of said one surface in an axial plane being equal to the effective length of said main cutting edge and the average length of said other surface being equal to the number of cutting edges per 360 degrees of said spiral path multiplied by the effective length of the auxiliary cutting edge, said main cutting edge of each consecutive knife being stepped from the trailing end of each said one surface, said one surface being positioned to engage and steady a log fed to said head and said other surface being positioned to engage and prevent overfeeding of said log.

3,304,971
SMALL LOG PLANT
Lionel Pease, Seattle, Wash., assignor to Mill Equipment, Inc., Seattle, Wash.
Filed Feb. 24, 1964, Ser. No. 346,612
5 Claims. (Cl. 144—312)

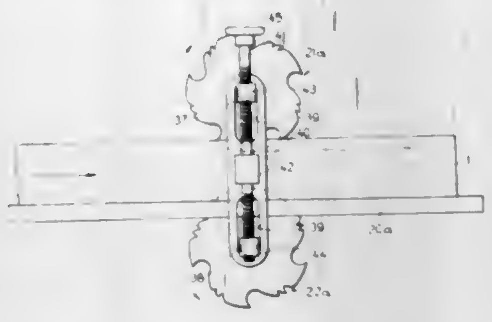


5. A process for converting a log into chips and small dimensional lumber, said process comprising:
(a) removing wood from the log in the form of chips to make a cant;
(b) removing in a series arrangement slabs of wood from the cant by sawing the wood in a multiplicity of sawing operations so that a succeeding sawing operation receives the wood from the next preceding sawing operation to make a smaller cant;
(c) removing the wainscoting from the slabs of wood in the form of chips to form a plank;
(d) simultaneously sawing said plank to form a multiplicity of small cants; and,
(e) simultaneously converting said smaller cant into still smaller cants by sawing said smaller cant.

3,304,972
METHOD AND APPARATUS FOR RIP SAWING OF LOGS AND TIMBERS
Vladimir Kotěšovec and Jan Žižka, Prague, and Vlastimil Janata, Trutnov, Czechoslovakia, assignors to Vyzkumny a vyvojovy ustav drevardsky, Prague, Czechoslovakia
Filed Aug. 4, 1965, Ser. No. 479,046
Claims priority, application Czechoslovakia, Apr. 5, 1961,
712/61
7 Claims. (Cl. 144—326)

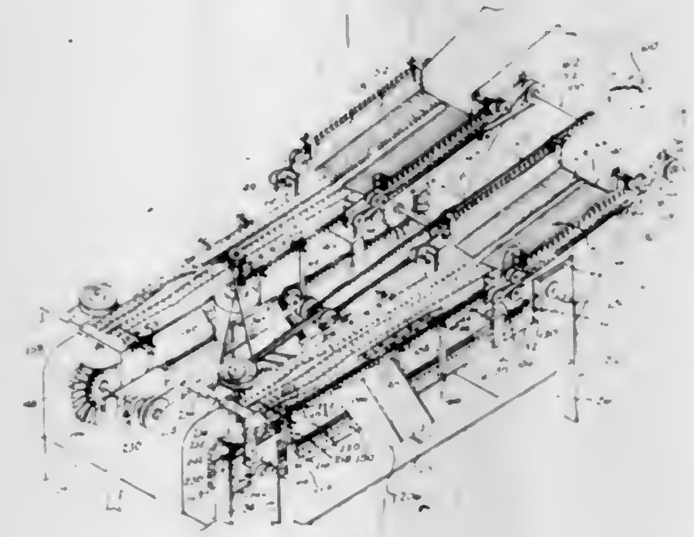
1. A method of dividing an elongated log and like heavy wooden members into a plurality of boards and other plate-shaped members, which comprises:
(a) simultaneously removing a plurality of longitudinally elongated chips from said heavy member in a plurality of parallel longitudinal planes until respective kerfs extending in said planes are formed, each kerf having a longitudinally elongated bottom and a depth in the respective longitudinal plane which is substantially smaller than the thickness of said heavy member in the respective plane; and

(b) removing a plurality of additional longitudinally elongated chips from the bottom of each kerf in the respective plane until respective remaining portions of said member on opposite sides of the respective longitudinal planes are separated from each other to constitute plate-shaped members.



3,304,973
MUSHROOM END CUTTER

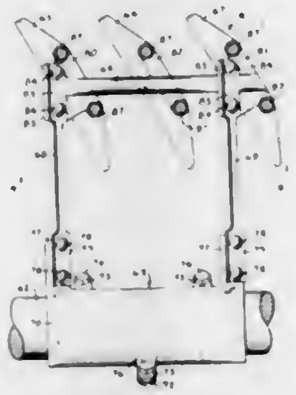
Earl K. Norris, Gap, Pa. 17527
Filed May 1, 1964, Ser. No. 364,183
10 Claims. (Cl. 146—81)



1. Plural food processing machinery for cutting mushrooms or like foods which have a stem, a root, and a crown, the machinery comprising:
- a plurality of side-by-side input hopper means each including an inclined bottom wall forming a trough and having a discharge edge;
- movable positioning means arranged at each of the discharge edges, the positioning means each including a pair of spaced apart supports, a plurality of elongated, rotatable pins with inner end portions, reduced diameter center portions, and outer end portions, secured in spaced rows in each support with the center portions engaged in the supports, said rows being inclined with respect to one another;
- belt means bearing against the outer end portions of the pins to rotate same and to thereby convey the mushrooms and agitate the same into a position with the stem depending into the space between the rows with the crowns riding on the pin inner end portions;
- the rows of pins having discharge ends;
- a pair of laterally spaced, movable flexible members, carrying transversely aligned inturned fingers, arranged in longitudinal alignment with the rows of pins and being movable beneath the discharge ends thereof;
- means for spreading the fingers as they are moved beneath the discharge ends, to a distance apart at least equal to said space between said rows of pins whereby the mushrooms are dropped from the rows between said fingers with the crowns resting thereon;
- elevator means, comprising an inclined belt adapted to move the mushrooms vertically in the fingers to positions in which the roots thereof are longitudinally aligned;
- compression bar means arranged to contact the fingers on opposite sides adjacent the elevator means;
- a root severing blade, adapted to sever the roots as the fingers are moved thereover, adjacent the compression bar means;
- spreader means biasing the fingers apart to substantially said distance following the severance of the roots whereby the crowns are supported on the fingers in substantially longitudinal alignment;
- crown severing blades, including a positioning blade and a main cutting blade mounted above the fingers and adapted to sever the crowns from the stems;
- second compression bar means arranged adjacent the crown severing blades; and
- hopper means for directing the stems and crowns, respectively, away from the machinery after severance.

3,304,974
KNIFE ASSEMBLY FOR BEAN SNIPPER MACHINE

Joe R. Urschel, 202 Michigan Ave.,
Valparaiso, Ind. 46383
Filed June 1, 1964, Ser. No. 371,587
18 Claims. (Cl. 146—86)

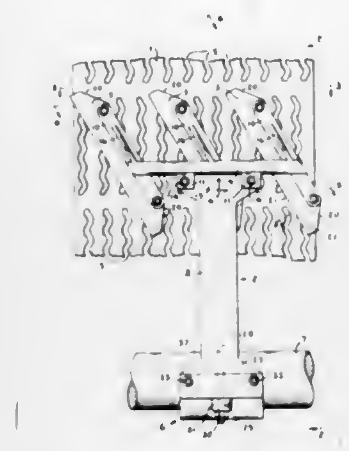


1. An assembly of the kind described, said assembly comprising attaching means whereby said assembly may be attached to a mounting, a bar having extremities and provided with spaced portions for respectively supporting elongate knives transversely of said bar, and a pair of resiliently flexible members disposed in parallel relation respectively joining said attaching means and said extremities of said bar and providing the sole means for supporting the latter for movement relative to said attaching means.

3,304,975
KNIFE ASSEMBLY

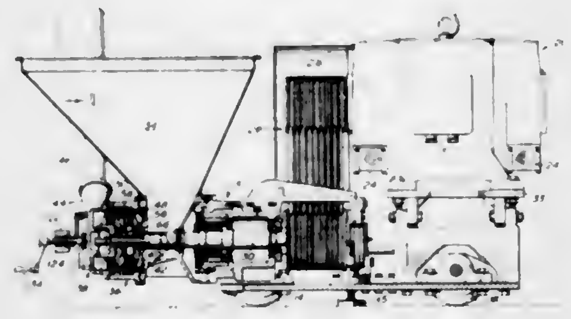
Joe R. Urschel, 202 Michigan Ave.,
Valparaiso, Ind. 46383
Filed May 26, 1966, Ser. No. 553,132
8 Claims. (Cl. 146—86)

1. An assembly of the kind described comprising attaching means whereby said assembly may be connected to a mounting, an elongate bar provided with a plurality of angularly disposed members provided with concave seats for respectively receiving elongate knives and with seat means, an elongate leaf spring which is of substantially uniform thickness and substantially uniform width throughout the major portion of its length and has extremities, means connecting one of said extremities to said seat means, and means connecting its other extremity to said attaching means.



3,304,976
COMMINUTING MACHINE

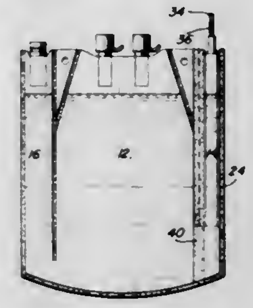
Carl Schnell, Wurttemberg, Germany, assignor of one-half to The Griffith Laboratories, Inc., Chicago, Ill., a corporation of Illinois
Filed Oct. 14, 1965, Ser. No. 495,911
5 Claims. (Cl. 146—182)



1. An apparatus for comminuting food material comprising in advancing and communicating sequence a reservoir chamber with inlet means, a comminuting chamber, and a discharge chamber having outlet means; means for pivotally mounting said discharge chamber for disengaging said discharge chamber from said apparatus and to permit access to said comminuting chamber; means to effect axial translation of said discharge chamber in cooperation with said comminuting chamber to effect a seal between said discharge chamber and said comminuting chamber; drive means having a drive shaft extending from said drive means through said comminuting chamber and terminating within said discharge chamber and being sealed during operation; propelling cutter means arranged in said comminuting chamber and operatively connected with said drive means; obstructing means disposed in said comminuting chamber in co-acting relation with and adjacent said cutter means and disposed intermediate said cutter means and said reservoir chamber; a perforate valve plate means laterally disposed in said comminuting chamber and adjacent said cutter means and disposed opposite said cutter means with respect to said obstructing means; whereby food product being processed in said apparatus is capable of forming a continuous hydraulic column extending from at least the comminuting chamber to said outlet means of said discharge chamber.

3,304,977
BLOOD CONTAINER

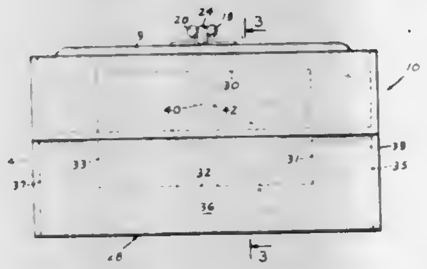
Billy G. Hammons, Pinole, Calif., assignor of forty-nine percent to Velikanje, Moore & Countryman, Yakima, Wash., a co-partnership
Filed Jan. 11, 1965, Ser. No. 424,651
1 Claim. (Cl. 150—1)



A device for receiving and storing blood, said device comprising a peripherally sealed container, said container having a top, a bottom and two sides, a pair of elongated seals extending downwardly from the top of the container adjacent, generally parallel to, and inward of the sides of said container so as to form an enlarged central chamber and two smaller side chambers, one of said seals extending to the bottom so as to define a sealed side chamber, the second seal terminating in spaced relation above the bottom so as to provide communication between the corresponding side chamber and the central chamber, and means enabling a severance of the sealed side chamber from the central chamber while maintaining the sealed nature of both.

3,304,978
PURSE

Isadore Guterman, Howard Beach, N.Y., and Norbert Frost, Tenafly, N.J., assignors to Adam-Steven Leather Goods, Inc., New York, N.Y., a corporation of New York
Filed Feb. 24, 1966, Ser. No. 529,706
3 Claims. (Cl. 150—29)

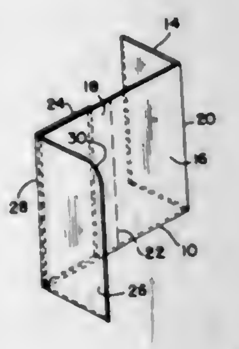


1. A purse suitable for being carried in the hand and adapted to expand laterally in order to store bulky items comprising
- a first compartment having two flat side walls joined at least partially around the edges thereof and forming an enclosure having an access opening, first closure means for the access opening of said first compartment,
- a second compartment having two flat side walls joined at least partially around the edges thereof and forming an enclosure having an access opening, second closure means for the access opening of said second compartment, and
- means for fastening a panel-like portion of the outer surface of one of said flat side walls of said first compartment to a corresponding portion of the upper and outer surface of one of said flat side walls of said second compartment, said fastening means being spaced inwardly from the lower extremities and the end extremities of said first and second compartments whereby the portions of said fastened side walls of said first and second compartments, which

are located outwardly of said fastening means, can move laterally away from each other in order to expand at least the enclosure within said second compartment and permit the storage of bulky items therein, said first compartment being a foldable compartment which may be released and extended to a position substantially below the lower extremity of said second compartment, said first compartment having a plurality of individual closure means which may be opened and closed when said first compartment is in the said extended position.

3,304,979
WALLET

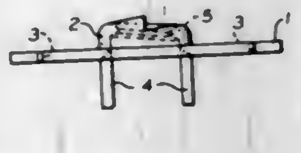
Joseph E. Bakken, 212 State St., Crookston, Minn. 56716
Filed June 3, 1965, Ser. No. 460,968
7 Claims. (Cl. 150—32)



1. A wallet comprising, a rectangular blank of sheet material having a small dimension equal to the finished length of the wallet, said blank being folded forwardly upon itself at one end and forming a first pocket on one side of the blank, a second rectangular blank of sheet material having a similar dimension to the small dimension of the first named blank being positioned at the other end of said first named blank with the similar dimensions aligned and folded over said other end of said first named blank forming a second pocket with said other end of said first named blank on said one side and a flap on the opposite side of said other end of said first named blank, each of said pockets having elongated open edges defining its opening with the edges being in opposed adjacent relationship, said folded blanks being secured along the edges defining the same dimension to close the ends of the pocket and folded to form a bilaterally folded wallet with two of said pockets being internal and of uniform size and an exposed flap pocket on its face.

3,304,980
CLINCH NUT

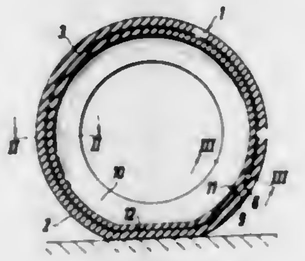
Herman Koehl, Dayville, Conn., assignor to Heko, Inc., Brooklyn, Conn., a corporation of Connecticut
Filed Oct. 5, 1964, Ser. No. 401,378
8 Claims. (Cl. 151—41.72)



1. A clinch nut, comprising
a flange member,
an axially extending, open tubular portion projecting from the top face of said flange member,
said tubular portion including means for receiving a bolt therein,
said flange member having openings substantially diametrically opposite each other and defined on one side by an edge of the material of said flange member disposed tangential to said tubular portion, as well as extending substantially equally on opposites sides of the point of tangency with said tubular portion,
prongs extending axially straight and directly from and integrally secured to said tubular portion in a direction opposite to that of said tubular portion at the point of meeting of the tangential edge of said openings with said tubular portion,
said prongs being substantially centrally located with respect to said tangential edge and said prongs being adapted to be fed through a hole of a plate, to which said clinch nut is to be attached, and said prongs to be turned over into said openings and clamping in the attached position said plate between said flange member and said turned over prongs, and
said prongs being of a width substantially less than the width of said openings.

3,304,981
SELF-INFLATING PNEUMATIC TIRES

Ronald Leslie Sheppard, P.O. Box 16, Richmond, Surrey, England
Filed Feb. 15, 1965, Ser. No. 432,508
Claims priority, application Great Britain, Feb. 24, 1964, 7,501/64; Aug. 8, 1964, 32,565/64
4 Claims. (Cl. 152—426)

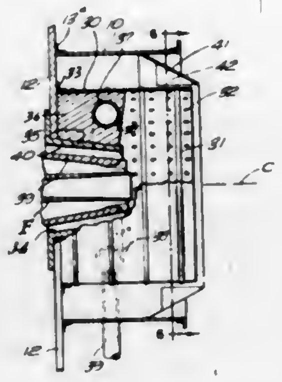


1. A self-inflating pneumatic tire comprising a tire casing, a tread on said casing, a circumferential tube provided in said casing beneath said tread and compressible when said tire rotatably contacts a ground surface to pump air therealong, means at one end of said tube communicating with the atmosphere at the outer surface of said casing at a location spaced from said tread and the other end of said tube communicating with the tire's air space, and a non-return valve positioned at one of the ends of said tube to admit atmospheric air into said air space and prevent its reemergence therefrom.

3,304,982
WINDBOX FOR FURNACE

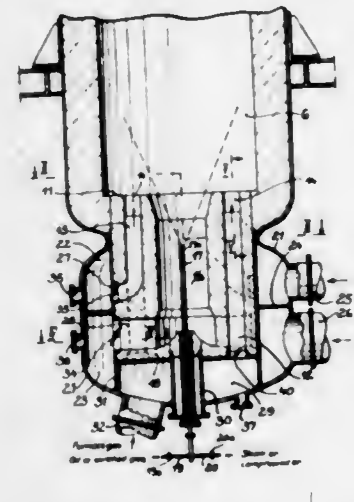
Leonard A. Fisher, Blandford, Mass., assignor to The H. B. Smith Company, Incorporated, Westfield, Mass., a corporation of Massachusetts
Filed July 9, 1964, Ser. No. 381,457
10 Claims. (Cl. 158—1.5)

1. A burner device which comprises a wind-box having an outer cylindrical casing and a liner of circular transverse section coaxial with and within the casing, the liner being of such diameter as to provide an annular space between it and the casing, the liner defining the space within which combustion takes place; characterized in that the liner is of sheet metal and of a thickness less than would be necessary were it to be made of a nonmetallic, refractory material, the liner having a multitude of perforations therein spaced substantially uniformly about its entire periphery, means operative to deliver air into said annular space in a tangential direction, and means so guiding said air that it moves peripherally about the liner in contact with the outer surface of the latter throughout its entire circumference and at a pressure such that some of the air passes through the perforations and moves circumferentially of the liner in contact with the inner periphery of the latter, thereby keeping the liner at a temperature below that which would cause deterioration of the sheet metal.



3,304,983
BURNER FOR BLAST FURNACE STOVES

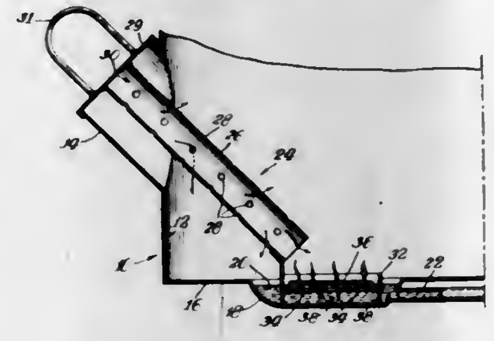
Heinrich Schürhoff, Essen-Heisingen, and Wilhelm Jakobi, Essen, Germany, assignors to Heinrich Koppers G.m.b.H., Essen, Germany
Filed Sept. 10, 1964, Ser. No. 395,519
4 Claims. (Cl. 158—11)



1. In a blast furnace stove, in combination, an upright tubular combustion chamber having a lower end; and a burner comprising a wall of heat-resistant material provided at the lower end of said chamber, said wall having a substantially vertical oxygen-admitting duct provided with at least one radially outwardly extending intake end and an annulus of upwardly extending channels including oxygen-admitting channels which alternate with channels serving to admit furnace gases to said chamber, said duct comprising a vertical portion and said intake end having a terminal portion diverging forward and communicating with said vertical portion, adjustable valve means provided in said terminal portion and arranged to regulate the direction of oxygen flow from said intake end into the vertical portion of said duct, said channels surrounding said duct and said burner further comprising a substantially vertical pipe extending into said duct and arranged to admit into said chamber a fuel whose heating value exceeds the heating value of furnace gases, such fuel being mixed with oxygen which is admitted through said duct, a mantle of heat-resistant material surrounding said wall and defining therewith a compartment which communicates with said intake end, and means for admitting oxygen into said compartment.

3,304,984
LIGHTER-PILOT ASSEMBLY

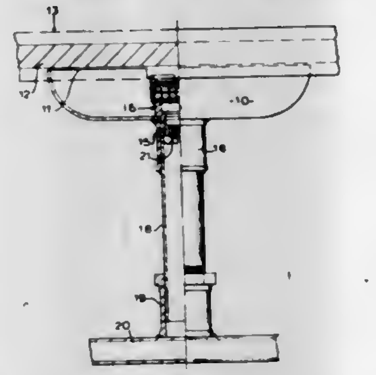
Dieter H. Hellmann, Pierrefonds, Quebec, Canada, assignor to Vapor Corporation, Chicago, Ill., a corporation of Delaware
Filed Aug. 5, 1965, Ser. No. 477,467
6 Claims. (Cl. 158—91)



4. In combination, a pot burner having a housing with an opening in the side wall thereof and with a bottom portion serving as a pilot pan adapted to receive fuel; a lighter-pilot assembly comprising a tubular rod having an unobstructed bore throughout the length thereof, a cap member secured to the one end of said tubular rod and having aperture means aligned with the bore of said tubular rod, a pilot cup secured at one side to the other end of said tubular rod and having aperture means in the bottom thereof, and wicking supported in said pilot cup; and said cap member being removably attached to said housing adjacent said side wall opening with said lighter-pilot assembly extending into said burner and said pilot cup being received within said pilot pan.

3,304,985
GAS-FIRED HEATING APPLIANCES

Roberts Kitchener Lynes, Birmingham, England, assignor of one-half to Bullfinch (Gas Equipment) Limited, Birmingham, England, a British company
Filed Mar. 25, 1965, Ser. No. 442,614
Claims priority, application Great Britain, Apr. 21, 1964, 16,431/64
5 Claims. (Cl. 158—99)

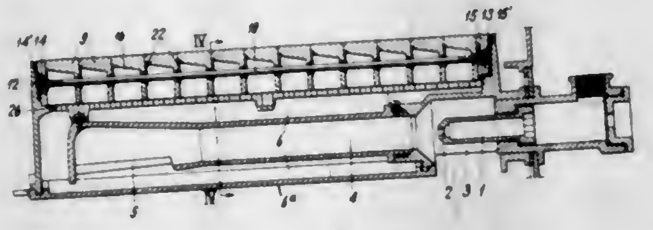


1. A railway line heater assembly comprising a housing having an open side adapted to be applied to a rail and containing an internal combustion chamber, means providing a gaseous fuel inlet through said housing to the combustion chamber, a perforated burner tip disposed in the path of said fuel flowing into said combustion chamber, and means at said open side of the housing mounting a heat radiator in the form of a gas permeable collection of discrete ceramic particles disposed in the path of the products of combustion leaving said combustion chamber, said particles serving as a barrier to shield the combustion chamber from external air turbulence at said open side of the housing and said particles having a relatively high heat capacity so as to retain high temperature for a long time whereby they may automatically reignite the fuel after such relatively short periods that burning may

be unintentionally extinguished in the combustion chamber as by excessive air turbulence entering said open side of the housing.

3,304,986
GAS BURNER WITH AIR AND GAS MIXING MEANS AND WITH MAIN-FLAME SLITS AND AUXILIARY SLITS FOR STABILIZING THE MAIN FLAME

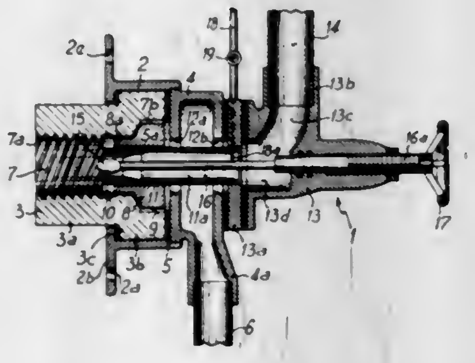
Oebele Zwaagstra, Dr. van de Zandestraat 16, and Arend Jan Rompelman, Lasondersingel 40, both of Enschede, Netherlands
Filed Dec. 21, 1965, Ser. No. 515,365
Claims priority, application Netherlands, Dec. 24, 1964, 64/15110; June 18, 1965, 65/07825
17 Claims. (Cl. 158—104)



1. A gas burner comprising a unitary assembly of a series of burner elements located along a longitudinal axis and each having at one end a front wall and at the other end a rear wall, each said wall being generally perpendicular to said longitudinal axis each said front wall having angularly disposed slit-like recesses cooperating with said rear wall of an adjacent said element to provide burner slits for transmitting the main gas-air flow of said burner, said burner elements also having means defining at least in part conduit means for transmitting an auxiliary gas-air flow to provide an igniting flame adjacent to the main gas-air flow, and means for clamping said burner elements into a single assembly.

3,304,987
APPARATUS FOR HEATING WITH NATURAL GAS

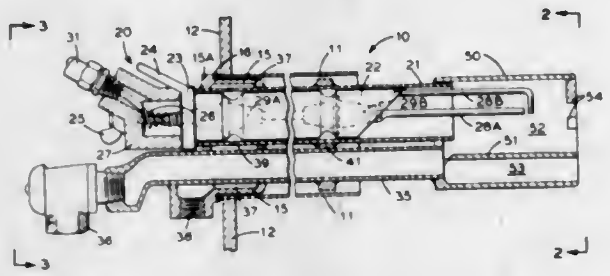
Maurice Leveque, Issy-les-Moulineaux, and Marcel Coutaud, Neuilly-sur-Seine, France, assignors to S.C.A.T.-Societe Pour la Construction d'Appareils Thermiques Anciennes Maisons Digard et Arrighi Reunies, Paris, France, a French body corporate
Filed Jan. 14, 1964, Ser. No. 337,614
Claims priority, application France, Jan. 17, 1963, 921,706, Patent 1,353,613
2 Claims. (Cl. 158—110)



1. A burner intended to be mounted axially in the entrance of a radiating opening which is provided in an enclosure to be heated and communicates with air supply conduits, the burner comprising means defining a body in which are provided, a main axial conduit means for supplying raw natural gas to said main conduit, said conduit means having an outlet end and inlet end, a jet composed of refractory material and in the form of a sleeve which is coaxial with and communicates with the main conduit, an annular auxiliary conduit coaxial with the main conduit and communicating with the sleeve in an annular zone which is contiguous with the inner face of the sleeve and with said outlet end of the main conduit, means for supplying a mixture of natural gas and an oxidant to said auxiliary conduit, the burner further comprising a main pipe having one end for connection to a source of natural gas and another end communicating with said inlet end of the main conduit, a secondary pipe having one end connected to the main pipe and another end communicating with the interior of and being connected to said inlet end of the main conduit in such manner as to be tangent with the main conduit, whereby a portion of said natural gas is supplied tangentially in the inlet end of the main conduit.

3,304,988
IGNITOR

John M. Rackley, Alliance, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 6, 1965, Ser. No. 493,477
9 Claims. (Cl. 158—115)



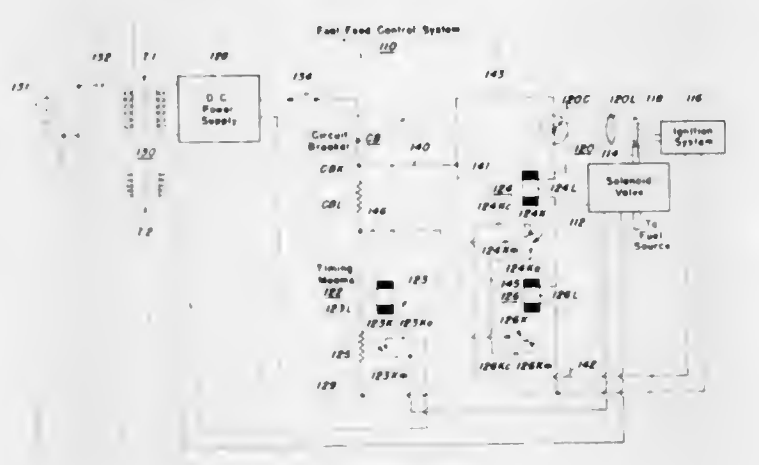
1. A gas-fired ignitor including a tubular ignitor head enclosing a longitudinally extending pilot ignition chamber having an open discharge end, means for effecting an electrical spark within said pilot ignition chamber, a gas supply conduit having an open discharge end communicating with said pilot ignition chamber and having its axis offset to one side of the axis of said ignition chamber, means for by-passing a portion of the fuel issuing from said conduits around said pilot ignition chamber, and means for splaying the remaining portion of the gaseous fuel issuing from said conduit throughout said pilot ignition chamber including a distribution element having a deflecting surface positioned at said one side of the pilot ignition chamber directly in the path of gas outflow from said conduit.

3,304,989
FUEL FEED CONTROL SYSTEM RESPONSIVE TO FLAME COLOR

Bernard D. Alexander, Clark, and Melvin J. Zucker, Somerville, N.J., assignors to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 19, 1964, Ser. No. 412,413
1 Claim. (Cl. 158—125)

A fuel feed control system for use with apparatus for burning fuel fed to a fuel burner via a valve means, and including ignition means for igniting fuel at said fuel burner, said control system further comprising: a source of electric current including fist and second terminals; circuit breaker means including a contact set having a first terminal connected to the first terminal of said source of electric current and a second terminal, the terminals of said contact set being normally connected to each other, and a heating element means including a first terminal connected to said contact set and a second terminal, said

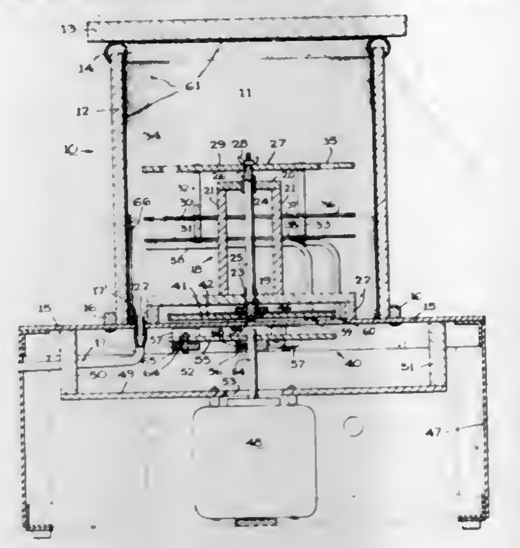
heating element means causing the terminals of said contact set to disconnect when electric current has passed through said heating element means for a given period of time; a first relay including a winding connected between the second terminals of said heating element means and said source of electric current and a contact set means for controlling the actuation of said valve means; a photo conductive means for sensing the color of the flame of burning fuel and having a conductivity which increases as the color of the flame changes from blue to yellow, said photoconductive means including a first terminal connected to the second terminal of the contact set of said circuit breaker means and a second terminal; a second relay including a winding having a first terminal connected to the second terminal of said photoconductive means and a second terminal, a contact set including a normally-closed contact, a normally-open contact and a transfer contact, said transfer contact being positioned against said normally-closed contact when an electric current less than a first given value passes through the winding of said second relay and being positioned against said normally-open contact when an electric current greater than said first given value passes through said winding; means for connecting the normally-closed contact of said relay to the second terminal of said circuit breaker means, means for connecting the normally-closed contact of said second relay to said ignition means; and a third relay including a winding connected between the second terminal of the winding of said second relay and the second terminal of said source of electric current and a contact set including a first terminal connected to said normally-open contact of the contact set of said second relay and a second terminal connected to the second terminal of said heating element means, said terminals of said contact set being connected to each other as long as a current less than a second given value greater than said first given value passes through said winding.



3,304,990
EXPLOSION PROOF CENTRIFUGAL EVAPORATOR WITH MAGNETIC DRIVE

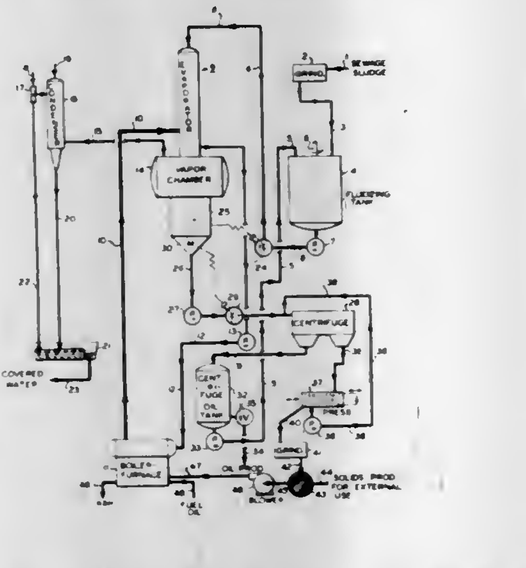
Joseph A. Ontko and Richard F. Jones, both of Memphis, Tenn., assignors to The University of Tennessee Research Corporation, Knoxville, Tenn., a corporation of Tennessee
Filed Feb. 15, 1965, Ser. No. 432,744
11 Claims. (Cl. 159—6)

1. A centrifugal evaporator comprising a housing having a motor supported therein, means affixed to the shaft of said motor and adapted for rotation upon energization of said motor, a plurality of permanent magnets carried by said means, a vacuum chamber having a base supported on said housing, a centrifuge within said chamber including a shaft and a rack mounted thereon for supporting samples of solutions from which the solvents are to be evaporated, a metal disc disposed on said shaft and adapted for rotation therewith to drive said rack in response to rotation of said means wherein said chamber is lined with an electrically grounded wire mesh.



3,304,991
APPARATUS AND PROCESS FOR DEHYDRATING WASTE SOLIDS CONCENTRATES

Charles Greenfield, 35 Walnut St., Murray Hill, N.J. 07971
Filed Feb. 17, 1966, Ser. No. 528,258
10 Claims. (Cl. 159—13)



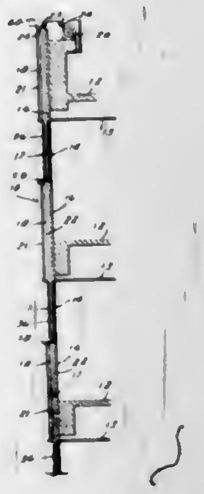
5. A process for dehydrating liquiform waste solids concentrates which comprises the steps of (1) admixing such a waste solids concentrate with a relatively non-volatile oil to obtain a mixture which will remain fluid and pumpable after the removal of the water content therefrom; (2) subjecting the resultant oil-containing mixture to a single dehydration step by heat evaporation, and (3) withdrawing a substantially anhydrous waste solids concentrate and oil slurry.

3,304,992
SHADE CONTROL

Rea E. Duncan, 3645 San Fernando Road, Glendale, Calif. 91204
Continuation of application Ser. No. 244,106, Dec. 12, 1962. This application June 16, 1965, Ser. No. 466,514
2 Claims. (Cl. 160—32)

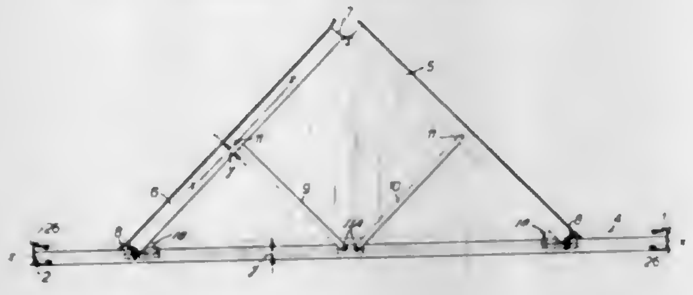
2. In a multi-story building construction including an inner wall portion having vertically aligned, horizontally spaced, light passage areas including windows therein coincident with means defining openings in a spaced outer wall portion, the combination comprising,

spacedly arranged, vertically extending mullions interconnecting the inner and outer wall portions, adapted to be actuated by an operator means located within said building,
a plurality of frame means disposed in vertically spaced relation, connected to and secured for travel with said positioning means, and



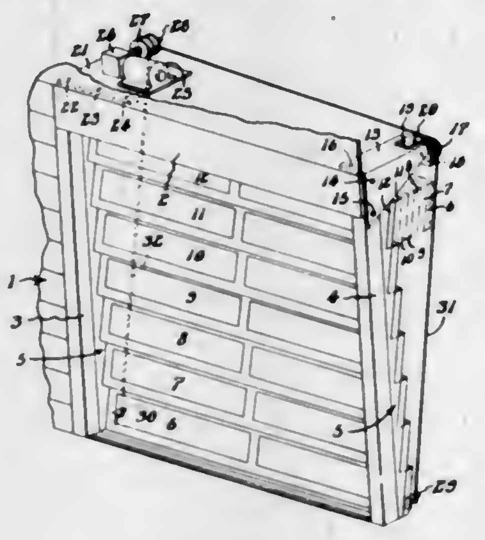
shade means disposed in each of said frame means whereby, upon actuation of said operator means, the same means may be displaced from a stored position between the spaced wall portions of said building so as to be blocked from view to a position coincident with the horizontally aligned light passage areas thereof and alternatively to said storage position.

3,304,993
WINDOW ASSEMBLIES
Jack Fox-Williams, 3 Belgrave Place,
London, England
Filed Sept. 22, 1964, Ser. No. 398,198
3 Claims. (Cl. 160—187)



1. A window assembly comprising a generally rectangular fixed frame enclosing an aperture and comprising spaced vertical side frame members and horizontal top and bottom frame members; a ventilator of the casement type arranged to open and close the aperture at will, said ventilator comprising a rectangular movable frame having spaced vertical side edges; a straight continuous vertical shaft having continuous rotary bearing within one of said side edges and extending the full length thereof, and means for guiding said opposite upper and lower end portions for sliding movement within the top and bottom frame members of said fixed frame; mechanism operatively connecting said shaft ends respectively with said top and bottom fixed frame members for maintaining said shaft axis, and consequently said movable frame, in true vertical and non-sagging position throughout their movement in the fixed frame, regardless of the displacement of the center of gravity of the movable frame outwardly of the confines of the fixed frame; and a link arranged to restrict the movement of the movable frame, said link having one of its ends pivotally connected on a vertical axis to one of the horizontal frame members of the fixed frame at a point within the plane of said fixed frame, and the other end pivotally connected on a vertical axis to an intermediate portion of the movable frame; the axes of said two pivot points and that of said shaft being parallel at all times and disposed substantially in a common vertical plane parallel to the plane of the fixed frame when the movable frame is in closed position.

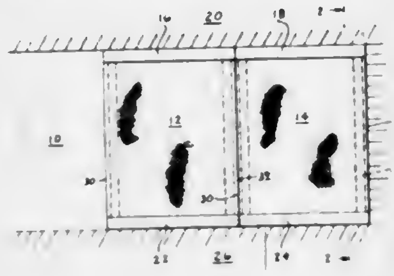
3,304,994
VERTICALLY SLIDING DOOR
Andrew F. Kozak, Camden, N.J., assignor to Data Instruments Division, Pennsauken, N.J., a corporation of New Jersey
Filed May 19, 1964, Ser. No. 368,566
6 Claims. (Cl. 160—202)



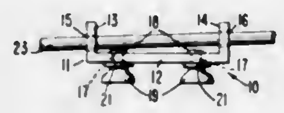
3. In a vertically sliding door for a door opening defined by a pair of spaced-apart substantially vertical door posts, the combination comprising:
(a) a plurality of movable panels extending horizontally across said door opening,
(b) sliders affixed on the front of said panels including a slider affixed adjacent each end of the panels,
(c) a plurality of slider receiving means attached in vertical series to each of said door posts, each such means on one post being horizontally opposite to another such means on the other post to form a pair, each of said horizontally opposed pairs of slider receiving means being adapted to receive and retain the sliders adjacent the ends of a movable panel as the panels are lowered, whereby all of said panels when lowered are supported in vertical succession to close said door opening,
(d) lifting means attached to the lowermost movable panel, and
(e) means on the rear surface of each panel above the lowermost panel for engaging sliders on the panel next below as the panels are raised by said lifting means whereby each panel above the lowermost panel is raised by the panel below it.

3,304,995
WALL-COVERINGS
Malcolm Goldstein, 45 Kew Gardens Road,
Kew Gardens, N.Y. 11415
Filed Nov. 27, 1964, Ser. No. 414,303
3 Claims. (Cl. 160—327)

1. Means for covering a wall of a room having a ceiling and a floor, comprising a plurality of first channel members connected to said wall in edge to edge relationship at the top thereof adjacent said ceiling, a plurality of second channel members connected to said wall in edge to edge relationship at the bottom thereof adjacent said floor, a plurality of wall-covering sheets, a plurality of moldings, and a plurality of rods; each of said first channel members having an offset flange projecting upwardly therefrom to form a groove with respect to said wall, each of said second channel members having an offset flange projecting downwardly therefrom to form a groove with respect to said wall, each of said wall-covering sheets having the top end portion thereof attached to a first one of said rods and having the bottom end portion thereof attached to a second one of said rods, first ones of said moldings having substantially C-shaped configurations and second ones of said moldings having substantially C-shaped configurations, each of said first ones of said moldings have a flange member projecting downwardly from the top portion thereof and having a recess formed at the bottom portion thereof, each of said second ones of said moldings having a flange member projecting upwardly from the bottom portion thereof and having a recess formed at the top portion thereof, said first ones of said rods being force fitted into said recesses in said first ones of said moldings and said second ones of said rods being force fitted into said recesses in said second ones of said moldings, and said flanges of said first ones of said moldings engaging said flanges of said first channel members in tongue and groove relationship and said flanges of said second ones of said moldings engaging said flanges of said second channel members in tongue and groove relationship to connect said first and second ones of said moldings to said first and second channel members, respectively, thereby securing said moldings and said wall-covering sheets with respect to said wall, said first and second channel members being connected to said wall by strips of double-coated adhesive tape interposed therebetween, the side portions of said wall-covering sheets being secured to said wall by other strips of double-coated adhesive tape interposed therebetween, and the side edges of said wall-covering sheets abutting one another in edge to edge relationship.

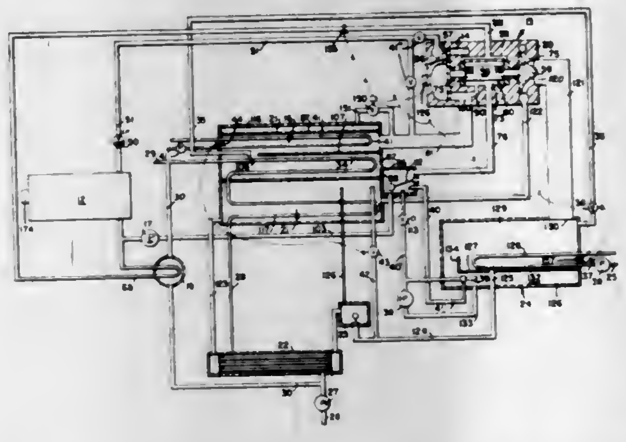


3,304,996
FRAME SUPPORTING MEANS FOR AUTOMOBILE WINDSHIELD AWNING
John P. Francis, 20 Boston St.,
Haverhill, Mass. 01830
Filed Dec. 24, 1964, Ser. No. 420,880
4 Claims. (Cl. 160—369)



1. An adjustable automobile awning frame supporting means for adjustably supporting a removably attached windshield awning and frame structure, comprising a side longitudinally disposed frame supporting member for supporting in angularly and longitudinally movable adjustment thereto a removably attached side longitudinal frame member of said frame structure, said longitudinally disposed frame supporting member having a horizontally disposed flat portion provided with bolt engaging apertures, a vertically disposed flat portion at one end provided with an awning frame engaging aperture, a longitudinally spaced apart vertically disposed flat portion at the opposite end and provided with an awning frame engaging aperture positioned at a dissimilar height from the aperture on said one end, said frame supporting member adjustably supporting the said awning frame member through the said longitudinally spaced apart apertures of the said vertically disposed flat portions and in an angular and vertically spaced apart relationship relative to the horizontally disposed flat portion of said frame supporting member, threaded bolt members extending through the said bolt engaging apertures, and roof engaging means threadably engaging the said threaded bolt members in securing said frame supporting member to said roof engaging means, said adjustable frame supporting member adapted to be preattached to the roof top to adjustably support the attachable awning and frame structure in lateral frictional engagement with the roof top or in adjustable longitudinally angular or horizontally positioned spaced apart relationship relative to the roof top and the windshield area of the automobile depending upon the longitudinal location of the said vertically disposed flat portion having the said lower aperture, either forwardly or rearwardly, upon the selected forward or the reversed preattached positioning of the said frame supporting member.

3,304,997
STEAM-OPERATED REFRIGERATION SYSTEM
Louis H. Leonard, Jr., Dewitt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Original application June 23, 1964, Ser. No. 377,313. Divided and this application May 24, 1965, Ser. No. 471,780
3 Claims. (Cl. 165—1)

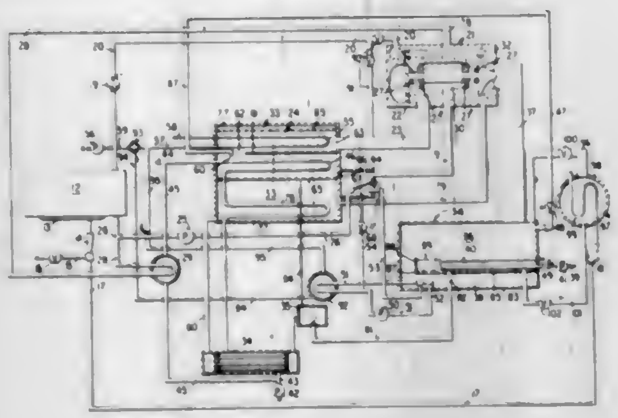


1. A condensing system comprising a housing adapted to contain a condensible vapor, a plurality of tubing in said housing through which a condensing medium is passed in heat exchange relation with vapor exteriorly thereof for condensing said condensible vapor, means for passing into said housing a fluid which is normally a noncondensible vapor within said housing and blanketing the exterior of said tubes with said noncondensible vapor thereby limiting the condensing capacity of said tubes, and means for selectively regulating throughout a range the quantity of said noncondensible vapor blanketing said tubes, thereby regulating the condensing rate of said condensible vapor.

3,304,998
REFRIGERANT STORER FOR STEAM OPERATED REFRIGERATION SYSTEM
Louis H. Leonard, Jr., Dewitt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Original application June 23, 1964, Ser. No. 377,315. Divided and this application May 23, 1966, Ser. No. 552,137
4 Claims. (Cl. 165—1)

3. A method of passing refrigerant between a refrigerant circuit having a cooler and a storage vessel in communication with the cooler, and a compressor operative

for passing refrigerant to the cooler and withdrawing refrigerant vapor from the cooler to provide a low pressure area in the cooler during normal cooling operation of the circuit, comprising the steps of stopping operation of the compressor, thereby stopping normal withdrawal of refrigerant vapor from the cooler to increase the pressure in the cooler above the pressure in the vessel for the flow of refrigerant vapor from the cooler into the vessel, and regulating the temperature in said vessel below the boiling point of the refrigerant, thereby condensing and retaining the refrigerant in the vessel while the compressor is inoperative.



3,304,999

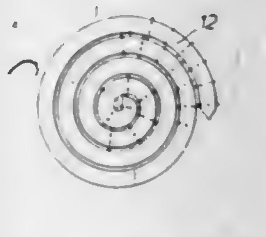
REGENERATOR PACKING

Derek E. Ward, Enfield, Middlesex, England, assignor to The British Oxygen Company Limited, London, England

Filed Dec. 2, 1964, Ser. No. 415,259

Claims priority, application Great Britain, Dec. 5, 1963, 48,040/63

9 Claims. (Cl. 165—10)



1. In a regenerator a packing for use therein at very low temperatures of below 30° K. consisting of a plurality of hollow containers filled with a rare gas selected from the group consisting of helium and neon under pressure.

3,305,000

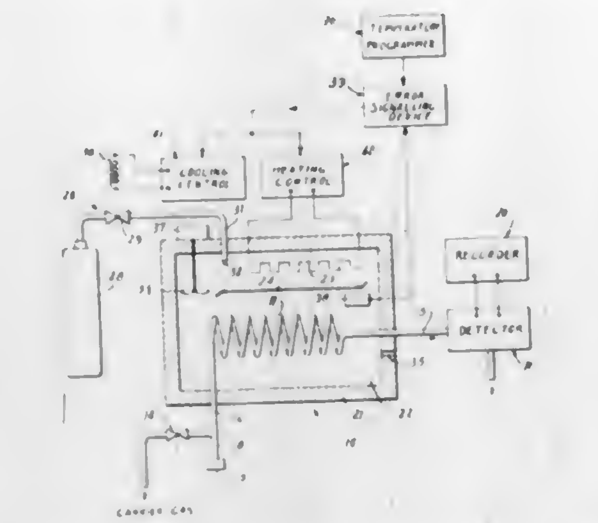
TEMPERATURE CONTROL SYSTEM FOR CHROMATOGRAPHS

Clark V. Bullen and Roger D. Peterson, Rockford, Ill., assignors to Barber-Colman Company, Rockford, Ill., a corporation of Illinois

Filed Feb. 8, 1965, Ser. No. 431,100

10 Claims. (Cl. 165—12)

9. A temperature controller having an apparatus with a chamber surrounding and enclosing the apparatus to define a space in heat exchange relationship therewith, said controller comprising means to detect the deviation between a desired temperature and the actual temperature of the apparatus, a supply of liquefied gas, means responsive to said detecting means only when the actual temperature is greater than the desired temperature for conducting a flow of said liquefied gas directly into the chamber where it vaporizes and cools said apparatus by absorbing heat therefrom, and said conducting including means to provide intermittent time-spaced pulse flow of said gas only when the actual temperature is greater than the desired temperature thereby to achieve a closely regulated cooling of the apparatus.



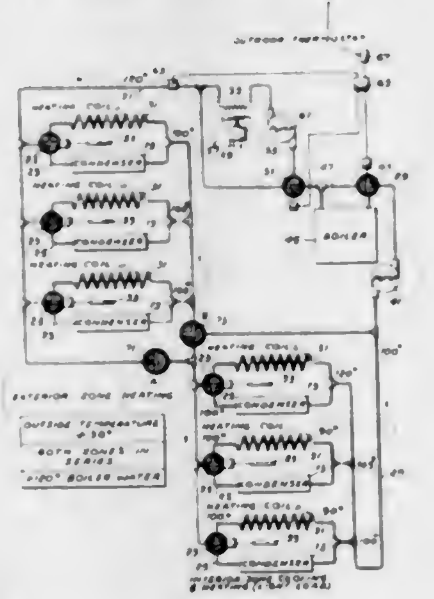
3,305,001

PLURAL ZONE HEATING AND COOLING SYSTEM

George J. Haufler, Philadelphia, Walter M. Hassenplug, Huntingdon Valley, and Otto J. Nussbaum, Morrisville, Pa., assignors to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Maryland

Filed Oct. 26, 1964, Ser. No. 406,381

1 Claim. (Cl. 165—22)



A heating and cooling system for respective media in first and second zones, said system including:

(a) a first heat-transfer device in thermal communication with a medium in said first zone;

(b) a second heat-transfer device in thermal communication with a medium in a first part of said second zone;

(c) a refrigeration apparatus comprising a compressor, a condenser, a pressure-reducing device, and an evaporator in series connection for circulation of refrigerant in a closed loop, said evaporator being in thermal communication with a medium in a second part of said second zone;

(d) a source of heat;

(e) a heat-transfer fluid;

(f) a first conduit for circulation of said heat-transfer fluid through said source of heat, said first heat-transfer device, and said second heat-transfer device;

(g) valve means in said first conduit for directing said heat-transfer fluid through said first and second heat-transfer devices in parallel, without passing through said condenser, when only heating of said respective media in said first and second zones is required, and for directing said heat-transfer fluid through said first and second heat-transfer devices in series, and through said condenser of said refrigeration apparatus in parallel with said second heat-transfer device when heating of said respective media in said first zone and said first part of said second zone is required and when cooling of said medium in said second part of said second zone is required; and

(h) a second conduit for returning said heat-transfer fluid from said heat-transfer devices and said condenser to said source of heat.

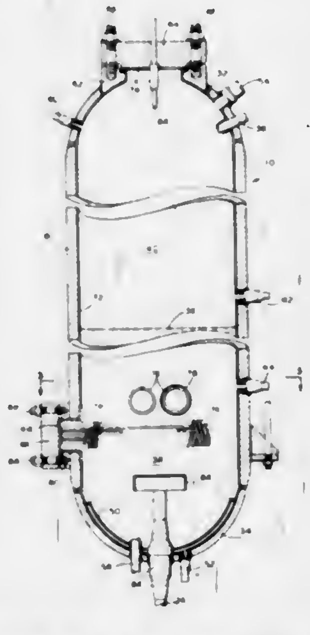
3,305,002

FLUID PRESSURIZER

John W. Leonard, Jr., Wadsworth, and Johannes H. Ammon, Akron, Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

Filed May 31, 1961, Ser. No. 113,842

6 Claims. (Cl. 165—30)



6. In combination with a pressurized closed liquid system, a pressurizer comprising walls forming a vertically elongated cylindrical pressure vessel with a circumferential wall of uniform thickness, a combined surge inlet and outlet line terminating in the lowermost portion of said vessel and communicating with said pressurized liquid system, said pressure vessel containing a portion of said liquid in said system, said liquid in said pressure vessel being vaporizable and having a liquid level separating a lower liquid space from an upper vapor space, a spray nozzle in said upper vapor space, means for variably supplying liquid from said system to said nozzle to condense said vapor in said pressure vessel, a plurality of circular openings in the circumferential wall of said vessel below said liquid level, a circular metal diaphragm removably engaging said pressure vessel one at each of said openings to close and seal said openings, a plurality of heater bundles removably supported in said liquid space, each of said heater bundles comprising a plurality of electric heaters each comprising an integral sheath and electric heating means disposed therewithin and helically coiled around a common imaginary axis and integrally attached through said diaphragms and supported thereby through each of said circular openings and immersed directly in said vaporizable liquid, means for separately sealing the ends of each of said sheaths to the inner side of said diaphragm, and a plurality of pressure retaining flanges removably engaging said diaphragms and removably attached to said pressure vessel wall to maintain said diaphragms in sealing engagement at said openings, the axis of said heater bundles lying along horizontal chords of said pressure vessel and in a plurality of horizontal planes.

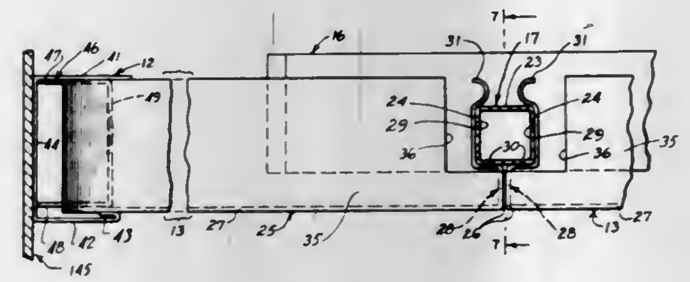
3,305,003

HEAT EXCHANGE PANEL SYSTEM

Richard Dickson Rothschild, Rye, N.Y., assignor to International Environment Corporation, New York, N.Y., a corporation of New York

Filed Apr. 16, 1965, Ser. No. 448,761

6 Claims. (Cl. 165—54)



1. A heat exchange panel system for selectively heating and cooling an enclosed building space defined by generally planar encompassing marginal surfaces comprising, in combination;

(A) fluid conduit means mounted along and backed by one of the space marginal surfaces in outwardly spaced relation thereto including a pair of transversely spaced and generally parallel flow conducting straight tubes of heat conducting material with a major portion of the circumambient extent of the wall of each tube made up of longitudinally extending and interconnected sections having flat outside faces, and with the outer one of the latter facing toward the space away from said backing marginal surface and the similar outer flat face of said tube paired with this tube being arranged substantially in a common plane generally parallel to said backing marginal surface, each of said outer flat tube faces providing flat abutment shoulder means; and

(B) a radiant panel of heat conducting material provided with

  (a) a main generally flat face section having opposite parallel sides spaced laterally apart a distance greater than the space between said tubes, and

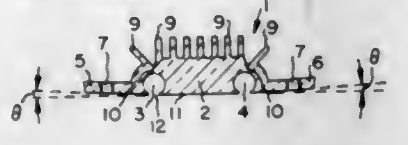
  (b) a pair of resilient side flanges connected respectively to said sides and extending back away from and generally normal to the plane of said face section with these side flanges shaped laterally inward in opposite directions to define in the outer side face of each a longitudinal channel, the channel in each side flange being shaped substantially complementary to no more than one-half the width of said flat abutment shoulder means of each tube to form a longitudinal bearing face substantially parallel to said face section of said panel and therebeyond substantially complementary to the inner side of said tube opposed to the other tube with the terminal edge of each flange terminating therebeyond in an outwardly bowed lip, said panel being removably anchored between said tubes by said shaped side flanges sprung into position between said tubes with the opposed sides of the latter seated in said channels, said longitudinal bearing faces seating against said abutment shoulder means of said tubes and said bowed lips snapped back of the latter.

3,305,004
HEAT DISSIPATOR WITH PIVOTABLE MEANS TO GRIP A SEMICONDUCTOR DEVICE

Murray Barlowe, Bethpage, N.Y., assignor to North American Philips Co., Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 24, 1965, Ser. No. 482,185

9 Claims. (Cl. 165—80)



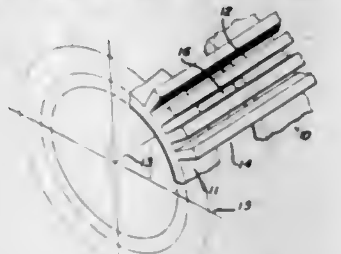
1. A heat dissipator for a semiconductor device comprising a body of heat-conductive material having a mounting flange extending out from the side for fastening the heat dissipator along a bottom mounting surface to a suitable support or the like, a hole in said dissipator body for receiving a semiconductor device, said flange being inclined upwardly at a small angle with respect to the main body of the dissipator, and means for closing down the hole when the dissipator is fastened to said support thereby bending the mounting flange for clamping a device therein in good heat conducting relationship.

3,305,005
CAPILLARY INSERT FOR HEAT TUBES AND PROCESS FOR MANUFACTURING SUCH INSERTS

George M. Grover, Los Alamos, N. Mex., and Claus A. Busse, Laveno, and Rene J. Caron, Ispra, Italy, assignors, by direct and mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 3, 1965, Ser. No. 511,568

5 Claims. (Cl. 165—105)



1. In a heat transfer device which includes a container, a condensable vapor disposed within said container, the improvement which comprises a capillary insert disposed within said container having a longitudinal capillary groove in the external surface and a transverse groove in the inner surface of said insert so as to define an aperture at the point of intersection of said longitudinal groove and said transverse groove.

3,305,006
COOLING TOWERS

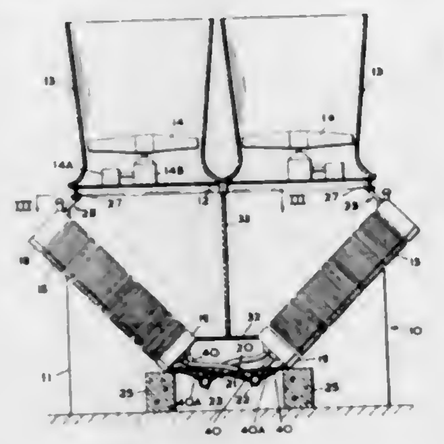
John Harold Daltry, Rugby, England, assignor to The English Electric Company Limited, London, England, a British company

Filed Mar. 4, 1965, Ser. No. 437,049

Claims priority, application Great Britain, Mar. 11, 1964, 10,241/64

2 Claims. (Cl. 165—124)

1. A cooling tower comprising a fixed support structure mounted on the ground and having air inlet openings at the sides, a plurality of generally-rectangular tube-and-fin coolers in said inlet openings wherein the tubes of each cooler terminate at their lower ends in a waterbox extending along the lowest end face of each cooler, a water inlet main and a water outlet main extending through said structure below said coolers, an inlet branch pipe and an outlet branch pipe connecting each said waterbox with said inlet and outlet main respectively, and means for drawing air inwardly through said air inlet openings and said coolers into said structure and thence out through the top of the structure, wherein the coolers are in lines inclined to the horizontal and lean outwardly relative to said structure, and wherein the adjacent coolers in each line are arranged according to a zig-zag formation, a plurality of inclined feet fixed with respect to the ground, each rigidly abutting the lower, that is to say the outer, end face of a corresponding said waterbox so as to locate and support the corresponding said cooler, each said branch pipe being connected to a point on the corresponding said waterbox remote from said end face thereof, and a drain pipe, of substantially smaller diameter than said branch pipes, being connected between the outlet main and the end of each said waterbox immediately adjacent the corresponding said foot.

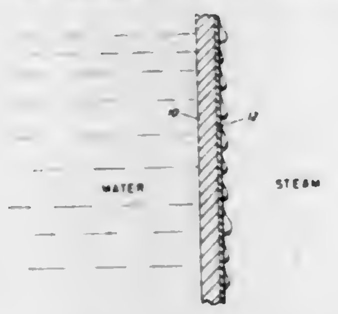


3,305,007
DROPWISE CONDENSATION

Edmund Thelen, Philadelphia, Pa., and Edgar A. Cadwallader, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Interior

Filed Mar. 31, 1965, Ser. No. 444,950

4 Claims. (Cl. 165—133)



1. In a heat-transfer device wherein water vapor is condensed by contacting a cooling surface, the improvement comprising employing silver sulfide as the cooling surface.

3,305,008
PIPES FOR A RECUPERATOR

Heinz Jacobs, Geldern, Germany, assignor to Industrie-Companie Kleinewefers Konstruktions und Handelsgesellschaft m.b.H., Krefeld, Germany, a corporation of Germany

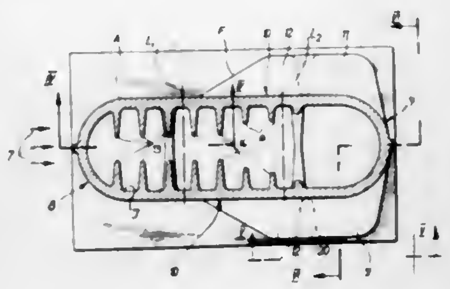
Filed Apr. 13, 1965, Ser. No. 447,712

Claims priority, application Germany, Apr. 22, 1964, J 25,698

5 Claims. (Cl. 165—145)

1. In a recuperator having a channel through which heated gases flow and at least one pipe through which air to be heated flows parallel to the axis of the pipe, said pipe being positioned in the channel transversely of the flow of heated gases, the improvement in the pipe which comprises,

(A) external ribs on the outside of said pipe extending parallel to the direction of flow of the hot gases and spaced from each other along the longitudinal length of the pipe and inreasing in area exposed to hot gases aft of the forward portion of said pipe (in the direction of gas flow) to the rearward portion of the pipe, and



(B) internal ribs on the inside of said pipe extending parallel to the axis of said pipe, inwardly towards the axis of said pipe, and spaced from each other across the inside surface of the pipe, successive ribs (in the direction of hot gas flow) decreasing in area exposed to the flow of air to be heated from the forward portion of said pipe to substantially the rearward portion of said pipe.

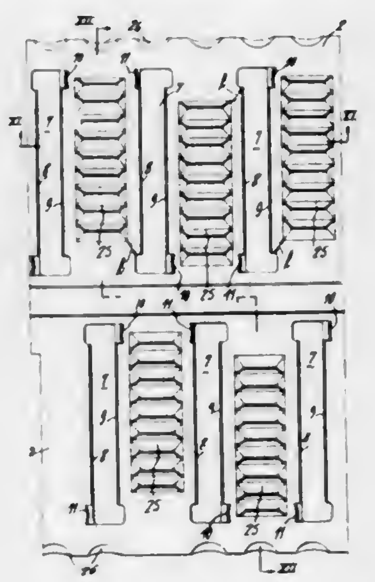
3,305,009
FIN PLATE FOR TUBE AND PLATE FIN CORES AND METHOD FOR MANUFACTURING THEREOF

Maxime Louis Jentet, Chatou, Seine-et-Oise, France, assignor to Societe Anonyme des Usines Chausson, Asnieres, France, a company of France

Filed June 22, 1964, Ser. No. 376,709

Claims priority, application France, June 27, 1963, 939,619, Patent 1,386,228; Dec. 16, 1963, 957,356

3 Claims. (Cl. 165—151)



1. The combination, with a plurality of tubes of oblong cross section in a cooling radiator core, of a fin plate assembly comprising:

a plurality of thin, substantially flat plate members of heat conductive material, the plate members each having a plurality of passage openings, having a given length, formed therein, there being one such opening for each of the tubes of an assembled core in each of the plate members thereof;

the openings being spaced in the plate members in positions corresponding to the desired locations of the tubes;

the openings being of substantially rectangular form with rounded ends, and having elongated sides;

a substantially rectangular flange immediately adjacent each of said longitudinal sides and arranged in substantially right angular relation to the plate members and having ends;

a spacer extension for each flange, secured thereto and projecting from opposite ends of adjacent flanges, the spacer extensions extending from the plate members for a desired distance between adjacent stacked plate members of the assembled core;

the total spacer contact length being a small portion of the length of the tube opening; and

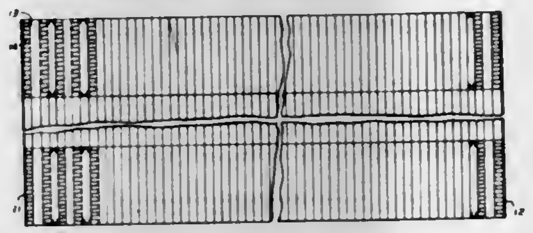
the spacer extensions for said openings being diagonally opposed with respect to each other.

3,305,010
PLATE AND FIN HEAT EXCHANGER

Robert L. Campbell and Gene P. Deeter, Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio, a corporation of Ohio

Filed Apr. 13, 1965, Ser. No. 447,753

5 Claims. (Cl. 165—166)



1. A plate type heat exchanger assembly, including superposed stacked plate and fin elements, said plate elements defining flow paths occupied by said fin elements, said fin elements being arranged in sets of three with a middle fin of each set being short in relation to the other fins of the set to define at least one end of said assembly at each set of said elements a chamber wherein introduced fluid has access to both sides of said middle fin and access to one side only of the said other fin elements, a plate element being disposed between said middle fin and each of said other fins in heat conducting relation therebetween, adjacent sets of fins having said other fins in common, and manifolding means for introducing fluids of different temperature to opposite ends of said assembly to flow counter to one another through adjacent sets of fin elements, said other fin elements being in projecting relation to said middle fin element at each end thereof to define chambers for the entrance and exit of a fluid, said plate elements being formed to allow communication thereby between said chambers and said other fins on the said one sides thereof.

3,305,011
RADIANT PANEL FOR TWO MEDIA WITH OFFSET RETURN BENDS

Horace L. Smith, Jr., Richmond, Va., assignor to Hupp Corporation, Cleveland, Ohio, a corporation of Virginia

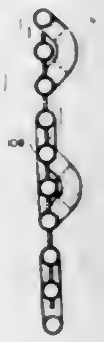
Original application Nov. 14, 1963, Ser. No. 323,848, now Patent No. 3,262,494, dated July 26, 1966. Divided and this application Mar. 23, 1966, Ser. No. 536,918

14 Claims. (Cl. 165—171)

1. A radiant heating installation, comprising:

(a) a radiator having plural, sinuous, internested tube assemblies providing independent flow circuits, each of said tube assemblies have substantially parallel straight runs connected by end bends, the centerlines of the straight runs of the two tube assemblies being substantially coplanar and the runs of the two tubes being alternated and the end bends in one of said assemblies all lying to one side of the plane including said centerlines and the centerlines of the end bends in the other of said assemblies all lying substantially in said plane, whereby one side of said radiator is free of protruding obstructions over substantially its entire surface and is thereby adapted to be positioned in close proximity to an object thereadjacent.

(b) conductive webs between adjacent ones of said runs, each of said webs being a structural member connected to two tube runs only and subtending only a minor portion of each of the two tube runs to which

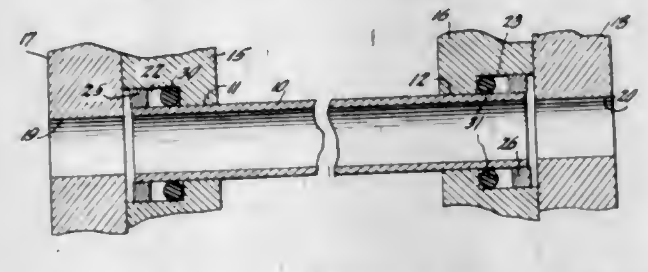


it is connected, said webs being connected directly to said tube runs and extending generally the length thereof to increase the radiant surface of said radiators; and

(c) means for heating and then subsequently effecting simultaneous counterflow of a heat transfer fluid through said independent circuits.

3,305,012
HEAT EXCHANGER BUNDLE

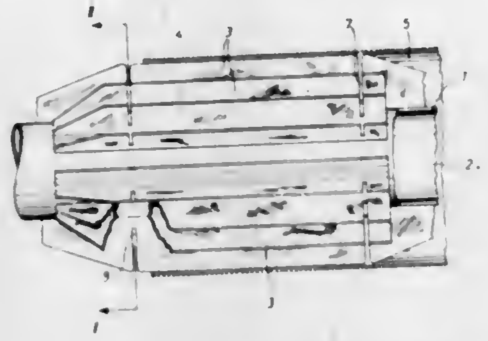
Henry W. Allen, 880 15th St., Beaumont, Tex. 77702
Filed Apr. 19, 1965, Ser. No. 449,259
6 Claims. (Cl. 165—178)



1. In a heat exchanger device of the class described, which includes within its usual assembly of parts: a shell; a tube bundle comprising tubes, tube sheets, and retainer plates, said tubes having ends extending through said tube sheets, and said retainer plates applied to the outer surfaces of said tube sheets; and fluid inlet and outlet connections: the improvement which comprises the tube and tube sheet connection whereinthe tube sheet is provided with a hole passing therethrough into which an end of the tube extends, a counterbore extending into said tube sheet from the side opposite to that into which the tube extends, said counterbore constituting a coaxial enlargement of said hole and having a cylindrical wall surrounding said tube end; a rigid cylindrical ring disposed within said counterbore and having an outside diameter providing a snug fit of small tolerance within the wall of said coutnerbore and an inside diameter providing a similarly snug fit onto the tube end; and an elastic deformable O-ring disposed within said counterbore alongside of said rigid cylindrical ring and of a thickness for contact of its outer and inner diametrical boundaries respectively with the cylindrical wall of the counterbore and the outer surface of the tube end in normal relaxed condition, said counterbore being of greater axial length than that of said rigid ring and said deformable O-ring, whereupon upon subjection of the bundle to a preponderance of fluid pressure upon either the inside or the outside of the tubes, the O-ring will effectively seal the junctions of the surfaces concerned whether of the tube, the tube sheet, or the rigid cylindrical ring.

3,305,013
HEAT RADIATOR

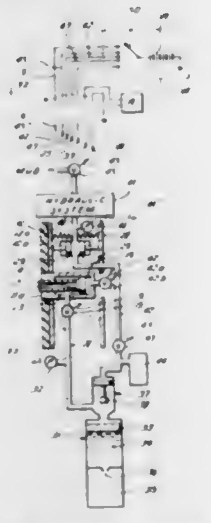
Reiner Friedl, Starnberg, Upper Bavaria, and Robert von Linde, Grafelfing, Germany, assignors to Webasto Werk G.m.b.H., Munich, Germany
Filed Sept. 30, 1964, Ser. No. 400,495
Claims priority, application Switzerland, Nov. 1, 1963, 13,404/63
2 Claims. (Cl. 165—183)



1. A heat radiator having a cylindrical heating fluid duct of one metal and fin units of another metal having a different coefficient of expansion and a second duct surrounding said units, said units having fin elements projecting radially from said duct and being elongated in the axial direction of said duct, said fin elements being formed in pairs each of which comprises a sheet of said other metal bent intermediate its width to form a central longitudinal loop and with one of said fin elements at each side of said loop terminating in a free edge, said fin units being soldered to said duct by means of continuous soldering throughout the lengths of said loops, each of said fin elements having a transverse slot in its radially outer portion, said slots having their radially inner extremities terminating in relatively close proximity to said loops, and a binding wire around said units in said slots.

3,305,014
FORMATION TESTING METHOD

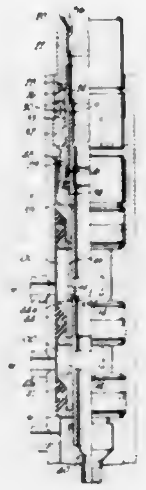
Emmet F. Brieger, Needville, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed May 6, 1964, Ser. No. 365,328
4 Claims. (Cl. 166—3)



1. A method for obtaining fluid samples from earth formations traversed by a well bore containing mud comprising the steps of: admitting a limited quantity of mud to a fluid sample-receiving chamber to normalize the pressure in the sample-receiving chamber to the hydrostatic pressure of the mud, sealing off a selected zone of earth formations while said quantity of mud is in said chamber, and establishing a flow of fluids from earth formations to said sample-receiving chamber.

3,305,015
TUBING HEAD APPARATUS AND METHOD

Cicero C. Brown, Houston, Tex., and Charles E. Wakefield, Jr., Bakersfield, Calif., assignors to Atlantic Richfield Company, a corporation of Pennsylvania
Filed Sept. 20, 1963, Ser. No. 310,203
9 Claims. (Cl. 166—.6)



1. An underwater tubing head apparatus for controlling the flow of oil and gas from a well drilled in a formation underlying a body of water, comprising in combination:

a first tubular member having a side outlet,

a second tubular member having a side outlet adjacent the side outlet of said first tubular member, said second tubular member being disposed within said first tubular member and of a configuration to form an annulus between said first and second tubular members,

means independent of well pressure for mechanically locking said second tubular member to said first tubular member,

means for sealing said annulus about said outlet, and means for hydraulically extruding said sealing means in said annulus.

3,305,016
DISPLACEMENT OF OIL FROM PARTIALLY DEPLETED RESERVOIRS

Gordon P. Lindblom, Gerald D. Ortloff, and John T. Patton, Tulsa, Okla., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
No Drawing. Filed Nov. 2, 1959, Ser. No. 850,019
20 Claims. (Cl. 166—9)

13. In a process wherein an aqueous medium is injected into a well and circulated in contact with a subsurface formation, the improvement which comprises incorporating into said medium a heteropolysaccharide produced by the action of bacteria of the genus Xanthomonas on a carbohydrate and thereafter injecting said medium into said well.

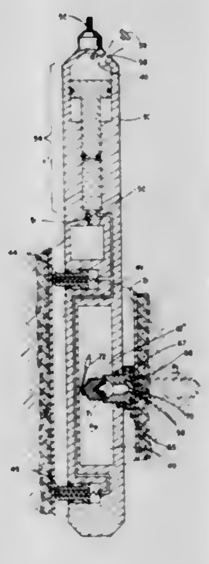
3,305,017
CONSOLIDATION OF INCOMPETENT EARTH FORMATIONS

Francis E. Dollarhide, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Oct. 16, 1964, Ser. No. 404,486
15 Claims. (Cl. 166—33)

1. The method of consolidating an incompetent earthen formation which consists essentially of (1) injecting into interstitial spaces among earthen particles at the exposed surfaces of the formation a resin composition comprising between 25 and 75 parts by volume of a liquid oil-miscible aliphatic mono-alcohol and balance to make a total of 100 parts of a liquid phenol-formaldehyde resin which sets upon standing to a solid resin; (2) injecting a liquid hydrocarbon into said interstitial spaces of the formation in an amount at least equal to the volume of resin composition; and (3) leaving the so-treated formation substantially undisturbed for a time sufficient for the resin to set to form a fluid-permeable structural network of resin and earthen particles.

3,305,018
PERFORATING PROCESS AND APPARATUS

William E. White, Jr., Wilton R. Marshall, and Terry Walker, all of Houston, Tex., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Apr. 7, 1964, Ser. No. 357,922
6 Claims. (Cl. 166—35)



1. The method of perforating a permeable formation zone containing a gassy formation fluid under pressure and traversed by a casing in a cased and cemented borehole containing a column of fluid extending upwardly of said zone and providing a pressure environment for pressure control in said borehole, comprising the steps of: providing a chamber containing a volume of gas at a pressure less than the pressure of said gassy formation fluid within said casing and enveloped by said pressure environment at the instant of perforating; imparting kinetic energy to a mass and directing the same from within said casing in a first direction along an axis to breach the casing wall and cement to produce a flow channel therethrough and perforate the formation therebeyond; and inducing a flow of said gassy formation fluid along said axis opposite said first direction concomitantly with the movement of said mass in said first direction by communicating said gassy formation fluid with said chamber through said flow channel at the instant of breaching said casing wall and cement by said mass with the volume of said chamber and the kinematic viscosity of gas in said chamber being such that when and as said mass moves through said formation, the relation

$$\left[\frac{P_f-P_W}{P_W}\right]\left[\frac{\mu_W}{\mu_f}\right]$$

is greater than one, where

P_f is the pressure of said gassy formation fluid,
P_W is the pressure in said chamber,
μ_W is the kinematic viscosity of gas in said chamber, and
μ_f is the kinematic viscosity of said formation fluid

whereby said perforation formed by the passage of said mass is substantially purged of detritus when and as said perforation is being formed.

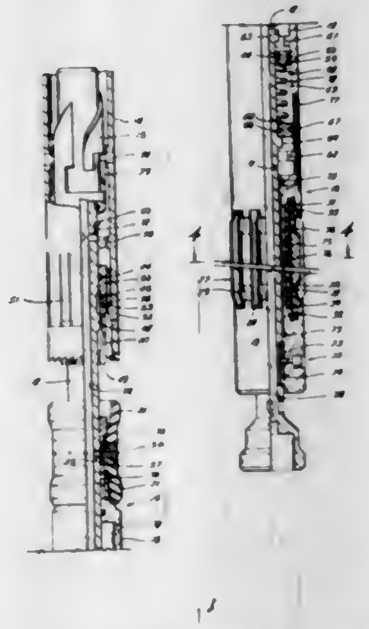
3,305,019
PROCESS FOR STIMULATING GAS WELLS

Melvin F. Katzer, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 29, 1965, Ser. No. 429,164
8 Claims. (Cl. 166—45)

1. A process for stimulating a gas well which comprises adding to the well as a solid unit a water-soluble composition comprising from 20 to 70 weight percent of a water-soluble, high molecular weight anionic acrylamide polymer in a water-soluble matrix, thereby modifying the properties of the well-bottom sand and reducing its interference with the gas flow.

3,305,020
WELL PACKING APPARATUS

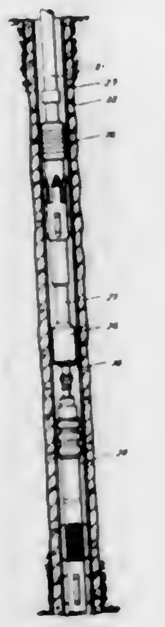
Maurice P. Lebourg, Houston Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed June 11, 1964, Ser. No. 374,489
3 Claims. (Cl. 166—121)



1. A well packer sized and adapted for reception in a well bore for packing-off the well bore comprising: an outer tubular member; a body member telescopically arranged and slidably disposed within said outer member and operatively arranged to shift longitudinally relative thereto in response to a differential of fluid pressure above and below said members in a well bore; first and second annular elastomeric packer cups mounted around one of said members and having their enlarged portions facing in opposite directions and their reduced portions adjacent one another; valve means responsive to shifting of said body member for selectively providing fluid communication across said packer cups between said oppositely facing portions and said reduced portions whenever said body member is in one position relative to said outer member and blocking this fluid communication whenever said body member shifts longitudinally to another position relative to said outer member; anchoring means for securing said packer against movement relative to the well bore including outwardly-extendible wall-engaging means mounted on said outer member and fluidly sealed relative thereto to provide a fluid-tight space therebetween, said wall-engaging means being adapted for extension into engagement with the well bore upon application of hydraulic pressure in said fluid-tight space; and hydraulic means responsive to shifting of said body member from said one position for applying a hydraulic pressure in said fluid-tight space to press said wall-engaging means into anchoring engagement with a force proportionately related to said pressure differential.

3,305,021
PRESSURE-RESPONSIVE ANCHOR FOR WELL PACKING APPARATUS

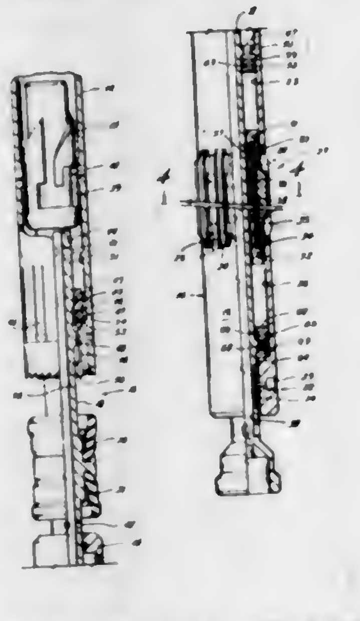
Maurice P. Lebourg, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston Tex., a corporation of Texas
Filed June 11, 1964, Ser. No. 374,535
21 Claims. (Cl. 166—122)



15. A well packer sized and adapted for reception in a well bore for packing-off the well bore, comprising: a housing; a rotatable member threadedly engaged with said housing, said rotatable member having a fixed shoulder longitudinally spaced from said housing; packing means mounted around said rotatable member intermediate said shoulder and said housing, said packing means being adapted for expansion into sealing engagement with the well bore upon rotation of said rotatable member; anchoring means for securing said well packer within the well bore including extendible wall-engaging means operatively mounted on said housing; and means responsive to torque of a predetermined magnitude for releasably connecting said rotatable member to said housing.

3,305,022
WELL PACKING APPARATUS

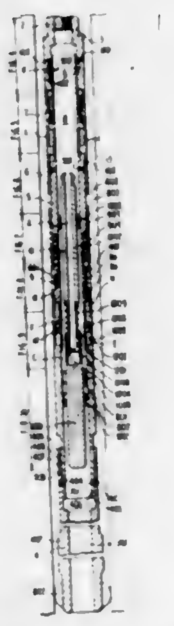
James W. Kisling III, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Aug. 9, 1965, Ser. No. 482,009
24 Claims. (Cl. 166—122)



18. A packer for use in a well bore comprising: telescoping mandrel and housing members, said members being relatively movable between upper, lower and intermediate positions; pack-off means on one of said members; hydraulically actuatable wall-engaging means on said housing member, hydraulic means for applying pressure to said wall-engaging means; and means responsive to positioning of said members in upper and lower positions for actuating said hydraulic means.

3,305,023
WELL TESTER WITH HYDRAULIC COUPLING AND RETRIEVABLE VALVE

David L. Farley, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed May 27, 1964, Ser. No. 370,603
12 Claims. (Cl. 166—226)

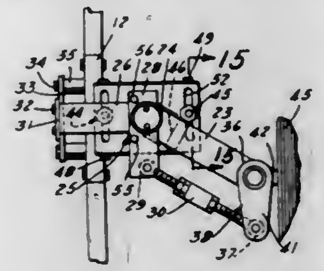


12. An apparatus for controlling fluid flow within a well bore, said apparatus comprising:
- a first portion;
- a second portion upon which said first portion is mounted for limited telescoping movement;
- a third portion upon which said second portion is mounted for limited telescoping movement;
- first slide valve means carried by, and operable in response to telescoping movement of, said first and said second portions;
- second slide valve means carried by, and operable in response to telescoping movement of, said second and said third portions;
- means carried by said first and third portions operable to limit relative movement of said first and third portions and prevent opening of said second valve means after the opening of said first valve means; and
- means interposed between two telescopingly assembled portions of said first, second and third portions and adapted to impede without preventing relative telescoping movement of said two telescopingly assembled portions.

3,305,024
PLOW TAIL WHEEL

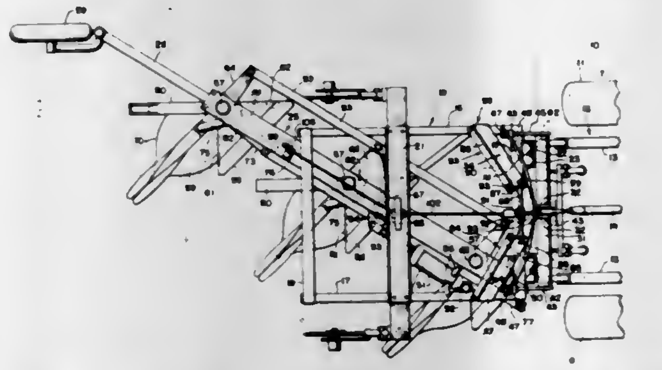
Claude B. Ogle, Jr., 2495 E. Orange Grove Ave., Pasadena, Calif. 91104
Filed Mar. 23, 1964, Ser. No. 354,009
9 Claims. (Cl. 172—212)

1. In a two-way plow:
- (a) a support frame;
- (b) a rollover frame carried by said support frame and adapted for swinging movement about an axis of rotation from an operative position on one side to an operative position on the other side thereof to selectively present associated plow members for use;
- (c) a supporting structure including an arm pivotally connected at one end to one of said frames for swinging movement about said axis of rotation in a plane in right angled relation to said axis ;
- (d) a depth gauge wheel rotatably mounted at the other end of said arm for movement from an operating position on one side of the support frame to an operating position on the other side of the support frame in accordance with changes in the operative position of the rollover frame; and
- (e) bracket means operatively associated with said structure including a pair of adjustably spaced apart stops, each of said stops being operable with respect to said arm in one of the operative positions of said rollover frame to limit its downward movement during a plowing operation.



3,305,025
TWO-WAY MOLDBOARD PLOW

Otto E. Johnson, Hinsdale, and Ronald T. Fulton, Tinley Park, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Oct. 23, 1963, Ser. No. 318,279
16 Claims. (Cl. 172—218)



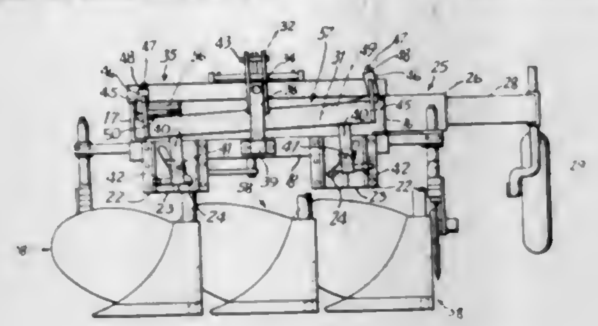
1. The combination with a tractor having power lifted hitch means thereon, of a reversible plow having a main frame connected to the tractor and vertically movable between operating and transport positions, a generally horizontal sub-frame carrying right and left-hand plow units mounted on the main frame for lateral swinging to alternate right and left-hand plowing positions, each of said plow units comprising an allochiral plow element mounted on the sub-frame for lateral swinging therewith to positions for right and left-hand plowing, a pair of right and left-hand mating plow elements mounted on the sub-frame, and means connected between the main frame and said mating plow elements for shifting the latter relative to said first plow element to alternately dispose said mating plow elements in right and left-hand plowing positions with respect to said first plow element.

3,305,026
LEVELING APPARATUS FOR TWO-WAY PLOW

Ronald T. Fulton, Tinley Park, Ill., assignor to International Harvester Company, a corporation of Delaware
Filed May 28, 1964, Ser. No. 371,064
7 Claims. (Cl. 172—222)

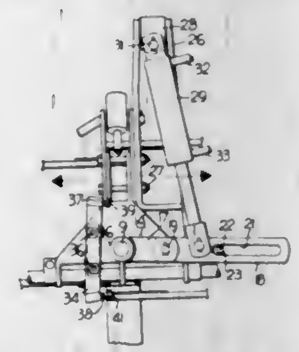
1. A two-way plow for use in combination with a tractor having laterally spaced rear wheels and a draw

frame tiltable with the tractor when one of said wheels is disposed in a furrow comprising a relatively stationary main frame, a hitch frame attachable to the tractor draw frame for tilting therewith and with the tractor, generally horizontal pivot means connecting said main frame to said hitch frame to accommodate relative angular movement between the main frame and the hitch frame in response to said tilting of the tractor to automatically maintain said main frame level, an auxiliary frame having plow units thereon adapted for right and left-hand plowing, means mounting said auxiliary frame on said main frame for swinging movement relative thereto to alternately dispose said plow units in position for right and left-hand plowing, and means operatively connecting the forward end of said auxiliary frame and said hitch frame to control the angular movement of said main and auxiliary frames relative to said hitch frame.



3,305,027
TWO-WAY PLOW

Maynard E. Walberg, Waukesha, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Sept. 29, 1964, Ser. No. 399,965
6 Claims. (Cl. 172—225)

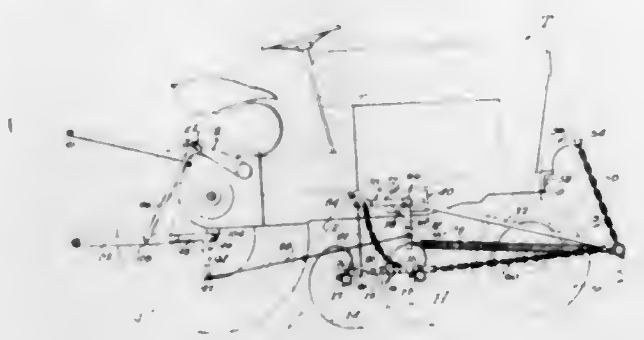


1. A power actuated two-way plow comprising a frame structure, a plow carrying beam pivotally mounted in said frame for pivotal movement about a generally fore and aft axis, and means for pivoting said beam about said axis for reversing said plows, said means including a crank on said beam, a link pivotally connected at one end to said crank and being provided with a slotted portion adjacent the other end for receiving a guide member carried by said frame, and hydraulic means connected to a mid-portion of said link for actuating said crank.

3,305,028
TRACTOR MOUNTING FOR AGRICULTURAL IMPLEMENTS

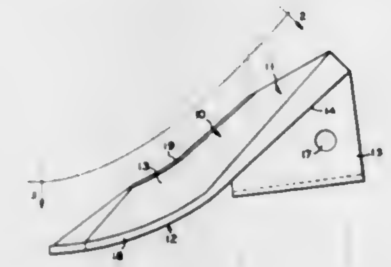
Otto R. Schaper, Estherville, Iowa 51334
Filed Sept. 29, 1964, Ser. No. 400,109
8 Claims. (Cl. 172—297)

1. In combination with a tractor comprising a frame having side members, drive wheels at the rear end of the frame, and steering wheels at the forward end of the frame, an agricultural implement positioned between the drive wheels and the steering wheels and beneath the tractor frame, and means mounting the implement on the tractor frame wherein the said implement is a harrow having spaced transverse horizontal front and rear beams, spring teeth fixed to the beams in staggered relationship, longitudinal bar means extending between and fixed to the beams, said mounting means comprising a horizontal transverse drawbar positioned in front of the tractor steering wheels, flexible and adjustable means connected between the drawbar and the front end of the tractor frame, rigid strut means connected at the forward end thereof to the drawbar and pivoted at the rear end thereof to the tractor frame, at a location over the harrow.



3,305,029
EARTH WORKING TOOL POINT

Dothan L. Shelton, 2100 S. Polk St.,
Amarillo, Tex. 79109
Filed Nov. 13, 1964, Ser. No. 410,976
5 Claims. (Cl. 172—713)



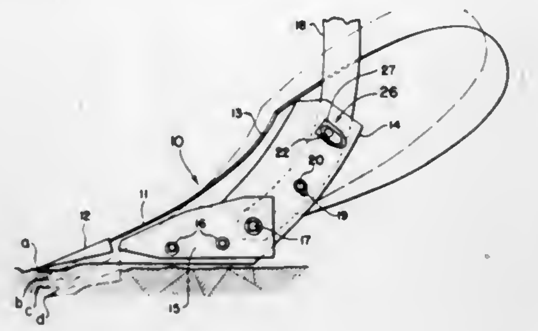
1. A metal tillage tool for deep earth penetration comprising:

(a) an elongated body
(b) of basic triangular cross section.
(c) an upper straight segment of the body fairs smoothly into
(d) a lower curved segment of the body extending downwardly and forwardly to form an earth penetrating blade,
(e) the body having a back face, straight in cross section, which forms the base of the triangular cross section, and
(f) a boot fastened to the back face of the upper segment for mounting on a tool carrying shank.

3,305,030
PLOW BOTTOM POSITIONER

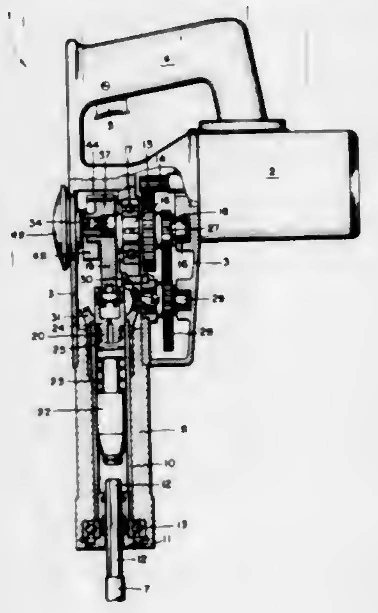
Uwe H. Martensen, Acassuso, Buenos Aires, Argentina, assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Jan. 11, 1965, Ser. No. 424,500
7 Claims. (Cl. 172—740)

1. In an implement including a support member having an opening therein and a tool member on the support having an opening therein registrable with the opening in the support, one of said openings being substantially larger than the other, a bolt receivable in said openings having a shank conforming to the diameter of said other opening and a head, and a stepped collar having a bore therein to receive said shank, said collar having radially offset eccentric portions displaced in different directions from the axis of said bore, each of said eccentric portions being alternately receivable in said other opening upon reversing said collar and rotatable on said bolt to angularly adjust said tool member relative to said support member.



3,305,031
POWER HAMMER

Renatus S. Bez, Sayre, and Edward L. Allen, Athens, Pa., assignors to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 1, 1965, Ser. No. 429,289
4 Claims. (Cl. 173—115)

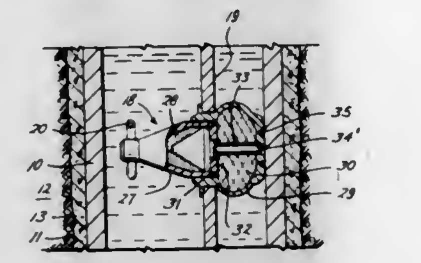


1. A drilling tool comprising:

(a) a frame;
(b) a rotary motor mounted on said frame;
(c) a chuck mounted on the end of said frame and adapted to hold a drill bit;
(d) a percussive means including a connecting rod and adapted to axially hammer the drill bit held in said chuck;
(e) drive means interconnecting said connecting rod to said motor for reciprocating said connecting rod, said drive means including a drive shaft and an eccentric means interconnecting said drive shaft and one end of said connecting rod;
(f) said eccentric means including a first eccentric fixed on said drive shaft to rotate with the drive shaft and a second eccentric keyed on said first eccentric and journaled in said one end of said connecting rod; and
(g) means for adjusting said second eccentric angularly relatively to said first eccentric to a variety of keyed positions to vary the length of the stroke of said eccentric means and said connecting rod.

3,305,032
WELL COMPLETION APPARATUS

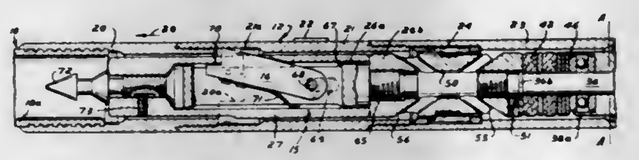
Nick A. Schuster and William T. Bell, Houston, Tex., assignors, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed June 11, 1964, Ser. No. 374,473
11 Claims. (Cl. 175—4.52)



4. Apparatus for completing a cased well comprising: shaped charge means for producing, upon detonation, a perforating jet, container means disposed forwardly of said shaped charge means, said container means enclosing a non-plugging fluid and having a forward wall portion with a face curved complementarily to the curvature of a casing and a major portion thereof intersected by the axis of said perforating jet, annular seal means disposed in said forward face for sealing against a well bore wall, and means for positioning said forward face of said container means in contact with the wall of a casing.

3,305,033
CORE BARREL

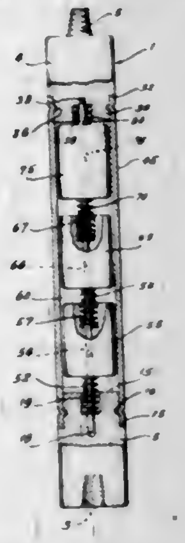
Albert F. Pickard and John Karich, Minneapolis, Minn., assignors to E. J. Longyear Company, Minneapolis, Minn., a corporation of Delaware
Filed Mar. 4, 1964, Ser. No. 349,223
12 Claims. (Cl. 175—246)



1. Rotary core drilling apparatus for taking a core sample comprising a drill stem having an apertured core bit at the inner end thereof, a latch seat axially spaced from said core bit and a hanger coupling axially intermediate said latch seat and the core bit, said hanger coupling having an annular recess, and a wire line core barrel inner tube assembly that includes a latch, a latch body portion mounting said latch for movement between an extended position to latchingly engage said latch seat and a retracted position, latch release means mounted by said latch body portion for limited movement between a latch retracted position and a latch extended position, means for receiving and retaining a core sample, and means for connecting the core receiving means to the latch body portion to extend axially inwardly of the latch body portion, the last mentioned means having a reduced diameter portion to form a shoulder, and resiliently expandable means mounted in said recess for expanding as the part of the core barrel inner tube assembly inwardly of said reduced diameter portion passes therethrough and alternately contracting onto said reduced diameter portion for abutting against said shoulder to hold the core receiving means out of contact of the core bit as core is being drilled, said core receiving means having an outer diameter greater than the inner diameter of the expandable means in a contracted condition, and said connecting means including means having a fluid channel for bypassing said expandable means in a core barrel inner tube assembly latch seated position, a spindle,

means for connecting one end portion of the spindle to said latch body portion, two resilient washers mounted on said spindle that are expandable in girth to form a fluid seal with the drill stem when sufficiently compressed, a metal washer on the spindle intermediate said resilient washers and means mountingly retained on said spindle for limited relative slidable movement to connect the core receiving means to the spindle and compress said washers to expand the resilient washers in girth when the core receiving means is filled with core and the latch engages the latch seat.

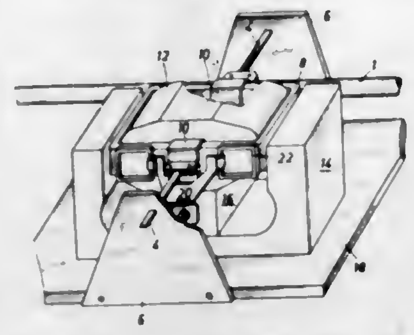
3,305,034
DRILL ATTACHMENT
Carl C. Koeln, 3830 Roland Blvd.,
St. Louis, Mo. 63121
Filed July 31, 1964, Ser. No. 386,700
2 Claims. (Cl. 175—299)



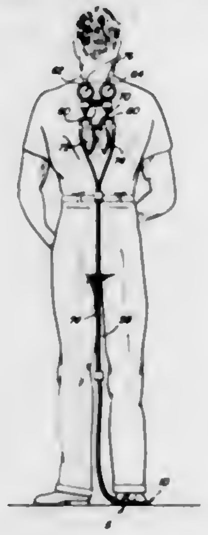
1. A drill attachment for churn drills, comprising a vertically elongated casing adapted to be connected to suspending means at its upper end, vertically superposed hammers slidably mounted within said casing for axial movement therein, an anvil fixed at the lower end of said casing and adapted to be connected to a bit, and springs mounted between said hammers and said anvil and between said hammers respectively, said springs each having a stiffness which is a direct function of the total superincumbent weight on said spring whereby said spring supports the hammer immediately contiguous and above it in vertically spaced relation to the adjacent surface below said hammer when the attachment is at rest, and means for accommodating each of said springs in compression, with respect to its contiguous hammer, whereby a lower surface of each hammer strikes directly the surface below it when the springs are compressed, and the hammers strike said surfaces serially from the lowermost to the uppermost.

3,305,035
ELECTRICAL WEIGH SCALE WITH MOVING-COIL DETECTOR
Theodor Gast, Berlin, Germany, assignor to Sartorius-Werke (und vormals Gottinger Prazisionswaagenfabrik G.m.b.H.) AG
Filed Aug. 27, 1965, Ser. No. 483,277
Claims priority, application Germany, Aug. 31, 1964, S 92,927
9 Claims. (Cl. 177—185)

1. An electronic micro-scale, which comprises a moving coil, which has a mean major plane and is arranged to rotate about an axis in response to the application of a load to said scale, indicating means for an induced indication of the position of said moving coil, and automatic compensating means, said automatic compensating means comprising a permanent magnet for producing a unidirectional field, said magnet consisting of low-permeability material and disposed in said moving coil, and said indicating means comprising two stationary, identical framelike field coils, which are disposed closely beside said moving coil and symmetrically with respect to said axis and symmetrically and at right angles with respect to said mean major plane, said field coils being connected to be flown through by alternating current in opposite senses.

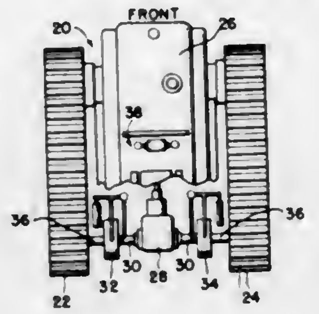


3,305,036
DEVICE FOR MEASURING WEIGHT DISTRIBUTION ON A FOOT
Mitchell Walters, Lexington, Ky., assignor of forty-nine percent to Edgar W. Borchert, Lexington, Ky.
Filed Oct. 14, 1965, Ser. No. 495,868
2 Claims. (Cl. 177—209)



1. Means capable of measuring pressure attending an aggregate weight load imposed and concentrated by the heel and sole portions of a patient's foot while walking comprising: a first weight responsive unit attachable to the sole of the shoe of the patient's foot and embodying an inflatable and deflatable pad, a fluid pressure operated gauge having a properly graduated dial capable of being readily viewed by a therapist in charge of and diagnosing the results of the examination under advisement, means carried by said gauge and for suspending the same in an easy-to-see place on the upper part of the body of the walking patient, a flexible hose communicatively connected at its ends to the pad and gauge, respectively, said hose having a manually controllable fluid trapping and bleeding valve, a second weight responsive unit attachable to the heel of the aforementioned shoe and embodying an inflatable and deflatable pad, a second fluid pressure operated gauge having a properly graduated dial and indicator capable of being readily viewed by a therapist in charge of and diagnosing the results of the examination under advisement, means carried by said second gauge and for suspending the same in an easy-to-see place on the upper part of the body of the walking patient, and a second flexible hose communicatively connected at its ends to the second pad and second gauge, respectively, said second hose having a manually controllable fluid trapping and bleeding valve.

3,305,037
CONTROL VALVE FOR TRACK LAYING TRACTOR
Robin J. W. C. Stow, East Flamboro Township, Ontario, Canada, assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed Aug. 21, 1964, Ser. No. 391,277
8 Claims. (Cl. 180—6.2)



1. In a power steering system having a source of supply of fluid to motors in the system:

first and second drive control and steering motors;

a pair of operator-operated valves each arranged with an inlet-outlet port therein and with the port of each valve connected to a different one of said motors;

means including a flow divider forming first circuit means for hydraulically interconnecting the source and one of said operator-operated valves;

means including the flow divider forming second circuit means for hydraulically interconnecting the source and the other valve; said valves being responsive to pressure from the operator to create a proportional hydraulic back pressure in said first and second circuit means, thereby rendering the motors operative;

said flow divider comprising a valve bore having third valve means positioned therein and connected in the first and second circuit means for automatically adjusting the division of flow therebetween; and

a pressure-dropping restriction in each circuit means upstream of chambers in the ends of the valve bore, and communicating therewith to create a difference in pressure drop acting from those chambers in opposite directions;

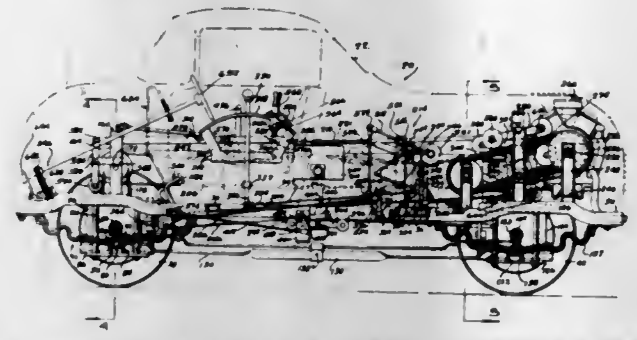
said third valve means being subject to the chamber pressure acting in one direction thereon due to a decrease in fluid flow in the first circuit means, and in the opposite direction due to a decrease in fluid flow in the second circuit means, and adapted to assume a neutral position when the flows are substantially equal;

said third valve means, from the neutral position, being pressure-movable in said second circuit means in a flow decreasing direction when the pressure on the operator-operated valve in the first circuit means exceeds the pressure on the other operator-operated valve, and being pressure-movable in said first circuit means in a flow decreasing direction when the pressure on the operator-operated valve in the second circuit means exceeds the pressure on the other operator-operated valve;

said pair of valves having two fluid return port means disposed one downstream of each inlet-outlet port in the circuit means;

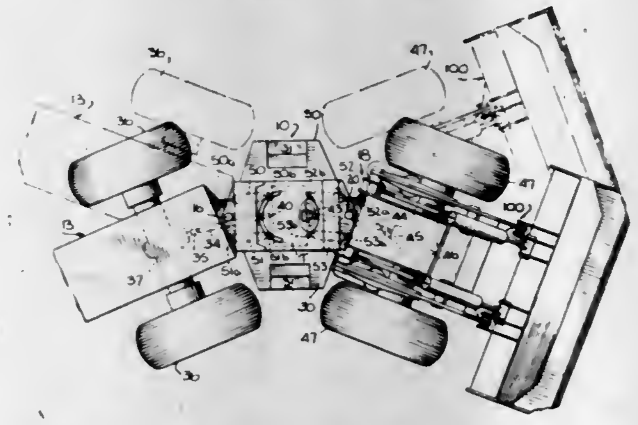
each valve of the pair being characterized by having a valve member for controlling the fluid return port means to create said hydraulic back pressure, an operator's member, and biasing means between the members to transmit the force exerted by the operator and affording an elastic connection so that, under the reactive force of the fluid back pressure, the valve member yields in its position until it establishes a balanced condition with the biasing means.

3,305,038
AUTOMOTIVE VEHICLE
Thomas Carter, Rte. 4, Box 154A,
Franklin, N.C. 28734
Filed Dec. 8, 1961, Ser. No. 157,936
24 Claims. (Cl. 180—50)



17. A motor-driven wheeled vehicle comprising a chassis including a pair of laterally spaced side frame members, a pair of aligned axles for each end of said chassis and extending transversely thereof, a wheel mounted on the remotely disposed ends of each pair of said axles, differential means supported on said side frame members adjacent each end of said chassis and connected in driving relation with the adjacent inner ends, respectively, of each pair of aligned axles, each of said differential means including a rotatable driven differential housing, motor means supported on said chassis and connected to the power input side of said transmission means, a power take-off shaft connected to the power output side of said transmission means and being rotatably driven thereby, endless flexible means connecting each differential casing in driven relationship with respect to said power take-off shaft, and manually operable braking means mounted on said chassis engageable with said flexible means to arrest rotation of said differential casings and consequently of said axles.

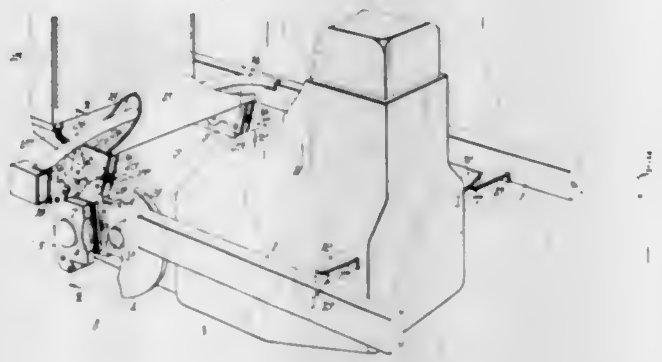
3,305,039
DOUBLE ARTICULATED TRACTOR SHOVEL
Lloyd A. Molby, Elba, N.Y., assignor to Eaton Yale & Towne Inc., a corporation of Ohio
Filed Sept. 18, 1964, Ser. No. 397,400
14 Claims. (Cl. 180—51)



13. In a vehicle of the class described, a central control unit, forward and rear traction units pivoted symmetrically to opposed portions of said control unit in the longitudinal axis of said control unit, an internal combustion engine on one of said traction units, a transmission on said central unit, a drive shaft extending longitudinally from each of the opposed ends of said transmission to said traction units, and from said internal combustion engine to said transmission, traction gears in each of said traction units driven by said shafts extending from said transmission, said three shafts being equipped with universal joint and lying in the longitudinal central axis of said units when said three units are in longitudinal alignment, and steering mechanism for pivoting said traction units relatively to said central unit while said three shafts pivot on said universal joints to drive said vehicle.

3,305,040
AUTOMOBILE VEHICLES FITTED WITH DISC BRAKES

Jean Cadiou, Paris, France, assignor to Société Anonyme, André Citroën, Paris, France
Filed Dec. 21, 1964, Ser. No. 419,893
Claims priority, application France, Dec. 31, 1963, 959,123
5 Claims. (Cl. 180—64)



1. An automobile vehicle which comprises, in combination,

two longitudinal frame side members,

a propelling unit including an internal combustion engine block, a gear box, and a casing for said engine block and said gear box, said propelling unit being located between said frame side members,

two gear box output shafts extending transversely from said casing,

at least two brake devices, each including:

a brake disc operatively connected with one of said gear box output shafts, respectively, to be driven by it,

a brake frame rigidly secured to said casing and located astride a portion of the periphery of said brake disc,

two friction members carried by said brake frame on either side of said brake disc, at least one of said friction members being slidable with respect to said brake frame parallelly to the corresponding gear box output shaft, and

means for moving said slidable friction member in the direction for which said disc is tightly held between said friction members, and

a transverse structure rigidly interconnecting the side members,

means for securing the end of said propelling unit casing remote from said gear box directly to said frame longitudinal side members, and

means securing said transverse structure to said propelling unit.

3,305,041
FOUR WHEEL STEERING SYSTEM

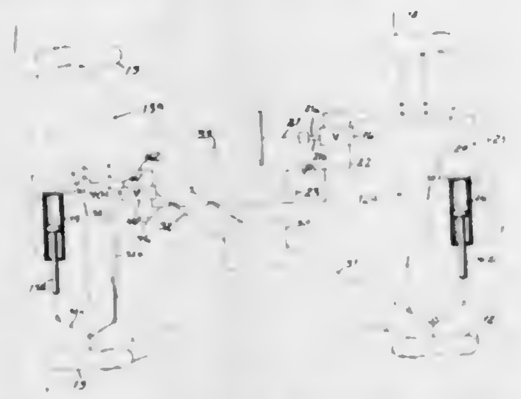
Harold J. Schramm, Westmont, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed July 1, 1965, Ser. No. 468,680
10 Claims. (Cl. 180—79.2)

1. A steering system for a tractor equipped with a hydraulic power system and having front and rear wheel assemblies respectively including a pair of front wheels and a pair of rear wheels, said pairs of wheels being separately steerable in relation to the longitudinal axis of the tractor,

(a) first and second hydraulic power means in operative communication with said hydraulic power system and arranged respectively to actuate said pairs of wheels in steering movement thereof,

(b) valve means in operative communication with said hydraulic power system and said first hydraulic power means for actuating the same under operator control, to effect directional changes in the path of travel of said pair of front wheels,

(c) sensing valve means in operative communication with said hydraulic power system and said second hydraulic power means for actuating the same to effect directional changes in the path of travel of said pair of rear wheels,

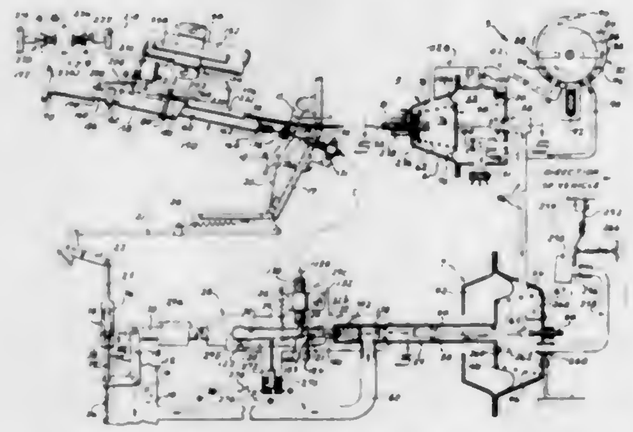


(d) first linkage operatively interconnecting said sensing valve means and said rear wheel assembly to effect directional changes in the path of travel of said pair of rear wheels independently of said second hydraulic power means,

(e) second linkage selectively operable to interconnect said front wheel assembly and said sensing valve means whereby to actuate said sensing valve means to effect directional changes in the path of travel of the said pair of rear wheels inversely corresponding to directional changes in the path of travel of said pair of front wheels.

3,305,042
AUTOMOTIVE SPEED CONTROL APPARATUS

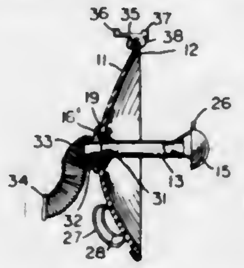
Robert H. Thorner, 19754 Monte Vista, Detroit, Mich. 48221
Filed Mar. 19, 1963, Ser. No. 266,257
35 Claims. (Cl. 180—82.1)



1. In a speed control device for an automotive vehicle including an engine having control means therefor normally advanced to increase vehicle-speed, and conversely, and including vehicle brake-actuating means, said vehicle also including a movable element always operated by the vehicle-driver whenever said driver leaves the vehicle, the combination of, a regulator mechanism operatively associated with said control means and adapted to produce forces acting thereon in response to a signal accompanying a change in the speed of the vehicle to effect stable automatic regulating movements of said control means in a direction tending to maintain a preselected regulated speed of the vehicle, means operated by said brake-actuating means upon normal movements thereof for rendering said regulator mechanism inactive but not inoperative to transmit said forces to said control means, automatic activating means operatively associated with said mechanism and operable selectively by the vehicle-driver at his discretion after partial manual advancement of said control means when said brake-actuating means is inactive to automatically effect activation of said mechanism with respect to said control means, said automatic activation being effected at a vehicle speed substantially lower than said regulated speed, said regulator mechanism being constructed and arranged to cause automatic acceleration of the vehicle from said lower speed to said regulated speed and tending automatically to maintain said preselected regulated speed thereafter, and restraining means automatically operable in response to movements of said element from an initial position for rendering said mechanism inoperative, to preclude inadvertent activation of said mechanism independent of subsequent return movement of said element to said initial position until said mechanism is deliberately activated by the vehicle-driver.

3,305,043
ACOUSTIC COMMUNICATION DEVICE AND TOY

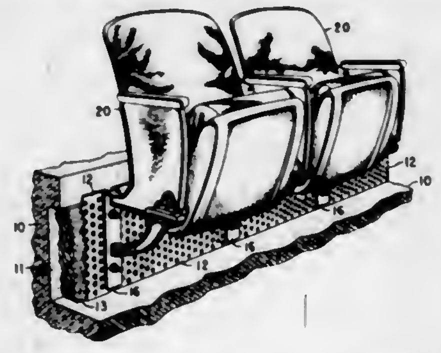
Charles E. Pfund, 16 Balcarres Road, West Newton, Mass. 02165, and John W. Dawson, Winter St., Norwell, Mass. 02061
Filed Mar. 8, 1965, Ser. No. 437,821
7 Claims. (Cl. 181—27)



1. A portable two-way acoustic communication device comprising a hand-held paraboloid, a large diameter voice tube mounted on the axis of said paraboloid and having a bend in operative condition to extend one open end of said tube on the convex side of said paraboloid to be offset from said axis and the other open end of said tube positioned to transmit and receive acoustic energy from the effective focus of said paraboloid, the off-set said one end facilitating communication with the mouth or ear of the user while sighting along a direction parallel to said axis.

3,305,044
ACOUSTICAL PANEL SUPPORTS FOR RISER FACES

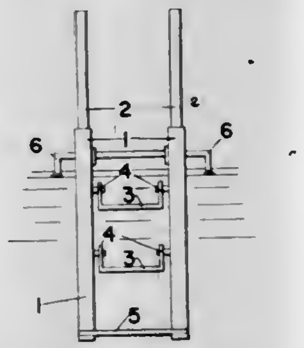
William R. Van Loo and Jan Machielse, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich., a corporation of Delaware
Filed May 25, 1966, Ser. No. 552,979
8 Claims. (Cl. 181—33)



1. In combination with a wall riser having a longitudinal recess in its face and provided with bolt supports projecting from said riser through said recess, vertical standards carried by said bolts, said standards being provided with chair-supporting arms, and acoustical panels having their side edge portions carried by said standards and supported in front of said recess.

3,305,045
BOAT LADDER

Raymond Joseph Schlecht, 6329 E. Tecumseh, Tulsa, Okla. 74115
Filed Nov. 2, 1964, Ser. No. 408,126
3 Claims. (Cl. 182—97)



1. A boat ladder comprising:

a pair of parallel spaced ladder rails;

at least one self-leveling swing type step rotatably supported between said rails;

a pivot arm attached to said rails and extending substantially perpendicular therefrom;

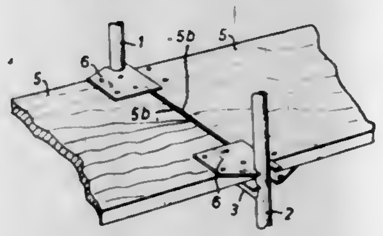
fulcrum means to pivotally support said pivot arm to a boat whereby said ladder is pivotal from a substantially vertical position to a substantially horizontal position;

an extension handle telescopically extendable from said ladder rails to increase the leverage arm from said fulcrum; and

releasable latch means to lock each of said handles with respect to its rail at a desired position.

3,305,046
SCAFFOLD AND PLATFORM

Oskar Schar, Rohrbach, near Huttwil, Bern, Switzerland, assignor to Conrad Kern A.G., Zurich, Switzerland
Filed Apr. 15, 1965, Ser. No. 448,445
Claims priority, application Switzerland, Apr. 21, 1964, 5,100/64
6 Claims. (Cl. 182—179)

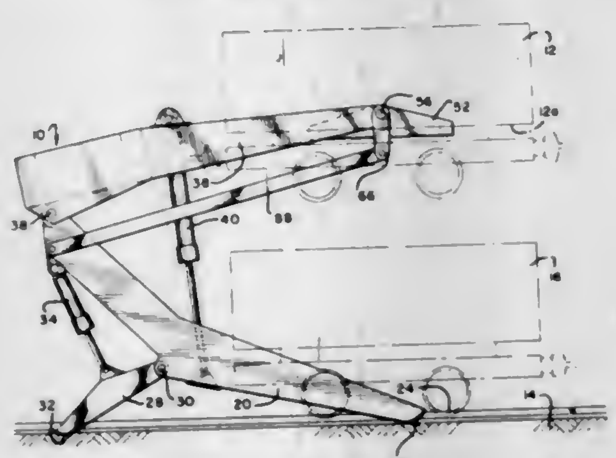


1. A scaffold, comprising: a plurality of vertically releasably interconnected and horizontally spaced independent frame units, each unit including a pair of spaced vertical metal columns and horizontal support means connecting together the columns of a unit, said columns being releasably connectable with those of a similar frame unit located vertically above; a horizontal rectangular platform extending between each two neighboring pairs of horizontally spaced frame units and supported by the said support means of each unit, said platform having upper and lower horizontal surfaces; a flat metal plate at each corner of said platform rigidly mounted on at least one of said upper and lower horizontal surfaces, said plate projecting beyond the two sides of the platform converging to form the corresponding corner; a recess in each of said plates for accepting a corresponding one of said metal columns, said recess being located in the portion of the

plate projecting beyond a platform side extending between the neighboring pairs of horizontally spaced frame units; and at least one strut detachably connecting together corresponding columns of each two neighboring horizontally spaced frame units.

3,305,047
APPARATUS FOR SHUNTING MINE CARS OR THE LIKE

Herbert Bronder, Sandvika, Norway, assignor to Ingersoll-Rand World Trade Limited, Hamilton, Bermuda, a corporation of Bermuda
Filed Nov. 16, 1965, Ser. No. 508,020
Claims priority, application Norway, Feb. 11, 1965, 156,743
11 Claims. (Cl. 187—8.41)

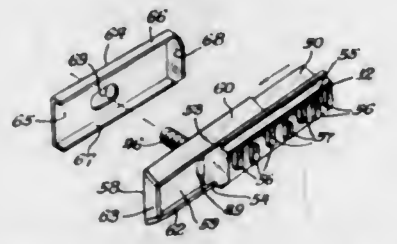


1. An apparatus for raising a mine car or the like to permit the passage of another mine car or the like therebelow, comprising:
- a plurality of lower supporting members spaced a distance greater than the width of said mine cars;
- a plurality of upper supporting members spaced a distance greater than the width of said mine cars;
- each one of said upper supporting members being pivotally connected to a respective one of said lower supporting members for vertical movement relative thereto and being vertically movable above said respective one of said lower supporting members to a height greater than the height of said mine cars;
- motor means operatively connected to said upper supporting members for vertically moving such relative to said lower supporting members;
- transverse connecting means connecting said upper supporting members with each other; and
- a mine car supporting member disposed within the space between said upper supporting members adjacent each of said upper supporting members;
- said mine car supporting members each being connected to their respective adjacent upper supporting member for vertical movement therewith and being adapted to cooperate to support a mine car for vertical movement with said upper supporting members.

3,305,048
BRAKE BLOCK RETAINERS

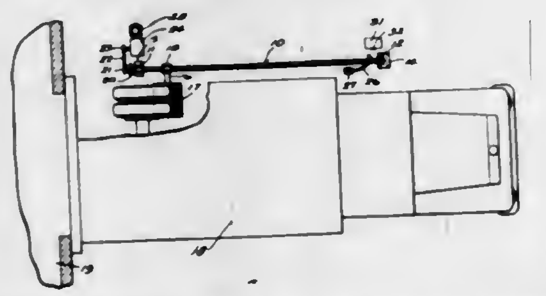
Frank P. Brilando, Niles, Ill., assignor to Arnold, Schwinn & Co., Chicago, Ill., a corporation of Illinois
Filed Apr. 30, 1965, Ser. No. 452,076
1 Claim. (Cl. 188—24)

In a caliper brake for use on bicycles and the like, and wherein said brake embodies brake arms mounted on a part of the bicycle with end portions on opposite sides of a wheel rim and supported for individual swinging movements relative to one another, means normally biasing the brake arms to positions in which said end portions are spaced from the opposite sides of the wheel rim, and means for actuating said brake arms against said normal bias to effect movements of said end portions toward said opposite sides of the rim, the combination comprising a brake block having back and front portions of different sectional shapes extending longitudinally of the block, said back portion having a generally flat back face and side surfaces which taper toward one another in a direction away from the back face, and said front portion projecting forwardly from the back portion toward a front braking surface and having shoulders projecting laterally from the forward extremities of said side surfaces of the back portion; and a two part brake block retainer for securing one of said brake blocks to each of said end portions of the brake arms in alignment for engagement of the braking surfaces thereof with opposite sides of said wheel rim, said retainer including a first channel-type metal part with a web having an inner surface of a size to fit against the back face of said brake block, an end flange for engagement with one end of the brake block, side flanges on opposite sides of said web and tapered toward one another in a direction away from the web to conform substantially to the side surfaces of said back portion of the brake block and to cover the said side surfaces to positions adjacent said shoulders, and a threaded stud projecting from the mid-region of said web in a direction opposed to said flanges for use in securing said first metal parts to said end portions of the brake arms; and a second channel-type metal part having a web with an opening therein through which said stud may extend, said web of the second metal part also having thereon an end flange for engagement with the end of said brake block other than said one, and side flanges for engagement with marginal portions of said side flanges on the first metal part for retaining the metal parts in longitudinal alignment; threaded means for engagement with said stud to hold said metal parts in assembled relation and secure them to the end portions of said brake arms, and said opening in the second metal part being elongated longitudinally of the part, so that said metal parts are relatively movable longitudinally for bringing said end flanges of the parts into engagement with brake blocks of different lengths.



3,305,049
POWER OPERATED WHEEL BLOCKS

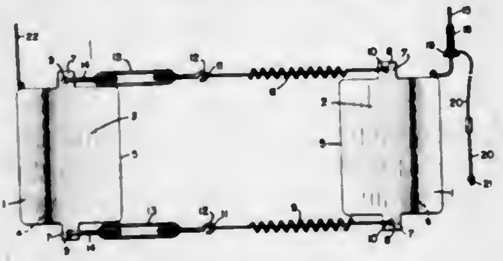
Donald A. Willey, 1910 S. Grand Ave., Waukesha, Wis. 53186
Filed May 6, 1965, Ser. No. 453,723
1 Claim. (Cl. 188—32)



A power operated wheel blocking device including an elongated vehicle flanking screw, end supports journalling the latter, a nut engaged on said screw, a triangular chock, an arm rigidly connecting said chock with said nut, a motor for driving said screw, a speed reducer associated therewith, a belt operably connecting said speed reducer with said screw, a standard, a push button motor control thereon reachable by an occupant of a vehicle, and inclined lift guide fixed adjacent one end of said screw for intercepting said connecting arm to lift said chock upwardly out of the path of a vehicle.

3,305,050
WHEEL BLOCKS

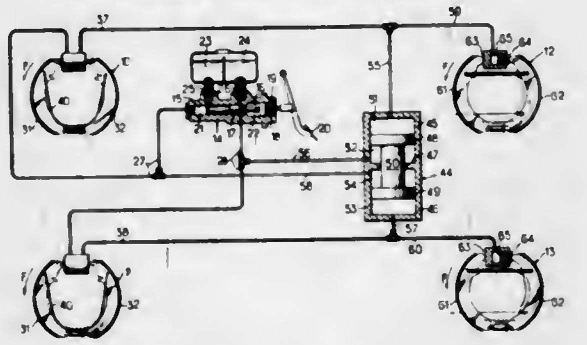
Coy L. Newberry, 8377 Woodbine Ave., Cincinnati, Ohio 45216
Filed Oct. 13, 1965, Ser. No. 495,660
4 Claims. (Cl. 188—32)



1. A wheel block comprising a pair of chocks having sloping surfaces for impingement on opposite sides of a tread of a wheel secured at an acute angle to padded legs adapted for pressure contact with a surface upon which the wheel is resting;
- wings extending from and fixed to said sloping surfaces adapted to receive interconnecting means for wedging said chocks to said tread and surface;
- and said interconnecting means being removable, compression springs and connected turnbuckles interconnecting said two chocks to hold said wheel from rolling motion.

3,305,051
BRAKING DEVICE, ESPECIALLY FOR AUTOMOTIVE VEHICLES

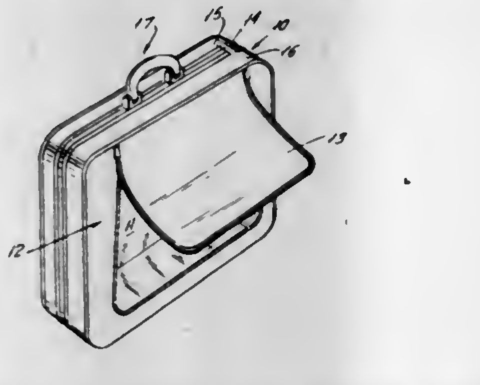
Jean Maurice, Paris, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France, a corporation of France
Filed Jan. 13, 1965, Ser. No. 425,132
Claims priority, application France, Jan. 23, 1964, 961,266; June 22, 1964, 979,124
22 Claims. (Cl. 188—152)



1. In a braking device for the two wheels of an axle of an automotive vehicle, in which each wheel brake has an actuating chamber expansible to actuate the brake and a reaction chamber absorbing the braking reaction, means for driving proportional volumes of fluid into the two actuating chambers, and means for balancing the pressure between the two reaction chambers; the improvement comprising a cylinder, a piston reciprocable in the cylinder and defining with the cylinder four chambers that are separate from each other, a first and second of said four chambers decreasing in size and a third and fourth of said four chambers increasing in size upon movement of the piston in one direction, said first and second chambers increasing in size and said third and fourth chambers decreasing in size upon movement of the piston in the other direction, separate fluid circuits interconnecting the actuating chamber and the reaction chamber of one brake with said first and second chambers respectively, and separate fluid circuits interconnecting the reaction chamber and the actuating chamber of the other brake with said third and fourth chambers respectively, so that upon an increase in pressure in the reaction chamber of said one brake the piston moves in said other direction to increase the pressure in the actuating chamber of said other brake relative to the pressure in the actuating chamber of said one brake, and upon an increase in pressure in the reaction chamber of said other brake the piston moves in said one direction to increase the pressure in the actuating chamber of said one brake relative to the pressure in the actuating chamber of said other brake.

3,305,052
LUGGAGE AND METHOD OF MANUFACTURE FOR LUGGAGE

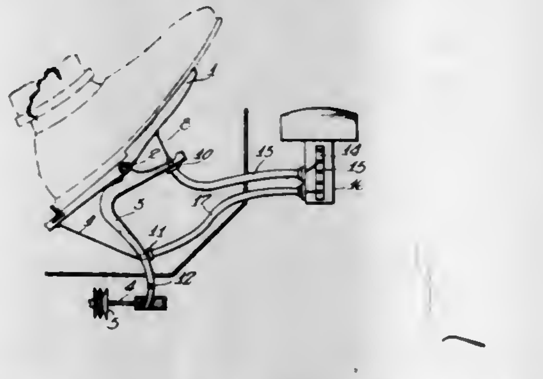
Michael Kish, Jr., Hightstown, N.J., assignor to Atlantic Products Corporation, Trenton, N.J., a corporation of New Jersey
Filed Aug. 4, 1964, Ser. No. 387,390
21 Claims. (Cl. 190—49)



1. The method of manufacturing luggage comprising the steps of securing a first and second flat elongated frame section to the opposite sides of an elongated flat metallic reinforcing member with said first and second elongated frame sections and said flat metallic member lying in a common plane, and thereafter bending said flat assembly of said first and second frame sections and said flat metallic reinforcing member to a tubular form and securing the opposite ends of said flat assembly to one another.

3,305,053
SYSTEM OF ACCELERATING AND BRAKING BY MEANS OF A COMBINED PEDAL FOR AUTOMOBILES

Antonio Frontera Pascual, Calle Francisco Sitjar 4, Palma de Mallorca, Spain
Filed Sept. 15, 1964, Ser. No. 396,638
3 Claims. (Cl. 192—3)

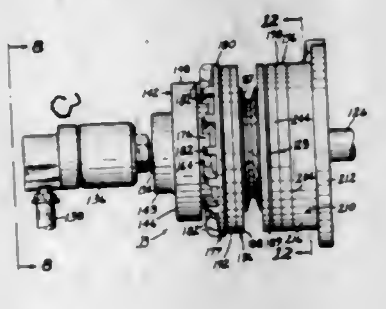


1. A control pedal system for automobiles which comprises a pivotally mounted brake operating lever having a normally horizontal pivotal axis, a first arm extending

downwardly from said axis, a brake operating connection engageable with said arm, and a second arm extending upwardly from said axis, said second arm having a lower portion extending rearwardly from said axis and an upper portion extending upwardly and forwardly from said lower portion, a pedal having a pivot pin pivotally mounting said pedal on said upper portion and having a pivotal axis substantially parallel to said lever axis, said pedal having an upper portion above said pedal axis and a lower portion below said pedal axis, a throttle connection secured to each of said upper and lower portions of said pedal, and means imposing resilient pressure on said pedal to resist pivotal movement of said pedal comprising a spring on said pivot pin in resilient pressure applying relation to said pedal, and a nut on said pivot pin and engaging said spring, said nut being adjustable to adjust pressure of said spring on said pedal.

3,305,054
CLUTCH AND BRAKE WITH STATIONARY FLUID MOTOR

Walter A. Liszewski, Minneapolis, and Richard C. Young, South St. Paul, Minn., assignors to Horton Manufacturing Co., Inc., Minneapolis, Minn.
Original application July 10, 1963, Ser. No. 294,027, now Patent No. 3,250,353, dated May 10, 1966. Divided and this application Jan. 17, 1966, Ser. No. 521,037
4 Claims. (Cl. 192—18)

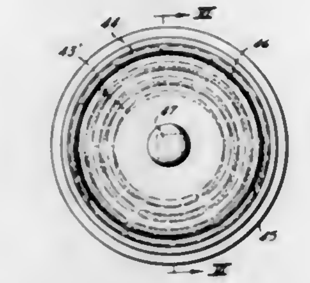


3. A clutching and braking device comprising in combination:
- (a) a shaft,
- (b) an annular clutch cylinder and
- (c) piston mounted on said shaft,
- (d) a clutch disc connected to said clutch piston and mounted on said shaft for axial slidable movement thereon,
- (e) an annular brake cylinder and
- (f) piston mounted on said shaft,
- (g) a brake disc connected to said brake piston,
- (h) a sheave having radially extending opposed friction surfaces rotatably mounted on said shaft and interposed between said clutch disc and said brake disc,
- (i) means for introducing fluid pressure into said clutch cylinder to cause said clutch disc to contact one of said friction surfaces of said sheave and rotate said sheave, and
- (j) means for introducing fluid pressure into said brake cylinder to cause said brake disc to engage the other of said friction surfaces of said sheave to thereby brake said sheave.

3,305,055
FLUID PARTICLE COUPLING

Clarence S. Slaughter, 750 Oakdale SE., Grand Rapids, Mich. 49507
Filed Aug. 21, 1964, Ser. No. 391,113
4 Claims. (Cl. 192—21.5)

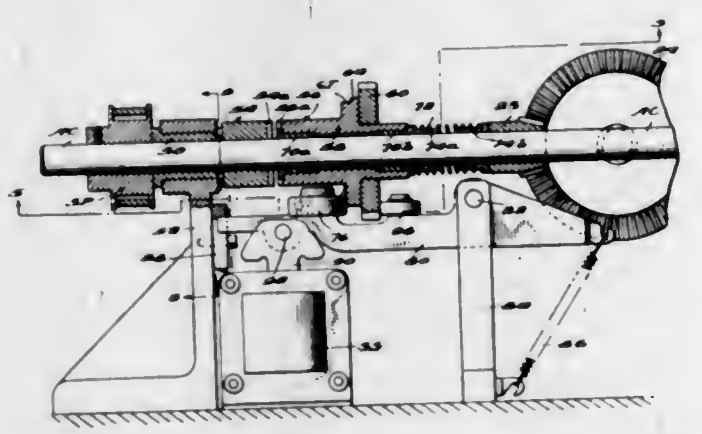
1. A fluid particle coupling such as a brake or clutch comprising:
- (a) a thin flat circular disc;
- (b) a shaft extending normal to said disc and from the center of said disc;
- (c) a magnet ring eccentric about said shaft and the pole faces of said magnet ring being parallel to said disc in spaced parallel plane relation thereto and within the peripheral extent of said disc;
- (d) an electric coil in said ring;



- (e) a housing concentric about the axis of said shaft supporting said shaft and enclosing said disc and said magnet ring and defining with said magnet ring a cavity about said disc;
- (f) a particulated magnetic fluid material in said cavity so defined by said enclosure and said magnetic ring; and
- (g) means to selectively energize said coil.

3,305,056
INTERMITTENT DRIVING MECHANISM

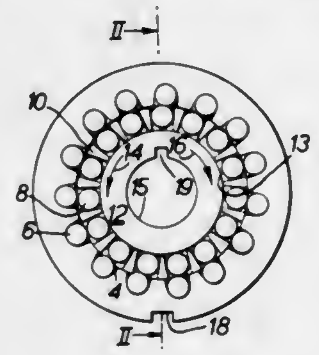
Kurt Rudolf Schneider, 4 Julland St., Bainbridge, N.Y. 13733
Filed Apr. 28, 1965, Ser. No. 451,563
6 Claims. (Cl. 192—33)



1. A clutch mechanism comprising a rotatable driving head, a coaxially related rotatable driven head assembly axially slidable relative to said driving head between a first position of engagement therebetween and a second position of disengagement, said driven head assembly including a radially outwardly directed peripheral flange, said flange having axially oppositely directed first and second faces, said first face having a cam track including high and low cam track portions, the high cam track portion of said cam track being spaced a predetermined distance from said second face as measured along a line parallel to the axis of said driving head and driven head assembly, means for relatively moving said driving head and driven head assembly toward said first position, cam follower means cooperative with said cam track for urging said driven head assembly toward said second position, means movable to a position adjacent said second face in alignment for axial abutment therewith thereby limiting the movement of said driven head assembly toward said second position, and said cam follower and movable means being spaced from each other a constant distance as measured parallel to the axis of said driving head and said driven head assembly, and said constant distance is less than said predetermined distance whereby rotation of said driven head assembly is stopped by the clamping engagement of said first and second faces between said cam follower and said movable means.

3,305,057
FREE-WHEEL CLUTCHES

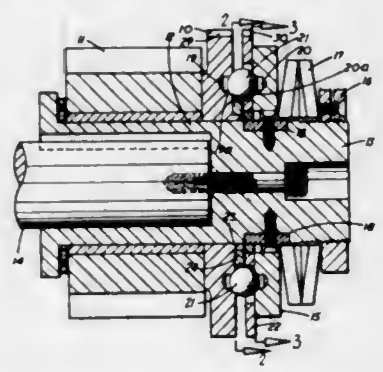
Alexander Ferguson McAlpin, Beverley, and David Antony Rayner and William Branton, Hull, England, assignors to J. H. Fenner & Co. Limited, Hull, England, a British company
Filed June 24, 1965, Ser. No. 466,673
Claims priority, application Great Britain, June 27, 1964, 26,691/64
11 Claims. (Cl. 192—45)



1. A free-wheel clutch comprising in combination an outer member, an inner member formed with a hardened and ground outer cylindrical surface and arranged coaxially within the outer member, two concentric sets of rollers arranged in circumfentially staggered relation between said inner and outer members, the radial clearance between said inner and outer members being less than the sum of the roller diameters, a slotted cage between said inner and outer members for circumferentially locating the rollers of one roller set to establish and maintain said staggered relation, and spring means acting between the cage and one of the clutch members for applying a rotary bias to the cage thereby to urge the caged set of rollers each against a co-operating roller of the other set.

3,305,058
OVER-LOAD CLUTCH

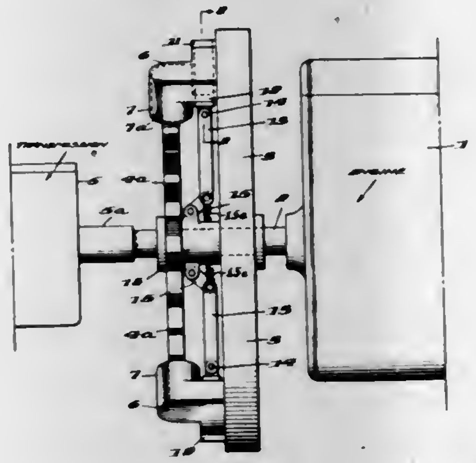
Olaf John Barclay Orwin, Birmingham, and David John Fortune, Weston, Bath, England, assignors to Fisher & Ludlow Limited, Tipton, England, a British company
Filed Mar. 2, 1965, Ser. No. 436,603
Claims priority, application Great Britain, Mar. 11, 1964, 10,233/64
4 Claims. (Cl. 192—56)



1. An over-load clutch comprising driving and driven clutch members mounted for rotation about a common axis in axially spaced relationship so as to present axially opposed faces, said members having torque transmitting openings provided in said axially opposed faces, torque transmitting balls engaging in said openings to transmit torque from the driving to the driven clutch member, means mounting said two clutch members for relative axial displacement away from one another against loading means urging said members towards one another, a ball retaining element disposed between the two clutch members mounted for free rotational movement about said axis relative to both members, said element having ball receiving slots, one portion of each of which slots is in one relative position of the two clutch members in register with a torque transmitting opening in both of said clutch members, with one end of each slot being out of register with the torque transmitting openings of both clutch members for all relative rotational positions thereof, one of said two clutch members having connected thereto to rotate therewith ball displacing means comprising a plurality of ball engaging abutments spaced circumferentially about the axis of rotation of the clutch and adapted on relative rotational movement occurring between the two clutch members each to engage with one of the several balls and positively to displace the same in a direction along the length of the associated slot in the ball retaining element to a position in which the balls are out of register with the torque transmitting openings in both the driving and the driven clutch member.

3,305,059
TRANSVERSELY ACTUATED FLUID CLUTCH

Donald C. Hutchinson, Rte. 1, Box 46, Tickfaw, La. 70466; and George M. Wylie, 706 N. Magnolia, and William J. Wylie, Sr., 410 N. Oak St., both of Hammond, La. 70401
Filed Mar. 1, 1965, Ser. No. 436,218
3 Claims. (Cl. 192—60)

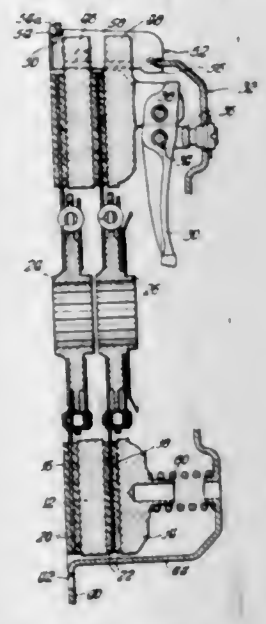


2. An automatic drive device for use between an engine and a transmission, comprising a flywheel driven by the engine, a rotor wheel mounted on the same axis with the flywheel and spaced therefrom and in driving relation to the transmission, said rotor wheel having its peripheral edge provided with a series of teeth therearound providing alternately valleys and apices, an extension from said flywheel contacting said rotor wheel to rotate the latter and having two pistons spaced from each other, one of said pistons frictionally engaging the rotor wheel teeth at a valley when the other piston is at the apex of a different tooth, whereby the rotor wheel is turned as the flywheel is moved, a tube providing a communication between said pistons and said pistons serving to force liquid back and forth through said tube, and a valve mounted intermediate the length of said tube to regulate the movement of liquid lengthwise of said tube, a governor located between said flywheel and said rotor wheel and axially with respect thereto and responsive to centrifugal force, and a connection between said governor and said valve whereby rotation of said engine affects the opening and closing of said valve, said pistons serving to drag said rotor wheel rotatably when said flywheel moves said pistons against the slope of said teeth.

3,305,060
DISC CLUTCH WITH DRIVE LUG WEAR PLATES

Reinhold C. Zeidler, Detroit, Mich., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Mar. 2, 1966, Ser. No. 531,120
3 Claims. (Cl. 192—69)

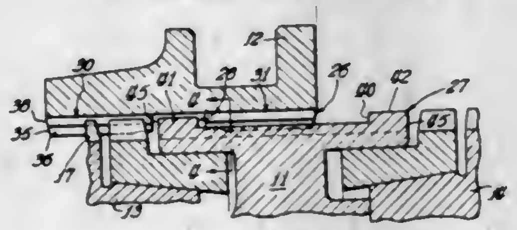


1. A clutch assembly including a driving member, a cover plate connected to said driving member and formed of a deep drawn metal stamping; a plurality of slots formed in said cover plate, a driven member disposed within said cover plate; a pressure ring mounted within said cover plate adapted to shift axially with respect to said cover plate, said driving member, and said driven member to cause engagement and disengagement of said driving member and said pressure ring with said driven member, said pressure ring having a plurality of radially extending drive lugs disposed on the perimeter thereof, said drive lugs having driving surfaces thereon extending through said plurality of slots, and plurality of drive lug wear plates one of which is interposed between each of said driving surfaces of said radially extending lugs and said cover plate, each said drive lug wear plate including, a first end portion, a second end portion disposed opposite said first end portion, a first side and a second side opposite said first side each said sides being defined by a radially inner and a radially outer edge extending between said end portions, one of said end portions including a notch engaging said cover plate and the other of said end portions being of generally C-shaped configuration and engaging said cover plate.

3,305,061
AXIAL LOCKING CLUTCH

Emmett B. Duncan, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Dec. 16, 1964, Ser. No. 418,752
4 Claims. (Cl. 192—114)

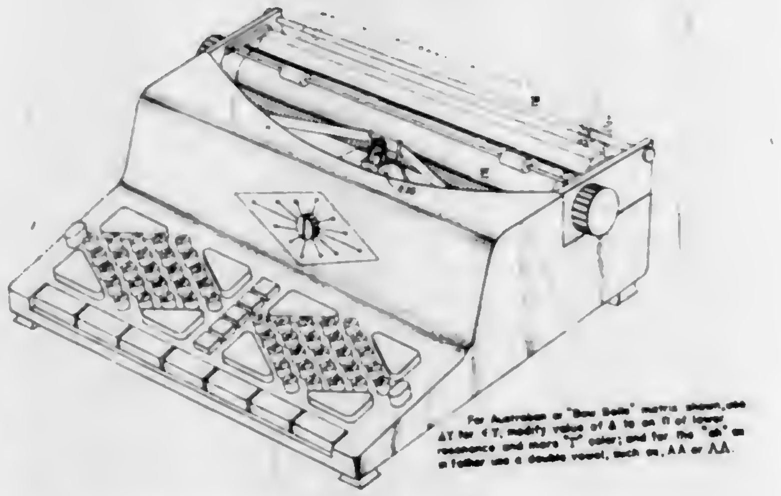


1. In a clutch mechanism, a hub member with teeth thereon, a sleeve member encircling said hub having teeth meshing with the teeth on said hub to provide a torque transmitting connection, a rotary part adjacent said hub member, said sleeve member being axially slidable with respect to said hub member to engage said rotary part, a groove formed in the teeth of said sleeve member, said teeth on said sleeve member having a recessed section formed therein on the inner radial portion of said teeth only and allowing rotational displacement of said sleeve member with respect to said hub member whereby when said sleeve member is axially displaced to engage said rotary part and said members are transmitting torque, said rotational displacement will provide an axial engagement between said teeth on the members in the area of said groove to prevent said sleeve member from moving out of engagement with said rotary part.

3,305,062
TRANSLATION DEVICE HAVING MIRROR IMAGE KEYBOARD

Edward D. Kittredge, Hollis, N.H.
(Wentworth Road, Portsmouth, N.H. 03801)

Filed Apr. 12, 1965, Ser. No. 447,288
20 Claims. (Cl. 197—1)



1. Symbol selection apparatus comprising,
a keyboard having a right group of symbol keys and a left group of symbol keys,
symbol recording means for recording a group of symbols each of which corresponds to a symbol selectable by a key in said right group of symbol keys and by a complementary key in said left group of symbol keys which complementary keys are mirror images about a plane of symmetry midway between said right group of symbol keys and said left group of symbol keys,
means responsive to actuation of said keys for actuating said symbol recording means to record a sequence of said symbols selected by actuation of corresponding ones of said symbol keys,
means for receiving a selection of a left selected symbol in response to actuation of a left symbol key simultaneously with a selection of a right selected symbol in response to actuation of a right symbol key,
means for delivering a signal representative of said left selected symbol and a signal representative of said right selected symbol to said means for recording in spaced time relationship,
said means for receiving comprising left encoding means responsive to actuation of a left group symbol key for providing a left encoded symbol signal and right encoding means responsive to actuation of a right group symbol key for providing a right encoded symbol signal,
means responsive to actuation of a single left group symbol key and a single right group symbol key for transmitting both said left encoded symbol signal and said right encoded symbol signal to said means for delivering,

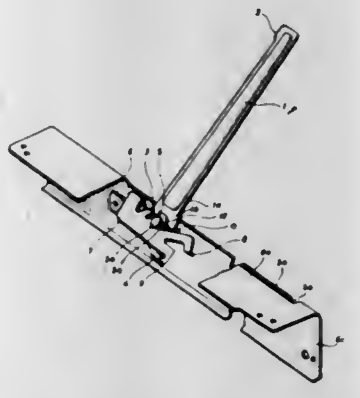
said means for delivering comprising,
means for storing said left encoded symbol signal and said right encoded symbol signal,
decoding means responsive to an encoded symbol signal previously stored in said means for storing for providing a decoded symbol signal representative of a symbol designated by a corresponding previously stored encoded symbol signal,
means for transferring a previously stored left encoded symbol signal and a previously stored right encoded symbol signal in sequence to said means for decoding to cause said decoding means to provide in sequence a left decoded symbol signal and a right decoded symbol signal representative of symbols designated by said previously stored left encoded symbol signal and said previously stored right encoded symbol signal respectively,
and means for applying said left decoded symbol signal and said right decoded symbol signal to said means for recording to record in sequence the symbol designated by said left group symbol key and the symbol designated by said right group symbol key,
said means for recording comprising means for impressing said symbols and platen means for supporting a recording surface for receiving impressions from said means for impressing,
said means for impressing and said platen means being relatively movable to permit impression of a sequence of lines of said symbols upon said recording surface,
means responsive to said means for impressing and said platen means assuming a relative position corresponding to the end of a line and associated with said means for storing therein pairs of said left encoded and said right encoded symbol signals while the relative position between said means for impressing and said platen means changes from that corresponding to the end of a line to that corresponding to the beginning of the next line and then delivering the last-mentioned pairs to said decoding means to effect recording on said next line of the sequence of symbols represented by said last-mentioned pairs,
said means for storing and said means associated with said means for storing comprising,
a rotatable magnetic drum,
writing head means responsive to said encoded symbol signals for inscribing said encoded symbol signals on said magnetic drum,
readout head means relatively movable with respect to said writing head means for scanning said rotatable magnetic drum to recover the previously inscribed encoded symbol signals,
and means for moving said readout head means away from said writing head means while the relative position between said means for impressing and said platen means changes from that corresponding to the beginning of the next line to then preclude recovery of previously inscribed encoded symbol signals and then moving said readout head means toward said writing head means to recover all the previously inscribed encoded symbol signals.

3,305,063
PAPER SUPPORT FOR BUSINESS MACHINES

Rolf Thellen, Wilhelmshaven, Germany, assignor to Olympia Werke A.G., Wilhelmshaven, Germany

Filed Sept. 28, 1964, Ser. No. 399,720
Claims priority, application Germany, Oct. 5, 1963, O 7,258
8 Claims. (Cl. 197—143)

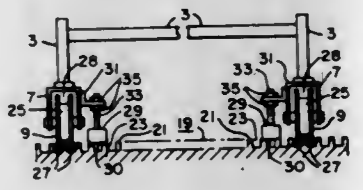
1. In a business machine having a paper carriage including a rear wall, in combination, a bracket mounted on said rear wall and having a slot having a predetermined width and terminating in a part-circular bearing face at one end, and being open at the other end; a paper support having a fixed pivot means including a journal portion located in said slot turnably engaging said bearing face so that said paper support is mounted for turning movement about the axis of said pivot means between an inoperative terminal position retracted into the region of said rear wall, an intermediate position, and an operative terminal position upwardly projecting from said rear wall, said journal portion having a diameter not exceeding said predetermined width of said slot and thus being adapted to slide into and out of said slot; and spring means connected to said paper support and to said bracket permanently pulling said journal portion of said pivot means against said bearing face of said slot so as to securely maintain said pivot means in said slot and simultaneously biasing said paper support to turn out of any position between said intermediate position and one or the other of said terminal positions to the respective terminal position during manual movement of said paper support from either one of said terminal positions beyond said intermediate position.



3,305,064
BRAKING DEVICES

Clyde M. Mullis, Glen Rock, and Larry P. Tosato, Bayonne, N.J., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 12, 1962, Ser. No. 244,199
27 Claims. (Cl. 198—16)



1. In a structure adapted to be carried by a plurality of spaced first cleats, a wheel for supporting said structure, means mounting said wheel on said structure for rotation about its axis, said wheel having a plurality of similar circumferential ribs concentric about said axis adjacent ribs being separated by a continuous groove, said ribs being adapted to intermesh with adjacent first cleats, and braking means automatically engaging a part of said first cleats upon occurrence of such intermesh for restraining movement of said structure relative to said first cleats, said braking means having a braking surface spaced above the lowest point on said wheel by a distance less than the depth of said groove.

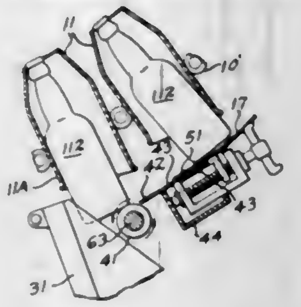
3,305,065

DISCHARGE DEFLECTOR FOR CONTAINER DISCHARGERS

Momir Babunovic, Des Pere, and John C. Goessmann, Woodson Terrace, Mo., assignors to Barry-Wehmiller Machinery Company, St. Louis, Mo., a corporation of Missouri

Filed June 11, 1965, Ser. No. 463,159

2 Claims. (Cl. 198—25)



1. In a container discharger for container processing apparatus having container carrying pockets therein connected together in an endless series and means to move the endless series of container carrying pockets through the apparatus and past a container discharge station: the improvement adjacent the discharge station comprising in combination a container receiving conveyor spaced from the discharge station, container guide means extending between the discharge station and said receiving conveyor, rotary container discharging means operatively mounted adjacent said guide means and movable to engage the containers in the discharge station and maintain engagement therewith until the containers are on said receiving conveyor, means in the discharge station adjutably movable back and forth in the direction of movement of the container carrying pockets to provide a predetermined clearance gap through which the containers must move onto said rotary means, and container positioning means carried by and movable with said adjustable means in position to advance the bottoms of containers into said clearance gap ahead of the movement thereof by the carrying pockets.

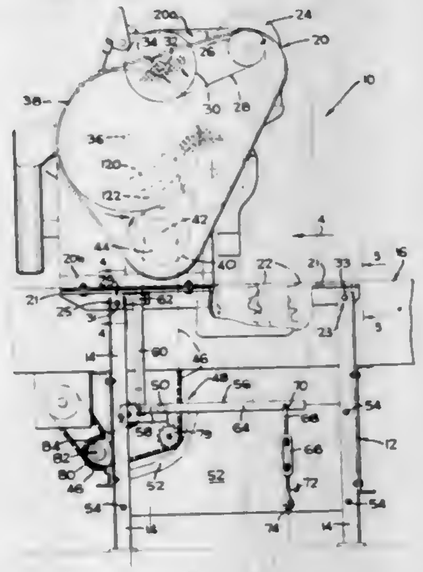
3,305,066

ADJUSTING DEVICE FOR A TRANSFER MECHANISM

David Elford, The Patch, Victoria, and Lindsay G. Hill, Melbourne, Victoria, Australia, assignors to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Dec. 2, 1965, Ser. No. 511,078

10 Claims. (Cl. 198—25)



1. An apparatus for timing a fruit processing machine so that fruit of various sizes may be correctly processed, said apparatus comprising a stationary frame having means thereon for supplying oriented fruit to a transfer station, a frame movably mounted on said stationary frame and rotatably supporting a transfer turret which is operable at one point of its orbit to remove the oriented fruit from said supply means and move it to a bisecting and pitting mechanism, means for synchronously operating said supply means and said transfer turret in order to present oriented fruit at such one point to thereby insure removal of the fruit from said supply means, and means for raising or lowering said movably mounted frame and for changing the time relationship between said supply means and said turret when fruit of larger or smaller than average diameter is to be processed.

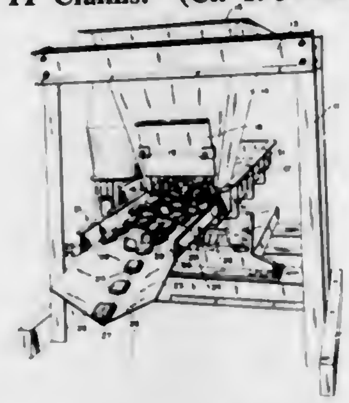
3,305,067

PARTICLE FEEDING

Gerald C. Mayer, Wayne, N.J., assignor to Howe Richardson Scale Co. Inc., Clifton, N.J., a corporation of Delaware

Filed July 26, 1965, Ser. No. 474,594

11 Claims. (Cl. 198—30)



1. Apparatus for feeding relatively large particles of solid material from a receptacle having a lower discharge opening to a weighing, counting or like device, said apparatus comprising a unitary, fixed position trough assembly having a delivery section disposed to receive particles in random arrangement from said receptacle and a discharge section disposed to receive and carry away particles from said delivery section, means for imparting movement to particles along said assembly, means for reducing the depth of the body of particles on said delivery section to a single particle depth, means defining a juncture of predetermined contour between the adjacent ends of said delivery and discharge sections, and surface means formed on said discharge section and cooperating with said juncture to provide for the timed arrival of the randomly arranged particles in a single file of single particle depth while moving along said discharge section.

3,305,068

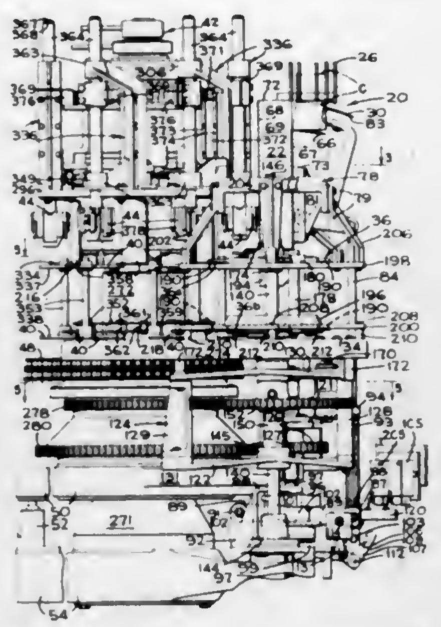
CARTON FEEDING APPARATUS

Leslie Vadas, San Jose, and Robert W. Drake, Los Gatos, Calif., assignors to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Jan. 21, 1966, Ser. No. 522,285

10 Claims. (Cl. 198—32)

1. A carton feeding apparatus comprising means for storing a supply of cartons in two vertical columns, means for discharging a carton from each column of stored cartons, a dead plate for receiving the cartons discharged from the supply of cartons at two spaced transfer points, first rotary means for engaging a first carton at said first transfer point and for sliding said first carton along a first arcuate path over said dead plate, second rotary means for engaging a second carton at said second transfer point and for sliding said second carton along a second arcuate path over said dead plate, third rotary means having transfer means movable along a path tangent to both said first arcuate path and said second arcuate path for receiving said first and second cartons and for advancing both of said cartons along a single path off one end of said dead plate, and conveying means disposed below said dead plate and movable at the same speed and along the same path as said third rotary means for receiving said cartons.



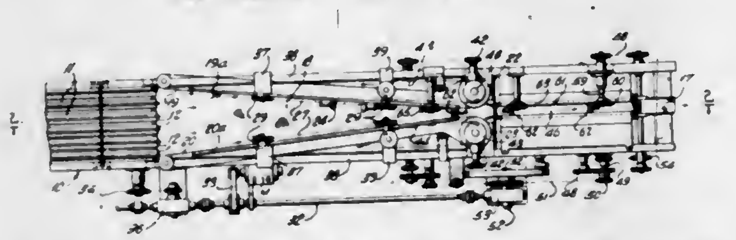
3,305,069

CRACKER CONVEYOR SYSTEM AND APPARATUS

Arthur J. Griner, Wyckoff, N.J., assignor to National Biscuit Company, New York, N.Y., a corporation of New Jersey

Filed Oct. 15, 1965, Ser. No. 496,348

10 Claims. (Cl. 198—32)



1. In an apparatus for feeding a continuous column of crackers stacked edgewise, to a packaging machine, infeed and outfeed conveyors, tie-in conveyor means for connecting said infeed and outfeed conveyors including a funneling conveyor for receiving laterally disposed longitudinally aligned columns of crackers from said infeed conveyor, means for converging the travel of said stacks on said funneling conveyor toward a funneling discharge position, including cracker column feeding means arranged in converging relation at opposite sides and on top of said funneling conveyor, means for providing a component feeding action to said columns to align the crackers thereof as they are fed along said funneling conveyor, a shuttle conveyor for receiving said cracker columns one at a time from said funneling conveyor, said outfeed conveyor being adapted to receive said columns from said shuttle conveyor and means for shuttling said conveyor with respect to the outfeed conveyor to deposit said columns on the latter in a single continuous column of stacked crackers.

3,305,070

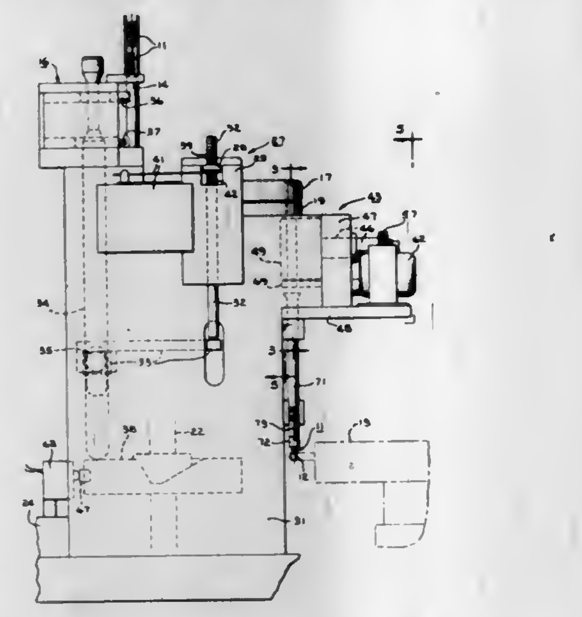
APPARATUS FOR ORIENTING ARTICLES

Floyd E. Morlan and Gary G. Seaman, Omaha, Nebr., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed June 7, 1965, Ser. No. 461,827

5 Claims. (Cl. 198—33)

1. Apparatus for orienting articles, which comprises:
an orienting device through which a properly oriented article feeds directly when said orienting device is in a first state, said orienting device being movable from a second state in which it receives a misoriented article, to the first state, to orient the misoriented article;
feeding means for feeding the articles along a predetermined path to said orienting device;
sensing means positioned along the predetermined path of movement of the articles in advance of said orienting device for sensing the orientation of the articles;
means responsive to said sensing means for moving said orienting device to its second state only when an article is misoriented; and
means operable after the misoriented article has fed to said orienting device in its second state, for moving said orienting device to its first state to orient the article and so that the then oriented article feeds from said orienting device.



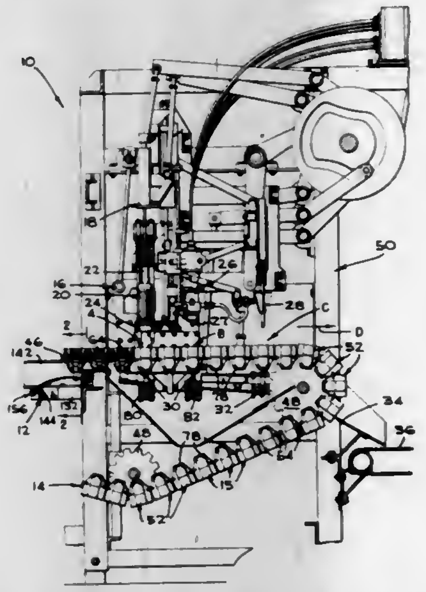
3,305,071

FRUIT PREPARATION MACHINE

Gerald R. Anderson, Campbell, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Sept 13, 1965, Ser. No. 487,014

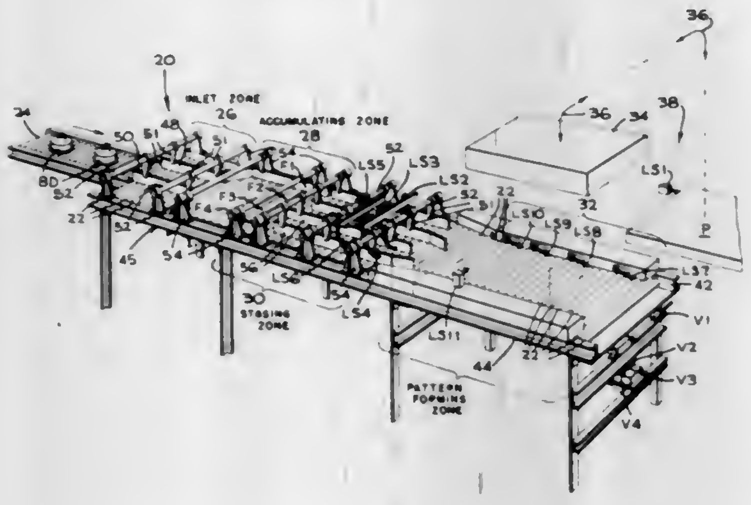
9 Claims. (Cl. 198—33)



1. In a fruit preparation machine, the combination of a driven conveyor, a fruit carrying cup on said conveyor movable by said conveyor along a predetermined path past a processing station, a movable jaw on said cup, an actuating arm on said jaw, and jaw closing means disposed in the path of movement of said arm for engaging said arm while said cup is moving toward said processing station and closing said jaw prior to the movement of said cup into the processing station.

3,305,072
PATTERN FORMING MACHINE

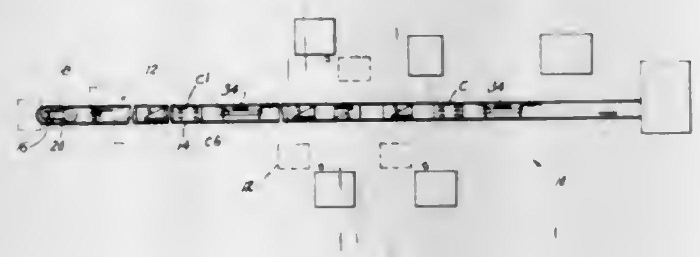
Harold J. Young, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed May 28, 1965, Ser. No. 459,717
15 Claims. (Cl. 198—34)



1. A pattern forming machine comprising conveying means arranged to receive vehicle brake drums and to convey the drums from a staging zone into a pattern forming zone, means for arranging the moving drums into multiple longitudinal lanes in said staging zone, means for sensing the position of the leading drum in each lane, means controlled by said sensing means for stopping the leading drum in each lane to form a transverse row of drums in predetermined array, means for simultaneously releasing the drums in said row, and means for arresting said released row of drums at said pattern forming zone in the same relative orientation as that in which said row was released.

3,305,073
CONVEYOR SYSTEMS

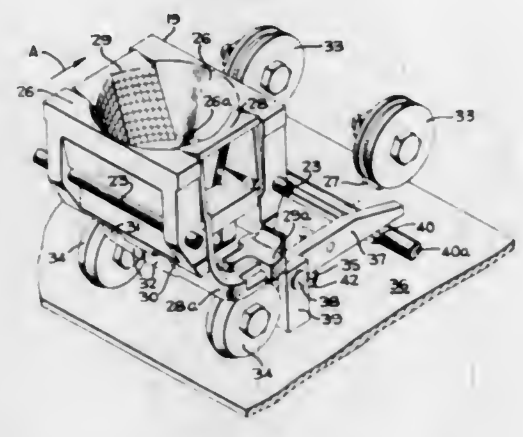
Roland E. Bonnette, Hamilton, and Frank W. Spencer, Beverly, Mass., assignors to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Apr. 6, 1964, Ser. No. 357,480
3 Claims. (Cl. 198—38)



1. A work handling system, comprising a conveyor means for transporting articles between a pool position including a stopping means adjacent to the conveyor means and a plurality of work stations adjacent said conveyor means, each of said work stations having an operator controlled means for releasing the leading article from the pool position for automatic conveyance to the work station which had released the article, detecting means mounted adjacent the conveyor means between the pool position and the first downstream work station for detecting the type of article released from said pool position, and a plurality of register means coupled with the releasing means, the detecting means adding one count to an appropriate register designating the type of article released and the work station.

3,305,074
FRUIT PROCESSING MACHINE

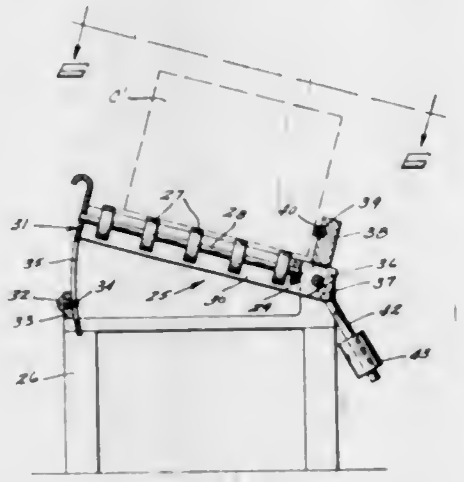
Donald W. Chamberlin, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed Dec. 27, 1963, Ser. No. 333,954
5 Claims. (Cl. 198—131)



1. In a fruit processing machine, fruit receiving cup means, means for feeding a fruit into said cup means, said cup means including a set of fruit engaging members mounted for movement toward and away from one another into closed and opened positions, respectively, and means for moving said fruit engaging members into said closed position and for yieldably holding said fruit engaging members in said closed position while said fruit is being fed into said cup means.

3,305,075
CARTON CONVEYOR

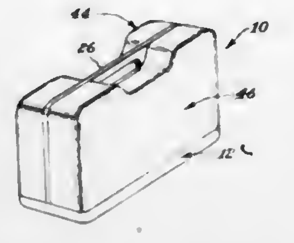
John R. Johnson, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Dec. 11, 1964, Ser. No. 417,632
5 Claims. (Cl. 198—160)



1. In a conveyor, a plurality of rollers spaced apart along a horizontal path with the axes of the rollers inclined in a direction across said path, an article propellant comprising an endless rope-like element extending along said path in proximity to the lower end of the rollers for engagement with the article, means for driving the propellant to advance the article and means operable in response to variations in the weight of the articles conveyed for changing the angle of inclination of the rollers thereby to vary the degree of frictional contact between the articles and rope-like element and the effectiveness of the article as an article propellant.

3,305,076
TOOL CHEST

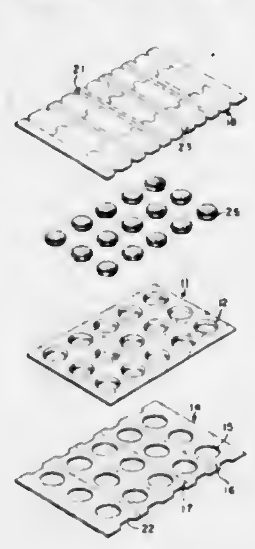
Warren O. Fleenor, 8250 W. Bergen Road, Le Roy, N.Y. 14482
Filed Oct. 28, 1965, Ser. No. 505,515
5 Claims. (Cl. 206—16)



1. A chest for tools and the like, said chest comprising a hollow base member having a centrally disposed slot, a vertical panel having a bottom horizontal edge detachably mounted in said slot, a first vertical hollow member adapted to detachably engage the portion of the base member disposed on one side of said panel and to also engage the periphery of said one panel side to define a first hollow chamber therebetween, and a second vertical hollow member adapted to detachably engage the portion of the base member disposed on the other side of said panel and to also engage the periphery of the other panel side to define a second hollow chamber therebetween.

3,305,077
DIVISIBLE, MULTI-COMPARTMENT, DOSE-INDICATING, SEPARATELY - RELEASING BLISTER PACKAGE

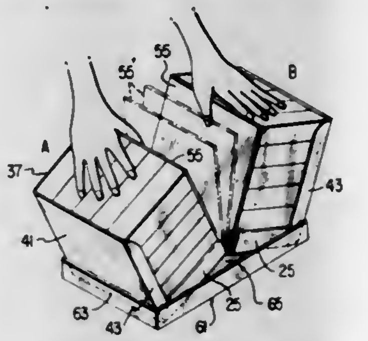
Martin Greif, Bronx, N.Y., and Edmund W. Morris, Cranford, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed Aug. 25, 1964, Ser. No. 391,855
4 Claims. (Cl. 206—42)



3. A divisible, multi-compartment, separately-releasing, dose-indicating, dispensing blister package comprising:
- (1) a plastic sheet of generally flat configuration having formed therein a plurality of symmetrically spaced blisters, in rows and column, each adapted to contain a single dose of at least one medicament; and adhesively united thereto,
- (2) a flat guard sheet, having apertures therein corresponding in spacing to and receiving the blisters in the plastic sheet;
- (3) a tabbed cover sheet, adhesively united to the other side of the blister sheet, having individual score lines therein surrounding the portion of the cover sheet over each blister, with a fingernail liftable tab on the portion for each blister, and with the blisters forming a plurality of compartments, said adhesively united cover sheet, guard sheet and plastic sheet having aligned score lines therein whereby that portion of the sheets containing a row of compartments may be readily broken from the remainder of the sheets containing other compartments;
- (4) a single dose of at least one medicament, comprising at least one solid dosage form, in each compartment;
- (5) a protective sleeve over the assembly of sheets; and
- (6) an overwrap of transparent sheet material.

3,305,078
MEDIALLY HINGED PRICE MARKING CARTON

Joseph P. Ferrera, New York, N.Y., assignor to Merchandising Display Corporation, New York, N.Y., a corporation of New York
Filed May 10, 1965, Ser. No. 454,583
6 Claims. (Cl. 206—44)



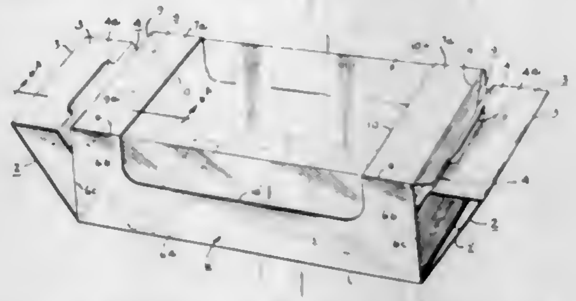
1. A display carton for holding items in at least two commercial lots, said items having ends facing each other therein, and said carton oriented in a display position for providing items therein directly accessible to the simple lifting motion of customers, said display position of the carton being the same as that in which the items are held in end abutted supporting relation for shipment by two opposing support means, said carton being formed of two symmetrical units movable to a dihedral position exposing the ends of the items therein without any movement of the items relative to the carton, said carton being formed from a blank of foldable material of single thickness, said carton when assembled comprising floor panel means generally rectangular in shape and bendable along a medial line crossing its width whereby said panel means may be bent into a dihedral surface; first and second upstanding adjoining walls forming a corner located on each of said opposing sides of said medial line and symmetrically oriented in facing relation to said medial line, said first wall paralleling said medial line; said first and second walls on each side of said medial line being movable in unison with the floor means on the same side of said medial line and, therefore, in rotative opposition to the walls on the other side of said medial line; partial wall means foldably connected to said first wall and parallel to said second wall on each side of said medial line; flap means foldably connected to said floor panel means and overlying both sides of said partial wall means to thereby hold each side of the carton in place; and dividing panel means bendable in relation to said floor and walls about an axis essentially coincident with said medial line.

3,305,079
MERCHANDISE CARTONS

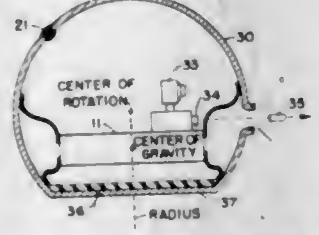
Thomas B. Bowman, Cleona, and Mark R. Kreider, Lebanon, Pa., assignors to Lebanon Paper Box Manufacturing Co., Incorporated, Lebanon, Pa., a corporation of Pennsylvania
Filed July 12, 1965, Ser. No. 471,111
11 Claims. (Cl. 206—45.31)

1. A merchandise carton having an expansible tubular body presenting foldably connected body panels into which the merchandise may be inserted through an open

end thereof, and an expansible end wall structure designed to support the tubular body in expanded position, said end wall structure including an outer end wall panel and an inner end wall panel respectively foldably connected at adjacently spaced edge portions thereof to one of said body panels and foldably joined at other adjacently spaced edge portions thereof by a connecting spacer section, an abutment lip captured from said connecting spacer section and extending from said inner end wall panel, and a lock flap foldable inwardly for disposition between the outer face of said connecting spacer section and the inner face of the adjacent body panel to which the lock flap is foldably connected, the free edge of said inturned lock flap being designed to abut said abutment lip to thereby maintain said end wall structure and the collapsible tubular body in expanded position.



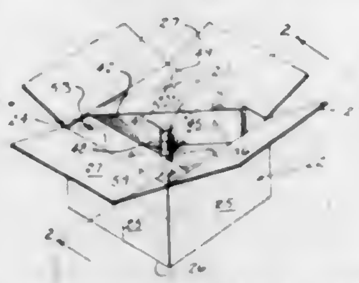
3,305,080
AUTOMATIC POSITIONING DEVICE
John M. Crawford, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Oct. 8, 1965, Ser. No. 494,144
23 Claims. (Cl. 206—46)



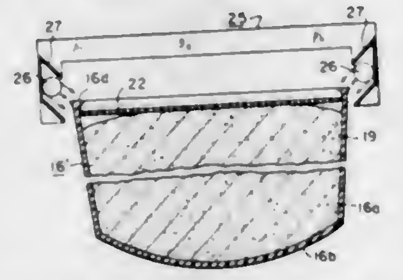
13. In an automatic positioning device comprising a gas tight hollow flexible walled membrane, means for inflating said membrane to form a sphere, instrument means attached internally to the walls of said membrane such that the center of gravity of said instrument means substantially corresponds to the center of gravity of said spherical membrane when inflated, said center of gravity of said instrument means and said spherical membrane being displaced from the center of rotation of said spherically inflated membrane and means for deflating said inflated membrane, the improvement comprising planar stiffening means positioned inside said membrane and attached thereto, said planar means being arranged at right angles to a radius passing through said center of gravity of said inflated membrane whereby said inflated membrane is caused to assume a truncated shape.

3,305,081
CARTON AND MEANS FOR CUSHIONING AND PACKAGING HEAVY, FRAGILE ARTICLES
Herbert A. Broecker, Milwaukee, Wis., assignor to Vanant Company, Inc., Milwaukee, Wis., a corporation
Filed Oct. 15, 1965, Ser. No. 496,571
4 Claims. (Cl. 206—46)

1. In combination, a carton and cushioning and retaining means for a ring gear and its corresponding bevel gear and its shaft, said carton being of a generally square shape to provide equally dimensioned side walls, bottom wall and top folding closure, a first cushioning and retaining means holding said ring gear in spaced relation to said carton walls in a position adjacent said bottom wall, a second cushioning and retaining means for said bevel gear and its shaft, said second cushioning and retaining means being formed from a die cut blank, having a bottom panel generally conforming to the inside dimensions of said carton, said bottom panel lying adjacent and above said first cushioning means, said folded die cut blank of said second cushioning and retaining means having two adjacent vertically spaced wall panels providing two adjacent separate compartments, a first compartment completely enclosing the bevel gear and a said second compartment receiving the opposite end termination of its shaft, hinged flaps in said bottom panel adjacent said first compartment formed to the general configuration of the bevel gear and receiving a respective portion of said gear, said adjacent vertically extending wall panels having cut out portions to receive the respective sections of said bevel gear shaft, whereby said ring gear and said bevel gear are held in cushioned spaced relation to one another and to the walls of said carton.



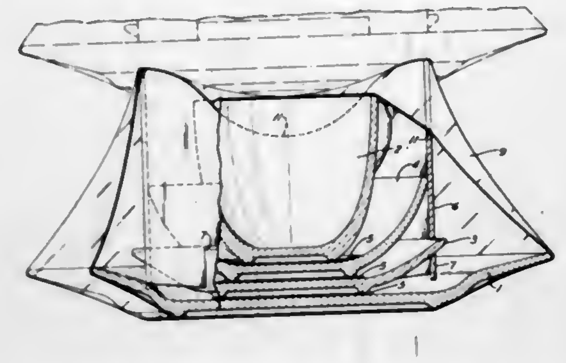
3,305,082
CONTAINER LID FITTING
John B. Orr, Box 341, Pahoa, Hawaii 96816
Original application Sept. 18, 1962, Ser. No. 224,386. Divided and this application Jan. 21, 1966, Ser. No. 522,314
6 Claims. (Cl. 206—46)



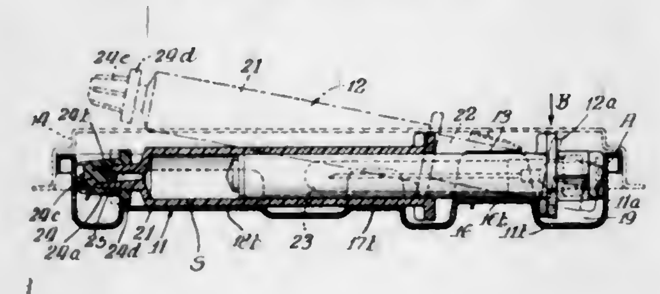
1. In an open-mouth resin container having a side wall defining a lip edge about its open mouth, a closure lid positioned within the side wall adjacent and in a spaced relation below the lip edge, a retaining portion on the side wall between the lip edge and the lid of thickened diameter with respect to an adjacent main portion of relatively thin wall thickness of the side wall, said retaining portion being formed by a localized application of heat on the side wall adjacent the lip edge, and said retaining portion projecting radially inwardly of and beyond the side wall and securely locking the lid in position within the side wall adjacent the main portion thereof.

3,305,083
DINNERWARE PLACE SETTING PACKAGE
Robert M. Wells, Newell Heights, Newell, W. Va. 26050
Filed May 12, 1965, Ser. No. 455,083
7 Claims. (Cl. 206—47)

1. A dinnerware place setting package comprising a plate, a cup above the plate, a saucer and another dish between the plate and cup, a stiff polygonal vertical sleeve open at top and bottom and surrounding the saucer and dish and cup, the lower corners of the sleeve resting on the plate, and a heat-shrunk plastic envelope enclosing all of the above-mentioned elements and tightly engaging the plate and tops of the sleeve and cup to press the cup and saucer and other dish down toward the plate and to press the sleeve down onto the plate.



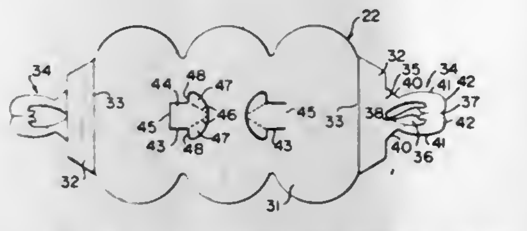
3,305,084
TAMPER-PROOF PACKAGE
John L. Higgins, Daytona Beach, and Fritz Deuschle, St. Augustine, Fla., assignors to Roehr Products Company, Inc., a corporation of Delaware
Filed Oct. 19, 1965, Ser. No. 498,048
2 Claims. (Cl. 206—56)



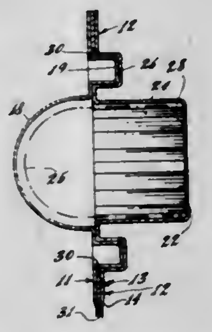
1. A package assembly comprising:
an elongated syringe element having an enlarged portion at one end;
means for containing said element including a support carrying said element with said one end cantilevered therefrom and defining a free space subjacent said one end, the depth of said space being preselected to permit a movement of said enlarged portion thereinto by tilting said element about a first portion of said support adjacent said one end such that the opposite end of the element is swung outwardly relative to the containing means to permit manual grasping thereof for removing the element from the container, said enlarged end being arranged to engage the support to retain the element against substantial longitudinal displacement toward said opposite end during said tilting; and
frangible means adjacent said first portion for retaining said element on said support and arranged to be broken by said tilting of the element to permit removal of the element from the containing means.

3,305,085
PAPERBOARD COVER FOR CAN PACKAGE
Harry J. Rossi, Elkhart, Ind., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Mar. 4, 1966, Ser. No. 531,871
8 Claims. (Cl. 206—65)

1. A protective cover for a package of containers, said cover comprising a panel of a size to overlie and protect uppermost surfaces of containers, and connecting means projecting from opposite ends of said panel for interlocking engagement with a container package, each end of said cover being provided with a depending flap, and each of said connecting means projecting from one of said flaps, each of said connecting means being longitudinally folded to be of a double wall construction and including a terminal hook formation.

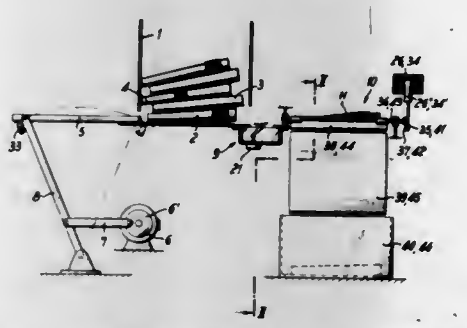


3,305,086
PACKAGE CONSTRUCTION
Maurice D. Hartman, Jr., Telford, Pa., assignor to Sparks Corporation, Harleysville, Pa., a corporation of Pennsylvania
Filed Nov. 10, 1964, Ser. No. 410,108
3 Claims. (Cl. 206—78)



1. A package construction comprising a pair of facing outer sheets, at least one of said outer sheets having outwardly deformed receiver portions combining with the other sheet to define article-holding pockets, said outer sheets being formed with snug interfitting depressions surrounding each of said pockets, and an intermediate sheet sandwiched between said outer sheets, said intermediate sheet having openings receiving respective interfitting depressions and being retained in position thereby.

3,305,087
APPARATUS FOR SORTING YARN-COIL CORES WITH AND WITHOUT YARN REMAINDERS
Wolfgang Lücker, Monchen-Gladbach, Germany, assignor to Walter Reiners, Monchen-Gladbach, Germany
Filed Dec. 17, 1964, Ser. No. 419,018
Claims priority, application Germany, Dec. 21, 1963, R 36,857
11 Claims. (Cl. 209—74)

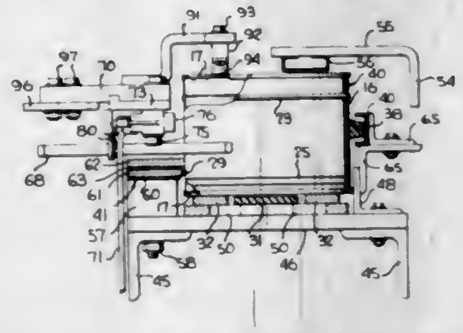


1. In apparatus for sorting coil cores with yarn remainders from those free of remainders, having core supporting means, selector means for issuing cores from said supporting means to respectively different locations and a checking device responsive to presence of a yarn remainder on a core and connected to said selector means for controlling said selector means, said checking device comprising a feeler, drive means for imparting movement to a core in the axial direction of the core so as to move it

past said feeler onto said supporting means, said feeler having a front engageable with the core during said movement to hook into any windings of yarn remaining on the core, said feeler being pivotally mounted and rotatable about its pivot axis, due to entrainment by a yarn remainder, from a position in which said pivot axis lags said feeler front to a position in which said feeler front lags said pivot axis and is released from the yarn remainder on the core, so as to control said selector means in response to feeler rotation.

3,305,088
INVERTED CAN AND TEST CAN DETECTING DEVICE

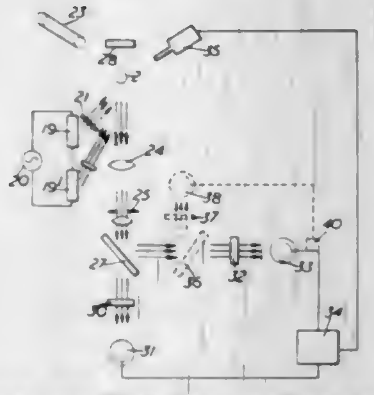
Charles W. Stetter, Fair Lawn, N.J., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Jan. 7, 1964, Ser. No. 336,229
12 Claims. (Cl. 209—73)



1. A container conveyor, first means disposed along said conveyor for detecting an improperly oriented container, a container discharge mechanism operatively coupled with said detecting means, and second means for detecting a test container placed on said conveyor to test said first detecting means and operating said discharge mechanism independently of said first detecting means if said first detecting means fails to detect said test container.

3,305,089
APPARATUS FOR SORTING FLUORESCENT ARTICLES

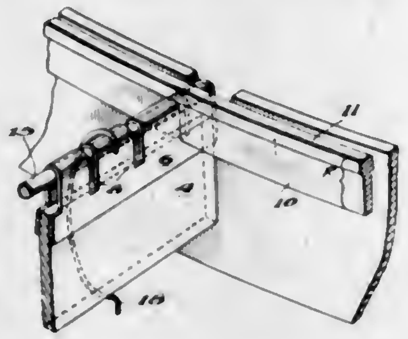
Herbert Fraenkel, London, England, assignor to Gunson's Sortex Limited, London, England, a British company
Filed Aug. 13, 1965, Ser. No. 479,589
7 Claims. (Cl. 209—111.5)



1. A sorting machine for sorting desired from undesired objects comprising at least one lamp adapted to direct ultra-violet light onto the objects to cause them to fluoresce, first photo-electric viewing means adapted to respond to and arranged to receive light produced by fluorescence from each object, illuminaitng means for illuminating the objects with infra-red light, second photo-electric viewing means adapted to respond to and arranged to receive infra-red light which is reflected by each object, and separating means, controlled by signals produced by the first and second photo-electric viewing means for separating desired from undesired objects in dependence upon the fluorescence from each object.

3,305,090
READILY RENEWABLE SECTIONALIZED TROMMEL

Frederick Peter Morawski and Paul L. Fontecchio, both of Aurora, Minn., assignors to Erie Development Company, Cleveland, Ohio, a corporation of Delaware
Filed Apr. 14, 1964, Ser. No. 359,741
3 Claims. (Cl. 209—288)



1. A readily renewable sectionalized cylindrical screen structure for sizing particulate material being discharged from a rotatable cylinder, which comprises

a cylindrical skeletal supporting framework comprising a plurality of elongated generally parallel spaced ribs, said framework being adapted to be fixed endwise to an end of such rotatable cylinder;

a plurality of arcuately concave screening panels adapted to be detachably secured transverse to the ribs of said framework to constitute in toto a cylindrical screen coaxial with such cylinder,

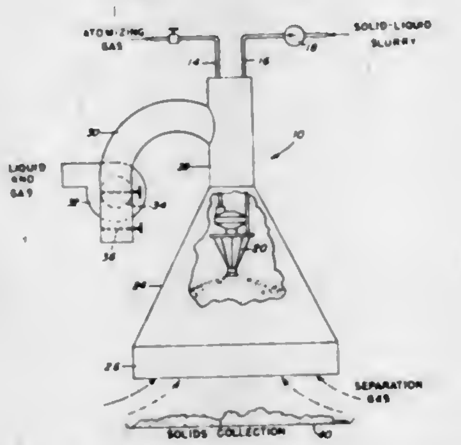
each said panel being constituted by a sub-frame structure and a plurality of parallel spaced arcuate rods detachably secured thereon;

said sub-frame structure including a plurality of spaced generally parallel inverted U-holders having a length substantially equal to the width of the panel and having in the base of the U a plurality of spaced slots accommodating portions of said rods;

and means detachably securing said panels to the ribs of said skeletal supporting framework with the arcuate rods oriented in a direction generally normal to the longitudinal axis of said cylindrical framework and with the confronting ends of the rods of said panels in substantial alignment with each other.

3,305,091
METHOD OF SEPARATING LIQUID-SOLID SUSPENSIONS INTO INDIVIDUAL PHASES

George A. Brady, Schuylkill Haven, and Harold H. Griffiths, Cressona, Pa., assignors to the United States of America as represented by the Secretary of the Interior
Filed Apr. 20, 1965, Ser. No. 449,657
4 Claims. (Cl. 210—65)

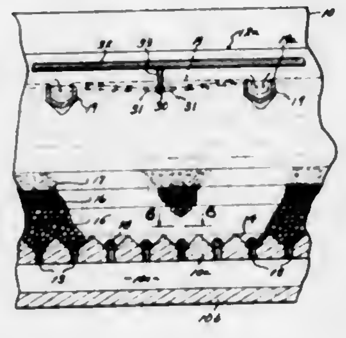


1. A process for separating a liquid solid mixture comprising the steps of:

(a) introducing a controlled updraft of an ambient gas stream within a chamber;
(b) introducing into the ambient gas stream a finely divided stream of a mixture of coal particles in liquid;
(c) maintaining the gas stream at the point of introduction of said mixture therewith at a flow rate of between 35 to 120 feet per minute and temperature sufficient to selectively and substantially separate the liquid from the coal particles and entrain, in the form of liquid particles, substantially all the liquid portion of said liquid-solid mixture without any significant evaporation of the liquid particles;
(d) removing from said chamber the liquid particles entrained in the gas;
(e) allowing the solid particles to gravitate to a collection zone; and
(f) removing said solid particles.

3,305,092
PRESSURE-FLUID ACTUATED SKIMMER AND METHOD

Harold A. Turk, 8026 State Rte. 43, Streetsboro, Ohio 44240
Filed May 20, 1963, Ser. No. 281,521
3 Claims. (Cl. 210—80)



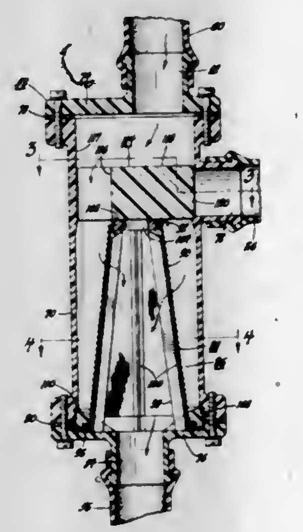
3. The method of removing floating and suspended floc and solids and waste material from the surface area of a liquid reservoir including driving said floating solids to and into parallel drain troughs by means of pressurized water jets under about 90 pounds per square inch pressure and submerged below the surface of the liquid in said reservoir between about one and six inches and directed toward said troughs.

3,305,093
FILTER IN DOMESTIC APPLIANCE

Richard M. Brubaker, Dayton, Robert F. Brubaker, Eaton, and Theodore O. Stutrud, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 25, 1963, Ser. No. 311,579
8 Claims. (Cl. 210—108)

1. In combination with a clothes washing tub adapted to contain fluid and having a first opening in the bottom thereof, a second opening in the side thereof farthest from said first opening and beneath the level of said fluid and means operable for effecting fluid flow in opposite directions between said openings,

(a) a check valve and lint filter assembly comprising
(b) means forming a housing having a recirculation inlet connected to said second opening, a recirculation outlet connected to said first opening and a drain outlet adapted to be connected to a sewer,
(c) a check valve means in said housing comprising a blocking portion guidably mounted in a chamber of said housing and bodily slidable in response to the direction of fluid flow between a recirculation position wherein said recirculation inlet is unblocked and said drain outlet is blocked and a drain position wherein said drain outlet is unblocked and said recirculation inlet is blocked,
(d) said check valve means having bypass means through which said recirculation inlet is placed in communication with said recirculation outlet when said blocking portion of the check valve means is in said recirculation position,
(e) said recirculation outlet being placed in communication with said drain outlet when said blocking portion is in said drain position,
(f) and filter means in said chamber and in fluid flow intercepting relationship between said recirculation inlet and said recirculation outlet for filtering lint or the like from fluid flowing from said tub when said fluid is flowing in one direction and said blocking portion is in said recirculation position,
(g) said filter means being in fluid flow intercepting relationship between said recirculation outlet and said drain outlet for back-washing the lint or the like from said filter means when said fluid is flowing from said tub in the opposite direction and said blocking portion is in said drain position,



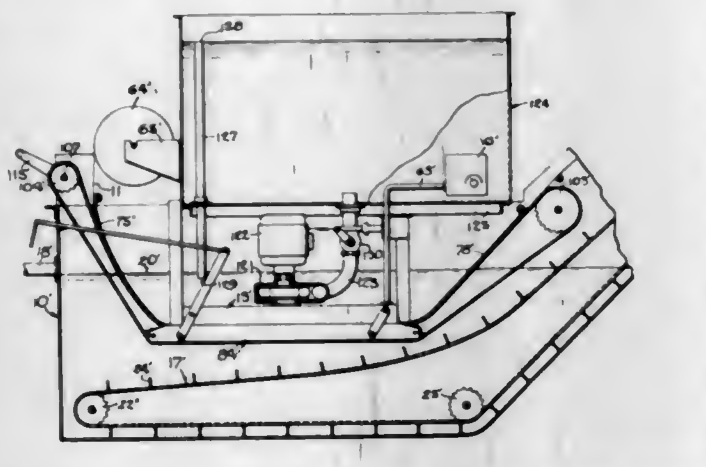
(h) said filter means including a screen element defining at opposite ends thereof respectively a first port connected to said recirculation outlet and a second port in the path of said blocking portion of the check valve means,
(i) said blocking portion in its recirculation position blocking said second port for causing all of the fluid flowing from said tub when said fluid is flowing in one direction to pass through said screen element, and said blocking portion in its drain position unblocking said second port for bypassing directly to said drain outlet those objects too large to pass through the the screen element when said fluid is flowing from said tub in the opposite direction,
(j) said second part having a sufficient resistance to fluid flow in said opposite direction to cause a sufficient quantity of fluid to pass through said screen element in a backwash direction to backwash the filtered lint or the like from said screen element.

3,305,094
VACCUM FILTER

Kenneth H. Casson, Winnebago, Ill., assignor to Barnes Drill Co., Rockford, Ill., a corporation of Illinois
Filed July 8, 1964, Ser. No. 381,113
18 Claims. (Cl. 210—108)

15. In a vacuum filter, the combination of, a tank adapted to be filled to an approximate level with liquid to be filtered, a closure supported in said tank and having a bottom opening disposed below said level, a screen covering said bottom opening therein and having pores communicating therewith, means providing a downwardly facing sealing surface extending around the entire periphery of said screen, means for guiding an elongated

flexible filter web across the underside of said screen to cover the latter, a pump for withdrawing liquid from the interior of said closure to create a vacuum therein and induce the straining of liquid through said web after the latter is drawn upwardly and tightly against said sealing surface and said screen with portions of the web drawn into the pores of the screen, means for periodically forcing a reverse flow of liquid through said screen to force said web away from the screen, and mechanism for indexing the web endwise along the screen in spaced relation therewith to renew the covering of the screen.

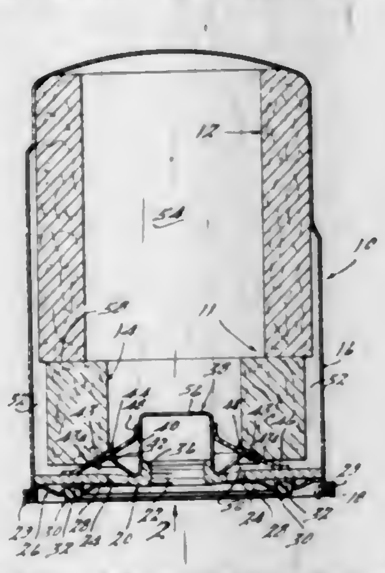


3,305,095
FILTER HAVING A FLAT RESILIENT DISC SERVING AS BOTH A RELIEF AND CHECK VALVE

Robert K. Hathaway, Racine, Wis., assignor to Walker Manufacturing Company, Racine, Wis., a corporation of Delaware

Filed June 11, 1964, Ser. No. 374,383

6 Claims. (Cl. 210—130)



5. In a fluid filter, a fluid tight housing, a tubular filter member of the outside-in flow type in said housing and having an axis and an end face, a wall closing one end of the housing and having a fluid inlet and a fluid outlet therethrough, an axially extending sleeve at least partly confined between said filter member and said end wall, said sleeve providing an outlet passage for fluid connected to said fluid outlet, said sleeve including a laterally extending annular flange that is tapered with respect to said end wall and the axis of said filter member and provides a conical seat disposed axially in line with the end face of said filter member, said end face having a conical portion aligned with said conical seat, a single elastic valve member formed of rubber-like material, said valve member being annular and flat in unstressed condition, said valve member having an annular portion engaging said conical seat, said conical portion of said filter member end face engaging said valve member annular portion, said annular flange supporting said filter member in axially spaced relation to said end wall and said valve member annular portion sealing the conical portion and conical seat against fluid flow, said valve member having an annular outer peripheral portion yieldably engaging said end wall outwardly of said fluid inlet and acting as an antidrain back valve means to prevent back flow to fluid from inside the housing into said fluid inlet, said outer peripheral portion yielding under predetermined fluid pressure in the fluid inlet to move away from said end wall and permit fluid to enter said housing, said sleeve having a tubular portion forming said outlet passage and said flange having a by-pass opening located laterally inwardly of said conical seat and outwardly of said tubular portion, said valve member having an inner peripheral portion which when unstressed has a diameter substantially smaller than the diameter of said tubular portion, said valve member inner portion being stretched over said tubular portion and acting to prevent by-pass flow from said fluid inlet and by-pass opening to said outlet passage, said valve member inner portion yielding under predetermined fluid pressure to permit unfiltered fluid to by-pass the filter member and flow to said outlet passage, the elastic pressure between said inner peripheral valve portion and said tubular portion being substantially greater than the elastic pressure between said outer peripheral portion and said end wall so that said outer portion yields to permit fluid flow at substantially lower fluid pressures than does said inner peripheral portion.

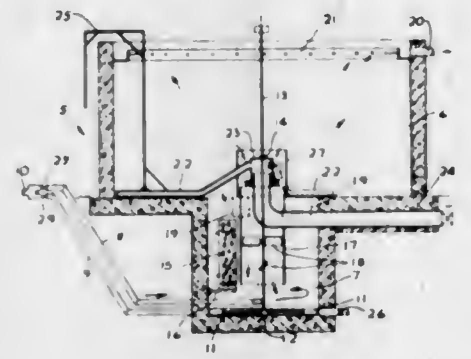
3,305,096
SEDIMENTATION APPARATUS

David Raymond Schleiss, Durban, Natal, Republic of South Africa, assignor to Davco (Proprietary) Limited, Durban, Natal, Republic of South Africa

Filed Feb. 1, 1965, Ser. No. 429,358

Claims priority, application Republic of South Africa, Feb. 12, 1964, 64/0,639

7 Claims. (Cl. 210—195)



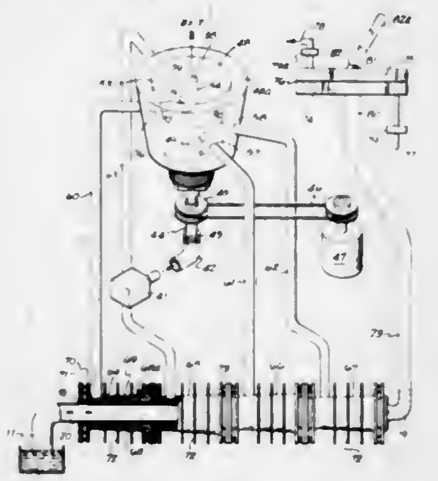
1. Sedimentation apparatus for the purification of a liquid such as water to which coagulants have been added which comprises, a basin which is constituted by an upper main settling compartment and a lower mixing and coagulating compartment of substantially smaller cross-sectional area than the main settling compartment, and constituting a well portion thereof, at least one tangential raw water inlet at the bottom of the mixing and coagulating compartment, a bladed water wheel at the bottom of the mixing and coagulating compartment mounted for rotation about a vertical axis on an upwardly extending shaft and arranged to be driven by the tangential incoming flow of water from a raw water inlet, which also imparts swirling motion to the water, baffles in the mixing and coagulating compartment above the water wheel adapted to create eddy currents and gradually to slow down the swirling motion of the water, a hollow open-ended floc-return cylinder extending downwardly into the mixing and coagulating compartment and surrounding the upwardly extending part of the shaft of the water wheel, one or more propeller blades mounted on such upwardly extending and surrounded part of the water wheel shaft, said blades arranged to cause a downward return flow of water within the floc-return cylinder from the lower region of the settling compartment to the bottom of the mixing and coagulating compartment, clarified water outlet means disposed at or around the top of the wall of the main settling compartment, and means for removing settled sludge from the bottom of the settling compartment and the bottom of the mixing and coagulating compartment.

3,305,097
HIGH PRESSURE PERISTALTIC PUMP FOR SEPARATION APPARATUS

Samuel Natelson, Valley Stream, N.Y., assignor to Scientific Industries Inc., Queens Village, N.Y.

Filed May 27, 1963, Ser. No. 283,491

6 Claims. (Cl. 210—321)



1. A peristaltic pump for delivering fluids in even flow through a flexible tube at high pressure to a high pressure chamber comprising in combination, at least three sequential longitudinally aligned squeeze members designed to assume either an open or squeeze position, pneumatic means connected to said pump to simultaneously sequentially and gradually squeeze in progression, the last and first, the first and second, the next to the last and last, and again the last and first squeeze members, the gradual squeezing being in the direction of delivery, each of said squeeze members comprising a hollow solid flanged elongated outer jacket, a hollow resilient flanged, tapered-wall inner jacket, said tapering being such that the wall tapers counter to the flow direction of the fluid being pumped, said tapered wall inner jacket being disposed within and in engagement with said outer jacket, the flanges of said inner and outer jackets being disposed alongside one another and fastened together so that the inner and outer jackets form a closed chamber when inflated by said pneumatic means, an outlet section including a rigid tube connected rigidly at one end to a high pressure chamber and at the other end rigidly connected to the flange of the outer jacket disposed on the delivery end of the last of said squeeze members, said flexible tube being encased in said rigid tube and therein outwardly supported to prevent its bursting, and feed lines coupling said pneumatic means to each of said chambers.

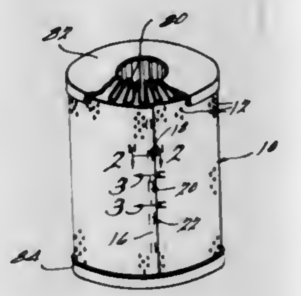
3,305,098
FILTER

Craig H. Cowles, Racine, Wis., assignor to Walker Manufacturing Company, Racine, Wis., a corporation of Delaware

Filed Nov. 17, 1961, Ser. No. 153,172

8 Claims. (Cl. 210—484)

6. In a paper filter shell or the like, having abutting and overlapped end portions, integral continuous one-piece elongated tab means formed in one of said end portions, opposite ends of said tab means being integrally connected to said one of said end portions and said tab means being continuous between said opposite ends, the side portions of said tab means between said opposite ends being severed from said one of said end portions along outwardly curved lines to define tab means having a maximum width center portion and minimum width opposite ends with the tab means gradually changing in width between said maximum width center portion and said minimum width opposite ends, elongated slot means having a length approximately equal to the length of said tab means and a width less than said central portion and greater than said opposite ends whereby said tab means may be resiliently deflected through said slot means, and said central portion of said tab means extending through said slot means and abuttingly engaging opposite sides of said slot means to hold said end portions in abutting and overlapped relationship.

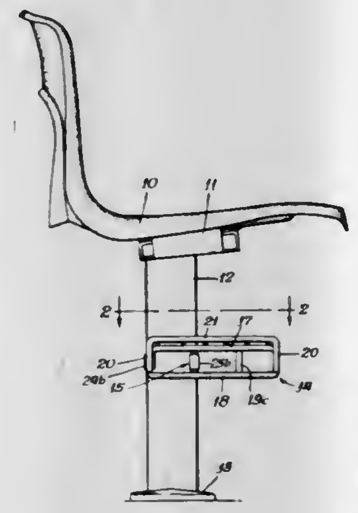


3,305,099
WIRE BOOK RACK

Victor C. Schroeder, Jr., Kalamazoo, Mich., assignor to Brunswick Corporation, a corporation of Delaware

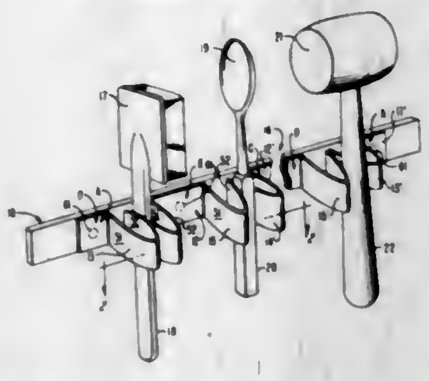
Filed May 19, 1965, Ser. No. 457,043

6 Claims. (Cl. 211—43)



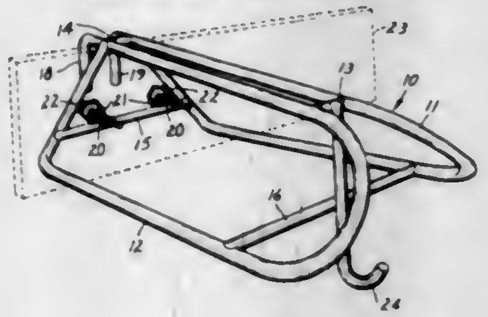
2. A book rack for pedestal mounted seating or the like, comprising: an upright frame including spaced generally horizontal members and joining upright members; outwardly extending arms secured to the lower portion of the upright frame, said arms extending upwardly to an outer level generally as high as the top of the upright frame; an outer generally horizontal member secured to and supported by said outwardly extending arms; book supporting rods extending between and connected to said outer generally horizontal member and the top of the upright frame whereby the frame, arms and rods together form triangular truss means, the rods of which may support books or the like placed thereon; a seat supporting pedestal; and a clamp means secured to said upright frame to clamp said book rack to said pedestal.

3,305,100
ARTICLE HOLDER
Floyd R. Barbee, 5716½ N. Charlotte,
San Gabriel, Calif. 91775
Filed Jan. 15, 1965, Ser. No. 425,826
8 Claims. (Cl. 211—60)



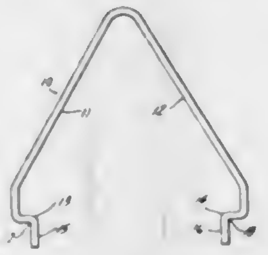
1. Resilient clamping elements for receiving and holding articles with handles such as tools and the like, said elements comprising:
at least a mounting foot in combination with
at least a first parabolic flat spring member having ends, one end thereof being attached to said mounting foot, the parabola of said first flat spring member being bowed outwardly towards the opposite end of said mounting foot; and
at least a second parabolic flat spring member having ends, one end of said second flat spring member being joined with the other end of said first flat spring member, the remaining end of said second flat spring member being free, the parabola of said second flat spring member being bowed in a direction oppositely of the direction of the parabolic bowing of said first flat spring member, said resilient clamping elements being normally used in pairs in mirror image relationship wherein said free ends of the second parabolic flat spring members in each of said pair are in contact with one another and said mounting feet are directed oppositely of one another on a common plane, whereby when a tool handle is entered between said parabolic spring members in contact with one another they are separated and as the tool handle is pushed further towards said mounting foot ends of said clamping elements against the resilient urge of said parabolic spring members the free ends of said second flat spring members separate further while the joined ends of said second flat spring members return to contact with one another to form about said tool handle a tightly gripping triangle to hold said handle securely in said resilient clamping elements.

3,305,101
UNIVERSAL PORTABLE SADDLE RACK
Robert J. Mills, P.O. Box 312, Forest Lake, Minn. 55025
Filed June 10, 1966, Ser. No. 556,754
6 Claims. (Cl. 211—87)



1. Saddle rack means for supporting a riding saddle or the like during storage thereof, said rack comprising:
(a) a pair of angularly disposed downwardly diverging rigid support elements secured together in spaced relationship by at least one tie-rail adjacent the top surface thereof;
(b) each of said tubular support elements having upper and lower longitudinal support rails extending from the forward end to the rearward end of said rack, and being joined together by an arcuately formed semicircular coupling segment at the rearward end; and
(c) a mounting clamp including a substantially inverted L-shaped bracket with a pair of downwardly projecting hook elements disposed outwardly of and spaced relationship from the said forward end, and clamping means along said forward end arranged for movement toward and away from said hook elements.

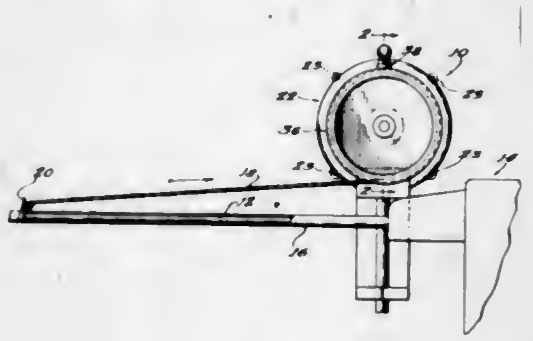
3,305,102
FORMED WIRE SUPPORT
Sumner I. Saphirstein, 16 E. Maxwell Drive,
West Hartford, Conn. 06107
Filed Dec. 17, 1964, Ser. No. 419,032
4 Claims. (Cl. 211—184)



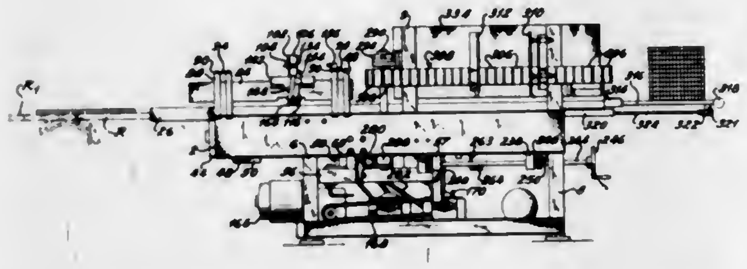
1. A support assembly for books, records and the like comprising a unitary formed wire support and a base member of wood and the like having spaced substantially parallel extending holes therein, said wire support comprising a resilient metal wire body section having at least two arm portions, two opposed support sections appended to said arm portions and having a common planar axis therewith, said support sections having parallel end portions received in said spaced holes in said base member and each support section having a right angular shoulder adjacent its end portion having a bend with an inside radius less than the diameter of said metal wire, said right-angular shoulder bearing laterally upon the upper surface of said base member adjacent said holes, said end portions being of lesser length than the thickness of said base member and the depth of said holes therein, said wire support being resiliently deflectable to spring said end portions into spaced substantially parallel extending relationship for insertion into said holes of said base member.

3,305,103
DEVICE FOR FEEDING A WORK PIECE INTO A FABRICATING MACHINE
Hollis R. Hilstrom, 777 Park Ave., Sycamore, Ill. 60178
Filed May 12, 1965, Ser. No. 455,163
2 Claims. (Cl. 214—1.5)

1. Means for feeding a work piece into a fabricating machine, comprising: a housing on said machine, said housing including a first member having a dished portion with an outwardly projecting annular wall and a boss protruding centrally from the side of the dished portion opposite said annular wall open end, said boss having a centrally formed bore and said annular wall having an opening in a portion thereof; said housing further including a second substantially flat plate member secured over the open end of said dished portion to form a cavity therewith; a shaft rotatably mounted in the bore of said boss; a pulley wheel mounted on one end of the shaft adjacent the boss, said wheel having a cable wrapped thereabouts for extension from the wheel to a position of engagement with a work piece; a reel within the cavity secured to the other end of the shaft; a ring-like member mounted in the cavity concentric to the reel and closely adjacent to the annular wall of the cavity, said member having a plurality of openings therein and being movable relative to the reel and movable relative to the support; a torsion spring in the cavity secured to the reel at one end and to the ring-like member at the other end, rotation of the pulley responsive to the extension of the cable causing the shaft to turn the reel and induce stress in the spring so that the extended cable, when attached to a work piece, will urge the work piece into the fabricating machine; and a pin inserted through the opening in the annular wall and through at least one of the opening in the ring to hold the ring against rotation relative to the housing in one direction when stress has been induced in the spring to permit rotation of the ring in the opposite direction for changing the amount of stress in the spring to produce feeding forces of different values for the same distance of extension of the cable.

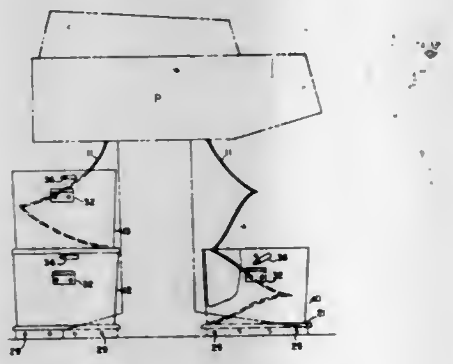


3,305,104
CLEAT STACKER
William J. Hogan and Thomas P. Coulthard, Dover, N.J., assignors to Stapling Machines Co., Rockaway, N.J., a corporation of Delaware
Filed June 4, 1964, Ser. No. 372,601
5 Claims. (Cl. 214—6)



5. A machine for stacking cleats comprising a cleat support for slidably supporting said cleats for movement into said machine side by side in a horizontal column, a cleat engaging finger mounted for movement between a cleat engaging position in the path of the leading cleat in said column and a retracted position clear of said path, cleat finger drive means for moving said cleat engaging finger between said cleat engaging position and said retracted position, cleat pushing means movable to engage the trailing cleat in a selected group of cleats at the leading end of said column selected and push said selected group of cleats further along said cleat support ahead of the cleats behind them in said column a distance at least equal to the column-wise length of said selected group of cleats, cleat pusher drive means for driving said cleat pushing means, a cleat stopping member movably mounted for movement between a cleat stopping position at which it engages and stops the movement of the leading cleat of the supply group of cleats immediately following said selected group of cleats in said column and a retracted position clear of said column of cleats, cleat stopper drive means for driving said cleat stopping member for movement between said cleat stopping position and said retracted position, said cleat engaging finger being connected to control operation of said cleat finger drive means, said cleat pusher drive means and said cleat stop drive means, whereby actuation of said cleat engaging finger causes movement of said cleat engaging finger to retracted position, movement of said cleat stopping member into cleat stopping position, and pushing of said selected group of cleats by said cleat pushing means, a cleat lifting member normally positioned below the level of said selected group of cleats and being reciprocably mounted for engagement with successive selected groups of cleats to raise said cleats upwardly, a cleat hopper mounted above said cleat lifting member for receiving through its lower end and supporting in a vertical stack said successive selected groups of cleats, latch means at the lower end of said hopper and movable between a cleat supporting position for engagement with the bottom layer of cleats in said stack and a retracted position out of the path of the cleats being moved upwardly into said hopper by said cleat lifting member, cleat lifter drive means for actuating said cleat lifting member, cleat lifter control means for controlling said cleat lifter drive means, said cleat lifter control means being arranged for actuation upon arrival of said selected group of cleats in proper position above said cleat lifting member, cleat delivery means movably mounted for engaging said stack of cleats and moving it laterally out of said hopper, cleat delivery drive means for driving said cleat delivery means, and a cleat stack sensing means mounted at the upper end of said hopper for actuation when said stack of cleats reaches a predetermined height, said cleat stack sensing means being connected for control of said cleat delivery drive means.

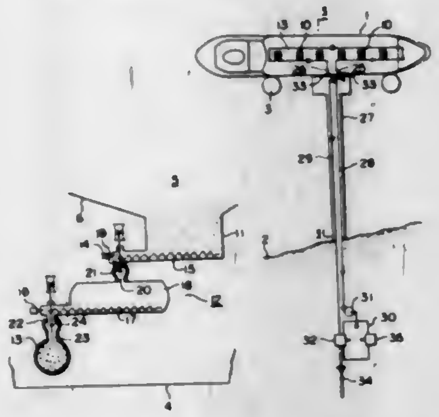
3,305,105
CONTINUOUS FORMS CARRIER
James R. Forsyth, Rte. 12, Box 375,
San Antonio, Tex. 78206
Filed Jan. 14, 1965, Ser. No. 425,434
4 Claims. (Cl. 214—10.5)



1. A forms carrier comprising:
an elongated, rectangularly shaped base,
first and second sides,
first and second ends,
downwardly turned lips terminating said first and second sides and ends,
said base, sides, ends, and lips of integral construction,
first and second upstanding members fixedly secured to said first and second ends,
each of said members consisting of an end and perpendicularly inwardly extending sides,
a handle fixedly secured to the end of each upstanding member, and
securing means pivotally connected to the end of each upstanding member, said securing means being mounted for movement from a useable to a non-usable position and being adapted to cooperate with an adjacent container.

3,305,106
METHOD AND APPARATUS FOR LOADING AND UNLOADING SHIPS

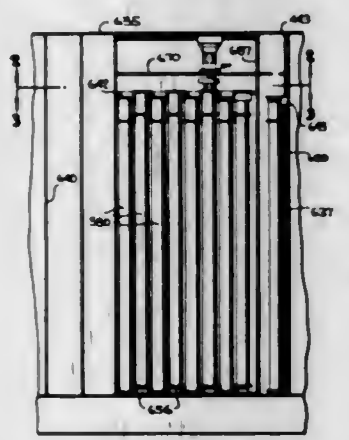
Kuzuo Ishino, deceased, late of Tokyo, Japan, by Hisako Ishino, heiress, Tokyo, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 9, 1965, Ser. No. 431,475
Claims priority, application Japan, Feb. 17, 1964, 39/8,317
20 Claims. (Cl. 214—14)



1. A cargo handling arrangement for double bottom bulk carriers of dry cargo such as ores, coal, etc., comprising, in combination, pipe line means on the carrier within the double bottom thereof and in communication with the cargo holds thereof; shore based means, including a source of relatively heavy conveying liquid, comprising fresh water having fine particles of magnetite and the like suspended therein, and separating means, operable to circulate the relatively heavy conveying liquid through said pipe line means when said carrier is at anchorage; and conveyor means operable to continuously discharge dry cargo from holds of said carrier into said pipe line means for entrainment in the conveying liquid for conveyance to, and separation at, said shore based means.

3,305,107
CONDUIT STOWAGE MEANS

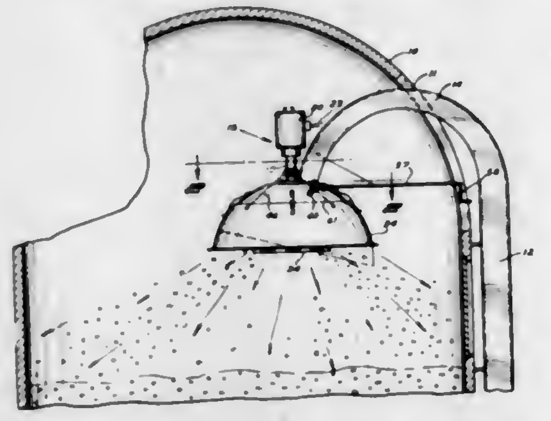
Joseph D. Deal, Jr., Newport News, Va., assignor to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia
Original application Dec. 24, 1963, Ser. No. 332,999. Divided and this application Feb. 16, 1965, Ser. No. 433,129
6 Claims. (Cl. 214—15)



1. Apparatus for underwater mining at great depths beneath the surface of the sea including a ship adapted to move through the water, said ship including conduit section stowage means therein, said stowage means including upper support means for supporting upper portions of conduit sections and lower support means for supporting lower portions of conduit sections, said upper support means comprising a plurality of spaced portions having recesses formed therein for receiving parts of associated conduit sections, said recesses being of generally arcuate configuration, adjacent ones of said recesses being disposed at different vertical levels so as to support the associated conduit sections in staggered relationship with respect to one another.

3,305,108
SILAGE DISTRIBUTOR

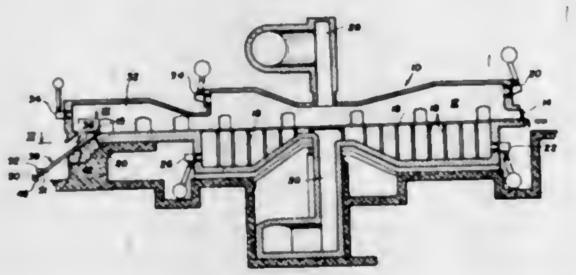
John Walter Edming, P.O. Box 83, Glen Flora, Wis. 54526
Filed Oct. 11, 1965, Ser. No. 494,614
7 Claims. (Cl. 214—17)



1. In a silage distributor for mounting on the discharge end of a silo filler tube extending into the top portion of a silo, a frame adapted to be mounted on the tube, a shaft journaled on the frame for rotation on a vertical axis, a motor mounted on the frame and having driving connection with the shaft to rotate the shaft on its axis, a distributor mounted on the lower end of the shaft for rotation therewith, and a downwardly opening annular hood encircling the distributor and mounted on the frame for universal tilting movement about any horizontal axis to direct silage material from the distributor to any portion of the silo.

3,305,109
FURNACE DISCHARGING APPARATUS

Cecil L. Kerr, Bethel Park, Pa., assignor to Amsler Morton Company, a division of Textron Inc., Pittsburgh, Pa., a corporation of Rhode Island
Filed Sept. 19, 1962, Ser. No. 224,749
1 Claim. (Cl. 214—26)



A slab-handling apparatus in combination with a slab-heating apparatus having a discharge opening at the end thereof, comprising:

(a) support means having support surfaces disposed at a vertical level filling the major portion of said discharge opening and disposed to receive in turn the horizontally movable slabs moving through said apparatus to become transferred onto the support surfaces of said support means as an extension of the support surfaces provided by the heating apparatus;

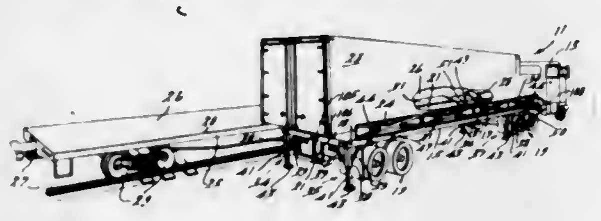
(b) means forming an inclined bearing for said support means and providing a guideway for rectilinearly reciprocable movement thereon whereby heated slabs are transferred both laterally and vertically out of the heating apparatus through said discharge opening without affecting the angularity of said support surfaces;

(c) a course of antifriction rollers for receiving said slabs which are deposited thereon and without inertial displacement from said support means;

(d) and means for effecting said reciprocable movement and subsequent return movement of said support means to a vertical location within the discharge opening and in position to receive a subsequent slab.

3,305,110
MATERIAL HANDLING EQUIPMENT

Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich., a corporation of Michigan
Filed Feb. 16, 1965, Ser. No. 433,135
1 Claim. (Cl. 214—38)



In a ground vehicle of the type having a flat generally rectangular elongated platform movably supported thereon,

a device for orienting said platform into coplanar relationship with a second platform comprising a plurality of lift devices mounted on said vehicle platform one adjacent each corner thereof,

each of said lift devices having a portion movable from a retracted position spaced from the ground to an extended position engaging the ground to elevate the portion of the platform adjacent thereto,

power means adapted to motivate selected ones of said lift device movable portions,

first switch means including a pair of switches disposed on said platform along opposite edges thereof and each adapted when closed to cause said power means to move a selected one of said lift device movable portions toward its extended positions,

said first switch means being responsive to the orientation of said vehicle platform about a first axis whereby to open when the platform top surface adjacent thereto is level with said second platform,

second switch means including a pair of switches disposed along opposite edges of said vehicle platform between said first-mentioned edges,

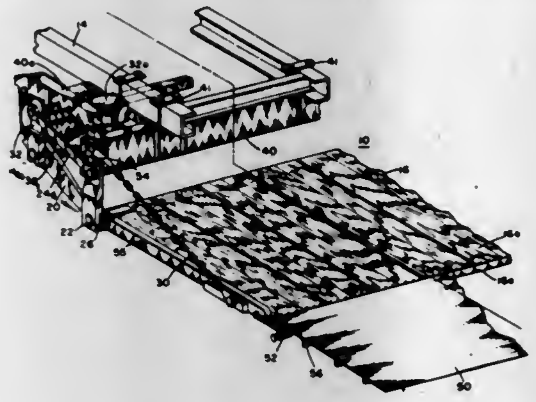
each of said last-mentioned switches being operatively connected to said lift devices to selectively control energization thereof,

and ramp means pivotally carried by said platform adjacent each of said last-mentioned switches and movable independently to overlie the surface of said second platform and positioned to engage and open each of said switches when said platforms are in coplanar relationship.

3,305,111
ELEVATOR GATE

Harold Isaacs, University Heights, Ohio, assignor to Techno Products, Inc., a corporation of Ohio
Filed Nov. 18, 1964, Ser. No. 412,212
1 Claim. (Cl. 214—77)

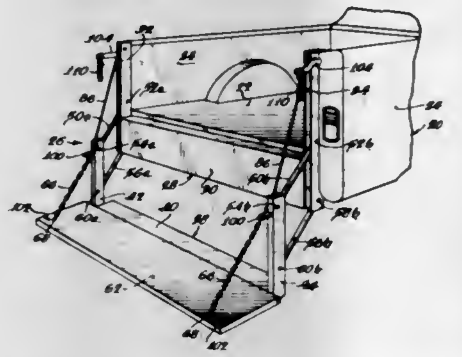
An elevator gate for a truck having suitable supporting means therefor, comprising in combination: a load bearing platform approximating the width of the truck provided with transversely spaced, longitudinal extending, supporting structures; a parallelogram linkage system located on each side of said platform and forward end portions thereof being adapted for connection with the support means of the truck; said system including a lifting link, a tension link disposed in parallel and in vertically spaced relation to said lifting link and to said platform, and a vertical link effective for connecting said aforesaid links; an elongated torque member disposed transversely between and rigidly secured to the forward end of the lifting links and movably connected to the lower end of each vertical link, said member being effective for equalizing the lifting action between said lifting links; the upper end of said vertical link being adapted for rotatably receiving the forward end of the tension link and being rigidly connected to the supporting means of the truck; hydraulic actuator means vertically interposed



between said lifting links and the support means of the truck for angularly moving the lifting links relative to said vertical links to elevate and lower the platform; and a ramp hingedly secured to the rearward end of said platform and extending therefrom at a gradient less than 10%, said ramp being provided with a plurality of sectional angle irons located perpendicular to the supporting structures of said platform, the heights of said irons diminishing from the forward end toward the rear and each section of the angle iron being adapted for fitting between said supporting structures for establishing a substantially flush surface with said platform when the ramp is in folded position.

3,305,112
POWER LIFT GATE

William Delbert Brown, Woodbine, Iowa 51579
Filed Feb. 23, 1965, Ser. No. 434,338
6 Claims. (Cl. 214—77)



1. A lift gate for attachment to a vehicle having a raised bed adapted to receive a load, and upright side members, said lift gate comprising:

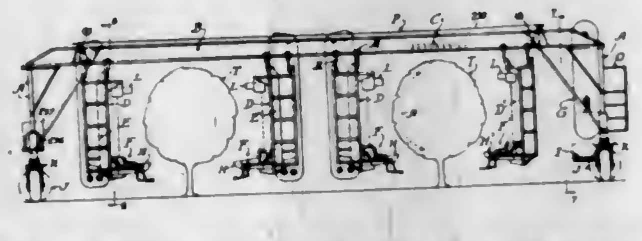
(a) a U-shaped housing adapted to have its base secured to said bed and its leg secured to said side members,

(b) a U-shaped gate mount, said gate mount generally conforming to the shape of said U-shaped housing and having a generally horizontal planar platform for supporting a load, said platform having a first edge facing said housing and a second edge spaced from said first edge and directed away from said housing,

(c) a gate pivotally connected to said gate mount adjacent said second edge of said platform,
(d) means connecting said gate mount to said housing for up and down movement relative thereto,
(e) power means mounted within the base of said U-shaped housing,
(f) motion transmitting means operatively interposed between said power means and said gate mount, and
(g) means for selectively actuating said power means to raise or lower said gate mount.

3,305,113
PICKER TRANSPORTATION AND FRUIT-DELIVERY APPARATUS

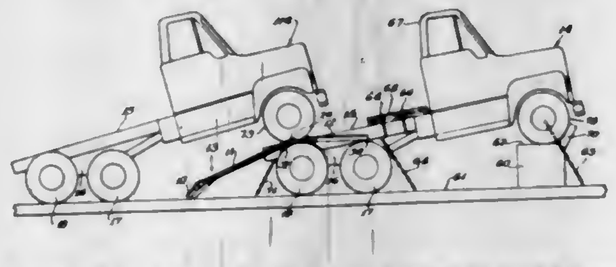
Edwin A. Gardner, Ventura, Calif., assignor, by direct and mesne assignments, to Esengee Harvester Corporation, Van Nuys, Calif., a corporation of California
Continuation of application Ser. No. 249,026, Jan. 2, 1963. This application Apr. 18, 1966, Ser. No. 543,432
11 Claims. (Cl. 214—83.1)



1. In a mobile fruit delivery and picker apparatus, in combination: a gantry frame including an overhead bridge beam for spanning the trees of an orchard row, a pair of end supports carrying said beam, and ground-travel means carrying the respective end supports for travel of the apparatus in a path transverse to said bridge beam with the latter spanning a tree row; picker support carriages each having means suspending the same from said bridge beam, extending downwardly between tree rows and movable longitudinally along said beam for effecting movement of the carriage horizontally toward and from a tree; an overhead conveyor extending along said bridge beam, for conveying fruit longitudinally of the frame to a gathering point; elevator conveyors extending from at least some of said picker support carriages to said overhead conveyor, for elevating freshly picked fruit thereto, said elevator conveyors being supported by the respective carriage-suspending means and movable horizontally with the respective carriages; and means on the frame at said gathering point for gathering the fruit delivered by the overhead conveyor and depositing it in a receptacle.

3,305,114
PORTABLE DEVICE AND METHOD FOR REMOVABLY LOADING VEHICLES ON CARRIERS

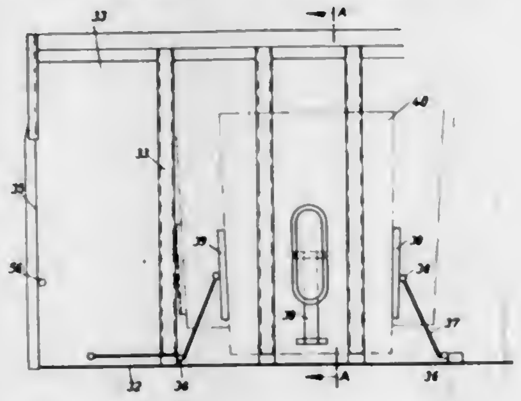
Fred A. Bellingher, Alsip, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed Dec. 21, 1964, Ser. No. 420,006
7 Claims. (Cl. 214—85)



1. A portable device for loading trucks in saddle mount position and comprising:
track means including an elongated track capable of being disposed angularly in a vertical plane and of having a lower end portion bearing against a stationary surface, and
an elongated arcuate track mounting member releasably connected to an upper end portion of said track, said arcuate track mounting member having a surface portion capable of being placed in abutting engagement with a section of the outermost circumferential surface of the rearwardmost tire of a motor truck having a pair of rear tires lying substantially in a common vertical plane, said surface portion having a radius of curvature substantially corresponding to the radius of curvature of said outermost circumferential surface of said rearwardmost tire.

3,305,115
LOADING DEVICE IN SELFLOADING TRANSPORT VEHICLES FOR WASTE

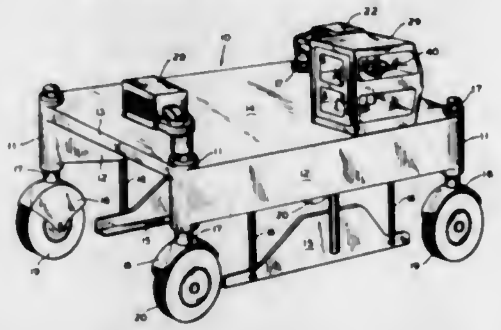
Mikko Jooseppi Terho, Autolava Oy, Raisio, Finland
Filed Mar. 31, 1965, Ser. No. 444,129
7 Claims. (Cl. 214—302)



1. A collection apparatus for waste comprising, a vehicle having a body or tank for receiving collected waste material, a hinged collection dipper at the rear of the vehicle body, said dipper being capable of being lowered to a position to receive waste or cans containing waste and which is thereafter dumped into the body when the dipper is swung upwardly on its hinge, at least one arm pivoted on the dipper, said arm carrying a suction cup for application against a waste can while the can is resting on the dipper and while it is swung by the dipper to dumping position, and means operative from the engine of the vehicle for producing suction in the suction cup.

3,305,116
INDUSTRIAL TRUCK DRIVING AND STEERING ARRANGEMENT

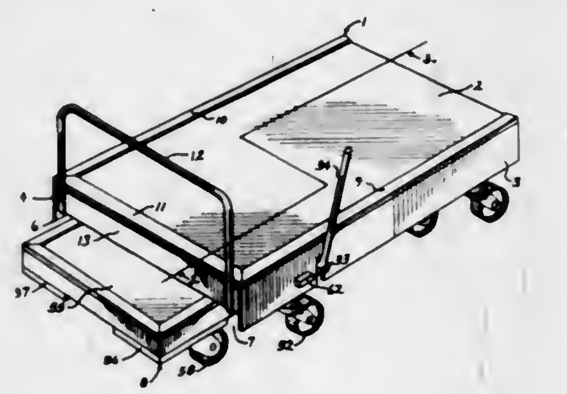
Dale W. McKee, Battle Creek, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Nov. 4, 1963, Ser. No. 321,120
1 Claim. (Cl. 214—392)



An industrial vehicle of the load straddling type comprising a frame including an upper portion and depending side portions defining a load bay below said upper portion, means for supporting a load in said bay for transport by the vehicle, four wheels supporting said frame arranged at the corners of a quadrangle, means steerably mounting said wheels on the frame to swivel about vertical axes for guiding the vehicle means for steering the wheels in a plurality of modes, and individual drive means for each of two diagonally related wheels respectively rotatable therewith upon swiveling thereof, said drive means each including a prime mover disposed above said load bay and means connecting the prime mover to the associated wheel in driving relation, each of said prime movers in its entirety projecting radially of the swivel axis of the wheel driven thereby and in a direction inwardly and generally transversely of the vehicle in neutral steering position of the wheels.

3,305,117
DOUBLE HAND TRUCK ASSEMBLY

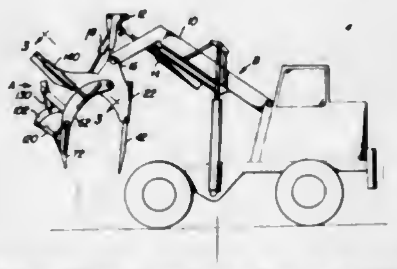
Kenneth C. Ford, 6101 W. 87th Terrace, Overland Park, Kans. 66207
Filed Jan. 25, 1965, Ser. No. 427,839
9 Claims. (Cl. 214—515)



1. In combination, a main platform truck having a bed, depending sides, and a rear end and an open front,
(a) a frame secured under the bed of said truck having spaced longitudinal members and a front and rear end,
(b) a handle bar on the front end of said frame,
(c) transversely aligned bearing openings in said longitudinal members spaced from the front and rear ends of the frame,
(d) shafts in said bearing openings, one of said shafts extending outwardly of one of the sides of the bed and turned transversely to form a lever,
(e) spaced cam members on said shafts,
(f) caster wheels mounted in said frame near the respective corners of the frame,
(g) a second platform truck having a bed of a width to pass between said caster wheels of the first truck,
(h) caster wheels on the second truck, and
(i) means connecting the said shafts whereby rotation of said lever will cause said cams to engage the bed of the second truck to raise the first truck with respect to the second and the caster wheels of the first truck from the floor for transportation of said two trucks.

3,305,118
LOAD HANDLING CARRIAGE

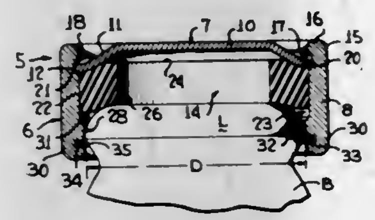
Le Grand H. Lull, 5501 Woodlawn Blvd., Minneapolis, Minn. 55417
Filed Jan. 19, 1966, Ser. No. 521,730
9 Claims. (Cl. 214—767)



1. A load handling carriage for a mobile loader comprising:
(A) at least a pair of laterally spaced upstanding supports rigidly secured together,
(B) fittings on said supports for pivotal attachment of the carriage to the end of an extensible boom of a mobile loader for swinging movement of the carriage in a vertical plane,
(C) fittings on said supports for pivotal attachment of the carriage to extensible power means disposed between said carriage and a tilt bracket pivotally attached to the same boom for swinging movement on a common axis with the carriage,
(D) at least a pair of lift fork tines each extending from the lower forward edge of one of said supports,
(E) at least a pair of clamping arms each pivotally attached to one of said supports intermediate of the ends thereof,
(F) extensible power means pivotally attached at one end to said clamping arms and at the opposite end to said supports adjacent the upper end thereof for relative movement between said arms and said supports and fork tines,
(G) hold down finger means pivotally supported between the forward ends of said clamping arms, and
(H) extensible power means carried by said clamping arms and connected to said hold down finger means for causing relative movement between said arms and finger means.

3,305,119
RECLOSURE CAPS

Frank J. Reynolds, 1588 U.S.H. 130, North Brunswick, N.J. 08902
Filed Feb. 12, 1965, Ser. No. 432,336
10 Claims. (Cl. 215—40)



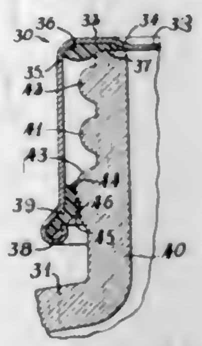
1. A bottle reclosure cap comprising a cap body including an end wall and a depending peripheral skirt, said peripheral skirt having an inner wall defining an internal cavity adapted to receive therein a bottle lip, an inwardly directed fixed peripheral locking rib of a predetermined diameter carried by said skirt spaced from said end wall, said locking rib being a separate element, means securing said locking rib to said skirt, a gasket in said cap body in spaced relation to said locking rib, and peripheral locating means above the locking rib having a diameter greater than the diameter of the locking rib but less than the diameter of the inner wall prior to the reclosure cap being fixedly attached to a bottle lip.

3,305,120
DEEP SLIP-ON CAP

Ronald C. Owen, Harwood Heights, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed June 4, 1965, Ser. No. 461,396
8 Claims. (Cl. 215—40)

2. In combination a container having an open mouth formed by an annular sealing rim, thread means formed below said annular sealing rim and being adapted for cooperation with a closure, a continuous sealing ring disposed below said thread means, a deep slip-on cap received over said mouth and being applied to said container with press-on type application, said cap having a top panel delineated at its peripheral margin by a depending annular skirt portion, said skirt portion having an annular groove opening radially towards the center of said sealing ring

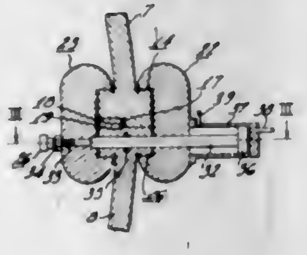
and clampingly receiving an annular gasket, said gasket extending radially into engagement with said sealing ring fluid-tightly to seal the lower margin of said skirt portion to said container while simultaneously holding said cap on said container, and an annular gasket disposed between said rim and said cap above said thread means thereby to isolate said thread means from the container contents while said annular gasket isolates said thread means from the ambient.



3,305,121
CLAMPING DEVICE FOR HIGH PRESSURE VESSELS

John M. Horn and Benjamin S. Ember, York, Pa., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Aug. 1, 1963, Ser. No. 299,263
3 Claims. (Cl. 220—5)



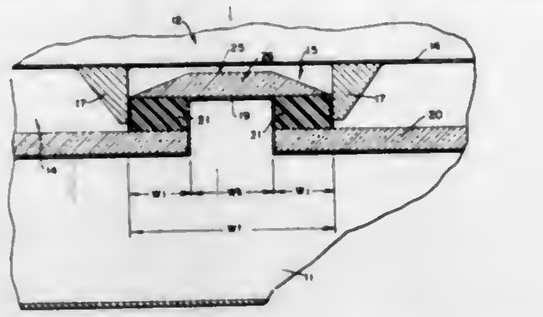
1. In combination with a two part high pressure vessel with each part having a complementary surface for uniting both parts to form a fluid tight vessel, means for connecting and disconnecting said parts comprising: a first inner clamp for engaging the inner surfaces of said parts; a second outer clamp for engaging the outer surfaces of said parts; a first member connected to said inner clamp for movement therewith; a second member connected to said outer clamp for movement therewith, said first and second members being connected together for relative movement; means for causing relative movement between said members; first guide means connected to said vessel and engaging with said outer clamp to permit limited guided movement thereof; and second guide means connected to said vessel and engaging with said inner clamp to permit limited guided movement thereof, the extent of limited guided movement of said clamp permitted by either guide means being less than the extent of relative movement between said members.

3,305,122
KEYED CARGO CONTAINER

Gordon R. Pringle, Farnham, England, assignor to Esso Research and Engineering Company, a corporation of Delaware

Filed Sept. 4, 1964, Ser. No. 394,533
6 Claims. (Cl. 220—15)

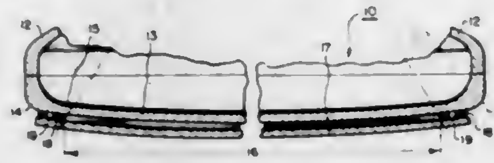
6. In a cargo container system for liquefied gases at cryogenic temperatures including an inner rigid tank supported within an outer supporting structure by key and keyway arrangement, the improvement in which intermediate heat expandable bearing blocks having a predetermined coefficient of thermal expansion are interposed between said key and keyway; said bearing blocks each having a width equal to the width of said keyway multiplied by the coefficient of thermal expansion of the material from which the keyway is fabricated divided by the coefficient of thermal expansion of the material from which said bearing blocks are fabricated, whereby said bearing blocks are maintained in bearing contact with said keyway and key at all temperatures from ambient to those of cryogenic temperatures.



3,305,123
CATHODE-RAY TUBE

Roger M. Nordby, Wilmette, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware

Filed Jan. 9, 1964, Ser. No. 336,732
9 Claims. (Cl. 220—2.1)

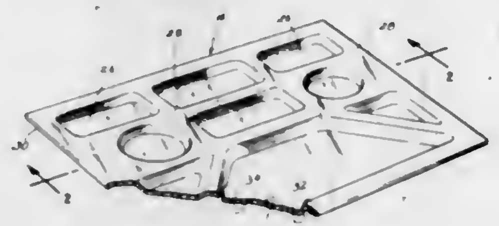


1. A cathode-ray tube comprising:
an envelope having a curved screen-bearing face plate with a predetermined viewing area;
a safety plate including a transparent section having overall dimensions greater than those of said viewing area and a curvature conforming substantially to the curvature of said face plate;
and bonding means for securing said safety plate in an overlying spaced relation to said face plate, said bonding means consisting of a continuous layer of adhesive paste in intimate contact with and confined to confronting portions of said envelope and said safety plate outside of said face plate viewing area and cured to constitute a resilient gasket capable of yieldably accommodating displacement of said safety plate relative to said face plate.

3,305,124
TRAY ASSEMBLY

Carlton L. Whiteford, New Canaan, Conn., assignor to Poly-Pak Corporation of America, Springdale, Conn., a corporation of Delaware

Filed Oct. 20, 1965, Ser. No. 498,686
9 Claims. (Cl. 220—63)

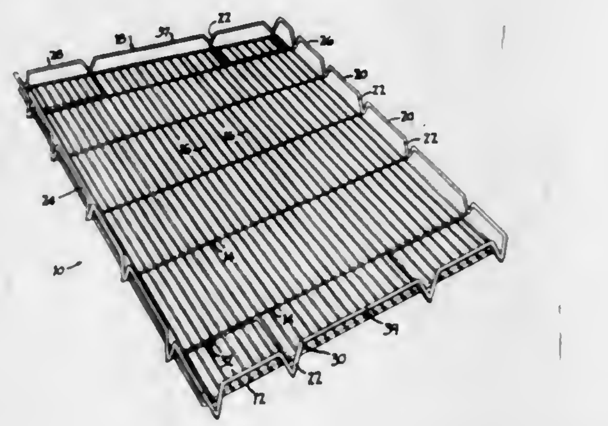


1. A tray assembly comprising an integrally formed tray member of relatively rigid synthetic plastic material having a substantially planar web portion and a plurality of pockets extending downwardly from said web portion with side and bottom walls, and an integrally formed removable cover of flexible plastic sheet material overlying said tray member, at least one of said tray member and said cover having embossments on its opposed surface providing grooves for passage of air therebetween to minimize formation of air pockets retarding conformation of said cover to said tray member, said cover also having a web portion and a plurality of food receiving dish portions extending into said pockets and conforming closely to the shape thereof, said side and bottom walls of said pockets of said tray member providing peripheral and underlying support for said dish portions of said cover and said web portion of said tray member providing underlying support for said web portion of said cover.

3,305,125
TRAY

Robert G. Chesley, Farmington, Mich., assignor to Chesley Industries, Inc., Farmington, Mich., a corporation of Michigan

Filed Oct. 20, 1964, Ser. No. 405,056
5 Claims. (Cl. 220—19)

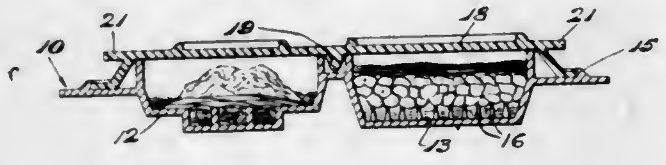


1. A tray comprising a generally rectangular gridwork for supporting articles, said wire gridwork including spaced apart transverse wire elements which extend for a short distance beyond the sides of the gridwork and spaced apart longitudinal wire elements which extend for a short distance beyond the ends of the gridwork, an upstanding wire wall surrounding the gridwork, said wall having a plurality of downwardly depending portions, each of said downwardly depending portions being in alignment with one of the outer ends of said spaced apart transverse and longitudinal wire elements, said downwardly depending portions being attached to the ends of the respective wire elements to secure the wall in place, whereby a plurality of trays may be stacked on one another with the downwardly depending portions of an upper tray received in the like portions of a lower tray.

3,305,126
FOOD PACKAGES FOR AUTOMATED DISPENSING

William W. Cease, Fredonia, N.Y., assignor to Cease Central, Inc., Dunkirk, N.Y.

Filed June 11, 1963, Ser. No. 287,121
3 Claims. (Cl. 220—23.83)

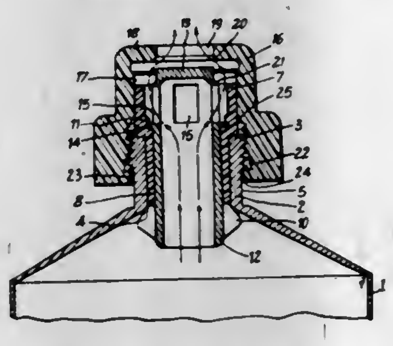


1. A package for handling, dispensing and serving prepared foods comprising a food receptacle having a marginal flange, said receptacle including a plurality of compartments open at their upper sides and including wall portions extending above said marginal flange and around each compartment, a service plate adapted to be applied over said receptacle in inverted position to serve as a cover for said compartments with the marginal portion of said service plate engaging the upper surface of said marginal flange and with the bottom interior surface of said service plate abutting the upper edges of said wall portions to seal the several compartments of said receptacle from each other and from the surrounding atmosphere.

3,305,127
STOPPERS FOR TUBES HAVING SCREW-THREADED NECKS

Daniel Baranne, 3 Ave. de la Princesse Mathilde, St.-Gratien, France

Filed Mar. 23, 1964, Ser. No. 354,046
Claims priority, application France, Apr. 9, 1963, 930,847
5 Claims. (Cl. 220—39)



1. A stopper for a collapsible receptacle provided with an externally screw-threaded neck, comprising a tubular body of a resilient synthetic plastic material having an enlarged upper portion capable of bearing against the end of said neck and a cylindrical skirt slideably insertable into said neck and ending at its bottom in a portion having an inwardly projecting bore and longitudinal slots for being mounted and expanded within said receptacle below said neck, an inner cylindrical tubular member moulded of a resilient synthetic plastic material which is closed on top, has lateral openings therebeneath and which is capable of being slideably inserted in said skirt expanding the slotted end of said skirt outwardly within said receptacle and beyond said neck, an internally screw-threaded cap of a resilient synthetic plastic material capable of being screwed on said neck and provided at its base with an internal annular shoulder for engaging below the screw thread of said neck and at its upper end with a top having a central hole for receiving the closed top of said inner tubular member when said cap is fully screwed on said neck with said cap top abutting said inner tubular member when said cap is fully screwed into a closed position and said cap having an internal cylindrical surface above its screw thread capable of tightly sliding on said enlarged upper portion of said tubular body.

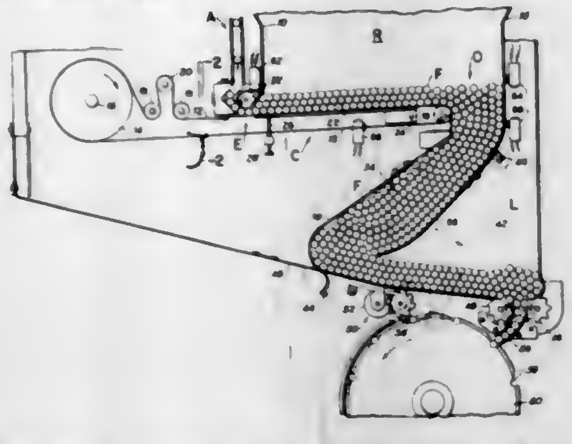
3,305,128
TRANSFER MECHANISMS FOR CIGARETTE MACHINERY

George Dearsley, Richmond, Va., assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed Jan. 20, 1966, Ser. No. 521,776
12 Claims. (Cl. 221—9)

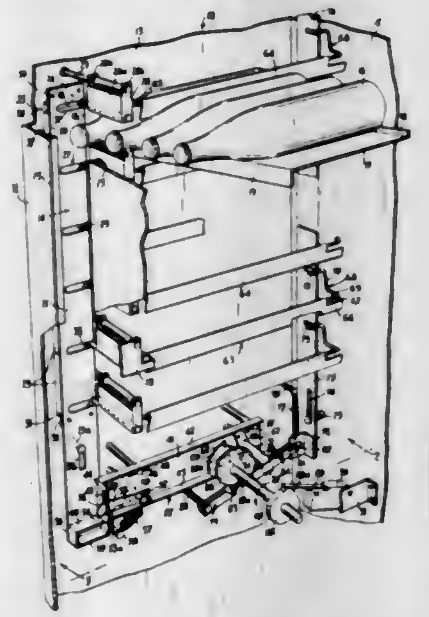
1. In a cigarette manufacturing apparatus having at least one source of supply of rod-like articles and transport and delivery means for the same, a reservoir comprising at least front and rear substantially vertical walls, a restrictive entrance opening adjacent said rear wall for the positive oriented entry of only one rod at a time, and an exit opening spaced from said entrance communicating with means for the receipt of said articles,

and a bottom wall bridging the distance between said entrance and said exit comprising a conveyor for carrying and moving said rod from said entrance to said exit, said restrictive opening, said conveyor and said vertical walls cooperating to stack a plurality of layers of rods within said reservoir on the blocking of said exit.



3,305,129
RELEASE MECHANISM FOR SLOPE SHELF VENDER, INCLUDING A LOCK-OUT ASSEMBLY

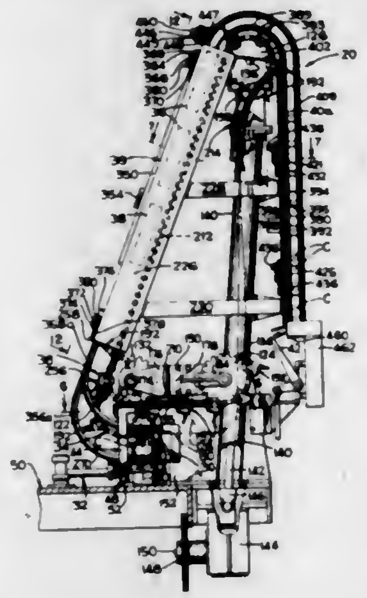
Allan B. Blayney, Deseronto, Ontario, Canada, assignor to Ideal Venders (Division of Eddy Match Company, Limited), Montreal, Quebec, Canada
Filed May 10, 1965, Ser. No. 454,366
Claims priority, application Canada, Mar. 30, 1965, 926,950
10 Claims. (Cl. 221—125)



1. A bottle storage and dispensing apparatus comprising a housing having a front wall, a rear wall and two side walls, a vertically elongated slot in the front wall of the housing adjacent one side wall thereof, a plurality of shelves fixed in the housing and inclined downwardly to said one side wall whereby bottles laying on said shelves may roll to a position aligned with said slot, a plurality of gates pivotally mounted in said housing in a vertical plane and aligned with the vertical slot, one gate associated with each of said shelves and opening outwardly and upwardly therefrom towards the vertical slot, a pin projecting laterally from the lower free edge of each gate in the plane thereof, an elongated locking bar mounted vertically in the housing adjacent the vertical slot and the plurality of gates, said locking bar being slidable longitudinally and having a plurality of horizontal slots each positioned to receive the pin of an adjacent gate, means on said locking bar movable on acceptance of one pin in one slot to exclude entry of any other of said pins in the remaining slots, and means operable to release the locking bar for upward movement by the opening of said one gate and to lock said bar on closure of said one gate when said bar is returned to its original position of rest, said means comprising a horizontally slidable bolt overlapping a shoulder on said locking bar in the position of rest of the bar and retractable laterally away therefrom, a drive shaft, cam means mounted on the drive shaft and on the bolt adapted to move the bolt laterally on rotation of said shaft, spring means urging the bolt laterally in the direction of the shoulder of the locking bar, and a latch operable to engage the bolt when laterally retracted away from the shoulder, said latch being adapted to disengage the bolt when the locking bar is raised whereby the bolt moves laterally to bear against the shoulder of the locking bar in its raised position and moves further laterally over the shoulder of the locking bar when the bar is lowered to its original position of rest.

3,305,130
CARTON ACCUMULATING APPARATUS

Donald S. Meek, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed Jan. 17, 1966, Ser. No. 521,161
9 Claims. (Cl. 221—175)



1. A carton accumulating apparatus comprising indexing means for indexing cartons into a loading station, carton supporting and guiding means including a portion disposed in position to receive the cartons at said loading station and including a vertically extending accumulating guideway, stripping means for removing the cartons from said indexing means and placing the cartons on said supporting and guiding means, convyeing means for receiving and advancing the cartons along said supporting and guiding means and releasing the cartons for immediate gravitation into said vertical accumulating guideway, and means for removing the lowermost carton from said accumulating guideway.

3,305,131
METHOD OF AND APPARATUS FOR FEEDING SPIRAL ARTICLES

Gary G. Seaman, Omaha, Nebr., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed May 6, 1965, Ser. No. 453,603
5 Claims. (Cl. 221—278)

1. Apparatus for feeding a foremost spiral article from a supply of such articles stacked in an end-to-end relationship with some of the articles being entangled, said apparatus comprising:

a passageway open at both ends for receiving the spiral articles in a close, confining relationship;

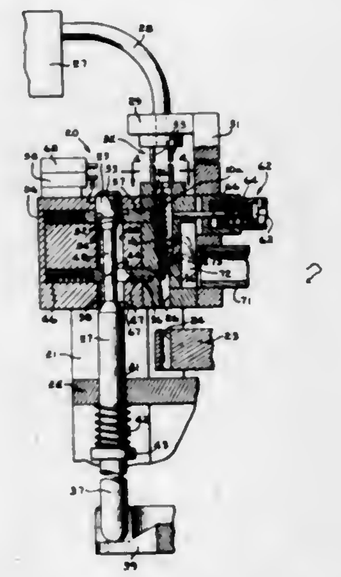
means for advancing at least the foremost and next to foremost articles from the supply thereof into said passageway;

means actuatable to arrest the advance of the foremost article with the foremost and next to foremost articles positioned within said passageway;

means actuatable to grip the next to foremost article in an area removed from the area of possible entanglement of the articles when the foremost article is in its arrested position;

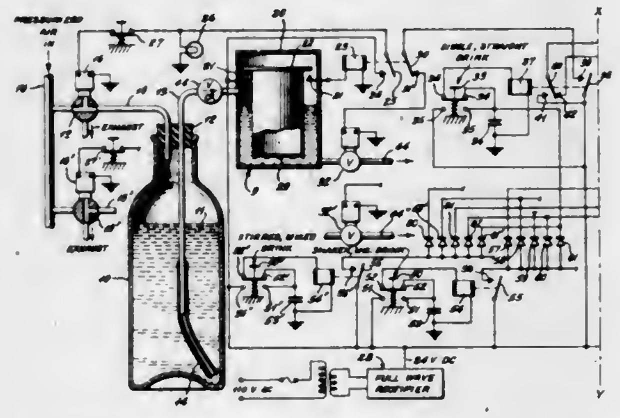
sequentially operable means for first, actuating said arresting means to terminate the advance of the foremost article; second, actuating said gripping means to grip the next to foremost article; and third, deactuating said arresting means to allow feeding of the foremost article from said passageway when such article is disentangled with the next to foremost article; and

means for supplying a gas stream within said passageway and directed tangentially against an arrested foremost article and, when said arresting means is deactuated and said gripping means is actuated, to cause rotative movement and linear advancement of the foremost article in a direction away from the next to foremost article in the event the two were entangled, whereby the foremost article is disengaged from the next to foremost article and fed from said passageway.



3,305,132
AUTOMATIC DEVICE FOR DISPENSING BEVERAGES

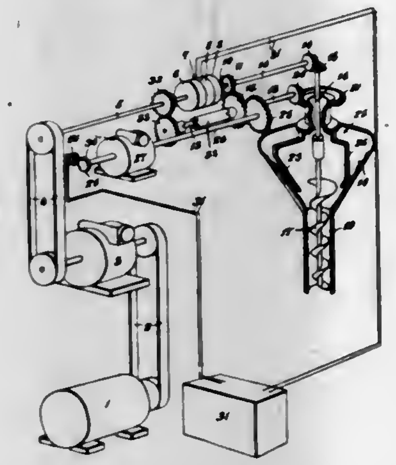
Felix Victor Coja, 1523 22nd St. NW., Washington, D.C. 20037
Filed Mar. 30, 1965, Ser. No. 444,080
16 Claims. (Cl. 222—66)



1. A beverage dispensing machine comprising: a plurality of liquid containers having inputs and outputs, a source of pneumatic pressure connected to each said input, separate delivery conduits connected to receive liquid from the output of each said container and deliver same to a single stationary receptacle, a plurality of electronic beverage selecting means, means responsive to said beverage selecting means for controlling the flow of selected liquids to said receptacle, a fixedly mounted mixer means responsive to the termination of said liquid flow to energize said mixer and thereby cause said liquids to be mixed in said receptacle at rate of speed appropriately selected for the beverage being mixed.

3,305,133
VARIABLE POSITION CONTROL SYSTEM FOR MATERIAL FEEDING APPARATUS AND THE LIKE

Denis Ronald Parker, Walmley, Sutton Coldfield, England, assignor to Southhall & Smith Limited, Birmingham, England, a British company
Filed Oct. 20, 1964, Ser. No. 405,178
Claims priority, application Great Britain, Oct. 23, 1963, 41,722/63
8 Claims. (Cl. 222—70)



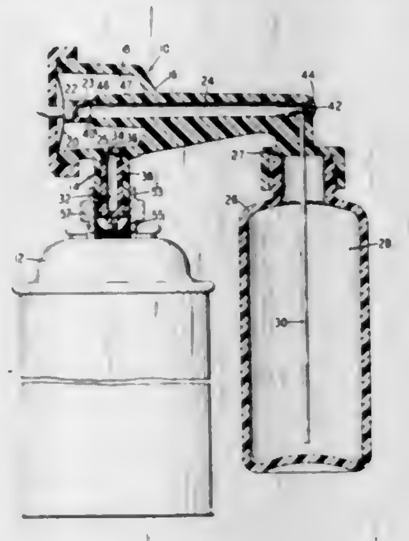
8. Apparatus for controllably varying the rotational position of a member comprising drive means, an electrically operated clutch having its input connected to said drive means, an output shaft drive connected between said clutch and said member, cam means, means including adjustable variable speed means providing a direct drive connection between said cam means and said output shaft to continuously rotate said cam means from a predetermined starting position whenever said clutch is set in clutch-engaged position to rotate said output shaft, the rate of rotation of said cam means relative to said output shaft being dependent on the ratio of adjustment of said variable speed means, brake means for arresting rotation of said output shaft and of said cam means through the drive connection provided by said variable speed means, an electrical circuit for controlling actuation of said clutch and said brake means, and switch means forming a part of said circuit and being actuatable by rotation of said cam means through an angle determined by the ratio adjustment of said variable speed means to disengage said clutch and to actuate said brake means for simultaneously arresting rotation of said output shaft and said cam means to thereby provide an angular displacement of said output shaft dependent upon the ratio adjustment of said variable speed means.

3,305,134
AUTOMATIC SPRAY DEVICE

Robert Carmichael and Godfrey H. Klun, Parma, Ohio, assignors to Union Carbide Corporation, a corporation of New York
Filed Oct. 21, 1965, Ser. No. 499,929
6 Claims. (Cl. 222—70)

6. An automatic spray device for use with a pressure pack containing a propellant comprising, in combination: a body member defining a chamber therein and having an

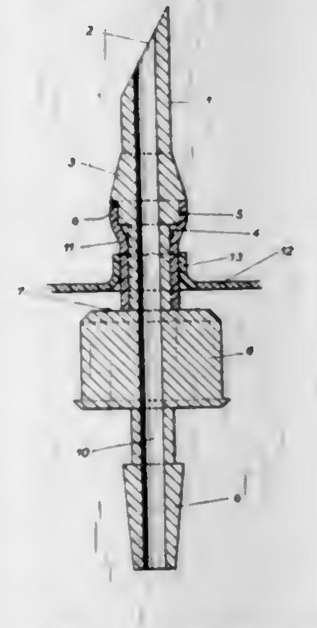
entrance aperture and an exit orifice; a first valve mechanism connected to said pressure pack and being in communication with said entrance aperture for regulating the flow of propellant from said pressure pack and into said chamber; means for adjusting said first valve mechanism in order to permit a given rate of propellant to flow into said chamber; a diaphragm mounted within said chamber and adapted to move from one position to another in response to the build-up of a predetermined pressure within said chamber; and a second valve means connected to said diaphragm and being in direct communication with said exit orifice, said second valve means closing said orifice but being adapted in conjunction with the movement of said diaphragm to open said orifice when said predetermined pressure is reached within said chamber.



3,305,135

PERFORATED PLUG SUITABLE FOR TAKING LIQUIDS FROM A CONTAINER WITH FLEXIBLE WALLS

Lucien Georges Lemoine, 10 Square Biard,
Montmorency, France
Filed Aug. 23, 1965, Ser. No. 481,486
Claims priority, application France, Aug. 31, 1964,
986,682, Patent 1,414,863
2 Claims. (Cl. 222—90)

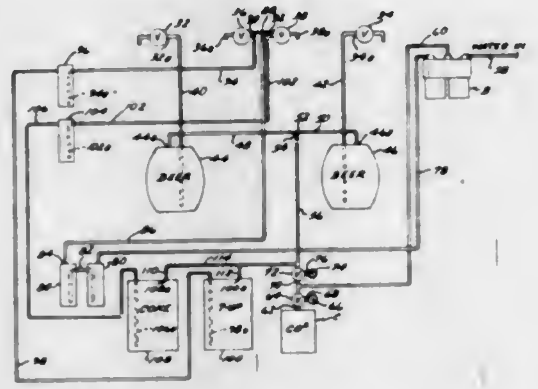


1. In a dispensing plug for dispensing liquid from a container having flexible walls, a tubular terminal plastic member having an axial bore and being terminally bevelled, said tubular member having at its end opposite said bevel a frusto-conical extension which is flaringly tapered larger away from said bevel, a cylindrical section having an enlarged shoulder terminal portion having a radial face which abuts the larger terminal face of said frusto-conical extension and has a diameter somewhat smaller than the diameter of said larger terminal face of said frusto-conical extension, a cylindrical boss mounted coaxially with said cylindrical section and having a flat radial face which abuts the radial face of said section remote from said shoulder portion, said boss and said section and its shoulder portion having a continuous axial bore which communicates with the axial bore in said tubular terminal member and its extension, and a flexible rubber sleeve mounted surrounding said cylindrical section and its enlarged terminal shoulder portion and extending between the larger terminal face of said frusto-conical extension and the radial face of said boss which abuts the radial face of said section remote from said shoulder, said sleeve providing a tight seal with the flexible wall of said container when said plug has penetrated said wall of said container, and the portion of said sleeve over said shoulder portion opposing the withdrawal of said plug after its insertion through the wall of said container.

3,305,136

BEER AND SOFT DRINK DISPENSING ASSEMBLY

Robert E. Harris, Long Beach, Calif., assignor to Better Beverages, Incorporated, Long Beach, Calif., a corporation of California
Filed Sept. 24, 1965, Ser. No. 490,027
4 Claims. (Cl. 222—129.1)



1. In a refrigerated cabinet that includes at least one keg of beer provided with an inlet and outlet and means for dispensing beer from said key, in combination:

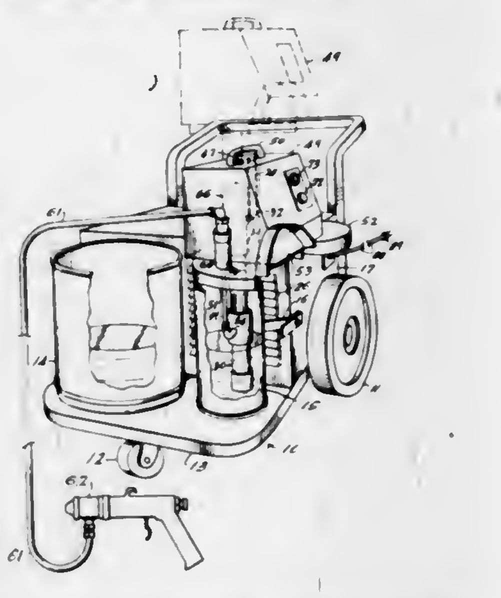
(a) a single cylinder of carbon dioxide under pressure;
(b) first and second pressure reducing means for reducing the pressure of carbon dioxide as it discharges from said cylinder to first and second pressures, which first pressure is substantially greater than said second pressure;
(c) first means for carbonating domestic water when said water is subjected to said carbon dioxide at said first pressure;
(d) first conduit means for supplying said carbon dioxide from said first pressure reducing means to said first means at said first pressure;
(e) at least one container provided with an inlet and an outlet that holds a soft drink liquid concentrate;
(f) second conduit means for supplying carbon dioxide from said second pressure reducing means to said inlets in said keg and container at said second pressure;
(g) third conduit means connected to said outlet in said keg for discharging beer therefrom;
(h) a normally closed valve on said third conduit means for controlling the flow of beer therefrom;
(i) a carbonated water cooler disposed in said cabinet;
(j) fourth conduit means for delivering carbonated water from said first means to said carbonated water cooler;

(k) a soft drink concentrate cooler disposed in said cabinet provided with an inlet and an outlet;
(l) fifth conduit means extending from said outlet in said concentrate container to said inlet in said concentrate cooler;
(m) a normally closed mixing valve having first and second inlets and a single outlet;
(n) sixth conduit means extending from said outlet of said concentrate cooler to said first inlet of said mixing valve for conducting refrigerated concentrate thereto; and
(o) seventh conduit means extending from said outlet of said carbonated water cooler to said second inlet of said mixing valve for conducting refrigerated carbonated water thereto.

3,305,137

PAINT SUPPLY APPARATUS

William D. Gauthier, Sylvania Township, Lucas County, and Joseph H. McNinch, Jr., Toledo, Ohio, assignors to The De Vilbiss Company, Toledo, Ohio, a corporation of Ohio
Filed Feb. 18, 1965, Ser. No. 433,749
9 Claims. (Cl. 222—136)



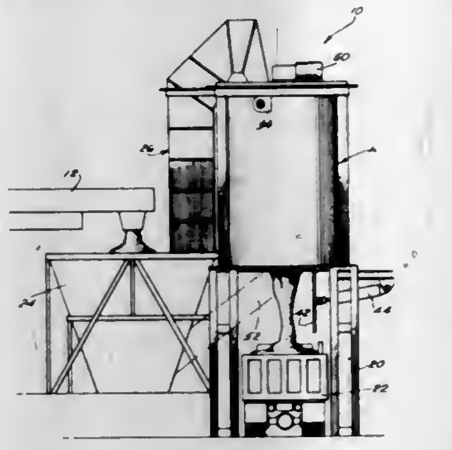
9. A unit for supplying coating material under pressure to an airless spray gun, said unit comprising a platform having a first portion to receive a coating material container and a second portion to receive a solvent container, a pump unit having a drive motor and a coating material pump therebelow for supplying coating material and solvent from their respective containers to a spray gun, means for supporting said pump unit in a first position in which said coating material pump is effective to be received in said coating material container and for supporting said pump unit in a second position in which said coating material pump is received in said solvent container, and means for enabling said pump unit to be moved from one of the positions to the other.

3,305,138

APPARATUS FOR STORING AND DISTRIBUTING HEATED ASPHALT MIX

Charles C. Plumb, 114 Ocean Ave.,
Cranston, R.I. 02910
Filed July 20, 1964, Ser. No. 383,838
4 Claims. (Cl. 222—146)

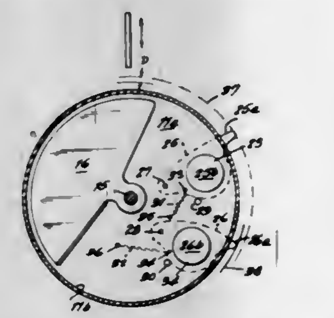
4. In apparatus for receiving and temporarily storing a hot mix material for use as a paving surface and that must be dispensed in a relatively fluid state, a storage container including an outer housing and an inner housing within said outer housing and spaced therefrom to define an annular passageway therewith, means for introducing the hot mix into said inner housing, means for circulating a heated gaseous medium in said annular passageway for maintaining the temperature in said inner housing at a level sufficient to retain said hot mix in said inner housing in a fluid state for pouring, means located exteriorly of said container for receiving said hot mix from an external source, and means communicating with said receiving means for transferring said hot mix therefrom to the inner housing of said container.



3,305,139

POWDERED MATERIAL DISPENSER

Wallace W. Ward, 28 Long Hill Lane, Chatham Township,
Chatham, N.J. 07928
Filed Apr. 12, 1965, Ser. No. 447,193
6 Claims. (Cl. 222—168.5)



1. Dispenser means for powdered ingredients comprising rotatably mounted cannister means for housing a powdered material; rotatably mounted shield means positioned within and adjacent the floor of said cannister means; said cannister means having a plurality of compartments formed in the floor of said cannister means and projecting downwardly from said floor; a plurality of rotatably mounted door means each biased to seal an associated compartment; pivotally mounted, adjustable stop latch means arranged to open certain ones of said compartments upon rotation of said cannister means to dispense predetermined amounts of the powdered material; means abutting said shield means to position said shield above said compartments when said door means are opened and to remove said shield means from said compartments when the powdered material has been dispensed; said door means each having a projecting ear arranged to abut said stop latch means; the ears of said door means being of differing lengths.

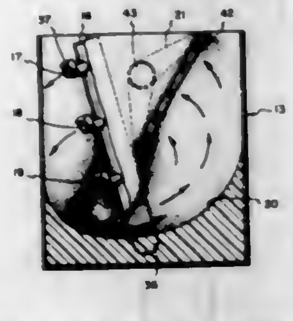
3,305,140

DRY CHIP SPRAYER

Claris E. Johnson, % 3701 Washington, Blvd.,
Ogden, Utah 84403
Filed Mar. 26, 1965, Ser. No. 443,006
10 Claims. (Cl. 222—193)

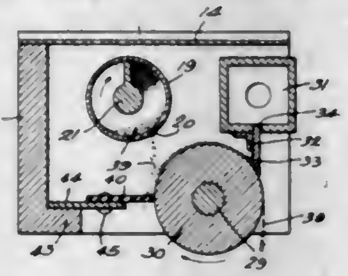
1. A dry chip sprayer, comprising a source of air under pressure; a closed tank adapted to hold chips to be sprayed and having an inlet port means thereto, discharge port means therefrom and a curved interior surface having a low point in the path of air entering the tank through

the inlet port means, said surface curving upwardly from said low point to said discharge port means; conduit means interconnecting said source of air and the inlet port means of the tank whereby air from said source is directed into the tank; a distributing nozzle, a hose interconnecting the outlet port means from the tank and the distributing nozzle, whereby air and entrained particles leaving the tank pass through the nozzle; and means for diverting a selected amount of the air passing through the conduit means to atmosphere, including a trigger positioned adjacent the nozzle, a valve in the conduit, said valve having an exhaust port therefrom and a baffle therein directing flow of air toward said exhaust port, a slide adapted to cover said exhaust port, means biasing the slide to a position uncovering said exhaust port, and a cable having one of its ends connected to said slide and its other end fixed to the trigger, whereby pivoting of said trigger pulls the cable to move the slide into position blocking said exhaust port.



3,305,141
POWDER DISPENSER FOR PRINTED WEBS

George V. Wheeler, 315 E. Pier St.,
Port Washington, Wis. 53074
Filed May 5, 1965, Ser. No. 453,427
1 Claim. (Cl. 222—193)

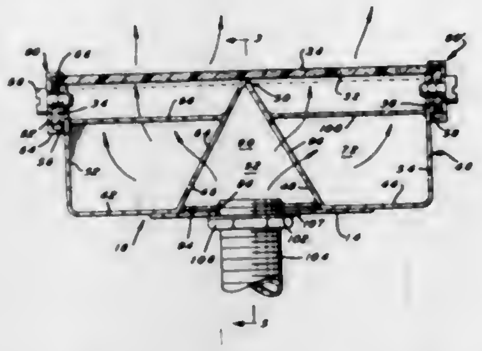


A device for depositing comminuted matter on a printed web including a hopper, a horizontal tube communicating therewith having a plurality of spaced aligned apertures adjacent the lowermost portion of said tube for egress of said matter, a screw coextensive with said tube disposed therein for distribution of said matter to said apertures, a cylinder lower than said apertures and rotatable thereunder, an air chamber mounted for limited rotative adjustment and having a longitudinal slot for egress of compressed air therefrom, and a doctor blade fixed to said air chamber adjacent to and parallel to said slot associated with said cylinder.

3,305,142
AERATING APPARATUS

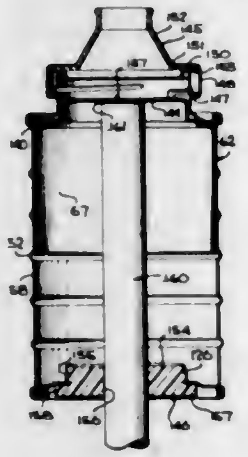
Lawrence G. Caldwell, Glen Head, Nassau County, N.Y., assignor to The Ducon Company, Inc., Mineola, N.Y., a corporation of New York
Filed May 21, 1965, Ser. No. 457,709
6 Claims. (Cl. 222—195)

1. An aerating device for use in an enclosure for aerating pulverant material within the enclosure comprising a layer of rigid, seamless, chemically inert, polymeric material having a smooth fluidizing surface, said material being permeable to gases, a trough-like housing substantially coextensive in size with said polymeric material and coupled to peripheral portions of said material, conduit means for introducing a gas into said housing at a location substantially equidistant from the ends of said housing, baffle means in said housing to prevent delivery of gas from said conduit directly toward the plane of said polymeric material, a generally triangular shaped plenum chamber substantially equidistant from the ends of said housing, the base of said chamber being substantially parallel to the plane of said polymeric material, said base being coupled to a threaded nipple, said housing having a chamber having its top defined by said polymeric material, and means providing communication between said last-mentioned chamber and said plenum chamber.



3,305,143
CONTAINER FOR USE IN MANNED SPACE SHIPS

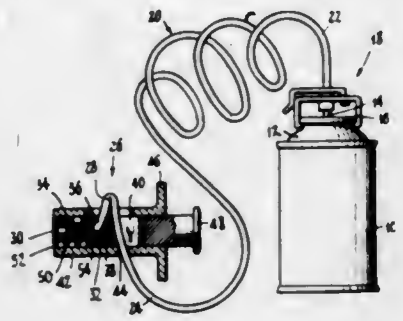
Henry E. Frankenberg, Berwyn, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Nov. 6, 1962, Ser. No. 235,796
24 Claims. (Cl. 222—386.5)



1. A container for use in manned spacecraft comprising a body including an upper openable end and a lower openable end, an imperforate one-piece closure at each of said upper and lower openable ends, said closures having axes in parallel alignment with the body axis, first securing means removably securing said closures to said ends, a reciprocal expelling plate in said body adjacent said lower openable end and adapted for movement toward said upper openable end, an apertured adaptor, second securing means removably securing said apertured adaptor to said lower openable end upon the removal of said closure from said lower openable end, said first and second securing means including common complementary portions, said apertured adaptor including an axial aperture for permitting access into said body, and a plunger for introduction into said body through said axial aperture whereby the expelling plate may be moved toward said upper openable end to dispense contents therefrom when the upper openable end is opened.

3,305,144
DISPENSER FOR DISPOSABLE AEROSOL CONTAINER, WITH VALVED CONDUIT FOR REMOTE DISCHARGE OF ITS CONTENTS

Steven W. Beres, Trumbull, and William R. O'Donnell, Fairfield, Conn., assignors to Valve Corporation of America, Bridgeport, Conn., a corporation of Delaware
Filed Mar. 1, 1965, Ser. No. 435,965
8 Claims. (Cl. 222—402.13)

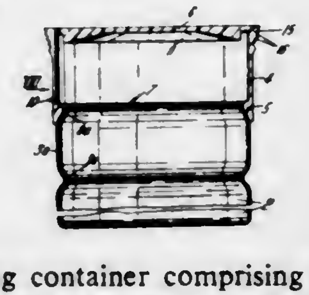


1. A disposable gas-pressure type liquid aerosol dispenser comprising, in combination:

(a) a disposable pressurized container having, carried in its mouth, a hollow axially movable and depressible valve stem through which the aerosol substance is discharged, said valve stem having an outer, discharge end,
(b) a flexible, elongate tubular discharge line,
(c) an attachable adapter including a press-fit connector for attaching one end of said tubular line to the discharge end of the valve stem to receive the liquid aerosol substance therefrom,
(d) said adapter including a manually operable and releasable operator means acting on said connector, for depressing said connector and consequently said valve stem and for releasably maintaining the same depressed without requiring constant manual force, and
(e) a manually operable pressure shut-off valve device attached to the other end of the discharge line and having a discharge orifice, by which aerosol substance in the discharge line under pressure may be dispensed when the valve stem of the container is maintained in depressed position.

3,305,145
DISPENSING CONTAINERS

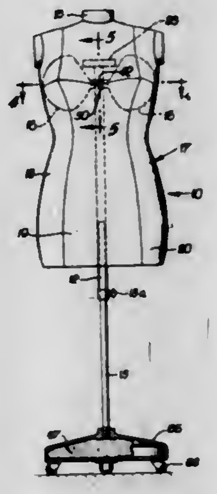
Charles Norman Tebbutt, Southall, Middlesex, England, assignor to The Metal Box Company Limited, London, England, a British company
Filed Mar. 4, 1965, Ser. No. 437,155
Claims priority, application Great Britain, Mar. 11, 1964, 10,353/64
7 Claims. (Cl. 222—522)



1. A dispensing container comprising an open-topped container body and a cap; the container body including a sidewall portion and an end wall portion and being devoid of a neck of a substantially reduced cross-section as compared to the cross-section of the container body; said cap including an end wall portion and a depending skirt portion; said skirt portion having a dispensing opening therein; said container sidewall portion including at least first means dsposed about the periphery thereof for engaging a cooperating second means on said cap skirt portion and constraining said cap in axial movement adjacent container body sidewalls between a body closing and a product dispensing position thereof wherein the body closing and product dispensing positions of the cap are determined by said first and second means; which means include a projection extending laterally from the interior of the cap and annular recesses formed in the container body to locate and retain the cap in said positions thereof.

3,305,146
ADJUSTABLE DRESS FORM

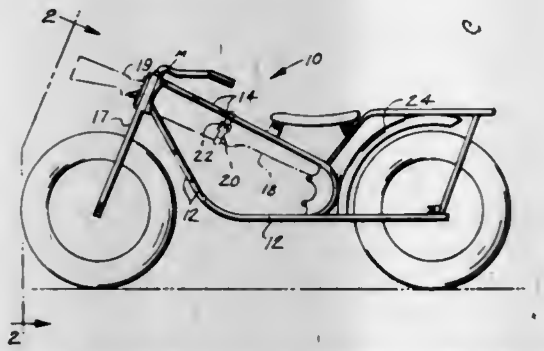
Teri York Cram, 11551 Dona Evita Drive,
Studio City, Calif. 91604
Filed Apr. 12, 1965, Ser. No. 447,449
12 Claims. (Cl. 223—68)



1. In a dress form, a resiliently compressible plastic body having the form of an upright human female torso, the body including compressible busts, a substantially non-stretchable jacket fitting over said body in compressing relation thereto, and support means to retain the jacket portion inwardly between said busts while allowing adjustable displacement of the busts relative to the body extent inwardly of the busts, said support means including a relatively rigid support member extending transversely to project interiorly of said busts for inward retention thereby.

3,305,147
SPORTSMAN'S SCABBARD CARRYING FRAME

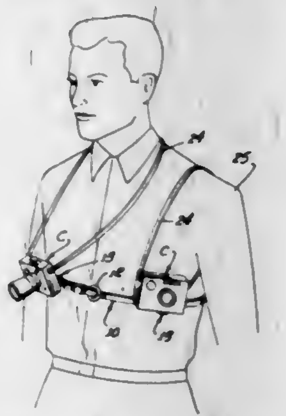
Carl M. Freman, 965 Clarane Ave.,
Stockton, Calif. 95207
Filed Nov. 13, 1964, Ser. No. 411,020
1 Claim. (Cl. 224—1)



A sportsman's vehicle with a scabbard-carrying frame comprising, in combination, a pair of parallel, generally L-shaped lower members having a horizontal portion extending rearwardly and an oblique portion extending forwardly and upwardly, said lower members providing support means for the wheels, fork, engine, and other equipment, a pair of J-shaped parallel upper members having the hooked end of each member attached to the horizontal portion of a respective lower member, the body portions of the J-shaped members extending forwardly, upwardly and providing angular tie-on support means for the rifle scabbard or other container, a pair of parallel vertically spaced cross bars rigid with the fork adjacent its upper end, the cross bars being attached in fork-pivoting relation to the upper forward ends of said pairs of members, said cross bars and fork providing tunnel and entrance means for the scabbard, an open-ended box-like member rigidly connected to the upper ends of said L and J-shaped members and pivotably connected to said cross bars, said box-like member having a frontal cross sectional periphery less than the tunnel area provided by the cross bars and fork, said scabbard being received centrally between the cross bars to provide clearance for the scabbard while pivoting the fork to steer the vehicle, and the stock of the rifle received within the scabbard extending forwardly of the fork to provide easy access and maximum protection in case the vehicle should fall.

3,305,148
INSTRUMENT HARNESS

Arthur E. Zimmerman, 2232 Ave. M-4 W. Lancaster, Calif. 93534
Filed July 13, 1965, Ser. No. 471,646
2 Claims. (Cl. 224—5)

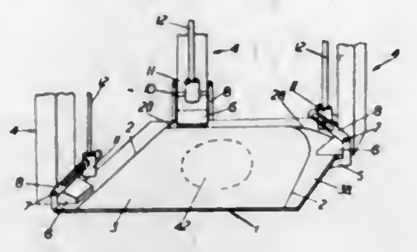


1. A harness assembly for carrying cameras, and the like, on the human body, including:
- a belt to be worn around the torso of the wearer;
- an adjustable buckle means attached to said belt for securing said belt around the said torso;
- at least one tab looped around said belt to be shiftable along said belt;
- a flexible strap secured to a camera to be supported by the harness assembly, said strap having a free end portion;
- a snap-fastener intercoupling said tab and said free end portion of said flexible strap for releasably mounting the camera on the belt; and
- a neck band secured to the camera and extending around the upper torso of the wearer so as to suspend the camera therefrom.

3,305,149
METHOD OF AND APPARATUS FOR BREAKING OUT SHEETS OF GLASS

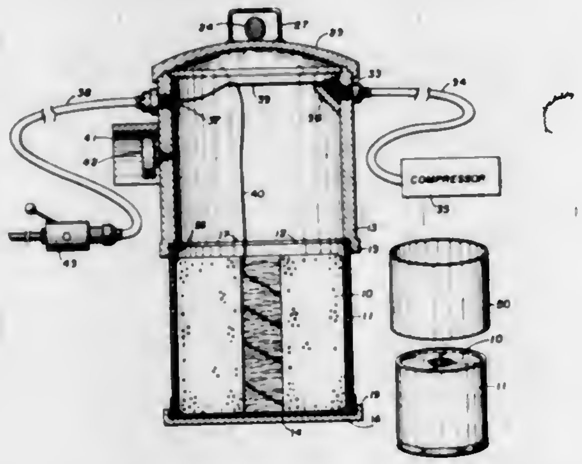
Malcolm Walter Lacey, Tividale, Tipton, England, assignor to Triplex Safety Glass Company Limited, London, England, a corporation of Great Britain
Filed Aug. 19, 1965, Ser. No. 480,961
Claims priority, application Great Britain, Aug. 19, 1964, 33,935/64
5 Claims. (Cl. 225—2)

5. A method of breaking out a sheet of glass comprising the steps of presenting a supported sheet of glass, which is scored within at least two edges to delineate the sheet to be produced therefrom, between the co-operating jaws of a plurality of clamps, there being a clamp for gripping each of the marginal portions to be broken out, each clamp being arranged for arcuate movement transversely of the plane of the glass, clamping the marginal areas of the sheet between the said co-operating jaws and moving the clamps in a predetermined sequence and each in a similar arcuate movement about an axis outside the surface of the glass remote from the scoreline and approximately opposite to the scoreline, to open the scoreline and break out the glass sheet progressively along the scoreline.



3,305,150
PACKAGE ADAPTIVE FIBER ROVING DISPENSER

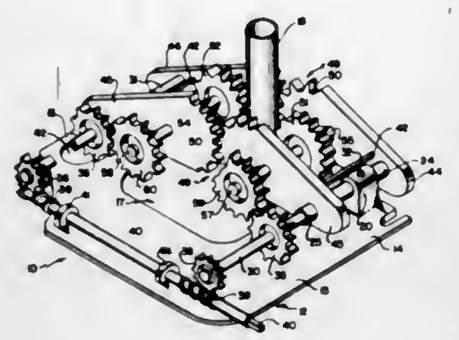
Frank W. Campbell and Dale A. Lehr, Dallas, Tex., assignors to The Archlithic Co., a corporation of Texas
Filed Dec. 11, 1964, Ser. No. 417,669
2 Claims. (Cl. 226—97)



1. In a dispensing system for fiber rovings, the combination which comprises:
- (a) a rigid fiberboard shipping container for a spool of said rovings having a cylindrical body with a closed bottom and an open circular mouth,
- (b) an upfacing tray having a short vertical sideband thereon circumferentially to engage the bottom of said container for lateral support thereof,
- (c) an elongated cylinder having an open bottom with a flange for telescopically engaging said mouth of said container,
- (d) a top closure means for said cylinder,
- (e) clamping means including a pair of arms extending upwardly from said tray and an eccentric bar extending between said arms across the top of said top closure for engaging said top closure upon rotation of said bar to force said top closure onto said cylinder, said cylinder onto the mouth of said container in a sealed relationship, and said container into said tray,
- (f) coupling means for introducing compressed air into said cylinder near the top thereof,
- (g) a resilient guide extending to the axis of said cylinder adjacent to said top, and
- (h) a flow line connection adjacent the top of said cylinder opposite said coupling means for entrainment of rovings from said spool after passing over said resilient guide.

3,305,151
DRILL ROD MOVER

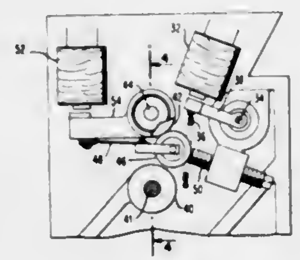
Warner L. Cryderman, 13992 117th Ave., North Surrey, British Columbia, Canada
Filed Mar. 11, 1964, Ser. No. 351,060
3 Claims. (Cl. 226—181)



1. A drill rod mover comprising a base having a drill rod passing recess, two pairs of elongated spaced supporting arms, means for swingably connecting said pairs of arms at one of the ends of the latter to the base and on opposite sides of the recess therein for swinging movement in a plane parallel to the longitudinal axis of the drill rod into and out of convergent attitude over said recess, a peripherally toothed roller mounted for rotation between the arms of each of the pairs adjacent the free ends thereof for engagement with the drill rod, drive means for counterrotating the rollers, and a gear rack having gear teeth formed at the free end of each arm, the gear racks on one pair of arms being adapted to intermesh with the gear racks on the other pair of arms when the rollers are positioned in engagement with the rod, so as to prevent independent angular movement of said pairs of arms when the rollers are rotated.

3,305,152
TAPE DRIVE MECHANISM

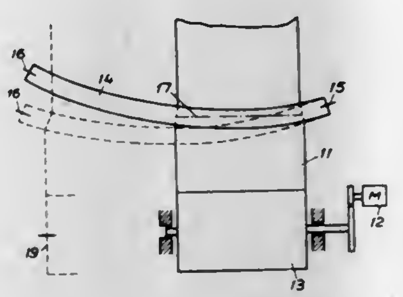
Ben Diaz, Sewell, N.J., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 26, 1965, Ser. No. 435,527
4 Claims. (Cl. 226—188)



1. A tape drive mechanism comprising a capstan for receiving said tape, said capstan including a shaft element extending therefrom, a pressure roller disposed to selectively disengage said tape or to engage said tape in rolling engagement with said capstan, a continuously rotatable drive roller, a capstan roller connected to said shaft element, an intermediate friction roller in continuous engagement with said capstan roller and normally disengaging said continuously rotatable drive roller, a relay for actuating said pressure roller to press said tape into rolling engagement with said capstan, and a second relay for actuating said friction roller to engage said continuously rotatable drive roller to drive said capstan to move said tape after said pressure roller is actuated.

3,305,153
FLATTENING OUT DEVICE FOR WEBS, SUCH AS PAPER WEBS

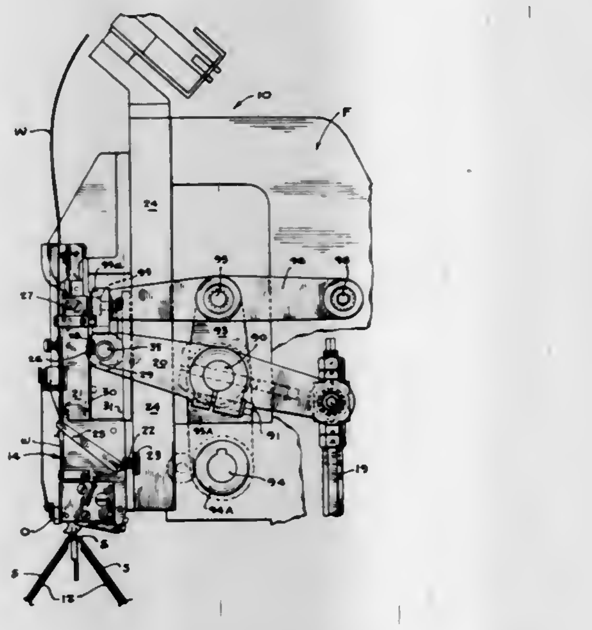
Olof Keding, Herbert Eriksson, and Hugo Frödin, Vasteras, Sweden, assignors to Allmanna Svenska, Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed Feb. 16, 1965, Ser. No. 433,142
Claims priority, application Sweden, Mar. 3, 1964, 2,563/64
3 Claims. (Cl. 226—192)



1. Device for flattening out webs for coiling, comprising means for feeding the web in a path, a curved elongated flattening member engaging said web at a point in said path, said web bending around the flattening member, the web lying in web planes on either side of the flattening member, holding devices for said flattening member on both sides of the web, and means mounting at least one of said devices for adjustment along the web path independently of the other device in order to adjust the angle between the chord of the line of contact between the member and the web and the direction of movement of the contacted web.

3,305,154
SIGNATURE MACHINE

William B. McCain, Hinsdale, and Raymond I. Bulka, Oak Lawn, Ill., assignors to Chicago Machinery Laboratory, Inc., Chicago, Ill., a corporation of Illinois
Filed May 24, 1965, Ser. No. 458,329
5 Claims. (Cl. 227—90)

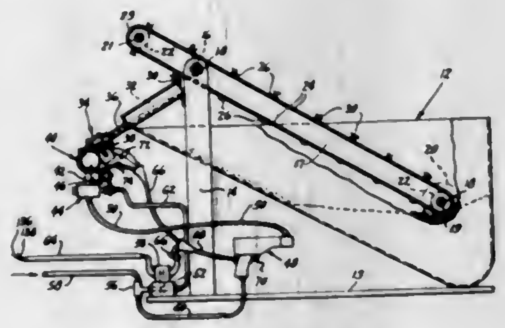


1. In a machine wherein a wire staple is employed to join signatures or the like, a stitcher head through which a wire is advanced to a staple forming and staple driving position, a reciprocal carrier means, gripping means carried by said carrier means for gripping and feeding the

wire during an advancing stroke of said carrier means, biasing means for biasing said gripping means to grip said wire, a reciprocable slide means movable to a first position to present a slot therein in alignment with said gripping means whereby said gripping means is biased to clamp said wire and movable to a second position to present another slot therein in alignment with said gripping means whereby said gripping means is retained in an open position against the bias of said biasing means, actuating means for reciprocating said carrier means and said slide means to cause clamping and feeding of said wire on an advancing stroke and to hold open said gripping means relative to said wire on a return stroke, and selectively operable means for preventing movement of said slide means to said first position and thereby preventing feeding of the wire during an advancing stroke of said slide means and said carrier means.

3,305,155
ESCAPEMENT MECHANISM

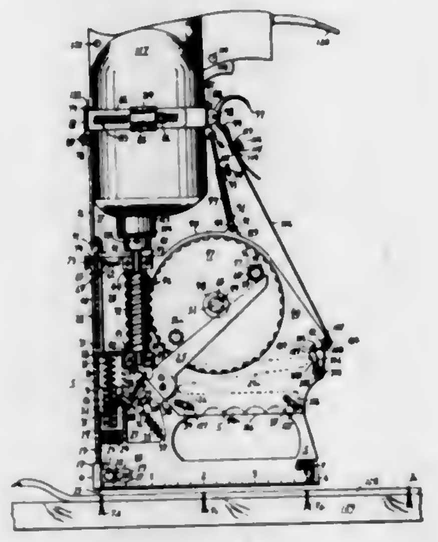
Clyde P. Willis, Conover, N.C. 28613
Filed Mar. 25, 1965, Ser. No. 442,712
4 Claims. (Cl. 227—116)



1. A nail driving apparatus comprising:
a hopper for containing nails;
a conveyor belt, one end of which extends into the hopper;
magnetic cleats on the belt for attracting nails;
means for driving the belt;
a conduit at the other end of the belt for receiving nails;
means adjacent the other end of the belt for removing nails from the magnetic cleats for deposit in the nail receiving conduit;
an escapement mechanism connected to the nail receiving conduit, said mechanism including
  a fixed plate having a slot for guiding the nails,
  a movable plate adjacent the fixed plate, said movable plate having an irregular slot in selective alignment with the slot in the fixed plate to selectively permit nails individually to pass through the escapement mechanism, and means for actuating the escapement mechanism;
a nail inverter connected to the escapement mechanism;
a nail driving gun;
a conduit interconnecting the nail inverter and the nail driving gun;
a valve in the conduit, for selectively connecting a source of compressed air to the conduit;
means for connecting the valve to the source of compressed air;
means for controlling the valve;
means connecting the gun to the source of compressed air;
a trigger on the gun for actuating the gun including an electrical switch;
circuit means including the switch for actuating the belt driving means, the valve controlling means, and the escapement mechanism actuating means when the switch is closed to advance the conveyor belt, pass a nail through escapement mechanism and propel the nail to the gun.

3,305,156
FASTENER MACHINES

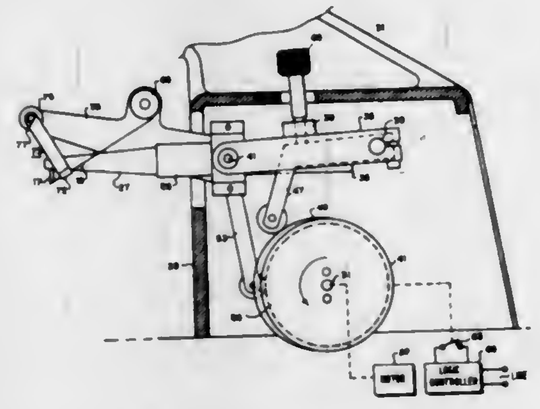
Joseph Anthony Khan, 910½ Sunset Ave., Asbury Park, N.J. 07712
Filed Feb. 1, 1965, Ser. No. 429,366
5 Claims. (Cl. 227—132)



1. A power device for actuating a fastener driver having a compression spring driven fastener driving ram and a pivoted arm for releasably compressing the spring, said device comprising a frame, a worm gear rotatably mounted in the frame and having a crank pin eccentrically mounted thereon to intermittently engage the pivoted arm, a worm engaging said worm gear, and an electric motor mounted on said frame for driving said worm.

3,305,157
ULTRASONIC WIRE BONDER

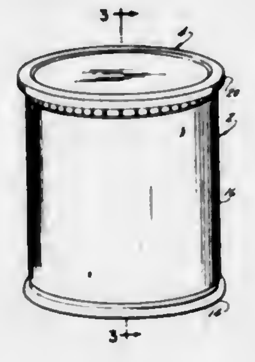
Matheus D. Pennings, 580 Arastradero Road, Palo Alto, Calif. 94306
Filed Dec. 20, 1965, Ser. No. 515,005
7 Claims. (Cl. 228—1)



1. A welding machine comprising:
a frame;
means pivotally supporting said frame about a rotational axis which is substantially parallel to a reference plane;
a welder arm having a welding tip attached thereto;
means pivotally supporting said welder arm on said frame for rotation about an axis which is disposed intermediate the welding tip and the rotational axis of said frame and which is substantially parallel thereto;
first actuating means for said frame including a first rotatable cam and first lifter arm communicating therewith;
second actuating means for said welder arm including a second rotatable cam and a second lifter arm communicating therewith;
said second lifter arm being supported for rotation about the rotational axis of the welder arm and being connected to said welder arm, and said second lifter arm communicating with said second rotatable cam along a portion of the periphery thereof which is substantially normal to the reference plane, whereby rotation of the welder arm may be substantially eliminated as the frame is rotated about its rotational axis; and
means to rotate the first and second cams for actuating said first and second lifter arms in a selected order to alter the angle of the welding tip with respect to the reference plane while the welding tip is at a selected position with respect to the reference plane.

3,305,158
MULTIAXIALLY ORIENTED CONTAINERS

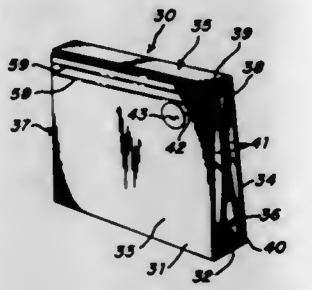
Carlton L. Whiteford, New Canaan, Conn., assignor to Plastic Can Corporation, Springdale, Conn., a corporation of Connecticut
Original application Oct. 1, 1963, Ser. No. 313,071, now Patent No. 3,184,524, dated May 18, 1965. Divided and this application July 13, 1964, Ser. No. 382,207
16 Claims. (Cl. 229—2.5)



1. A hollow article of orientable synthetic plastic material having a bottom wall portion providing a relatively flat bottom surface for standing the article on a substantially planar supporting surface, sidewall portion and upper edge portion extending about the upper end of said side wall portion, said bottom and sidewall portions having the molecules of the synthetic plastic material thereof substantially multiaxially oriented, said upper edge portion having the molecules of its synthetic plastic material relatively unoriented, said hollow article having been formed by clamping of an edge portion of a preform of orientable synthetic plastic material, displacing the center portion of said preform relative to the clamped edge portion so as to effect the formation of the side wall portion while simultaneously applying compressive pressure to the center portion of said preform to effect lateral flow of the plastic material in the center portion thereof and provide synthetic plastic material in the wall portion being formed by the displacement of the center portion and the subsequent application of pressure to the interior of the preform after displacement of the center portion to expand the preform and produce peripheral orientation, said displacement and pressure applications being conducted below the molten temperature and at orientation temperatures of said synthetic plastic material to effect molecular orientation during said displacement, lateral flow and expansion of said preform material.

3,305,159
OPENING MEANS FOR A CONTAINER

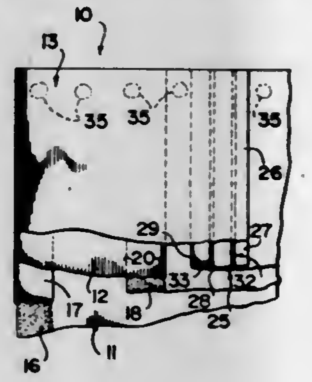
William C. Becker, Henrico County, Ronald M. Ayer, Chesterfield County, and Richard M. Watts, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Oct. 11, 1963, Ser. No. 315,591
7 Claims. (Cl. 229—16)



1. A rectangular container comprising a single relatively rigid board means folded to define a pair of opposed side wall means of said container and opposed top and bottom wall means of said container, said wall means having inner surface means and peripheral edge means, and a single relatively flexible sheet means disposed in said container and having edge means of a facing surface means secured to said inner surface means at said peripheral edge means of said side, top and bottom wall means and transversely across said inner surface means of said bottom wall means to define a pair of separate sealed closed product-containing pouch means respectively disposed inside said container and having the interiors thereof defined between said inner surface means of said side wall means and said facing surface means of said sheet means, said board means having openable means in each side wall means for permitting the product in the respective pouch means to be dispensed through the respective side wall means out of the exterior of said container.

3,305,160
EXPANDABLE BAG LINER

John F. Lehman, Glenside, Pa., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Apr. 16, 1965, Ser. No. 448,597
14 Claims. (Cl. 229—55)

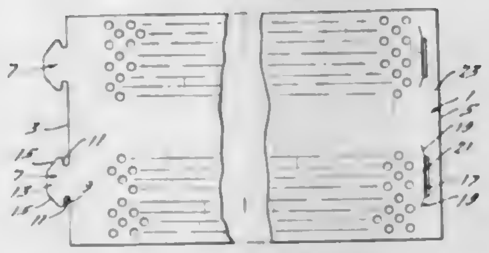


1. A tubular member particularly adapted for being fabricated into a container which is capable of expanding under the influence of a packaged product comprising a tubular body, a longitudinal fold formed from the material of said body, said longitudinal fold being defined by first and second opposing generally parallel overlying freely unfoldable longitudinal portions movable relative to each other whereby internal pressure applied to a container fabricated from said tube causes unfolding of said overfolded portions from the generally parallel relationship toward a coplanar position to thus increase the body and prevent rupture thereof, and means for limiting the

unfolding of said longitudinal fold and preventing complete unfolding of said first and second overlying freely unfoldable longitudinal portions toward a coplanar relationship.

3,305,161
TUBULAR FILTER SHELL

Robert J. Offer, Racine, Wis., assignor to Walker Manufacturing Company, a corporation of Delaware
Filed Sept. 29, 1964, Ser. No. 400,139
1 Claim. (Cl. 229—93)

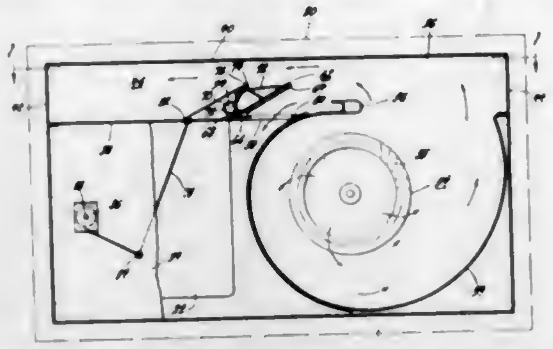


A locking means for interconnecting opposite ends of a flexible piece of material that is wrapped from a flattened sheet into a tubular form comprising a tab projecting from one end of the material and having a neck portion and a head portion, the head portion being wider than the neck portion and defining a pair of shoulders, the head portion being tapered at its forward end, the other end of the material having a slot, said slot having a transverse length less than the maximum width of the head portion but greater than the width across the tapered portion and greater than the width of the neck, said slot having a width approximately twice as large as the thickness of the flexible material, said flexible material having slits extending from the two corners of said slot remote from said tab and extending at angles to the transverse length of the slot and forming a resilient flap including the entire length of one side of the slot, said tab extending through said slot, said flap lying in substantially the same plane as said slot when said flexible piece of material is in its flattened sheet form with the shoulders engaged on the surface of said flexible material opposite to the side of entry of the tab upon wrapping of said sheet into its tubular form, insertion of said tab through said slot being effective to resiliently displace said flap through cantilever deflection about its ends adjacent the ends of said slits, said cantilever deflection of resilient flap being effective to hold said tab in place so that the neck extends through said slot, said neck being shorter in length than the spacing of said slot from the end of the material whereby the two ends of the material overlap when said tab is inserted to hold the flexible piece of material against transverse displacement in one direction.

3,305,162
REFRIGERATING APPARATUS

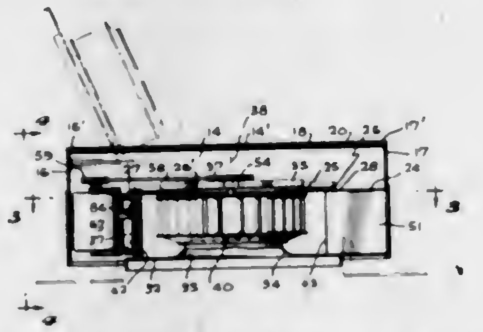
Walter B. Hall, Jr., Bellbrook, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 27, 1964, Ser. No. 385,283
3 Claims. (Cl. 230—47)

1. An air flow arrangement including a partition wall having a first opening therein, a centrifugal fan having its axis substantially parallel to and substantially spaced from said wall and having its periphery adjacent said opening and positioned to discharge air through said opening and preponderantly in one direction generally parallel to said wall, said wall having a second opening spaced from said first opening and aligned with said first opening, a door for closing said second opening, and selective means for lifting the edge of the door nearest said first opening away from said partition wall to present the door as a scoop extending into the path of the air discharged from the periphery of said centrifugal fan to cause some of the air discharged to flow through said second opening, said selective means also including means for lifting the edge of the door farthest from said first opening away from said partition wall so as to present the door as a venturi creating deflector for drawing in air through said second opening.



3,305,163
VENTILATOR

Albert S. Sheppard, Granada Hills, Calif., assignor to The G. C. Breidert Co., San Fernando, Calif., a corporation of California
Filed Apr. 12, 1965, Ser. No. 447,341
7 Claims. (Cl. 230—117)



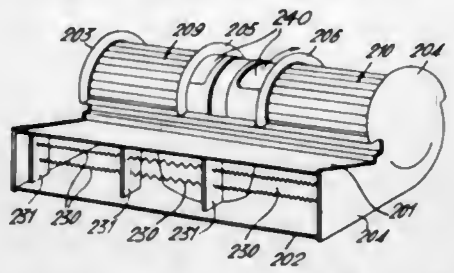
1. In a motorized ventilator adapted to be mounted on the roof of a building or the like, a main housing including side walls and a top wall, said top wall being openable, a blower wheel housing mounted within said main housing and having an inlet and an outlet in open communication with the exterior of the main housing, said main and blower housings cooperating to define a head space inside the main housing above the blower housing, said blower wheel housing having an upper wall with a trapdoor therein, a blower wheel journaled on said trapdoor for rotation within the blower wheel housing, said trapdoor being movable to position the blower wheel exteriorly of the blower wheel housing and expose the interior thereof, an electric motor mounted laterally of said blower wheel in said main housing exteriorly of said blower wheel housing, and drive means extending through said head space connecting said motor and said blower wheel.

3,305,164
FANS OF THE CROSS-FLOW TYPE

Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application Nov. 17, 1959, Ser. No. 853,596. Divided and this application Aug. 17, 1965, Ser. No. 480,321
16 Claims. (Cl. 230—117)

1. A fan unit comprising an electric motor having a drive shaft, a pair of bladed cylindrical rotors one on either side of the motor and each defining an interior space and having one end mounted on the corresponding end of the motor drive shaft, and guide means comprising a pair of spaced guide walls secured to the motor and extending generally parallel to the axis of the rotors over the whole length between the extreme ends of the rotors and a pair of outer end walls joining the guide walls and in substantial alignment with said extreme ends, said guide

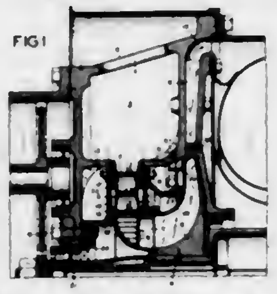
walls forming a frame for said fan unit, said walls defining an entry region for each rotor at one side of the unit and a common discharge region at another side of the unit, said guide means co-operating with the rotors, whereby on operation of the motor to induce a flow of air from the entry region of each rotor through the path of the rotating blades thereof to said interior space and thence again through the path of the rotating blades to the common discharge region.



3,305,165
ELASTIC FLUID COMPRESSOR

Alfred T. Gregory, West Hills, Huntington, N.Y. 11743
Filed Dec. 20, 1963, Ser. No. 332,158
7 Claims. (Cl. 230—124)

FIG1

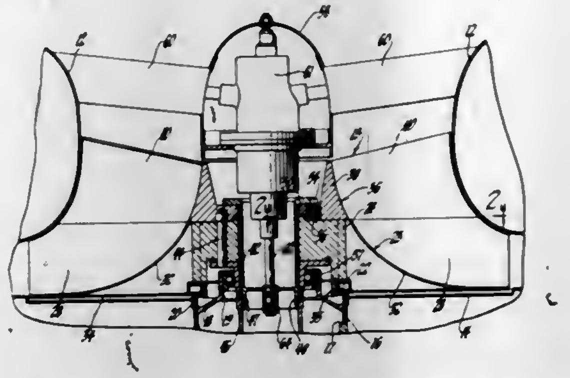


1. A compressor for compressing air and other elastic fluids, comprising an annular plenum chamber for receiving inlet air to the compressor, an annular row of transonic rotor blades communicating with said plenum chamber and arranged to receive and discharge air in a radially inward direction, an annular row of stator blades inwardly of said rotor blades, said stator blades having inner ends which extend radially inward so that the air leaves the stator blades with a velocity having substantially no tangential component, wall means defining an annular passage downstream of said stator blades and having an inner portion which is curved so that its downstream end lies generally axially and the air is directed axially as it leaves said passage, and centrifugal impeller means arranged to receive the air in an axial direction and discharge and compress the air in a radially outward direction.

3,305,166
CENTRIFUGAL COMPRESSOR

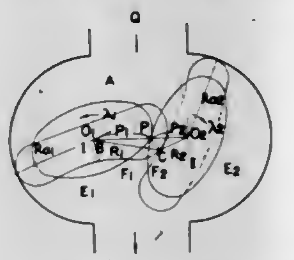
William S. Castle, Speedway, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 18, 1965, Ser. No. 433,670
4 Claims. (Cl. 230—127)

1. A centrifugal compressor comprising an annular shroud,
- an impeller rotatably mounted in said shroud, said impeller comprising a hub,
- a plurality of circumferentially spaced blades individually mounted on said hub and extending radially therefrom,
- a pair of radially arcuate webs extending circumferentially in opposite directions from each blade and extending radially from the leading edge of said blade adjacent said hub to the trailing edge of said blade adjacent its tip, said webs abutting webs extending from adjacent blades to form walls between said blade and said adjacent blades,
- an inducer rotatably mounted in said shroud coaxially with said impeller,
- said inducer comprising a disc with radially extending blades,
- means to drivingly connect said inducer to said impeller, and
- an annular flow channel through said compressor, said flow channel being bounded by an outer wall comprising said shroud and an inner wall comprising the outer surfaces of said disc and said walls.



3,305,167
TOOTH PROFILES OF NON-PULSATING, ROTARY PISTONS WHICH ARE NON-CIRCULAR, SPUR-TOOTHED AND PROVIDED WITH NON-CIRCULAR GEARS

Shigeyoshi Nagata, 3559 3-chome, Mejiro-machi, Toshima-ku, Tokyo, Japan
Filed Aug. 26, 1965, Ser. No. 482,711
Claims priority, application Japan, Dec. 4, 1964, 39/67,923
5 Claims. (Cl. 230—141)



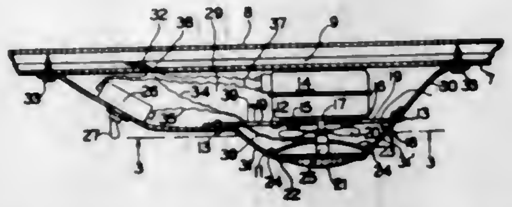
1. A rotary fluid machine comprising at least a pair of rotatable non-circular rotors in continuous rolling engagement with each other; and a gear train interconnecting said rotors for conjoint rotation and including a pair of intermeshing gears having a common tooth pitch rolling curve satisfying the conditon of equality between the product of the radius, to the point of tangency, of one gear and a function of the maximum radius of the rotor driven by the other gear, and the product of the radius, to the point of tangency, of such other gear and a function of the maximum radius of the rotor driven by such one gear.

3,305,168
COOLING FAN AND LIGHTING FIXTURE FOR AUTOMOBILE CEILINGS

Tiberiu Justinian Ramniceanu, 18 4th St., South River, N.J. 08882
Filed Apr. 23, 1965, Ser. No. 450,309
4 Claims. (Cl. 230—249.5)

1. An air-cooling and lighting fixture mountable onto a car top in an automobile provided with a top light switch and wiring therefor, comprising, in combination,
- a perforated housing mountable on the inside of a car top, and made of sheet material and having a downwardly-bulged interior portion,
- a perforated plate peripherally mounted within and across said bulged portion in a manner so as to define an upper chamber and a lower chamber in said housing,

a fan motor mounted on a portion of said plate in a manner such that its shaft protrudes downwardly through said plate and its fan is disposed in said lower chamber,

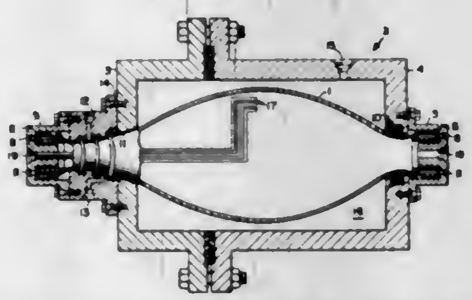


a light mounted in said lower portion of said housing and designed to illuminate the interior of a car, and

suitable wiring connecting said motor and suitable wiring connecting said light, said motor and light wiring being connectable to a car's top light switch wiring.

3,305,169
HIGH SPEED HOLLOW DRUM

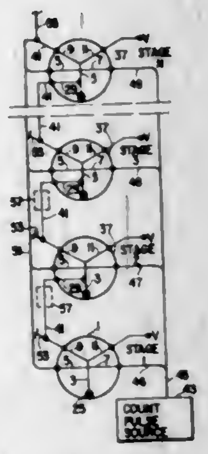
Harold Silver, Riverton, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Sept. 11, 1964, Ser. No. 395,969
8 Claims. (Cl. 233—1)



1. An externally pressurized high speed drum assembly comprising a hollow drum, a sealed housing completely surrounding said drum, hydrostatic bearing means arranged between each end of said drum and said housing and mounting said drum for rotation in said housing, means for rotating said drum, and a high pressure inlet formed in said housing for receiving pressurized fluid in the housing to support said drum externally in opposition to internal forces acting outwardly on said drum.

3,305,170
PURE FLUID OPERATED COUNTER

Saul N. Zilberfarb, Philadelphia, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 1, 1964, Ser. No. 356,560
8 Claims. (Cl. 235—201)

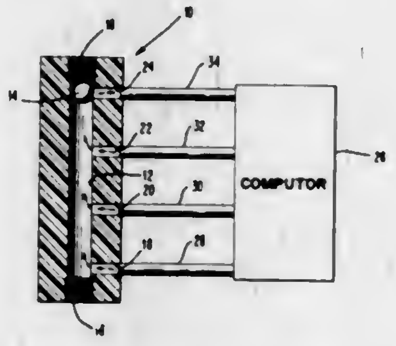


1. A modulo-N counter for counting fluid pulses, said counter comprising a series of fluid amplifiers each having an interaction chamber, at least one output channel, and at least one control nozzle for emitting control fluid for deflecting a power jet injected into said chamber into said output channel; means including a plurality of signal delay means for delaying fluid signals applied thereto for a predetermined interval of time, each said means being responsive to power jet flow in said one output channel of one amplifier of said series for injecting a power jet into the interaction chamber of the next amplifier in said series; means for periodically producing fluid pulses each occurring for an interval of time less than said predetermined interval, said means producing said fluid pulses at intervals of time greater than said predetermined interval; and means for simultaneously applying each of said fluid pulses to said control nozzles of each of said amplifiers.

6. A fluid amplifier having an internal chamber configuration whereby an injected power stream of predetermined velocity creates forces within said chamber to hold said power stream in a first or a second stable path of flow, power nozzle means for normally injecting a power stream into said chamber at less than said predetermined velocity, said power nozzle means including a velocity control nozzle located in the region where the power stream is injected into said chamber, said velocity control nozzle being directed at substantially right angles to the power stream and being responsive to a fluid control signal applied thereto for restricting the effective orifice size of the power nozzle means and thereby for accelerating said power stream to a velocity greater than said predetermined velocity whereby said power stream assumes one of said stable paths of flow.

3,305,171
VISUAL FLUID READ-OUT DEVICE

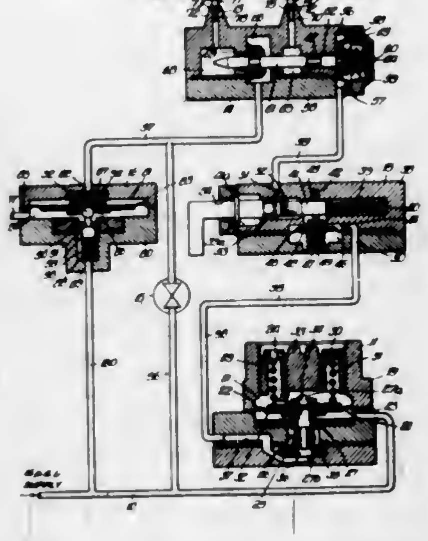
Edwin R. Phillips, Rosemont, and Marvin Jacoby, Fort Washington, Pa., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed July 26, 1965, Ser. No. 474,562
9 Claims. (Cl. 235—201)



1. A visual read-out device for fluid operated apparatus, such as computers and the like, comprising:
(A) a housing member having an elongated tubular passageway formed therein;
(B) a fluid responsive member forming a fluid tight fit within said passageway and having a transverse dimension slightly less than that of the passageway with freedom to move from one end thereof to the other end; and
(C) at least three cross-bores formed through the wall of said housing and intersecting said passageway at spaced points along its length, means applying a relatively low fluid pressure to a selected one of said cross-bores and simultaneously a relatively high fluid pressure to the remainder of said cross-bores whereby said fluid responsive member may be moved by pressure differences across it to said selected one of said cross-bores thereby to provide a visual read-out by the position of said fluid responsive member in said passageway.

3,305,172
TEMPERATURE CONTROL DEVICE

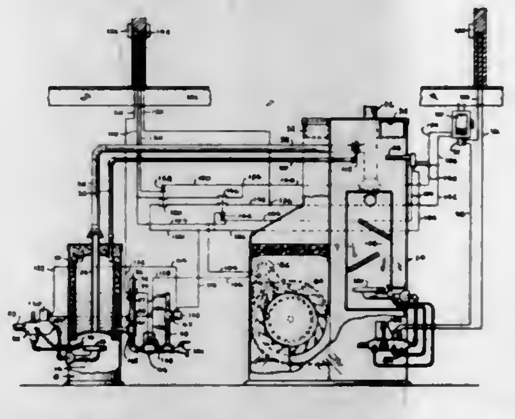
Ernest J. Duchek, Prospect Heights, and Allan B. Johnson, Mount Prospect, Ill., assignors to The Powers Regulator Company, Skokie, Ill., a corporation of Illinois
Filed Sept. 4, 1964, Ser. No. 394,435
10 Claims. (Cl. 236—1)



2. A pneumatic temperature control device comprising: a source for supplying pneumatic fluid at a first predetermined pressure to initiate a first temperature control mode and at a second predetermined pressure to initiate a second temperature control mode; means for communicating pressure signals from said temperature control device; a first temperature responsive valve adapted when activated to effect a control pressure signal which is a function of ambient temperature and indicative of said first temperature control mode; a second temperature responsive valve adapted when activated to effect a control pressure signal which is a function of temperature and indicative of said second temperature control mode; a change-over valve provided with motor means, said change-over valve being adapted to selectively activate said first temperature responsive valve when said motor means are not subject to supply line pressure, said change-over valve being further adapted to selectively activate said second temperature responsive valve when said motor means are subject to supply pressure; pressure sensitive switching means connected to said source; and override means connecting said pressure sensitive switching means and said change-over valve motor means and adapted to provide communication therebetween when not actuated, said switching means being responsive to said second predetermined supply pressure to communicate the same to said change-over valve motor means through said override means and responsive to said first predetermined supply pressure to vent said override means and said change-over valve motor means, said override means being adapted to be externally actuated to block communication of supply pressure to said change-over valve motor means and simultaneously vent said motor means, said override means being further adapted to return to non-actuated condition when vented by said switching means, said override means comprising a casing providing a bore venting at one end, an inlet port, a pressure chamber providing communication between said inlet port and said bore and an outlet port communicating with said bore, a selector rod disposed in said bore and limited in longitudinal travel therein, said selector rod having a notch portion, a latch member adapted to engage said notch portion, a latch diaphragm affixed to said latch member, first spring means biasing said selector rod into a non-actuated position blocking communication of said inlet and outlet ports with said venting end of said bore and enabling communication between said inlet and outlet ports, second spring means disposed and biasing said latch diaphragm and latch member into a position preventing engagement of said latch member in said notch portion of said selector rod, said latch diaphragm being responsive to the presence of supply pressure in said pressure chamber to condition said latch member to engage said notch portion of said selector rod when said notch portion is aligned with said latch member by the application of external actuating force to said selector rod, said selector rod being adapted when said notch portion is engaged by said latch member to block communication between said inlet port and said outlet port and to enable communication between said outlet port and said venting end of said bore.

3,305,173
HUMIDIFIER APPARATUS AND CONTROL

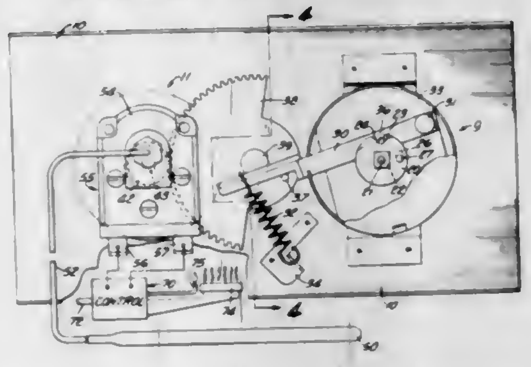
Ralph H. Beckman, 817 E. 41st Ave., Gary, Ind. 46409
Filed Feb. 26, 1965, Ser. No. 435,548
2 Claims. (Cl. 236—9)



1. A humidifier system and control for supplying water vapor to a forced air furnace system wherein said furnace system includes ductwork for distribution of air, a thermostat circuit controlling the heating means of said furnace, and a thermostat circuit controlling motor means for impelling said air through said ductwork, comprising:
- a reservoir for containing water having a water inlet, a water vapor outlet, heating means, and a control for said heating means,
- a first and second valve in said water inlet of said reservoir, said valves having electromotive means for operating said valves;
- means for sensing an upper limit of water level in said reservoir;
- means for sensing a lower limit of water level in said reservoir;
- a humidity sensing means comprising a circuit connecting said thermostat circuit controlling said motor means for impelling said air, including,
  - said control for said heating means of said reservoir,
  - said means for sensing said lower limit of water level therein, and
  - said electromotive means of said second valve in said water inlet;
- said humidity sensing means comprising a second circuit, including,
  - said means for sensing said upper limit of water level in said reservoir, and
  - said electromotive means of said first valve in said water inlet;
- an electromotive means in said thermostat circuit of said motor means;
- an auxiliary circuit connecting said humidistat sensing means circuit and said thermostat circuit of said motor means whereby said thermostat of said circuit is bypassed;
- a switch means in said auxiliary circuit operable by said electromotive means in said thermostat circuit of said motor means;

- a second humidity sensing means comprising a circuit connecting said auxiliary circuit;
- an electromotive means in said second humidity sensing means circuit; and
- a second switch means in said auxiliary circuit operable by said electromotive means in said second humidity sensing means circuit.

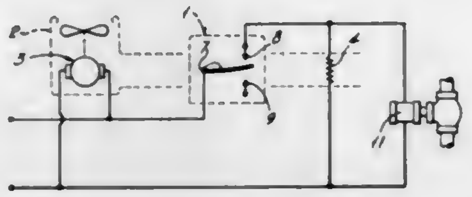
3,305,174
TIMER ADJUSTED OVEN TEMPERATURE CONTROL
Ralph E. Solomon, Playa Del Rey, Calif., assignor, by mesne assignments, to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed Feb. 5, 1964, Ser. No. 342,629
2 Claims. (Cl. 236—46)



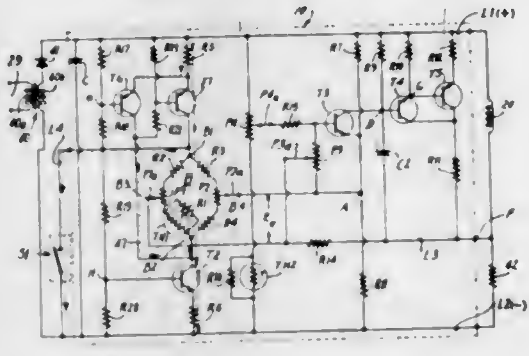
1. In an oven control system, a manually adjustable temperature control including a gear rotatable to adjust the operating point of a switch; a timer having a shaft manually settable to different time settings including a disc rotated by said timer having a notch formed on its periphery; means interconnecting said temperature control and said timer for automatically moving said temperature control from one temperature setting to a predetermined setting after a period of time measured by said timer has elasped, said means including a lever having one end pivotally attached to a fixed support, a pin carried by said lever located to cooperate with the periphery of said disc and said notch, a spring urging said lever in a direction to hold said pin in engagement with the periphery of said disc, a sector gear mounted to rotate said temperature control gear, a pin carried by said sector gear, the opposite end of said lever being spaced from said sector gear pin when said lever pin engages the periphery of said disc whereby said sector gear is unaffected by said timer and may be set at a desired temperature such as said one temperature, and said lever opposite end being urged by said spring into engagement with said sector gear pin when said disc has rotated so that said lever pin is moved into said notch, whereby said sector gear is moved to a position corresponding to said predetermined temperature.

3,305,175
APPARATUS FOR CONTROLLING THE TEMPERATURE OF A FLUID MEDIUM
Gerard F. M. Champel, 30 Rue de Sarda, Montelimar, France
Filed Aug. 14, 1964, Ser. No. 389,552
Claims priority, application France, Dec. 20, 1963, 958,038, Patent 1,377,875
1 Claim. (Cl. 236—68)

Apparatus for controlling the temperature of a fluid medium by control of electrical energy from a power source comprising a heat sensitive, movable contact member electrically connected with said power source and movable in response to temperature changes in said fluid medium between a closed and open contact position with respect to a relatively fixed contact member, housing means for enclosing said contact members and formed with opening means therein permitting said fluid medium externally of said housing means to be moved therethrough around said contact members, electric fan means externally of said housing means for maintaining a continuous flow of said fluid medium around said contact members, through said housing means, electric heating means disposed in the flow path of said fluid medium into said housing means and connected between said contact members and said power source for heating said fluid medium flowing into said housing means when said contact members are in a selected one of said above mentioned positions, and heat supply control means including electrical load means connected between said contact members and said power source for activating said heat supply control when said contact members are in one of said above mentioned positions.

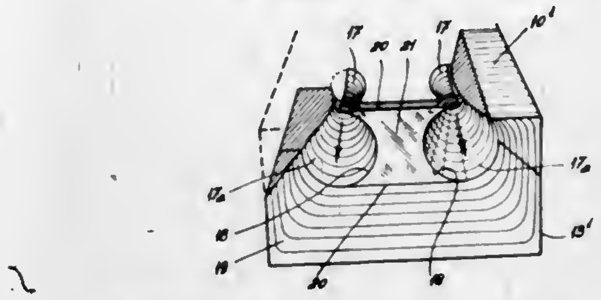


3,305,176
THERMOSTATIC UNIT
Paul H. Brace, Rockford, Ill., assignor to Barber-Colman Company, Rockford, Ill., a corporation of Illinois
Filed Aug. 13, 1964, Ser. No. 389,388
14 Claims. (Cl. 236—74)



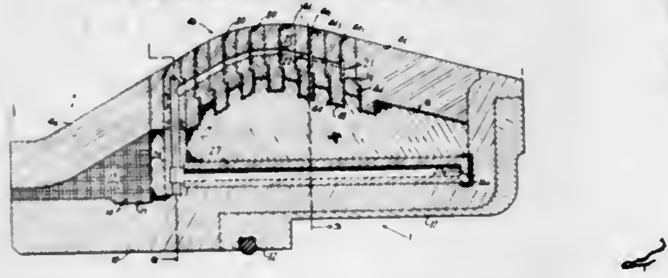
1. In a self-contained and conventionally sized proportional thermostatic unit, the combination comprising a single housing in which there are disposed first and second conductors adapted to receive a D.C. supply voltage therebetween; means for producing a D.C. error voltage which in polarity and magnitude corresponds to the sense and extent of the difference between an actual temperature and a desired temperature; said producing means including a resistance bridge having input terminals connected to said conductors and including a set point potentiometer manually adjustable to represent the desired temperature, a manually set calibrate potentiometer, and a temperature-sensitive resistance which in value represents the actual temperature, a transistor amplifier connected to receive an operating voltage from said conductors and connected to receive said error voltage as an input signal; said amplifier having means including a range adjust potentiometer for affording adjustments in the gain of the amplifier, means including a zero adjust potentiometer for adjusting the output produced by the amplifier when the error voltage is zero, and an output circuit with means for producing D.C. current flow therethrough which varies according to the polarity and magnitude of said error signal; such current being adapted to control an electrical power operator remotely located from the thermostatic unit.

3,305,177
DISCHARGE NOZZLE FOR JET AIRCRAFT
Etienne Fage, Marly-le-Roi, France, assignor to Sud-Aviation, Societe Nationale de Constructions Aeronautiques, Paris, France, a company of France
Filed July 2, 1964, Ser. No. 379,851
Claims priority, application France, July 12, 1963, 941,313
4 Claims. (Cl. 239—127.3)



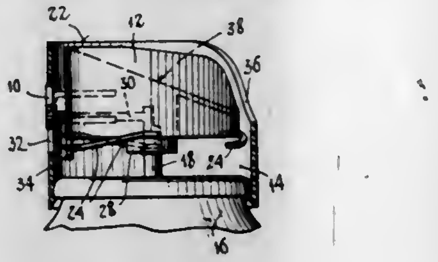
1. A discharge nozzle assembly for jet aircraft comprising in combination: an elongated cowling having a substantially constant cross-section along its axis; a plurality of convergent-divergent engine nozzles of like size and design located in side-by-side relationship within said cowling in substantial parallelism with the axes thereof and having outlet orifices arranged forwardly of the trailing edge of said cowling in a common place substantially normal to said axis; a connecting member having a surface forming an extension of at least a portion of the diverging surface of said engine nozzles and connecting them to the trailing edge of said cowling; said surface of said connecting member connecting a curve which envelopes the outlet orifices of said engine nozzles to said trailing edge of said cowling, said connecting member including nozzle interconnecting means connecting together portions of the walls of said nozzles located within said curve.

3,305,178
COOLING TECHNIQUES FOR HIGH TEMPERATURE ENGINES AND OTHER COMPONENTS
Arthur R. Parilla, 34 Crestview Road, Mountain Lakes, N.J. 07046
Filed Apr. 12, 1963, Ser. No. 273,265
19 Claims. (Cl. 239—132.5)



1. An integrally cooled rocket engine nozzle capable of operation in the presence of a rocket exhaust stream having temperatures substantially exceeding the melting points of refractory metals comprising a fusible coolant configured to permit expansion and having a vapor pressure characteristic for facilitating liquid film formation at rocket operating temperatures, a nozzle liner bounding said exhaust stream and dimensioned to function as a heat exchanger for forming a fused film of coolant on the exhaust stream side of said liner, said liner including a stack of annular rings, a casing enclosing said liner with a storage space therebetween for storing said fuzible coolant, said storage space being oriented relative to said liner in such a manner as to convey heat of fusion to said coolant via said liner, and passageways in said stack interconnecting said storage space and the exhaust stream side of said liner and dimensioned and located for continuously transporting said fused coolant to said exhaust stream side of said liner to provide evaporative film cooling thereof.

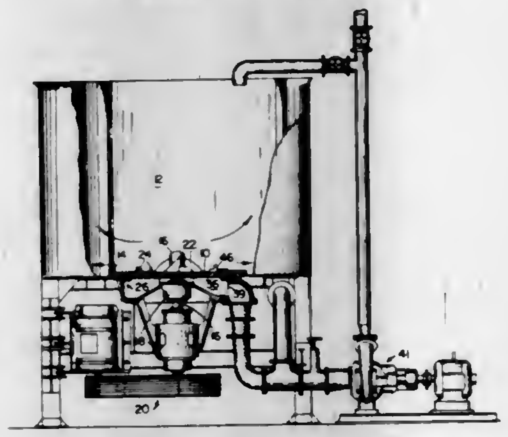
3,305,179
ONE-PIECE MOLDED PLASTIC ACTUATOR FOR DISPENSING DEVICE
Herbert G. Lehmann, Easton, Conn., assignor to Valve Corporation of America, Bridgeport, Conn., a corporation of Delaware
Filed Feb. 24, 1965, Ser. No. 434,753
6 Claims. (Cl. 239—337)



1. A one-piece molded plastic actuator for a dispenser comprising, in combination:

(a) a stationary body portion having means for attachment to a dispenser container whereby it is stationarily mounted thereon,
(b) a movable button portion movable with respect to and having walls adjacent and spaced from the body portion, said button portion having a discharge passage therein and an orifice at the outer end of the discharge passage,
(c) said button portion having means at the inner end of the discharge passage, for gripping engagement with a movable valve stem of the dispenser container whereby the latter is operated by movement of the button portion,
(d) said body and button portions having an elongate resilient and flexible connecting web extending circumferentially of the button portion,
(e) said connecting web comprising an integral molded part of the body and button portions and being connected to the same at locations around the button portion which are circumferentially spaced apart with respect to the button portion.

3,305,180
PROCESS OF PULPING AND DEFIBERING PAPER STOCK AND APPARATUS THEREFOR
William Clyde Tomlinson, Williamstown, Mass., assignor to The Noble & Wood Machine Company, Hoosick Falls, N.Y., a corporation of New York
Filed Jan. 28, 1964, Ser. No. 340,753
4 Claims. (Cl. 241—14)



1. Combined pulping and defibering apparatus comprising, a pulping tank having a bottom wall, substantially vertical walls forming a central annular opening in said tank bottom, a rotor mounted for rotation in said annular opening, pulping blade means on said rotor for directing stock in said tank in an upward vortical path, ejector blade means on said rotor for ejecting stock from said rotor in a tangential-radial path, the periphery of

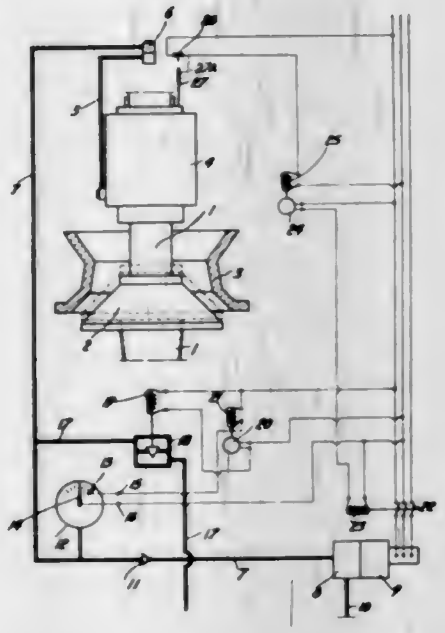
said rotor and the said vertical wall of said annular opening defining between them an annular outlet orifice opening directly into said tank at a point where said tangentially-radially ejected stock leaves the periphery of said rotor, and cooperating means mounted respectively on said rotor and said wall in said annular orifice for defibering said stock, said latter means being respectively spaced to reduce the size only of oversized particles in said annular orifice.

2. The process of pulping and defibering paper stock comprising, forming an aqueous suspension of unpulped paper stock, subjecting said stock in a tank to a rotor action in which said stock is urged in a tangential-radial path from a rotor across an annular outlet orifice, withdrawing part of said stock through said annular outlet orifice, refining said stock in said annular outlet orifice by the action of refining means spaced sufficiently close to refine over-size particles but sufficiently apart to avoid substantial refinement of particles of the correct size, recirculating said withdrawn stock into the top of said tank, and directing said re-circulated stock downwardly against the stock in said tank to drive stock at the top thereof downwardly in said tank toward said rotor.

3,305,181
GYRATORY CRUSHERS

Paul Marcel Emile Barrot, Clichy, and Claude Yves Lucien Lemardeley, Paris, France, assignors to Societe Anonyme Babbitless, Paris, France, a corporation of France

Filed Nov. 18, 1963, Ser. No. 324,544
Claims priority, application France, Nov. 27, 1962, 916,780
9 Claims. (Cl. 241—37)

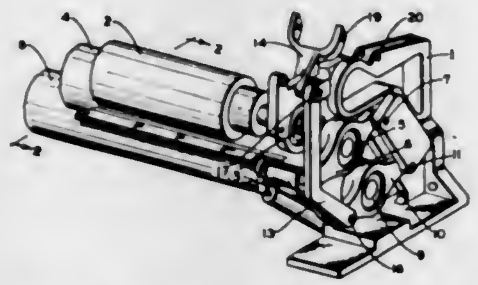


1. A device for controlling and adjusting the opening motion and the resetting in position of the crushin cone of a gyratory crusher in case a crush-resisting piece of material passes through the crushing members of said gyratory crusher, the cone-supporting shaft of which is supported from a hydraulic jack fed by a source of hydraulic pressure fluid, said device comprising means responsive to the pressure of the hydraulic fluid against the piston of said jack, a pressure relieving system for returning hydraulic fluid to said source, said system including a discharge valve, means integral with said pressure responsive means to actuate said discharge valve when the fluid pressure reaches a predetermined value, means independent from said pressure for maintaining said valve in the open position thereof for a predetermined time after the opening thereof to assure the release of a crush-resisting piece, means for feeding the hydraulic fluid under pressure from said source to the jack piston, means for initiating the operation of said feeding means at the end of a predetermined time from said opening position of said discharge valve, and means for interrupting said feeding of the fluid as soon as the crusher cone has been restored to its operating position.

3,305,182
CRUSH ROLL SYSTEM

Allen D. Layson and John R. Caldwell, Hampton, Ga., assignors to Southern States, Inc., a corporation of Georgia

Filed Aug. 31, 1964, Ser. No. 393,018
7 Claims. (Cl. 241—232)

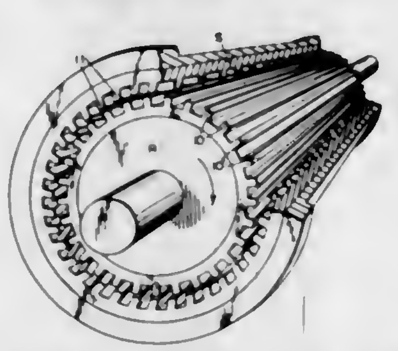


1. A crush roll system comprising a support frame, a pressure roll rotatably mounted on said frame, a first pair of bearings movably mounted on said frame, a first crush roll rotatably mounted in said first pair of bearings and in rolling contact with said pressure roll, a second pair of bearings movably mounted on said frame, a second crush roll rotatably mounted in said second pair of bearings and disposed in rolling contact with said first crush roll, and force applying means connected with said second pair of bearings for urging said second crush roll toward said first crush roll and for urging said first crush roll into rolling contact with said pressure roll whereby crushing force is imparted to said crush rolls, the axes of said crush rolls being substantially parallel and the axis of said pressure roll being disposed at an angle to the axes of said crush rolls whereby contact between said first crush roll and said pressure roll is at the midportions thereof.

3,305,183
MACHINE FOR TREATING PULP MATERIAL

Robert Burke Morden, Portland, Oreg., assignor to Morden Machines Company, Portland, Oreg., a corporation of Oregon

Filed June 15, 1964, Ser. No. 375,094
5 Claims. (Cl. 241—260)



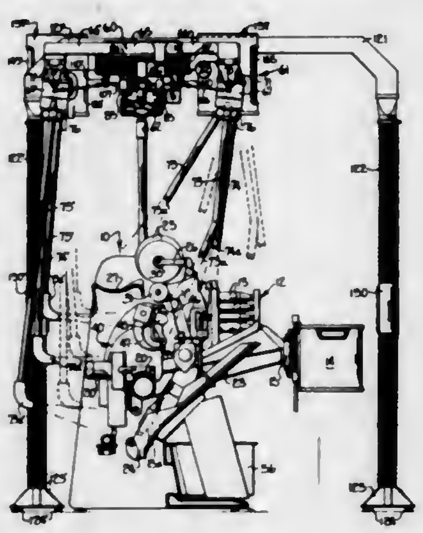
1. In a machine for treating pulp material, a rotor member having an exterior attritioning surface, a nonrotating shell member co-axial with and surrounding said rotor member and having an interior cooperating attritioning surface, a plurality of attritioning bars on the attritioning surface of one of said members, each of said bars extending in a single plane, a plurality of attritioning bars on the attritioning surface of the other of said members, each of said latter mentioned bars extending in a single plane and arranged at the same relative angularity of between 18° and 38° with said first mentioned bars at corresponding crossing points, whereby every bar on the

attritioning surface of one of said members will be in working relationship with and in angularity with a plurality of cooperating bars on the attritioning surface of the other of said members at all times, thereby minimizing the noise and vibration produced by the operation of the machine, the working faces of said bars on said attritioning surfaces extending in a pair of surfaces having a slight clearance therebetween, the side faces of each of said bars on one of said attritioning surfaces having a different inclination with respect to the adjacent surface on the latter mentioned attritioning surface at one end of said latter mentioned surface than with respect to the adjacent surface at the opposite end of said latter mentioned surface.

3,305,184
PROCESS FOR CLEANING AUTOMATIC TEXTILE WINDING MACHINES

George Seress and Woodrow W. Hewitt, Charlotte, N.C., assignors to Parks-Cramer Company, Fitchburg, Mass., a corporation of Massachusetts

Filed Oct. 12, 1964, Ser. No. 403,227
10 Claims. (Cl. 242—35.5)



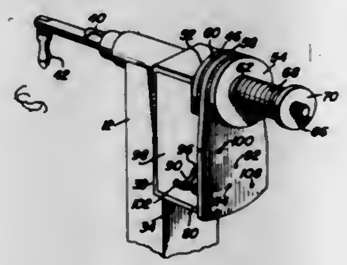
1. A process for removing lint tending to accumulate on operating instrumentalities of automatic textile winding machines, which instrumentalities include a longitudinal row of yarn guiding, inspecting and detecting elements positioned between respective supply and take-up yarn packages, and yarn ensnaring and tying elements cooperating with the row of yarn guiding, inspecting and detecting elements; said process comprising directing a plurality of high velocity fine jet air streams downwardly from an overhead source toward and in close proximity to certain of said instrumentalities while traveling said streams along and adjacent said row of elements and while continuously oscillating said streams substantially in planes normal to the direction of travel of said streams, and automatically repeating the travel of said streams along and adjacent said row of elements at sufficiently frequent intervals to maintain said certain instrumentalities substantially free of lint.

3,305,185
AUTOMATIC FILM REWINDER SHUT-OFF

Andrew J. Tegu, 23 Underclyffe Road,
St. Johnsbury, Vt. 05819

Filed June 19, 1964, Ser. No. 376,356
8 Claims. (Cl. 242—55.11)

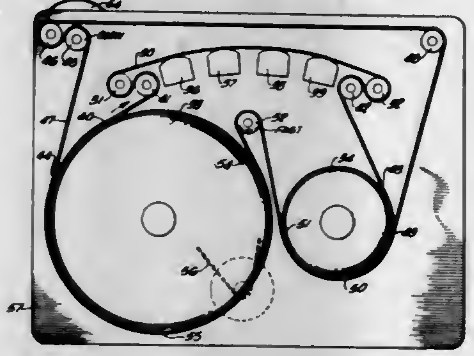
3. An automatic film rewinder shut-off comprising support means, a support shaft journaled from said support means and adapted to have a supply reel mounted thereon for rotation therewith, switch means supported by said support means adapted to control motor means drivingly connected to a wind-up reel operatively associated with said supply reel for unwinding material wound on said supply reel and winding said material on said wind-up reel, said switch means including a movable actuator yieldingly urged toward an off position adapted to terminate operation of said motor means and movable to an on position adapted to effect operation of said motor means, control means movably supported from said support means for movement between first and second positions, said first position of said control means being an on position engaged with said actuator with the latter urged by said control means to its on position and said second position being an off position allowing said actuator to return to its off position, means yieldingly urging said control means to its off position, and adjustable torque transmitting means operatively connected between said shaft and said control means operable to retain said control means in its on position in response to rotation of said support shaft in one direction, and latch means operatively connected between said support means and said control means releasably securing said control means in its second position.



3,305,186
TAPE TRANSPORT SYSTEM USING A DRIVE BELT CONTACTING TAPE PACKS

Donald L. Burdorf, Arcadia, and James T. Blakistone, Pasadena, Calif., assignors to Kinelogic Corporation, Pasadena, Calif., a corporation of California

Filed Apr. 18, 1963, Ser. No. 273,941
29 Claims. (Cl. 242—55.12)



2. In a reeling system of the character described, a pair of tape packs with a tape web extending between and connecting said packs, a pair of rollers, means for driving said rollers, an endless elastic pretensioned belt having two sections and extending in substantially non-slip relationship around said rollers with an intermediate portion of each belt section engaging a corresponding one of said pair of tape packs in substantially non-slip relationship and with the peripheral speed of one of the rollers being greater than the pheripheral speed of the other of said rollers, said tape web being driven by two capstans, each having the same peripheral speed.

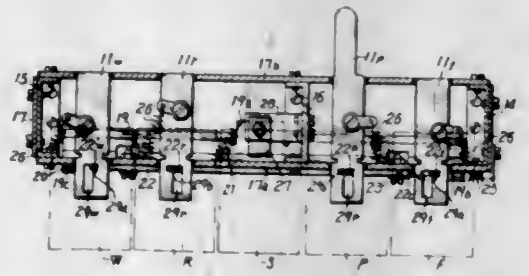
3,305,187
PUSH BUTTON TAPE DRIVE CONTROL ARRANGEMENT

Katsuya Atsumi, Kohjiya-chó, Ohta-ku, Tokyo, Japan, assignor to Akai Electric Company, Limited, Tokyo, Japan

Filed Dec. 19, 1963, Ser. No. 331,653
7 Claims. (Cl. 242—55.12)

1. In a tape drive control button arrangement of a tape recorder wherein a fast forward winding button, a

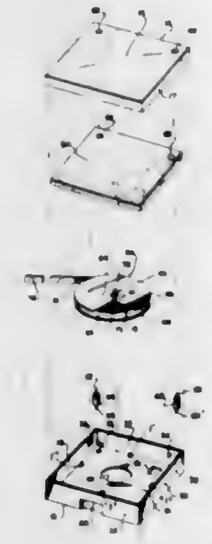
playing button, a stop button, a recording button and a fast reverse button are arranged in a row and mounted on a supporting panel of said recorder so as to be separately manipulatable between on and off positions which commence and discontinue the respective functions denoted therefore, the improvement comprising a slide member associated with each of said fast forward winding, playing, recording and fast reverse winding buttons, means for linking each said slide member to its associated button so that manipulation of said button will also shift said slide member correspondingly between function "on" and function "off" positions, a slot in each said slide member, a lock plate slidably mounted on said supporting panel and slidable between first and second locking positions, spring means for maintaining said lock plate normally in its first locking position with all of said buttons in off positions, said lock plate having four projections each disposed in one of the slots of said slide members, the two slots of the slide members linked to said playing and recording buttons being provided with cooperative notches adapted to receive the projections disposed in said slots when said lock plate is moved from its first to its second locking position and said projections when so received locking said slide members in function "off" positions not shiftable to "on" positions until said lock plate is returned to its first locking position to withdraw said projections from said notches, the two slots of the slide members linked to said fast forward and fast reverse winding buttons being provided with cammed notches arranged to cam against the projections disposed in said slots as one of said slide members is moved to a function "on" position and thereby slide said lock plate from its first to second locking position, said lock plate being slidable from its first to second locking position and vice versa only when the slide members linked to said playing and recording buttons are both in function "off" positions to align the cooperative notches of the slots thereof and thereby permit receipt and withdrawal of the projections disposed in said slots, whereby the playing and recording pair of buttons and the fast forward and fast reverse winding pair of buttons may be manipulated in succession or simultaneously insofar as the buttons of each pair are concerned, but successive manipulation of buttons from one and then from the other of said pairs can be accomplished only with an intervening change in the locking position of said lock plate.



3,305,188
TAPE CARTRIDGE

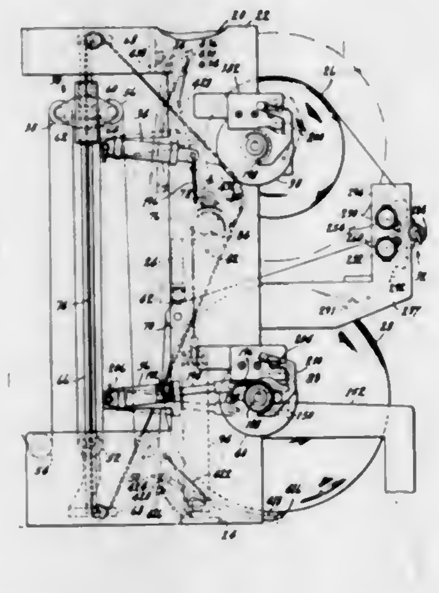
Sidney O. Sampson, New York, N.Y., assignor to Robot Education Systems, New York, N.Y., a corporation of New York
Substituted for abandoned application Ser. No. 193,542, May 9, 1962. This application Apr. 17, 1964, Ser. No. 364,877
1 Claim. (Cl. 242—55.13)

A universal type of cartridge casing for packaging single tape reels and for use on a tape recorder having a rotatable spindle with a flat top and a ribbed spindle shaft extending axially out of the top of the spindle, comprising in combination: a dished base with open top; a cooperational cover removably mounted on and snugly interfitting with said base for closing the same; said base having a bottom spaced from and parallel to said cover, an upstanding wall around said bottom supporting the cover, said bottom having a centrally located hole to permit said spindle to extend therethrough into the base, separated upright flanges, said separated upright flanges being formed on said bottom and disposed independent from said upstanding wall, said separated upright flanges for packaging and for centrally positioning a circular reel of tape in the base to rest on the top of said spindle and to rotate therewith, roller guide means in said base, said upright flanges being separate from and being cooperative with said roller guide means in said base for operationally guiding the tape to and from the reel as the reel and said spindle rotate, means in a said wall to permit said tape to pass through said upstanding wall to and from said reel, and notch means in the cartridge casing cooperative with spring means and abutment means respectively disposed on the recorder for preventing said base and said cover from rotating while said reel and said spindle rotate.



3,305,189
WEB SUPPLY APPARATUS

Richard A. Butler, Jr., 218 Middlesex Road, Brookline, Mass. 02146, and Norton T. Pierce, Concord, Mass.; said Pierce assignor to said Butler
Filed Dec. 21, 1964, Ser. No. 419,969
10 Claims. (Cl. 242—58.1)

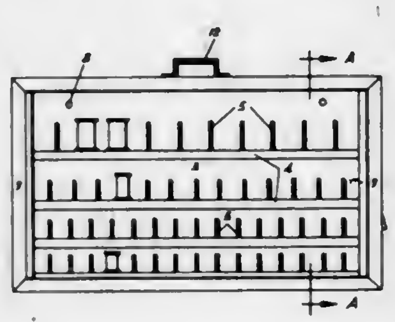


1. Web supply apparatus comprising means for rotatably supporting a roll of running web at a running web station, means for supporting a roll of ready web at a

ready web station, means for splicing the leading end of the ready web to the running web, a dancer assembly for storing a quantity of web, means for decelerating the running web entering the dancer assembly at a pre-determined rate while maintaining a constant output speed from the dancer assembly before forming a splice and means for actuating the splicing means in response to reaching a pre-determined splicing speed of the running web entering the dancer assembly.

3,305,190
SPOOL AND BOBBIN CADDY

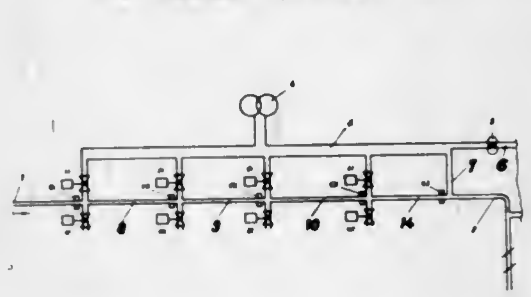
Philip Louis Gans, 211 Sykes Road, New Castle, Del. 19720
Filed Aug. 12, 1965, Ser. No. 479,269
3 Claims. (Cl. 242—139)



1. A rack type multiple spool or bobbin holder comprising a substantially rectangular rigid framework, a plurality of crosspieces in said framework, a plurality of spool supporting pins on each of the crosspieces, a set of links at each end of said framework adjacent an end of each crosspiece, each set including a movable link and a stationary link, and pivot means connecting each end of each crosspiece to both of the links in its adjacent set whereby the movable links may be moved toward and away from the stationary links upon the pivotal movement of any of the crosspieces to cause all of the crosspieces to move together.

3,305,191
PNEUMATIC TUBE SYSTEM WITH A LONG DRIVING SECTION AND FOR HIGH SPEED OF THE CARRIERS

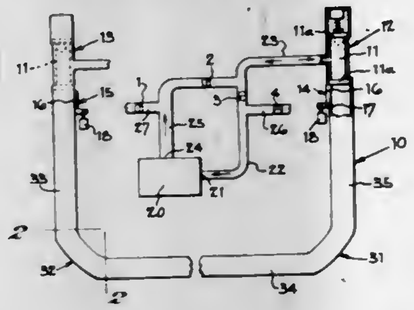
Fritz Buchwald, Berlin, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed June 18, 1965, Ser. No. 464,925
Claims priority, application Germany, June 29, 1964, St 22,318
6 Claims. (Cl. 243—4)



1. A pneumatic tube system, comprising:
an extended, unobstructed drive tube for the transport of dispatch carriers;
a source of operating air, coupled to said drive tube, having air-moving power of a magnitude less than that required to propel a carrier the full length of said drive tube;
ports disposed at spaced points along said drive tube;
valves associated with each of said ports, sequentially operable, to control passage of air through said ports; and
control means coupled to said valves to actuate said valves sequentially, said control means being responsive to the movement of said carrier along said drive tube.

3,305,192
METHOD AND APPARATUS FOR TRANSFERRING A CARRIER THROUGH A PNEUMATIC CONVEYOR SYSTEM

Gerhard H. Todt, Ringwood, and Lewis D. O. Tearne, Montvale, N.J., assignors to The Mosler Safe Company, Hamilton, Ohio, a corporation of New York
Filed Mar. 18, 1966, Ser. No. 535,519
7 Claims. (Cl. 243—38)



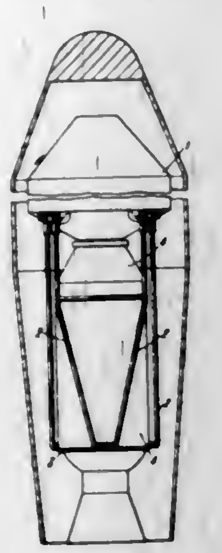
1. A conduit for use in a pneumatic tube conveyor system of the type used for transferring a rigid carrier between a plurality of stations, said carrier having spaced peripheral sealing rings attached to its opposite ends, the improvement which comprises,
serially connected first, second and third sections of said conduit,
said first section having an internal cross-sectional size and shape approximately the same as the peripheral size and shape of the sealing rings of the carrier so that the carrier rings remain in sealed engagement with said first section of the conduit as said carrier moves through said first section,
said second section being curved and of greater cross-sectional size than said first section and operable to release the seals of the carrier from sealed engagement with the conduit as the carrier moves through said second curved section, and
said third section being of the same cross-sectional size and shape as said first section and operable to maintain sealed engagement with the carrier as the carrier moves through said third section,
said second curved section being no longer than the length of the carrier so that one of the seals of the carrier remains in sealed engagement with either the first or third section of the conduit as said carrier moves through said second curved section.

3,305,193
SPACECRAFT BOOM ERECTION APPARATUS

Jacob Lewis Blonstein, Harpenden, and Stanley William Sherman, Stevenage, England, assignors to British Aircraft Corporation (Operating) Limited, London, England, a British company
Filed Mar. 23, 1964, Ser. No. 353,934
Claims priority, application Great Britain, Mar. 29, 1963, 12,600/63
4 Claims. (Cl. 244—1)

1. A spacecraft having a body portion and a number of booms arranged in sequence around the body portion, each boom having two arms which meet the body portion at points angularly spaced with respect to the axis of the body portion, which points are respectively adjacent to the points at which the arms of the two adjacent booms meet the body portion, and a common hinged

mount for each pair of adjacent boom arms of different booms, the common hinged mount pivotally interconnecting the adjacent boom arms to the said body portion so that the erection of any one boom automatically causes the simultaneous erection of the remaining booms.

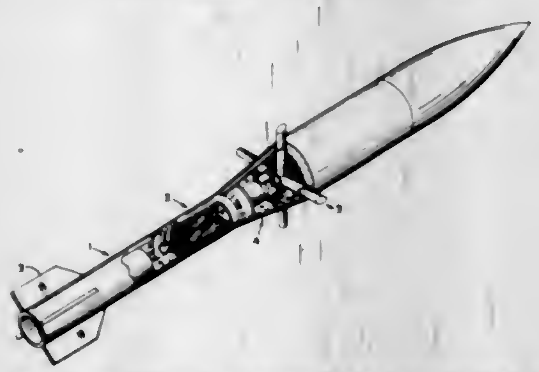


3,305,194
WIND-INSENSITIVE MISSILE

Robert G. Conard and William C. McCorkle, Jr., Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed Mar. 8, 1960, Ser. No. 13,666

11 Claims. (Cl. 244—3.21)



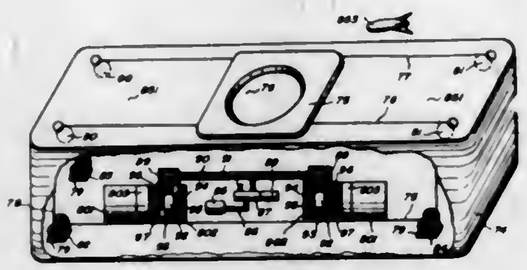
1. A fin-stabilized, atmosphere-traversing missile disposed for flight in a predetermined trajectory including booster propulsion and sustainer propulsion phases of flight, said missile comprising: a rotary housing assembly; fins fixed to the outside of said assembly, each fin being at a slight angle to a plane thru the longitudinal axis of the missile, whereby the missile is arrow-stabilized, is rotated at a non-gyroscopic speed, and the accuracy-disturbing effect of thrust malalignment largely is balanced out; a booster within said housing assembly; thrust termination means disposed for thrust termination of said booster at a predetermined velocity of said missile; a sustainer within said assembly; ignition means for firing said sustainer subsequent to booster thrust termination; an accelerometer mounted substantially at the center of gravity of the rocket, for providing an electric signal for sequential actuation of said booster thrust termination means and sustainer ignition means, said accelerometer further disposed for measuring the axial component of the acceleration due to a change in the algebraic sum of the sustainer's thrust and the missile's aerodynamic drag during the post-booster-propulsion phase of the missile's flight and for supplying a signal that is a measure of said axial component of the acceleration; drag brakes mounted on the missile for movement relative to said housing assembly, into or out of said relative wind, whereby the aerodynamic drag of the missile in said wind may be varied; and means drivingly connecting said motor to said accelerometer whereby said motor and said drag brakes are operated in response to said signal.

3,305,195
KINETICAL ENERGY TRANSFORMING AND PROPORTIONATELY DIVIDING FLUID DRIVE

Karl Eickmann, 2420 Isshiki Hayama-machi, Kanagawa-ken, Japan

Filed May 5, 1965, Ser. No. 453,278

19 Claims. (Cl. 244—63)



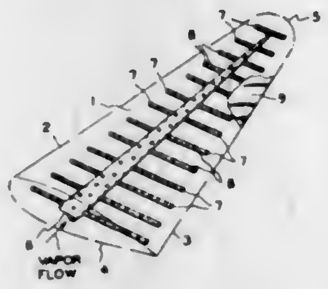
1. A kinetic energy transforming fluid drive comprising, in combination, a relatively small diameter, high speed, relatively low power driving motor (1) including a housing and an output shaft (5) extending from said housing; a relatively small diameter rotary fluid pump (2) including a housing, a rotor rotatably mounted in said housing and a rotor driving shaft (6) projecting from the pump housing; a relatively small diameter casing (3) positioned between and interconnecting said housing, and defining a closed substantially cylindrical interior space (26); said shafts extending in coaxial opposed relation into said casing; means coupling said shafts within said space for conjoint rotation; and a relatively small diameter wheel (7) positioned in said space and mounted on at least one of said shafts for rotation thereby, said wheel having a mass concentration (4) extending around its periphery at a substantial radial spacing from its axis; said wheel being brought up to a high angular velocity by said motor when the loading on said pump is zero or at a relatively low value, whereby a high kinetic energy is developed and stored in said mass concentration; said kinetic energy, when the loading on said pump exceeds the power of said motor, supplying the excess energy requirements of said pump and being thus transformed into fluid energy at the output of said pump.

3,305,196
VEHICULAR STRUCTURES MADE FROM FOAMED PLASTIC MATERIALS

Robert G. Hanlon, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Nov. 4, 1964, Ser. No. 408,963

3 Claims. (Cl. 244—123)



1. A structural section for a vehicle comprising a lightweight, hollow, tubular, load-supporting skeleton comprising one or more principal members and one or more lateral members branching from said principal member in such a fashion that the internal hollow portion of each lateral member is joined to the internal hollow portion of at least one of said principal members substantially every member of said skeleton being pierced with a multiplicity of small orifices forming a multidirectional pattern of holes over the surface of said skeleton, an outer smooth

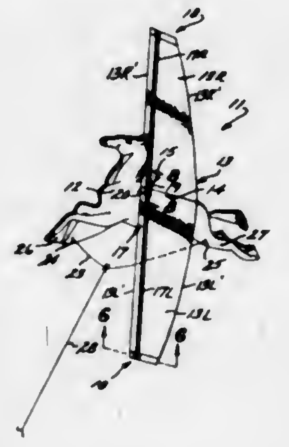
skin spaced apart from said skeleton and providing the outer configuration of said structural section, and a rigid, cellular, plastic foam filling the space between said skeleton and said skin.

3,305,197
READILY ASSEMBLEABLE KITE CONSTRUCTION

Carl O. Daggett, 7700 Kester Ave., Van Nuys, Calif. 94105

Filed Mar. 24, 1965, Ser. No. 442,342

10 Claims. (Cl. 244—153)



1. A readily assembleable kite construction comprising: a flat thin-sheet planar stiff center stabilizing member normally adapted to lie in a central position in a substantially vertical plane when the kite construction is fully assembled; thin-sheet horizontal flexible wing means having left and right substantially similar flexible wing portions each having flexible, unstiffened, untightened, unreinforced, completely free and unconstrained front and rear edges, said wing portions being effectively centrally provided with fastening means for fastening same in a laterally symmetrical manner with respect to said center stabilizing member and thereby defining a front-to-rear stiffener for said wing portions joined thereto; and a normally laterally directed wing stiffener member adapted to lie substantially along said wing means in horizontally laterally directed substantially parallel relationship with respect thereto and effectively provided with coupling means for normally coupling same with respect to said wing means in a taut manner for effectively horizontally laterally stiffening same and providing sufficient lateral rigidity to said wing means to resist air pressure thereagainst during air-borne flight, said coupling means comprising a pair of wing tip coupling means carried adjacent to corresponding outer wing tip portions of said left and right wing portions of said wing means and centrally positioned intermediate coupling means positioned adjacent to a center portion of said wing means and said normally vertically oriented center stabilizing member fastened thereto.

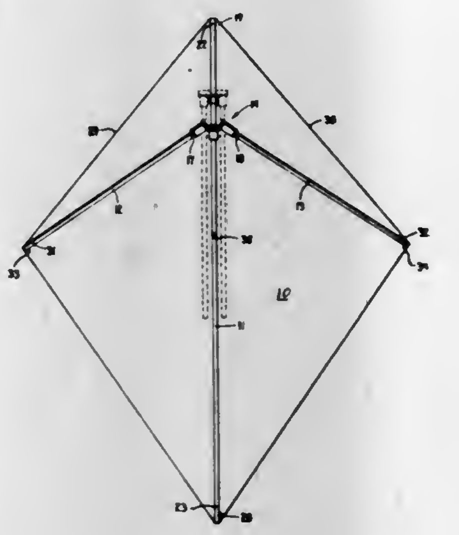
3,305,198
GLIDER KITE

Harvey A. Sellers, Jr., 510 Wabash Ave., Decatur, Ill. 62525

Filed Aug. 3, 1965, Ser. No. 476,855

4 Claims. (Cl. 244—153)

1. A kite comprising a central rod with front and rear end portions;
  a pair of side rods, one on each side of the central rod, and each rod having an outer and inner end;
  a cover attached to said central rod front and rear end portions and also to each of said side rod outer end portions;
  a slide slidably carried on said central rod between the zones of said cover attachment to the central rod;
said side rods having their inner ends attached to said slide, one at each side of the central rod;
said central rod having an abutment thereon over which said slide may travel in shifting along the central rod;
and a sprag carried by said slide depending normally from the forward end of the slide directed toward said central rod front end portion and dropping against said abutment upon sufficient rearward travel away from said central rod forward end; and
hinge means carried by said slide, between said central rod and said side rod inner end portions permitting the side rods to swing upon rearward travel of the slide from positions along the sides of the central rod outwardly therefrom as limited by said cover being secured to the side rod outer end portions.



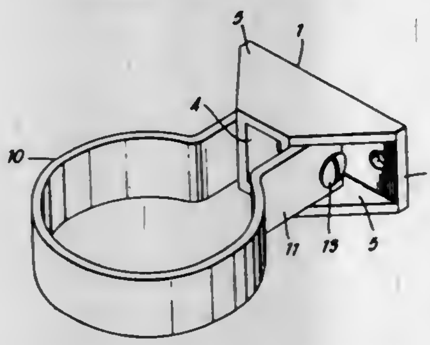
3,305,199
BRACKET

Ronald Curtis Bayes, Ware, and David Harold Sands, Ashford, Kent, England, assignors to The Ruberoid Company Limited, London, England, a British company, and Chemidus Plastics Limited, Kent, England, a British company

Filed May 27, 1965, Ser. No. 459,339

Claims priority, application Great Britain, May 27, 1964, 21,972/64

5 Claims. (Cl. 248—74)



1. A bracket and pipe clip combination, comprising:
a small and compact bracket having a base plate and at least two substantially parallel, spaced-apart arms projecting way from said base plate and substantially perpendicular thereto, said bracket having a pair of spaced, parallel stiffening flanges which extend laterally between the free ends of said arms and said base plate, each of said arms having a lateral opening therethrough, said lateral openings being in registry;

a resilient pipe clip comprising a substantially cylindrical portion for substantially completely encircling a pipe and having adjacent spaced-apart ends, and a pair of substantially parallel elongated and flat limbs projecting outwardly from and integral with said ends, said limbs having holes therethrough, said limbs being of substantially the same width as said cylindrical portion and only slightly narrower than the distance between the oppressing sides of said flanges, said limbs extending into overlapping relationship with said arms so that said holes are in registry with said openings; and

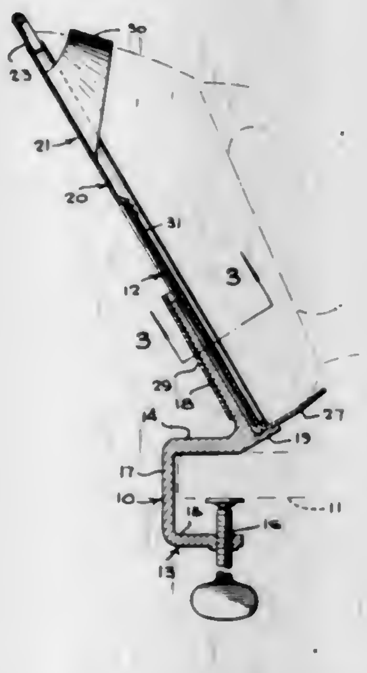
single shank means extending through said holes and openings and securing said clip to said bracket, whereby said clip is positively held against movement with respect to said bracket in a direction parallel with the axis of said cylindrical portion.

3,305,200
FLAT IRON SUPPORT AND HOLDER

Harold B. Avery, Philadelphia, Pa., assignor to I. R. Associates, Inc., New Orleans, La., a corporation of Louisiana

Filed Oct. 18, 1965, Ser. No. 497,144

6 Claims. (Cl. 248—117.6)



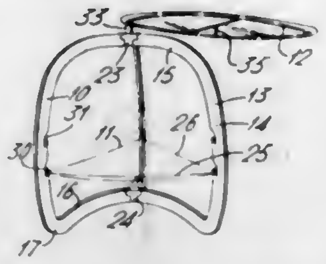
1. A flat iron support and holder suitable for use with an ironing board comprising a mounting means having means for detachably securing the mounting means to an ironing board, a support means removably mounted on said mounting means, said support means including a frame member having a configuration the shape of the profile of the bottom of a flat iron, a base plate member mounted on said frame member for seating a flat iron, said support means having means for retaining said flat iron seated on said base plate member, said frame member including arcuate sides terminating at a forward point and the base plate member extending between the arcuate sides, having the sides thereof rolled from under and around the arcuate sides of the frame member to secure the base plate member to the frame member, and said retaining means including a strap member for retaining the toe portion of the flatiron when the flatiron is seated on the base plate member, permitting the toe portion of the flat iron to project beyond the strap member, having the lateral ends thereof extending between the arcuate sides of the frame member and the base plate member to secure the strap member to the frame member and the base plate member.

3,305,201
HEAD REST

Frideric Thiel, Toronto, Ontario, Canada, assignor to Hans Gehriger, Toronto, Ontario, Canada

Filed June 28, 1965, Ser. No. 467,342

5 Claims. (Cl. 248—118)



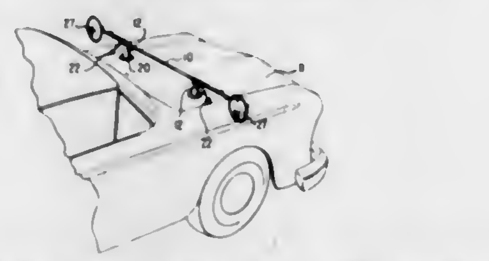
1. A head and face sunshield assembly for use in the supine position, comprising in combination, a low, foldable frame, a foldable headrest suspended at a plurality of spaced points on its perimeter to said frame near the base thereof, and an adjustable sunshield attachable to the apex of said frame.

3,305,202
EXTERNAL HOOD-MOUNTED REAR VIEW MIRRORS FOR AUTOMOBILES

Melvin A. Christenson, 7 N. 40th Ave., Yakima, Wash. 98901

Filed July 30, 1963, Ser. No. 298,631

4 Claims. (Cl. 248—201)



1. A rear view mirror device for automobiles comprising an elongated unitary open-ended tube to span the hood portion of an automobile transversely, forwardly of the windshield, a pair of relatively short tubular legs underlying said tube near and inwardly of the opposite ends of the tube and having cradle recesses in their tops for receiving and stabilizing the tube, rod elements rigid with the tube and depending therefrom and extending inside of the tubular legs, suction cups underlying the bottoms of the legs and engageable directly with the automobile hood and having hub portions extending within the tubular legs, nuts within said hub portions and having adjustable screw-threaded engagement with said depending rod elements and operable to clampingly secure said tube and said suction cups against the ends of the legs, adjustable turnbuckle means on said tube outwardly of said legs and suction cups and engageable with the longitudinal edges of the hood, and a pair of rear view mirrors telescopically adjustably connected with the opposite end portions of said tube and adapted to be releasably locked independently in selected adjusted positions longitudinally of said tube and transversely of the automobile.

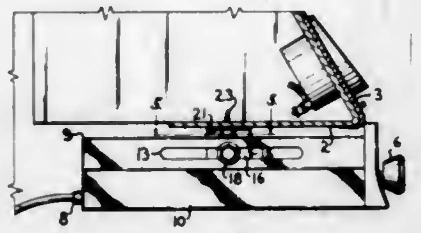
3,305,203
RADIO AND APPARATUS FOR ATTACHMENT THEREOF UNDERNEATH THE DASHBOARD OF A VEHICLE

Wade H. Williams, Jr., 8720 Fairway, Leawood, Kans. 66206

Filed July 23, 1965, Ser. No. 474,288

9 Claims. (Cl. 248—201)

1. The combination of a radio housing including end walls connected to a top wall, said top wall having elongated slots parallel to and adjacent said end walls, and said end walls having elongated slots spaced from the top wall and extending in the same direction as the first named slots, L-shaped brackets having vertical arms extending through the slots in the top wall, means pivotally mounting said arms to said ends of the housing, arms on the brackets extending outwardly of the ends of the housing in the plane of the top wall, and means for securing the last named arms to the bottom of a dashboard.

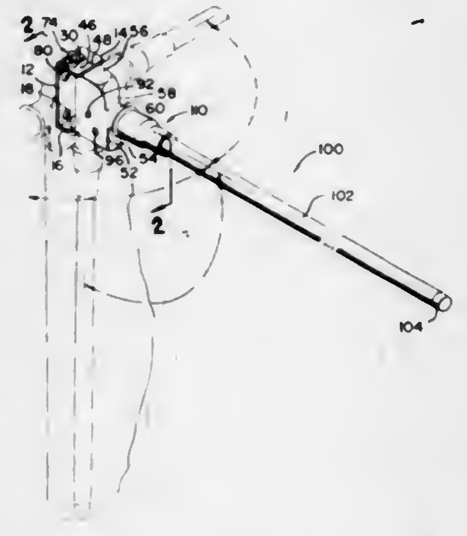


3,305,204
PIVOTALLY MOUNTED SUPPORT MEANS

Marta Babin, San Rafael, Calif., assignor of one-half to Douglas Godfrey, San Rafael, Calif.

Filed June 9, 1965, Ser. No. 462,588

2 Claims. (Cl. 248—278)



1. Pivotally mounted support means comprising a U-shaped bracket having a base portion adapted to be mounted on a vertical wall, and outwardly projecting supporting flanges extending normally thereto, a support housing having top, side and rear walls, said rear wall having integral rearwardly extending flanges overlapping said first named flanges and pivotally secured thereto for relative movement about a vertical axis, a tubular support member closely received between said side walls and pivoted thereto on a transverse axis for downward swinging movement relative thereto, said housing having an integral outwardly extending curved flange, the axis of said curved flange being in intersecting alignment with and normal to said transverse axis, and sleeve means on said tubular member cooperating with said curved flange to hold said tubular member in a horizontal operative position.

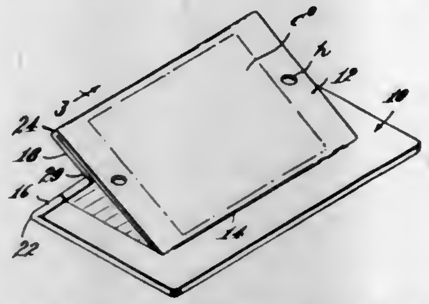
3,305,205
TOGGLE-TYPE EASEL

Ernest Frankl, Middleboro, Mass., assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass., a corporation of Massachusetts

Filed Mar. 1, 1965, Ser. No. 435,807

17 Claims. (Cl. 248—459)

1. An easel structure for supporting a calendar pad, photograph or the like, comprising a rigid base, a first part secured along one end to the base, said first part being resistant to deflection, second and third parts hinged, respectively, to each other along their proximal ends and to the base and first part at their distal ends, said second and third parts constituting a toggle situated between the base and first part, and the hinge connecting the proximal ends of the second and third parts constituting the knee of the toggle, said knee abutting and supporting the third part parallel to and in contact with the first part, and said toggle permitting folding of the parts into parallel relation.

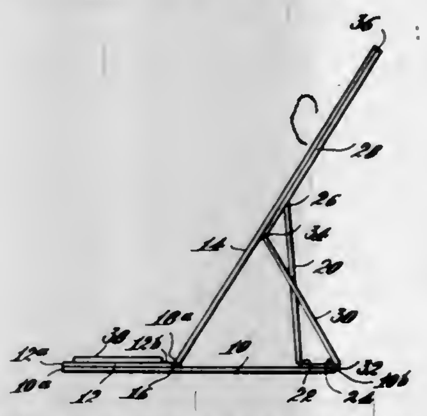


3,305,206
EASEL-TYPE MOUNT

Gordon E. Nichols, Middleboro, Mass., assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass., a corporation of Massachusetts

Filed Sept. 17, 1965, Ser. No. 488,011

13 Claims. (Cl. 248—459)



1. A structure comprising a first panel, a brace and a leg hingedly connected at one end to said first panel in spaced parallel relation for pivotal movement relative to said first panel, an abutment on said first panel spaced from and parallel to the hingedly connected ends of the brace and leg, said brace and leg being disposed in a position such that their distal ends and the abutment all lie in a common plane inclined upwardly from the first panel and rearwardly with respect to the abutment, and a second panel hingedly connected to the distal ends of the brace and leg which is of greater length, between said hinged connections and an edge of the second panel parallel to said hinged connections, than said distance between the distal ends of the brace and leg and the abutment at said position, said second panel being disposed in an inclined position with said edge disposed behind said abutment and extending rearwardly and upwardly therefrom.

3,305,207
MICROMETERING VALVE

John H. Calderoni, El Cerrito, and Anthony J. Iozzi, Moraga, Calif., assignors to National Welding Equipment Co., Richmond, Calif., a corporation of California

Filed Mar. 30, 1964, Ser. No. 355,860

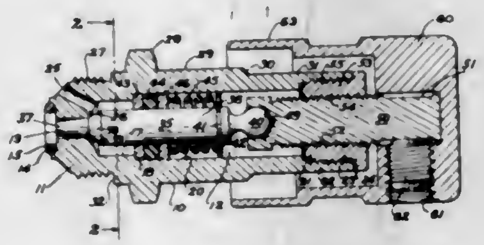
7 Claims. (Cl. 251—86)

1. A fine-metering fluid valve including in combination:

a hollow housing having a central axial passage with a reduced-size axial inlet at one end connected to the central passage by an annular valve seat ledge, said housing having a threaded distal end portion, said housing also having an outlet passage meeting said central passage and spaced away at all points from said inlet passage,

a non-rotating valve closure member, comprising a stem extending along the axis in said central passage and having a ball at its distal end and having a closure nose with a forward portion movable in said inlet passage and a rear portion adapted to engage said valve seat and close off the inlet passage,

means sealing between the stem of said valve closure member and said housing,



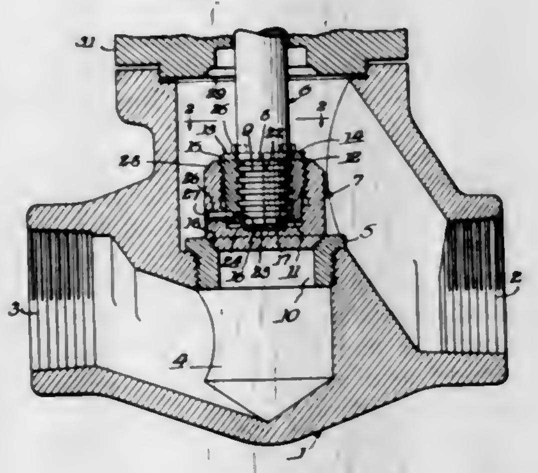
a valve moving member having a socket at one end engaging said ball and a threaded stem movably threaded into the distal end of said housing, and

spring means normally urging said valve closure member rearwardly and tending to open said valve means,

said means sealing between the stem and housing comprising an O-ring positioned between a pair of annular members against one of which said spring means bears,

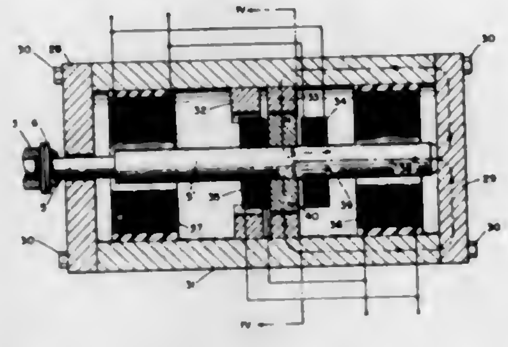
said valve moving member being movable in said housing to determine the amount of the opening and to hold said valve nose at any desired opening or in a closed position without rotation of said valve closure member.

3,305,208
SEGMENTAL VALVE STEM CONNECTION
Kurt B. Bredtschneider, Chicago, Ill., assignor to Crane Co., Chicago, Ill., a corporation of Illinois
Filed Dec. 26, 1963, Ser. No. 333,398
10 Claims. (Cl. 251—88)



1. A valve stem mounting combination comprising: a valve stem having a plurality of annular, concentric projections thereon; an externally threaded, split disc bushing having a plurality of annular projections on its inner portion cooperating with and positioned between said annular projections on said stem; a closure member threadedly received by said bushing; means to prevent relative rotation between said closure member and said bushing upon assemblage of said combination thereby inhibiting axial movement of said stem relative to said closure member and bushing.

3,305,209
ELECTROMAGNETICALLY OPERABLE VALVES
Alfred Bender, Hofheim, Taunus, and Heinz-Dieter Steinke, Frankfurt am Main, Germany, assignors to Alfred Teves Maschinen- und Armaturenfabrik K.G., Frankfurt am Main, Germany, a corporation of Germany
Filed Dec. 2, 1963, Ser. No. 327,198
Claims priority, application Germany, Mar. 22, 1963, T 23,681
8 Claims. (Cl. 251—137)



1. An electromagnetic actuating device, comprising a magnetically permeable housing;

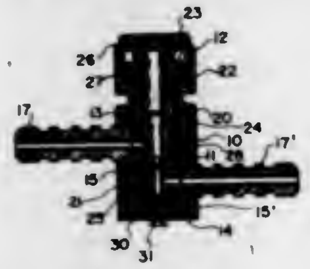
a longitudinally extending armature of magnetically permeable material connectable to a member to be actuated and reciprocable in said housing between two extreme positions;

permanent-magnet means on said armature forming substantially closed magnetic-flux paths with said armature and said housing for magnetically retaining said armature in each of said extreme positions;

a pair of longitudinally spaced first electromagnets in said housing on opposite sides of said permanent-magnet means cooperating with said armature upon selective electrical energization for shifting said armature between said extreme positions; and

a pair of second electromagnets juxtaposed with said permanent-magnet means on opposite sides thereof along said paths and selectively energizable concurrently with at least one of said first electromagnets for temporarily counteracting the magnetic flux along a respective one of said paths for releasing said armature from one of said positions and permitting its displacement into the other of said positions under the inductive force of said one of said first electromagnets.

3,305,210
VALVE
Eugene G. Danner, 9122 71st St., Forest Hills, N.Y. 11375
Filed Aug. 17, 1964, Ser. No. 390,062
9 Claims. (Cl. 251—214)



1. An adjustable stem valve including,

a body member having a chamber therein and open at one end thereof,

said chamber having a plurality of sections, each of a different diameter and each successive section connected by a sharply tapered section,

an inlet port in one section of said plurality of sections,

and at least one outlet port in another section of said plurality of sections,

said body member having a threaded section about the exterior thereof,

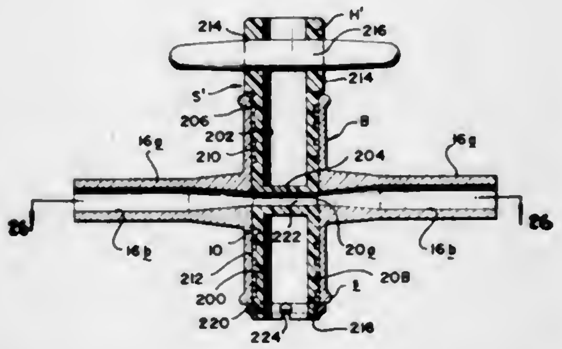
a cap having a top and cylindrical side,

said cylindrical side threaded about the interior thereof for mating with the threaded section of said body member,

a shank connected at one end to the interior of the top of said cap and having a cone shape at its other end, said shank being of sufficient length and diameter to pass to, and seat in the second of at least two said tapered sections of said chamber for substantially isolating said inlet port from said at least one outlet port when the threads of said cap are substantially mating with the threads of said body,

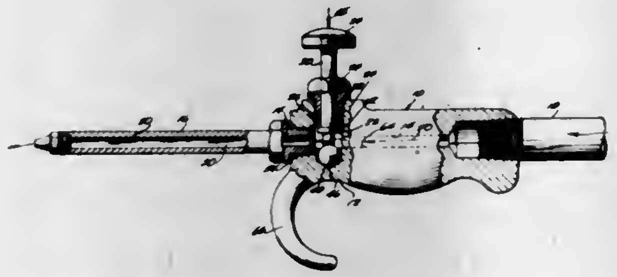
a tubular resilient member snugly fittable about said shank being of a length to pass to and connect with the first of at least two said tapered sections when one end of said tubular member is adjacent to the interior of said top, said tubular member having a thickness so as to be snugly fittable between said shank and the wall of said first section and to be forcibly fittable between said shank and the said first of at least two said tapered sections for substantially isolating said open end of said chamber from the nearest port to said open end when the threads of said cap are substantially mating with the threads of said body so as to seat said cone into said second beveled section of said chamber for so isolating said inlet port from said at least one outlet port.

3,305,211
STRESSED PLASTIC VALVE FOR LABORATORY GLASSWARE
Edwin D. Phillips, 170 Albert St., North Plainfield, N.J. 07063
Filed Mar. 9, 1965, Ser. No. 446,763
3 Claims. (Cl. 251—309)



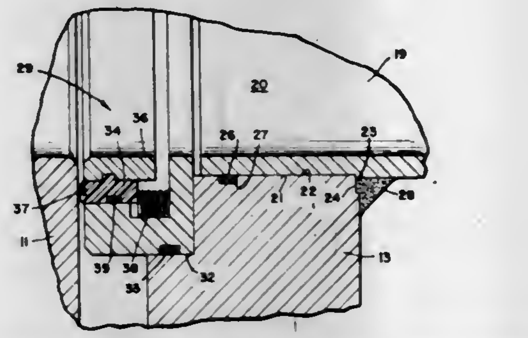
1. A valve comprising a length of glass tubing open at its ends and forming a rotary plug barrel having open ends, said barrel having a straight cylindrical bore of substantially constant diameter extending therethrough from end to end, plural glass tubular means joined to said barrel and opening thereinto, a cylindrical thermoplastic plug of substantially constant overall diameter fitting in said bore for rotation therein, means carried by said plug facilitating axial rotation thereof in the bore, flow passage forming means in said plug and positioned for establishing communication between said plural tubular means upon rotation of the plug to one position, said plug being formed in a portion thereof between each end thereof and said flow passage with a multiplicity of minute encircling closely spaced ribs oversize at least approximately $^{10}/_{1000}$ of an inch with respect to the diameter of said bore and highly compressed in the bore to maintain a leakproof engagement against the surface of the wall of the bore, said plug having axially extending chambers therein spaced apart and separated intermediate their ends by a solid portion of the body of the plug through which said flow passage forming means extends, and said chambers opening at the opposite ends thereof through the adjacent ends of the plug and through the open ends of the barrel.

3,305,212
AIR VALVE APPARATUS
Stephen A. Beach, 52 Humboldt St., Wood-Ridge, N.J. 07095
Filed Oct. 7, 1964, Ser. No. 402,184
5 Claims. (Cl. 251—320)



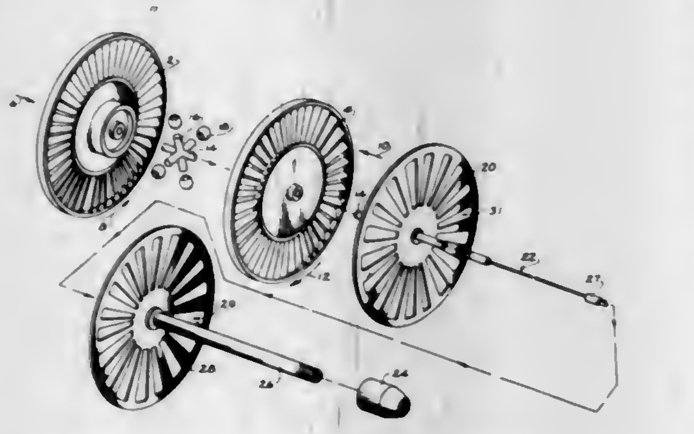
1. A fluid valve comprising a body having a longitudinal bore defined therethrough with a substantially vertical intersecting bore intersecting said longitudinal bore, a seat fitting member connected into said intersecting bore, a stem extending through said seat fitting and having a plunger portion of wider diameter than said stem located in said intersecting bore, said seat fitting having an interior recess portion defined in a face adjacent said plunger portion in which said plunger portion is slidable, an O-ring disposed in said recess and around said stem adjacent said plunger portion and providing a seal in said recess portion of said seat fitting, said plunger being movable away from said longitudinal bore on application of fluid pressure to said longitudinal bore, said intersecting bore defining a cavity below said longitudinal bore, said body having a valve seat formed around the longitudinal bore at the juncture with said intersecting bore on the downstream side, an O-ring positioned in said valve seat, a ball in said intersecting bore adapted to be forced into seating engagement with said O-ring by fluid pressure flowing through said longitudinal bore toward said valve seat, said stem being depressible from the exterior of said seat fitting to cause said plunger portion to move the ball downwardly into said cavity to permit a flow of fluid through said longitudinal bore and through the portion thereof formally covered by the ball on said valve seat.

3,305,213
VALVE CONSTRUCTION
Marvin H. Grove, 340 Hillside Ave., Piedmont, Calif. 94611
Filed Aug. 16, 1965, Ser. No. 479,976
1 Claim. (Cl. 251—328)



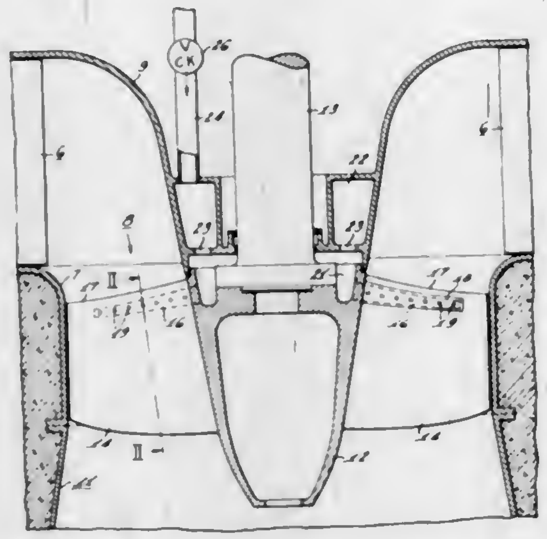
In a valve construction, a valve body comprising substantially flat side and end walls and fabricated from mill steel, the end walls comprising relatively heavy steel plates and having aligned openings to provide flow passages, a valve gate disposed within the body, sealing assemblies carried by said end walls and forming seals between the body and the gate, said sealing assemblies including a metal mounting ring fitted within a recess formed in the corresponding end wall, steel pipe sections closely fitted within the openings of the end walls, the ends of each pipe section terminating adjacent the mounting ring of the corresponding sealing assembly, each pipe section having a circular shoulder forming an abutment stop which engages the exterior face of the corresponding end wall, a weld connection between each pipe section and its corresponding end wall, said weld connection being a circular weld at the junction between the angular shoulder of a pipe section and the exterior face of the adjacent end wall, said circular weld forming a structural connection between walls of the pipe section which are stressed to a substantial degree by internal pressure and the relatively heavy wall which is not stressed to substantial extent by internal body pressure, and a seal of the O-ring type between each pipe section and the corresponding end wall, said seal being spaced axially from the circular weld and being near that end of the pipe section that is adjacent to the sealing assembly.

3,305,214
DIFFERENTIAL TURBINE
Clifford F. Kennedy, Simi, Calif., assignor to North American Aviation, Inc.
Filed Oct. 5, 1965, Ser. No. 493,202
3 Claims. (Cl. 253—16.5)



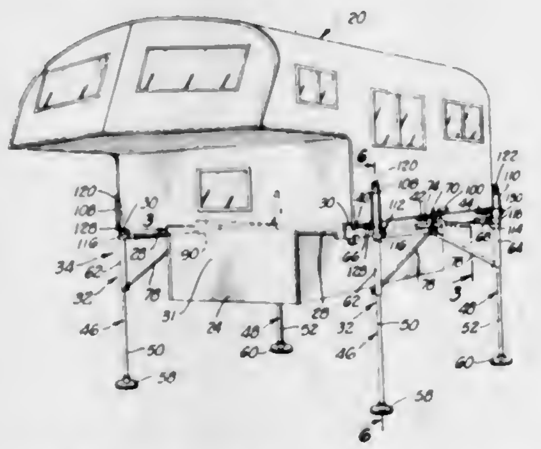
1. A differential turbine device comprising;
a drive shaft,
a first wheel having turbine blades thereon mounted on said drive shaft,
a second wheel having turbine blades thereon mounted on said drive shaft,
shaft driving means mounted between and in driving engagement with said first and second wheels,
means for selectively causing fluid to be impinged against said turbine blades of said first and second wheels, whereby when said wheels are rotated in opposite directions at the same rate, said drive shaft remains stationary and when said wheels are rotated at different rates, said drive shaft is caused to rotate,
a third wheel having openings therein to allow passage of additional fluid to the turbine blades of said second wheel, said third wheel being mounted on said drive shaft,
a torque bar attached at one end to said third wheel,
a fourth wheel juxtaposed to said third wheel and having openings therein,
means to attach said fourth wheel to the other end of said torque bar,
whereby when torque is transmitted to said torque bar, the alignment of the openings in said third and fourth wheels is varied so as to control the flow of additional fluid.

3,305,215
FLUID CUSHION FOR HYDRAULIC TURBOMACHINERY
Ignacy Swiecicki, York, and Warren G. Whippen, Dover, Pa., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Apr. 5, 1966, Ser. No. 540,300
2 Claims. (Cl. 253—117)



1. In hydraulic turbomachinery including walls defining a liquid passageway the combination comprising: a hub rotatably supported in said passageway; a plurality of circumferentially spaced blades connected to said hub for rotation therewith, said blades being arranged in said liquid passageway to cause energy transfer between said blades and the liquid; fluid passage means including a plurality of longitudinally spaced openings on the low pressure side of the blading located closely adjacent the leading edge of the blades; and fluid connecting means connecting said fluid passage means in communication with a fluid source whereby fluid flows through said openings as the pressure in said liquid passageway about said openings decreases below the pressure of said fluid source.

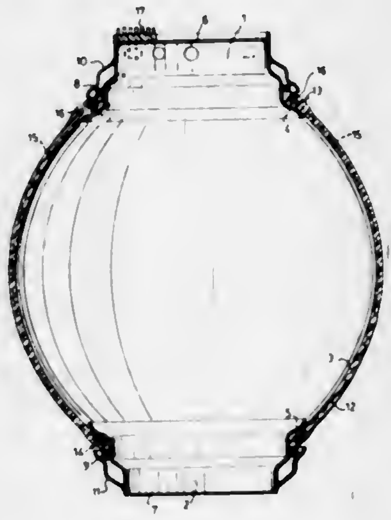
3,305,216
CAMPER JACKING APPARATUS
Steve P. De Gennaro, 1448 E. Forest Drive, Anaheim, Calif. 92804, and Steve J. De Gennaro, 5910 Victoria Ave., Riverside, Calif. 92506
Filed Aug. 30, 1965, Ser. No. 483,504
7 Claims. (Cl. 254—47)



1. In a jacking apparatus for a camper mountable on a vehicle and having a rear entrance and a walkway extending forwardly from said rear entrance toward the front of said camper, the combination of:
(a) two ground-engageable jacking means respectively mounted on opposite sides of said camper and actuable to raise and lower said camper;

(b) two actuating means respectively mounted on opposite sides of said camper for actuating said jacking means, respectively; and
(c) removable connecting means capable of spanning said walkway for interconnecting said actuating means to achieve simultaneous actuation of said jacking means.

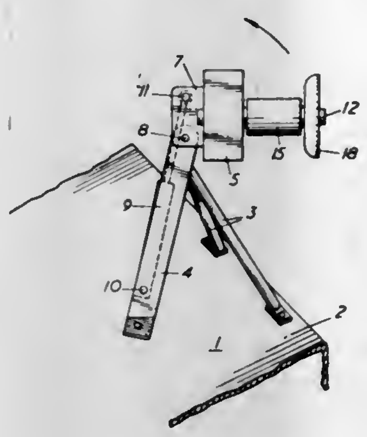
3,305,217
LIFTING JACK
Martien Wijgergangs, 9 Bosscheweg, Vught, Netherlands
Filed Feb. 2, 1965, Ser. No. 429,775
5 Claims. (Cl. 254—93)



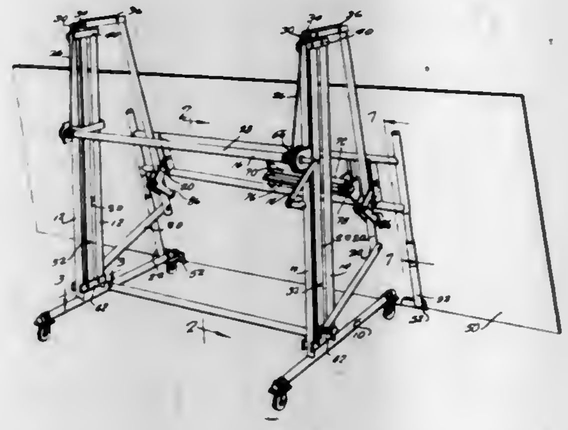
1. A jack comprising in combination,
(a) rigid bottom and top supports of circular shape and provided at their peripheries with profiled sealing surfaces,
(b) a cylindrical jacket of substantially non-stretching fiber reinforced elastomer forming with said top and bottom supports a tubeless tire shaped element, said jacket being capable of collapsing in a single fold of much larger diameter than that of the jacket when inflated,
(c) the upper and lower edges of the cylindrical jacket being profiled in the form of tubeless tire beads, the profiles of the beads mating with the profiles of the sealing surfaces of the top and bottom support peripheries,
(d) mechanical means for pressing the beads of the upper and lower edges of the cylindrical jacket against the mating sealing surfaces of the support peripheries to form a substantially hermetic seal between the sealing surfaces of the support and the beads of the cylindrical jacket whereby the tubeless tire shaped element consists of rigid and substantially non-stretching fiber reinforced elastomer walls, and
(e) means for inflating the tubeless tire shaped element and means for deflating it.

3,305,218
WINCH FOR HAULING PURSE SEINES OR SIMILAR FISHING GEAR
Kolbjörn Björshol, Langoynesset, Kristiansund, Norway
Filed June 25, 1965, Ser. No. 467,038
2 Claims. (Cl. 254—137)

1. A winch for purse seines, nets or similar fishing gear comprising, a housing from which a plurality of shafts extend, motor means for driving one of the shafts, meshed gears contained in the housing for driving the shafts from the motor, rollers mounted on and rotative with the shafts, stationary flanges at the ends of the shafts and at the outer ends of the rollers, said flanges being of greater diameter than the diameter of the rollers, the housing being connected to a supporting surface by means effective to tilt the housing and associated parts including the rollers, to an angle from horizontal.

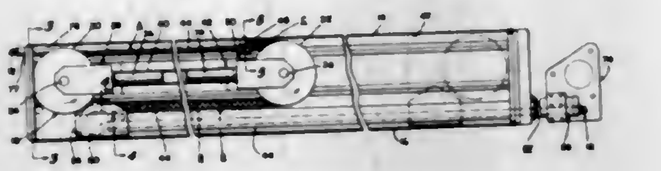


3,305,219
BUILDING BOARD LIFTER
Frank Rhodes, 1724 Claremont Ave., Pueblo, Colo. 81005
Filed Oct. 23, 1965, Ser. No. 503,365
5 Claims. (Cl. 254—139.1)



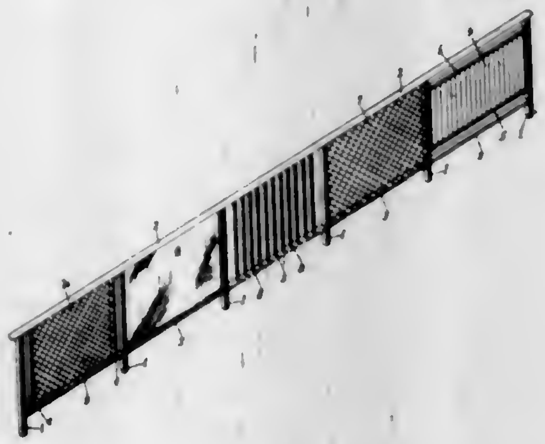
1. A building board lifter, a main carriage for rotatably carrying and supporting building boards from a main frame, a tilt lock lever mounted on said main carriage for controlling rotation of said main carriage, and movable in an arcuate direction, and slidable sleeve means on said main carriage having a tilt lock lever to allow tilting of the main carriage to a horizontal position from a substantially vertical position when said sleeve is displaced along a portion of the main carriage, and a winding cable and cable drum assembly disposed on said main frame and connected to the main carriage to turn the main carriage on said tilt lock lever when said sleeve is displaced from said substantially vertical position to the horizontal position upon release of said slidable sleeve, said main frame comprising a horizontally disposed base member and a pair of upstanding vertical members supported therefrom, and said carriage being supported from said main frame by an intermediate carriage which raises and lowers said carriage assembly by a cable and cable drum arrangement mounted from the vertical components of said main frame, the tilt locking lever including a locking arm and a clamp for allowing the main carriage to be pivotally mounted and movable from its horizontal position to its substantially vertical position.

3,305,220
TAKE-UP DEVICE
Anthony Nevulis, Wickliffe, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of Ohio
Filed Oct. 11, 1965, Ser. No. 494,732
17 Claims. (Cl. 254—189)



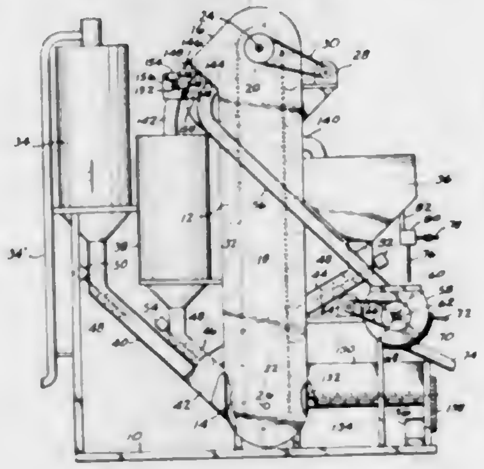
1. A take-up device for taking up the slack in flexible line means extending between a relatively stationary inner boom section and an outer extensible boom comprising, a support member attached to said inner boom section, a carriage means disposed for movement on said support member, said carriage means including a pair of spaced rotatable elements and one of said elements acting as a guide for said line means, an endless flexible drive means engageably mounted on said rotatable elements, said drive means having one portion attached to said support member, a movable member attached at one end to another portion of said drive means and at its other end to said outer boom section, and said line means having an upper stretch fixedly mounted relative to said support member and a lower stretch fixedly mounted relative to said movable member, whereby the upper stretch of said line means is progressively lengthened and the lower stretch of said line means is progressively shortened without relative movement with respect to said support and movable members upon movement of said outer boom section in one direction and vice versa upon movement of the outer boom section in the opposite direction.

3,305,221
GUARDRAIL CONSTRUCTION
Eugene V. Kling, 10333 Wayne Ave., Cincinnati, Ohio 45215
Filed Aug. 17, 1964, Ser. No. 389,880
9 Claims. (Cl. 256—21)



9. A guardrail construction comprising a plurality of vertical posts arranged in spaced apart relation, each of said posts comprising a pair of essentially identical generally U-shaped post extrusions each having an inturned longitudinal bead along one side edge and a reversely bent portion along the opposite side edge defining an outwardly opening longitudinal channel, the pairs of post extrusions being fitted together with their respective longitudinal beads received in the longitudinal channel of the other, and locking means securing said pairs of extrusions together, said locking means comprising a locking bar wedged in contact with the reversely bent portions of the fitted together post extrusions, and rail assemblies extending between said posts, said rail assemblies each comprising a generally U-shaped rail extrusion having flanges extending along its opposite side edges, and means for securing the opposite end edges of said rail extrusion to said posts.

3,305,222
APPARATUS FOR PREPARING BATCHES OF CONCRETE
William T. J. Foster, 1225 20th SE., Salem, Oreg. 97301
Filed June 11, 1965, Ser. No. 463,226
9 Claims. (Cl. 259—165)

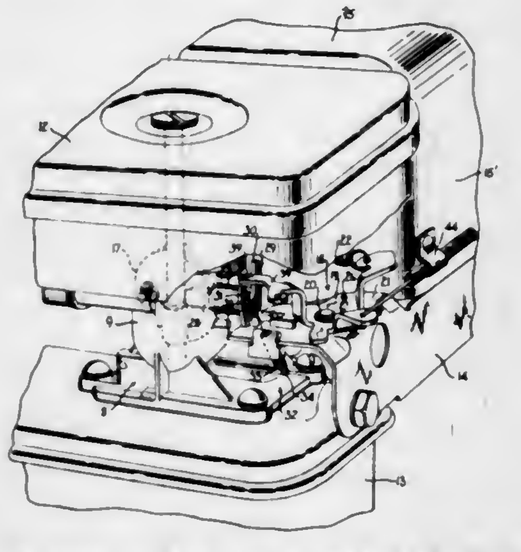


1. Apparatus for preparing batches of concrete, comprising
(a) a receiving chamber,
(b) a cement hopper,
(c) a sand hopper,
(d) a gravel hopper,
(e) discharge means communicating each of the said hoppers with the receiving chamber,
(f) control means associated with each discharge means for regulating the amount of material discharged from the associated hopper to the receiving chamber,
(g) elevating conveyor means communicating at its lower end with the receiving chamber,
(h) a mixing chamber including a mixing means therein,
(i) outfeed means communicating the upper end of the conveyor means with the mixing chamber,
(j) means communicating with the receiving chamber for feeding sand and gravel selectively thereto, and
(k) delivery means communicating the upper end of the conveyor means selectively with the sand and gravel hoppers for delivering sand and gravel to said respective hoppers from the receiving chambers by said elevating conveyor means.

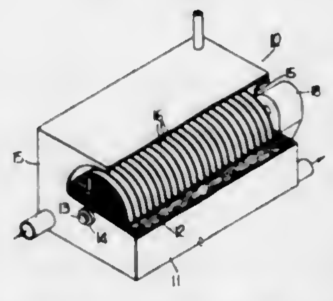
3,305,223
CARBURETOR WITH IMPROVED CHOKE VALVE CONTROL
Joseph V. Reichenbach, Milwaukee, Wis., assignor to Briggs & Stratton Corporation, Milwaukee, Wis., a corporation of Delaware
Filed Sept. 30, 1965, Ser. No. 491,519
11 Claims. (Cl. 261—52)

1. A control for the choke valve of a carburetor by which the valve may be manually opened and closed from a point remote from the carburetor, said control comprising:
(A) a control member mounted for back and forth movement between defined limits along a path fixed with respect to and adjacent to the choke valve;
(B) a flexible driving member connected to the control member and by which said member may be moved from a point remote therefrom;

(C) cooperating transiently engageable abutment means fixed with respect to the control member and the choke valve, providing a lost motion driving connection through which movement of the control member can impart movement to the choke valve from one position thereof towards its other position while leaving the choke valve free to continue its motion to such other position without hindrance from the control member; and
(D) overcenter drive means including a spring, said overcenter drive means being connected with the choke valve to yieldingly hold the same in either its open or closed position and to snap the same to the position toward which it may be moving in consequence of motion being imparted thereto by the control member when said overcenter drive means crosses dead center, so that closure of the choke valve takes place before the control member reaches the limit of its motion in the direction it must be moved to effect closure of the choke valve, whereby normal variations in the amount of motion imparted to the control member by the flexible driving member due to slack in the latter and other causes, do not interfere with full closure of the choke valve.

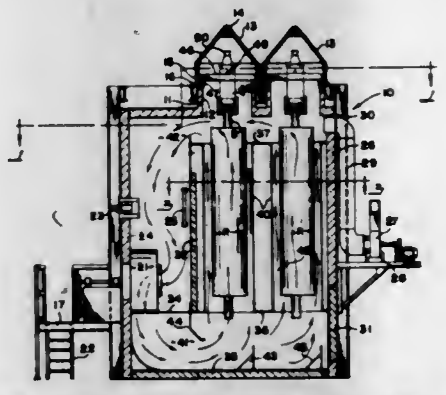


3,305,224
TWO-PHASE DISK CONTACTOR
Norman C. Piotrowski, Milwaukee, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 27, 1963, Ser. No. 333,983
1 Claim. (Cl. 261—92)



A two-phase contactor comprising a casing, means to direct a liquid to be treated through the lower portion of said casing, a shaft within said casing mounted for rotation about a horizontal axis, a plurality of imperforate, generally planar disks on said shaft spaced apart axially of said shaft and partially immersed in said liquid, a plurality of V-shaped, liquid flow guiding projections protruding from at least one surface of each of said disks perpendicular to said axis and forming V-shaped troughs opening to the outer periphery of said disk, said V-shaped projections being arranged in sets in each of which the vertices are spaced apart along a radius of said disk, the legs of said V-shaped projections extending at an angle to and terminating on the outer periphery of said disk, and means for rotating said shaft at a sufficiently slow speed to prevent liquid from being thrown off said disks by centrifugal force and to permit said projections to entrap liquid on said surface when emerging from said liquid and to direct the flow of said liquid in an elongated path along said surface under the force of gravity.

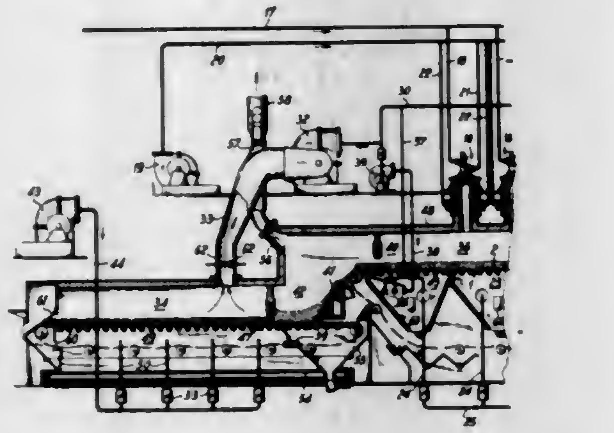
3,305,225
VERTICALLY LOADED HEAT TREATING OVEN
Joseph M. Beyvl, Cleveland Heights, Ohio, assignor, by mesne assignments, to Bangor Punta Operations, Inc., Bangor, Maine, a corporation of New York
Filed Mar. 5, 1964, Ser. No. 349,605
5 Claims. (Cl. 263—36)



2. An oven having an opening in the top thereof through which an article can be loaded and unloaded from the oven interior, cover means for sealing said opening, burner means for heating the oven interior, means for suspending the article in the oven, shell means mounted in said oven adapted to encircle the article in spaced relation to afford a relatively restricted passage through said shell around said article, fan means for circulating the air within the oven, and means for directing the circulated air upwardly through said passage between said shell and said article, the velocity of air increasing as it passes through said restricted passage, thereby increasing the rate of heat transfer to said article, said directing means including a bottom partition mounted in the oven above the bottom thereof having an opening for mounting the lower end of said shell, the partition being otherwise imperforate and forming with the oven bottom a lower plenum chamber through which air circulated by said fan means passes before flowing upwardly through said passage.

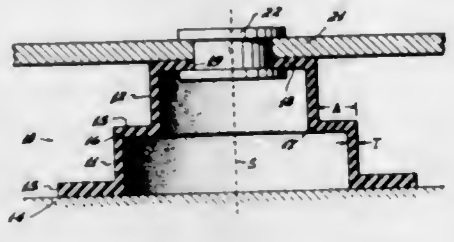
3,305,226
APPARATUS FOR DRYING AND CALCINING CRUDE PHOSPHATE PELLETS IN PLURAL CHAMBERS
Hans-Werner Ziegler, Knapsack, near Cologne, Leo Berg, Alstadten, near Cologne, and Werner Kowalski, Knapsack, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, a corporation of Germany
Filed Oct. 5, 1964, Ser. No. 401,410
Claims priority, application Germany, Oct. 19, 1963, K 39,647
1 Claim. (Cl. 263—36)

In an apparatus for drying and calcining crude phosphate pellets, comprising at least one drying chamber, at least one following calcining chamber connected to said drying chamber, a following sojourn/hardening chamber connected to said calcining chamber, a heat compensation chamber connected to said sojourn/hardening chamber, a first travelling grate passing through said drying, calcining and sojourn/hardening chambers, a cooling chamber, a second travelling grate series-connected to and at a level lower than said first travelling grate, means for conveying the said phosphate pellets from the said first travelling grate to the said second travelling grate being located inside the said heat compensation chamber, and suction chambers being located below the said first travelling grate, the said individual chambers having gas inlet and gas outlet means being separated from each other by means of upper and lower partition walls, said upper partition walls being disposed above said phosphate pellets upon said travelling grate, the improvement which comprises the said lower partition walls being located between the said suction chambers and being extended to a level immediately below the upper strand of the said first travelling grate so as to improve the spacing of individual zones, a drying chamber extended to enable gas recycled and coming from the cooling and calcining chamber and from the sojourn/hardening chamber, respectively, to give off the bulk of its sensible heat and to leave the drying chamber at a temperature of 90 to 100° C., an exhaust gas blower being connected on its suction side to both the said heat compensation chamber and to the said cooling chamber and being connected on its pressure side to both the said drying chamber and to the suction side of a chain cooling blower, the pressure side of which is connected by lines with gas outlets located below the said first travelling grate in the said suction chamber which itself is located below the said sojourn/hardening chamber, wherein shutoff and control means are connected to the said exhaust gas blower and the said chain cooling blower so as to enable (a) exhaust gas to be removed from the said calcining chamber through the said sojourn/hardening and the said heat compensation chamber for temporary desirable spatial enlargement of the said calcining chamber, (b) hot gas coming from the said cooling chamber to be conveyed through the said exhaust blower into the said drying chamber, and (c) the said hot gas to be temporarily injected via the said two blowers into the suction chamber, respectively, for temporarily cooling of the said first travelling grate.

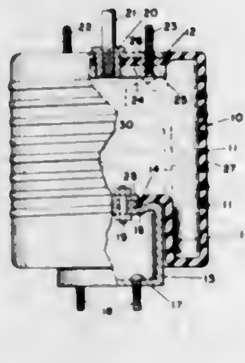


3,305,227
HIGH DEFLECTION SPRING OR BUMPER
John W. Henley, Willoughby, Ohio, assignor to The Eagle-Picher Company, Cincinnati, Ohio, a corporation of Ohio
Filed Nov. 13, 1964, Ser. No. 411,021
6 Claims. (Cl. 267—1)

1. A spring assembly including two opposed relatively movable members and a spring mounted to at least one of said members to be engaged in compression along an axis of movement between said members, said spring comprising a hollow body of elastomeric material, said body having a plurality of stepped wall portions of sequentially decreasing outside diameters, each pair of proximate wall portions being joined together by an intermediate area, each said intermediate area being defined between an outer edge which articulately joins the stepped wall portion proximate to it which is of the greater diameter and an inner edge which articulately joins the stepped wall portion proximate to it which is of the lesser diameter, the edges at which each intermediate area joins the respective wall portions constituting hinge areas about which said intermediate area flexes upon axial deformation of said spring, the width of each intermediate area being greater than the wall thickness of the greater diameter wall portion joined by said intermediate area, said relatively movable members having surface areas disposed to bear upon said hinge areas around the peripheries thereof and thereby place said intermediate areas in direct compression between said members when said members are in closest proximity.

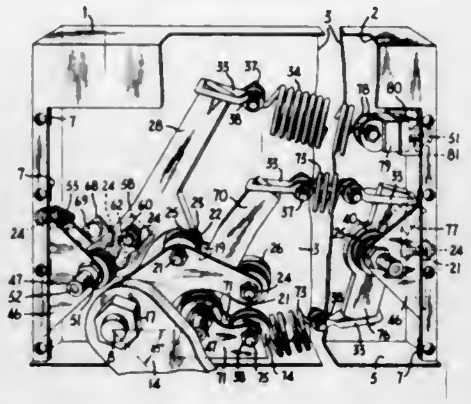


3,305,228
DOUBLE ACTION POWER ACTUATOR
Joseph B. Steck, R.D. 1, Hadley, Pa. 16130, and Donald H. Slater, R.D. 1, Fredonia, Pa. 16124
Filed Nov. 30, 1964, Ser. No. 414,770
1 Claim. (Cl. 267—1)



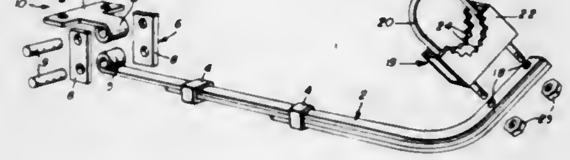
A fluid pressure power actuator comprising
an air bag made of flexible material,
said air bag being in the form of an elongated hollow flexible member,
a first rigid member fixed to a first end,
a second rigid member fixed to said second end,
means on said first rigid member to fix said rigid member to a fixed member,
means on said second rigid member to fix it to a member movable relative to said fixed member,
conduit means connected to said first rigid member to admit a fluid under pressure into said air bag,
a generally rigid member imbedded in the side wall of said air bag extending entirely around it,
said rigid member having a first and a second end,
said first end of said rigid member being disposed adjacent said first end of said bag,
said second end of said rigid member terminating at a position between said first and said second ends a distance sufficient to allow said second end to move toward said first end,
said second end being adapted to move into said air bag toward said first end when the pressure of fluid in said bag is reduced said second end being smaller than the inside lateral dimension of said side wall,
said side wall being generally cylindrical in shape.

3,305,229
VEHICLE SUSPENSION SYSTEM
Albert L. J. Crohem, 80 Rue Jules Duez, Bauvin, Nord, France
Filed Mar. 17, 1965, Ser. No. 440,524
9 Claims. (Cl. 267—11)



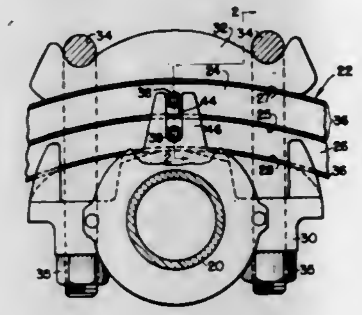
1. Suspension means for a vehicle wheel, comprising a casing, a shaft rotatably mounted in said casing, means connecting said shaft to said wheel, an arm on said shaft in said casing, said arm carrying two bearings, a first lever pivotally mounted in said casing and bearing on one of said bearings, first spring means acting on said first lever to urge said first lever against said one bearing, a second lever pivotally mounted in said casing and bearing on the other of said bearings and second spring means acting on said second lever to urge said second lever against said other roller, whereby rotation of said shaft causes movement of said arm to swing said levers about their pivots against the action of said spring means.

3,305,230
SUPPLEMENTAL SPRING FOR VEHICLE SUSPENSION SYSTEM
Edwin E. Musser, Harrisburg, Pa., assignor to Stanley Spring Works, Inc., Harrisburg, Pa.
Filed Jan. 15, 1965, Ser. No. 425,700
10 Claims. (Cl. 267—41)



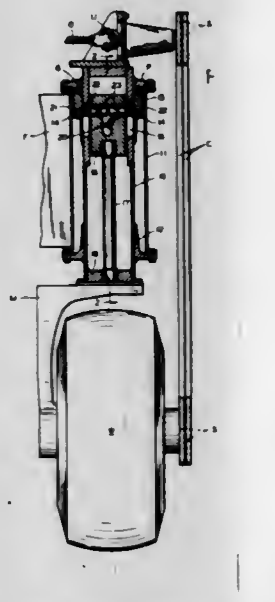
1. A vehicle suspension assembly comprising
(a) an axle assembly including an axle housing of circular cross section;
(b) a vehicle body yieldably supported above said axle assembly;
(c) a coil spring with a generally vertical axis operatively attached to and between said vehicle body and said axle assembly;
(d) a leaf spring having one end attached to said vehicle body at a point spaced from said coil spring, and its opposite end attached to said axle housing;
(e) adjustable clamping means rigidly attaching said opposite end of said spring to said axle housing to prevent relative angular movement between the opposite end of the spring and the axle housing, said clamping means encircling said axle housing to permit positioning of said opposite end of said spring in an infinite number of preselected positions in order to vary the portion of the vehicle load supported by said leaf spring; and
(f) means for adjusting the tightness of said clamping means on said axle housing.

3,305,231
VEHICLE LEAF SPRINGS
Lawrence G. Boughner, Birmingham, and Gus L. Poulos, Rochester, Mich., assignors to Rockwell-Standard Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Nov. 16, 1964, Ser. No. 411,285
13 Claims. (Cl. 267—52)



1. In a vehicle spring suspension, a metal spring leaf having tension and compression surfaces of uninterrupted continuity, a mounting bracket for said spring leaf, said spring leaf having a longitudinally intermediate portion where one of said surfaces is seated on said bracket, interfitting side stud and recess means at laterally adjacent sides of said bracket and said spring leaf vertically intermediate said surfaces for longitudinally and laterally locating said spring leaf in the suspension, and fastening means independent of said stud and recess means for securing said intermediate portion of the spring leaf to said bracket, whereby said spring leaf is mounted on said bracket without interrupting the continuity of said tension and compression surfaces.

3,305,232
HIGH CAPACITY TORSION SPRING
William A. Williamson, Battle Creek, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Oct. 13, 1964, Ser. No. 403,581
18 Claims. (Cl. 267—57)

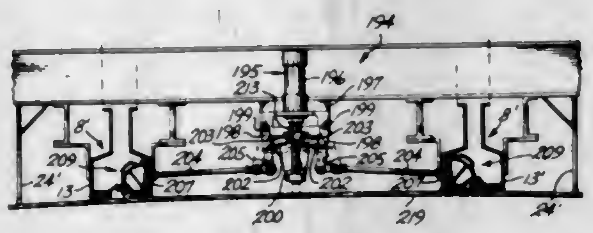


1. A suspension spring structure for a vehicle, comprising a frame, a tubular support, sleeve means slidably mounting said support in said frame, a pair of longitudinal slots in opposed wall portions of said tubular support, a pair of opposed openings in the sleeve means on a common axial plane with said slots, a reaction block within the support in movable relation therewith, a helicoid

aperture formed in said block opening through opposed surface portions thereof, a pin extending diametrically of the block, support and sleeve means and through said helicoid aperture, openings, and slots, a plurality of roller means on said pin engaging in the slots and aperture, a torsion bar extending axially of the support having one end non-rotatably secured to the reaction block, and means anchoring the other end of said torsion bar to the support in non-rotatable relation.

3,305,233
EJECTOR MECHANISM FOR VACUUM CONVEYOR

Fremont R. Cody, Tacoma, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington
Original application May 7, 1963, Ser. No. 278,558, now Patent No. 3,227,275, dated Jan. 4, 1966. Divided and this application Nov. 17, 1965, Ser. No. 508,308
8 Claims. (Cl. 271—74)



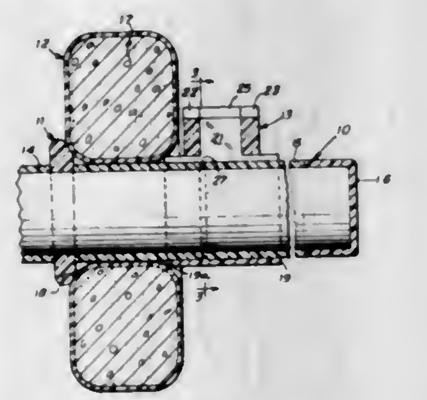
8. A method of conveying and ejecting sheet-like material from a vacuum conveyor system having belt means positioned along the lower surface of a conduit means and a vacuum pulling through slits in the lower surface of said conduit means holding said sheet-like material adjacent said belt means, comprising;

diverting said vacuum from said slits through openings in said conduit means,

simultaneously closing said slits and ejecting said sheet-like material away from said belt means.

3,305,234
WEIGHT SECURING MEANS ON A BAR BELL ASSEMBLY

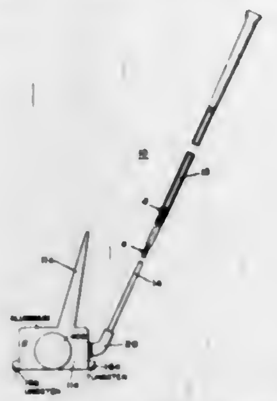
Charles Douglas Cline and Basil A. Vance, Houston, Tex., assignors to Newman, Dukes & Cline, Inc., Houston, Tex., a corporation of Texas
Filed Dec. 22, 1964, Ser. No. 420,336
6 Claims. (Cl. 272—84)



1. An exercising device comprising, a cylindrical bar, resilient means covering said bar, an abutment spaced inwardly from an end thereof, a weight encircling said bar and lying adjacent to and outwardly of said abutment, clamping means including a band encircling said bar and lying adjacent to and outwardly of said weight, said clamping means having means for contracting said band circumferentially to firmly grip said bar, said band having inwardly extending projection means, said projection means significantly compressively deforming said resilient means when said clamping means is in a closed position.

3,305,235
LONGITUDINALLY ADJUSTABLE GOLF CLUB INCLUDING HEAD WITH HIGH MOMENT OF INERTIA ABOUT TWO AXES

Albert J. Williams, Jr., 6601 Quincy St., Philadelphia, Pa. 19119
Filed July 28, 1965, Ser. No. 477,651
20 Claims. (Cl. 273—81.2)



2. An adjustable golf club adapted to reduce the extent of spoilage of off-center hits comprising:

a shaft adjustable as to length and having at the lower end thereof a head adjustably connected thereto, said head comprising a blade having a striking face and a sole extending at an acute angle to said striking face so as to form the leading edge of said blade, the body structure of said blade being of relatively light-weight material,

weight structure of more than twice the density of said body structure positioned to form the opposite ends of said leading edge and to keep the center of mass of the club head close to said striking face, said weight structure providing said club head with a moment of inertia about a vertical axis larger than the normal moment of inertia of a club head of similar size and weight with said weight structure otherwise positioned so as not to form the opposite ends of said leading edge, thereby reducing the club head spin resulting from off-center hits,

means for adjusting the angular position of said striking face relative to said shaft to change the loft of said golf club for different shots, and

wherein said adjustable shaft comprises a shaft section having at the lower end thereof means of attaching said head, the upper end of said shaft section including a very gradually sloping portion and terminating in a threaded portion,

a threaded nut member carried by the threaded end of said shaft section,

a hollow handle section slidably mounted on said shaft section,

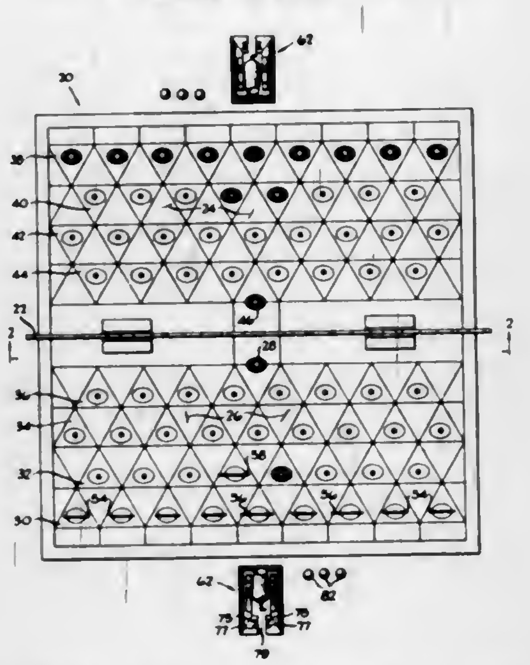
said handle section having a cross-section in the shape of a polygon and corresponding to the shape of said nut member which is received therein,

said threaded nut member being so constructed and arranged to be tightened and loosened on said threaded portion of said shaft upon relative rotation between said shaft and handle sections so very gradually as to require relative motion through an angle in the order of 45° or more so as to be able to avoid unintentional loosening of the handle and to be able to absorb the reduced club head spin resulting from off-center hits,

said nut member including a solid portion and integral expandable portions extending axially from said solid portion of said nut member which upon turning of said nut member on said threaded portion of said shaft section causes said expandable portions to move on said sloping portion and so to expand outwardly very gradually against the inner surface of said handle section for frictionally interlocking said handle and shaft sections at a selected overall length.

3,305,236
GAME WITH MISSILE THROWING DEVICES AND GAMEBOARD DIVIDING WALL

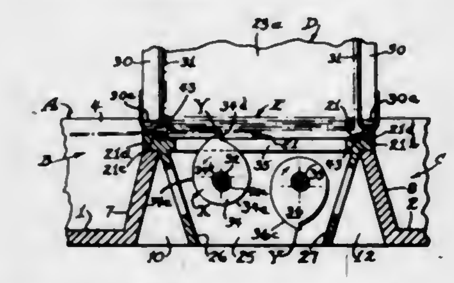
Marvin I. Glass and Henry Stan, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Feb. 28, 1964, Ser. No. 348,064
7 Claims. (Cl. 273—95)



1. In a game, a game board having markings thereon defining generally parallel rows of stations for playing pieces, dividing means extending across the mid-portions of the board and projecting upwardly therefrom, a set of game pieces for each player shaped to be set up on said stations on opposite sides of said dividing means, a throwing device for each player, a plurality of missiles shaped to be thrown by said throwing device, a dial containing a plurality of legends of instruction for movement of said pieces and operation of said throwing device, and a chance controlled indicator positioned to point out said instructions on said dial.

3,305,237
SHUFFLER WITH ADJUSTABLE GATES HAVING OFFSET PLAYING CARD HOLD DOWN MEANS

Emil J. Granius, 1969 Tyler St., San Pabio, Calif. 94806
Filed Mar. 2, 1964, Ser. No. 348,681
2 Claims. (Cl. 273—149)



1. In a card shuffler:

(a) a card receiving compartment including a base and side walls, the lower edges of said side walls being spaced above the top of said base to permit the lateral passage of cards from said compartment;

(b) card shuffling means including rotatable cams for alternately engaging with the lowermost card in the stack of cards in said compartment for removing the card laterally from the stack and moving the card through the space between the lower edge of one compartment side wall and the top of said base and then for moving the next lowermost card laterally and in the opposite direction for ejecting the card through the space between the lower edge of the other compartment side wall and the top of said base; and

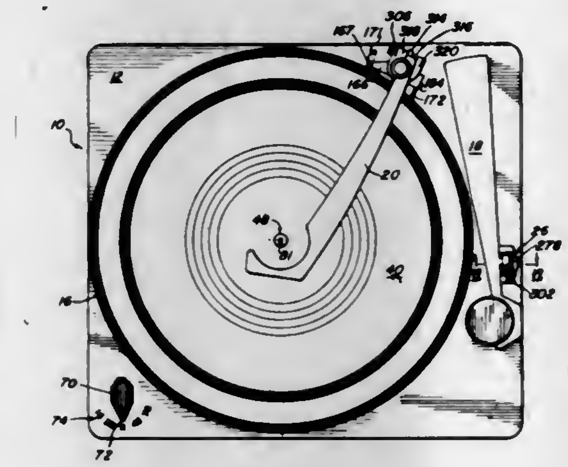
(c) a plurality of adjustable gates carried by each of said side walls and projecting below the lower edges of said side walls for altering the extent of the unobstructed opening between the top of said base and the lowest portions of said gates for permitting only one card at a time to be removed from the bottom of the card stack in said compartment;

(d) said gates having offset means for receiving the edge of the next to the lowest card in the stack for preventing this card edge from being moved upwardly when the lowermost card is engaged by the cams for removing it from the card stack;

(e) the offset means of said gates having shoulders associated therewith acting as stops to the adjacent edge of the next to the bottom card for preventing this card from being ejected laterally from the card stack with the lowermost card that is being ejected.

3,305,238
PHONOGRAPHIC APPARATUS

Reuben C. Carlson, Bensenville, Ill., assignor to Fray Products, Inc., Franklin Park, Ill., a corporation of Illinois
Filed May 18, 1964, Ser. No. 368,301
27 Claims. (Cl. 274—10)

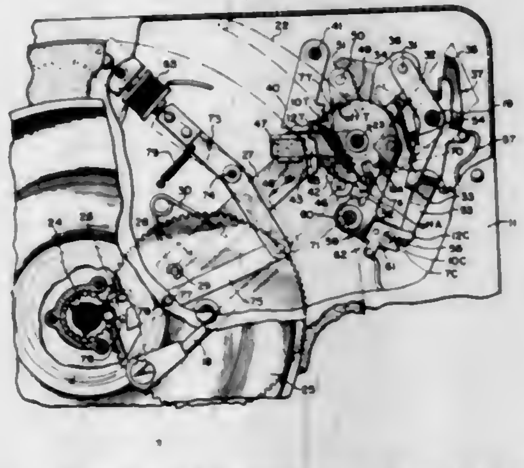


10. In a phonograph apparatus in which a grooved record is adapted to be rotated and a stylus is arranged to follow said groove to vibrate in accordance with the variations of the groove configuration to produce thereby a signal amplifiable to audible sound and including, a turntable for supporting said record during play, means including a motor for driving the turntable at any one of several pre-selected speeds, means, including a spindle assembly, for carrying a stack of records thereon and dropping same seriatim upon said turntable, a pivotal stylus arm for mounting of the stylus; the invention herein comprising: cycling means for operating said apparatus in a coordinated sequence and including indexing means adapted to assume a position responsive to the diameter of the record dropped from said spindle; drive lever means responsive to the position of said indexing means for driving the stylus arm radially inward relative to the turntable; guiding means operated by the drive lever means directing the stylus arm to the proper position for placing the stylus carried thereby upon the proper lead-in groove of the record for the diameter of the record responsive to the indexing means, cam and follower means for controlling the lift of the stylus arm both prior to and upon completion of play of said record and the return pivoting of said stylus arm upon completion of play, drive means, including a separate motor operable independent of the turntable drive means, for driving the cam of said cam and follower means in a rotary movement, and electrical switch means for operating said apparatus in a predetermined and automatically repetitive sequence,

said indexing means including first lever means responsive to the speed selected for the turntable, second lever means responsive to the diameter of the record being dropped to the turntable, bracket means including a stepped portion biased for rotation, placement of a selected one of the steps of said stepped portion in the vertical path of said drive lever means to limit the vertical displacement thereof, thereby to limit the angular displacement of the stylus arm in response to the diameter of the record to be played.

3,305,239
POSITION TRIP

Richard A. Hathaway, Des Plaines, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Oct. 19, 1964, Ser. No. 404,674
5 Claims. (Cl. 274—10)

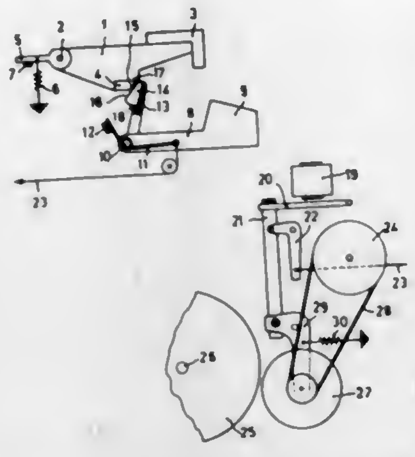


1. A position trip for a phonograph having a tone arm which is pivoted near one end and movable in a generally radial path between an outer diameter and a related inner diameter of the record to be transcribed and further having an automatic record change mechanism for effectuating a record change cycle comprising:
  - means responsive to said record change mechanism for sensing the magnitude of said outer diameter;
  - first contact means movable along a path in correspondence to the movement of said tone arm;
  - second contact means disposed in said path at a position prescribed by said sensing means;
  - and actuating means responsive to the engagement of said first and second contact means for initiating said change cycle.

3,305,240
MAGNETIC TAPE DICTATING MACHINE CONTROL

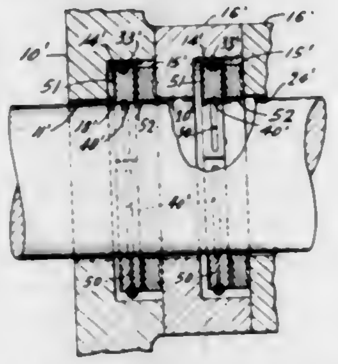
Gerhard Missriegler, Vienna, Austria, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 2, 1961, Ser. No. 149,601
Claims priority, application Austria, Dec. 23, 1960, A 9,641/60
6 Claims. (Cl. 274—11)

1. In a magnetic tape recorder/reproducer particularly useful as a dictating machine the combination therewith comprising a slow rewind circuit means, an electromagnet controlled by said circuit, an armature moveable by said electromagnet, a rod connected with said armature and movable therewith, a first pivotal lever having one end connected with said rod and its other end connected with means for controlling termination of movement of said tape, a second pivotal lever having one end connected with said rod, a slow rewind idler wheel, a flywheel means and a winding table means, a belt drive between said rewind idler wheel and said winding table means, said rewind idler wheel being rotatably mounted on the other end of said second pivotal lever and moveable by said lever into driven engagement with said flywheel upon movement of said rod and armature for driving said tape in a rewind direction whereby said motion of said tape may be terminated and said tape rewound at a slow rewind speed.



3,305,241
PACKING RING STRUCTURE

Robert J. Hart, Mount Vernon, Ohio, assignor to The Cooper-Bessemer Corporation, Mount Vernon, Ohio, a corporation of Ohio
Filed Oct. 19, 1965, Ser. No. 497,775
2 Claims. (Cl. 277—27)

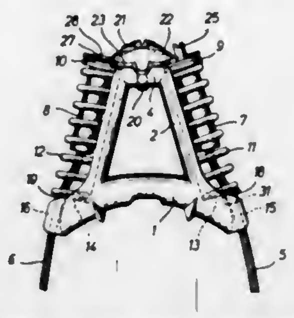


1. In sealing structure: a housing wall having an opening therethrough, said housing wall having a high pressure side and an opposite low pressure side and said opening including a shoulder facing said high pressure side of said wall, a piston rod extending through said opening, an annular backup ring positioned against said shoulder, said backup ring having an inner cylindrical surface which closely surrounds said shaft and an annular surface which sealingly abuts said shoulder, said annular surface having a generally annular groove therein which is communicated to the radially inner surface of said backup ring, and an annular packing ring positioned against said backup ring and effecting a sliding seal with said piston rod, said packing ring and said backup ring having annular faces which abut each other, said annular face of said backup ring having an annular groove therein which is communicated to high pressure on said high pressure side of said wall to reduce pressure forces biasing said packing ring against said backup ring.

3,305,242
SAFETY SKI BINDING

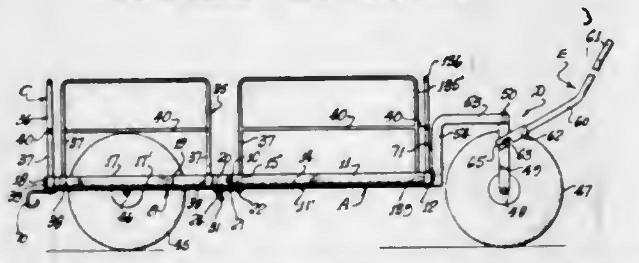
Hannes Marker, Alpspitzstrasse 37, Garmisch-Partenkirchen, Germany
Filed June 22, 1964, Ser. No. 376,774
8 Claims. (Cl. 280—11.35)

1. A safety ski binding comprising, in combination with two rearwardly extending end portions of flexible tension cable adapted to be located on opposite sides of the heel of a ski boot, a yoke having a portion for engaging the heel of a ski boot, keeper member independent of cable tension movably connected to said yoke, coupling means for locking said cable ends to said keeper member and for releasing one of said cable ends in response to a predetermined tension exerted on said cable, said coupling means including a helical compression spring responsive to the tension in said cable mounted at each side of said yoke and mounted about each of said cable ends, and resilient means for urging said keeper member into its locking position wherein it engages said coupling means, said resilient means having a lower spring resistance than said helical springs responsive to cable tension.



3,305,243
FOLDABLE LUGGAGE CART

John Manfredi, Jr., 13506 Gladstone Ave., Sylmar, Calif. 91342, and Lafe I. Chambers, 1912 1st St., San Fernando, Calif. 91340
Filed Nov. 23, 1964, Ser. No. 413,117
10 Claims. (Cl. 280—36)

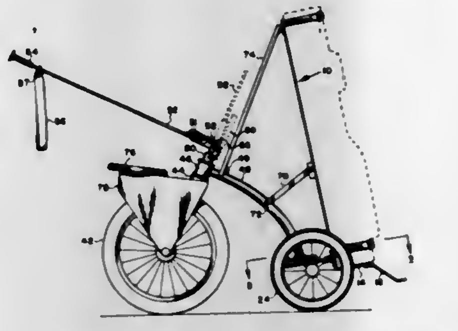


1. A foldable luggage cart comprising a pair of rectangular bottom sections having adjoining transverse margins and hingedly connected to one another at said adjoining margins for folding movement of one of said sections upon the other; releasable means operable to provide bridging connections between said bottom sections across said adjoining margins for rigidifying the hinged connections between said sections with the sections in a common plane; a pair of rear wheels supporting the rear bottom section; an inverted L-form front wheel bracket having a vertical leg secured to and extending upwardly from the center of the forward side of the front bottom section in the use position of the cart and a horizontal arm projecting forwardly from said vertical leg; and a steerable front wheel attached to the forward end of said horizontal arm and extending downwardly for approximately half its diameter below the plane of said front bottom section and rearwardly beneath said horizontal arm, said front wheel bracket and front wheel projecting past the rear side of the rear bottom section when the cart is folded and said rear wheels then projecting beyond the plane of said rear bottom section to approximately the same height as said front wheel bracket.

3,305,244
GOLF CART

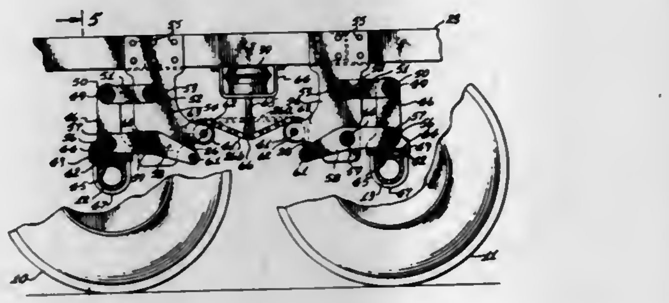
Lucien M. Flagg, P.O. Box 1211, St. Simons Island, Ga. 31522
Filed Nov. 12, 1964, Ser. No. 410,545
2 Claims. (Cl. 280—47.35)

1. A manually drawn tri-wheel golf club cart comprising generally vertically extending club support means, a pair of rear wheels carried by said support means, a steerable front wheel, a frame, means mounting the front wheel on one end of the frame for movement about a steering axis, and means releasably connecting the other end of said frame to said support means comprising a pad pivotally mounted on one of the frame and support means, a retainee on the other of said frame and support means, including a socket receiving said pad, means providing a lip overlying one edge portion of the pad and tending to retain the pad in said socket, a keeper overlying another edge portion of the pad opposite said one edge portion, and means mounting said keeper for movement into and out of overlying relation with the pad.



3,305,245
VEHICLE SUSPENSION SYSTEM

Roy M. Eidal, 250 Woodward Road SE., Albuquerque, N. Mex. 87102
Filed Dec. 29, 1964, Ser. No. 421,797
2 Claims. (Cl. 280—104.5)



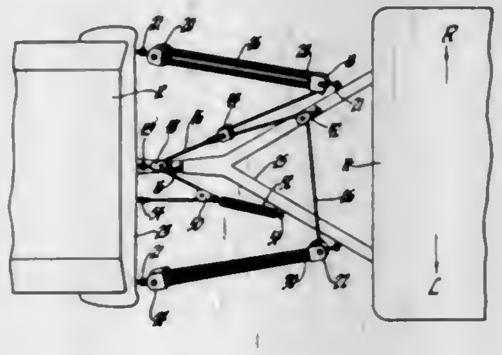
1. A vehicle suspension system comprising in combination:
  - (A) a forward road wheel and axle assembly,
  - (B) a rear road wheel and axle assembly,
  - (C) a frame,
  - (D) guide sleeves fixed on said frame,
  - (E) a guide column fixed to each of said axles vertically reciprocatable in said guide sleeves,
  - (F) a pair of horizontally spaced idler rollers,
  - (G) an idler lever for each of said idler rollers pivotally mounted on said frame,
  - (H) yielding fluid cylinders on said frame connected to actuate said idler levers to swing said idler rollers radially,
  - (I) a length of chain having one end connected to one of said guide columns and its other end connected to the other of said guide columns and engaging said idler pulleys so that said guide columns are caused to move in opposite directions relative to said frame while said yielding fluid cylinders are arranged to control the relative vertical position of said frame to both of said wheel assemblies.

3,305,246
ANTI-FISHTAIL DEVICE FOR TRAILER HITCH

Donald L. Gonczy and John S. Gonczy, both of 24650 N. Cromwell, Franklin, Mich. 48025
Filed Oct. 2, 1964, Ser. No. 401,193
32 Claims. (Cl. 280—446)

1. An anti-oscillation system for utilization between first and second members which rotate relative to one another about a common axis and comprising a first line

adapted to be connected at a first end thereof to one of said first and second members, a first means adapted to be connected to said first member for allowing said first line to be retained in running relationship with said first member, a second means adapted to be connected to said second member for allowing said first line to be retained in running relationship with said second member, said first line passing a plurality of times between said first and second means, a second line adapted to be connected at a first end thereof to one of said first and second members, a third means adapted to be connected to said first member for allowing said second line to be retained in running relationship with said first member, a fourth means adapted to be connected to said second member for allowing said second line to be retained in running relationship with said second member, said second line passing a plurality of times between said third and fourth means, means associated with the respective second ends of said first and second lines so that said first and second means and said third and fourth means may be connected to said members so that upon relative rotation between said members said first line will be pulled through said first and second means to allow the distance therebetween to increase as said second line is pulled through said third and fourth means as the distance therebetween decreases and whereupon said first and second lines operate in the reverse manner upon relative rotation between said first and second members in the opposite direction.

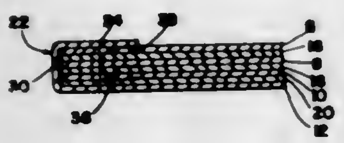


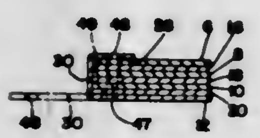
3,305,247
MULTIPLE TRANSFER FORM AND METHOD OF MAKING THE SAME

James B. Fulk, Monte Sereno, Calif., assignor to Paper Converting Machine Company, Inc., Green Bay, Wis., a corporation of Wisconsin

Filed Aug. 2, 1965, Ser. No. 476,251

4 Claims. (Cl. 282—11.5)





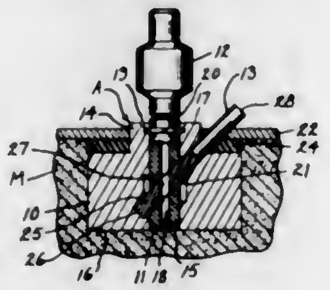
1. A multiple transfer manifold form comprising, an outer top record sheet and an outer bottom record sheet, a plurality of interleaved record and transfer sheets disposed between said top and bottom record sheets, one of said outer record sheets having an extension projecting longitudinally outwardly along at least one marginal edge thereof so as to provide a flexible flange portion, said transfer sheets being of a lesser width as compared to said record sheets and all of said record and transfer sheets terminating at substantially the same point so that their respective edges are disposed in a substantially common vertical plane adjacent said flange portion, said flange portion being folded over around the edges of the interleaved record and transfer sheets and into engagement with the confronting surface of the other outer record sheet, there being an adhesive line interconnecting the inner edge of the flange portion with the contiguous record sheet to form a smooth, generally flat stub for holding the record and transfer sheets in interleaved relationship, said stub having a first row of longitudinally spaced holes extending completely through all of said record and transfer sheets, said adhesive line being disposed inwardly of the first row of holes on the stub edge of the form, and said record sheets having a second row of longitudinally spaced holes extending completely therethrough along the side opposite said stub, said second row of holes being disposed in said record sheets at points beyond the adjacent edges of said transfer sheets and both of said rows of holes being oppositely disposed in transverse, generally parallel aligned relationship with one another, slit means disposed through said stub intermediate selective of the holes therein for retaining said record and transfer sheets in interleaved relationship, said flange portion having a weakened severance line means disposed between said top and bottom record sheets for separation of said record and transfer sheets, and each of said record sheets having registered lines of perforations extending longitudinally of the form and inwardly of said stub, whereby one or more of the record sheets may be removed from the form without disturbing the unitary relationship of the remaining sheets.

3,305,248
INJECTION FITTING

Edward R. Margis, 5011 N. Pallsades Road, Whitefish Bay, Wis. 53217

Filed Nov. 30, 1964, Ser. No. 414,688

3 Claims. (Cl. 285—4)



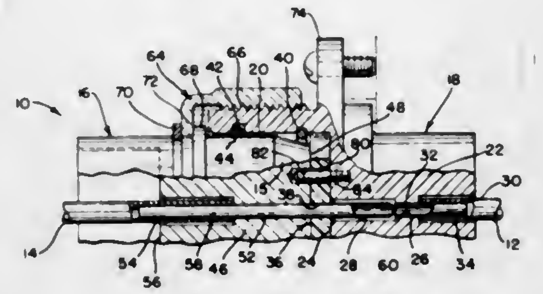
1. In combination with a fluid tight chamber to be pressurized, an injection pressurized fitting adapted to be associated with the outer casing of said chamber including, an annular lower body, a reduced section on one end of said body about its axial center, said reduced section and lower body forming a shoulder therebetween, the outer casing of said chamber being provided with an aperture, said annular lower body position within said chamber and said reduced section extending through said aperture, said shoulder portion providing means to restrain said lower body within said chamber and means to seal said fitting to said outer casing, said body and reduced section having a bore extending axially throughout its entire length, a stem snugly received in said bore and having one end terminating above said reduced section of said body, said stem having an axially extending passageway therethrough, means adjacent the upper end of said stem for connection with the source of pressurization and for allowing the injection of a pressurization material therethrough, a deformable pin extending angularly through said body and stem, the portion of said pin adjacent the passageway being provided with a port in alignment with and in communication with said passageway, and said pin being capable of deforming to close said port and to flow into said passageway.

3,305,249
QUICK-CONNECT DEVICE FOR MULTIPLE FLUID LINES

Emery J. Zahuranec, Solon, Ohio, assignor to Crawford Fitting Company, Cleveland, Ohio, a corporation of Ohio

Filed Feb. 4, 1964, Ser. No. 342,406

2 Claims. (Cl. 285—24)



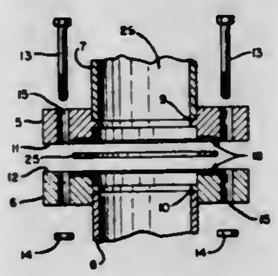
1. A coupling for multiple fluid lines comprising:
(a) a female coupling member having an end with an inwardly extending generally axially directed socket;
(b) transverse bottom wall defining means at the inner end of said socket;
(c) a male coupling member having an end received within said socket when the coupling members are connected and provided with transverse end wall defining means opposed to the bottom wall defining means of the socket;
said male coupling means having its said end axially separated from said socket bottom wall and defining therewith a fully enclosed annular cavity;
(d) a plurality of elongated hollow male nipple members generally parallel to the axis of the coupling, said male nipple members being carried by one of said wall defining means and projecting longitudinally therebeyond;
(e) a plurality of bores provided in the other of said wall defining means and aligned with the male nipple members when the coupling is connected;
(f) elastomer sealing means disposed between said end and bottom wall defining means with said sealing means being characterized in that it substantially fills the cavity at least between the transverse bottom wall defining means and the transverse end wall defining means when the coupling members are interconnected;
(g) a plurality of apertures provided through said elastomer sealing means with the number of said apertures being at least equal to the number of said male nipple members and of a size and shape generally corresponding to that of the male nipple members, said male nipple members extending through and beyond corresponding ones of such apertures into corresponding bores of said other wall defining means when the coupling members are connected;
locator lug means comprising a pin carried by one of said wall defining means with the axis of said pin being generally parallel to the axis of the coupling;
a cavity formed in the other of said wall defining means adapted to receive said lug means when the coupling is connected;
an aperture in said sealing means through which said pin projects at least when said coupling members are interconnected;
(h) means to connect the nipple members and said bores, respectively, with appropriate fluid lines, and
(i) means to draw the male and female coupling members together into connected relationship and to compress the elastomer sealing means between the wall defining means and against the external surfaces of the male nipple members to establish a fluid seal between the coupling members;
said last mentioned means including a coupling nut rotatably received over the end of one of said coupling members;
means restraining said coupling nut from movement longitudinally of said one member;
means on the exterior of the other of said coupling members adapted to cooperate with said coupling nut thereby to connect the coupling members.

3,305,250
VACUUM JOINT

Charles L. Hall, Palo Alto, Calif. (20690 Homestead Road, Cupertino, Calif. 95014)

Filed June 29, 1964, Ser. No. 378,833

8 Claims. (Cl. 285—106)



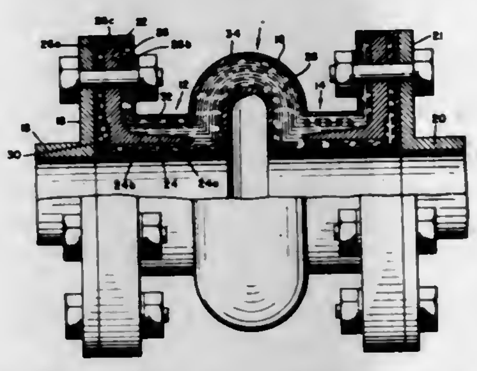
1. A vacuum joint structure comprising two joint members providing an internal evacuation space, each of said joint members having an end surface, means for forcing said end surfaces toward each other, each of said end surfaces having an annular groove therein positioned radially outward of said internal space, each of said grooves having its bottom wall disposed substantially parallel to the end surface and its side wall surfaces inclined toward each other in a direction making them closest together at the bottom of the groove, an annular sealing gasket having a rectangular cross section and receivable in said annular grooves with the four edges of the rectangle in contact with said inclined wall surfaces, said annular grooves being sufficiently deep that when said joint members are forced together by said forcing means said sealing gasket does not engage the bottom of either of said grooves, said sealing gasket being substantially solid across its face surfaces whereby the force exerted against the radially outer edges of the gasket is transmitted across the gasket and resisted by the force exerted against the radially inner edges of the gasket, and said joint structure having a passageway connecting the bottom of each of said annular grooves with said internal space in substantially the same plane as said sealing gasket.

3,305,251
EXPANSION JOINT

Clayton H. Skinner, Buffalo, N.Y., assignor, by mesne assignments, to Hewitt-Robins, Incorporated, Stamford, Conn., a corporation of Delaware

Filed Jan. 20, 1964, Ser. No. 338,646

6 Claims. (Cl. 285—229)

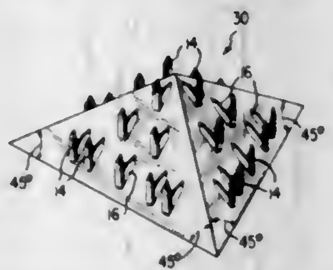


1. An expansion joint for connection in a fluid conducting line comprising a first and a second joint section, each of said joint sections including a generally

hollow cylindrical composite body having a flange extending radially outwardly from the outer axial end thereof of which is axially spaced from the central region of the joint, a generally annular flexible arch section connecting contiguous axial ends of said joint sections to each other at the central region of said joint, each joint section including a rigid insert member therein having an axially inwardly directed tubular skirt portion extending axially to the intersection of the respective joint section and the associated arch section, said insert having an integral rigid flange portion extending radially outwardly from said skirt portion of each insert at the flange end of the joint section, a multiple ply fabric carcass lying in said arch and extending into each joint section and along the surfaces of the rigid insert of each joint section, means on said skirt portion and wire means positioned radially outwardly of the skirt portion for anchoring said carcass on said skirt portion of the insert member, and an elastomeric sheathing substantially completely covering the outer surfaces of said joint.

3,305,252
CORNER CONNECTOR

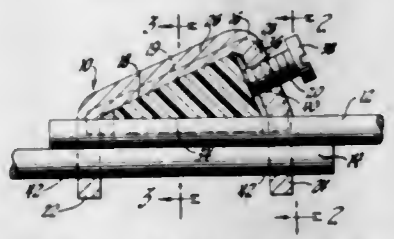
John C. Jureit, Miami, Fla., assignor to Automated Building Components, Inc., Miami, Fla., a corporation of Florida
Filed Nov. 21, 1962, Ser. No. 239,220
1 Claim. (Cl. 287—20.92)



A corner connector comprising a flat metal plate having a plurality of nail-like teeth struck therefrom over substantially its entire area, the plate being bent in the shape of a hollow pyramid to conform with the adjacent surfaces of the corner intersection of three plane bodies, the teeth being struck at an angle from the plate such that the longitudinal axes thereof are mutually parallel upon the bending of the plate.

3,305,253
ROD ADJUSTMENT CLAMPING DEVICE

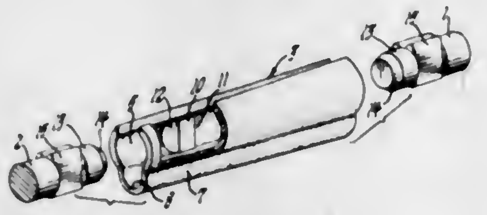
Leonard F. Kopich, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 24, 1964, Ser. No. 413,525
2 Claims. (Cl. 287—58)



1. A clamping device for parallel rods comprising:
a bracket having a pair of generally parallel sides connected at one end by two portions at an angle with each other and with said parallel sides, said bracket having an open bottom and open lateral sides, said parallel sides each having rod receiving passage therethrough and a widened portion forming retaining surfaces on either side of said angle portions, one of said angled connecting portions having a threaded bore therethrough;
a wedge means positioned within said bracket for limited vertical movement between said two angled connecting portions and said retaining surfaces on said parallel sides, said wedge being wider than said angled portions and having ears which straddle said angled portions to fix said wedge laterally with respect to said bracket;
and a threaded means received in said threaded bore and adjustable to transmit force to said wedge whereby said clamping device is adapted to adjustably secure a pair of rods together.

3,305,254
SNAP-IN ROD CONNECTOR

Joseph Henry Hopkins, Warren, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 4, 1964, Ser. No. 364,363
3 Claims. (Cl. 287—111)



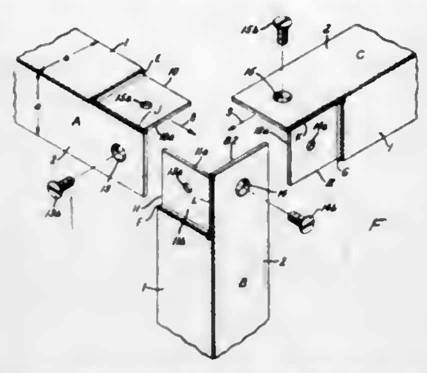
1. A snap-in rod connector having a dual axis sleeve type body of generally U-shaped cross section adapted to receive and hold a rod having substantially parallel slots and radially extending projections between the slots adjacent one end thereof, comprising in combination:
a main diameter portion having a longiutdinally split wall and substantially corresponding to the diameter of a rod to be inserted therein,
a radially projecting detent means on the inner wall of the main diameter portion adjacent each end of the sleeve, with each detent means being on the opposite side of the axis of the main diameter portion adjacent each end of the sleeve, with each detent means being on the opposite side of the axis of the main diameter portion than the other detent means and with a respective detent means adapted to be received in one of said slots for engaging and holding such a rod when inserted, and
a sub-diameter portion offset from and opening into the main diameter portion opposite the split wall, said sub-diameter portion being of substantially less diameter and operable to flex and absorb any bending stresses occasioned by assembly or disassembly of a rod.

3,305,255
STRUCTURAL FRAMEWORK CORNER

Wayne Lee Roy Henderson, West Hartford, Conn., assignor to General Electric Company, a corporation of New York
Filed Aug. 27, 1964, Ser. No. 392,378
4 Claims. (Cl. 287—189.36)

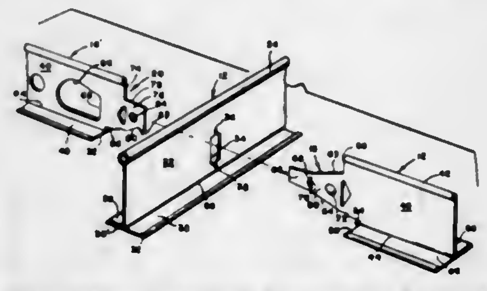
1. A structural corner comprising:
(a) three angle members of sheet material of predetermined thickness disposed in mutually perpendicular relationship;
(b) each of said angle members comprising two flanges extending substantially at right angles to each other;
(c) an end portion of one of said flanges being offset inwardly from the general plane of said flange by an amount substantially equal to said predetermined thickness;
(d) the corresponding end portion of the other of said flanges being co-planar with the general plane of said flange;

(e) said three angle members being assembled to provide a smooth corner structure with said offset end portion of each of said three angle members overlapping said co-planar end portion of one of the other two angle members; and
(f) means joining said overlapping end portions of said flanges.



3,305,256
CEILING GRID SYSTEM

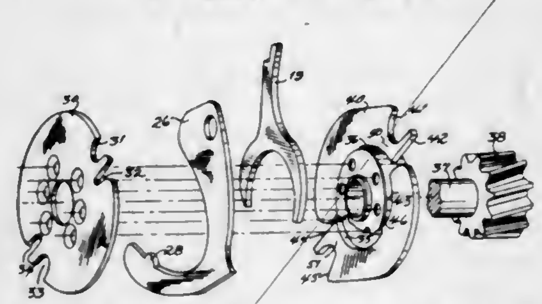
Henry Znamirowski, Baltimore, Md., assignor to Eastern Products Corporation, Baltimore, Md., a corporation of Maryland
Filed Apr. 1, 1966, Ser. No. 539,426
5 Claims. (Cl. 287—189.36)



1. A transverse member for use in a suspended ceiling comprising an elongated member including a vertical web having outwardly extending ceiling-panel-supporting flanges, said member including upper shoulder portions and lower abutment edges at opposite ends thereof, said web including terminal, longitudinally extending tongues at opposite ends thereof extending beyond said shoulder portions and the lower abutment edges, one of said terminal tongues including a downwardly extending hook portion of the lower edge thereof, said web including an elongated longitudinal extending slot having a vertical edge spaced inwardly from the adjacent lower abutment edge thereof and adjacent said one terminal tongue, the other terminal tongue being of the greater length than said one terminal tongue and including a terminal, laterally-bendable, terminal tab portion.

3,305,257
NOTCHED DISK CORD HOLDER

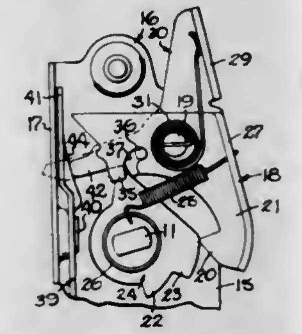
Homer N. Grillot, Naperville, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 14, 1965, Ser. No. 448,124
10 Claims. (Cl. 289—14)



1. A cord holder disk, comprising: a disk, a cord holding slot radiating outwardly in said disk to the periphery thereof, said slot having a root, a spring slot in said disk below said root of said cord holding slot and extending to the periphery of said disk.

3,305,258
AUTOMOTIVE DOOR LATCH

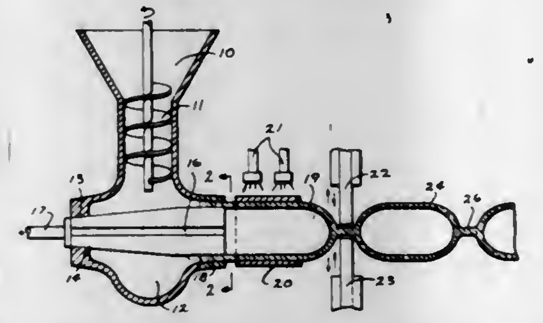
Robbert N. Peters, Koekoeklaan, Netherlands, assignor to L. W. Menzimer, trustee
Filed Dec. 7, 1964, Ser. No. 416,512
4 Claims. (Cl. 292—198)



4. In a latch, the combination of, a latching element, a first member mounted to turn about a predetermined axis selectively to hold and release said latching element, a second member mounted to turn about said axis, means supporting one of said members for bodily shifting transversely of said axis, a slot formed in one of said members eccentrically of said axis and a pin rigid with the other of said members and projecting into said slot whereby the shiftable member shifts and the pin follows said slot upon turning of said second member, and a locking element movable into and out of a position in which it blocks shifting of the shiftable member whereby said pin transmits turning of said second member to said first member to release said latching element.

3,305,259
METHOD OF ABSORBING SHOCK BETWEEN A BOAT AND OTHER OBJECTS

Wilber M. Johnson, Rte. 1, Box 56, Clermont, Fla. 32711, and Richard L. Johnson, 15452 Wenhaven Drive, Chagrin Falls, Ohio 44022
Filed Nov. 16, 1964, Ser. No. 411,227
3 Claims. (Cl. 293—71)



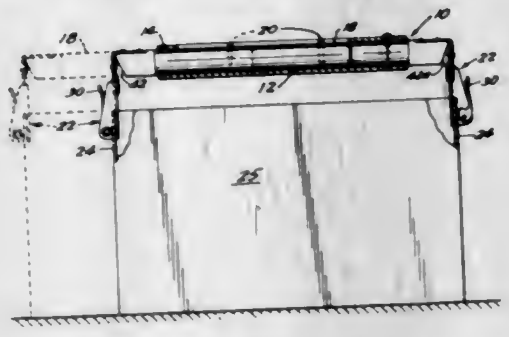
1. The method of absorbing shock between a boat and other objects which comprises interposing between the boat and said other objects a continuous gas-containing elastic tube which is divided into compartments hermetically sealed from each other.

3,305,260
CARRYING DEVICE

Reuben B. Phillips, Menota Heights, Minn. (1815 Hunter Lane, St. Paul, Minn. 55118)
Filed July 19, 1965, Ser. No. 472,806
2 Claims. (Cl. 294—16)

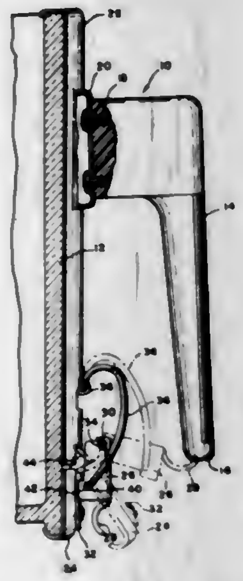
1. A carrying device adapted for attachment to the sidewalls of an open-ended container whereby a handle is formed thereon, said device comprising a transverse handle member, and a pair of clamping members, one of each of said clamping members being respectively attached to an opposite end of said handle member; said clamping

members each comprising a backplate for engaging an inner surface of a said sidewall having a pointed end, spaced wings attached to said backplate and being so arranged that the said wings and backplate define a slot adapted to receive a portion of a said sidewall, a transverse axle member extending between said wings and positioned adjacent said slot; and pivoted about said axle member, an arcuate lever having an ellipsoidal serrated end portion eccentrically positioned relative to said axle member which, when said lever is in a closed position, is disposed in such spaced relationship to said backplate that a portion of a said sidewall inserted in said slot is frictionally engaged and retained by said end portion and said backplate; and spring means connected to said axle and said lever and biasing said lever into a closed position in which said serrated end portion projects into said slot.



3,305,261
REMOVABLE HANDLE

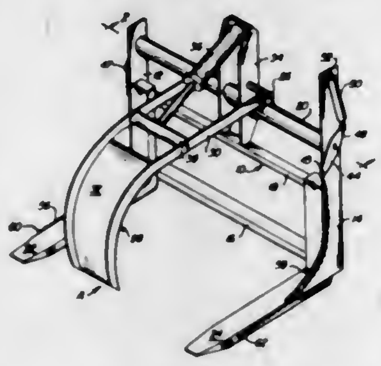
Roy L. Swanke, Newington, Conn., assignor to Dynamics Corporation of America, New York, N.Y., a corporation of New York
Filed July 28, 1965, Ser. No. 475,483
7 Claims. (Cl. 294—16)



1. A removable handle for an upright container which comprises,
  an upright handle member having a lower end portion;
  a top container engaging strap secured to said handle member;
  a bottom container engaging strap free of said handle member;
  a clamping lever pivotally supported by said bottom strap;
  spring means pivotally connected to said top strap and to said clamping lever;
  the said clamping lever being adapted to be pressed downwardly in closed position whereby the tension of said spring means urges said straps toward each other in secured engagement with top and bottom portions of said container;
  and the said clamping lever being also adapted to be snapped upwardly in open position to release the tension of said spring means and to loosen said straps whereby to permit removal of said handle from said container;
  the said lower end portion of the handle member being so positioned as to engage said clamping lever and stop its upward movement.

3,305,262
LOG EJECTOR FOR MOBILE LOADERS

Le Grand H. Lull, 5501 Woodlawn Blvd., Minneapolis, Minn. 55417
Filed Mar. 9, 1965, Ser. No. 438,428
3 Claims. (Cl. 294—67)

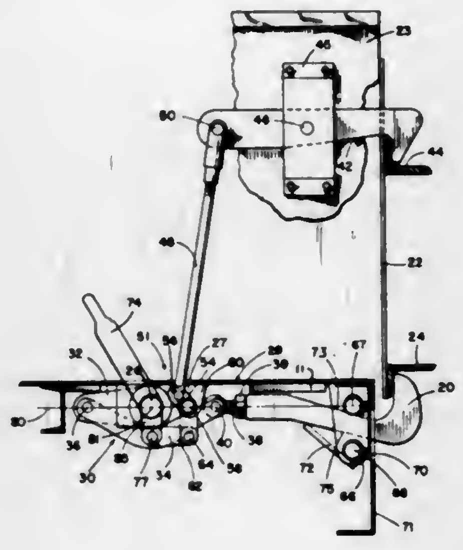


1. In a material handling carriage for mobile loaders including a frame and a pair of forwardly extending lift fork members carried by said frame, said lift fork members and said frame defining a cradle in which articles may be positioned, the combination of:
  a pair of chain mounting means rotatably carried by said frame, one above the rearward end of each of said lift fork members,
  a load ejecting chain member carried between the forward end of each lift fork member and said chain mounting means,
  each of said chain members having a length such that it is normally suspended between its ends below and to the rear of the cradle defined by said fork members and said frame, and
  power means operable to rotate said chain mounting means forwardly and upwardly whereby to swing said chain members above and forwardly of the cradle defined by said fork members and said frame to sweep an entire load from said fork members.

3,305,263
TAIL GATE LATCH ASSEMBLY

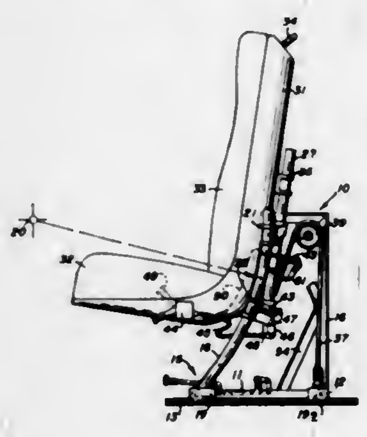
William S. Appleman, Galion, Ohio, assignor, by mesne assignments, to Harsco Corporation, Harrisburg, Pa.
Filed June 19, 1964, Ser. No. 376,384
2 Claims. (Cl. 296—56)

1. A release mechanism for a truck body having a top-hinged tailgate comprising, in combination, a plurality of slideable bottom hooks positioned to clamp the lower edge portion of said tailgate at transversely spaced intervals, said bottom hooks including inclined upper and lower edges; first follower means on said truck body and engaging said inclined lower edges for shifting said hooks upwardly; second follower means on said truck body and engaging said inclined upper edges for shifting said hooks downwardly; stop means on said truck body and overlying the shanks of said hooks for absorbing rotational loads applied to said hooks by said tailgate; a transversely extending common rock shaft for actuating said bottom hooks; at least one latch means disposed to engage an outer end portion of the upper margin of said tailgate; guide means for said bottom hooks disposed adjacent the rear edge portion of said truck body; an arm including an inner end mounted on said rock shaft and an outer end; a first link including a first end pivotally connected to one of said bottom hooks and a second end pivotally connected to said outer end of said first arm, the central portion of said link being offset with respect to a line through the pivot centers of said link ends whereby said arm and link can be moved beyond center to lock said bottom hooks against said tailgate; a linkage including a pivoted lever connecting said latch means to said rock shaft; and an actuator for rotating said rock shaft to simultaneously actuate said hooks and said latch means.



3,305,264
ADJUSTABLE AIRCRAFT SEAT

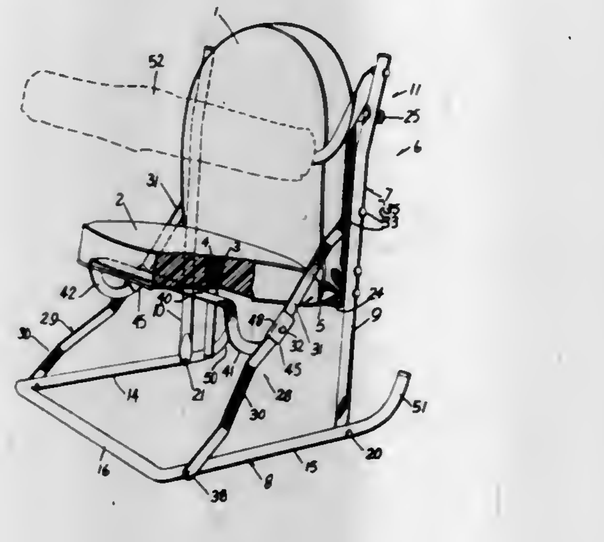
Paul C. Gunn, Fort Worth, Tex., assignor to M. H. Spinks Sr. Enterprises, Inc., Fort Worth, Tex., a corporation of Texas
Filed Jan. 17, 1966, Ser. No. 521,052
1 Claim. (Cl. 297—346)



In an aircraft seat having a rigid back portion, a frame rearwardly of said back portion and including arcuate forward frame members, the radii of the arcs of said forward frame members being defined by a transverse line forwardly of said seat, upper and lower sleeves spaced apart and slidably mounted on said forward frame members, cross members connecting said upper and lower sleeves, straight generally vertical seat supporting members secured to said upper and lower sleeves, upper and lower seat supporting sleeves mounted on said seat and slidably mounted on said seat supporting members, spring means normally urging said seat upwardly, latch means selectively positioning the first said sleeves on said arcuate forward frame members, and latch means selectively positioning said seat supporting sleeves on said seat supporting members.

3,305,265
CAR SEAT

Samuel Linden, Swampscott, Mass., assignor to Bunny Bear, Inc., Everett, Mass., a corporation of Massachusetts
Filed Oct. 23, 1965, Ser. No. 503,344
9 Claims. (Cl. 297—353)



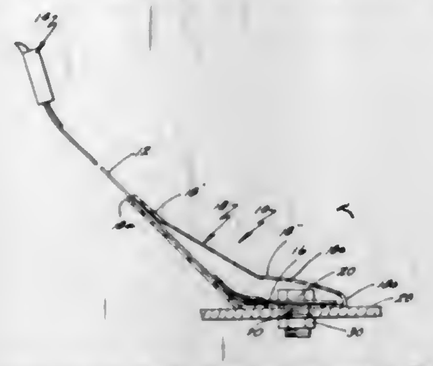
1. A child's seat for use in an automobile comprising
  a back rest and seat rest, means interengaging said back rest and seat rest for movement of said back rest and seat rest to and from a position substantially normal to one another,
  a frame including a back member and a base member, means pivotally interengaging said back member and base member for movement to and from a position substantially normal to one another,
  means securing said back rest in substantial parallel relation to said back member,
  means for locking said back member and base member in said normal position and supporting said seat rest in a position substantially normal to said back rest comprising a pair of hinge members positioned one on either side of said seat rest and each including a pair of legs hinged together at adjacent ends with the other end of one leg pivotally engaging said back member and the other end of said other leg pivotally engaging said base member,
  support means integral with one of said legs extending transversely of and adapted to engage and support said seat rest; and
  means for locking said legs in fixed relation to one another.

3,305,266
SEAT BELT TERMINAL JACKET

Arthur S. Nicholas, 1526 Groton Road SE., Grand Rapids, Mich. 49506, and Donald L. Fuerst, 901 Reynard SE., Grand Rapids, Mich. 49507
Filed Oct. 21, 1965, Ser. No. 499,726
5 Claims. (Cl. 297—385)

2. A safety belt and anchor plate terminal protector comprising: a water repellent, dust repellent jacket having a generally flattened cross section with two closed edges and two wide sides, to receive and closely encompass a safety belt portion and an attached orificed anchor plate; said sleeve having one end open for belt extension therefrom, and the other end closed to extend around the end of an anchor plate; one of said sides being closed, and the other side having an opening adjacent said closed end, and having a flexible orificed anchor flap extending

into said opening; said opening having a width substantially equal to but slightly less than the sleeve width to allow temporary protrusion of a belt segment and an anchor plate therethrough with flexing of said flap to a protruding position, for insertion of a fastener through an anchor plate and said orificed flap.



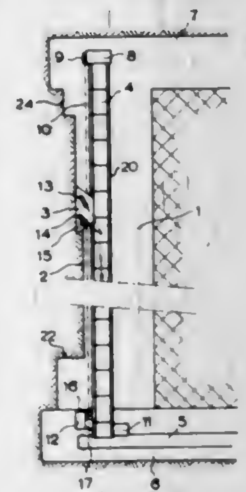
3,305,267
PROCESS AND APPARATUS FOR WINNING AND TRANSPORTING MATERIALS

Izaak S. Van Dommelen, Hoensbroek, Netherlands, assignor to Stamicarbon N. V., Heerlen, Netherlands

Filed May 20, 1964, Ser. No. 368,847

Claims priority, application Netherlands, May 22, 1963, 293,161

13 Claims. (Cl. 299—1)



1. A method for mining material from the face of a seam of such material comprising: progressively severing a predetermined thickness of material from said seam; displacing said material generally laterally outwardly of said face onto a continuously transporting conveyor as said material is progressively severed, monitoring the level of material on the conveyor at a point thereon where the material about to be severed from said face will be placed, controlling the rate of displacement of severed material onto the conveyor at said point in response to the monitoring of the level at said point to optimize the amount of material being conveyed and prevent overloading of the conveyor.

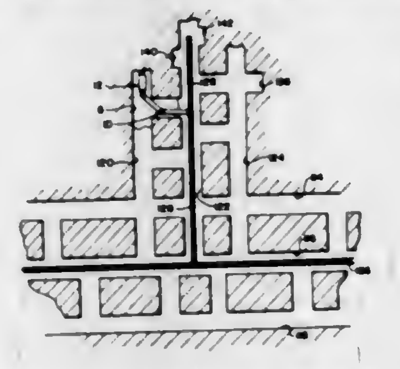
3,305,268
METHOD OF COAL MINING

Terrill G. Todd, Beaver, W. Va., assignor to Wilcox Manufacturing Company, Raleigh, W. Va., a corporation of West Virginia

Original application Dec. 15, 1961, Ser. No. 159,636. Divided and this application Sept. 10, 1965, Ser. No. 486,401

5 Claims. (Cl. 299—18)

1. A method of short wall room development in a coal mine with the use of a machine working at the face capable of conveying away from the face coal removed therefrom, a stationary floor conveyor system capable of conveying the coal to a loading station, including a room floor conveyor section capable of being lengthened or shortened to extend to the vicinity of the machine, and a bridge conveyor assembly capable of continuously conveying the coal from the machine to the floor conveyor system which comprises the steps of progressively removing the coal in the mine vein in a direction away from the floor conveyor system so as to form a pair of generally parallel rooms elongated in the direction of progress and interconnected by a plurality of closely spaced break throughs extending therebetween while substantially continuously conveying the removed coal from the machine to the bridge conveyor assembly and then to the floor conveyor system, supporting and progressively lengthening the room floor conveyor section only in one of said rooms during the progressive formation of said one room, progressively forming the break throughs and other room alternatively with the progressive formation of said one room such that their formation advances generally along with the advance of said one room so as to maintain proper air flow, the progressive formation of said other room and the associated break throughs including advancing laterally into one side wall of said one room at longitudinally spaced positions so as to form at each position a first portion having a substantially uniform width, a second portion which increases in width and a terminal portion of a substantially uniform width greater than the width of said first portion, the terminal portions of adjacent lateral advances in said one side wall joining to provide said other room, and then progressively removing the coal in the vein in a direction opposite to said first mentioned direction of progress to form a third elongated room generally parallel to said one room and a plurality of closely spaced break throughs between said one room and said third room while substantially continuously conveying the coal from the machine to said bridge conveyor assembly and then to said floor conveyor system and progressively shortening said room floor conveyor section in said one room during the formation of said third room and associated break throughs, the progressive formation of said third room and associated break throughs including advancing laterally into the opposite side wall of said one room at longitudinally spaced positions so as to form at each position a first portion having a substantially uniform width, a second portion which increases in width and a terminal portion of a substantially uniform width greater than the width of the first portion, the terminal portions of adjacent lateral advances in said opposite side wall joining to provide said third room.



3,305,269
MINING PLANER PIVOTAL ON BASE

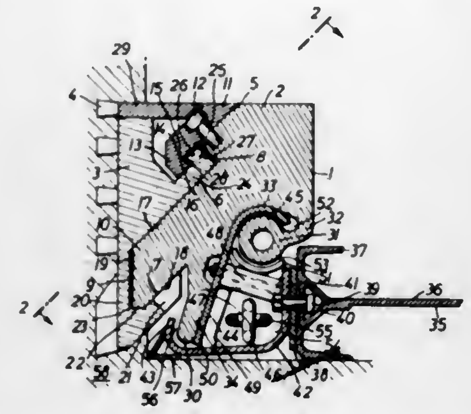
Armin Löbbe, Oberaden post Kamen, and Christoph Rassmann, Lunen, Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westphalia, Germany, a corporation of Germany

Filed Aug. 8, 1963, Ser. No. 300,285

Claims priority, application Germany, Aug. 9, 1962, G 35,679

10 Claims. (Cl. 299—34)

1. Planer for extracting mineral from a mine face which comprises base means longitudinally movable back and forth along the mine face, an arcuate retaining groove defined in said base means, cutting means, and an arcuate retaining flange defined on said cutting means, said arcuate groove representing the arc of a chord of a circle in a plane passing through said planer and having its center at a point remote from such planer, and said cutting means being slidably mounted for arcuate pivoting on said base means about an axis of pivot defined by the center of such circle with said retaining flange in arcuate slidable retaining engagement with said retaining groove to permit such arcuate pivoting while preventing otherwise displacement of said cutting means with respect to said base means.



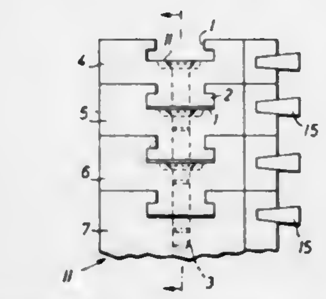
3,305,270
MINING PLANE PLOW FORMED OF PLURAL STACKED ELEMENTS

Wolfgang Annipajo, Altlunen, Germany, assignor to Gewerkschaft Eisenhuette Westfalia, Wethmar, near Lunen, Westphalia, Germany, a corporation of Germany

Filed July 6, 1964, Ser. No. 380,532

Claims priority, application Germany, July 13, 1963, G 38,182

6 Claims. (Cl. 299—34)



1. A planing plow comprising a cutter holder and a plurality of cutters mounted on said holder, said holder comprising a stack of elements assembled together in stacked relation with tongue and groove interjoining fits between adjacent elements securing the elements against relative vertical movement, and a holding pin interconnecting each pair of adjacent elements, extending through the upper element of its pair and only part way through the lower element thereof, said holding pin preventing relative movement of the elements interconnected thereby wherein a tongue slides in its groove.

3,305,271
MINING MACHINE HAVING CUTTING HEAD WITH ROTATED AND ORBITED CUTTERS

Alex J. Galis and Stephen A. Muldoven, Morgantown, W. Va., assignors, by mesne assignments, to Galis Manufacturing Company, Fairmont, W. Va., a corporation of West Virginia

Filed July 16, 1963, Ser. No. 295,405

6 Claims. (Cl. 299—57)

2. A disintegrating head for a mining machine comprising,

an elongated cutter shaft support member having a longitudinal axis,

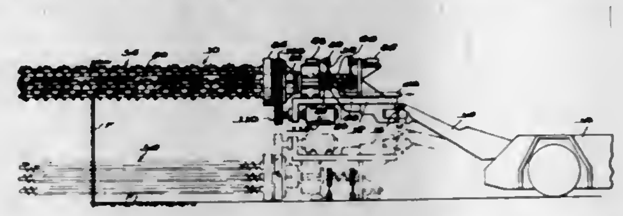
a plurality of cutter shafts carried by said support member in parallel spaced relation thereto, said cutter shafts each having a longitudinal axis axially spaced from said support member longitudinal axis, means to support said cutter shaft support member in a substantially horizontal position,

drive means to revolve said cutter shaft support member about said cutter shaft support member longitudinal axis and thereby orbit said cutter shafts about said cutter shaft support member longitudinal axis and also rotate said cutter shafts about said respective cutter shaft longitudinal axis,

cutter bits extending radially from said cutter shafts intermediate their end portions, said cutter bits arranged to dislodge material as said disintegrating head advances into said material in a plane parallel to said cutter shaft support member longitudinal axis,

other cutter bits secured to said cutter shaft support member front end portion and to each of said cutter shaft front end portions,

said disintegrating head arranged upon rotation of said cutter shaft support member and said cutter shafts to dislodge material as said disintegrating head advances into said material in a plane substantially perpendicular to said cutter shaft support member longitudinal axis.

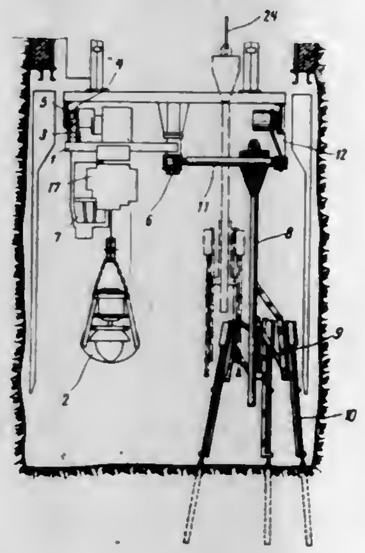


3,305,272
RIG FOR BORING DRILL HOLES IN THE FACE OF A SHAFT IN THE SINKING OF A VERTICAL MINE BY BLASTING

Valentin Georgievich Zhadaev, Moscow, Alexandr Alexandrovich Kuznetsov, Malakhovka, and Natalija Antonovna Morozova, Savelij Isaakovich Byderovyskij, Daniil Isaakovich Maliovanov, Valentina Panteleevna Novikova, Ivan Sergeevich Novskij, Nickolai Alexeevich Fominov, Victor Lazarevich Pruzhiner, Rostislav Mickhailovich Agevnin, and Konstantin Nickolaevich Grishin, Moscow, U.S.S.R., assignors to Tsentralny Nauchno-Issledoratelsky Institute Podzemnoro Shakhtnoro Stroitelstva

Filed Apr. 29, 1963, Ser. No. 278,798

5 Claims. (Cl. 299—70)

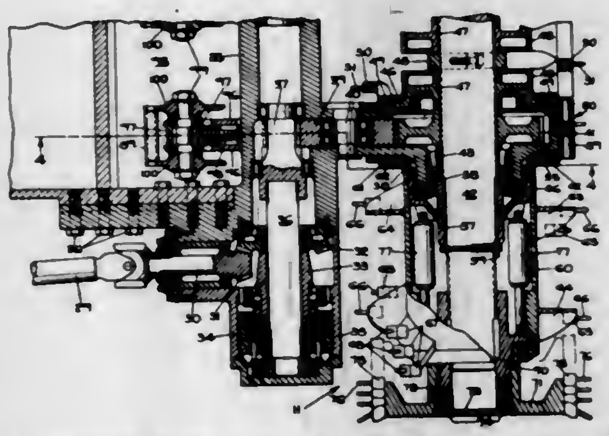


1. A drilling rig for boring drill holes in the face of a shaft in the sinking of a vertical mine by blasting, comprising a plurality of drilling machines, means for fixing

the drilling machines in relation to each other in accordance with a predetermined diagram, means for supporting the drilling machines in the shaft, carrier means, means for rigidly connecting the drilling machines to the carrier means for the duration of the drilling period, a circular guide rail for the supporting means, and biased stop means associated with the carrier means for fixing the drilling machines in relation to the circular guide rail in the desired locations.

3,305,273
MINING APPARATUS SUPPORTING AND DRIVING CONSTRUCTION

James Kilbourne, Bexley, Ohio, assignor to Jeffrey Galion Manufacturing Company, a corporation of Ohio
Filed Apr. 24, 1964, Ser. No. 362,440
9 Claims. (Cl. 299—78)

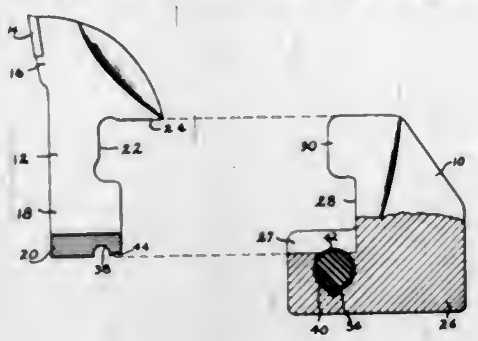


1. Mining apparatus including a rotary cutting and breaking means adapted to be advanced into the material of a mine face to remove said material therefrom, said rotary cutting and breaking means being disposed on a transverse axis relatively to the direction of advance thereof into said material, a housing for supporting said rotary cutting and breaking means for rotation around said transverse axis, said support housing extending forwardly to said transverse axis, means for driving said rotary cutting and breaking means, gear means connecting said driving means to said rotary cutting and breaking means, said gear means being disposed within said housing and comprising a first gear disposed on said transverse axis and a second gear disposed on an axis that is parallel to said transverse axis and drivingly connected to said first gear to drive the latter, portions of said rotary cutting and breaking means being spaced from each other along said transverse axis, said housing and said first gear being disposed between said spaced portions of said rotary cutting and breaking means and said second gear being disposed in said housing in longitudinal alignment with said first gear, auxiliary cutting and breaking means disposed between said spaced portions of said rotary cutting and breaking means and extending around said housing to operate over said housing, and driving connections of said rotary cutting and breaking means to said auxiliary cutting and breaking means to drive the latter about said transverse axis.

3,305,274
MINING MACHINE TOOL AND HOLDER

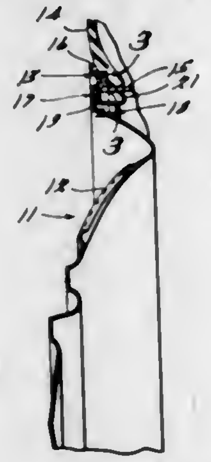
Robert D. Goodfellow, Jr., and Thomas J. Kniff, Bedford, Pa., assignors to Kennametal Inc., Latrobe, Pa., a corporation of Pennsylvania
Filed Dec. 14, 1964, Ser. No. 418,035
9 Claims. (Cl. 299—92)

1. In combination, for use as a mining tool; a cutter bit comprising a bar-like body having an outer end and an inner end and a forward side and a rearward side, a hard cutting element on the forward side of the outer end of said body, a substantially rectangular notch of substantial dimensions in the intermediate portion of the rearward side of said body, a holder block for supporting said cutter bit having one portion engaging the inner end of said body and extending along the rearward side of said body to said notch and having a substantially rectangular leg portion fitting relatively closely into said notch, and retaining means carried by one of said body and block and engaging the other thereof and releasably retaining said cutter bit in position on said block.



3,305,275
WHEEL COVER

Edward G. Spisak, Wayne, Mich., assignor to Gar Wood Industries, Inc., a corporation of Michigan
Filed June 25, 1965, Ser. No. 466,978
1 Claim. (Cl. 301—37)



A wheel structure including a vehicle wheel having an annular generally axially extending wheel flange, and

a wheel cover, said wheel cover comprising

an annular generally axially extending retaining flange,

a plurality of circumferentially spaced axially inwardly extending retaining fingers on said retaining flange terminating in axially and radially outwardly extending biting edge portions engageable with the wheel flange on said vehicle wheel when said cover is positioned thereon,

the edge portions on said retaining fingers extending generally parallel to the wheel flange axially thereof and in a chordal direction circumferentially thereof,

adjacent edge portions on said retaining fingers extending at an obtuse included angle relative to each other,

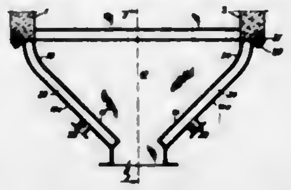
each of the edge portions extending at an acute included angle relative to a radial plane extending normal to the axis of the wheel,

opposite ends of said edge portions making biting engagement with the wheel flange at axially and circumferentially spaced locations thereupon.

3,305,276
SILO CONSTRUCTION

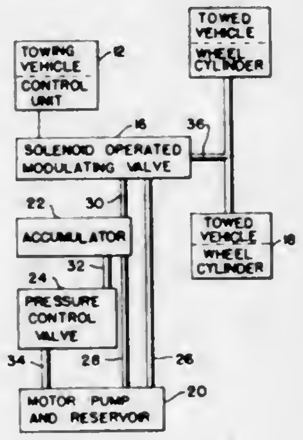
Kurt Weber, Niederuzwil, Sankt Gallen, Switzerland, assignor to Gebrueder Buehler, Uzwil, Switzerland
Filed Apr. 8, 1965, Ser. No. 446,605
9 Claims. (Cl. 302—52)

1. A silo construction including two side walls, a rear wall and an inclined silo bottom, defining a silo for the storage of material having a discharge adjacent the lower end thereof, a trough connected to said wall means at the discharge end and having a central opening defining a material discharge and further including a trough bottom with a curved transition wall portion forming a surface which is flush with said side walls and extending inwardly and downwardly toward said material discharge, said trough bottom also including an inclined wall portion sloping downwardly from said transition wall portion to the discharge and being of an inclination such that bulk material in said silo supported on said inclined wall portion is fluid only in the aerated state, said bottom being of porous material to permit passage of gases therethrough.



3,305,277
ELECTRICALLY CONTROLLED HYDRAULIC BRAKE SYSTEM

Joseph Pickles, Dearborn, and Joseph C. Littmann, Grosse Pointe Woods, Mich., assignors to Ferro Manufacturing Corporation, a corporation of Michigan
Filed Dec. 28, 1964, Ser. No. 421,349
6 Claims. (Cl. 303—20)



1. An electrically controlled hydraulic brake system for applying hydraulic fluid to wheel cylinders of a towed vehicle connected to a towing vehicle comprising a source of hydraulic fluid under pressure, a solenoid operated modulating valve connected to said source of hydraulic fluid under pressure for metering the fluid to wheel cylinders of the towed vehicle on actuation thereof and a control unit for supplying an electric actuating signal to the solenoid operated modulating valve, said modulating valve including a body member having an intake passage for the hydraulic brake fluid and an exhaust passage for the hydraulic brake fluid therein, a check valve positioned between the intake passage and exhaust passage, a supply passage connected to the intake passage for metering fluid to the wheel cylinder, a solenoid and a solenoid actuated plunger operable on energization of the solenoid to urge the check valve against the intake passage and the pressure of the hydraulic fluid under pressure toward closed position.

3,305,278
HYDROSTATIC SUPPORT BEARING

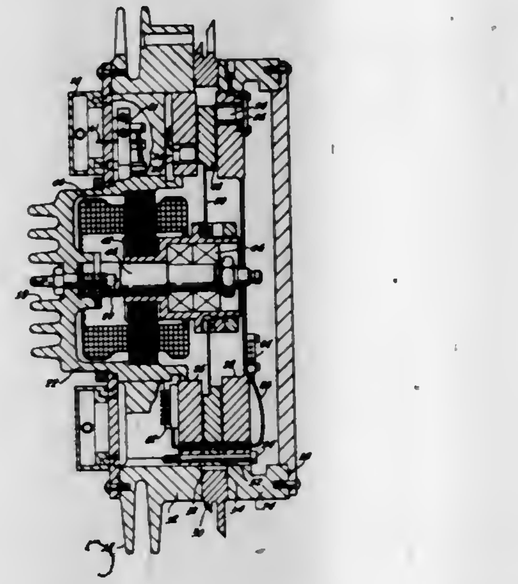
Joseph Arthur Cencel and Norman Edward McCoy, Los Angeles, Calif., assignors to Teledyne, Inc., Hawthorne, Calif.
Filed June 15, 1964, Ser. No. 374,959
7 Claims. (Cl. 308—9)

1. In a magnetic memory disc device having a head plate, rotatable disc, means adapted to rotate the disc and means for establishing hydrodynamic fluid bearings when the disc rotates at speeds in excess of a predetermined speed, supporting means for maintaining a spacing between the disc and the head plate at less than the predetermined speed, the supporting means comprising:

a plurality of orifices in the head plate, each orifice adapted to provide, in response to applied fluid under pressure, a hydrostatic fluid cushion for supporting the adjacent portion of the disc;

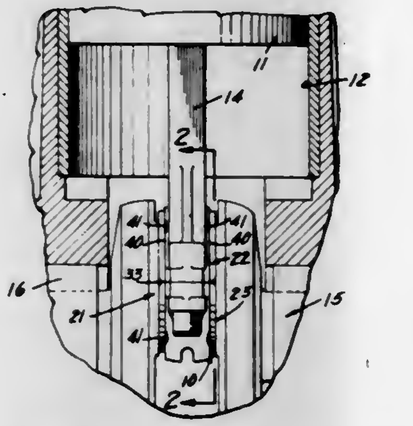
fluid supply means commonly connecting said orifices; and

reservoir means connected to said fluid supply means for applying fluid under pressure to said orifices, said reservoir means being operable to receive fluid under pressure from hydrodynamic fluid bearings created by disc rotation until pressure equilibrium is established between fluid in said reservoir means and hydrodynamic fluid pressure existing between the disc and the head plate, said plurality of orifices being adapted to provide, during disc deceleration, full support for the disc for a time sufficient to enable the disc to substantially cease rotation, from fluid stored in said reservoir.



3,305,279
ROLLER BEARING CAGE

John L. Zimmerer, Torrance, Calif., assignor to McCulloch Corporation, Los Angeles, Calif., a corporation of Wisconsin
Filed Dec. 21, 1964, Ser. No. 419,682
7 Claims. (Cl. 308—35)



1. A bearing cage for separating and guiding cylindrical rollers, comprising:

(A) two annular flanges spaced apart from each other;

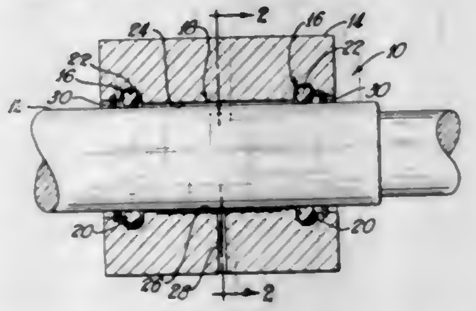
(B) a plurality of axially extending cage bars spaced apart to receive a cylindrical roller between each pair, resting on said annular flanges;

(C) the entire outer faces of said flanges being relieved; and

(D) at least a portion of the inner faces of said flanges being likewise relieved, whereby, when said flanges are disposed between spaced apart parallel members, any lateral thrust is taken up by said bars, and oil is permitted to circulate between the outer and inner faces of said flanges and the members.

3,305,280
COMBINATION BEARING

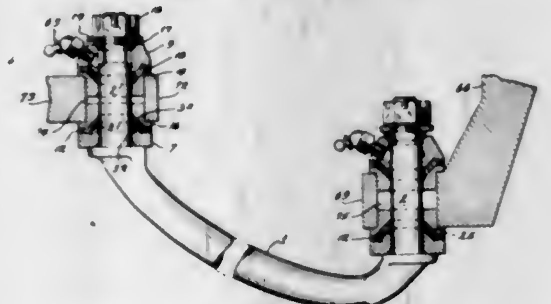
Reino A. Peterson, Southfield, Mich., assignor to The Bunting Brass and Bronze Company, Toledo, Ohio, a corporation of Ohio
Filed Feb. 13, 1964, Ser. No. 344,574
2 Claims. (Cl. 308—35)



1. A combination bearing for rotatably supporting a shaft, said bearing comprising wall means forming a sleeve bearing bore, two rolling element bearings axially spaced along said bore, each of said rolling element bearings comprising a plurality of rolling elements around the entire periphery of said bore and means forming a bearing race for rotatably supporting said elements to contact and rotatably support said shaft around the periphery thereof in the same position it would otherwise tend to assume at operating speed and load without said rolling element bearings.

3,305,281
IDLER ARM REPAIR KIT

Janis Dumpis, St. Ann, Mo., assignor to Champ-Items, Inc., St. Louis, Mo., a coporation of Missouri
Filed July 19, 1963, Ser. No. 296,191
5 Claims. (Cl. 308—36.1)



1. In a sealed type of radial and thrust bearing for journaling a spindle within a hollow hub, the improvement comprising, a spindle, a hollow hub,

(a) a pair of spindle bushings held in spaced relation on said spindle each having a flat radial face at its outer periphery,

(b) a pair of hub bushings in spaced relation in opposite ends of said hollow hub to form a lubricant chamber between said hub bushings and with the internal wall of said hollow hub, and each having a flat radial face at its outer periphery facing a flat radial face on spindle bushing,

(c) conical shell type bearings of nylon located between a spindle bushing and a hub bushing, and each having a flat round rim portion between a flat radial face on a spindle bushing and a flat radial face on a hub bushing, each having a continuous circular bead on each side of the rim portion, and each having a plurality of spaced lubricant grooves extending generally axially along at least one conical surface thereof,

(d) mating male and female conical races on opposite faces of said spindle bushings and said hub bushings, each male and female race on a spindle bushing and hub bushing being spaced by a said conical shell type bearing of nylon located around said spindle and between a male and a female bushing,

(e) a shoulder on said spindle on which one spindle bushing rests and inter-engaging threaded means on the end of said spindle spaced from said shoulder for exerting a variable pressure on the other of said spindle bushings to move said spindle bushings toward one another and hold all of said races snugly on said conical shell type bearings for supporting the spindle for rotation in said hub,

(f) a concave seat formed in one of said spindle bushings around said spindle adjacent said threaded means,

(g) a nylon ring on said concave seat expanded into the threads of said threaded means to effect a seal between said spindle and said spindle bushing,

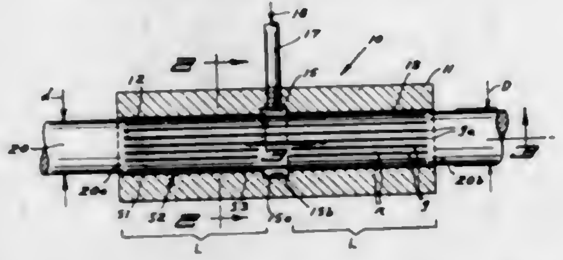
(h) annular and axially extending connected passages internally in some of said bushings opening into said chamber and into said grooves in said conical shell type bearings extending outwardly to said rim portion, and

(i) a grease fitting in one of said bushings communicating with said annular passage,

said grooves in said shell type bearings being closed by compression of said circular beads between said flat radial faces at the outer periphery of said bushings.

3,305,282
HYDROSTATIC BEARING STRUCTURE

Harold E. G. Arneson, 2861 E. Lake of the Isles Blvd., Minneapolis, Minn. 55405
Filed Mar. 29, 1966, Ser. No. 543,474
5 Claims. (Cl. 308—122)



1. An externally pressurized hydrostatic bearing assembly, comprising

a bearing surface having a fluid supply chamber through which fluid under pressure is supplied to the bearing surface,

a second bearing surface opposing and facing said bearing surface and forming therewith a hydrostatic bearing assembly,

the length of said hydrostatic bearing assembly being greater than 500 times the clearance between said opposed bearing surfaces,

one of said bearing surfaces having a plurality of elongated grooves forming a first fluid passage for receiving said pressurized fluid from said fluid supply chamber and carrying it outwardly therefrom to the outer end of the bearing assembly,

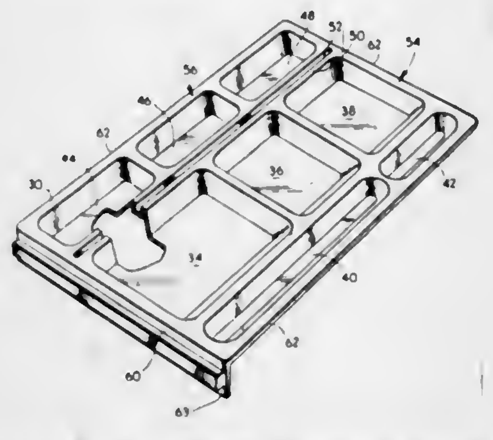
said elongated grooves extending outward from said fluid supply chamber to a point short of the outer end of said bearing assembly so that a restricted second flow passage between said opposed bearing surfaces is formed at the outer periphery of said bearing assembly,

the length of said restricted second flow passage being greater than 20 times the clearance between said opposed bearing surfaces, and

said elongated grooves forming ribs therebetween that have a width each less than four times the length of said restricted second flow passage, whereby the pressure drop along the grooves is in the range from one-quarter to three-quarters of the total pressure drop from said fluid supply chamber to the outer end of the bearing assembly.

3,305,283
CONTAINER AND TRANSPORTATION MEANS FOR DISTRIBUTING SUCH CONTAINERS

Robert H. MacKay, Fort Wayne, Ind., assignor to Lincoln Manufacturing Co., Inc., Fort Wayne, Ind., a corporation of Indiana
Filed Aug. 9, 1965, Ser. No. 478,337
5 Claims. (Cl. 312—198)



1. Apparatus for storing and transporting food products, comprising: a plurality of containers each having a base including spaced recesses therein and separation wall, a cover member proportioned to fit sealingly over said base and having outer edges sealingly joined with said base to insulate the space enclosed by said base and cover member, said cover member including a separation wall complementary with the wall of said base to sealingly separate interior portions of said base, and an integral wall section of said cover member projecting across only one side thereof and proportioned to make engagement with the base of a vertically adjacent container when moved in a horizontal direction to form an interlocking stack of said containers.

3,305,284
TELEPHONE WALL CABINET

William F. Dusterhoft, 8383 Geddes Road, Ypsilanti, Mich. 48197
Filed Sept. 10, 1965, Ser. No. 486,468
1 Claim. (Cl. 312—242)

In a rectangular frame mounted in an aperture in a wall separating two rooms and opening upon said rooms, means for supporting and selectively presenting a telephone instrument to each of said rooms and for simultaneously closing said aperture on the other side of said telephone instrument, comprising:

a quadrant-shaped, horizontal platform having a vertex and a pair of radial sides;

a pair of vertical doors mutually joined at a right angle at the vertex of said platform and secured near their respective lower edges to the radial sides of said platform;

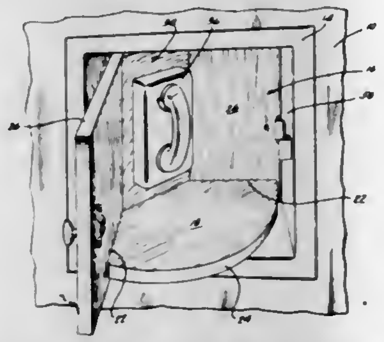
a horizontal, triangular, upper brace secured to the inner sides of said doors at their joint and flush with the upper edges thereof;

a horizontal, triangular lower brace supported upon said platform and secured to the inner sides of said doors at their joint and near the lower edges thereof;

a vertical backboard adapted to support a telephone instrument and secured to said braces above said platform, between said doors, near and spaced from said vertex, at substantially a right angle to a plane bisecting said platform;

a lower pivot pin supported upon and extending slideably downward through said lower brace and platform rearward of said backboard and pivotally received within bearing means mounted upon the lower side of said frame;

a spring-loaded, retractable upper pivot pin mounted upon and extending slideably upward through said upper brace rearward of said backboard and pivotally received within a pivot pin aperture in the upper side of said frame;



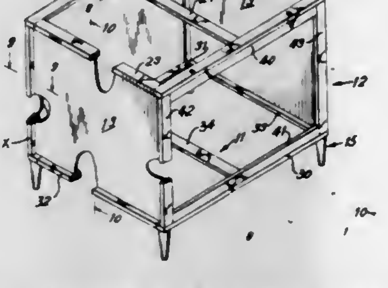
said pivot pins, bearing means, and pivot pin aperture being in alignment to form a vertical pivot axis rearward of said backboard upon which said platform, doors, braces, and backboard are disposed to swing horizontally within said frame;

latch means for releasably retaining each door in its respective closed position;

and a pair of vertical filler strips supported against the sidewall of said frame nearest said pivot axis, extending between the upper and lower sides of said frame, and filling the pair of spaces between said sidewall and each door when either of said doors is in closed position.

3,305,285
PANEL-LOCKED FURNITURE

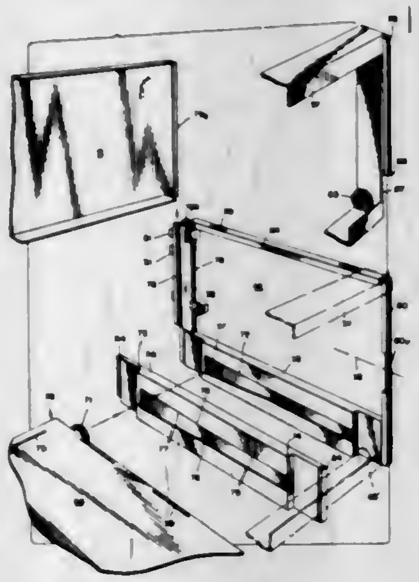
William Lew, 27 Pine Drive N., Roslyn, N.Y. 11576
Filed May 28, 1965, Ser. No. 459,787
1 Claim. (Cl. 312—257)



Panel-locked rectangular furniture comprising a top four member integral rectangular frame having a front member, and a rear member having a longitudinal cavity therein, and a pair of opposed side members, said side members having grooves therein extending partly into said front member and completely through said rear member; a bottom four piece integral rectangular frame identical to said top frame, said top and bottom frames being disposed over one another in opposed spaced-apart relationship with the grooves of the bottom frame being directly below the corresponding grooves of the top frame; a front four piece integral frame having a pair of side members extending the height of said front frame, each side member having an inwardly directed groove therein extending from the top of the front frame to the bottom thereof; a pair of longitudinal back posts of the height of said front frame, each post having a pair of grooves therein in adjacent walls and extending from the top to the bottom of said posts, said grooves of said posts being respectively directed to a side member of said front frame and to the longitudinal cavity of said top and bottom frames; a pair of side panels slidably disposed from the rear in the top and bottom frames to form respective sides of said furniture, said side panels being slidably pushed into the grooves of the side member of the front frame to effect a locking engagement thereto; and a rear panel disposed in the longitudinal cavities of said top and bottom frames, said posts each engaging a vertical edge of one of said side panels and vertical edge of said rear panel in locking engagement.

3,305,286
FURNITURE

Jay G. Fenwick, Mundelein, Ill., assignor to Morton Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed Apr. 27, 1964, Ser. No. 362,712
5 Claims. (Cl. 312—263)



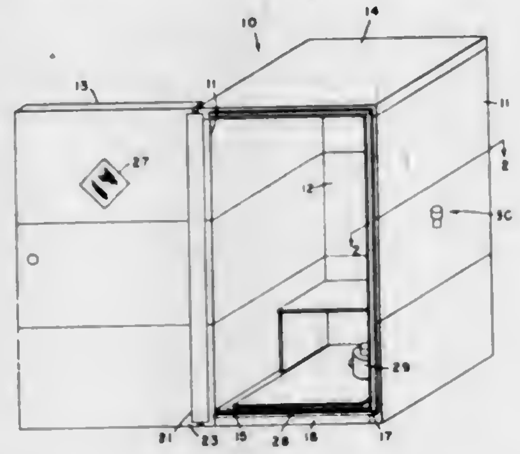
2. Apparatus erectable to provide store fixtures and other furniture, comprising: a plurality of generally planar wall-providing frames, and latch means on each frame adjacent each end thereof for releasably interconnecting said frames together to provide, in a first condition, a generally rectangular storage unit, and when said frames are disconnected and stacked in superposed fashion to provide, in a second condition, a generally rectangular knocked-down unit, one of said frames having an open central portion defining a drawer opening, two others of said frames being releasably equipped with track means for guiding a drawer introduced into said storage unit through said opening, each of said track means including a generally rectangular panel having latch means adjacent each end thereof for engagement with a latch means of each of said two other frames, said one frame being interlatched with said two other frames to bear on said track means panels to stabilize the same.

3,305,287
STEAM CABINET

Joseph M. Rait, 95 Huxley Drive, Snyder, N.Y. 14226
Filed Oct. 23, 1965, Ser. No. 503,099
9 Claims. (Cl. 312—214)

1. A steam cabinet comprising
a vertical, free standing cabinet defined by
(a) a pair of substantially parallel side walls
(b) a rear wall extending between said side walls,
(c) a top wall,
(d) a bottom wall,
(e) a front closure, and
(f) a front panel

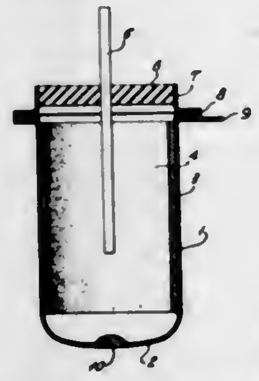
said sidewalls, rear wall, top wall and front closure being formed of a plurality of panels of rigid plastic foam joined together by means of a layer of self-adhering, two-faced, moisture resistant pressure sensitive tape extending along the points between abutting panels to provide a vapor tight seal between said panels, and a plurality of dowels extending into adjacent panels to hold the panels securely in position,



a compressible gasket secured to the edges of the panels forming said sidewalls and top wall and to the upper end of said front panel adjacent said front closure,
a first strip of moisture resistant tape extending between the outer edge of the panels forming one of said sidewalls adjacent said front closure and the back end of the panels forming said front closure on the inner surface thereof,
a second strip of moisture-resistant tape extending between the back edge of the panels forming the front closure and the front end of the panels forming said sidewall on the outer surface thereof, said first and second strips extending substantially the entire length of said closure to hingedly secure the front closure to said sidewall, and
steam generating means positioned within said cabinet.

3,305,288
MINIATURE ARC DISCHARGE TUBE

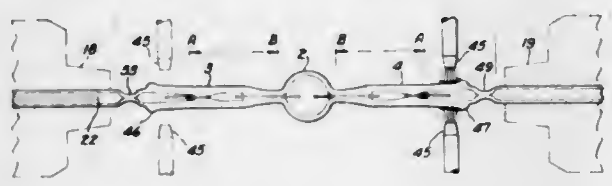
George W. Baker, Stamford, Conn., assignor to York Research Corporation, Stamford, Conn., a corporation of Delaware
Original application July 3, 1961, Ser. No. 121,450. Divided and this application June 14, 1963, Ser. No. 292,514
5 Claims. (Cl. 316—16)



1. A method of making an arc-discharge gas tube of the type having an anode and cathode, comprising depositing crystals from a compound consisting of an alkalide-halide on a surface of the cathode, in interspersed distribution charging the tube with one or a mixture of gases selected from the group of inert ionizable gases, sealing the tube against atmospheric pressure, and decomposing said compound by subjecting said electrodes to a series of current pulses of sufficient amplitude to convert the alkalide to its elemental state so that it may serve as an active electron emitter.

3,305,289
ELECTRIC LAMP MANUFACTURE

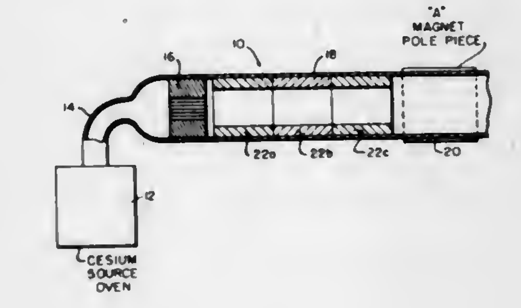
Elmer G. Fridrich, South Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed May 9, 1963, Ser. No. 279,270
10 Claims. (Cl. 316—21)



6. The method of making an electric lamp comprising:
providing a vitreous envelope having a bulb portion with tubular neck portions on opposite sides, and a pair of vitreous seal tubes each having an inlead sealed through a solid front end portion of the tube and a passageway extending from the rear end of the tube up to an aperture behind the solid portion;
inserting the solid portions of the seal tubes into said neck portions;
applying heat to form hermetic junctures between the ends of the neck portions and the seal tubes at points beyond said apertures while flushing inactive gas through the seal tubes to prevent oxidation of the inleads;
collecting a desired quantity of a discharge supporting medium within the bulb portion by flushing inactive gas in which said medium is entrained through the envelope while chilling the bulb portion in order to condense the medium within it;
applying heat to seal off the seal tubes at points beyond said hermetic junctures;
and applying heat to the neck portions to collapse them onto said solid portions and fuse the portions together into solid vitreous necks.

3,305,290
MOLECULAR BEAM CESIUM GETTER

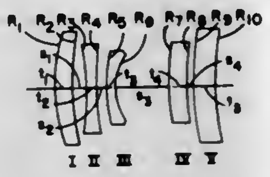
Alexander Ganssen, Wakefield, and James George, Swampscott, Mass., assignors to National Company, Inc., Melrose, Mass., a corporation of Massachusetts
Filed Mar. 5, 1963, Ser. No. 262,938
13 Claims. (Cl. 316—25)



1. A method of gettering cesium which method comprises contacting atomic cesium with a gettering amount of an antimony-containing material.

3,305,291
LENSES FOR FOCUSING INFRARED UTILIZING ELEMENTS OF SILICON AND OF ZINC SULFIDE

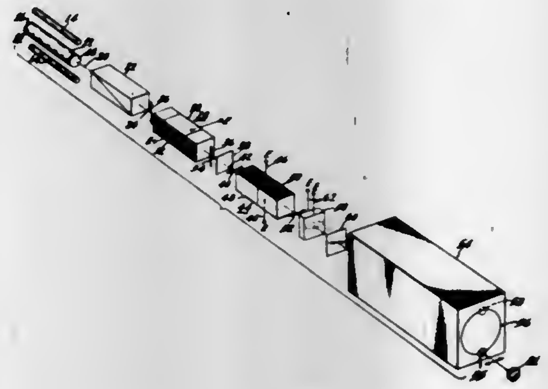
Lewis C. Snitchler, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Nov. 27, 1963, Ser. No. 326,415
8 Claims. (Cl. 350—1)



1. An infrared transmitting objective comprising aligned and airspaced in order from the front, long conjugate, side, a positive meniscus element of silicon convex to the front; a negative biconcave element of zinc sulfide; third and fourth elements, one of which is positive of silicon and the other of which is negative of zinc sulfide; and a fifth element which is positive of silicon, third, fourth and fifth elements all being meniscus convex to the front.

3,305,292
LIGHT DEFLECTING DEVICE

Arthur Miller, Penn's Neck, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Mar. 15, 1963, Ser. No. 265,379
4 Claims. (Cl. 350—150)

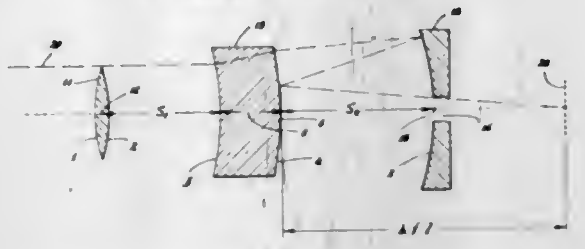


1. In combination, field-responsive light-deflecting means for deflecting a collimated beam of light transported therethrough by a first relatively small amount which is in accordance with the value of a field applied thereto with respect to a datum value of said field, means for applying a collimated beam of light as an input to said field-responsive light deflecting means, means for applying said field to said field-responsive light deflecting means, whereby the location of the collimated beam of light emerging as an output from said field-responsive light deflecting means is determined by the value of said applied field, and a biaxial optical crystal in the path of said collimated beam of light emerging as an output from said field-responsive light deflecting means for transporting said output beam of light therethrough, said biaxial optical crystal being oriented with one of its optical axes substantially parallel to said output beam of light transported therethrough only when said field has said datum value, whereby light emerging from said biaxial optical crystal in response to said field having a value other than said datum value is deflected by a second relatively large amount which is a substantial magnification of said first amount.

3,305,293
CATADIOPTRIC OPTICAL SYSTEM

Abe Offner, Darien, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed Mar. 20, 1963, Ser. No. 266,691
9 Claims. (Cl. 350—201)



1. A catadioptric anastigmatic optical system having a relatively flat field comprising in alignment along an optical axis:

a primary concave spherical mirror;

a refractive spherical shell positioned in front of said primary mirror and having its outer convex surface facing the reflecting concave surface of said primary mirror;

said outer convex surface of said shell being rendered reflective in its central area so as to act as a secondary convex mirror to rays of light converged by said primary concave mirror;

the two optical surfaces of said shell being parts of substantially concentric spheres so that the centers of curvature of said surfaces are substantially at a single coincident point;

said refractive shell being of such construction and optical material as to substantially correct the combined spherical aberration of said spherical primary mirror and central reflecting surface of said shell;

and a single front refractive element, consisting of a single refractive material, of relatively low power positioned in front of said shell;

the optical center of said refractive element being located substantially at said single coincident point;

the dioptric power of said refractive shell, P, and the dioptric power of said front refractive element, P_c, essentially satisfying the relation:

$$P_c=-JP$$

in which:

$$J=V_c/NV$$

wherein V_c is the reciprocal dispersion of the single material of said front refractive element and N is the index of refraction and V is the reciprocal dispersion of the material of said refractive shell;

so that the longitudinal chromatic abberration caused by said shell is corrected by said front refractive element.

3,305,294
TWO-ELEMENT VARIABLE-POWER SPHERICAL LENS

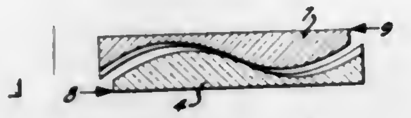
Luis W. Alvarez, Berkeley, Calif., assignor to Optical Research and Development Corporation, Oakland, Calif., a corporation of California

Filed Dec. 3, 1964, Ser. No. 418,372
6 Claims. (Cl. 351—169)

1. A variable-power lens comprising two lens elements arranged in tandem, one behind the other along the optical axis of the lens, and means for moving at least one of said elements relative to the other in a direction transverse to the optical axis of the lens, each of said elements having polished surfaces with one of the surfaces being a regular surface of revolution and an optical thickness variation parallel to the optical axis less than one-half the lens diameter, and the optical thickness of each element being substantially defined by the formula

$$A(xy^2+\tfrac{1}{3}x^3)+Dx+E$$

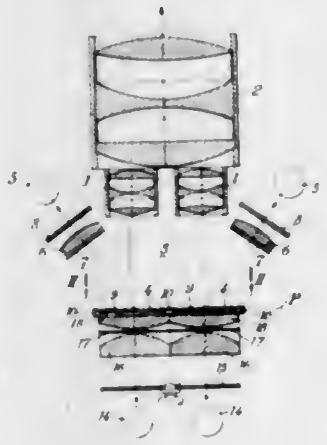
wherein D is a constant representing the coefficient of a prism removed to minimize lens thickness and may be zero, E is a constant representing lens thickness at the optical axis, x and y represent coordinates on a rectangular coordinate system centered on the optical axis and lying in a plane perpendicular thereto, and A is a constant representing the rate of lens power variation with lens movement in the x direction and being positive for one lens element and negative for the other lens element.



3,305,295
DEVICES FOR PROJECTING MOVING PICTURES OF THE ANIMATED CARTOON TYPE

Jean de Montremy, 8 Ave. des Tilleuls, Paris, France

Filed June 30, 1964, Ser. No. 379,178
Claims priority, application France, July 5, 1963, 940,589
5 Claims. (Cl. 352—68)



1. A device for projecting motion pictures which comprises, in combination, illuminating means,

two similar small lenses, arranged side by side and having parallel optical axes in a position to receive light from the illuminating means, in front of which small lenses pictures are adapted to be fed successively and alternately, in the object focal planes of said lenses, respectively,

a third lens of at least twice the diameter of said two small lenses on the opposite side thereof from the illuminating means, said third lens having its optical axis parallel to, and located between, the respective optical axes of said two small lenses, whereby the two images from said small lenses are superimposed by said third lens on a screen on the side of the third lens remote from said small lenses,

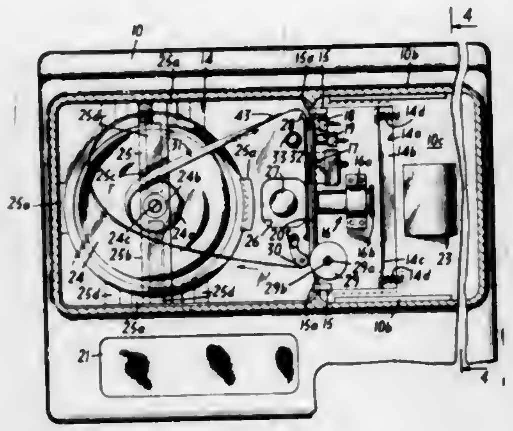
and means between the illuminating means and the small lenses for cyclically gradually increasing and decreasing the intensity of the respective light beams transmitted to the third lens through the two small lenses, so that the intensity of light from one small lens is increased while that from the other is decreased,

every picture being changed when the intensity of light from the corresponding small lens passes through a minimum.

3,305,296
MOTION PICTURE PROJECTOR

Joseph T. Nicosia, 13 Hileen Drive, Kings Park, N.Y. 11754

Filed Feb. 5, 1964, Ser. No. 342,656
18 Claims. (Cl. 352—129)



1. A film viewing device for a film bearing indicia of each frame thereon, comprising a housing, a film illumination means including a stroboscopic light source provided within the housing, means for detecting the film frame indicia and triggering the stroboscopic light source to project each frame image in sequence, a cartridge having at least one aperture in optical alignment with the film illumination means, said cartridge being insertable within the housing for communication with said film illumination means, a film drive operatively associated with the viewing device, a film reel rotatably mounted within said cartridge having a continuous film strip, a capstan rotatably mounted outside the cartridge and adjacent to said aperture for driving cooperation with said continuous film strip and said film drive by drawing the film strip portion to be viewed from the innermost layer of film in said reel and feeding the viewed film portion back on the outermost layer of film in said reel, said reel being loosely wound to accommodate variations in film velocity between said innermost layer and said outermost layer of film, spline means cooperatively engaging the capstan with the film drive to run the film strip continuously at a substantially constant speed in one direction, a film gate within the cartridge adjacent to said cartridge aperture adapted to optically align the film with said cartridge aperture and said film illumination means, screen means within said housing in optical alignment with the film illumination means and said cartridge aperture for receiving the film image thereon, and focusing means interposed in optical alignment between the screen means and said cartridge aperture for projecting the film image therebetween.

CHEMICAL

3,305,297
METHOD OF TREATING POLYOLEFINS

Russell M. Mantell, Princeton, and William L. Ormand, Kendall Park, N.J., assignors to Aero Chem Research Laboratories, Inc., a corporation of Maryland

No Drawing. Filed Jan. 7, 1964, Ser. No. 336,134
8 Claims. (Cl. 8—17)

1. A method of dyeing an article made of a polyolefin comprising pre-treating said article with a substance selected from the class consisting of nitrogen oxides and nitrogen oxyhalides wherein the ratio of oxygen atoms to nitrogen atoms is at least one, and then dyeing said article in an aqueous solution of a basic dye.

3,305,298
PROTECTING TREATMENT FOR WOOD

Alfred Dale Chapman, Atherton, and Robert E. Stutz, Los Altos Hills, Calif., assignors to Chapman Chemical Company, Memphis, Tenn., a corporation of Tennessee

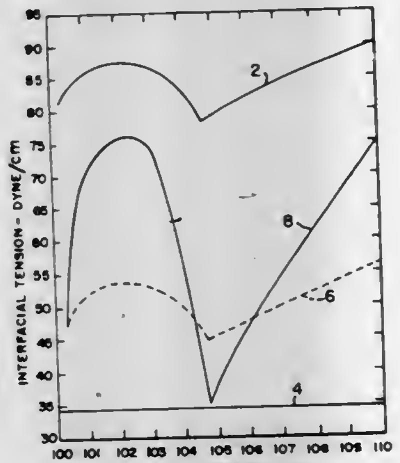
No Drawing. Filed Nov. 30, 1964, Ser. No. 414,874
8 Claims. (Cl. 21—7)

8. A method of controlling Ascocyte, Cerastostomella, *Fungi imperfecti*, green mold and white mold in lumber and veneer that consists of subjecting the lumber and veneer to contact with a ready-to-use solution of a stable liquid sapstain concentrate prepared by mixing in amounts based on the total weight of the resulting solution, a soluble borax in an amount between about 8 to 10% by weight, water in an amount between 30 to 60% by weight, 50% alkali metal hydroxide in an amount between about 11 to 15% by weight, C_1–C_2 saturated alcohol in an amount between 8.1 to 16% by weight, propylene glycol monomethyl ether in an amount between about 1.1 to 3.0% by weight, halogenated phenols in an amout between about 19 to 25% by weight, and organic mercury salts between about 0.2 to 0.8% by weight, and heating such resulting solution with continuing agitation until a stable liquid product is obtained.

3,305,299
FREEZING INHIBITORS FOR SUPER PHOSPHORIC ACID

Leon Erwin Cohen, Franklin Township, Somerset, and Irwin A. Lichtman, Oradell, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 29, 1962, Ser. No. 240,957
1 Claim. (Cl. 21—60.5)



A process for preventing the freezing of super phosphoric acid having a concentration of from 104.2 to 106.2% H_3PO_4 which comprises placing on the surface of said phosphoric acid a liquid layer of a hydrocarbon selected from the group consisting of a liquid aliphatic hydrocarbon and a liquid naphthenic hydrocarbon, in which the interfacial tension (γ_{ab}) between said hydrocarbon and said super phosphoric acid is substantially less than the value of

$$\gamma_a-\gamma_b$$

where γ_a is the interfacial tension of said super phosphoric acid and air, and γ_b is the interfacial tension of said hydrocarbon and air.

3,305,300
CARBON TETRACHLORIDE ORE CHLORINATION PROCESS

Robert L. McBrayer, Lincoln Park, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
Filed Oct. 3, 1962, Ser. No. 228,196
18 Claims. (Cl. 23—15)

1. A method of chlorinating oxide ores of a refractory metal selected from the group consisting of niobium, tantalum, molybdenum and tungsten comprising the steps of mixing particles of said ore of a size smaller than minus 100 U.S. standard mesh with liquid carbon tetrachloride to form a slurry and forcing said slurry into a reaction zone in the form of an annular space defined by two concentric cylindrical surfaces, said reaction zone being maintained at a temperature greater than 400° C.

3,305,301
PROCESS FOR THE GROWTH OF ORDERED LITHIUM FERRITE

Joseph P. Remeika, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
No Drawing. Filed Apr. 3, 1963, Ser. No. 270,183
7 Claims. (Cl. 23—51)

1. The method of growing single crystal ordered lithium ferrite which comprises the steps of heating a nutrient comprising a mixture of (a) an excess of at least one member selected from the group consisting of lithium oxalate, lithium hydroxide, and lithium carbonate, and (b) at least one member selected from the group consisting of iron oxalate, iron carbonate, and iron oxide together with a flux comprising a mixture of boron oxide and lead oxide, the weight ratio of boron oxide to lead oxide being in the range of 1:5.8 to 1:6.6, the gross nutrient to flux ratio being in the range of 1:3.7 to 1:4.0, to a temperature sufficient to dissolve the said nutrient and cooling the resultant melt to a temperature of the order of 500° C. whereby said ordered lithium ferrite precipitates from the melt in crystals.

3,305,302
PROCESS OF BENEFICIATING MAGNESITE

Russell Pearce Heuer, Villanova, Pa., assignor to General Refractories Company, a corporation of Pennsylvania
Filed Oct. 2, 1963, Ser. No. 313,200
4 Claims. (Cl. 23—67)

1. A process of beneficiating magnesium carbonate containing a minor quantity of calcium carbonate and having a total lime content which is appreciably above 1% counting that of the calcium carbonate, which comprises treating said magnesium carbonate with sulfuric acid in a concentration range between 0.05% and 0.25% by weight in water to preferentially dissolve enough calcium carbonate to lower said lime content to below 1% while leaving magnesium carbonate, and then separating the magnesite residue remaining from the resulting solution.

3,305,303
CHROMIC CHLORIDE PRODUCTION

Winslow H. Hartford, Manlius, and Ernest B. Hoyt, Geddes, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Oct. 28, 1964, Ser. No. 407,234
16 Claims. (Cl. 23—87)

1. The process for production of high purity chromic chloride which comprises subjecting chromic oxide essentially free of other chloride forming metals to reaction in the fluidized state with a gas containing at least a 10% excess of chlorine and with at least a 20% excess (based on formation of by-product carbon dioxide) of carbon having a particle size at least 5 times greater than the particle size of at least 80% of the chromic oxide, the rate of gas flow being regulated to provide a superficial velocity between 60–400% above the incipient fluidization velocity of the fluidized reactants, at a temperature regulated above about 920° C. to convert the chromic oxide by reaction with the chlorine and carbon to chromic chloride.

3,305,304
PURIFICATION OF PHOSPHORUS-CONTAINING SOLUTIONS

John A. Peterson, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Nov. 23, 1962, Ser. No. 239,803
13 Claims. (Cl. 23—107)

1. A process for purifying an aqueous alkali metal phosphate solution containing silicon values as impurities which comprises adjusting the pH of the alkali metal phosphate solution to within the range of about 8.0 to about 9.0 and maintaining the solution at an elevated temperature above about 80 degrees centigrade for a period of time sufficient to effect formation and coagulation of a precipitate of silicon values in the solution, the elevated temperature being maintained during the time in the process when the silicon values are being precipitated.

3,305,305
PURIFICATION OF PHOSPHATE SOLUTIONS

John A. Peterson, Niagara Falls, N.Y., and Rufus G. Hartig, East Orange, N.J., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Dec. 26, 1962, Ser. No. 247,348
9 Claims. (Cl. 23—107)

1. A process for purifying an aqueous alkali metal phosphate solution containing vanadium impurities and having a pH which is not in excess of about 8.0, which comprises adjusting the pH of the alkali metal phosphate solution to within the range of about 8.0 to about 9.0, adjusting the phosphorus concentration of the solution to within the range of about 7.0 to about 9.5 percent phosphorus by weight of the solution, maintaining the thus-adjusted solution at an elevated temperature above about eighty degrees centigrade while adding ferrous ions to the solution in an amount at least sufficient to reduce vanadium present to at least the tetravalent state, effecting formation of a precipitate containing such reduced vanadium and separating said precipitate from the solution.

3,305,306
PROCESS OF SELECTIVELY RECOVERING METAL IONS FROM SOLUTIONS CONTAINING SAME

Hans-Georg Morawe, Mannheim-Neuostheim, and Helmut Rueckert, Mannheim-Wallstadt, Germany, and Ferdinand Furrer, Kuesnacht, Zurich, Switzerland, assignors to Joh. A. Benckiser G.m.b.H., Chemische Fabrik, Ludwigshafen (Rhine), Germany, a corporation of Germany
No Drawing. Filed Apr. 2, 1963, Ser. No. 272,502
Claims priority, application Germany, Apr. 3, 1962,
B 66,649
23 Claims. (Cl. 23—97)

16. A process of recovering heavy metal cations from solutions containing such heavy metal cations, said process comprising the steps

(1) of passing such solutions through a weakly acid cation exchange resin in its alkali metal form until the heavy metal ion concentration in the effluent from the cation exchange resin increases, and
(2) of passing a dilute mineral acid therethrough to selectively elute the absorbed heavy metal ions from the cation exchange resin.

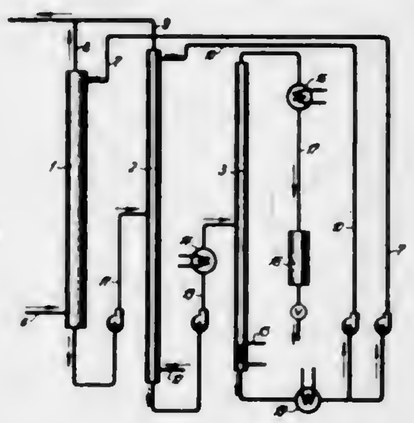
3,305,307
PRODUCTION OF SOLID ALKALI METAL SULFITES

Walter Spormann, Bad Durkheim-Seebach, and Joachim Heinke, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Sept. 16, 1960, Ser. No. 56,353
Claims priority, application Germany, Sept. 25, 1959,
B 54,925
2 Claims. (Cl. 23—129)

1. A process for the production of solid alkali metal sulfite which comprises: passing a finely dispersed aqueous solution of an alkali metal compound selected from the group consisting of sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium hydroxide, potassium carbonate, potassium bicarbonate and mixtures thereof, into a substantially dry gas containing sulfur dioxide, maintaining the temperature of said dry gas at a level such that the water introduced with the solution and formed by the reaction of the alkali metal and the sulfur dioxide is immediately vaporized, and thereafter separating from the gas the solid alkali metal sulfite which is formed by the reaction of the sulfur dioxide and the alkali metal compound.

3,305,308
PROCESS FOR ISOLATING HYDROCYANIC ACID OR MIXTURES OF HYDROCYANIC ACID WITH NITRILES FROM GAS MIXTURES CONTAINING AMMONIA

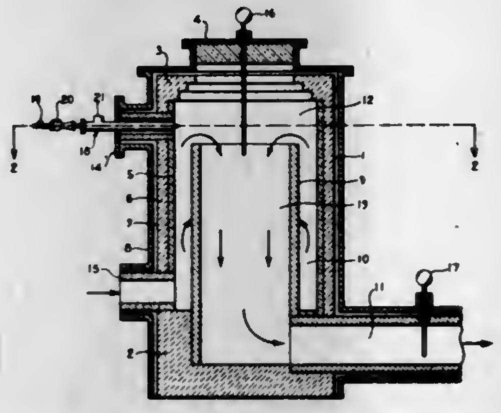
Kurt Sennewald, Wilhelm Vogt, and Joachim Kandler, Knapsack, near Cologne, and Rolf Sommerfeld, Stetten-Remstal, Germany, assignors to Knapsack Aktiengesellschaft, a corporation of Germany
Filed Nov. 6, 1962, Ser. No. 235,648
Claims priority, application Germany, Nov. 22, 1961,
K 45,263
19 Claims. (Cl. 23—151)



1. A process for isolating and recovering at least one substance selected from the group consisting of hydrocyanic acid and nitriles from ammonia-containing gas mixtures, which comprises removing in a washing step at least one substance selected from the group consisting of hydrocyanic acid and nitriles from the ammonia-containing gas mixture used as the starting gas mixture by washing said gas mixture with at least one liquid nitrile selected from the group consisting of β-methoxypropionitrile, β-ethoxypropionitrile, β-n-propoxypropionitrile, β-i-propoxypropionitrile, β - n-butoxypropionitrile, β-i-butoxypropionitrile, β-pentoxypropionitrile, β,β'-dicyanodiethylether, β - cyclopentoxypropionitrile, β-cyclohexoxypropionitrile, and β-benzoxypropionitrile as the wash liquid having a boiling point sufficiently different from that of the nitriles washed out and thereby permitting the nitriles to be isolated by distillation, the said hydrocyanic acid and the said nitrile being dissolved thereby, distilling and thereby isolating the dissolved substances which are selected from the group consisting of hydrocyanic acid and nitriles from the wash liquid by common distillation, and recovering free ammonia contained in the off-gas escaping from the washing step.

3,305,309
PRODUCTION AND RECOVERY OF HYDROGEN HALIDES

Richard G. Woodland, Niagara Falls, and Myron C. Hall, Buffalo, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
Filed Mar. 25, 1963, Ser. No. 267,679
7 Claims. (Cl. 23—155)



1. A method for converting halogenated organic materials into normally gaseous products comprising carbon dioxide and hydrogen halide, which comprises intimately admixing a halogenated organic material and a gaseous medium selected from the group consisting of gaseous oxygen sources and mixtures thereof, said oxygen sources being selected from the group consisting of steam, oxygen and air and said hydrogen sources being selected from the group consisting of hydrogen, hydrocarbon and steam passing the resulting mixture, under pressure, through a constricted zone into an expanded zone, effecting atomization of the mixture as it passes into the expanded zone, and introducing the resulting atomized mixture into a combustion zone with the amount of gaseous medium introduced into the combustion zone being at least that which is sufficient to convert the halogen content of the halogenated organic material to hydrogen halide and convert the carbon content of the halogenated organic material to carbon dioxide, the combustion zone being maintained at a temperature high enough to effect such conversions to obtain substantially complete combustion of the mixture to a product comprising carbon dioxide and a hydrogen halide and containing substantially no free halogen, free carbon and organic compounds.

3,305,310
METHOD OF STABILIZING SODIUM PEROXIDE OCTAHYDRATE CRYSTALS

Dale L. Schechter and James J. Leddy, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 2, 1964, Ser. No. 335,419
3 Claims. (Cl. 23—184)

1. A method of stabilizing sodium peroxide octahydrate crystals containing uncombined surface water and catalytic impurities which comprises, contacting said octahydrate crystals with a stabilizing agent in an amount of from about 0.05 percent to about 5.0 percent based on the weight of the crystals to be treated, said agent being selected from the group consisting of magnesium sulfate ($MgSO_4$), magnesium oxide (MgO), magnesium pyrophosphate ($Mg_2P_2O_7$), sodium stannate ($Na_2Sn(OH)_6$), magnesium acetate ($Mg(C_2H_3O_2)_2$), magnesium nitrate ($Mg(NO_3)_2$), and calcium peroxide octahydrate

$$(CaO_2 \cdot 8H_2O)$$

3,305,311
SLAKING PROCESS

Raymond P. Mayer and Robert A. Stowe, Ludington, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 21, 1964, Ser. No. 339,086
8 Claims. (Cl. 23—188)

1. A process for dry slaking a porous lime-containing material selected from the group consisting of dolime and lime comprising, submerging the porous material in a pool of essentially water for a period of time only to wet it and absorb a sufficient amount of water during immersion sufficient upon withdrawal to hydrate the CaO in the material to $Ca(OH)_2$ and to dissipate at least in part the heat of hydration by evaporation of a portion of the absorbed water as steam, withdrawing the wetted material from the pool, draining the unabsorbed liquid from the material, and holding the material for a period of time sufficient to allow substantially all the hydration of the CaO in the material and dissipate the heat of reaction at least partially by evolution of steam.

3,305,312
SYNTHESIS PROCESS

Norman Jacob Weinstein, Baton Rouge, La., and Richard R. King, Lima, Peru, assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Mar. 12, 1963, Ser. No. 264,692
7 Claims. (Cl. 23—199)

4. A combined process for direct iron ore reduction and ammonia synthesis which comprises the steps of (a) partially oxidizing a hydrocarbon fuel with oxygen-enriched air to form a reducing gas mixture including CO, H_2 and N_2 in proportions providing a CO plus H_2 to N_2 ratio ranging from about 3.1 to about 4.5; (b) contacting the reducing gas mixture with iron oxides to reduce said oxides; (c) separating from said iron oxides reduction step an effluent which includes CO, H_2 and N_2 in ratio of CO plus H_2 to N_2 of from about 2.8 to about 3.5, treating the effluent to remove CO_2 and H_2O therefrom; (d) and then subjecting the gases to temperatures ranging from about 750° F. to about 1200° F., and to pressures ranging from about 100 to about 1000 atmospheres, to produce synthesis of the hydrogen and nitrogen to form ammonia.

3,305,313
METHOD OF PRODUCING GALLIUM PHOSPHIDE IN CRYSTALLINE FORM

Valdeko H. Sirgo, Elkins Park, and John L. Richards, Norristown, Pa., assignors to Philco-Ford Corporation, a corporation of Delaware
Filed Dec. 18, 1963, Ser. No. 331,479
5 Claims. (Cl. 23—204)

1. A method of producing crystalline gallium phosphide by reaction of gallium with phosphorus vapor and gradual cooling of said gallium phosphide formed by said reaction, even when said phosphorus vapor has a relatively low vapor pressure during both said reaction and said cooling, said method comprising the successive steps of:

positioning a quantity of phosphorus within one part of an evacuable vessel,

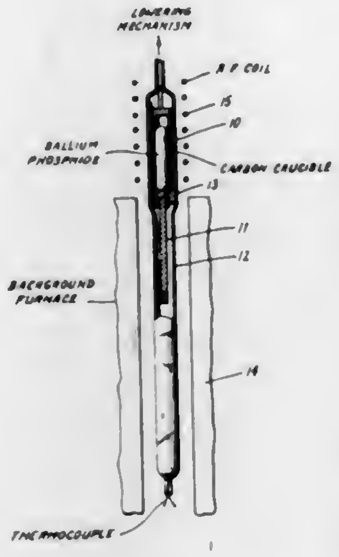
positioning in a different part of said vessel a crucible which is permeable to phosphorus vapor and completely encloses a quantity of gallium,

evacuating said vessel and sealing said evacuated vessel,

establishing said phosphorus at a first temperature to produce within said vessel phosphorus vapor having a vapor pressure sufficient to pass phosphorus vapor through said crucible into contact with gallium therewithin,

concurrently establishing said gallium at a second temperature sufficiently high for formation of gallium phosphide within said crucible by reaction between gallium within said crucible and phosphorus contacting the latter gallium,

maintaining at said first temperature said phosphorus positioned within said one part of said vessel and



concurrently maintaining said gallium at said second temperature, for a time sufficient for gallium phosphide to form by reaction within said crucible,

and gradually cooling said crucible to crystallize said gallium phosphide formed therewithin.

3,305,314
PURIFICATION PROCESS

Max O. Freeland, Kirksville, Mo., and Peter R. Johnston, Corpus Christi, Tex., assignors, by mesne assignments, to Pittsburgh Plate Glass Company
No Drawing. Filed July 7, 1958, Ser. No. 746,677
3 Claims. (Cl. 23—207)

1. A method of removing carbonaceous impurity from aqueous hydrogen peroxide solution containing such impurity, said solution having been produced by continuously reducing an anthraquinone, oxidizing said reduced anthraquinone to form an anthraquinone and hydrogen peroxide, contacting the product of said oxidation with water to extract hydrogen peroxide thereby forming said aqueous hydrogen peroxide solution and recycling anthraquinone formed on said oxidation to effect said reduction, which comprises passing said aqueous hydrogen peroxide solution to a short cycle by contacting said solution with an anion exchange resin in the form of a salt of an acid weaker than acetic acid, regenerating the spent resin thus produced by contacting the resin with an aqueous solution of an alkali metal salt of an acid weaker than acetic acid, contacting the regenerated resin with further of said hydrogen peroxide solution, repeating said short cycle a plurality of times, and periodically effecting a long cycle by contacting the resin with an acid which is at least as strong as acetic acid, and thereafter regenerating the resin after said long cycle by contacting such resin with an aqueous solution of said alkali metal salt and repeating said short cycle.

3,305,315
PROCESS FOR MANUFACTURING FLEXIBLE CARBONACEOUS TEXTILE MATERIAL

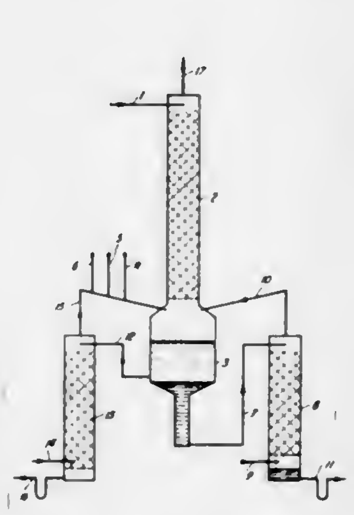
Roger Bacon, Broadview Heights, and George E. Cranch and Ralph O. Moyer, Jr., Fostoria, Ohio, and Willie H. Watts, Lewiston, N.Y., assignors to Union Carbide Corporation, a corporation of New York
Filed Sept. 20, 1962, Ser. No. 224,989
17 Claims. (Cl. 23—209.1)

1. A process for the production of a permanently dehydrated heat treated material from a cellulosic textile material wherein the heat treated material substantially retains the characteristic physical textile attributes of the unheat treated cellulosic starting material, said process comprising subjecting said cellulosic material to a controlled partial and selective decomposition of the cellulosic molecule by immersing said cellulosic material in an acid solution to wet said material therewith, removing said wet material from said solution, drying said material to remove the solvent therefrom, and heat treating said dried material in an oxidizing atmosphere, whereby said decomposition involves a rupture of carbon-oxygen and carbon-hydrogen bonds and the evolution of water, but falling just short of the scission of the main cellulose molecule, the rupture of the carbon-carbon bonds and the evolution of hydrogen.

11. A process for the carbonization of cellulosic material which comprises immersing said cellulosic material in an acid solution to wet said material therewith; removing said wet material from said solution; drying said material to remove the solvent therefrom; heat treating said dried material in an oxidizing atmosphere at a temperature in the range of from about 100° C. to 350° C. to impart a permanent dehydration thereto, and subsequently carbonizing said material by heating said material to a carbonizing temperature while protecting said material from oxidation.

3,305,316
CYCLIC PROCESS FOR THE RECOVERY OF BROMINE FROM MIXTURES OF HYDROBROMIC AND SULFURIC ACIDS

Alfred G. P. Biet, Port-de-Bouc, France, assignor to Societe Anonyme: Etablissements Kuhlmann, Paris, Seine, France, a French corporation
Filed Jan. 8, 1964, Ser. No. 336,517
Claims priority, application France, Jan. 9, 1963, 920,916
8 Claims. (Cl. 23—216)



1. A cyclic method for the direct recovery of liquid bromine from a mixed aqueous hydrobromic acid and sulfuric acid solution comprising the steps of contacting said solution with a nitric medium selected from the group consisting of nitric acid and nitrogen oxides capable of oxidizing hydrobromic acid, adding to the mixed aqueous hydrobromic acid, sulfuric acid and nitric acid solution a make-up amount of a mineral acid selected from the group consisting of sulfuric acid and hydrochloric acid to raise the acidity value thereof to at least 5 N, maintaining the temperature of the resulting mixture between about room temperature and the boiling point of bromine at the operation pressure, whereby liquid bromine and gaseous nitrosyl bromide are quantitatively obtained, separating said gaseous nitrosyl bromide from the reaction medium, separating liquid bromine containing a minor amount of nitrosyl bromide dissolved therein from the aqueous acidic solution still containing a minor amount of dissolved bromine by decanting, removing the dissolved nitrosyl bromide from said liquid bromine by passing a gas which is inert with respect to bromine through the mixture, recovering liquid bromine substantially free from nitrosyl bromide, heating said aqueous acidic solution containing a minor amount of bromine whereby said bromine is removed in the form of vapor, recycling said vaporous bromine to said mixed aqueous hydrobromic acid, sulfuric acid and nitric acid solution, and recycling said gaseous nitrosyl bromide and said nitrosyl bromide removed by said inert gas together with oxygen to said mixed aqueous hydrobromic acid and sulfuric acid solution whereby nitric acid is regenerated.

3,305,317
METHOD FOR PROSPECTING FOR PETROLEUM

James E. Cooper and Keith A. Kvenvolden, Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Apr. 19, 1963, Ser. No. 274,304
3 Claims. (Cl. 23—230)

1. A process for prospecting for petroleum in a subterranean formation comprising:

(a) removing a portion of water contained in said formation,

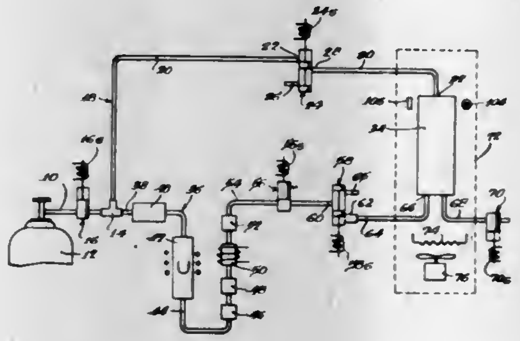
(b) analyzing said water for the amounts therein of fatty acids containing 16, 17, and 18 carbon atoms,

(c) determining the ratio $C_{16}+C_{18}/2C_{17}$ where C_{16}, C_{17}, and C_{18} are the amounts of the fatty acids containing 16, 17, and 18 carbon atoms, respectively, and

(d) where said ratio is not more than 1.6, indicating the presence of a petroleum reservoir in said formation, carrying out drilling operations in said formation to locate said petroleum reservoir.

3,305,318
RAPID CARBON DETERMINATION

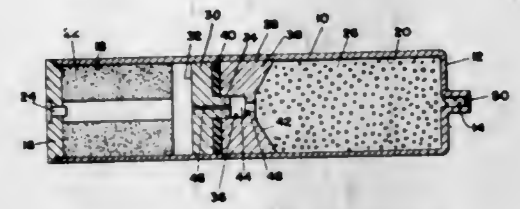
Eugene L. Bennet, St. Joseph, Mich., assignor to Laboratory Equipment Corporation, St. Joseph, Mich., a corporation of Michigan
Filed Jan. 9, 1964, Ser. No. 336,696
6 Claims. (Cl. 23—230)



1. A method for determining carbon in an oxidizable material which comprises burning a sample of the material in oxygen, transporting the gaseous products of combustion and excess oxygen through a purifying train to remove components other than the carbon oxides from the oxygen and to oxidize carbon monoxide to carbon dioxide and into the lower end of an analysis chamber having a piston therein adapted to float on the introduced oxygen-carbon dioxide mixture, halting the filling of said chamber with the mixture at a desired level of filling, and measuring the thermal conductivity of said mixture in said chamber.

3,305,319
PROPELLANT GAS GENERATOR

James F. Kowalick, Southampton, Pa., and William E. Perkins, Runnemede, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Apr. 2, 1965, Ser. No. 445,286
8 Claims. (Cl. 23—281)



1. A propellant gas generator including

a container defining a high temperature chamber and a low temperature chamber, said container having one closed end defining a gas discharge port from said low temperature chamber and another closed end containing propellant igniting means extending into said high temperature chamber;

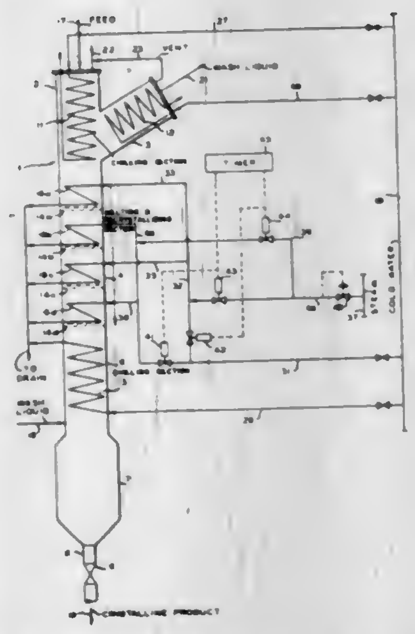
a propellant in said high temperature chamber;

a compact body of porous chemical coolant in said low temperature chamber, said coolant being endothermically reactable with the combustion gases of said propellant to produce at least one gaseous product; and

piston means defining an orifice therethrough separating said chambers, said piston means contacting said body of coolant and movable in the direction of said discharge port under the pressure of said propellant combustion gases whereby a diminishing body of said coolant may be maintained constantly in a compacted condition as said coolant reacts with said propellant combustion gases.

3,305,320
PURIFICATION OF ALUMINUM NITRATE BY ALTERNATE MELTING AND CRYSTALLIZATION

Marx E. Weech, Idaho Falls, Idaho, assignor to Phillips Petroleum Company, a corporation of Delaware
Filed July 22, 1963, Ser. No. 296,506
1 Claim. (Cl. 23—305)



A process for separating and purifying aluminum nitrate from a mixture thereof with impurities, which comprises introducing a melt of said mixture into the upper end of a vertical, elongated zone filled with aqueous nitric acid, crystallizing said aluminum nitrate upon entry of said melt into said zone, alternately melting and recrystallizing said aluminum nitrate as it falls through said nitric acid in contact with a countercurrent stream of said nitric acid introduced into the lower end of said zone at a temperature below the freezing point of aluminum nitrate, withdrawing nitric acid from the upper end of said zone together with said impurities, and withdrawing aluminum nitrate in its crystalline form from the lower end of said zone.

3,305,321
RECOVERY AND SEPARATION OF CESIUM AND RUBIDIUM FLUORIDES USING ALCOHOLS

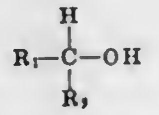
Fred N. Teumac, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 6, 1964, Ser. No. 336,071
9 Claims. (Cl. 23—312)

1. A method for recovering cesium fluoride and rubidium fluoride from a mixture of alkali metal halides containing cesium fluoride and rubidium fluoride which comprises:

(a) admixing a mixture of alkali metal halides containing cesium and rubidium fluoride with a liquid alcohol which ionizes to give carbonium ions, said alcohol being a member selected from the group consisting of:

(1) monohydroxy alcohols corresponding to the empirical formula, R—OH, wherein R is a member selected from the group consisting of a cyclic alkyl group having from 5 to 7 carbon atoms and an alkenyl chain having from 3 to 7 carbon atoms;

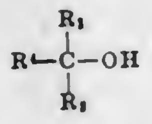
(2) aromatic carbinols corresponding to the empirical formula,



$$R_1-\overset{\displaystyle H}{\underset{\displaystyle R_2}{C}}-OH$$

wherein R_1 is an aryl group selected from the class consisting of the phenyl, tolyl and xylyl groups and R_2 is a member selected from the group consisting of hydrogen and the methyl and ethyl groups;

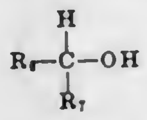
(3) monohydric tertiary alcohols corresponding to the empirical formula,



$$R_4-\overset{\displaystyle R_3}{\underset{\displaystyle R_5}{C}}-OH$$

wherein R_3, R_4 and R_5 are members selected from the group consisting of the methyl, ethyl, propyl, butyl, isopropyl and isobutyl groups and having a total of not more than 7 carbon atoms in the molecule;

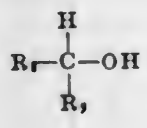
(4) secondary monohydroxy alcohols corresponding to the empirical formula,



$$R_6-\overset{\displaystyle H}{\underset{\displaystyle R_7}{C}}-OH$$

wherein R_6 is an alkyl group of from 1 to 3 carbon atoms and R_7 is an isoalkyl group of from 3 to 5 carbon atoms, and the molecule having a total of not more than 7 carbon atoms;

(5) secondary monohydroxy alcohols corresponding to the empirical formula,



$$R_8-\overset{\displaystyle H}{\underset{\displaystyle R_9}{C}}-OH$$

wherein R_8 is an alkenyl group of from 3 to 5 carbon atoms and R_9 is a member selected from the group consisting of the methyl and ethyl groups, the molecule having a total of not more than 7 carbon atoms;

(b) preferentially dissolving said rubidium and cesium fluoride in said alcohol;

(c) separating the alcoholic extract of said rubidium and cesium fluoride from the reaction mixture; and

(d) recovering the cesium fluoride and rubidium fluoride from said extract.

3,305,322
VANADIUM RECOVERY PROCESS EMPLOYING SO_2 GAS AS THE OXIDIZER

Angus V. Henrickson, Golden, Colo., assignor to Hazen Research Inc., Golden, Colo., a corporation of Colorado
No Drawing. Filed Dec. 23, 1963, Ser. No. 332,936
13 Claims. (Cl. 23—322)

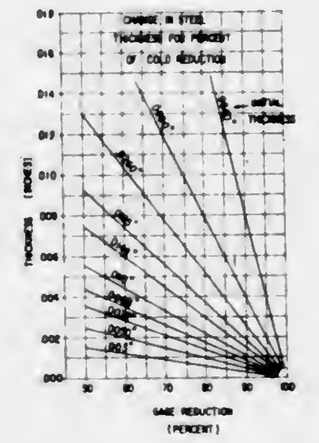
12. The process for the recovery of vanadium from material in which at least part of the vanadium exists in the +4 state which comprises: comminuting the material; leaching the material to form a leach solution of the vanadium; contacting the leach solution with air and SO_2 in a ratio of not more than about 7 mole percent of SO_2 to air at a pH between about 1 and the precipitation point of ferric vanadate in the presence of ferric iron in solution to oxidize the vanadium to the +5 state; extracting the vanadium from the leach solution with an amine extractant; stripping the vanadium from the extractant; and recovering the vanadium in the +5 state.

ERRATUM

For Class 23—346 see:
Patent No. 3,305,343

3,305,323
STEEL FOIL

Edwin J. Smith and Edward P. Spencer, Steubenville, Ohio, assignors to National Steel Corporation, a corporation of Delaware
Original application Feb. 8, 1963, Ser. No. 257,310, now Patent No. 3,214,820, dated Nov. 2, 1965. Divided and this application July 13, 1965, Ser. No. 482,967
11 Claims. (Cl. 29—180)



2. Flat rolled steel foil having a thickness gage between about .0001" and .002" characterized by full hardness produced by cold rolling reduction in excess of 70% without anneal and further characterized by absence of brittleness and absence of poor bending qualities normally associated with mild steel cold reduced in excess of 70% without an anneal.

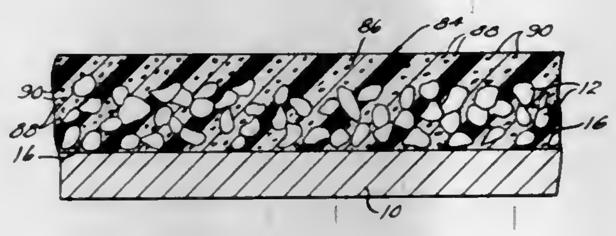
3,305,324
TUNGSTEN POWDER BODIES INFILTRATED WITH COPPER-TITANIUM-BISMUTH OR COPPER-TITANIUM-TIN

Richard H. Krock, Peabody, and Edward J. Zdanuk, Lexington, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed May 26, 1966, Ser. No. 553,106
5 Claims. (Cl. 29—182.1)

1. A composite material for use as an electrical contact material in vacuum switching devices consisting of a tungsten powder body completely infiltrated with a ternary copper alloy.

3,305,325
BEARING AND METHOD OF MAKING SAME

Gordon J. Le Brasse and Joseph M. Flynn, Ann Arbor, Mich., assignors to Federal-Mogul Corporation, a corporation of Michigan
Filed Oct. 21, 1964, Ser. No. 406,663
2 Claims. (Cl. 29—182.3)



1. Composite bearing material comprising a hard metal backing strip, a porous sintered metallic matrix tenaciously bonded to one face of said backing strip, said porous matrix having a porosity of from about 10% to about 50% by volume, and a film of a nylon plastic selected from the group consisting of nylon-6,6, nylon-6,10, and nylon-6 disposed on the exposed surface of said porous matrix and extending inwardly into and mechanically interlocked within the pores thereof, said nylon plastic constituting a continuous phase including a discontinous phase of finely particulated molybdenum disulfied particles present in an amount of from 0.25% to 5% by weight and a discontinuous phase of finely particulated polytetrafluoroethylene particles of a size less than about 325 mesh and present in an amount of from about 5% to about 25% by weight, said molybdenum disulfied particles and said polytetrafluoroethylene particles distributed substantially uniformly through said continuous phase of said nylon plastic.

3,305,326
SELF-FUSING FLAME SPRAY MATERIAL

Frank Nicholas Longo, Mineola, N.Y., assignor to Metco Inc., Westbury, N.Y., a corporation of New Jersey
No Drawing. Filed Apr. 23, 1963, Ser. No. 274,956
15 Claims. (Cl. 29—192)

1. A powder mixture for flame-spraying comprising a boron containing nickel or cobalt spray-weldable, self-fluxing metal powder and coated powder particles comprising a metal nucleus and coating of a metal capable, at flame-spray temperatures, of exothermically reacting with the metal nucleus to form an intermetallic compound, said coated powder particles being present in amount of 5 to 50% by weight of the mixture thereof with the self-fluxing powder.

3,305,327

ELECTROLESS PLATING OF MAGNETIC MATERIAL AND MAGNETIC MEMORY ELEMENT

Arnold F. Schmeckenbecher, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

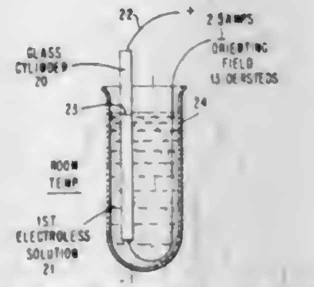
Continuation of application Ser. No. 162,897, Dec. 28, 1961. This application Jan. 26, 1965, Ser. No. 428,162

7 Claims. (Cl. 29—195)

1. A method for electrolessly plating on a substrate a magnetic thin film having bistable characteristics and having adaptation as computer memory and logic element, said method comprising immersing said substrate in a solution consisting essentially of the following:

$H_2PO_2^-$	g./l.	From about 11 to 13
$C_4H_4O_6^{--}$	g./l.	From about 27 to 33
Fe^{++}	g./l.	From about 6 to 39
Ni^{++}	g./l.	From about 0.8 to 7
Pd^{++}	mg./l.	From about 12 to 21

where said solution is formed by first dissolving the water soluble salts of the following ions in water: $H_2PO_2^-$; $C_4H_4O_6^{--}$; Ni^{++}; and Fe^{++}; thereafter bringing the pH of the aqueous solution of $H_2PO_2^-$; $C_4H_4O_6^{--}$; Ni^{++}; and Fe^{++} to a value of about 4 by adding thereto sulfuric acid; thereafter adding to said aqueous solution at the pH of about 4 a solution of about 12 to 21 milligrams of Pd^{++} in water; and, after about 1 minute, adding sufficient NH_4OH to bring the pH of the result reaction product to a value of about 9.



2. A method for electrolessly plating on a substrate a magnetic thin film having bistable characteristics and having adaptation as computer memory and logic element, said method comprising immersing said substrate for about 2 minutes in a solution consisting essentially of the following:

$H_2PO_2^-$	g./l.	From about 11 to 13
$C_4H_4O_6^{--}$	g./l.	From about 27 to 33
Fe^{++}	g./l.	From about 6 to 39
Ni^{++}	g./l.	From about 0.8 to 7
Pd^{++}	mg./l.	From about 12 to 21

where said solution is formed by first dissolving the water soluble salts of the following ions in water: $H_2PO_2^-$; $C_4H_4O_6^{--}$; Ni^{++}; and Fe^{++}; thereafter bringing the pH of the aqueous solution of $H_2PO_2^-$; $C_4H_4O_6^{--}$; Ni^{++}; and Fe^{++} to a value of about 4 by adding thereto sulfuric acid; thereafter adding to said aqueous solution at the pH of about 4 a solution of about 12 to 21 milligrams of Pd^{++} in water; and, after about 1 minute adding sufficient NH_4OH to bring the pH of the result reaction product to a value of about 9; thereafter immersing said coated substrate for about 8 minutes in a second reaction mixture where said second reaction mixture consists essentially of the following:

	G./l.
$H_2PO_2^-$	11 to 16
$C_4H_4O_6^{--}$	25 to 30
Ni^{++}	5 to 13
Fe^{++}	2 to 8

with a ratio of Ni^{++}/Fe^{++} of 1 to 3; and sufficient NH_4OH to maintain the pH of said second reaction mixture at a pH of about 11.

3,305,328

COMPOSITE CLAD STEEL PRODUCT

Charles David Pugh, Birmingham, Ala., assignor to Chicago Bridge & Iron Company, Hinsdale, Ill., a corporation of Illinois

No Drawing. Original application Oct. 7, 1963, Ser. No. 314,551, now Patent No. 3,222,164, dated Dec. 7, 1965. Divided and this application Aug. 24, 1965, Ser. No. 482,293

3 Claims. (Cl. 29—196.6)

1. A composite clad product in which a carbon steel base plate is clad with a member of the group consisting of stainless steel, nickel and nickel-base cladding plates and the cladding plate is bonded to the base plate by an alloy composed of nickel, manganese, copper and silicon in which the ratio of nickel to manganese by weight is in the range of about 2.12 to about 3.0 parts of nickel per part of manganese, the copper is present in a significant small amount up to about 20% by weight, and with the silicon content being a significant small amount up to about 1.8% by weight.

3,305,329

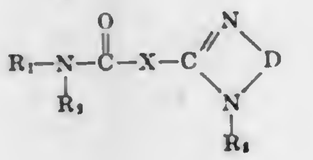
FUEL COMPOSITIONS

Homer J. Sims, Horsham, Pa., and Harry J. White, Riverside, N.J., assignors to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed May 29, 1963, Ser. No. 284,024

12 Claims. (Cl. 44—63)

1. A liquid hydrocarbon fuel having incorporated therein in an amount sufficient to impart anti-rust activity at least one cyclic amidine having the formula



in which

- R_1 individually is a member of the class consisting of alkyl of 1 to 24 carbon atoms, phenyl, naphthyl, benzyl and alkyl substituted phenyl, naphthyl and benzyl in which the total alkyl substituents contain up to 16 carbon atoms;
- R_2 individually is a member of the class consisting of hydrogen and alkyl of 1 to 24 carbon atoms;
- R_1 and R_2 collectively form a ring, with the nitrogen atom to which they are joined, from the class consisting of morpholino, thiamorpholino, piperidino and pyrrolidinyl;
- R_3 is a member of the class consisting of hydrogen, 2-hydroxyethyl, 2-aminoethyl, 3-hydroxypropyl, 3-aminopropyl, 2-(2-aminoethyl)aminopropyl, 3-(2-aminopropyl)aminopropyl, 2-(2-aminoethyl)aminoethyl and 2-(2-aminopropyl)aminoethyl;
- X is a member of the class consisting of ethylene, ethenylene, alkyl and alkenyl substituted ethylene having a total of up to 20 carbon atoms, 1,2-cyclohexylene, 1,2-cyclohexenylene, alkyl substituted 1,2-cyclohexylene and 1,2-cyclohexenylene having a total of up to 16 carbon atoms, 3,6-methano-1,2-cyclohexylene and 3,6-methano-1,2-cyclohexenylene; and
- D is a member of the class consisting of 1,2-cyclohexylene and a divalent saturated chain of 2 to 3 carbon atoms whose available valences are satisfied by members of the class consisting of hydrogen and alkyl and combinations thereof in which all of said alkyl has a total of up to 12 carbon atoms in which the number of total carbon atoms in R_1, R_2 and X is at least 10.

3,305,330

AMINE-PHOSPHORUS-CONTAINING ADDUCTS AND MOTOR FUEL CONTAINING SAME

Frederic C. McCoy, Beacon, George W. Eckert, Wappingers Falls, and Edwin C. Knowles, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 20, 1963, Ser. No. 325,180

14 Claims. (Cl. 44—69)

6. A motor fuel in the gasoline boiling range containing a minor amount of an organo-lead anti-detonant and from about 0.01 to 1.0 theory of an amine-phosphorus-containing adduct represented by the formula:

$$(RR'_2N)_y \cdot X$$

in which R is an aliphatic hydrocarbon radical having from 8 to 30 carbon atoms, R′ is selected from the group consisting of hydrogen and an aliphatic hydrocarbon radical having from 1 to 30 carbon atoms, X is a metal salt selected from the group consisting of zinc and aluminum mono- and di-hydrogen phosphate and zinc and aluminum mono- and di-hydrogen phosphite, y is an integer from 1 to 12 and the total number of carbon atoms in said adduct is at least 24.

3,305,331

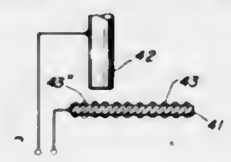
METHOD OF MAKING DIAMOND-FACED ARTICLES

Kiyoshi Inoue, 182 3-chome, Tamagawayoga-machi, Tokyo-to, Japan

Original application Feb. 28, 1961, Ser. No. 92,284, now Patent No. 3,207,582, dated Sept. 21, 1965. Divided and this application June 16, 1965, Ser. No. 490,756

Claims priority, application Japan, Mar. 3, 1960, 35/6,569

7 Claims. (Cl. 51—307)



1. A method of making a diamond-faced article, comprising the steps of:

(a) providing an electrically conductive metallic support with a carbon portion bonded to said support and exposed at a surface region thereof;
(b) spacedly juxtaposing an electrode with at least part of said carbon portion to form a spark gap therewith;
(c) surrounding the juxtaposed parts of said electrode and said carbon portion with an ambient liquid filling said gap; and
(d) effecting at least one impulsive spark discharge across said gap between said carbon portion and said electrode with sufficient discharge energy to generate a temperature and pressure converting at least part of said carbon portion to diamond.

3,305,332

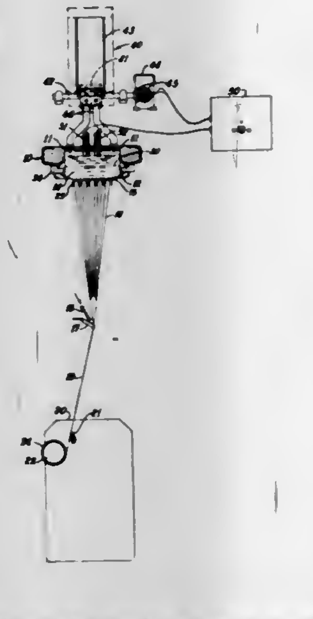
FEEDER FOR PRODUCTION OF FIBERS OF HEAT-SOFTENABLE MATERIALS

Cletis L. Roberson, Nelson J. Leedy, and James D. Riley, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Application Oct. 3, 1960, Ser. No. 60,126, now Patent No. 3,104,761, dated Sept. 24, 1963, which is a division of application Ser. No. 631,878, Dec. 31, 1956. Divided and this application Dec. 3, 1962, Ser. No. 241,964

3 Claims. (Cl. 65—11)

1. A feeder for formation of fibers of heat-softenable material comprising a container portion for such material, means for metering at a uniform rate a supply of said material in solid form to said feeder, means for heating said feeder to melt said solid material into a molten pool thereof within said container portion, said feeder having orifices at the bottom of said container portion through which streams of said molten material flow for attenuation into fibers, level controls associated with said feeder for establishing a predetermined level of said molten material within said container portion, said level controls being associated with said supply means in such manner as to supply a metered quantity of said solid material to said feeder upon drop of the level of said pool below said predetermined level.



3,305,333

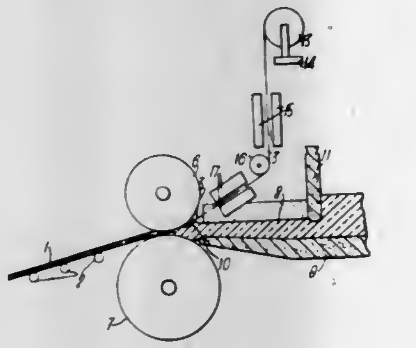
MANUFACTURE OF WIRED GLASS

William Christie Hynd, Liverpool, England, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain

Filed Feb. 4, 1963, Ser. No. 255,933

Claims priority, application Great Britain, Feb. 8, 1962, 4,953/62

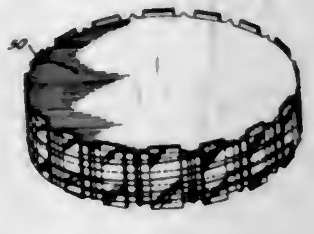
4 Claims. (Cl. 65—32)



3. A method of continuously manufacturing a ribbon of wired glass comprising continuously coating a steel wire web consisting of longitudinal and transverse wires welded at their intersections and respectively extending along and across the direction of advance of the web, with a protective coating compound selected from the group consisting of zinc phosphate and calcium metaphosphate, and gradually heating the coated web as it is advanced prior to incorporation into the molten glass in such a way that the relative expansion between adjacent transverse wires of the web at any time during the heating of the web and when the web is incorporated in the molten glass is insufficient to cause deformation of the web.

3,305,334
METHOD OF MAKING A GLASS SHEET HAVING A PLURALITY OF SPACED WIRES THEREIN

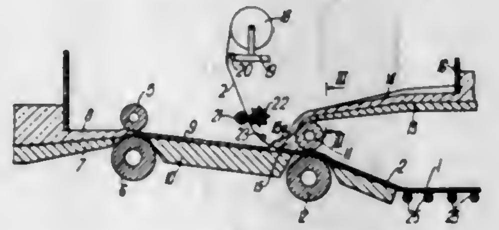
Norman F. Fyler, Menlo Park, Calif., assignor to Litton Precision Products, Inc., a corporation of Delaware
Original application Mar. 22, 1960, Ser. No. 16,734, now Patent No. 3,193,907. Divided and this application Oct. 6, 1964, Ser. No. 401,866
3 Claims. (Cl. 65—42)



1. The method of forming a sheet of glass having a plurality of spaced wires therein, comprising the steps of: winding a first plurality of spaced turns of wire having a first coefficient of expansion about a support having at least one flat supporting surface portion and a second coefficient of expansion greater than the said first coefficient of expansion to form a first traverse row of wires, placing a first sheet of glass on the flat surface portion abutting said first traverse row of wires, winding a second plurality of spaced turns of said wire about the support containing said supported glass sheet to form a second traverse row of wires abutting the outside of said glass sheet, applying heat to said support, glass sheet and wires in common for embedding the wire on each side of said sheet of glass while additionally enhancing the tension holding the rows of wire properly spaced and taut by the greater expansion of the support relative to the expansion of the wire, severing the ends of the rows of wire at the ends of the glass sheet to allow removal of the first glass sheet, removing the glass sheet with embedded wires from the said support, and removing the excess wire from about the support.

3,305,335
MANUFACTURE OF WIRED GLASS

Ronald Colgan Jewell, Ormskirk, and Norman Aidan Murphy, Woolton, Liverpool, England, assignors to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain
Filed Feb. 4, 1963, Ser. No. 255,932
Claims priority, application Great Britain, Feb. 5, 1962, 4,436/62
10 Claims. (Cl. 65—51)

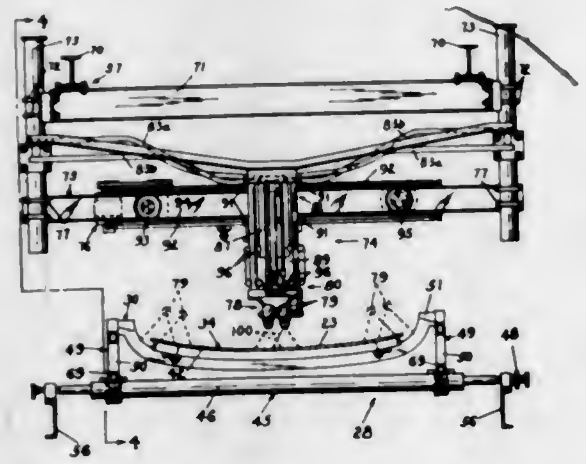


1. A method of continuously manufacturing a ribbon of wired glass incorporating a wire web consisting of longitudinal and transverse wires welded at their intersections and respectively extending along and across the ribbon, comprising continuously forming and maintaining a bolster of molten glass with converging sides defining an apex at one end of the bolster, whereby the width of the bolster between these sides increases progressively from said apex to the other wider end of the bolster, feeding said wire web longitudinally into said bolster in a direction to cause the transverse wires to enter said bolster through a region near said apex end with said transverse wires extending across said converging bolster sides, whereby the transverse wires are heated progressively along their length by the molten glass as the web is fed into the bolster and the relative expansion between adjacent transverse wires at any time during the heating is so small that it does not cause substantial deformation of the web, and rolling a ribbon of wired glass from the wider end of the bolster.

6. Apparatus for continuously manufacturing a ribbon of wired glass incorporating a wire web consisting of longitudinal and transverse wires welded at their intersections and respectively extending along and across the ribbon, comprising a supporting surface for molten glass, ribbon forming means associated with said surface for forming a ribbon of glass from molten glass supported by the surface, molten glass supply means mounted above the ribbon forming means for pouring molten glass towards the supporting surface to form a bolster of molten glass in front of the ribbon forming means, said supply means including bolster shaping means for so shaping the bolster that the free front edge of the bolster tapers to an apex pointing away from the ribbon forming means, and wire web feeding means so mounted relative to the ribbon forming means that the wire web is fed into the apex of the bolster and the transverse wires of the web are heated progressively along their length by the molten glass as the web is fed into the bolster.

3,305,336
METHOD AND APPARATUS FOR FORMING A FILM ON A GLASS SURFACE

Charles M. Browne and Robert R. Beckham, Toledo, Ohio, assignors to Libbey-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio
Filed Oct. 5, 1964, Ser. No. 405,003
9 Claims. (Cl. 65—60)



1. A method of producing a bent, tempered and filmed glass sheet by depositing a film forming compound onto the heated sheet from a spray source, comprising heating a flat sheet to bending temerature and forming a concave curvature in said sheet, rapidly cooling the bent sheet to a temperature below said bending temperature and above the temperature required to form said film so as to temper said bent sheet, moving said spray source back and forth across said bent sheet a predetermined distance from the sheet and substantially following the concave curvature thereof, and spraying the film forming compound from said moving spray source onto the concave surface of said bent sheet.

3. An apparatus for forming a film of low light transmittance and high solar radiation reflectance on a surface of a bent and tempered glass sheet, including means for supporting the glass sheet, means for conveying said sheet supporting means along a predetermined substantially horizontal path normal to the longitudinal axis of the sheet, means for heating the sheet as it advances along the conveying means and while supported in said sheet supporting means to bend the sheet to a desired configuration, means for rapidly cooling the sheet to temper said sheet as it advances along the conveying means and while supported in said sheet supporting means, means for arresting the forward movement of said sheet supporting means along the path of the conveying means and maintaining the supporting means and sheet thereon in a predetermined position, while the sheet is supported on said sheet supporting means and immediately after emerging from said sheet cooling means, and spray means traversing a path across the full length of the bent sheet and following the contour thereof to maintain substantially constant spacing between said spray means and said bent sheet.

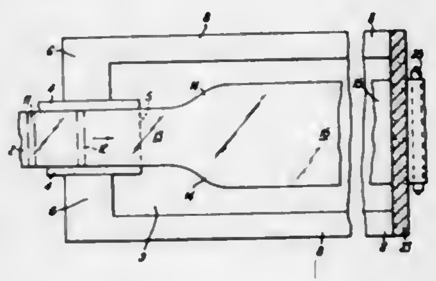
3,305,337
METHOD OF MANUFACTURE OF FLAT GLASS ON MOLTEN TIN

David Gordon Loukes, Eccleston Park, Prescot, and John Graham Banner, Meols, Hoylake, England, assignors to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain
No Drawing. Filed July 30, 1963, Ser. No. 298,599
8 Claims. (Cl. 65—65)

1. In the manufacture of flat glass in ribbon form during which the glass is supported on a bath of molten tin, inhibiting the formation of compounds of the molten tin by maintaining in the bath at least one element selected from the group consisting of lithium, sodium, potassium, magnesium, calcium, barium, aluminium, indium, titanium, vanadium, chromium, manganese, iron, zinc, zirconium, niobium, carbon and silicon in sufficient quantity for oxygen and sulphur present as impurity in the bath to react preferentially with said element, thereby to control the migration of tin into the underface of the ribbon as the ribbon is advanced.

3,305,338
METHOD OF MANUFACTURING FLAT GLASS OF DIFFERENT THICKNESSES

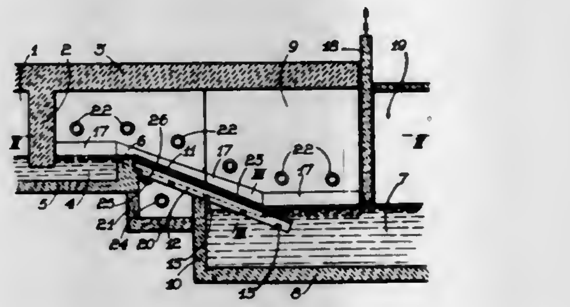
Albert Sidney Robinson, Birkdale, Southport, England, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain
Filed Apr. 1, 1963, Ser. No. 269,591
Claims priority, application Great Britain, Apr. 3, 1962, 12,825/62
1 Claim. (Cl. 65—99)



A method of developing a ribbon of flat glass of a desired thickness from the downstream end of a layer of molten glass maintained on a bath of molten metal of higher specific gravity than that of the glass, by pouring molten glass onto the bath in a direction longitudinally of the bath to feed the layer at a rate to ensure that a lateral flow of the glass in the layer occurs under the influence of surface tension and gravity and to compensate the layer for the glass withdrawn from the layer as a ribbon is developed therefrom, characterized by the steps of (1) cooling the molten glass in the layer before it reaches the limit of its free lateral flow under the influence of surface tension and gravity sufficiently to increase the viscosity of the layer and to stop thereby its lateral flow before it reaches said limit, and before the sides of the layer reach the sides of the bath, whereby the dimensions of the layer are stabilized by the stopping of said lateral flow, (2) continuously developing from the stabilized layer a continuously longitudinally moving ribbon of uniform thickness along its length while supported on said bath, (3) cooling the developed ribbon sufficiently to stiffen it to the point where it can be withdrawn from the bath unharmed, and (4) continuously withdrawing the developed stiffened ribbon from said bath while of said thickness.

3,305,339
PROCESS AND APPARATUS FOR THE MANUFACTURE OF FLAT GLASS ON A MOLTEN METAL BATH

Emile Plumat, Gilly, Belgium, assignor to Glaverbel, Brussels, Belgium, a Belgian company
Filed Sept. 6, 1963, Ser. No. 307,224
Claims priority, application Luxemburg, Sept. 29, 1962, 42,441
10 Claims. (Cl. 65—99)



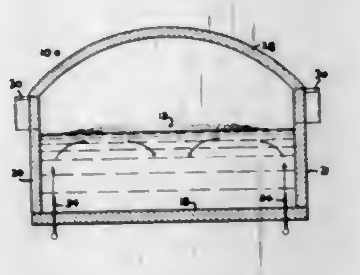
1. The method of manufacturing flat glass which comprises causing glass molten in a melting furnace to flow freely from the latter in the form of a sheet, guiding such sheet of molten glass down an inclined path to the surface of a bath of molten metal, and at the end of such inclined path depositing and floating such sheet of molten glass on the surface of the molten metal bath, supplying heat to the sheet of molten glass throughout its entire path from the place of its formation at the melting furnace to the place at which it starts to float on the surface of the molten metal bath at a substantially constant temperature and in such manner that the formation of temperature gradients tending to produce a non-homogeneous flow of the glass is prevented during the movement of the sheet through such path, and supporting such sheet of molten glass throughout its entire path from the place of its formation at the melting furnace to the place at which it starts to float on the surface of the molten metal bath.

3. Apparatus for manufacturing sheet glass, compris- including, in combination, a refractory tank having two ing a melting furnace having at its discharge end an overflow enabling the molten glass to flow freely therefrom in the form of a sheet, a bath of molten metal spaced from said furnace overflow and having its surface located below the sheet forming surface of said overflow, and inclined guide means for the sheet of molten glass providing an uninterrupted path of flow from the sheet forming surface of said overflow to the surface of the molten metal bath and having a sheet supporting surface extending through the surface of and dipping into the body of the molten metal bath, whereby the sheet of molten glass is supported throughout its entire path from the place of its formation at the furnace overflow to the place where the molten glass sheet moves from the supporting surface of said inclined guide means onto the surface of the molten metal bath.

3,305,340

METHOD AND APPARATUS FOR GENERATING CURRENTS IN MOLTEN GLASS

Florian V. Atkeson, Springdale, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 4, 1964, Ser. No. 349,398
4 Claims. (Cl. 65—134)



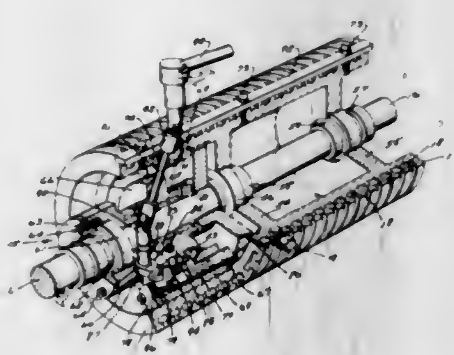
1. A method of generating currents of moving glass in a tank of molten glass having lateral sides and a continuous flow of glass from one end where batch is introduced to an opposite end where molten glass is withdrawn, the steps comprising electrically heating the molten glass beneath the surface of the molten glass and at spaced locations along and closely adjacent the lateral sides of said tank, and simultaneously introducing inert gas into the molten glass at the same spaced locations where the heat is generated so as to emit bubbles of inert gas into the glass at said spaced locations, whereby currents of glass are caused to move upwardly adjacent the lateral sides of the tank and thence centrally of the tank adjacent the surface of the molten bath.

3. Apparatus for continuously melting and fining glass including, in combination, a refractory tank having two lateral sides, one end where glass batch is introduced, an opposite end where molten glass is removed and an intermediate portion where the batch is melted to form glass and the glass is refined to improve quality; and two rows of spaced, upright, electrode-bubblers within the tank and below the surface of the molten glass, one row extending along and closely adjacent a portion of each lateral side of the tank, each electrode-bubbler being comprised of a hollow electrode rod, means to supply gas under pressure to the hollow portion of said electrodes, and means to simultaneously supply current to said electrodes.

3,305,341

TIMING SYSTEM FOR I.S. TYPE GLASSWARE FORMING MACHINE

Eustace H. Mumford, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed July 26, 1963, Ser. No. 297,871
12 Claims. (Cl. 65—158)

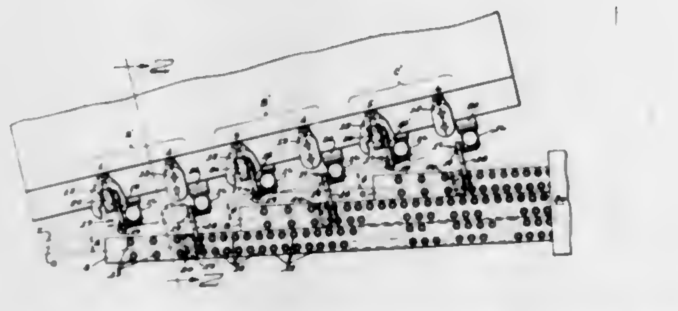


1. A multiple section glass forming machine including a timing mechanism for operating each section of said machine, comprising a single drive shaft, means for rotatably mounting said shaft, plural timing drums rotatably mounted side-by-side on said shaft, there being one of said drums for each section of said machine, an electric drive motor, drive means connected to the shaft and said drive motor for rotating the shaft at a predetermined speed, a clutch-brake unit individual to each said drum comprising a stationary bracket, a hub member, means for slidably mounting said hub member concentrically on said shaft for axial movement thereon, a flywheel secured on said shaft and including a radial slot therein, a pin adapted to engage said slot, means attaching said pin in a preselected angular position on its said drum, said means providing for axial sliding movement thereon toward and away from said slot, means connecting said pin and said hub member for axially moving the two together, and a linkage member connected to said bracket and said hub member operable for axially moving the latter to selectively engage or disengage said pin in said slot, thereby connecting or disconnecting, respectively, said drum and shaft for rotation together in a predetermined rotational position.

3,305,342

METHOD AND APPARATUS FOR HANDLING HOT, DEFORMABLE GLASSWARE

Harry C. Hafferkamp, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed May 22, 1962, Ser. No. 196,701
5 Claims. (Cl. 65—260)



1. In combination, a plural-section glass forming machine with the final molds thereof spaced along a common vertical plane, an annealing lehr spaced from the final molds for receiving and annealing glassware, plural, parallel endless conveyors disposed to travel through said lehr, the conveyors being of progressively increasing length in their lineal extent outwardly from the point of entry into the lehr to their ends adjacent the forming machine, the longitudinal center line of each of said parallel conveyor being disposed at the same acute angle with respect to said common vertical plane of the final molds, and means on each of said sections of the machine for transferring the ware in a vertical plane disposed at right angles to said common vertical plane from said final forming mold thereof to a point overlying one of said plural conveyors, said means being operated to release glassware transferred thereby from their respective final molds onto said one of the plural conveyors.

3,305,343

METAL PERXENATES AND METHOD OF MAKING THE SAME

John G. Malm, 13 N. Wright St., Naperville, Ill. 60540, and Evan H. Appelman, 4816 Cornell Ave., Downers Grove, Ill. 60515
No Drawing. Filed Apr. 8, 1964, Ser. No. 358,411
22 Claims. (Cl. 23—346)

1. An alkali metal perxenate.

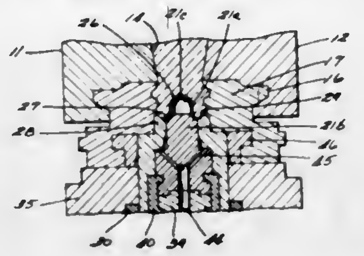
12. A method of forming a metal perxenate comprising reacting a solution of xenon trioxide with a metal hydroxide to form a precipitate of the metal perxenate.

16. An alkaline earth metal perxenate.

3,305,344

NECK MOLD AND PLUNGER UNIT FOR GLASS FORMING APPARATUS

Robert D. Colchagoff, Toledo, Ohio, assignor to Owens-Illinois Inc., a corporation of Ohio
Filed Sept. 6, 1963, Ser. No. 307,104
6 Claims. (Cl. 65—357)

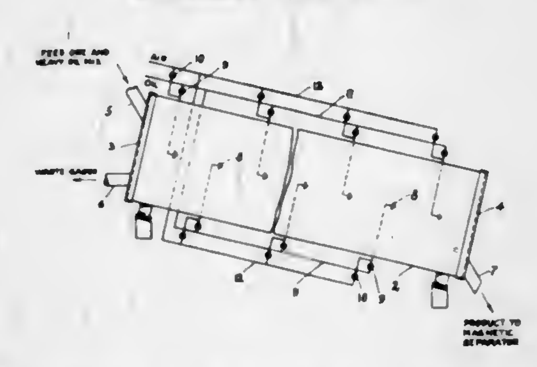


6. In combination, a neck mold defining a neck finish forming cavity having an axial end opening, a blank mold, means independently supporting said neck mold and blank mold in a glass forming position defining a glass parison shaping cavity, a neck pin, and means supporting the neck pin for reciprocating movement in the axial end opening of the neck finish forming cavity and into and out of said neck cavity, the neck pin comprising a body with its forward end of cylindrical shape and a hollow tip attached on the forward end of said body, the tip being inserted into the neck forming cavity by the last-named means to contact the glass and form a neck corkage bore and bubble in the glass in the neck finish forming cavity, said hollow tip providing a total enclosure for a gaseous insulating medium, thereby providing a zone of low thermal conductivity for extraction of heat from the glass in said bubble and the body providing a zone of relatively high thermal conductivity for extraction of heat from the glass in said corkage bore of the neck, so that the glass of the bubble will be in softened condition suitable for blowing upon retraction of the neck pin without the necessity reheat and the glass of the corkage bore will be firm.

3,305,345

MAGNETIZING-ROASTING OF IRON ORE

Hans Rausch, Oberursel, Taunus, Walter Koch, Offenbach (Main), and Heinrich Meiler, Lorsbach, Taunus, Germany, assignors to Dravo Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 22, 1963, Ser. No. 303,867
Claims priority, application Germany, Aug. 22, 1962, M 53,982
5 Claims. (Cl. 75—1)



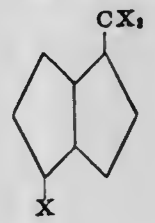
1. The method of effecting the roasting of hematite ore to effect reduction of Fe_2O_3 to Fe_3O_4 comprising the steps of mixing the ore with heavy fuel oil in an amount at least theoretically necessary to effect said reaction, heating said mixture in a closed environment to a temperature of approximately 800° C. to form gaseous pyrolysis products from the heating of the oil and nascent oil coke in said environment and introducing sufficient oxygen into said environment to burn said gaseous pyrolysis products without heavy soot formation whereby said nascent oil coke is diffused through the bed in situ and functions as the reducing reactant.

3,305,346

COMPOSITION AND METHOD FOR TREATMENT OF SOIL TO INHIBIT BACTERIA AND NITRIFICATION

Rostylaw Dowbenko, Gibsonia, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Apr. 16, 1964, Ser. No. 360,434
5 Claims. (Cl. 71—2.3)

1. A method for inhibiting nitrification of ammonium nitrogen in soil and preventing rapid loss of ammonium nitrogen therefrom which comprises impregnating soil below the soil surface in the growing area thereof with an effective amount of a derivative of bicyclo[3.3.0]octane, said derivative having the formula:



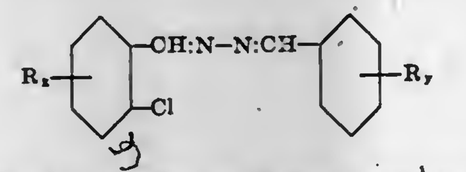
where X is halogen.

3,305,347

BENZYLIDENE HYDRAZINE PESTICIDES

Pasquale Paul Minieri, Woodside, N.Y., assignor to Tenneco Chemicals, Inc., a corporation of Delaware
No Drawing. Filed Nov. 12, 1964, Ser. No. 410,775
10 Claims. (Cl. 71—2.3)

1. The method of controlling the growth of undesirable plants, insects, mites and fungi which comprises treating the locus where control is to be effected with a pesticidal amount of a compound having the structure



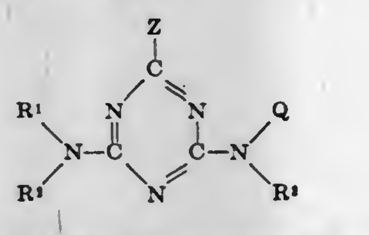
wherein each R represents a number selected from the group consisting of chloro, nitro, amino, lower alkyl, lower alkoxy, and mixtures thereof; x represents an integer in the range of 1 to 4; and y represents an integer in the range of zero to 5.

3,305,348

HERBICIDAL COMPOSITION AND METHOD EMPLOYING DIAMINO-s-TRIAZINE DERIVATIVES

Werner Schwarze and Hermann Schulz, Frankfurt am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed July 31, 1963, Ser. No. 299,066
Claims priority, application Germany, Aug. 1, 1962, D 39,521
6 Claims. (Cl. 71—2.5)

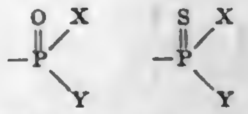
1. A herbicidal composition comprising as an active ingredient a herbicidally effective amount of a triazine compound of the formula



in which each of R^1 and R^2 is selected from the group consisting of hydrogen, lower alkyl, lower alkenyl and lower alkoxy alkyl, R^3 is selected from the group consisting of lower alkyl, lower alkenyl and lower alkoxy alkyl, Z is selected from the group consisting of halogen,

$$—CN,\ —CCl_3,\ —CHCl_2,\ —CH_2Cl,\ —SR,\ —OR,$$

—SO_3H and SO_3Me, R being lower alkyl and Me a monovalent metal, and Q is selected from the group consisting of



$$-\overset{O}{\overset{\|}{P}}{<}^{X}_{Y} \qquad -\overset{S}{\overset{\|}{P}}{<}^{X}_{Y}$$

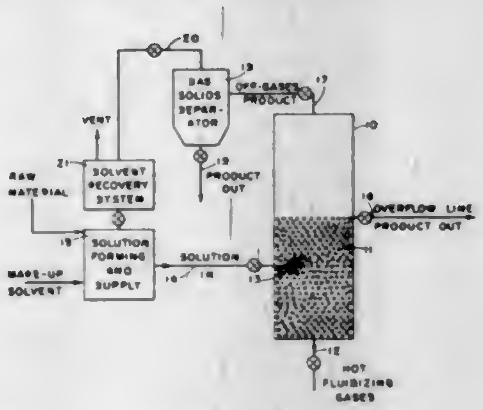
—$SO_2NR^4R^5$—SO_2R^6, X and Y each being selected from the group consisting of halogen, —OR^4, —NH_2, —NHR^4, —NR^4R^5 and —$OMe'(1/n)$, each of R^4 and R^5 being selected from the group consisting of hydrogen, lower alkyl, aryl and aralkyl, R^6 being lower alkyl, Me′ signifying a metal selected from the group consisting of alkali metals and alkaline earth metals and *n* signifying the valence of such metals and a major portion of an agricultural adjuvant.

ERRATUM

For Class 75—1 see:
Patent No. 3,305,345

3,305,349
METHOD OF MAKING COMPOSITE MATERIALS AND RESULTING PRODUCTS

Bennett Bovarnick, Newton, and Harold W. Flood, South Acton, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed Mar. 17, 1964, Ser. No. 352,531
10 Claims. (Cl. 75—.5)



1. A method of forming a chemically homogeneous solid composite product, consisting of the steps of

(a) forming a solution of mixed metallic salts thermally decomposable to metallic oxides; and

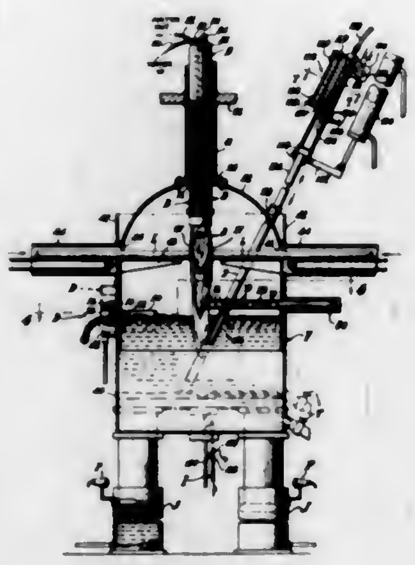
(b) introducing said solution in the form of atomized droplets beneath the solid-gas interface of a fluidized bed to cause the solution droplets to impinge on hot fluidized bed particles, the temperature and size of said particles being such that they apply to the atomized droplets a thermal load of sufficient magnitude to substantially instantaneously and completely dehydrate and decompose said solution before any appreciable diffusing of the individual components of the resulting solid product can effect segregation of said components thereby forming a solid powder particle which is a chemically homogeneous composite of the metal oxides formed in said decomposing.

3,305,350
PROCESS AND APPARATUS FOR MAKING STEEL

Robert B. Aitchison, 2311 Lisenby Ave., Panama City, Fla. 32401
Original application May 18, 1961, Ser. No. 111,044. Divided and this application Jan. 14, 1965, Ser. No. 426,710
18 Claims. (Cl. 75—40)

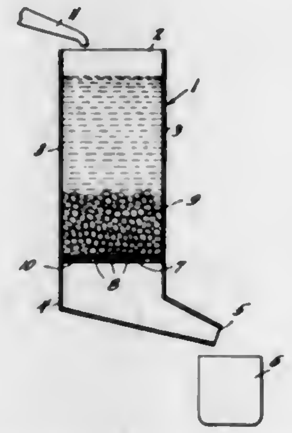
1. A furnace assembly for the direct reduction of iron ore to steel comprising: an enclosed furnace for melt, means for moving at least one iron concentrate log into the furnace, a burner positioned within said furnace, said burner being adapted to melt said log, weight responsive means cooperating with said furnace to control the movement of the log and the melting of the log.

14. In the process of making steel through the direct reduction of iron ore forming a melt, the improvement comprising: providing a flame brush having a plurality of individual flames around and adjacent the surface of the melt, directing a plurality of individual flames from said flame brush along the surface of said melt, and moving slag on said melt by said flames in a direction away from said flame brush and out from said furnace.



3,305,351
TREATMENT OF ALUMINUM WITH ALUMINUM FLUORIDE PARTICLES

Linton D. Bylund, Chesterfield County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Feb. 24, 1964, Ser. No. 346,625
9 Claims. (Cl. 75—68)

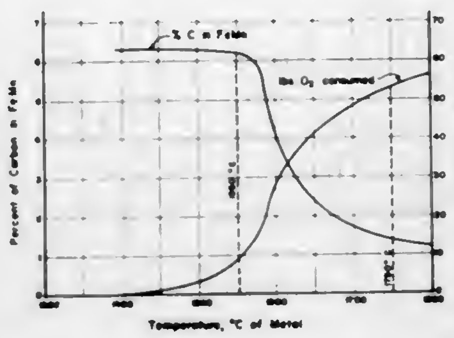


1. Method for the removal of impurities in the form of trace amounts of metals selected from the group consisting of lithium, sodium and magnesium, from aluminous metal containing such impurities, which comprises passing the aluminous metal in liquid form through a bed consisting essentially of solid aluminum fluoride particles.

9. Means to remove trace elements from aluminous metal, comprising means forming a conduit for liquid aluminous metal, a bed of solid aluminum fluoride containing particles in the conduit, and means extending across the conduit to support the bed of particles while allowing passage of aluminous metal through the conduit, most of said particles having an aluminum fluoride exterior and an alumina core.

3,305,352
PROCESS OF PRODUCING ALLOYS

Robert W. Day, Lookout Mountain, Tenn., assignor, by mesne assignments, to Union Carbide Corporation, a corporation of New York
Filed Jan. 3, 1964, Ser. No. 335,630
1 Claim. (Cl. 75—80)



A process for producing medium carbon ferromanganese containing not more than 1.5% by weight carbon which comprises

(1) providing molten high carbon ferromanganese at a temperature below 1550° C., said ferromanganese containing at least about 3% carbon and up to 5% silicon;

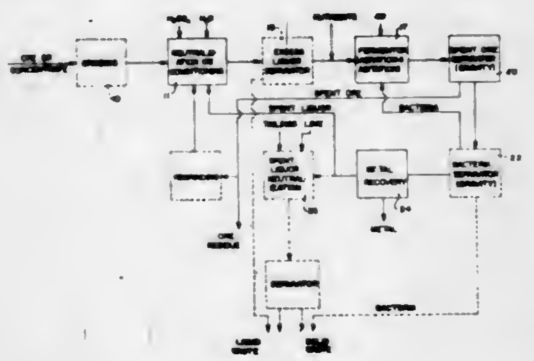
(2) blowing the molten ferromanganese with oxidizing gas at a rate sufficient to heat the molten metal to a temperature of about 1700° C. before the carbon content of the molten metal has been reduced to 1.5% C;

(3) continuing the blowing operation until the temperature of the molten metal is about 1750° C.; and

(4) discontinuing the blowing operation after this temperature has been reached whereby a ferromanganese alloy is obtained having a carbon content of not more than 1.5%.

3,305,353
ACCELERATED MICROBIOLOGICAL ORE EXTRACTION PROCESS

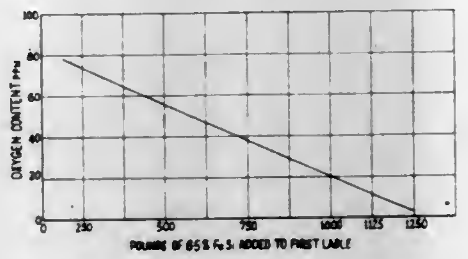
Douglas W. Duncan, Cecil C. Walden, and Paul C. Trussell, Vancouver, British Columbia, Canada, assignors to British Columbia Research Council, Vancouver, British Columbia, Canada
Filed Mar. 30, 1964, Ser. No. 355,876
10 Claims. (Cl. 75—101)



1. A method of bacteriological extraction of metals from materials comprising metallic sulfides which process comprises contacting particles of said material with an aqueous acidic leaching medium, said medium comprising a mineral acid, sulfide-oxidizing bacteria and nutrient for said bacteria, subjecting the leaching medium to agitation to maintain said particles suspended in said medium, and aerating said medium during said agitation to provide oxygen for the oxidation of said sulfide by said bacteria.

3,305,354
METHOD OF PRODUCING LOW OXYGEN ORIENTED SILICON-IRON

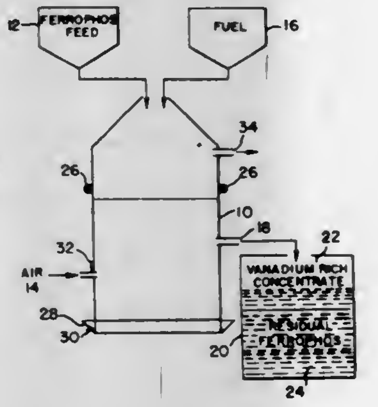
Robert E. Boni, Middletown, and Joseph E. Heck, Monroe, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
Filed Dec. 17, 1964, Ser. No. 419,023
8 Claims. (Cl. 75—129)



1. A method of producing low oxygen silicon-iron intended for the manufacture of oriented silicon-iron sheet stock, comprising the steps of adding to molten ferrous metal in a first vessel a quantity of silicon-bearing material sufficient to combine with oxygen in the ferrous metal and to leave a substantial residual quantity of silicon in alloyed condition in the ferrous metal, adding a quantity of manganese-bearing material to said first vessel sufficient to bring the manganese content of said ferrous metal up to a desired final level, transferring said ferrous metal to a second vessel, adding a quantity of said silicon-bearing material sufficient to bring the silicon content of said ferrous metal to a desired final alloy level, adding aluminum to said ferrous metal, and holding said ferrous metal in said second vessel for a holding period sufficient to allow inclusions to float out of said ferrous metal.

3,305,355
REFINING OF FERROPHOS

Wendell L. Darrow, Darien, Conn., and Chao Hsiao, Alameda, Idaho, assignors to FMC Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1962, Ser. No. 234,390
6 Claims. (Cl. 75—132)



1. In the method of refining a vanadium and chromium bearing crude ferrophos by heating said ferrophos to a temperature of between 1300° and 1560° C. in the presence of an oxygen-containing gas in amounts sufficient to provide an oxidizing atmosphere until a concentrate having a vanadium content of from about 10 to 15% expressed as V_2O_5 and a chromium content of about 8–12% expressed as Cr_2O_3 is separated from a residual refined ferrophos having a phosphorus content of at least 23%, the improvement which comprises initially heating said crude ferrophos in a reactor lined with a refractory made up of silicon carbide particles bonded together into

an adherent mass, and thereafter rapidly cooling the outer surface of said refractory by passing a cooling fluid in heat exchange relationship therewith to remove heat evolved in said reactor in order to maintain the temperature of said ferrophos at about 1300°–1560° C., whereby said ferrophos and said reactor can be rapidly cooled without cracking of said refractory, and recovering said concentrate and said residual, refined ferrophos.

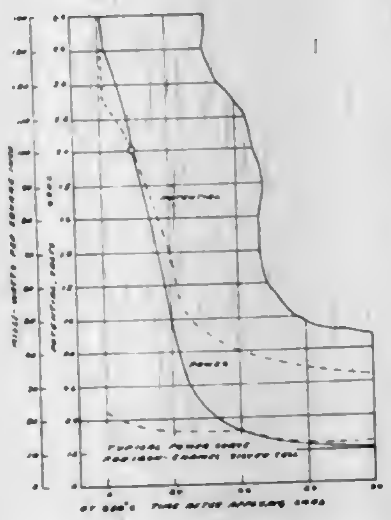
3,305,356
DENTAL AMALGAM

**William V. Youdelis, 12466 135th St.,
Edmonton, Alberta, Canada
No Drawing. Filed Oct. 31, 1963, Ser. No. 320,503
Claims priority, application Canada, Aug. 30, 1963,
883,534
7 Claims. (Cl. 75—134)**

1. A dental amalgam having a compressive strength of about 60,000 to 65,000 p.s.i.g., a hardness of about 110 to 115 d.p.h. and a flow of about 0.5 to 2% in 21 hours, said amalgam consisting essentially of:
   - (a) about 30 to 45% of an amalgamatable alloy consisting essentially of 75% by weight silver and 25% by weight of tin, said alloy having up to 7% by weight of the silver-tin alloy replaced by up to 5% by weight of copper and up to 2% by weight of zinc;
   - (b) about 5 to 25% by weight of discrete particles of a substantially non-amalgamatable alloy containing at least 50% by weight of silver, said alloy (b) being of substantially different chemical composition from said alloy (a), said alloy being present as a dispersion phase in the amalgam matrix and said alloy being in the form of discrete particles remaining essentially wholly intact in the set amalgam; and
   - (c) about 40% to 60% by weight of mercury.

3,305,357
METHOD OF MAKING A Al-Si-Mn-Li ANODE FOR HIGH TEMPERATURE GALVANIC CELL

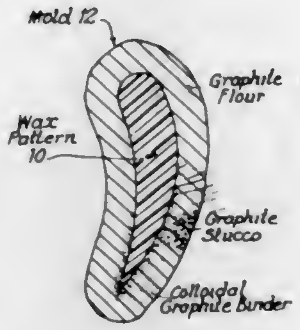
**Burnham W. King, Jr., 4545 Coach Road, Columbus, Ohio 43221; Thomas G. Byrer, 784 Olde Settler Road, Columbus, Ohio 43214; and Walter A. Hedden, 145 E. South St., Worthington, Ohio 43085
Original application Sept. 25, 1964, Ser. No. 399,414. Divided and this application Apr. 15, 1966, Ser. No. 543,779
2 Claims. (Cl. 75—135)**



1. The method of making a high temperature galvanic cell anode by melting aluminum at about 660° C., increasing the temperature of the melt to about 870° C. and stirring silicon into the melt, increasing the temperature to about 1038° C. and stirring manganese into the melt, adding lithium to the melt with stirring, and pouring the melt.

3,305,358
METHOD FOR SHAPING BERYLLIUM AND OTHER METALS AND CERAMICS

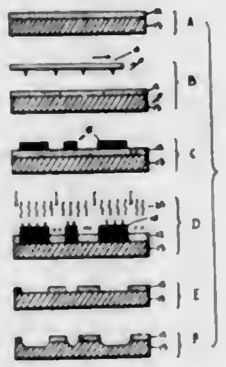
**Nick G. Lirones, North Muskegon, Mich., assignor to Howmet Corporation, a corporation of Delaware
Filed Sept. 20, 1963, Ser. No. 310,433
6 Claims. (Cl. 75—211)**



1. In the molding of cast shapes of beryllium, the steps of providing a mold formed of graphite in cross-section through at least the inner portion of the mold about the mold cavity including layers of colloidal graphite and graphite flour alternating with layers of graphite stucco, filling the mold cavity with beryllium powder in finely divided form, impacting the mold to densify the beryllium in the mold cavity, heating the assembly to a temperature above sintering temperature for the beryllium powder to sinter the beryllium powder cast into the mold, and maintaining a non-oxidizing atmosphere during the heating to sintering and subsequent cooling.

3,305,359
MANUFACTURE OF PRINTING PLATES

**William G. Delmont, Glenunga, South Australia, Australia, assignor to Photoelectric Limited, Adelaide, South Australia, Australia
Filed Oct. 4, 1962, Ser. No. 228,407
16 Claims. (Cl. 96—1)**



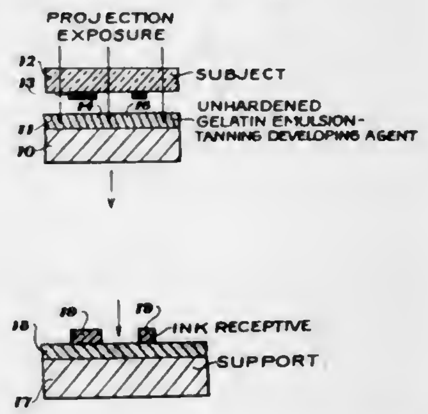
6. A method of producing a printing plate or like member having a precision differential relief pattern in a base, comprising:
- coating a base with an extremely thin, impermeable, continuous film of substantially pure elemental photoconductor material;
- producing an electrostatic charge image on the surface of said film by selectively exposing said film in accordance with a desired image pattern;
- developing said charge image by contacting said film with a suspension of fine developer particles and a binder in an insulating fluid to deposit said developer particles electrostatically on said image, said developer particles being substantially insoluble in a given solvent for said elemental photoconductor, to afford a dense coating for said charge image that adheres to but does not penetrate said film;

- pre-etching the photoconductor film by dissolving away the photoconductor film in said solvent, in areas not protected by said developer, leaving a photoconductor image on said base, said developer remainiing on the surface of said photoconductor film as deposited by electrostatic attraction and without any additional bonding of a nature tending to increase attachment of the developer image to the photoconductor or the base, during pre-etching;
- and etching said base, using an etchant to which said photoconductor is substantially resistant, to produce a differential relief pattern in said base that is a precise reproduction of said image pattern.

7. A method of producing a printing plate or like member having a precision differential pattern on a base, comprising:
- coating a base with a thin, continuous film of amorphous photoconductive selenium;
- producing an electrostatic charge image on the surface of said film by selectively exposing said film in accordance with a desired image pattern;
- developing said charge image with a developer having a substantially different absorption characteristic with respect to infra-red radiation than said selenium film;
- irradiating the developed image with infra-red radiation to heat the developed and undeveloped portions of the selenium film differentially in accordance with their differing absorption characteristic, and maintaining such irradiation until the more absorptive of the developed and undeveloped portions is heated to the crystallization temperature of selenium and converted to crystalline form;
- discontinuing said irradiation before the less absorptive portion of the film is crystallized;
- said developer remaining on the surface of said selenium film as deposited, by electrostatic attraction and without any additional bonding of a nature tending to increase attachment of the developer image to the selenium or to the base throughout the foregoing steps;
- and thereafter treating the developed film with an agent that attacks and removes one of the crystalline and amorphous forms of selenium but that does not attack the other form of selenium, leaving a selenium image on said base that is a precise reproduction of said image pattern.

3,305,360
METHOD OF PREPARING LITHOGRAPHIC PLATES

**Joseph T. Leone, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Sept. 20, 1963, Ser. No. 310,416
9 Claims. (Cl. 96—28)**



1. A method for preparing a lithographic printing plate which comprises pressing the hydrophilic surface of a supported layer containing a mixture of hardened colloid and an inert pigment and having thereon a coating of nontanning silver halide developer, against a moist supported substantially unhardened gelatino-silver halide emulsion layer which has been exposed to a high-contrast subject and developed in the presence of a gelatin tanning silver halide developing agent producing hardened image areas which will not adhere to said hydrophilic surface and other coplanar areas corresponding to the shadows of the subject which adhere to said hydrophilic surface, said emulsion layer being not harder than a gelatin layer containing 0.7 gram of formaldehyde per pound of gelatin freshly coated, mechanically removing the support of said emulsion layer together with the hardened image areas from the hydrophilic surface to leave a stratum of only said coplanar emulsion areas containing gelatin tanning silver halide developing agent adhered to said surface.

3,305,361
INFORMATION RECORDING

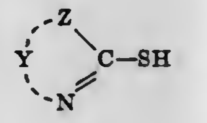
**Joseph Gaynor and Max Metlay, Schenectady, and Gordon J. Sewell, Albany, N.Y., assignors to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 28, 1962, Ser. No. 247,853
2 Claims. (Cl. 96—48)**

2. An information recording process which comprises exposing a recording member to activating photoradiation in the image pattern to be recorded for a sufficient time period to sensitize the recording member but produce no substantial color change, and heating the exposed recording member sufficiently to produce both selective bleaching in those areas of the recording member receiving the photoradiation and insensitivity of the recording member to any further photoradiation, the recording member comprising a transparent solid film obtained from a compatible mixture of an optically clear synthetic organic film-forming polymer, a polyhalogenated organic compound having each halogen atom bonded to a carbon atom which has no more than two hydrogen atoms bonded thereto, and an oxidizable organic dye which can be bleached when exposed to the sensitizing photoradiation and subsequently heated.

3,305,362
PROCESS FOR DEVELOPING SILVER HALIDE AND COMPOSITIONS THEREFOR

**Oskar Riester and Werner Stracke, Leverkusen, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Feb. 26, 1963, Ser. No. 260,998
Claims priority, application Germany, Mar. 8, 1962,
A 39,654
21 Claims. (Cl. 96—66)**

1. In a process for the production of photographic images by exposing a supported light-sensitive silver halide emulsion, developing and fixing the exposed layer, the improvement consisting in developing the exposed silver halide emulsion layer in effective contact with a stabilizing compound of the formula:

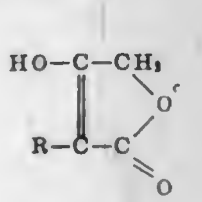


wherein Z stands for a bivalent atom selected from the group consisting of oxygen, sulfur and selenium and Y stands for the carbon atoms necessary for completing a ring selected from the group consisting of a 5-membered ring and a 6-membered ring, said rings being fused to an aryl ring selected from the group consisting of benzene and naphthalene, said aryl ring being substituted by a substituent selected from the group consisting of carboxyl, sulfonic acid and sulphonamide.

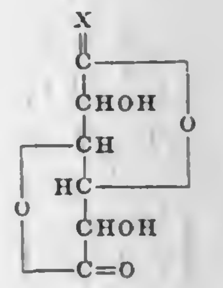
3,305,363
PHOTOGRAPHIC DEVELOPMENT PROMOTERS

Dorothy J. Beavers and Norman Allentoff, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Nov. 13, 1962, Ser. No. 237,382
6 Claims. (Cl. 96—66.3)

1. A process of developing a latent image in an exposed photographic silver halide film, comprising washing the exposed film with an alkaline solution in the presence of at least one organic silver halide developer and a promoter selected from the group consisting of compounds having the formulas



and



wherein R represents a member selected from the group consisting of H, Cl, and Br and X represents a member selected from the group consisting of oxo and

[—H, —OH]

3,305,364
NON-SILVER HALIDE REDUCING SULFONAMIDE BUFFERS FOR PHOTOGRAPHIC DEVELOPING SOLUTIONS

Charleton C. Bard and Judith A. Larkin, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Sept. 3, 1963, Ser. No. 306,304
13 Claims. (Cl. 96—66.4)

1. A photographic developer composition containing a photographic silver halide developing agent and a water-soluble, non-silver halide reducing sulfonamide buffer.

3,305,365
PHOTOSENSITIVE MATERIAL

Tomoshichi Takei, Masakazu Kanoh, and Shoichiro Sumi, Tokyo, Japan, assignors to Oriental Photo Industrial Co., Ltd., Tokyo, Japan, a corporation of Japan
No Drawing. Filed Nov. 8, 1963, Ser. No. 322,503
Claims priority, application Japan, Nov. 12, 1962, 37/49,678
10 Claims. (Cl. 96—108)

1. A photosensitive material adapted for direct visual type electromagnetic oscillographic recording, comprising:

a support having on at least one surface thereof a layer of a silver halide emulsion selected from the group consisting of silver bromide and silver iodobromide emulsions, said emulsion containing bromine ions in an amout greater than the amount required to react with the silver, said emulsion also containing 10 to 40 mol percent of a cadmium salt, 10 to 25 mol percent stannous chloride and 0.1 to 10 mol percent thiosemicarbazide, per mol of silver in the emulsion.

3,305,366
COLOR AND FERMENTATION STABILIZATION OF FRESH FRUITS

William J. Sutton and Robert M. Lauck, Park Forest, Ill., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 25, 1963, Ser. No. 267,828
12 Claims. (Cl. 99—154)

1. A method of treating raw, peeled, cut, sliced, or pureed bananas, apples and pears which comprise adding to the raw bananas, apples and pears a mixture of pyrophosphoric acid and a compound selected from the group consisting of sodium bisulfite and sodium sulfite, in an amount between 0.01% and 1.0% by weight of the raw bananas, apples and pears, the over-all weight ratio of pyrophosphoric acid to sulfur compound being between 4:1 and 1:2.

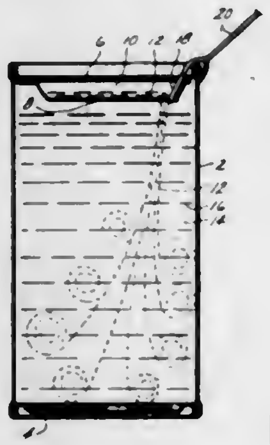
3,305,367
METHOD OF DESTROYING *TRICHINELLA SPIRALIS* IN MEAT INFESTED THEREWITH

Mauritz Gunnar Anderson, Wheaton, and Edward Eagle, Evanston, Ill., assignors to Swift & Company, Chicago, Ill., a corporation of Illinois
No Drawing. Filed Dec. 5, 1963, Ser. No. 328,186
9 Claims. (Cl. 99—157)

1. A method of destroying *Trichinella spiralis* infesting meat and meat products comprising: contacting said meat above about 24° F. and up to about one-half inch thickness with an atmosphere containing ethylene oxide for a time sufficient to kill all viable *Trichinella spiralis* organisms and removing the meat prior to sterilization of a natural microscopic flora thereof.

3,305,368
BEVERAGE PACKAGE

Joseph G. Bourelle, 33 Circle Drive, Windsor Locks, Conn. 06096
Filed Dec. 9, 1963, Ser. No. 329,105
4 Claims. (Cl. 99—171)



1. A sealed, compartmented beverage container having a side wall, a bottom wall, and a continuous top wall having its periphery crimped over the top edge of said side wall in fixed engagement and extending in planar relationship between said crimped periphery, and a readily rupturable compartment wall member underlying said top wall generally coextensive therewith and dividing the interior of said container into an upper compartment thereabove containing acid-sensitive syrup and a lower compartment therebelow containing carbonated water, said compartment wall member providing a substantially gas and moisture impermeable seal for the syrup therein and isolating the syrup from the carbonated water, said compartment wall member having a bottom wall portion and a side wall portion extending upwardly from said bottom wall portion and sealingly engaged at its upper end with said top wall to define said upper compartment, said bottom wall portion being spaced from said top wall a distance less than the length of the blade of a common can opener so as to be rupturable during puncturing of said top wall by a common can opener engaged with the crimper periphery of said top wall portion to permit the syrup to flow into and mix with the carbonated water.

3,305,369
METHOD OF PRODUCTION OF AQUEOUS SILVER SUSPENSIONS APPLIED FOR ONLY ONE STOVING OPERATION

Bohuslav Cubra and Karel Grüner, both of Prague, Czechoslovakia, assignors to Tesla, narodni podnik, Prague, Czechoslovakia
No Drawing. Filed Nov. 6, 1963, Ser. No. 321,807
Claims priority, application Czechoslovakia, Nov. 15, 1962, 6,449/62
1 Claim. (Cl. 106—1)

An aqueous silver suspension suitable for coating a ceramic substrate and for forming a silver coating on said substrate upon firing, the suspension consisting of 30 to 70% silver particles having a bulk density of 2.8 to 3.2 kilograms per liter and an oil number of 9 to 16 milliliters per 100 grams, and of a vehicle which is an aqueous solution essentially consisting of:

	Percent
Methylcellulose or carboxymethylcellulose	0.1–2
Polyethylene oxide	0.1–8
Gum arabic	0.1–6
Glycerin or ethyleneglycol	0.1–5
Secondary or normal octyl alcohol	0.1–2
Triethanolamine	0.1–1.5
Water	Balance.

3,305,370
MOLD COMPOSITION FOR FOUNDRY USE

James Beale, Nechells, Birmingham, England, assignor to Foseco International Limited, Birmingham, England, a British company
No Drawing. Filed June 10, 1963, Ser. No. 286,527
Claims priority, application Great Britain, June 20, 1962, 23,813/62
4 Claims. (Cl. 106—38.5)

1. A sand mix for the production of molds and the like for foundry casting which consists essentially of sand and 0.02 to 2.0% by weight of an additive comprising 5 to 99% by weight of palm oil soap powder and 1 to 95% by weight respectively, of a gel-forming material selected from the class consisting of water soluble cellulose ethers and alginates.

3,305,371
GLASS COMPOSITIONS

Stéphane Dufaure de Lajarte, Paris, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
No Drawing. Filed Apr. 17, 1962, Ser. No. 188,257
Claims priority, application France, May 29, 1956, 715,431
4 Claims. (Cl. 106—52)

4. Glass containing no elements offering substantial areas of capture of neutrons, which does not generate radioactive isotopes during irradiation by neutrons, which consists in its essential ingredients of the following by weight: SiO_2 40–50%, Al_2O_3 10–25%, one or more of the oxides TiO_2 and Fe_2O_3 but not to exceed 15% of either of them, the total of said SiO_2, Al_2O_3, TiO_2 and Fe_2O_3 not exceeding 80%, BaO, 5–10%, CaO and MgO, the content of CaO not exceeding 20% in such proportions that the total of $BaO+CaO+MgO$ is 15–35%, and F in an amount up to about 5% of the total of the other ingredients.

3,305,372
PRODUCTION OF REFRACTORY BODIES

Kenneth M. Taylor, Lewiston, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 1, 1964, Ser. No. 393,765
6 Claims. (Cl. 106—55)

1. A process for producing refractory nitride-containing articles which comprises forming a mix containing from about 15 percent to about 97 percent silicon carbide, at least a portion of which is very finely divided, and a finely divided silicious material selected from the group consisting of silica and clays, said mix having a silica content of about 1 percent to about 30 percent and containing less than about 1 percent carbon forming said mix in a desired shape, and heating said shaped mix at a temperature in the range from about 1300° C. to about 1700° C. in a nitrogenous atmosphere for such a period of time as to produce substantial formation of at least one nitride selected from the group consisting of silicon nitride and silicon oxynitride.

3,305,373
CERAMIC COMPOSITIONS AND PROCESS OF MAKING SAME

Yorihiro Murata, North Tonawanda, and Leo R. Sucharski, Sloan, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 8, 1965, Ser. No. 506,876
15 Claims. (Cl. 106—55)

1. A composition of matter made by hot pressing an intimate mixture consisting essentially of from about 40 to about 65 percent of tantalum mononitride and from about 60 to about 35 percent of titanium diboride at a temperature in the range from about 1800° C. to about 2200° C.

3,305,374
CERAMIC COMPOSITIONS AND PROCESS OF MAKING SAME

Yorihiro Murata, North Tonawanda, and Leo R. Sucharski, Sloan, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 8, 1965, Ser. No. 506,873
15 Claims. (Cl. 106—57)

1. A composition of matter made by hot pressing an intimate mixture consisting essentially of from about 40 to about 80 percent of tantalum mononitride and from about 60 to about 20 percent of zirconium diboride at a temperature in the range from about 1800° C. to about 2200° C.

3,305,375
PLASTER COMPOSITION

Edwin J. Jakacki, Des Plaines, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois
No Drawing. Filed July 9, 1963, Ser. No. 293,900
9 Claims. (Cl. 106—109)

1. A gypsum plaster composition comprising a major amount of calcium sulfate hemihydrate and a minor amount sufficient to confer improved working properties to the composition of a finely divided dead burned gypsum additive having a Blaine surface area value of at least about 10,000 square centimeters per gram.

3,305,376
GELATIN HARDENING COMPOSITION

Donald M. Burness, Stanley W. Cowan, and John A. Ford, Jr., Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed July 22, 1963, Ser. No. 296,496
10 Claims. (Cl. 106—125)

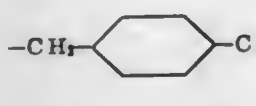
1. A composition of matter comprising gelatin and a

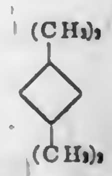
hardening amount of compound selected from the group consisting of the following:

A. Bisurethans having the structure

$$BrCH_2CH_2CONHCOO-X-OCONHCOCH_2CH_2Br$$

wherein X is selected from the group consisting of $(CH_2)_{2-6}$,





$-(CH_2)_2-O-(HC_2)_2-$

$$-(CH_2)_2-S-(CH_2)_2-,\ -(CH_2)_2-SO_2-CH_2)_2-,$$
$$-(CH_2)_2-S-(CH_2)_2-S-(CH_2)_2-$$

and

$$-(CH_2)_2-S-(CH_2)_2-O-(CH_2)_2-S-(CH_2)_2-$$

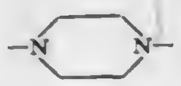
B. Bisureas having the structure

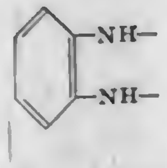
$$(BrCH_2CH_2CONHCO)_2X$$

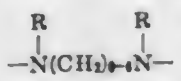
C. Bisamides having the structure

$$(BrCH_2CH_2CO)_2X$$

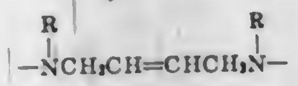
wherein X in B and in C is selected from the group consisting of





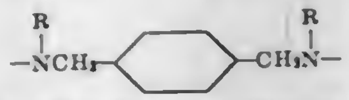


$-\overset{R}{N}(CH_2)_{2-6}\overset{R}{N}-$



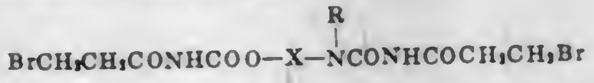
$-\overset{R}{N}CH_2CH=CHCH_2\overset{R}{N}-$

and



R being selected from the group consisting of H and alkyls of 1–4 carbon atoms, and

D. Urethan-ureas having the structure

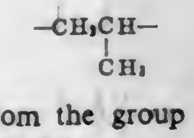


$$BrCH_2CH_2CONHCOO-X-\overset{R}{N}CONHCOCH_2CH_2Br$$

wherein X is selected from the group consisting of

$$-(CH_2)_{2-4}-$$

and



$$-CH_2\underset{CH_3}{CH}-$$

and R is selected from the group consisting of H and alkyls of 1–4 carbon atoms.

3,305,377

MANUFACTURE OF REGENERATED CELLULOSE FIBRES

Ramon Sidick Mahomed, Kenilworth, England, assignor to Courtaulds Limited, London, England, a company of Great Britain

No Drawing. Filed Oct. 1, 1963, Ser. No. 312,852

Claims priority, application Great Britain, Oct. 9, 1962, 38,115/62

6 Claims. (Cl. 106—164)

1. Regenerated cellulose fibres containing, uniformly physically dispersed therein, an aminoethyl and a diethylaminoethyl ether of cellulose in proportions such as to give a total nitrogen content of between about 0.165 and about 0.215 percent by weight of the fibre.

5. A viscose process for making acid dyeable fibres of regenerated cellulose comprising incorporating a sodium xanthate solution of an aminoethyl ether of cellulose and of a diethylaminoethyl ether of cellulose in a viscose in proportions such as to give a total nitrogen content of between about 0.165 and about 0.215 percent by weight of cellulose.

3,305,378

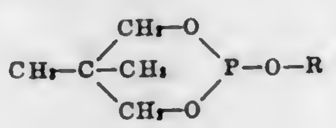
COLOR STABILIZED CELLULOSE ESTERS AND COMPOSITIONS CONTAINING NEOPENTYL PHOSPHITE

Kim Ritchie, Ann Arbor, Mich., and John W. Addleburg, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 25, 1963, Ser. No. 260,900

10 Claims. (Cl. 106—177)

1. A lower fatty acid ester of cellulose containing therein a color stabilizing amount of a neopentyl phosphite having the formula



wherein R is a radical selected from the group consisting of alkyl and phenyl.

3,305,379

PAVING EMULSION MIXES WITH SAND

Richard L. Ferm, El Cerrito, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Sept. 11, 1963, Ser. No. 308.066

3 Claims. (Cl. 106—277)

1. A bituminous emulsion of the oil-in-water type, suitable for use in paving mixes of sand and bitumen, comprising from about 50 to about 75% by weight of a bitumen, as a dispersed phase; an emulsifying agent in an amount sufficient to emulsify said bitumen in water; from 0.25 up to about 5.0% by weight of a salt selected from the group consisting of potassium thiocyanate and ammonium thiosulfate, as an adhesion aid for said bitumen; and, as the continuous phase, water to make up 100% by weight of the emulsion.

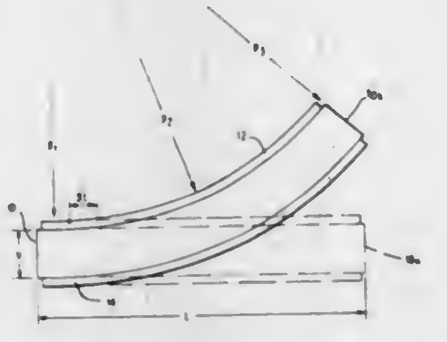
3,305,380

MAGNETIC FILM HAVING UNIFORMLY VARIABLE H_k AND METHOD THEREFOR

Alfred A. Adomines, Wayne, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Apr. 8, 1963, Ser. No. 271,300

10 Claims. (Cl. 117—7)



1. A method of producing a thin magnetic film having a substantially uniformly varying value of H_k, comprising the steps of preparing a magnetizable material suitable for plating substrates and characterized by a large coefficient of magnetostriction, deforming a flat substrate base such that a substantially uniformly varying radius of curvature is exhibited between the ends thereof, affixing a thin layer of magnetizable material to the substrate base, and returning said substrate base to said flat configuration whereby the magnetizable material affixed to the substrate base is subjected to a stress therein.

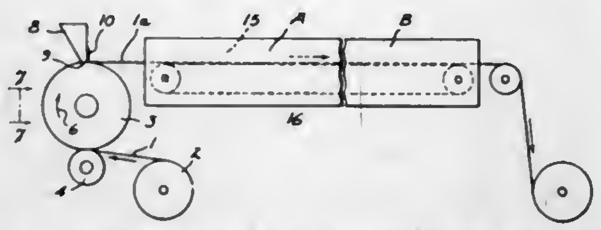
3,305,381

THIN LOAD SUPPORTING POLYURETHANE FOAM AND METHOD OF MAKING SAME

Donald Van Wagenen, Alliance, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Filed Apr. 11, 1963, Ser. No. 272,338

7 Claims. (Cl. 117—8)



5. In a process for producing a lightweight non-crusted polyurethane-containing load supporting article, the improvement which comprises applying a liquid polyurethane-forming composition, which is adapted to react when contacted with a member of the group consisting of water and water vapor, to a flexible backing member having a plurality of spaced, depressed portions, passing said backing member containing said liquid polyurethane-forming composition in said depressed portions through a zone containing water vapor at a temperature of about 100° to 200° F. to cause an initial reaction at the exposed surface of said polyurethane-forming composition and produce a steam-permeable, non-foamed, polyurethane skin on the exposed surface of said liquid, said polyurethane skin being sufficient in thickness to retain gas formed during subsequent production of polyurethane sponge from the remainder of said fluid polyurethane-forming composition contained in said depressed portions, then causing reaction of and blowing of the remaining polyurethane-forming liquid composition by contacting said composition with steam at a temperature not in excess of about 350° F., to cause the permeation of water vapor through said gas-retaining, non-foamed polyurethane skin so as to form resilient foamed polyurethane sponge between said non-foamed polyurethane skin and said flexible backing member.

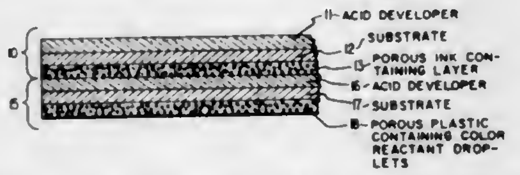
3,305,382

PRESSURE SENSITIVE TRANSFER SHEET

Michael T. Orinik, Binghamton, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Jan. 2, 1964, Ser. No. 335,167

4 Claims. (Cl. 117—36.3)


11-ACID DEVELOPER
12-SUBSTRATE
13-POROUS INK CONTAINING LAYER
16-ACID DEVELOPER
17-SUBSTRATE
18-POROUS PLASTIC CONTAINING COLOR REACTANT DROPLETS
10
15

1. A transfer element for use in a pressure sensitive carbonless transfer printing system comprising

(a) a substrate, at least one surface of which is a plastic cellulose acetate material while the other surface has an acid clay developing agent coated thereon,

(b) a layer of porous plastic material selected from the group consisting of ethyl cellulose and polystyrene coated onto said cellulose acetate wherein droplets of a solution of an amine color precursor are dissolved in a high boiling organic solvent in the pores of said porous plastic material, and

(c) up to 2% by weight of mutually compatible nitrocellulose added to the plastic material to control the degree of release of said porous plastic droplet containing layer from said cellulose acetate surface.

3,305,383

METHOD FOR FABRICATING IMPROVED LIQUID-CONTAINING FIBROUS CARTONS

Travis L. Gordy, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Apr. 1, 1963, Ser. No. 269,730

9 Claims. (Cl. 117—45)

1. A method of coating a paperboard substrate whereby improved cartons for the packaging of high water content comestibles can be fabricated therefrom, which comprises; impregnating the substrate with a wax at those portions thereof which are mechanically strained when the substrate is folded into a carton configuration, said impregnation being effected on the surface of the substrate which will constitute the inside surface of the carton, and thereupon uniformly coating both sides of the substrate with a thermoplastic resin-containing composition comprising a mixture of from about 80 to about 30 parts of a petroleum wax selected from the group consisting of paraffin wax, microcrystalline wax and mixtures thereof and from about 20 to about 70 parts of an ethylene/vinyl acetate copolymer having a vinyl acetate content between about 10 and 40 percent by weight and a melt index in the range of from about 3 to 300.

3,305,384

PROCESS FOR PRODUCING CORROSION-RESISTANT ALUMINUM-COATED IRON SURFACES

Tibor Kenderi, 49 Kelenhegyi ut., Budapest, Hungary

No Drawing. Filed Nov. 1, 1962, Ser. No. 234,827

Claims priority, application Hungary, Feb. 4, 1960, KE–631

11 Claims. (Cl. 117—71)

9. A process for producing corrosion-resistant aluminum-coated iron bodies, comprising the steps of depositing on an iron body a surface layer of aluminum of a thickness between substantially 0.1 to 0.4 mm., subjecting said layer to heat treatment in an oxidizing atmosphere at a temperature between substantially 690° and 800° C. for a period sufficient to change the color of said surface layer to a shade of grey characterized by a photometric density value between substantially 0.1 and 1.2 in the cold state of said layer upon treatment thereof by liquid paraffin, said photometric density value being the logarithm of the ratio of the intensity of illumination incident upon said layer to that of the illumination reflected by it, thereby rendering said surface layer porous while simultaneously forming a diffuse aluminum-iron interface at the junction of said layer with said body; said treatment by liquid paraffin including the steps of cooling said layer to a temperature below 400° C. and immersing it in a bath of said paraffin heated to a temperature above its melting point whereby said paraffin penetrates into said layer, and subjecting the paraffin-treated layer to a further heat treatment at a temperature higher than that of said bath and below 160° C.

3,305,385

METHOD FOR THE PREPARATION OF GALLIUM PHOSPHIDE

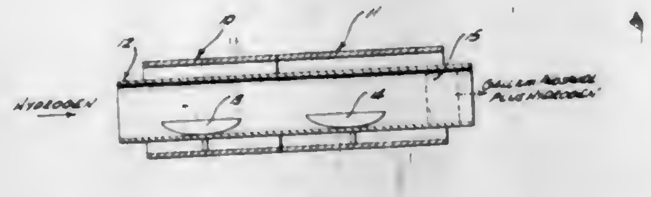
Frank A. Pizzarello, Santa Ana, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed June 27, 1963, Ser. No. 291,061

4 Claims. (Cl. 117—106)

1. A method for the production of gallium phosphide which comprises the steps of forming a mixture of vapors of phosphorus and phosphorus-containing materials selected from the group consisting of phosphorus pentoxide, phosphorus oxychloride and phosphorus trichloride, mixing the resulting phosphorus-containing vapors with a carrier gas by vaporizing in a heating chamber into a stream

of the carrier gas, passing the resulting carrier gas mixture into contact with liquid gallium at a temperature above 1000° C., passing the gas stream into a cooling zone



and cooling the resulting reaction mixture to crystallize therefrom gallium phosphide product, and recovering the gallium phosphide crystalline product.

3,305,386
METAL PLATING PROCESS UTILIZING BIS (ARENE)METAL COMPOUNDS

Walter Hafner, Munich, and Ernst Otto Fischer, Munich-Solln, Germany, assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Dec. 30, 1959, Ser. No. 862,808
Claims priority, application Germany, Oct. 5, 1955, F 18,583
18 Claims. (Cl. 117—107.2)

1. A process for depositing a substantially pure metal plate on a platable solid substrate which comprises contacting a bis(arene)metal compound represented by the formula $(Ar)_2M$, wherein Ar is an organic hydrocarbon compound selected from the group consisting of aromatic hydrocarbons containing an isolated benzene ring and aryl-substituted benzenes and M is selected from the group consisting of vanadium, niobium, tantalum, chromium, molybdenum and tungsten, with a platable solid substrate at a temperature above the decomposition temperature of said bis(arene)metal compound but below the decomposition temperature of the arene moiety of said bis(arene) metal compound while excluding oxygen and reactive oxygen-containing substances.

3,305,387
GYPSUM CASTINGS AND METHOD OF PRODUCING THE SAME

Richard S. Fraser and Paul Y. Jone, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington
No Drawing. Filed May 16, 1963, Ser. No. 281,009
5 Claims. (Cl. 117—123)

1. A method of improving the surface and subsurface strength of a permeable gypsum casting while retaining the casting in a permeable condition, comprising:

forming an uncured permeable casting containing free water;

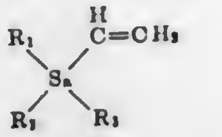
applying a water-miscible solution of a thermosetting resin to the surface of the uncured casting, said solution having a viscosity less than about 85 centistokes measured at 25° C.;

allowing the solution to penetrate beneath said surface; and removing the solvent and free water from the casting while curing said resin to an insoluble state.

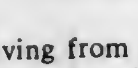
3,305,388
METHOD OF COATING METALS WITH ORGANO TIN COMPOUNDS

Richard Waack, Framingham, Mass., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Aug. 28, 1963, Ser. No. 305,198
3 Claims. (Cl. 117—127)

1. A method for inhibiting dilute protonic acid attack of a metal containing an element of the group consisting of zinc and iron, which comprises coating the metal with a small amount of an organo tin composition sufficient to inhibit protonic acid attack of the metal, said organo tin compound having the general formula:



wherein R_1, R_2 and R_3 are independently selected from the group consisting of



$$-\overset{H}{C}=CH_2$$

alkyl hydrocarbons having from 2 to 6 carbons and aryl hydrocarbons having from 6 to 10 carbons, with the further overall limitation that at least one of the R groups shall be of the class of alkyl and aryl groups as specified.

3,305,389
PROCESS OF COATING LEAD WITH TIN

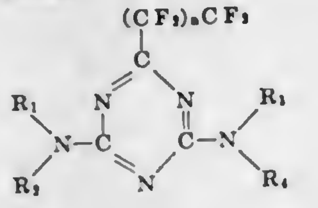
Frederick A. Lowenheim, Plainfield, N.J., and Leonard M. Edwards, Ambler, Pa., assignors to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Nov. 12, 1963, Ser. No. 323,056
16 Claims. (Cl. 117—130)

1. The process for preparing tin-coated metal articles which comprises immersing a metal article having a surface which is predominantly lead metal in an aqueous acid solution containing tin ion, hydrogen ion, and 0.05–6 moles per liter of a halide ion having an atomic weight between 35 and 80, said solution being substantially free of corrosive and insolubilizing anions; maintaining said metal article immersed in said solution for a period of time sufficient to form thereon a deposit of tin; and separating the tin-coated metal article from said solution.

3,305,390
PROCESS FOR TREATING PROTEINACEOUS AND CELLULOSIC MATERIALS WITH PERFLUOROGUANAMINES

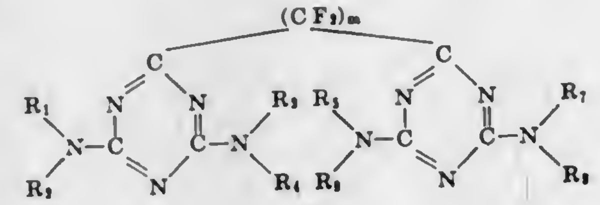
John T. Shaw, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Original application Dec. 24, 1958, Ser. No. 782,640. Divided and this application Sept. 9, 1963, Ser. No. 316,790
7 Claims. (Cl. 117—141)

1. A process for treating a base containing material selected from the group consisting of material of proteinaceous and cellulosic origin, which comprises applying thereto from 0.1 to 30% on the weight of the base material of a perfluoroguanamine selected from those having the following formulae:



I

and



II

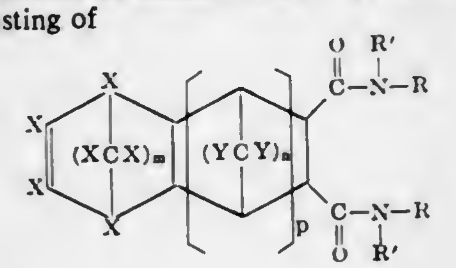
wherein *n* is from 0 to 13 inclusive, *m* is an integer from 1 to 8, inclusive, R_1 to R_8 are selected from the group consisting of H, alkyl having from 1 to 18 carbon atoms, cyclohexyl, allyl, phenyl, chlorophenyl, and CH_2OR_9,

where R_9 is H or lower alkyl containing from 1 to 4 carbon atoms, and curing said compound on the base, employing heat and a catalyst therefor.

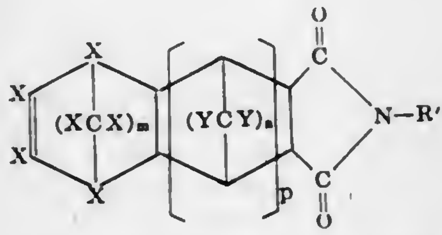
3,305,391
TREATMENT OF FIBROUS MATERIALS WITH CERTAIN AMINO COMPOUNDS AND CERTAIN POLYACID POLYHALIDES

Morris Dunkel, Paramus, and Daniel J. Eckhardt, Clifton, N.J., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Dec. 12, 1963, Ser. No. 329,965
19 Claims. (Cl. 117—141)

1. A process for the treatment of a fibrous material which comprises successively contacting said fibrous material with two mutually immiscible solutions, one of said solutions contains an amino compound selected from the group consisting of



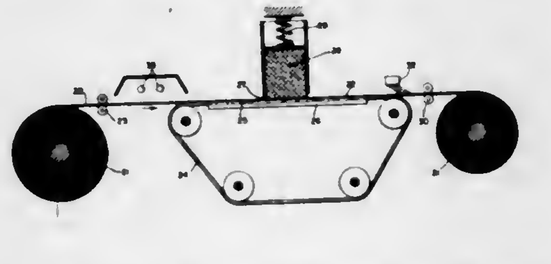
and



in which R is selected from the group consisting of alkylamine, alkylenepolyamine, polyalkylenepolyamine, arylamine, arylenepolyamine, polyarylenepolyamine, cycloalkylamine, cycloalkylenepolyamine and polycycloalkylenepolyamine radicals, R′ is selected from the group consisting of hydrogen, alkyl, aryl and cycloalkyl radicals, R″ is selected from the group consisting of alkylenepolyamine, polyalkylenepolyamine, arylenepolyamine, polyarylenepolyamine, cycloalkylenepolyamine and polycycloalkylenepolyamine radicals, X and Y are selected from the group consisting of hydrogen and halogen radicals, at least two X's being halogen, *m* is an integer of from one to two, *n* ranges from zero to two and *p* ranges from zero to one, and the other of said solutions containing a polyacid polyhalide containing at least two acid halide groups per molecule.

3,305,392
MODIFIED FIBROUS WEB AND PROCESS OF MANUFACTURE

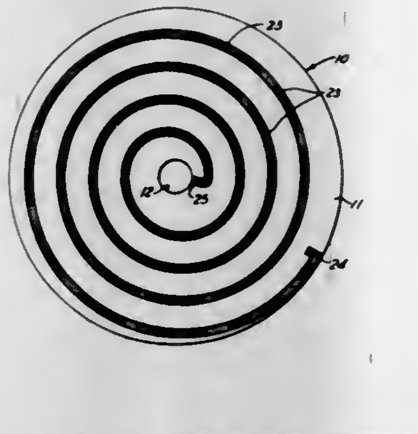
Kenneth W. Britt, Norwood, Delaware County, Pa., assignor to Scott Paper Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 27, 1965, Ser. No. 463,466
3 Claims. (Cl. 117—154)



1. A soft, porous, flexible web of cellulose fibers forming a paper sheet carrying upon the outermost portion of some of the fibers of the web surface an application of zinc stearate, modified by a minor amount of distearyl methylamine and further modified by a minor amount of a cationic compound to reduce the migration of the zinc stearate from the outermost portion of said web into the interior of the web, said compound being selected from at least one member from the group consisting of dimethyl-distearyl ammonium chloride and hydrogenated tallow benzyl dimethyl ammonium chloride.

3,305,393
METHOD OF MAKING A THERMOPILE

Davis T. Breckenridge, Lutherville, Md., assignor to Catalyst Research Corporation, Baltimore, Md., a corporation of Maryland
Filed Nov. 9, 1962, Ser. No. 236,512
1 Claim. (Cl. 117—212)



A method of making a thermopile comprising providing a circular disk of an electrically and thermally insulating material having a spiral groove in one surface, applying to said surface a masking member having a plurality of segmental arms tapering outwardly from the central region of the disk, depositing a first metal upon the disk through the spaces between said arms, shifting the masking member to uncover the previously masked area of the disk and to cover the deposit of said first metal, depositing a different metal on the uncovered portion of the disk, the width of said arms being narrower than the spaces between them whereby the deposited metals overlap, removing said masking member, and removing metal from the disk that is not within said groove.

3,305,394
METHOD OF MAKING A CAPACITOR WITH A MULTILAYERED FERROELECTRIC DIELECTRIC

Harold D. Kaiser and Arthur H. Mones, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 30, 1964, Ser. No. 379,241
2 Claims. (Cl. 117—217)

1. A method of forming a composite dielectric structure which includes the steps of:

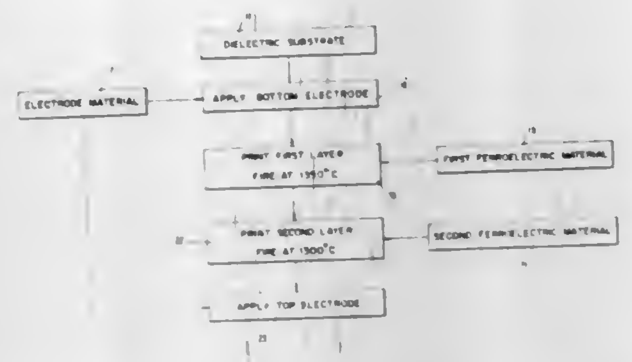
preparing first ferroelectric material particles having a high distinct temperature dependent dielectric constant;

firing said first dielectric material particles to sinter them together and form a first, distinct layer of said first ferroelectric material;

preparing second ferroelectric material particles having a high, distinct temperature dependent dielectric constant which differs from that of said first ferroelectric material particles;

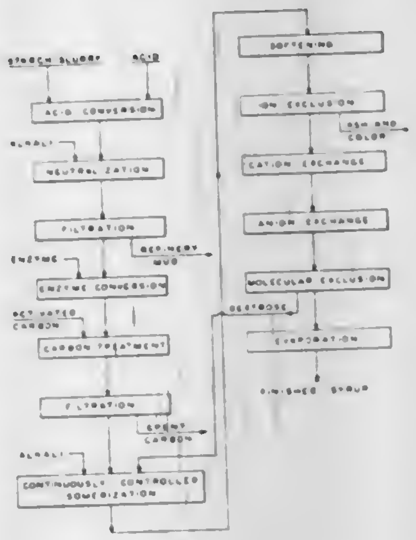
depositing said second ferroelectric material particles on said first, distinct layer; and

firing said second ferroelectric material particles at a temperature and for a period of time long enough for sintering said second ferroelectric material particles together to form a second, distinct layer of said second ferroelectric material, and for achieving a sintering between the interfaces of the respective layers without diffusion of the material of either layer throughout the material of the other layer thereby forming an integral composite dielectric structure of discrete layers, said structure having a dielectric constant with values which are approximately proportional to the weighted product of the dielectric constants of the respective layers over a portion of its operating range.



3,305,395
HIGH D.E. CORN TYPE STARCH CONVERSION SYRUP AND METHODS OF MAKING SAME

Barrett L. Scallet, Clayton, and Irving Ehrenthal, University City, Mo., assignors to Anheuser-Busch, Incorporated, St. Louis, Mo., a corporation of Missouri
Filed Mar. 27, 1963, Ser. No. 268,267
21 Claims. (Cl. 127—30)

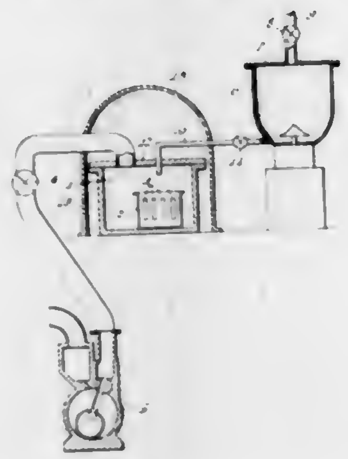


1. A non-crystallizing corn type starch conversion syrup having a D.E. of from about 85 to about 100, from about 20 to about 65% ketoses including at least 15% fructose, less than about 45% glucose, said syrup being essentially free of organic acids and ash and including at least 3 percent disaccharides and higher sugars.

5. A method of making a high D.E. sweet starch conversion syrup including the steps of acid converting starch to obtain a first substrate, enzyme converting said first substrate to obtain a high glucose substrate of a D.E. of above about 85, continuously maintaining the pH of the high glucose substrate at a value between 8.5–9.5, recovering a syrup containing about 45 to about 80% glucose and at least 15% fructose, purifying said syrup, and then removing a portion of the glucose so that the remaining syrup contains less than 45% glucose, is essentially free of organic acids and ash, and includes at least 3 percent disaccharides and higher sugars.

3,305,396
METHOD OF PRODUCING SECONDARY DRY CELLS WITH LEAD ELECTRODES AND SULFURIC ACID ELECTROLYTE

Rudolf Rauter, Munich, Germany, assignor to Marc (Illinois) Inc., Villa Park, Ill.
Filed Mar. 30, 1965, Ser. No. 443,815
The portion of the term of the patent subsequent to Apr. 27, 1982, has been disclaimed
2 Claims. (Cl. 136—6)



1. A method for the production of a secondary dry cell having lead electrodes contained in a cell housing which comprises pre-treating said electrodes by dipping in dilute sulfuric acid prior to being subjected to vacuum conditions, subjecting the electrodes while contained in said cell housing to vacuum conditions for a predetermined effective period during which period there is continuous exhaustion of gases liberated, preparing a thixotropic electrolyte by adding 20–60 parts by weight of concentrated sulfuric acid to a dispersion of about 30–50 parts by weight of distilled water and 3–15 parts by weight of pulverulent silicic acid, said silicic acid being absolutely free of alkaline substances and having a degree of purity of 99.9% and having a particle size of 5–20 microns, liquefying said thixotropic electrolyte by intensive stirring and mixing prior to being introduced into said cell housing, introducing said thixotropic electrolyte into said cell housing while maintaining said cell housing under vacuum conditions, and subsequently subjecting the introduced electrolyte to atmospheric pressure.

3,305,397
METHOD OF PRODUCING CHARGED NEGATIVE CADMIUM ELECTRODE BY SPRAYING WITH MOLTEN MIXTURE OF CADMIUM AND A METAL DISPLACED BY TREATMENT WITH A CADMIUM SALT AND HYDROFLUORIC ACID BATH

Robert E. Stark, Avon Lake, Ohio, assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Mar. 27, 1963, Ser. No. 268,465
2 Claims. (Cl. 136—24)

1. A method for the production of charged state negative electrodes for use in nickel-cadmium batteries which comprises the steps of spraying an admixture of molten cadmium and molten metal selected from the group consisting of aluminum, zinc, magnesium, and iron in a ratio of about 2 to 1 to about 20 to 1 onto a carrier substrate, immersing the sprayed substrate in an aqueous solution containing a salt selected from the group consisting of cadmium sulfate, cadmium chloride, cadmium acetate, cadmium bromide, and cadmium nitrate and 1–5 percent hydrofluoric acid, said salt being in a concentration of at least 0.01 molar, for a period of time sufficient to displace substantially all the metal of said selected group of metals and deposit therefor spongy cadmium, said method producing an electrode having a final void volume of between 55 and 75 volume percent.

3,305,398
METHOD FOR MAKING NICKEL ELECTRODES FOR ELECTROLYTIC CELLS

Charles Victor Herold, Paris, France, Karl Ackermann, deceased, late ot Mannheim, Germany, by Karl Siebert, legal representative, Kubach, near Lahr, Germany, assignors, by direct and mesne assignments, to Societe des Accumulateurs Fixes et de Traction (Société Anonyme), Romainville, Seine, France, a company of France
Filed July 23, 1965, Ser. No. 475,324
Claims priority, application France, Aug. 3, 1962, 906,038; July 3, 1963, 940,270; July 4, 1963, 940,434
9 Claims. (Cl. 136—29)

1. A process for the manufacture of positive electrodes for alkaline accumulators comprising the step of subjecting an electrolyte-inert, porous and at least partially metallic nickel electrode support to the action of an aqueous solution of an aluminum salt and acting on said electrode support with an atmosphere of steam to form an active material of hydrated nickel aluminate on said support.

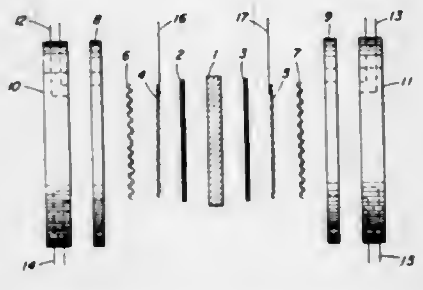
3,305,399
MICROBIAL PROCESS OF PRODUCING ELECTRICITY

John B. Davis, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York
Filed July 11, 1962, Ser. No. 209,086
12 Claims. (Cl. 136—86)

8. A process for obtaining electrical power from hydrocarbons and from metabolic processes of microorganisms which comprises aerobically subjecting the hydrocarbons to the metabolic action of microorganisms; allowing the cells to grow and multiply and to convert said hydrocarbons into products stored within the living microorganisms; placing the said organisms in the anaerobic, anodic half-cell of a fuel cell; allowing the cells to metabolize the said stored products at a pH of about 6.0 to about 8.0 thereby releasing electrons to an external circuit; reducing oxygen at a cathode connected to said external circuit; and allowing the resultant ions to flow through said electrolyte to said anode to complete the circuit.

3,305,400
PREPARATION OF FUEL CELL ELECTRODES

William Austin Barber, Springdale, and Robert George Haldeman, Rowayton, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed May 27, 1963, Ser. No. 283,441
5 Claims. (Cl. 136—120)



1. In the preparation of an electrode adapted for use in a fuel cell prepared by utilizing (a) an electrically conductive filler being present in an amount equal to between about 40% and 80%, (b) a catalyst equal to from about 1% to less than about 50%, and (c) a water-repellent composition equal to from about 1% to about 40%, said percentages being based upon the weight of the electrode solids mixture, the improvement which consists essentially in: initially adding the water-repellent composition to the electrically conductive filler, and thereafter depositing the catalyst onto said pre-waterproofed mixture.

3,305,401
ELECTRODES FOR GALVANIC PRIMARY AND SECONDARY CELLS AND METHODS OF PRODUCING SUCH ELECTRODES

Sven Olof Aulin, Lidingo, Sweden, assignor to Svenska Ackumulator Aktiebolaget Jungner, Stockholm, Sweden, a corporation of Sweden
No Drawing. Filed Oct. 7, 1963, Ser. No. 314,490
Claims priority, application Sweden, Oct. 10, 1962, 10,845/62
7 Claims. (Cl. 136—120)

1. A method of producing an electrode for primary and secondary cells in which the active mass is utilized more effectively and which is characterized by the ability to deliver discharge currents of greater magnitude comprising the steps of coating particles of an active mass with a metal to provide a porous metal coating thereon, and then applying a layer of the metal coated active mass particles to a perforated conductor, and depositing a porous metallic coating on said layer and upon said conductor to provide a firm porous skeleton integral with said conductor and enclosing said active mass.

3,305,402
PLATINUM AND RUTHENIUM OXIDE CONTAINING CATALYSTS

Frank Jones and Maurice Robert Andrew, Chester, England, assignors to Johnson, Matthey & Company Limited, London, England, a British company
No Drawing. Filed Sept. 28, 1964, Ser. No. 399,876
Claims priority, application Great Britain, Sept. 30, 1963, 38,398/63
5 Claims. (Cl. 136—120)

1. A catalyst material for use in carrying out catalytic reactions, said catalyst material consisting essentially of an intermolecular mixture of the coprecipitated oxides of platinum and ruthenium, the said oxides being present in the relative proportions to give 99–90% by weight of platinum and 1–10% by weight of ruthenium.

3,305,403
PREPARATION OF FUEL CELL ELECTRODES WITH EITHER PYROPHORIC CATALYST MATERIAL OR NON-PYROPHORIC CATALYST MATERIAL

Vito Corso, Jr., and William Preston Colman, Stamford, and Joseph Carlin, New Canaan, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed Feb. 23, 1965, Ser. No. 440,988
11 Claims. (Cl. 136—120)

1. In the preparation of an electrode adapted for use in a fuel cell, the improvement which comprises the steps of:

(a) applying on a screen substrate an aqueous catalyst mixture comprising a catalyst, water-repellent compound, mineral oil and a dispersant selected from the class consisting of silica and alumina present in an amount sufficient to cover said substrate after calendering the same;
(b) sandwiching the so-prepared substrate between inert plastic sheets selected from the class consisting of polyethylene and polyethylene terephthalate having an area exceeding that of the substrate to accommodate transferred catalyst mixture when calendered;
(c) passing the so-sandwiched composite structure through rollers;
(d) stripping the inert sheet from the composite;
(e) removing transferred catalyst mixture from the said sandwiching sheets in the area exterior to that defined by the said substrate;
(f) reapplying the transferred catalyst mixture to the screen substrate;

(g) sandwiching the substrate again whereby the inert plastic sheets are repositioned over the screen substrate;

(h) passing the latter structure through the rollers for a total of at least four passes until there occurs rubberization of the catalyst mixture and a minimal transfer of catalyst mixture to the said sandwiching sheets;

(i) stripping the latter sandwiching sheets from the substrate containing uniformly distributed catalyst; and

(j) activating the so-prepared catalyst substrate structure by removing included dispersant and mineral oil therefrom.

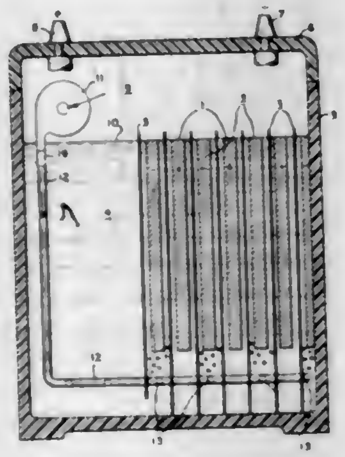
3,305,404

HERMETICALLY SEALED STORAGE BATTERY

Erik Gustav Sundberg, Nol, Sweden, assignor to Aktiebolaget Tudor, Stockholm, Sweden, a corporation of Sweden

Filed Oct. 22, 1964, Ser. No. 405,697

5 Claims. (Cl. 136—160)



1. A storage battery comprising a hermetically sealed casing, a liquid electrolyte and negative and positive plates arranged to provide a space free of liquid above said plates and a space filled with liquid at the bottom portions of said plates; a conduit extending from the liquid free space to said space at the bottom portions of said plates; said conduit having openings at the bottom portions of said negative plates; and means for pumping gas from said liquid free space through said conduit to thereby direct the pumped gas along the bottom portion of said negative plates to be in contact with the surface of the negative plates as said gas rises to said liquid free space.

3,305,405

GRAPHITE THERMOCOUPLES AND METHOD OF MAKING

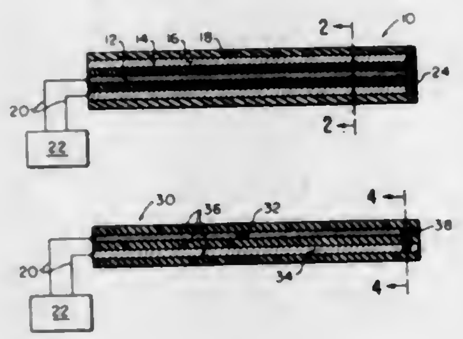
Charles P. Jamieson, Cambridge, Mass., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

Filed July 17, 1963, Ser. No. 295,702

4 Claims. (Cl. 136—232)

1. An elongated thermocouple of high strength having a one end and another end and which includes: first and second thermoelectric elements of pyrolytic graphite which thermoelectric elements are characterized by being dissimilar in thermoelectric elements are characterized by being dissimilar in thermoelectric properties by virtue of a difference in the heat treatment history of the pyrolytic graphite, the elements being separated along the axial length by an insulating material, and having at the one end thereof a thermocouple junction formed by an electrically conductive material in contact with the first and second thermoelectric elements and which thermocouple junction is embedded a short distance from the one end of the thermocouple with the first and second thermoelectric elements separately extending to the temperature exposed end of the thermocouple, and the other end of said thermoelectric elements being in electrical communication with a means for detecting the difference in thermal electromotive force between the thermoelectric elements at the temperatures to which the junction is exposed.

2. A method of preparing a thermocouple which comprises: vapor depositing at temperatures of above 1900° C., a first and a second pyrolytic graphite thermoelectric element; placing the first and the second graphite elements in electrical communication to provide a thermocouple junction, the first and the second pyrolytic graphite elements having dissimilar thermoelectric characteristics; and vapor depositing boron nitride as an insulating material on each element of dissimilar pyrolytic graphite and between adjacent elements.



4. The high temperature thermocouple having a high shock and strength-to-weight ratio for measuring temperatures in the order of 2500° C. and of uniform properties along the thermocouple length and of high anisotropic character and adapted for use in corrosive atmospheres and the thermocouple comprising one end where a temperature is measured remote from an opposite end to which lead wires are connected, a rectangular shaped elongated composite thermocouple of two parallel plate thermoelectric elements composed of pyrolytic graphite of different thermoelectric properties, a boron nitride insulating material separating and surrounding the two parallel plate thermoelectric elements of pyrolytic graphite, a conductive pin of commercial graphite making electrical contact between the two pyrolytic graphite parallel elements adjacent to the end of the thermocouple where temperature is measured, and at the thermocouple end to which lead wires are connected one signal output lead having an end connected to one parallel plate thermoelectric element of pyrolytic graphite of one thermoelectric property and a second signal output lead having an end connected to the other parallel plate thermoelectric element for together carrying an electromotive force developed by the parallel plate thermoelectric elements at varying temperatures as electrical output signal from the thermocouple.

3,305,406

METHOD OF FLUXING AN ARTICLE TO BE SOLDERED WITH NONCORROSIVE FLUXING COMPOSITIONS

George F. Chmelik, Downers Grove, John Danaczko, Jr., Oak Park, Jarliv Johnsen, Berwyn, and John E. Kinsey, Chicago, Ill., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

No Drawing. Filed Apr. 6, 1964, Ser. No. 357,741

3 Claims. (Cl. 148—23)

1. A method of fluxing an article to be soldered which comprises the step of:

applying to the surface area of the article to be soldered

a noncorrosive fluxing composition consisting of

a minor proportion by volume of a high molecular weight, carboxylic acid whose hydrocarbon chain is interrupted by an amidomethyl group, selected from the group consisting of mono-basic and di-basic acids represented respectively by the formulas

$$CH_3(CH_2)_nCON(CH_3)CH_2COOH$$

and

$$CH_3(CH_2)_nCON(CH_3)CH(CH_2COOH)_2$$

wherein *n* is 10 to 16, and

a major proportion by volume of a vehicle selected from the group consisting of chlorinated hydrocarbon solvents, alcohols, chlorinated hydrocarbon solvents diluted with distilled water, alcohols diluted with distilled water, and chlorinated hydrocarbon solvents diluted with alcohols and distilled water.

3,305,407

DIP BRAZING COMPOSITION

Ronald D. Koeplinger, Saginaw, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 3, 1964, Ser. No. 372,406

6 Claims. (Cl. 148—24)

1. A brazing mixture for joining magnesium base alloys consisting essentially of about 8 parts by volume of a pelleted filler alloy composition consisting essentially of from 1.5 to 2.5 weight percent aluminum, and from 52.5 to 57.5 weight percent zinc, the balance being magnesium, from about ¾ to about 6 parts by volume of a particulated flux binder, and an amount of a liquid carrier to provide a paste-like consistency when admixed with said binder and said pellets, said filler alloy pellets having a maximum size of about 60 mesh (U.S. Standard Sieve), the flux binder being a particulate flux material molten at magnesium brazing temperatures, said particulate flux having a maximum particle size of about 20 mesh, and said liquid carrier being substantially inert to said flux material and said pellets, and having a maximum boiling point of about 500° F.

3,305,408

STRIP CLADDING FLUX

Norman T. Dick, London, England, assignor to Babcock & Wilcox, Limited, London, England, a corporation of Great Britain

No Drawing. Filed Nov. 9, 1964, Ser. No. 409,999

Claims priority, application Great Britain, Nov. 12, 1963, 44,703/63

13 Claims. (Cl. 148—26)

7. A flux suitable for cladding steel by the deposition of stainless steel weld metal by the submerged arc process using a strip electrode, the flux essentially consisting of 22–32% manganese oxide, 32–38% silica, 5–15% calcium oxide, 1–6% iron oxide, 10–18% magnesium oxide, 0.75–2.5% potassium oxide and 0.75–2.5% sodium oxide.

3,305,409

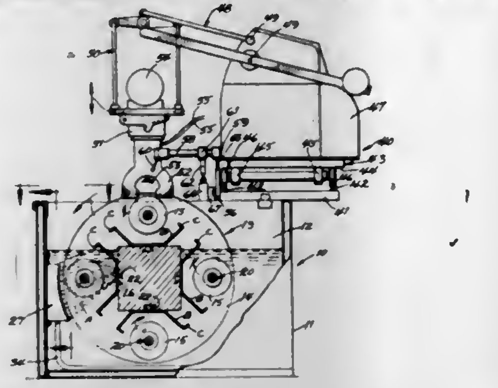
HEAT PROCESS FOR CRANKSHAFTS

Philip E. Cary, Joliet, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware

Original application Dec. 26, 1962, Ser. No. 247,168, now Patent No. 3,240,480, dated Mar. 15, 1966. Divided and this application Dec. 20, 1965, Ser. No. 515,046

7 Claims. (Cl. 148—146)

1. A process for inductively hardening surface portions of a crankshaft, each of said surface portions including a generally straight cylindrical bearing surface and annular curved fillet surfaces at each end of the bearing surface, comprising the steps of, inductively heating a selected one of said surface portions; and immediately thereafter immersing the entire crankshift bodily into a quench bath of polyvinyl alcohol and water and simultaneously causing said heated surface portion to be impinged with a plurality of pressurized, jet-like streams of polyvinyl alcohol and water quench fluid which streams have velocities at impact of at least three feet per second.



3,305,410

HEAT TREATMENT OF ALUMINUM

George Robert Sublett, Sheffield, and Michael Waldemar Fien, Florence, Ala., assignors to Reynolds Metals Company, a corporation of Delaware

No Drawing. Filed Apr. 24, 1964, Ser. No. 362,493

12 Claims. (Cl. 148—159)

1. The method of treating a copper-bearing aluminum base alloy so as to reduce its tendency toward the development of intergranular corrosion in the aged condition, comprising the steps of: providing the alloy in solution heat treated condition, substantially at room temperature, heating the solution treated alloy to an aging temperature of about 400° F., maintaining said temperature for about 3 hours, cooling the alloy to a lower temperature of about 300° F., and aging the alloy at said lower temperature for about 10 hours.

3,305,411

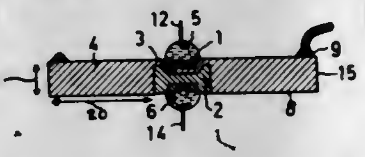
METHOD OF MAKING A TRANSISTOR USING SEMICONDUCTIVE WAFER WITH CORE PORTION OF DIFFERENT CONDUCTIVITY

Pieter Johannes Wilhelmus Jochems, Leonard Johan Tummers, and Reinier de Werdt, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Nov. 21, 1962, Ser. No. 239,310

Claims priority, application Netherlands, Nov. 30, 1961, 272,046

6 Claims. (Cl. 148—175)



1. A method of making a transistor comprising the steps of providing a wafer-shaped semiconductive body of one conductivity type with opposed major surfaces, providing opposite one another on the major surfaces masking layers capable of inhibiting the diffusion of active impurities into a body portion located between the masking layers, thereafter diffusing into the entire body except for the body portion protected by the masking layers active impurities forming the opposite conductivity type semi-conductor to convert the entire wafer except for a generally rod-shaped interior portion surrounded thereby to the opposite conductivity type material having a conductivity value substantially greater than that of the rod-shaped interior portion, the concentration of charge carriers in the surrounding body portions of opposite conductivity type of the type which form therein the majority charge carriers being greater than the concentration of said charge carriers in the interior rod-shaped portion, epitaxially depositing a layer on the rod-shaped portion and providing therewithin active impurities forming the said opposite conductivity type semiconductor to convert a surface portion thereof to the said opposite type con-

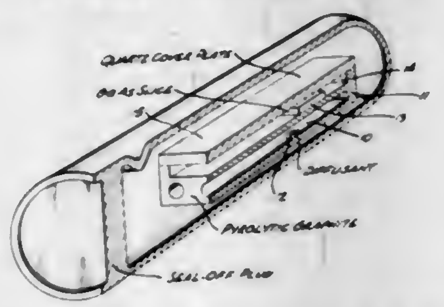
ductivity connected to the surrounding body portions to produce a base region, forming an emitter region of said one conductivity type on the said base region, providing a collector connecting region of said one conductivity type at the opposite exposed surface of the rod-shaped portion, contacting the emitter and collector regions, and contacting the surrounding body portions to effect an electrical connection to the base region.

3,305,412
METHOD FOR PREPARING A GALLIUM ARSENIDE DIODE

Frank A. Pizzarello, Santa Ana, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Feb. 20, 1964, Ser. No. 346,267

9 Claims. (Cl. 148—189)



6. In a method for the production of a gallium arsenide semiconductor device containing a zinc diffused planar p-n junction, the improvement which consists of diffusing zinc into the gallium arsenide at a zinc partial pressure and temperature at which zinc does not react with gallium arsenide.

3,305,413
SOLID PROPELLANT FORMULATION BASED ON HYDROXYLAMINE PERCHLORATES

James P. Flynn and Ernest J. Strayer, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 10, 1962, Ser. No. 242,941

4 Claims. (Cl. 149—19)

1. A solid rocket propellant composition which comprises;

(1) from about 70 to about 90 percent by weight of a member selected from the group consisting of hydroxylamine perchlorate

$$(HClO_4 \cdot NH_2OH)$$

bishydroxylaminelithium (I) perchlorate

$$(LiClO_4 \cdot 2NH_2OH)$$

tetrakishydroxylaminemagnesium (II) perchlorate

$$(Mg(ClO_4)_2 \cdot 4NH_2OH)$$

and mixtures thereof, and

(2) from about 30 to about 10 percent by weight of an epoxy resin binder, said binder being a mixture of from about 80 to about 20 parts by weight of a high strength epoxy resin of polyglycidyl ethers of dihydric phenols having epoxide equivalent weights of from about 170 to about 200 and from about 20 to about 80 parts by weight of a flexible epoxy resin, said resin having a maximum functionality of about 2.

3,305,414
METHOD OF COMMINUTING AMMONIUM NITRATE PRILLS MIXED WITH HYDROCARBON

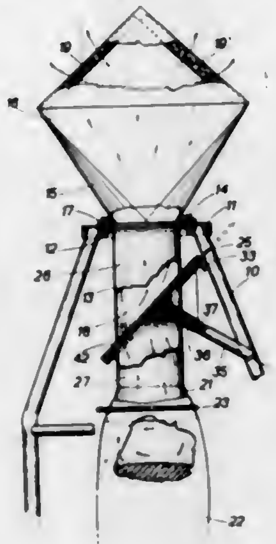
Stanley Hodgson, Kimberley, British Columbia, Canada, assignor to Cominco Ltd., Montreal, Quebec, Canada, a corporation of Canada

Filed Mar. 18, 1964, Ser. No. 352,849

Claims priority, application Canada, July 25, 1963, 880,988, Patent 707,268

1 Claim. (Cl. 149—46)

In a method for the production of an improved explosive composition detonable with detonating cord from a mixture of conditioned ammonium nitrate prills with about 5% to about 6% by weight of a liquid hydrocarbon, the steps of introducing particles of said mixture into a stream of air, projecting said particles entrained in said stream of air against a solid surface at a velocity sufficient to comminute the particles of said mixture so that at least 60% by weight of the comminuted mixture will pass through a 28-mesh standard Tyler screen, separating comminuted mixture from said stream of air, and collecting said comminuted mixture.



3,305,415
PROCESS FOR PREPARING STERILE SOLID PROPELLANTS

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Lawrence C. Montgomery and Frank A. Morelli

No Drawing. Filed Mar. 15, 1965, Ser. No. 440,033

4 Claims. (Cl. 149—109)

1. A process for preparing a sterile solid propellant comprising adding ethylene oxide to an uncured propellant composition and curing said composition to form a sterile solid propellant.

3,305,416
METHOD FOR MAKING PRINTED CIRCUITS

George J. Kahan, Port Washington, and John L. Mees, Baldwin Place, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 30, 1963, Ser. No. 334,623

3 Claims. (Cl. 156—3)

1. A method for producing strongly bonded, bubble-free laminates for use as printed circuit boards consisting of at least one layer of a resinous plastic dielectric material and at least one layer of an electrically conducting metal comprising,

(a) anodizing at least one surface of a sheet of metal to form a "conversion coating" on said surface of said metal;

(b) coating at least one surface of said layer of plastic dielectric material with a film of thermosetting adhesive;

(c) loosely superimposing said sheet of metal and said layer of plastic dielectric material so that said "conversion coating" and said film of thermosetting adhesive are in contact to form an assembly;

(d) subjecting both sides of said assembly to vacuums of about 100 microns to remove all gases entrapped between the layers of said assembly;

(e) terminating the vacuum in the upper section so that the layers are pressed into intimate contact;

(f) subjecting said assembly to a temperature of about 130° C., and a pressure of about 10,000 lbs., while still under vacuum, to set said thermosetting adhesive, masking said metal sheet, and

(g) etching to remove selected portions of said sheet of metal to define an electrically conductive path.

3,305,417
PROCESS FOR PREPARING PREIMPREGNATED STRANDS OF FIBERS AND USE OF RESULTING PRODUCTS IN MAKING REINFORCED COMPOSITES

Samuel H. Christie, Warren Township, N.J., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 3, 1963, Ser. No. 327,828

19 Claims. (Cl. 156—90)

13. Preimpregnated fibers coated with three layers of material, one layer comprising a thermosetting resin, another layer comprising a curing agent for the thermosetting resin, and another layer comprising an inert barrier material, the said inert barrier layer being between and separating the layer of thermosetting resin and layer of curing agent.

17. A process for preparing a reinforced composite which comprises forming the desired reinforced product from the preimpregnated fibers defined in claim 13 and then applying heat so as to melt the inert barrier material and bring thermosetting resin and curing agent together effecting a cure of the resin to an insoluble infusible product.

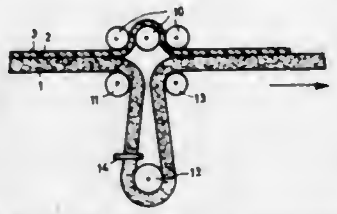
3,305,418
METHOD AND APPARATUS FOR USE IN THE FABRICATION OF ELECTRICAL CAPACITORS

Reinhard Behn, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a German corporation

Filed Apr. 23, 1963, Ser. No. 275,481

Claims priority, application Germany, Apr. 25, 1962, 79,158

10 Claims. (Cl. 156—152)



1. A method for use in the manufacture of electrical capacitors with great breakdown strength, having a dielectric in the form of a self-supporting band with a varnish layer provided thereon and a metal coating provided upon the varnish layer, comprising the steps of providing upon the dielectric band a varnish layer which can be easily separated therefrom, with the varnish layer being superimposed thereon in a first surface registration, vaporizing on the varnish layer a metal layer, separating said varnish layer from said band, effecting a shift transversely to the separating direction in the surface relation of the varnish layer with respect to the supporting dielectric band to produce a second different surface registration therebetween, and uniting the varnish layer in its shifted relation to said dielectric band to form a unitary structure for subsequent use in the fabrication of a capacitor.

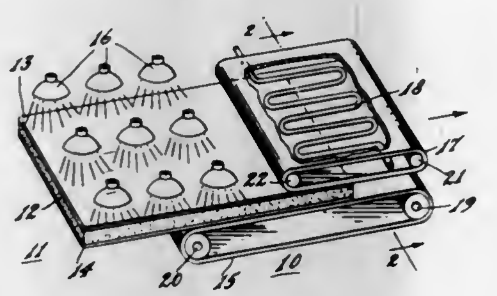
3,305,419
METHOD OF PRODUCING AN EMBOSSED PANEL

Walter D. Voelker, Philadelphia, Pa., assignor, by mesne assignments, to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Mar. 28, 1962, Ser. No. 183,223

1 Claim. (Cl. 156—209)

The method of producing an embossed panel consisting essentially of a predominant thickness of rigid polyurethane foam and a thermo-plastic facing sheet secured thereto, said sheet having an embossed three-dimensional pattern which comprises first producing a panel having a rigid plastic foam secured to a smooth thermo-plastic facing sheet; advancing said panel through a surface softening zone wherein heat is rapidly applied to the exposed surface of the thermo-plastic facing sheet and thereafter advancing said panel to an impression zone wherein the facing sheet is embossed and quenched by contact with embossing members cooled sufficiently to cool the facing sheet below the temperature at which further embossing might be feasible.



3,305,420
METHOD AND APPARATUS FOR APPLYING BONDING PRESSURES OF DIFFERING MAGNITUDES TO ADJACENT SURFACES OF A WORKPIECE

Winston E. Brownlee, Suttons Bay, and Jack L. Ritchey and Stanley Steed, Traverse City, Mich., assignors to Parsons Corporation, Traverse City, Mich., a corporation of Michigan

Filed Dec. 19, 1963, Ser. No. 331,725

10 Claims. (Cl. 156—217)

5. The method of producing an inflatable tool for applying a plurality of differing pressures to surfaces for adhesive bonding and the like, comprising the steps of

cutting an internal pattern of flexible-edged flat material having one non-adherent surface,

cutting a first laminate of uncured vulcanizable ply material of substantially twice the width of said internal pattern,

placing said internal pattern upon and within the width of said first laminate with said adherent surface against said first laminate so as to leave first marginal portions along both edges of the pattern,

placing a first flat pressure bag upon said non-adherent surface of said internal pattern at a predetermined location,

folding said first marginal portions of said first laminate along the edges of said first pattern and over said non-adherent surface and said first flat pressure bag and joining the edges of said first laminate,

cutting a second similar laminate sufficiently larger than said first laminate so as to overlap it,

placing the joint of said first laminate within the width of said second laminate so as to leave second marginal portions on both sides of said innermost layer,

folding said second marginal portions over said innermost layer and joining the edges of said second marginal portions,

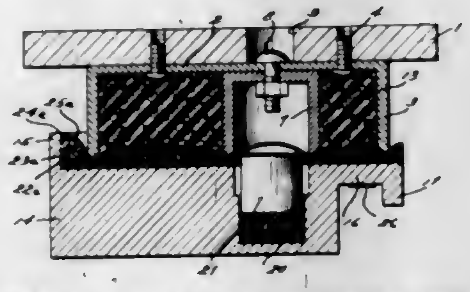
closing both ends of the layers so formed to provide a second pressure bag,

inserting air inlets at the ends of said first and second pressure bags and extending through the respective innermost layers, and

vulcanizing the combination so formed to adherently bond said first pressure bag to the innermost layer of said second pressure bag.

3,305,421
METHOD OF USING HEAT AND TEAR SEALING DIES

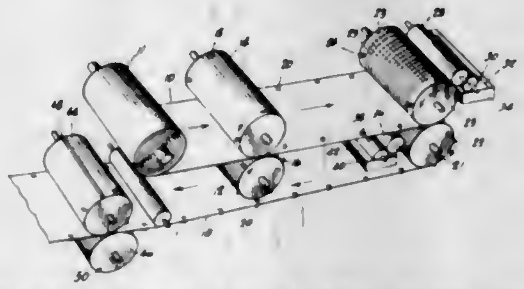
Milo L. Raffaelli, Sr., Chicago, Ill., assignor to The Scholl Mfg. Co., Inc., Chicago, Ill., a corporation of New York
Original application May 21, 1962, Ser. No. 196,228, now Patent No. 3,244,573, dated Apr. 5, 1966. Divided and this application May 5, 1965, Ser. No. 453,326
5 Claims. (Cl. 156—223)



1. The method of making a cushioning pad including the steps of
- superposing layers of fusible material having aligned apertures therein,
- covering said layers with a top imperforate layer,
- heat and tear sealing said layers in a seam defining the bounding edge of the pad around said apertures, and simultaneously deforming said top layer into a dome over said apertures.

3,305,422
METHOD AND MEANS FOR MAKING AMBIENT LIGHT FILTER

Vern E. Hamilton, Palos Verdes Estates, Calif., assignor to Douglas Aircraft Company, Inc., Santa Monica, Calif.
Filed June 17, 1963, Ser. No. 288,106
21 Claims. (Cl. 156—254)

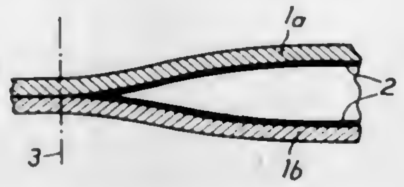


11. A method of producing space-lattice type ambient light trapping filters, comprising: supplying a continuous web of transparent plastic material; translating said web longitudinally; producing a series of uniformly spaced dimples along at least one margin of said web; imprinting on one face of said web a continuous predetermined grid pattern; applying a coat of cement to the other face of said web; dividing the web into sheets of predetermined length; arranging a plurality of said sheets in laminar relation with said dimples in registry to produce a predetermined depthwise registry of the grid patterns; and applying depthwise directed pressure to the laminated sheets to unite them into completed ambient light trapping filters.

3,305,423
METHOD OF MAKING AN ISOTHERMAL GARMENT

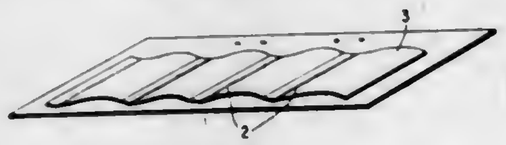
Yves Le Masson, L'Ile-Saint-Denis, France, assignor to Michel Piel, Paris, France
Filed Nov. 20, 1963, Ser. No. 325,081
Claims priority, application France, Nov. 22, 1962, 916,223
5 Claims. (Cl. 156—267)

1. A method of manufacturing of an isothermal garment comprising the steps of coating a face of each of two sheets of elastically resilient cellular rubber with an adhesive rubber solution, allowing said adhesive rubber solution to dry substantially to give sheets of rubber having a substantially dry adhesive rubber coating, laying out flat on one of said coated sheets of rubber a garment of fabric elastic in all directions, said fabric garment being adaptable to encompass a human body, applying the other of said coated sheets of rubber on top of said fabric garment so that both of said coated faces of said sheet of rubber are adjacent said fabric garment, said sheets of rubber being of sufficient dimension to overlap said fabric garment and applying pressure to the assembly while at the same time softening said substantially dry adhesive rubber coating whereby said fabric garment is bonded to said sheets of rubber and said sheets of rubber which overlap said fabric garment are bonded together.



3,305,424
METHOD OF MAKING A SHEET FOR PHILATELIC USE

Bo Anders Vilhelm Hagner, Nasby Park, Sweden
Original application June 20, 1961, Ser. No. 118,459. Divided and this application June 3, 1963, Ser. No. 285,078
2 Claims. (Cl. 156—268)

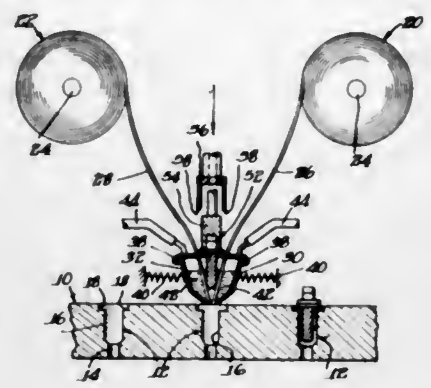


1. The method of making a device for use in storing small flat objects such as postage stamps comprising laying on a rigid sheet of cardboard a plurality of parallel spaced lines of adhesive, biasing a sheet of flexible, transparent material to have a curvature in the direction of one of its dimensions, placing said biased flexible transparent sheet on said rigid sheet with its direction of curvature extending perpendicular to said lines of adhesive with the concave side of said curved sheet against said rigid sheet, securing said sheets together along said lines of adhesive, and cutting said flexible sheet along lines located adjacent one edge of and close to said lines of adhesive, thereby forming outwardly bulged pockets between said sheets which can be opened for receiving said small objects.

3,305,425
METHOD OF APPLYING RESILIENT FELTS TO THE OPPOSITE SIDEWALL PORTIONS OF A SLOT

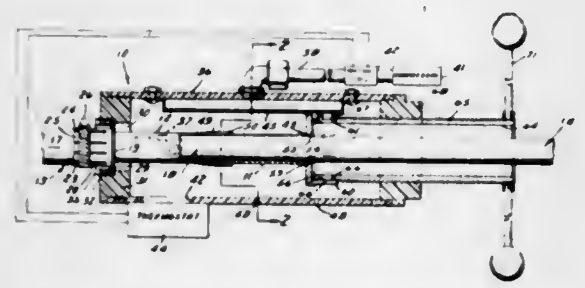
Clifford W. Andersen, De Kalb, Ill., assignor to The Wurlitzer Company, Chicago, Ill., a corporation of Ohio
Original application Feb. 9, 1962, Ser. No. 172,184, now Patent No. 3,147,171, dated Sept. 1, 1964. Divided and this application Aug. 29, 1963, Ser. No. 309,587
5 Claims. (Cl. 156—293)

1. The method of applying resilient material to opposite sidewall portions of a slot fashioned in a member defining a key lever for a musical instrument, said method comprising the steps of: supplying separate lengths of a resilient friction material with respective surface portions thereof disposed in confronting relationship; coating adhesive material on opposite surface portions of the respective lengths of material; continuously advancing a plug element in a path between the uncoated, confronting surface portions of said lengths and toward a said slot; pressurably contacting said moving plug element with the uncoated, confronting surface portions of said lengths to assemble said plug element and said lengths; inserting said plug element and the portions of adhesively coated friction material sandwiching said plug element into said slot; stopping the motion of said plug element; and withdrawing said plug element after the adhesive material has set.



3,305,426
DEVICE AND METHOD FOR INSERTING A SLEEVE IN A CABLE

Donald MacLaughlin, Lakewood, and Milton H. Schug, Palos Verdes Estates, Calif., assignors to CEMSCO, Wilmington, Calif., a corporation of California
Filed Dec. 4, 1963, Ser. No. 328,092
11 Claims. (Cl. 156—294)

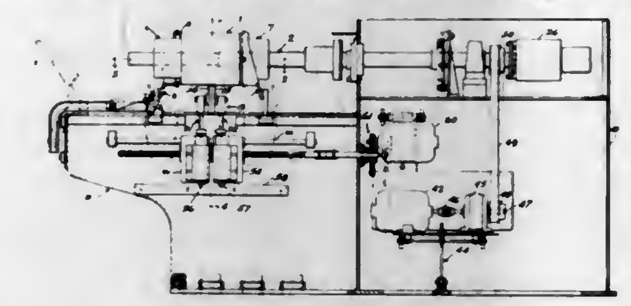


8. A method for inserting a sleeve between an inner portion of a cable and a heat sensitive protective covering, comprising:
- (a) placing a sleeve on a part of an inner portion of a cable;
- (b) heating the end of said cable covering sufficiently to permit insertion of the sleeve under the end;
- (c) guiding said sleeve on said cable to insert a small portion of said sleeve between said heated end of said covering and said inner portion;
- (d) heating said covering until a substantial force on said sleeve will push it under said covering; and
- (e) forcing said sleeve under said heated covering until the desired amount of the sleeve is between the covering and the inner portion.

3,305,427
TIRE BUILDING APPARATUS AND METHOD

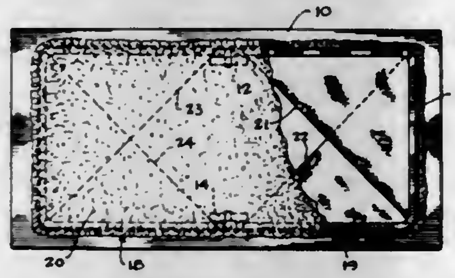
John L. Rehman, Barberton, Ohio, assignor to The Akron Standard Mold Company, Akron, Ohio, a corporation of Ohio
Filed July 19, 1963, Ser. No. 296,307
10 Claims. (Cl. 156—401)

1. In a tire building apparatus comprising, a frame, an expandable drum mounted for rotation on said frame and adapted to support a plurality of fabric plies having inextensible bead portions thereon, expansible diaphragm means disposed adjacent at least one end of said drum, motive means for rotation of said drum and said expansible diaphragm means, diaphragm displacement means adjustably mounted on said frame for movement in a plane disposed at an angle to the longitudinal central axis of said drum, adjustment means for selectively varying the said angle of the plane in which said diaphragm displacement means is adapted for movement, and pressure means for selectively moving said diaphragm displacement means toward said drum and into engagement with said expansible diaphragm means whereby said diaphragm displacement means progressively alters the shape of said expansible diaphragm means in opposite directions generally parallel to the longitudinal central axis of said drum as said expansible diaphragm means rotates relative to and in coacting engagement with said diaphragm displacement means so as to progressively turn the marginal edges of said fabric plies around said inextensible bead portions.



3,305,428
FLOOR COVERING

Donald G. Moore, St. Joseph, Mich., and Thomas J. Carstens, Oak Park, Ill., assignors to F. W. Means & Co., Chicago, Ill., a corporation of Illinois
Filed June 19, 1963, Ser. No. 289,020
6 Claims. (Cl. 161—39)



1. A non-tripping floor covering device having a readily replaced dirt-collecting rug unit comprising in combination:
- a flat mat adapted to rest on a floor in non-skid relation thereto;
- a rug of extent to fit within the confines of the mat, defining a shape symmetrical about an axis and adapted at its margins to receive a frame;
- a frame defining edges received by the margins of the rug, having sufficient edge hold-down effect to anchor the margins of the rug against the mat, and foldable about said axis to permit the rug to be folded to face-to-face dirt entrapping condition;
- the frame and the mat being detachably secured together along said axis.

3,305,429
NONWOVEN FABRIC WITH FOAM BINDER

Richard C. Stadden, 2247 Manor Ridge Drive, Manor Township, Lancaster County, Pa. 17603
Filed Jan. 25, 1963, Ser. No. 253,849
4 Claims. (Cl. 161—169)

4. A nonwoven fibrous article comprising a mixture of randomly disposed intermingled fibers, said mixture containing 50% to 90% by weight of nonfoamable fibers

and 50% to 10% by weight of partially foamed thermoplastic fibers, each of said foamed thermoplastic fibers having a foamed surface and an unmodified central core, said foam-surfaced fibers being dispersed throughout said fibrous article and serving as a reinforced foam binder therefor.

3,305,430
PROCESS FOR BONDING RUBBER TO YARN AND THE RESULTING PRODUCT

Georg Hennemann, Velp, Netherlands, assignor, by mesne assignments, to American Enka Corporation, Enka, N.C., a corporation of Delaware
No Drawing. Filed Jan. 8, 1962, Ser. No. 165,002
Claims priority, application Netherlands, Jan. 23, 1961, 260,385
3 Claims. (Cl. 161—227)

3. A rubber article reinforced with polyethylene terephthalate formed structure, said polyethylene terephthalate formed structure having been treated with polyethylene imine and latex dispersion comprising a copolymer of a vinylpyridine with a diene in an aqueous solution of a precondensation product of a phenol and an aldehyde and cured before embedding in the rubber selected from the group consisting of natural rubber, gutta-percha, balata, compound rubber, modified rubber, condensation derivatives of rubber and cyclized rubber, synthetic rubber-like diene-polymers, diene-copolymers, butadiene-styrene-interpolymers, butadiene-acrylic acid nitrile-interpolymers, polysulphide rubbers, and rubber-like copolymers of an alkylacrylate and a chloroalkylvinylether of said rubber article.

3,305,431
FLAMEPROOFING COMPOSITION, METHOD AND ARTICLE CONTAINING SAME

George J. Peterson, Park Forest, Ill., assignor to Swift & Company, Chicago, Ill., a corporation of Illinois
No Drawing. Continuation of application Ser. No. 8,516, Feb. 15, 1960. This application July 17, 1963, Ser. No. 295,835
5 Claims. (Cl. 161—232)

4. A flameproof paper laminate comprising: a web of paper attached to a backing material with an adhesive, said paper being impregnated with a homogeneous mixture of about 10–80%, by weight, of a cellulose adhesive immiscible with halogenated higher fatty acid esters, about 10–80%, by weight, of halogenated higher fatty acid ester, and about 10–80%, by weight, of a water-insoluble salt of a metal selected from the group consisting of arsenic, antimony, bismuth and tin, whereby to cause said halogenated fatty acid esters to migrate into said paper, and to form an adhesive bond with said backing material.

3,305,432
MAKING OF CELLULOSE PULP

William R. Matthews, W. 1022 7th Ave., Spokane, Wash. 99204
Filed July 15, 1963, Ser. No. 295,017
14 Claims. (Cl. 162—72)

1. The method of making pulp from natural cellulosic material such as wood, which comprises the steps of:

first removing the imbibed moisture from said particles;
soaking the particles in a concentrated hydrotropic salt solution;
draining and squeezing the solution from the particles;
then soaking the particles in a pulping liquor selected from the group of pulping solutions comprising acid sulfite solutions, neutral sulfite solutions and alkaline sulfide solutions;
draining the liquid from the particles;
washing the particles with the concentrated hydrotropic salt solution; and
removing the last named solution by washing the particles with water.

3,305,433
COLD CAUSTIC REFINING OF CELLULOSE

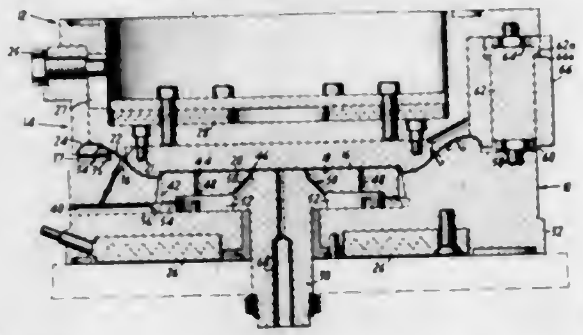
Edward V. Partlow, Shelton, Wash., assignor to Rayonier Incorporated, Shelton, Wash., a corporation of Delaware
No Drawing. Filed Feb. 25, 1963, Ser. No. 260,822
2 Claims. (Cl. 162—80)

1. The process of producing non-mercerized, cold caustic refined, high alpha cellulose from sulfite wood pulp which comprises subjecting said cellulosic material to a refining treatment in an aqueous caustic solution at a temperature of from 5° to 50° C. containing from 10 to 16% by weight of total titratable alkali and from 6 to 28% by weight of a soluble borate compound of the group consisting of sodium meta-borate, borax and boric acid, said amount of borate being expressed as percent borax to total titratable alkali according to the following table:

Total Titratable Alkali Expressed As Percent NaOH	Boron Compound Expressed As Percent Borax $Na_2B_4O_7 \cdot 10H_2O$
10	6.0 to 8.0
11	9.2 to 11.2
12	12.4 to 14.6
13	15.7 to 17.8
14	19.0 to 21.0
15	22.2 to 24.2
16	25.5 to 27.5

3,305,434
METHOD AND APPARATUS FOR FORMING RIGID PAPER PRODUCTS FROM WET PAPERBOARD STOCK

Raymond T. Bernier and Gerald H. Cross, both of Saint Albans, Vt., assignors to Standard Packaging Corporation, New York, N.Y., a corporation of Virginia
Filed Feb. 15, 1966, Ser. No. 532,822
7 Claims. (Cl. 162—117)



1. A method of forming a rigid paper product from paperboard stock having a high bulk and a low density in the range of from about 8.8 to about 9.6 pounds per 0.001 in. thickness per 3000 sq. ft. area, a high moisture content in the range of from about 15% to about 35% by weight, based on the weight of the finished paperboard stock, and a thickness in the range of from about 0.016 to 0.040 in., comprising the steps of gripping the paperboard stock around the periphery of a region to be formed, forming the said region between a pair of forming dies in the presence of heat, said forming dies increasing the area of the region formed and involving reorientation of the fibers of the paperboard stock, and withdrawing the vapors evolved from the paperboard stock from between the forming dies during the forming operation, the forming operation being carried out without reducing the thickness of the stock more than 0.005 inch so as to avoid compressing the paperboard stock to such an extent that the removal of moisture from the paperboard stock is impeded.

5. A method of forming a paper plate comprising the steps of introducing paperboard stock between two forming dies. said paperboard stock being of high bulk and having a low density in the range of from about 8.8 to about 9.6 lbs. per 0.001 in. thickness per 3000 sq. ft., a thickness in the range of from about 0.016 to about 0.040 inch and a high moisture content in the range of from about 15% to about 35% by weight, based on the weight of finished paperboard stock, gripping the paperboard stock between a gripping ring and one of the forming dies in a narrow band around a region to be formed, bringing the dies together in the presence of heat to form the paperboard to the shape of a plate, said forming operation substantially increasing the area of the formed paperboard without compressing the stock more than about .005 inch, and removing the evolved vapor from at least one surface of the formed paperboard.

3,305,435
METHOD OF MAKING PAPER STIFFENED WITH WASTE PULP LIQUOR SOLIDS

Edward M. Williston, Longview, and Arthur S. Gregory and Clark C. Heritage, Tacoma, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington
No Drawing. Continuation of abandoned application Ser. No. 236,143, Nov. 7, 1962. This application July 7, 1966, Ser. No. 563,619
6 Claims. (Cl. 162—117)

1. The method of making a stiffened corrugating medium comprising

the steps of forming a paper sheet from an aqueous slurry of cellulosic fibers,
substantially drying said formed sheet,
applying to at least one surface of the paper sheet a solution containing waste pulp liquor solids,
thereafter completing the drying of the paper sheet and fluting said sheet.

3,305,436
CATIONIC PHOSPHORUS-CONTAINING WET STRENGTH RESIN COLLOID AND PAPER HAVING A CONTENT THEREOF

Henry P. Wohnsiedler, Noroton, Conn., assignor to Formica Corporation, Cincinnati, Ohio, a corporation of Delaware
No Drawing. Filed June 12, 1964, Ser. No. 374,808
8 Claims. (Cl. 162—159)

1. An aqueous acid solution of thermosetting polyhydroxymethyl tris[(4,6 - diamino - s-triazine-2-) - yl]ethyl phosphine oxide in cationic colloidal state.

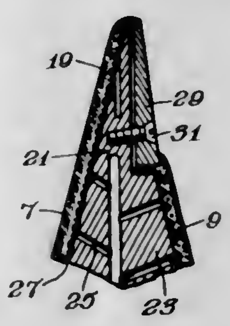
4. Wet strength paper composed of water-laid cellulose paper-making fibers bonded together by a normally colloidal cationic polyhydroxymethyl tris[(4,6-diamino-s-triazine-2-)-yl]ethyl phosphine oxide resin in thermoset state.

3,305,437
SINGLE THICKNESS PULP PARTITION MOLDING METHOD AND APPARATUS

Kenneth L. Crabtree, Fairfield, Maine, assignor to Keyes Fibre Company, Waterville, Maine, a corporation of Maine
Filed June 4, 1964, Ser. No. 374,878
13 Claims. (Cl. 162—218)

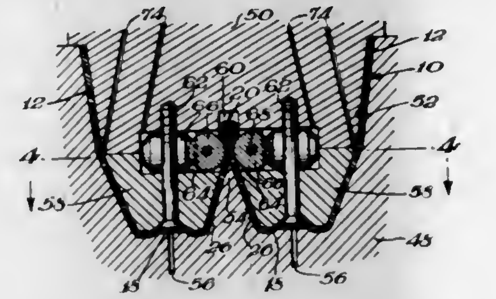
1. Apparatus for molding pulp articles comprising an open-face forming die having a direction of article-die separation, the die including a pair of convergingly sloping wall portions the mid-portions of which converge in a relatively sharp peak, the mid-portion of one of the pair of wall portions in a zone adjacent the peak where the pair of wall portions converge being angled to the direction of article-die separation at a small angle less than about ten degrees and the mid-portion of the other wall portion in a zone adjacent the peak where the pair of wall portions converge being angled to the direction of article-die separation at a small permissible draft angle greater than about five degrees but less than about twenty degrees and having a substantially planar configuration, and means providing a porous suction surface over the die except in the zone adjacent the peak on the mid-portion of the one wall.

13. A method of forming single thickness partition structure to increase the height of double walled rib structure in molded pulp articles comprising the steps of providing an open-face forming die having a pair of convergingly sloping wall portions the mid-portions of which converge in a relatively sharp peak, shielding the mid-portion of one of the pair of sloping wall portions in a zone adjacent the peak where the pair of wall portions converge to preclude the deposition of pulp fibers in such zone, immersing the die in a fluid supply of fibrous pulp slurry, applying vacuum to the die to selectively deposit a coating of pulp fibers thereon in predetermined zones while precluding the deposition of pulp fibers on the mid-portion of one of the pair of sloping wall portions in a zone adjacent the peak where the pair of wall portions converge, removing the die from the fluid supply of fibrous pulp slurry, and then separating the coating of pulp fibers from the open-face forming die.



3,305,438
PULP PARTITION MOLDING AND PRESSING

Kenneth L. Crabtree, Fairfield, Maine, assignor to Keyes Fibre Company, Waterville, Maine, a corporation of Maine
Original application Dec. 8, 1964, Ser. No. 416,740, now Patent No. 3,243,095, dated Mar. 29, 1966. Divided and this application Aug. 2, 1965, Ser. No. 485,966
9 Claims. (Cl. 162—223)



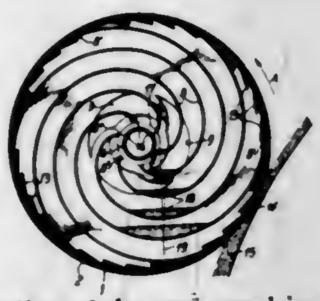
1. The method of molding a container comprising the steps of initially forming a container having a plurality of downwardly dished pockets each defined at least in part by upwardly and outwardly sloping side walls and having the side walls between adjacent pockets integrally joined together at their tops by suction deposition of a sheet of fibrous pulp material on a contoured open face forming die, removing the sheet of fibrous pulp material from the forming die, and finish forming the container by after-pressing at least the upper portions of adjacent pocket side walls directly against each other to decrease the total effective separation between adjacent pockets while maintaining a substantially uniform thickness throughout the full height of the pressed together upper portions of the adjacent pocket side walls.

5. Apparatus for molding a container of the type having a plurality of downwardly dished pockets each defined at least in part by upwardly and outwardly sloping side walls and having the side walls between adjacent pockets integrally joined together at their tops comprising an after-pressing die including a pair of pocket forming protrusions, a pair of oppositely positioned cavities, one in each protrusion, and a pressing element mounted for shifting motion in each cavity.

3,305,439
PULP ROLLER FOR A PAPERMAKING MACHINE

Peter Siegel, Niefern, Baden, Germany, assignor to Gebr. Bellmer K.G. Maschinenfabrik, Niefern, Baden, Germany

Filed July 15, 1964, Ser. No. 382,790
5 Claims. (Cl. 162—314)



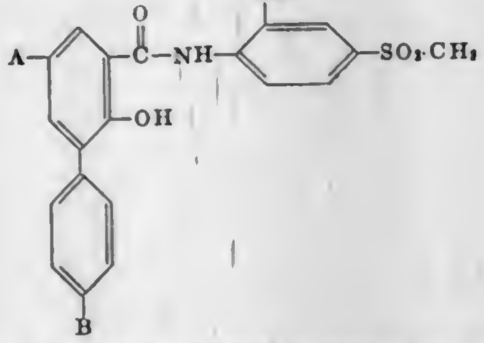
1. A pulp roller of the type used in paper manufacturing machines for cooperation with draining devices such as circular or elongated filter sections or cell filters, comprising a cylindrical perforate jacket defining a hollow cylinder and having circular end walls, a hollow shaft extending concentrically through said hollow cylinder and said circular end walls, a plurality of trough-shaped sheet metal plates defining drain channels between them and arranged within said hollow cylinder and each having an outer and an inner longitudinal edge, said outer longitudinal edges of said sheet metal plates being secured in uniformly spaced relationship and at an acute angle to the inner wall of said cylindrical perforate jacket, and a plurality of baffles disposed in the intervals between said spaced apart outer longitudinal edges at the same acute angle as said sheet metal plates and in Venetian blind fashion in relation thereto and to one another.

3,305,440
METHOD OF DESTROYING GASTROPODS

John P. Chupp, Kirkwood, Mo., and Jack D. Early, Bethesda, Md., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Oct. 13, 1965, Ser. No. 495,668
3 Claims. (Cl. 167—30)

1. The method of destroying gastropods which comprises applying to the gastropods and their habitat a gastropodicidally toxic amount of a 4′-methylsulfonyl-3-phenylsalicylanilide of the formula



wherein A is halogen of atomic weight in the range of 35 to 80, wherein B is selected from the group consisting of hydrogen and halogen of atomic weight in the range of 35 to 80, and wherein Hal means halogen of atomic weight in the range of 18 to 80.

3,305,441
ATTENUATION OF PESTICIDAL RESIDUES ON SEEDS

Gustave K. Kohn, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Oct. 12, 1965, Ser. No. 495,310
11 Claims. (Cl. 167—38)

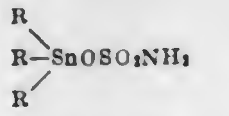
1. A method for attenuating pesticide residues present on seeds which have been treated with a pesticide having a methyl phosphate group or a halogen of atomic number 17 to 53 bonded to a saturated carbon atom which is alpha or beta to an oxygen or sulfur atom which comprises contacting the treated seeds with an effective amount of an aqueous solution of an ionizable sulfide, inorganic sulfite or inorganic thiosulfate at a pH of at least 7.

3,305,442
ORGANIC TIN SULFAMATES AND WOOD PRESERVATIVES USING THE SAME

Koichi Nishimoto, Fushimi-ku, Kyoti, Goro Fuse, Nishinari-ku, Osaka, and Michio Nakanishi, Nakatsu, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Higashi-ku, Osaka, Japan

Filed Nov. 26, 1963, Ser. No. 326,104
12 Claims. (Cl. 167—38.6)

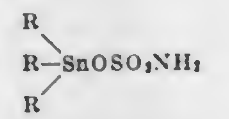
1. A tri-alkyltin sulfamate of the formula:



$$\begin{array}{l} R \\ R-SnOSO_2NH_2 \\ R \end{array}$$

wherein R is alkyl of 1 to 8 carbon atoms, inclusive.

4. A wood preservative which comprises, as the essential ingredients, an effective amount of a tri-alkyltin sulfamate of the formula



$$\begin{array}{l} R \\ R-SnOSO_2NH_2 \\ R \end{array}$$

wherein R is alkyl of 1 to 8 carbon atoms inclusive, and a solvent therefor.

3,305,443
ANTICOCCIDIAL COMPOSITION AND METHOD OF USING SAME

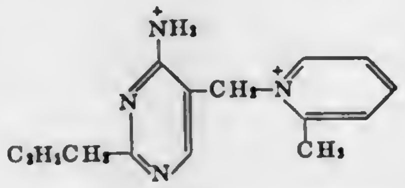
Alan Hayes and John Frederick Ryley, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Aug. 26, 1963, Ser. No. 304,642
Claims priority, application Great Britain, Sept. 6, 1962, 34,247/62
14 Claims. (Cl. 167—53.1)

1. An anticoccidial veterinary composition which comprises from 1 to 2 parts by weight of sulphaquinoxaline in admixture with from 1 to 2 parts by weight of a pyrimidine derivative of the formula:

$$[A]_b cX$$

wherein A stands for a cation of the formula:



X stands for a pharmaceutically-acceptable anion, and *b* and *c* are positive integers such that the positive charge

of *b* molecules of the cation A is neutralised by the negative charge of *c* molecules of the anion X.

3,305,444
ANTI-TUSSIVE

Charles Riviere, 11 Rue de la Ferme, Neuilly-sur-Seine, France

No Drawing. Filed Sept. 24, 1962, Ser. No. 225,854
Claims priority, application Great Britain, Oct. 4, 1961, 35,713/61
2 Claims. (Cl. 167—55)

1. The camphosulfonic acid salt of diphenhydramin aminoxide having anti-tussive and neurosedative properties.

2. A composition comprising the compound of claim 1 in a syrup base.

3,305,445
TREATMENT OF INFLAMMATORY CONDITIONS OF NON-MICROBIAL ORIGIN WITH FUSAFUNGINE

Jacques Servier, Neuilly-sur-Seine, Seine, France, assignor to Biofarma, Seine, France, a societe anonyme organized under French laws

No Drawing. Filed Jan. 15, 1962, Ser. No. 166,417
1 Claim. (Cl. 167—58)

The method of treating inflammatory conditions of non-microbial origin which comprises administering to humans topically on the diseased skin or mucous membrane a topical excipient containing 0.5 to 2% of fusafungine.

3,305,446
METHOD OF PREPARING PARENTERAL SOLUTION

Lavon D. Bechtol, Barrington, and David Bellamy, Jr., Glenview, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

Filed Jan. 7, 1963, Ser. No. 249,831
3 Claims. (Cl. 167—72)

1. The process of immediately administering a sterile parenteral solution containing bicarbonate ions which is prepared by the successive steps of preparing a sterile solution containing chloride ions, contacting said chloride containing solution with a sterile body of anion exchange resin comprising bicarbonate ions whereby a sterile parenteral solution containing bicarbonate ions suitable for parenteral administration is obtained, and immediately administering said sterile parenteral solution.

3,305,447
TABLETTING SUGAR AND METHOD OF PREPARING SAME

Frederick E. Reimers, Westfield, N.J., and Marvin D. Miller, Oceanside, N.Y., assignors to American Sugar Company, New York, N.Y., a corporation of New Jersey

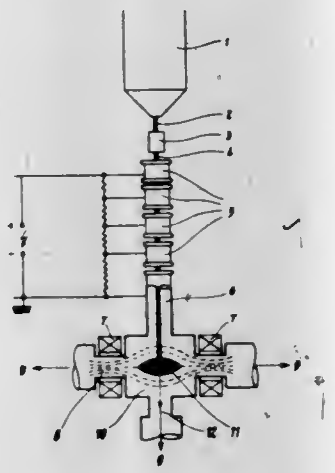
Filed June 12, 1963, Ser. No. 287,257
14 Claims. (Cl. 167—82)

1. A sugar product suitable for tabletting consisting essentially of a major amount of granulated sugar and a minor amount of a binding agent, said sugar product having been prepared by subjecting an admixture containing said granulated sugar and said binding agent in the form of a concentrated syrup containing above about 87% by weight of binding agent to mixing to produce a substantially dry, homogeneous sugar admixture containing less than about 1% by weight moisture, subjecting the resulting sugar admixture to grinding to produce a ground sugar admixture having a particle size such that at least about 90% by weight passes through a 200 mesh Tyler sieve, compacting the resulting ground sugar admixture and subjecting the resulting compacted sugar admixture to a further comminution operation.

3,305,448
INTRODUCTION OF FUEL INTO A THERMONUCLEAR REACTOR

Erwin Willy Becker, Karlsruhe, and Wolfgang Henkes, Leopoldshafen, near Karlsruhe, Germany, assignors to Kernreaktor Bau- und Betriebs-Gesellschaft m.b.H., Karlsruhe, Germany, a corporation of Germany

Filed May 6, 1963, Ser. No. 278,806
Claims priority, application Germany, May 12, 1962, K 46,723
7 Claims. (Cl. 176—5)

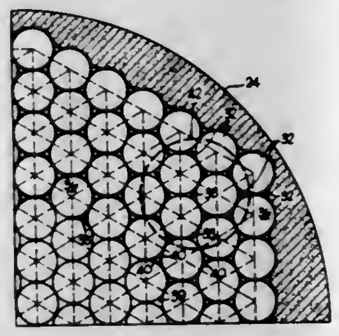


1. In a process wherein a nuclear fuel containing atoms of at least one member of the group consisting of the elements hydrogen, helium, and their isotopes, is accelerated into a thermonuclear reactor for generating high temperature plasma, the improvement which comprises converting the fuel into finely divided condensed clusters of atoms connected by Van de Waals forces, electrically charging said clusters with a low specific charge of less than 0.33 elementary charges per atom, and electrically accelerating the charged clusters to a high kinetic energy level for the generation of high temperature plasma in the reactor upon impact.

3,305,449
NUCLEAR REACTOR CORE ASSEMBLY

William T. Furgerson, Del Mar, Calif., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

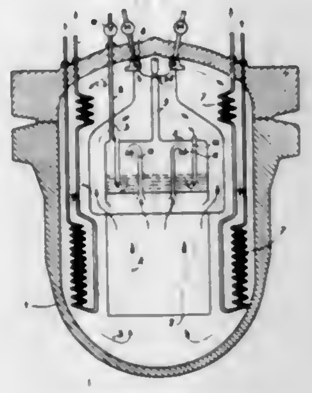
Filed Sept. 14, 1965, Ser. No. 487,340
9 Claims. (Cl. 176—50)



1. A core assembly for a nuclear reactor, comprising a plurality of core elements in the form of circular cylinders mounted with their axes parallel to one another to provide longitudinally extending passages therebetween for a fluid coolant, said plurality of core elements including first core elements of equal radii containing nuclear fuel material and positioned in an equilateral triangular array, said plurality of core elements further including second core elements having radii smaller than the radii of said first core elements so that the volume of the coolant passages in the core is regulated whereby temperature distribution in the core and heat removal therefrom are optimized.

3,305,450
NUCLEAR REACTORS WITH PRESSURIZER OPERATING WITH NONCONDENSIBLE GAS

Pierre Edmond Jules Marie Maldague, Brussels, Belgium, assignor to Societe Anglo-Belge Vulcain, Societe Anonyme, Brussels, Belgium
Filed Feb. 9, 1965, Ser. No. 431,327
Claims priority, application Luxembourg, Mar. 23, 1962, 41,428/62
9 Claims. (Cl. 176—52)



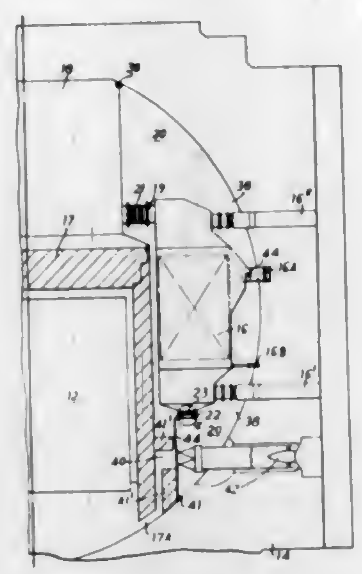
1. A nuclear reactor comprising a reactor pressure vessel, a core within said pressure vessel, a body of primary liquid in said pressure vessel, means for circulating said primary liquid through the vessel, a pressurizer tank containing a portion of said primary liquid, duct means connecting the primary liquid in said pressurizer tank with the primary liquid in said reactor pressure vessel, a body of noncondensible gas mixed with vapor of said primary liquid in said pressurizer tank located above said liquid portion, means for introducing noncondensible gas into said pressurizer tank, and means for introducing finely divided primary liquid into said body of noncondensible gas mixed with vapor in said pressurizer tank.

6. Method of pressurizing a nuclear reactor of the type in which a primary fluid circulates within a pressure vessel and through a core within said pressure vessel, said fluid being at least partially in the liquid state, and which reactor includes a pressurizer tank containing a portion of said primary liquid, and duct means connecting the primary liquid in said pressurizer tank with the primary liquid in said pressure vessel, comprising the steps of introducing into said pressurizer tank a volume of noncondensible gas sufficient to enable the gas to exert a substantial partial pressure within the pressurizer tank and allowing said gas to become mixed with the vapor of said primary liquid, establishing in the lower portion of said pressurizer tank a body of said primary liquid, and continuously circulating a flow of primary liquid in finely divided form into said mixture of noncondensible gas and vapor above said body of primary liquid.

3,305,451
NUCLEAR REACTORS

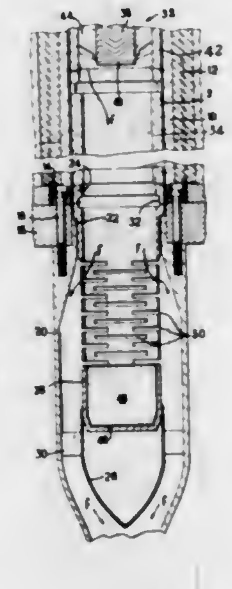
Peter A. Taylor, Sussex, and Ronald J. Hawkins, Surrey, England, assignors to Babcock & Wilcox Limited, London, England, a corporation of Great Britain
Filed July 1, 1965, Ser. No. 468,792
Claims priority, application Great Britain, July 2, 1964, 27,295/64
6 Claims. (Cl. 176—60)

1. A nuclear reactor comprising a pressure vessel, a core arranged within said pressure vessel, a plenum chamber arranged to receive coolant flowing from the core, a plurality of heat exchangers disposed between the core and the pressure vessel wall, each heat exchanger comprising a primary flow path for fluid to be heated and a secondary flow path for the heating fluid, each heat exchanger being provided with means whereby core coolant as heating fluid may flow from said plenum chamber through the secondary flow path, valve means provided with each heat exchanger adjustable between an open and close position to control the flow of core coolant through the secondary flow path, and coolant return means for passing core coolant that has flowed in the secondary flow path of another heat exchanger through the secondary flow path of said first heat exchanger when the valve means of the first heat exchanger is in the closed position.



3,305,452
FALL-DAMPING DEVICE FOR A NUCLEAR REACTOR

Jacques Remoleur, Gif-sur-Yvette, France, assignor to Commissariat à l'Energie Atomique, Paris, France
Filed July 8, 1965, Ser. No. 470,541
Claims priority, application France, July 24, 1964, 982,848
8 Claims. (Cl. 176—87)



1. A fall-damping device for a nuclear reactor comprising a closed and deformable container filled with powdered moderator material and supported by the bottom of a debris collector retained in a vertical fuel channel, said collector being provided with openings for the passage of coolant formed in the wall of said debris collector above the top face of said container.

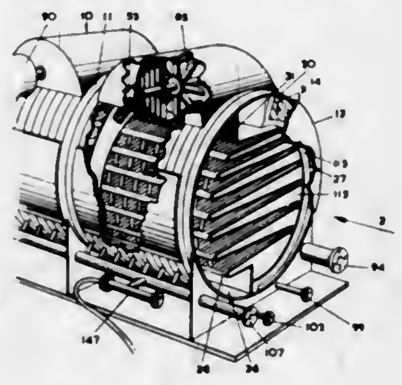
3,305,453
CONVERSION OF PENICILLIN V TO 6-AMINOPENICILLANIC ACID BY THE USE OF SPORES

Kartar Singh, Beaconsfield, Quebec, Surendra Nath Sehgal, St. Laurent, Quebec, and Claude Vezina, Oka, Quebec, Canada, assignors, by mesne assignments, to Wisconsin Alumni Research Foundation, Madison, Wis., a corporation of Wisconsin
No Drawing. Filed Oct. 8, 1963, Ser. No. 314,644
4 Claims. (Cl. 195—36)

1. The process of converting penicillin V to 6-aminopenicillanic acid which comprises carrying out the conversion under submerged aerobic conditions in the absence of available nitrogen with spores of *F. conglutinans* in an aqueous medium in which the spores cannot germinate.

3,305,454
SERIES EVAPORATOR-TRAY COMPRESSOR TYPE VACUUM STILL

John James Cowley, Toronto, Ontario, Canada, assignor, by mesne assignments, to Desal Limited, Toronto, Ontario, Canada
Filed Feb. 19, 1965, Ser. No. 434,746
5 Claims. (Cl. 202—205)



1. A regenerative still construction for the continuous distillation of impure liquids such as impure water and the like and comprising:

a generally cylindrical vessel closed at both ends and hermetically sealed;

a series of heat exchange evaporation trays mounted in layered form within said vessel in vertically overlying relation with one another and tilted at an angle below the horizontal to permit flow of liquid therealong;

a series of condensate drainage trays mounted within said vessel in overlying relation with one another alternately with said heat exchange trays and angled sufficient to induce flow of liquid therealong in a direction opposite to that of said liquid flow on said heat exchange trays, said heat exchange and drainage trays being interleaved in a substantially vertically oriented layered sandwich formation with one another and being joined at their respective edges to constitute a continuous zig-zag vapour-tight partition within said vessel dividing the same from top to bottom into respective vapourization and condensation chambers side by side with one another;

inlet conduit means for directing liquid onto the upper ends of the upper surfaces of said heat exchange trays;

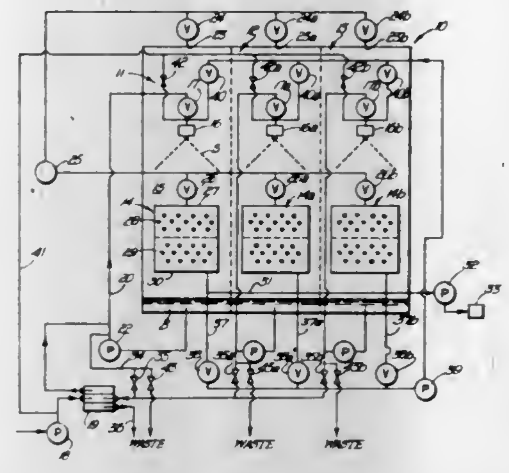
vapour suction means for continuously evacuating vapours from said vessel;

compressor means operable to continuously transfer vapours within said vessel from said vapourization chamber to said condensation chamber;

and outlet conduit means for draining off condensed liquid from said condensation chamber.

3,305,455
METHOD OF SCALE CONTROL IN SEA WATER EVAPORATION

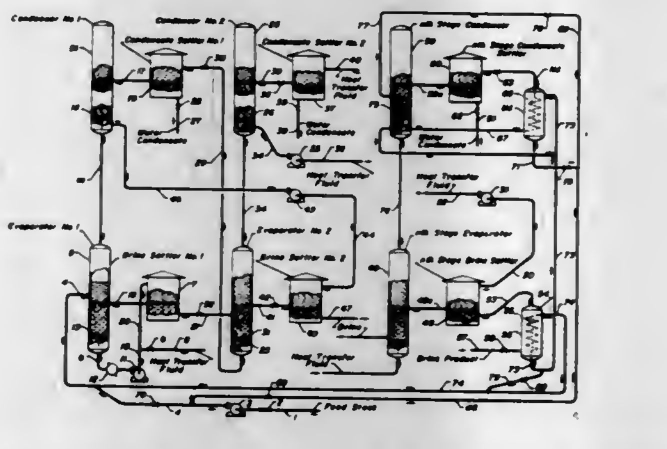
Frederick A. Loebel, Milwaukee, Wis., assignor to Aqua-Chem, Inc., a corporation of Wisconsin
Filed Feb. 6, 1963, Ser. No. 256,581
1 Claim. (Cl. 203—7)



The method of eliminating the formation of water insoluble scale containing magnesium hydroxide and calcium carbonate as the major constituents formed in the process of evaporation of sea water, comprising the steps of forming a water soluble scale containing water soluble calcium sulphate as the major constituent and only a small portion of water insoluble magnesium hydroxide and calcium carbonate by evaporating the sea water on a hot surface to the point of the scale formation resulting from heating a film of the sea water on the hot surface to a temperature of about 215° F. and at a pressure of about 15 p.s.i.a. to a brine concentration of about 100,000 p.p.m. and thereby forming water soluble scale on the hot surface, condensing the evaporated water to form and store fresh water condensate, interrupting the evaporation step while washing the scale on said surface with the fresh water condensate until the water soluble calcium sulphate is dissolved in the fresh water condensate and the water insoluble scale constituent is mechanically broken up and both the water soluble and water insoluble constituents are removed with the fresh water condensate.

3,305,456
MULTIPLE EFFECT EVAPORATION PROCESS

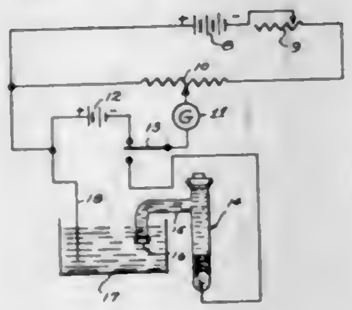
Donald B. Broughton, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed June 27, 1963, Ser. No. 291,099
19 Claims. (Cl. 203—11)



1. A multiple effect evaporation process for separating a volatile solvent from a brine solution of a non-volatile salt in said solvent, each effect comprising an evaporation zone and a vapor condensation zone which is connected in vapor flow relationship to its associated evaporation

zone, the pressure maintained in each effect being less than the pressure maintained in the last preceding upstream effect of the series, said process comprising introducing said solution into the evaporation zone of the first effect of said series and, except for the last effect in the series, passing the resuling more concentrated brine solution from the evaporation zone of each effect into the evaporation zone of the next succeeding downstream effect, contacting directly the solution in each evaporation zone with a heat transfer liquid independently supplied at an elevated temperature relative to the temperature of said solution, said heat transfer liquid being essentially immiscible with said solution and boiling at a temperature substantially greater than the boiling point of said solution to produce solvent vapor, withdrawing the resulting solvent vapor from each evaporation zone into the condensation zone directly associated with the evaporation zone, contacting directly solvent vapor in said condensation zone with a relatively cool heat exchange medium which in each effect, except the last effect of the series, consists of heat transfer liquid recovered from the evaporation zone of the next succeeding downstream effect in series, separating by density difference the heat transfer liquid at a relatively elevated temperature from solvent condensate liquid present in each condensation zone into which relatively cool heat transfer liquid is charged, recycling the recovered heat transfer liquid to the evaporation zone of said next succeeding downstream effect, withdrawing solvent condensate from each condensation zone as one of the products of the process and withdrawing concentrated brine solution from the evaporation zone of the last effect and recovering the brine as another product thereof.

3,305,457
HYDROCARBON DETECTION
Edward Sidney Hyman, 3420 Jefferson Ave., New Orleans, La. 70125
Filed Aug. 9, 1965, Ser. No. 482,991
16 Claims. (Cl. 204—1)

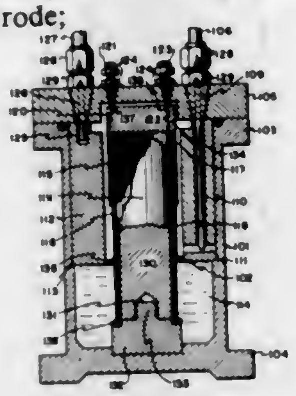


1. A method of manufacturing an electrode which is sensitive to hydrocarbons which comprises electrolytically coprecipitating zinc and a platinum metal on the surface of a platinum metal electrode by passing an electric current through said platinum metal electrode while in contact with an electrolyte containing dissolved cationic zinc and platinum in such manner that said platinum metal electrode is the cathode and removing zinc from said electrode.

3,305,458
OXYGEN DIFFUSION ANALYZER AND METHOD OF USING SAME
Hsue C. Tsien, Livingston, and Hugh H. Horowitz, Elizabeth, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Sept. 6, 1963, Ser. No. 307,229
9 Claims. (Cl. 204—1)

7. A process for analyzing a sample gas stream for its content of a specific gas comprising:

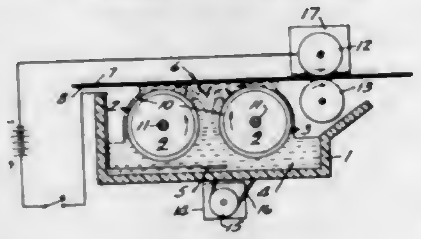
(A) Contacting a sample gas stream with a first electrode of a galvanic cell which first electrode is coupled to a second electrode by means of a diffusion medium wetted by an electrolyte, wherein the first electrode is not reactable with the electrolyte at any time and the second electrode is reactable with the electrolyte only when the specific gas is present at the first electrode;



(B) Introducing a nonporous, inert, electrically insulating diffusion barrier of area that is selectable but smaller than that of the diffusion medium between said electrodes to reduce the extent of coupling between them; and

(C) Measuring the amount of electric current between the electrodes, which current will be a function of the concentration of the specific gas.

3,305,459
ELECTROLYTIC ELECTROCOPYING METHOD AND APPARATUS
Alan J. Smith, Elmwood, Wis., and Jack K. Warren, Marine on St. Croix, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Aug. 27, 1963, Ser. No. 304,823
7 Claims. (Cl. 204—18)



7. The method of developing electrolytically an image pattern formed on a photoconductive copy paper after exposure thereof to a light-image a photoconductive copy paper, comprising the steps of feeding the exposed sheet of photoconductive copy paper across and in vertical spaced relation to a reservoir containing a supply of electrolytic solution, rotating a pair of parallel spaced rollers partially immersed in said solution to pump the same upwardly in a turbulent stream having a contracting relationship with a large exposed surface area of the copy paper while impressing an electric potential between said paper and said solution for electrolytic deposition from the electrolytic solution on said copy paper to afford development of a visible image pattern on said copy paper which is free from streaks.

3,305,460
METHOD OF ELECTROPLATING PLASTIC ARTICLES
Robert M. Lacy, Anchorage, Ky., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Jan. 23, 1964, Ser. No. 339,603
3 Claims. (Cl. 204—20)

1. The process of providing a molded plastic article with an electro-deposited metal coating which comprises:

applying to the surface of the molded plastic article a thin adhesive coating consisting essentially of (a) two parts by weight of a carboxy modified acrylonitrile-butadiene copolymer resin, (b) from one to three parts by weight of a 40–60 acrylonitrile-butadiene copolymer resin, (c) one to two parts of a noncuring phenolic resin, (d) an inorganic filler in the ratio of about one part by weight of filler to two to four parts by weight of (a), (b) and (c), and a solvent for said resins,

drying said coating at an elevated temperature sufficient to remove substantially all of the solvent,

sensitizing, activating, and applying an electroless copper conductor to said activated coating,

electroplating a thin copper layer on said electroless copper,

heating said metal coated article to a temperature of at least 75° C.,

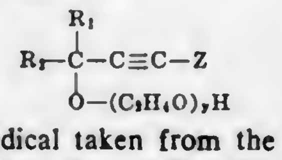
and thereafter electroplating a finish metal coating on said copper layer.

3,305,461
NICKEL ELECTROPLATING BATH WITH ADDITIVES
Barnet D. Ostrow, 125 Redwood Drive, and Fred I. Nobel, 75 Fern Drive, both of Roslyn, N.Y. 11576
No Drawing. Filed Aug. 23, 1963, Ser. No. 304,270
9 Claims. (Cl. 204—49)

1. An aqueous acid nickel plating bath having incorporated therein a water soluble acetylenic compound and a water-soluble mercapto alkyl hydropyrimidine, the amount of said compounds being sufficient to prevent skip plate in low current density areas.

3,305,462
ACID NICKEL ELECTROPLATING BATH
Barnet D. Ostrow, 125 Redwood Drive, and Fred I. Nobel, 75 Fern Drive, both of Roslyn, N.Y. 11576
No Drawing. Filed Sept. 2, 1965, Ser. No. 484,767
8 Claims. (Cl. 204—49)

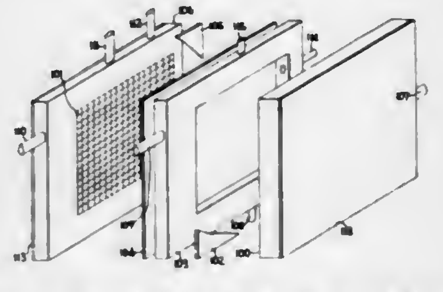
1. In an aqueous acid nickel plating bath selected from the class consisting of chlorides and sulfates, the improvement which is an addition agent in said bath have the following formula:



$$\begin{array}{c} \mathrm{R_1} \\ | \\ \mathrm{R_2-C-C\equiv C-Z} \\ | \\ \mathrm{O-(C_2H_4O)_yH} \end{array}$$

wherein R_1 is a radical taken from the class consisting of H and $CH_3(CH_2)x$; R_2 is taken from the class consisting of H and $CH_3(CH_2)x$; Z is taken from the class consisting of H and halogen; y is 2 to 10; and x is 0 to 20; in amounts from about 0.005 to 5.0 grams per liter.

3,305,463
ELECTROLYTIC PRODUCTION OF DICHROMATES
William W. Carlin, Portland, Tex., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 16, 1962, Ser. No. 180,234
7 Claims. (Cl. 204—89)



1. A process for producing sodium dichromate which comprises feeding an aqueous solution of sodium chromate having a CrO_3 content of between 50 to 550 grams per liter to the anode compartment of an electrolytic cell having an anode and a cathode compartment, providing in said cell a permionic membrane which divides the cell into two sections, one section containing the cell anode, the other section containing the cell cathode, said permionic membrance being impervious to the passage of chromate ions, feeding water to the cathode section of said cell, electrolyzing the cell contents and withdrawing anolyte from the anode section of the cell when the pH of that anolyte reaches a value between 1.5 and 5.

3,305,464
POLYMERIZATION OF TRIOXANE
Nelson S. Marans, 12120 Kerwood Road, Silver Spring, Md. 20904, and Forrest A. Wessells, 740 E. Lake Ave., Baltimore, Md. 21210
No Drawing. Filed Oct. 1, 1965, Ser. No. 492,330
9 Claims. (Cl. 204—159.21)

1. A method for producing high molecular weight polyoxymethylene which comprises irradiating trioxane in the solid state at a temperature below about 25° C. with high energy ionizing irradiation to induce activated polymerization sites in said trioxane, storing said trioxane for a period greater than about 2 hours at a temperature of from about 0° C. to about 25° C. in the absence of irradiation, heating said stored trioxane to a temperature above the threshold polymerization temperature thereof for a period sufficient to cause substantial polymerization therein, and recovering non-polymerized trioxane from the polymerized mass.

3,305,465
PHOTOCHEMICAL PROCESS FOR THE PRODUCTION OF CYCLOBUTADIINDENE
Günther Otto Schenck, Wolfgang Metzner, and Carl Heinrich Krauch, Mulheim (Ruhr), Germany, assignors to Studiengesellschaft Kohle m.b.H., Mulheim (Ruhr), Germany
No Drawing. Filed Mar. 26, 1963, Ser. No. 267,960
Claims priority, application Germany, Mar. 28, 1962, St 19,021
9 Claims. (Cl. 204—162)

1. A process for the preparation of cyclobutadiindene, which comprises subjecting indene in the liquid phase to the action of light in the presence of photosensitizers, said light being capable of being absorbed by said sensitizers.

3,305,466
METHOD OF AND APPARATUS FOR REACTING GAS AND SOLIDS
Abram Armstrong McCoy, deceased, late of Boulder County, Colo., by Ruthanna McCoy Evans, special administratrix, La Salle, Colo. (3309 Mary Lynn Drive, Des Moines, Iowa 50322)
Filed July 26, 1965, Ser. No. 479,034
15 Claims. (Cl. 204—164)

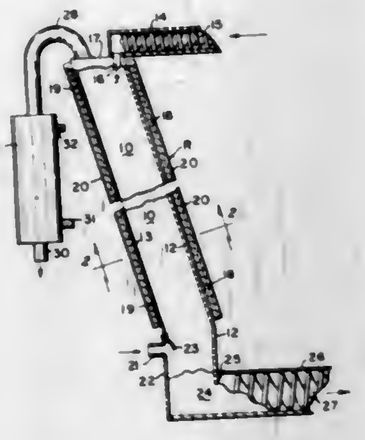
1. A method of reacting a gaseous reactant with comminuted solids, comprising the steps of:

introducing an upward flow of said gaseous reactant into the lower end of an inclined, elongated reaction zone;

introducing a flow of said comminuted solids into the upper end of said reaction zone;

imposing an alternating electrostatic field in said reaction zone having a frequency and voltage intensity sufficient to violently agitate the said particles and cause the same to flow downwardly through the zone producing the appearance of a homogeneous suspension in the reactant gas and to flow downwardly through the inclined elongated zone against the upward flow of the gas;

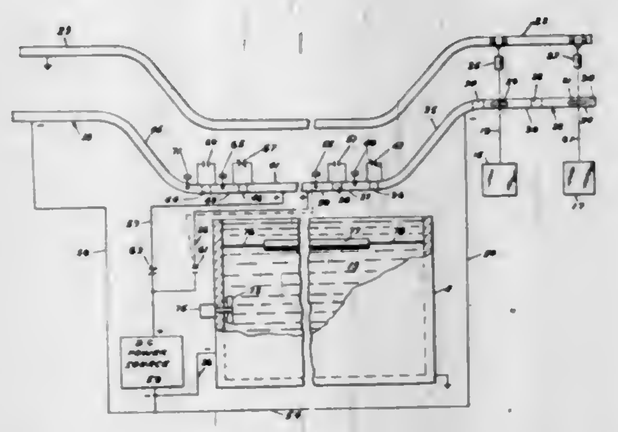
collecting gases flowing through and formed within the reaction zone at the upper end of the reaction zone



as they flow upwardly through the zone, thereby producing counterflow of gas and particles through the longitudinal extent of the reaction zone to enhance a substantially complete reaction with a single pass of the particles through the gaseous reactant; and

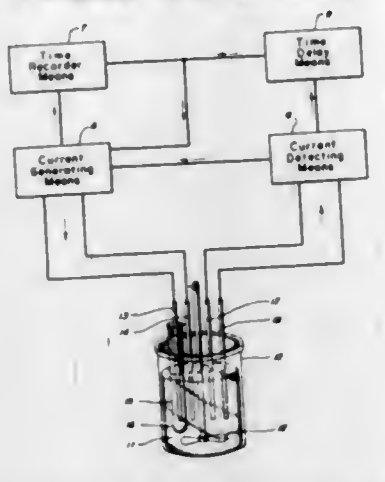
disposing of the particles at the lower end of the reaction zone as they move therefrom.

3,305,467
ELECTROCOATING FEED CONTROL PROCESS AND APPARATUS
Raymond A. Igras, Dearborn Township, Wayne County, and Gordon G. Strosberg, Oak Park, Mich., assignors to The Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 1, 1963, Ser. No. 291,624
8 Claims. (Cl. 204—181)



1. In a method of coating wherein electrically conductive objects separately suspended from a conveyor from which they are electrically insulated are successively passed in line through an aqueous bath having organic film-forming material dispersed therein and a first electrode in contact therewith, each of said objects while passing through said bath serving as a second electrode, and a direct electric current is provided between said first electrode and said second electrode until a substantially water insoluble coating of said material is deposited upon said second electrode, the improvement which comprises causing a first object of said line prior to entering said bath to pass through a resistance measuring zone wherein a difference of electric potential is provided between said first object and the next succeeding object in said line, measuring the resistance to the flow of electrical energy between said first object and said succeeding object while both are in movement through said zone, and utilizing said flow when it exceeds a predetermined value to signal the approach to said bath of electrically connected objects in said line.

3,305,468
AUTOMATIC TITRATION APPARATUS
Le Roy W. Liesch, Chicago, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 12, 1962, Ser. No. 244,048
5 Claims. (Cl. 204—195)



1. In an automatic titration apparatus including a titrating vessel for holding both a titrand and a titration reagent normally unreactive with the titrand and, responsive to passage of electrical energy through said reagent, operable to release a titrant reactable with the titrand;

electrical energy input means disposed in said vessel for transferring electrical energy to the titration reagent;

measuring means for registering a value related to the amount of energy transferred to the reagent and thus related to the amount of titrant released;

electrical energy output means disposed in said vessel;

detecting means coupled to said output means for indicating an energy level of a given value during the titration process and for indicating an energy level of a second value substantially different from said given value resulting from the presence of excess titrant;

switching means coupled to said detecting means and operable responsive to detection of excess titrant to interrupt the transfer of electrical energy to the input means;

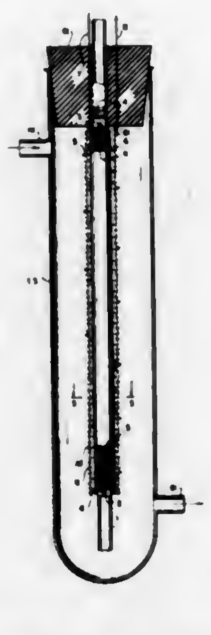
first time delay means coupled to said detecting means so as to provide another indication of the energy level at said output means after the expiration of a predetermined time interval to determine if the excess titrant indication is still present and thereby determine if the true end point of the titration process has been reached;

automatic means for restarting the titration process if the end point is not indicated at the expiration of said predetermined time period and for repeatedly restarting the titration process;

and second time delay means coupled to the first time delay means so as to accumulate heat energy from the first time delay means until a predetermined value is reached and to stop the said first time delay means from providing another indication of the energy level at said output means after the value is reached, and coupled to said automatic means for restarting the titration process so as to stop the said automatic means after the said value is reached.

3,305,469
ELECTROCHEMICAL GAS ANALYZER
Nicholas A. Poulos, Niagara Falls, N.Y., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed Dec. 10, 1958, Ser. No. 779,496
3 Claims. (Cl. 204—195)

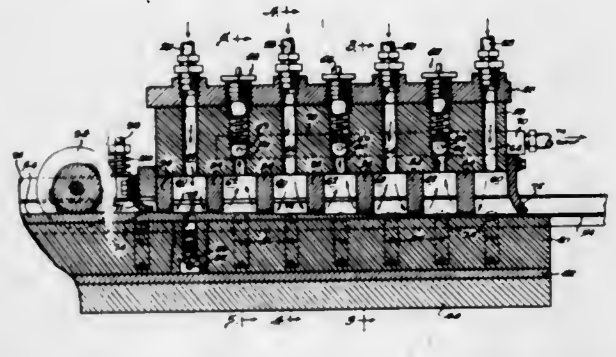
1. A cell suitable for use in detecting and measuring small concentrations of gaseous boranes in air which comprises a silver wire electrode coated with a paste consisting essentially of a silver salt and an electrolyte solution, a non-conducting absorbent material wetted with the electrolyte solution surrounding the coated silver wire electrode, and a platinum wire electrode surrounding the wetted absorbent material, the electrolyte being a homogeneous solution wherein the solvent is a mixture of water, a polyol having 2 to 6 carbon atoms and 2 to 6 hydroxyls, and a glycol ether of the formula



$$RO—(CH_2CH_2O)_n—R'$$

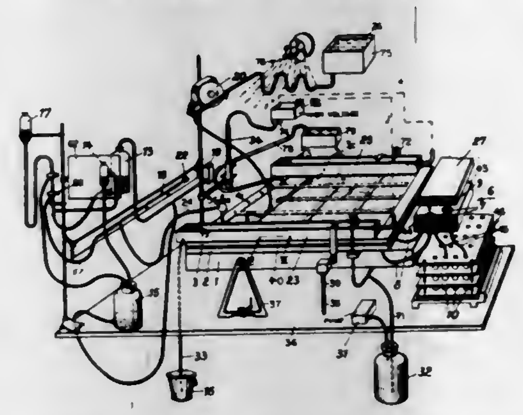
wherein *n* is an integer from 2 to 4, R is an alkyl hydrocarbon radical having 1 to 4 carbon atoms, and R' is selected from the class consisting of hydrogen and an alkyl hydrocarbon radical having 1 to 4 carbon atoms, and wherein the solute is an alkali metal salt.

3,305,470
ELECTROLYTIC SHAPING APPARATUS FOR SEQUENTIALLY REDUCING THE THICKNESS OF AN ELONGATED WORKPIECE
Lynn A. Williams, Winnetka, and Norbert A. Bruns, Palatine, Ill., assignors to Anocut Engineering Company, Chicago, Ill., a corporation of Illinois
Filed Jan. 2, 1963, Ser. No. 249,045
6 Claims. (Cl. 204—211)



1. Apparatus for the electrolytic extrusion of an elongate electrically conductive and electrochemically erodible workpiece, comprising in combination, a series of spaced apart electrodes each having at least one conductive working face, electrically nonconductive guide recess means defining a planar supporting surface for supporting a movable workpiece in closely spaced relationship with all of said electrode working faces to define narrow work gaps therebetween, means for moving the workpiece past each of said electrode working faces in sequence, said working faces defining a plane converging with the plane defined by said guide recess means, means for pumping an electrolyte between each electrode working face and the workpiece, a series of brushes spaced along the path of workpiece movement and adapted to be engaged with the workpiece, means for projecting each brush sequentially into engagement with the workpiece as the latter reaches its position, and a source of low voltage direct current connected to said brushes and said electrodes in a sense to make said electrodes cathodic, whereby each electrode is adapted electrolytically to erode successive portions of the workpiece as the workpiece is moved past said working faces.

3,305,471
APPARATUS FOR SEPARATING MOLECULAR FRACTIONS
Philipp Adolf von Münchhausen and Gert Warnecke, Berlin, Germany, assignors to Karl Marggraf, o.HG., Berlin, Germany, a corporation of Germany
Filed Oct. 24, 1962, Ser. No. 232,709
6 Claims. (Cl. 204—299)

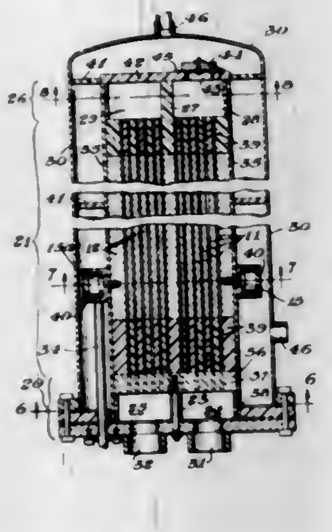


1. An apparatus for the continuous electrophoretic separation of molecular fractions in a buffer solution, comprising a pair of closely adjacent bodies with vertically spaced horizontal guide surfaces forming a separation chamber between them, inlet means at one end of said chamber for admitting the buffer solution thereto, outlet means at the opposite end of said chamber for withdrawing said buffer solution therefrom and establishing a continuous flow of solution from said one end to said opposite end, electrode means at said chamber for creating a unidirectional horizontal electric field transverse to said flow within said chamber, cooling means adjacent said surfaces for maintaining said chamber at a substantially constant operating temperature, said inlet means including a reservoir having level-control means for maintaining therein a substantially constant hydrostatic head of solution in communication with said chamber, said outlet means including receptacle means with an overflow edge at the level of the liquid in said reservoir, and mechanism for periodically reducing the volume of said receptacle means by a predetermined extent, thereby discharging therefrom a measured amount of solution across said overflow edge, said receptacle means comprising a plurality of vessels and conduit means connecting said vessels with said chamber, said vessels being provided with checkvalve means at said conduit means for preventing a return of liquid therefrom to said chamber, said vessels being upwardly open, said mechanism including a set of plungers respectively aligned with said vessels and vertically movable support means for said plungers periodically operable to immerse the latter into said vessels.

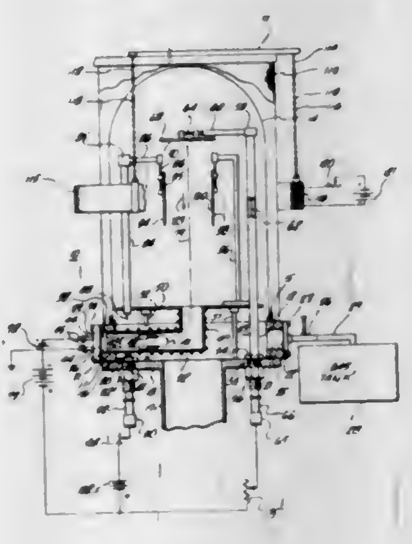
3,305,472
PURIFYING WATER WITH BROMINE
Charles F. Oldershaw, Concord, and Joseph F. Valle-Riestra, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Mar. 13, 1963, Ser. No. 264,831
4 Claims. (Cl. 204—268)

1. An electrolytic cell comprising a pair of electrode banks, each bank containing a plurality of flat parallel elec-

trodes which define parallel slots, said banks being mounted in such a manner that the slots defined by the electrodes in each bank are parallel to the direction of flow of the liquid to be electrolyzed, a substantially rectangular case of insulating material surrounding said electrode banks, divider means defining compartments within said case at each end of said electrode banks whereby said liquid to be electrolyzed is caused to pass the length of said electrode banks twice in one direction and twice in the opposite direction, each pass being made through different slots, a protective shell having a face plate attached thereto and surrounding said case, said face plate defining apertures through which fluid may enter and leave said electrolytic cell, and electrical communication means whereby electrical contact is maintained between said electrode banks and an external direct current source, said electrode banks being electrically connected in series.



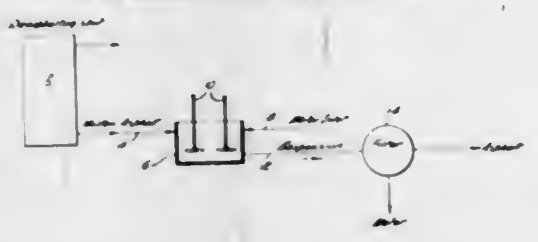
3,305,473
TRIODE SPUTTERING APPARATUS FOR DEPOSITING UNIFORM COATINGS
Roger M. Moseson, Rochester, N.Y., assignor to Consolidated Vacuum Corporation, Rochester, N.Y., a corporation of New York
Filed Aug. 20, 1964, Ser. No. 390,800
5 Claims. (Cl. 204—298)



1. Apparatus for depositing thin films of material on a surface of a substrate by sputtering, comprising:

(a) an enclosure;
(b) means for evacuating said enclosure and providing an ionizable atmosphere therein;
(c) an ion target of said material in said enclosure;
(d) means for mounting said substrate in the enclosure with said surface of the substrate extending substantially parallel to, being spaced from and facing, a surface of the target;
(e) means in said enclosure including an anode and a thermionic cathode for sustaining an electrical discharge between and generally axially parallel to the surface of said target and said substrate, said anode and said cathode being separate and independent from said substrate and said target;
(f) means for applying to said anode a positive electric potential with respect to said cathode for forming a substantially divergent ion plasma of random ionization between said cathode and said anode;
(g) means for applying a negative potential to said target to cause attraction of ions to said target;
(h) means for selectively establishing in said enclosure, at least during the absence of an ion plasma therein, a magnetic field having longitudinal field lines substantially parallel to the parallel surfaces of said substrate and said ion target, said field lines being unidirectional through the space between said substrate and said target for reshaping the divergent ion plasma to a controlled plasma of substantially uniform ionization in the space between the substrate surface and the ion target surface.

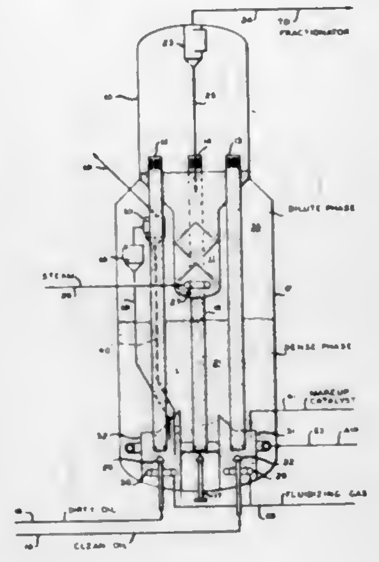
3,305,474
METHOD OF PREPARING FINELY-DIVIDED ASPHALTIC MATERIAL
Edwin C. Knowles, Poughkeepsie, Frederic C. McCoy, Beacon, and Harry V. Rees, Chappaqua, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 26, 1962, Ser. No. 182,385
5 Claims. (Cl. 208—39)



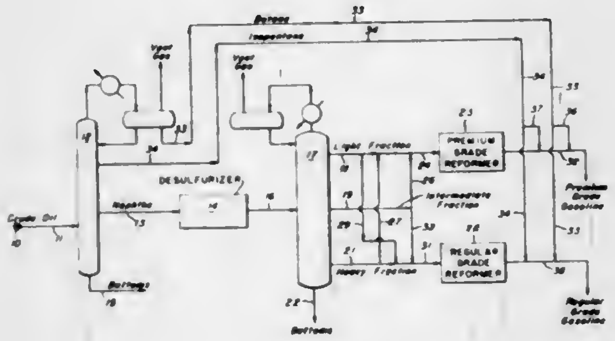
1. A method for preparing an asphaltic powder from asphaltic residuum, said residuum being a solid at room temperature, consisting essentially of heating said asphaltic residuum to a temperature between about 100 and 200° F. above the softening point of said residuum, introducing the resultant molten asphaltic residuum into a pool of an anti-coalescing liquid maintained at a temperature at least 75° F. below that of said softening point while agitating said liquid sufficiently to cause a violent and irregular movement thereof, said anti-coalescing liquid selected from the group consisting of water and 25 to 60 vol. percent aqueous glycol, aqueous glycerol, aqueous alkanol and aqueous alkanone of 1 to 4 carbons, and said anti-coalescing liquid being present in volumetric excess in respect to said residuum, whereby said asphaltic powder separates from the final liquid phase and recovering said powder.

3,305,475
VAPOR-SOLIDS CONTACTING OF DIRTY AND CLEAN MINERAL OILS
Roy M. Waldby, Berkeley Heights, N.J., and John H. Engel, Sweeny, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 16, 1963, Ser. No. 330,924
5 Claims. (Cl. 208—78)

1. The method of catalytically cracking a dirty oil stream and a clean oil stream with catalyst contained in the regeneration zone of a fluidized bed of a solid cracking catalyst wherein said catalyst is entrained by said dirty oil stream from a first well position in said regeneration zone and catalyst is entrained by said clean oil stream from a second well positioned in said regeneration zone which comprises concentrating the catalyst fines of said fluidized bed; passing said fines directly into the first well in said regeneration zone of said fluidized bed at the locus where the dirty oil stream entrains catalyst of said fluidized bed; and entraining with said clean oil stream catalyst from said second well of said fluidized bed depleted of said catalyst fines.

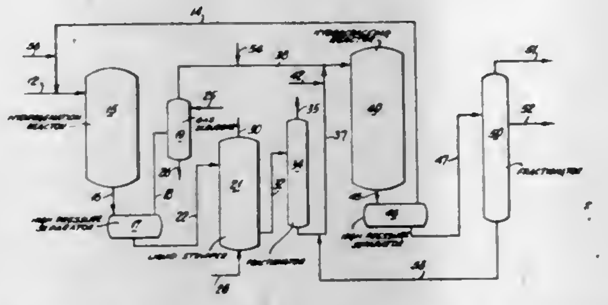


3,305,476
BALANCED-OCTANE GASOLINE MANUFACTURE
Earl D. York and Herbert G. Krane, Gary, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
Filed Dec. 14, 1964, Ser. No. 418,041
6 Claims. (Cl. 208—79)



1. A method of producing from low octane naphtha motor gasoline having balanced octane across the boiling range thereof, which gasoline consists essentially of catalytic reformate and sufficient light hydrocarbons to produce the desired gasoline vapor pressure, which method comprises distilling said naptha to produce a low boiling fraction boiling within the range of about 90–200° F., an intermediate boiling fraction boiling within the range of about 100–300° F., and a high boiling fraction boiling within the range of about 200–400° F., blending selected portions of each of said fractions to produce a reformer charge stream and subjecting said charge stream to catalytic reforming to produce a reformate having balanced octane across the boiling range thereof, and blending said reformate without further treatment thereof, with light hydrocarbons to produce said gasoline.

3,305,477
HYDROCRACKING NITROGEN-CONTAINING FEED IN THE PRESENCE OF HALIDES
Reese A. Peck, Fishkill, Donald A. Messing, Glenham, and Edwin R. Kerr, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed July 17, 1964, Ser. No. 383,315
8 Claims. (Cl. 208—112)

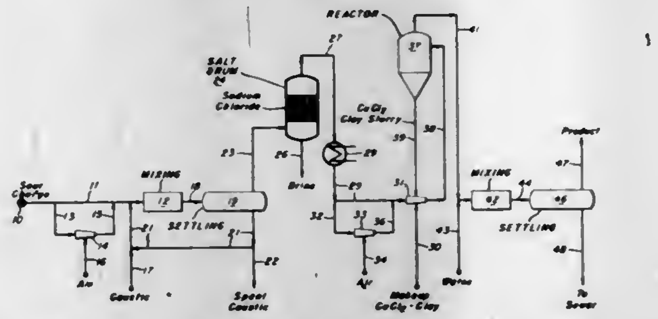


1. A process for the hydrocracking of a hydrocarbon charge stock boiling within the range of about 400–800° F. and containing at least about 3 p.p.m. nitrogen which comprises contacting said charge stock with a catalyst comprising a hydrogenating component selected from the group consisting of oxides and sulfides of nickel and cobalt supported on an acidic cracking base at a temperature between about 450 and 800° F., a pressure between about 500 and 10,000 p.s.i.g. in the presence of between about 1,000 and 20,000 s.c.f. hydrogen per barrel of charge there being added to said charge an organic halide in an amount sufficient to provide at least 10 atoms of halogen per atom of nitrogen in said charge stock.

3,305,478
PROCESS FOR RE-REFINING USED LUBRICATING OILS
James R. Gilson, Midland, and Charles R. Massicotte, Auburn, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Aug. 13, 1964, Ser. No. 389,475
4 Claims. (Cl. 208—180)

1. A process for renovating a used lubricating oil which comprises treating the oil at a temperature within the range from about 50° F. up to 400° F., with diethylenetriamine in an amount from about 0.1 percent up to about 12 percent, based on the weight of the oil, sufficient to flocculate contamination in the used oil and separating the flocculated contamination from the oil.

3,305,479
COPPER CHLORIDE SWEETENING PROCESS
James Francis Grutsch and Edward Arthur McGee, Hammond, and Russell Clayton Mallatt, Crown Point, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
Filed Oct. 16, 1964, Ser. No. 404,395
8 Claims. (Cl. 208—192)



1. The process for liquid phase copper chloride sweetening of hydrocarbon distillate fuel oil stock in which process said distillate is heated, the improvement which comprises dissolving oxygen in said distillate for a time

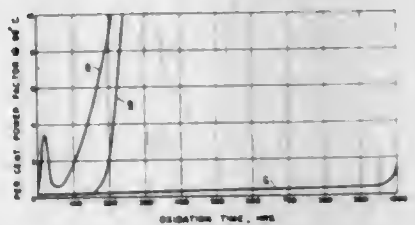
of at least about two hours before said heating and adding additional oxygen for said sweetening, which time is sufficient to impart improved color and color stability to the product of said sweetening.

3,305,480
PREPARATION OF OILS HAVING IMPROVED OXIDATION STABILITY

Ivor W. Mills, Glenolden, and John J. Melchiore, Wallingford, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

Filed Nov. 20, 1964, Ser. No. 412,678

4 Claims. (Cl. 208—273)



1. Method of preparing an oil having improved oxidation stability in the presence of copper which consists of:

(a) treating a petroleum distillate oil boiling above 500° F., having a viscosity in the range of 50–65 SUS at 100° F. and having an aromatic content of at least 10% by weight with a sulfonating agent selected from the group consisting of fuming sulfuric acid and sulfur trioxide in amount to reduce the aromatic content of the oil to less than 5% by weight,

(b) separating sulfonated material from the treated oil,

(c) catalytically dehydrogenating the treated oil to an extent such that the dehydrogenated product boiling above 500° F. has an aromatic content in the range of 15–40% by weight,

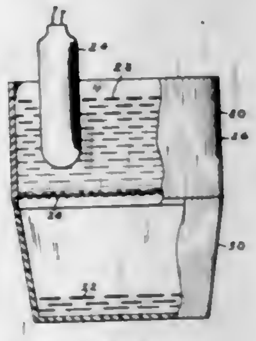
(d) and recovering the dehydrogenated product boiling above 500° F. as said oil having improved oxidation stability.

3,305,481
ULTRASONIC SIEVING

Melvin N. A. Peterson, Del Mar, Calif., assignor to The Regents of the University of California

Filed Dec. 14, 1964, Ser. No. 417,995

1 Claim. (Cl. 210—19)



The step in the method of sieving a suspension of solid particles in a fluid and the prevention of clogging of the sieve by an impervious layer of the solid particles, which consists in subjecting the fluid, while in a container in sieving relationship to another container, directly to ultrasonic vibrations by an ultrasonic probe disposed in the fluid, the said seive being relatively stationary with respect to the said containers.

3,305,482
MONOMOLECULAR LUBRICANT

Don H. Ulman, Minneapolis, Minn., assignor to Honeywell Inc., a corporation of Delaware

No Drawing. Filed Jan. 2, 1964, Ser. No. 335,395

2 Claims. (Cl. 252—11)

1. A process for applying a monomolecular film of a polar lubricant to the surface of a solid comprising the steps of:

mixing from 5 to 95 parts of abrasive particles selected from inorganic compounds which are capable of abrading the surface to be lubricated, from 95 to 5 parts of a polar lubricant selected from the group consisting of organic acids, amines and alcohols, and a sufficient amount of a nonpolar liquid hydrocarbon solvent to form a paste of the abrasive particles and the polar lubricant;

rubbing said paste against the surface of the solid so as to simultaneously clean the surface film contamination from said surface and allow said lubricant to adsorb to said surface; and

scrubbing said surface with a detergent solution so as to remove all of said paste from said surface except for a monomolecular film of lubricant.

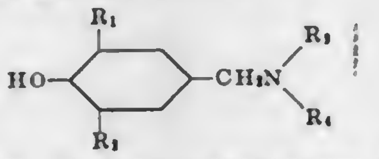
3,305,483
STABILIZED ORGANIC COMPOSITIONS

Thomas H. Coffield, Farmington, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Continuation of application Ser. No. 71,879, Nov. 28, 1960. This application Dec. 3, 1964, Ser. No. 415,785

6 Claims. (Cl. 252—42.4)

1. Organic material normally tending to undergo oxidative deterioration containing a small antioxidant quantity, up to 3 percent, of a 3,5-dialkyl-4-hydroxybenzyl amine having the general formula:



wherein R_1 and R_2 are tertiary butyl groups, R_3 is a lower alkyl group having from 1–6 carbon atoms and R_4 is selected from the group consisting of hydrogen and phenyl.

6. The composition of claim 1 wherein said organic material is a grease which comprises a hydrocarbon oil thickened by means of a soap.

3,305,484
ORGANIC MATERIAL STABILIZED WITH 3,5-DI-TERT-BUTYL-4-HYDROXYBENZOIC ACID

Harold D. Orloff, Oak Park, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed July 11, 1963, Ser. No. 294,260

2 Claims. (Cl. 252—57)

1. Lubricating oil containing an antioxidant quantity of 3,5-di-tert-butyl-4-hydroxybenzoic acid.

3,305,485
METHOD AND DEVICE FOR THE MANUFACTURE OF A BAR BY SEGREGATION FROM A MELT

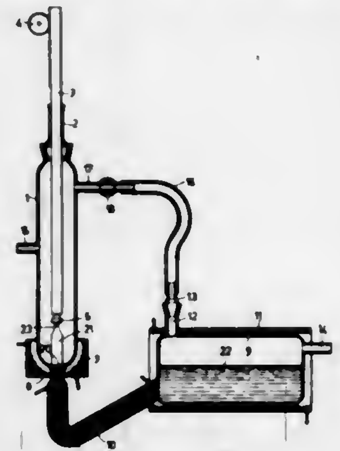
Jürgen Burmeister and Hans Graffenberger, Aachen, Germany, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Apr. 16, 1963, Ser. No. 273,509

Claims priority, application Germany, Apr. 18, 1962, N 21,469

10 Claims. (Cl. 252—62.3)

1. A method of manufacturing by growing a bar of crystalline material having a substantially homogeneous composition over at least a part of its length from an incongruently solidifying melt containing at least two constituents, the total composition of said material substantially differing from that of the melt aside from differences in dopant concentrations, comprising providing a vessel for holding a small quantity of a melt and a separate container for holding a large quantity of a melt and a narrow tube connecting the container and the vessel and allowing melt to flow therethrough, providing in said vessel a melt whose composition differs from the substantially homogeneous composition to be grown, drawing a bar upwards from said vessel melt while heating said vessel melt at a temperature at which the bar composition solidifying is of said substantially homogeneous composition desired, and during the drawing of the bar, supplying additional melt from the container through the narrow tube to the vessel while heating the container melt and the narrow tube melt at a temperature higher than that of the vessel and at which segregation of a solid from the container and narrow tube melts is prevented, the composition of the melt in said container being substantially the same as that of the composition desired.



3,305,486
SEMICONDUCTOR MATERIAL AND METHOD OF MAKING THE SAME

Jerome S. Prener and Jack D. Kingsley, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed Jan. 31, 1964, Ser. No. 341,702

6 Claims. (Cl. 252—62.3)

1. A semiconductor material comprising a single crystal of cadmium fluoride containing yttrium as a conductivity-providing element, said yttrium being present in an amount ranging from a small but finite quantity up to a maximum of approximately 10 mole percent.

3. A method of preparing a crystal of cadmium fluoride impregnated with yttrium and having semiconductive properties comprising: melting and recrystallizing a mixture of cadmium fluoride and yttrium fluoride; providing a quantity of cadmium sufficient to generate a saturated atmosphere of cadmium metal vapor; and heating said crystal and said metal to a temperature approximately in the range of 300° C. to 1000° C. until said crystal is equilibrated with said vapor.

3,305,487
HYDRAULIC FLUIDS

Norman Ernest Frederick Hitchcock, Robert Alan Cameron Ker, and Brian Thomas Scoltock, London, England, assignors to Castrol Limited, London, England, a company of Great Britain

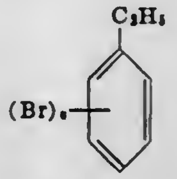
No Drawing. Filed Sept. 3, 1963, Ser. No. 306,284

Claims priority, application Great Britain, Sept. 4, 1962, 33,909/62

6 Claims. (Cl. 252—78)

1. A novel composition of matter suitable for use as an aviation hydraulic fluid consisting essentially of

(a) a liquid mixture of isomeric brominated ethyl benzenes having the general formula:



where z is from 2 to 3,

(b) a mineral oil having a flash point of at least 200° F. and a pour point of less than —75° F., and

(c) from 2% to 20% by weight of a polymeric thickening agent selected from the group consisting of polyisobutylenes having average molecular weights of from 1000 to 3000, and alkyl polymethacrylates having average molecular weights of from 2000 to 20,000; and from 4 to 10 carbon atoms in each alkyl group such that the composition has a viscosity of at least 6 cs. at 130° F. and not more than 600 cs. at —40° F., wherein the composition contains the ingredient (a) in an amount to provide from 30 to 45% by weight of bromine.

3,305,488
DETERGENT COMPOSITIONS

Lloyd I. Osipow, New York, N.Y., Frederick J. Brashear, Santa Ana, Calif., and William Rosenblatt, Spring Valley, N.Y.; said Osipow and said Rosenblatt assignors to State of Nebraska as represented by the Secretary of Agriculture and Inspection, Lincoln, Nebr.

No Drawing. Filed Mar. 19, 1965, Ser. No. 442,573

10 Claims. (Cl. 252—117)

1. A detergent composition consisting essentially of, as percent by weight,

(a) 4 to 50 percent of organic detergents,

(b) 0 to 96 percent of additives selected from the group consisting of inorganic alkaline detergent builders, carboxymethyl cellulose and its water-soluble salts; and

(c) 0 to 96 percent of water

wherein said organic detergents consist of from 25% to 75% of a 10-hydroxy-stearate soap, the cation of said soap being selected from the group consisting of sodium, potassium, ammonium, morpholine, monoethanolamine, monopropanolamine, diethanolamine, dipropanolamine, triethanolamine and tripropanolamine; and the remainder of said organic detergents being selected from the group consisting of anionic organic non-soap detergents and non-ionic organic non-soap detergents.

3,305,489
RADIOACTIVE SILVER THIOPHOSPHATE TRACERS FOR OIL CARRYING PIPE LINES

Bernard A. Fries, Orinda, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Apr. 1, 1964, Ser. No. 356,631

4 Claims. (Cl. 252—301.1)

1. A radioactive tracer consisting essentially of a stable oil soluble Ag^{110m} thiophosphate.

3,305,490
FLUORESCENT PHOSPHATE GLASS

Mary V. Hoffman, South Euclid, Ohio, assignor to General Electric Company, a corporation of New York

No Drawing. Filed Sept. 12, 1963, Ser. No. 308,351

3 Claims. (Cl. 252—301.6)

1. A fluorescent glass having a composition consisting essentially of a material of the class consisting of MgO

and ZnO and mixtures thereof in an amount of about 45 to 55 mol percent, about 2 to 10 mol percent BaO, about 38 to 50 mol percent P_2O_5, about 0.1% chlorine by weight of the composition, and about 0.5 to 5 mol percent stannous tin activator.

3,305,491
ANTI-CAKING AGENT

Felix Oster, Neuilly-sur-Seine, France, assignor to Societe de Produits Chimiques d'Auby, Neuilly-sur-Seine, France, a corporation of France

No Drawing. Filed May 23, 1963, Ser. No. 282,565
6 Claims. (Cl. 252—384)

1. A catio-anio surface active composition for addition to salts to prevent caking of said salts, said composition being constituted by an amino component comprising a fatty amine salt of fatty acid, and another component comprising at least one free fatty acid which is in addition to the fatty acid employed in forming said amino component, said composition being a mixture of the formula:

$$R_nCOOH,R_pNH_2+xR_nCOOH$$

wherein x is a positive number and R_n and R_p are hydrocarbon radicals having from 8 to 22 carbon atoms.

3,305,492
ETHYLENE OXIDATION CATALYST COMPOSITION COMPRISING SILVER ON ALPHA-ALUMINA

Jameil Ameen, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Original application Aug. 4, 1960, Ser. No. 46,619, now Patent No. 3,172,893, dated Mar. 9, 1965. Divided and this application June 12, 1964, Ser. No. 374,658
4 Claims. (Cl. 252—463)

1. A catalyst adapted for catalytically oxidizing ethylene to ethylene oxide consisting essentially of activated elemental silver on a support of a plurality of bonded relatively uniform alpha alumina particles, said particles having diameters of about 400 to 600 microns, said support having pore diameters within the range of from 80 to 200 microns and a porosity of from about 40 to 50 percent, said catalyst having a silver content of from about 12 to 17 weight percent.

3. A process for preparing a silver catalyst of high selectivity and productivity for the oxidation of ethylene to ethylene oxide which comprises bonding a plurality of alpha alumina particles having diameters within the range of about 400–600 microns to form pellets having pore diameters of 80–200 microns and porosities of 40–50%, impregnating said pellets with a silver oxide slurry, drying the impregnated pellets, and activating the impregnated pellets by heating at a temperature of about 300–400° C.

3,305,493
CONDENSATION PRODUCTS AND METHODS OF MAKING THEM

William D. Emmons, Huntingdon Valley, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Dec. 20, 1961, Ser. No. 160,901
8 Claims. (Cl. 260—2)

1. A method for producing a solid, water-soluble, thermosetting resin-forming product which comprises reacting by mixing at a temperature from room temperature to about 75° C., (1) epichlorohydrin and (2) an aqueous solution of a solid, water-soluble linear polyamine-polyamide condensation product, having an average molecular weight of about 300 to 1,000, of methyl acrylate and a polyethylenepolyamine in a 1:1 mol ratio, the proportion of epichlorohydrin being from at least 0.2 mol up to about one mol of epichlorohydrin for each mol of the original polyamine used, the reaction being continued until the reaction product has a viscosity of about 3 to about 45 poises at 25% solids in water and at 25° C.

3,305,494
OXAZOLIDONYL SULFONES AND METHOD OF MAKING SAME

Charles H. Schramm, Easton, Pa., and Edward J. Friihauf, Mentor, Ohio, assignors to J. T. Baker Chemical Company, Phillipsburg, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 12, 1963, Ser. No. 272,520
12 Claims. (Cl. 260—2)

1. A process for producing (2-oxazolidon-3-yl)sulfone which comprises reacting sulfuryldiisocyanate with an epoxide compound, said epoxide characterized by having an oxygen atom attached to two adjacent carbon atoms.

3,305,495
PROCESS FOR THE CONTINUOUS RE-USE OF POLYETHYLENE TEREPHTHALATE WASTE

Hans-Otto Vom Orde, Bobingen, near Augsburg, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

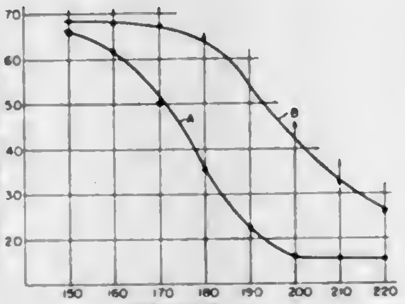
No Drawing. Filed Sept. 20, 1963, Ser. No. 310,471
Claims priority, application Germany, Sept. 27, 1962, F 37,896
4 Claims. (Cl. 260—2.3)

1. A process for the production of high molecular weight polyethylene terephthalate utilizing waste polyethylene terephthalate which comprises (a) forming a melt of a low molecular weight polyethylene terephthalate precondensate and high molecular weight polyethylene terephthalate waste, said mixture having a viscosity number of greater than 0.03, said waste having a viscosity number between 0.08 and 0.088 and said precondensate having a viscosity number between 0.01 and 0.012 and (b) polycondensing said mixture at a temperature between 305 and 315° C. by falling-film evaporation in a first zone at a pressure of from 25 to 18 mm. mercury and thereafter in a second zone at a pressure less than 0.5 mm. mercury.

3,305,496
ACTIVATED AZODICARBONAMIDE

Charles P. Riley, Jr., Lowell, Henry R. Lasman, Wilmington, and Richard Strauss, Watertown, Mass., assignors, by mesne assignments, to National Polychemicals, Inc.

Filed Feb. 11, 1963, Ser. No. 257,567
11 Claims. (Cl. 260—2.5)



1. An activated azodicarbonamide composition characterized by a decomposition temperature of about 160° C. or less, which composition comprises: finely divided azodicarbonamide having an average particle size range of from about 0.1 to 5.0 microns; a heavy metal compound selected from the group consisting of zinc, cadmium, lead, barium, tin and combinations thereof; and an alkali metal compound, the ratio of heavy metal to alkali metal ranging from about 5:1 to 1:5.

3,305,497
CELLULAR POLYURETHANES PRODUCED USING A MIXTURE OF (A) CHLOROFORM AND (B) A FLUORINE SUBSTITUTED ALKANE AS THE BLOWING AGENT

John P. Stallings and Donald H. Wagner, Mentor, Ohio, assignors to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed Apr. 10, 1963, Ser. No. 271,886
11 Claims. (Cl. 260—2.5)

1. The method of making a polyurethane foam which comprises reacting a polyether polyol with an organic polyisocyanate in the presence of from about 5 to 20 percent by weight, based on the total weight of said polyurethane foaming material, of a fluid composition comprising about 20 to 70 molar percent of chloroform and about 80 to 30 molar percent of a halogen-substituted lower molecular weight alkane, wherein the alkane contains 1 to 8 carbon atoms and at least one substituted fluorine atom, based on the weight of said fluid composition, and at a temperature sufficient to effect reduction of solubility of said fluid composition in said polyurethane foaming material and to form a polyurethane product.

3,305,498
PROCESS FOR MAKING PARTICLE-POLYMER COMPOSITIONS

Daniel F. Herman, Princeton, Albert L. Resnick, Metuchen, and Dominic Simone, New Brunswick, N.J., assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

Filed Feb. 18, 1963, Ser. No. 259,449
9 Claims. (Cl. 260—8)

1. A process for the polymerization of vinyl monomer on a discrete substrate in the form of particles, fibers or filaments comprising:

(a) steeping said substrate in liquid vinyl monomer for at least 15 minutes; said substrate absorbing said monomer,
(b) dispersing said substrate in an aqueous medium,
(c) forming and maintaining under controlled agitation a free-flowing slurry of said dispersed substate,
(d) maintaining vinyl monomer polymerization catalyst in said slurry,
(e) polymerizing said monomer at temperatures below the softening temperature of the polymerized monomer; thereby forming vinyl polymer on each individual particle, fiber or filament of said substrate,
(f) said substrate being selected from the class consisting of cellulose, wool, silica, asbestos, titanium dioxide, calcium carbonate and barium sulfate.
(g) said vinyl monomer being selected from the class consisting of methacrylic acid esters of straight chain and branched aliphatic alcohols and cycloaliphatic alcohols containing from 1 to 12 carbon atoms, vinyl esters of aliphatic acids containing from 2 to 4 carbon atoms, styrene, ring-substituted styrene containing a methyl or chlorine substituent on said ring, vinyl halides and acrylonitrile,
(h) said catalyst being soluble in at least one of said monomer said said medium and being selected from the class consisting of free radical catalysts and biscyclopentadienyl titanium dichloide, and
(i) said medium being a non-solvent for said polymer and being selected from the class consisting of water and aqueous solutions.

3,305,499
ARTICLE OF PRESSED WOOD AND PROCESS FOR MAKING SAME

Rowland S. Bevans, Morristown, N.J., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 4, 1965, Ser. No. 461,523
14 Claims. (Cl. 260—17.3)

14. An article of pressed wood produced by a process which comprises the following steps: treating ligno-cellulosic particles with a resin, soaking the resin-treated ligno-cellulosic particles in liquid ammonia until said particles are substantially completely impregnated with the liquid ammonia, separating the resin-treated, impregnated particles from the liquid ammonia, and then molding the resin-treated, impregnated particles into a desired form at a pressure up to about 300 to 500 lbs./sq. in. and a temperature from about 100 to 200°, C.

3,305,500
COATING COMPOSITIONS COMPRISING BUTADIENE-1,3 COPOLYMER, STARCH AND MINERAL PIGMENT

John Michael Downer, Harpenden, David Brian Wootton, Wheathampstead, and Donald Graham Hobbs, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed July 5, 1963, Ser. No. 293,195
Claims priority, application Great Britain, July 12, 1962, 26,880/62
9 Claims. (Cl. 260—17.4)

1. A paper coating composition which comprises an intimate mixture of mineral pigment, starch and a copolymer of from 30 to 55% by weight of butadiene-1,3, from 0.1% to 13% of at least one ethylenically unsaturated carboxylic acid, and at least half of the remainder being selected from the group consisting of styrene, methylmethacrylate and mixtures thereof, any other constituent of the copolymer being derived from another monoethylenically unsaturated compound, said copolymer being in the form of an aqueous dispersion, there being in the composition from 8 to 50 parts by weight of starch and butadiene-1,3 copolymer together per 100 parts by weight of pigment and from 0.5 to 2 parts by weight of butadiene-1,3 copolymer to each one part by weight of starch.

9. Paper coated with a composition according to claim 1.

3,305,501
WATER SOLUBILIZED EPOXY RESIN ESTERS OF FUMARIC- OR ITACONIC-FATTY ACID ADDUCTS

Joseph M. Spalding, Louisville, Ky., assignor, by mesne assignments, to Celanese Coatings Company, Inc., a corporation of Delaware

No Drawing. Filed Sept. 21, 1962, Ser. No. 225,369
6 Claims. (Cl. 260—18)

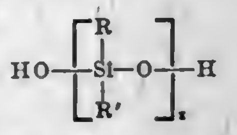
1. A process for the preparation of water soluble epoxy esters which comprises

(I) at a temperature above 390° F. heating and condensing
  (A) an unsaturated fatty acid having 10 to 24 carbon atoms in its hydrocarbon chain with
  (B) 5 to 25 percent by weight based on the unsaturated fatty acid of fumaric acid to form a condensate-fatty acid mixture having an acid value in the range of 165 to 305
(II) subsequently at a temperature below 390° F. which suppresses carboxy-hydroxy reactions, reacting the condensate-fatty acid mixture with sufficient glycidyl polyether of a dihydric phenol or aliphatic polyol, having an epoxide equivalent below 1000, to reduce the acid value to one-half to one-third of its initial value, forming an epoxy ester composition, the acid value indicating the presence of carboxy groups in the composition

(III) and then reacting the epoxy ester composition with sufficient amino compound selected from the group consisting of ammonia and water soluble amines to form a water soluble amine salt of the epoxy ester composition.

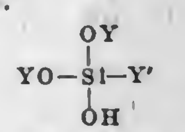
3,305,502
PROCESS FOR CURING DIORGANO POLYSILOXANES AT ROOM TEMPERATURE
Warren R. Lampe, Colonie, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 16, 1963, Ser. No. 330,652
3 Claims. (Cl. 260—18)

2. The process for curing a room temperature vulcanizing organopolysiloxane composition comprising, by weight, 100 parts of a linear fluid diorganopolysiloxane having the formula:



$$HO-\left[\begin{matrix} R \\ | \\ Si-O \\ | \\ R' \end{matrix}\right]_x-H$$

where R and R′ are members selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals, and cyanoalkyl radicals, and x has a value of at least about 5, from 0.1 to 10 parts of an alkyl silicate selected from the class consisting of (a) monomeric organosilicates corresponding to the general formula:



$$\begin{matrix} & OY & \\ & | & \\ YO- & Si & -Y' \\ & | & \\ & OH & \end{matrix}$$

where Y is a member selected from the class consisting of alkyl groups and halogen-substituted alkyl groups and Y′ is a member selected from the class consisting of alkyl groups, aryl groups, aralkyl groups, alkoxy groups, aryloxy groups and halogenated derivatives of the aforesaid alkyl, aryl, aralkyl, alkoxy and aryloxy groups and (b) liquid partial hydrolysis products of the aforementioned monomeric organo silicates and from 10 to 300 parts of a filler, which process comprises adding to the aforementioned room temperature vulcanized silicone rubber composition a catalyst composition comprising ingredients in the weight ratio of 100 parts of a metallic salt of an organic carboxylic acid in which the metallic ion is selected from the class consisting of lead, tin, zirconium, antimony, iron, cadmium, barium, calcium, titanium, bismuth, and manganese, and in which the anion of said metallic salt is derived from a member selected from the class consisting of aliphatic monocarboxylic acids, benzoic acid, and naphthanoic acid, from 1.0 to 5,000 parts water and from 100 to 1,000 parts of a mutual solvent for said metallic salt and water, the components of said catalyst composition being present in an amount to provide from 0.01 to 5.0 percent by weight, based on the weight of said linear fluid diorganopolysiloxane, of the metallic ion present in said metallic salt and from 0.01 to 0.5 percent by weight, based on the weight of said linear fluid diorganopolysiloxane, of water.

3. The process of claim **2** in which the metallic salt of an organic carboxylic acid is dibutyl tin dilaurate.

3,305,503
WAX EXTENDED URETHANE POLYMERS
Donald H. Russell, Pennsauken, N.J., assignor to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed Nov. 4, 1964, Ser. No. 408,759
7 Claims. (Cl. 260—28.5)

1. An extended rubbery urethane polymer composition consisting essentially of a cured urethane polymer and an extender wherein said extender is present in amounts ranging from 20 to 60 percent by weight in the total composition and is a mixture of petroleum wax and an ethylene-vinyl acetate copolymer having a molecular weight of at least 25,000 and a polymerized vinyl acetate content ranging from 5 to 40 weight percent, and wherein the weight ratio of said wax to said co-polymer ranges from 0.25:1 to 4:1.

3,305,504
COATING COMPOSITIONS CONTAINING ORGANOSILICON COPOLYMERS
Dexter P. Huntington, Tonawanda, N.Y., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Jan. 12, 1965, Ser. No. 425,053
31 Claims. (Cl. 260—29.2)

1. A coating composition comprising (1) from 1 to 50 parts by weight of a polymeric coating-forming organic compound (2) from 0.001 to 30 parts by weight of a block copolymer composed of (a) at least one siloxane block containing at least two siloxane units represented by the formula:

$$R_bSiO_{4-b/2}$$

wherein R contains from one to about twenty-two carbon atoms inclusive and is selected from the class consisting of monovalent hydrocarbon groups and divalent hydrocarbon groups and b has a value from 1 to 3 inclusive, said siloxane block containing at least one of said siloxane units wherein at least one R group is a divalent hydrocarbon group, and (b) at least one oxyalkylene block containing at least two oxyalkylene groups represented by the formula —R′O—, wherein R′ is an alkylene group containing from two to about ten carbon atoms inclusive, said siloxane and oxyalkylene blocks being interconnected by said divalent hydrocarbon group, and (3) from 20 to 98.999 parts by weight of a liquid diluent selected from the group consisting of water and liquid organic diluents, said parts by weight being based on 100 parts by weight of the composition, said copolymer containing from 5 to 95 parts by weight of siloxane blocks per 100 parts per weight of the copolymer and from 5 to 95 parts by weight of the oxyalkylene blocks per 100 parts by weight of the copolymer.

3,305,505
LATEX COATING COMPOSITION
Walter S. Ropp, Hockessin, Del., assignor to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed Apr. 14, 1961, Ser. No. 102,931
13 Claims. (Cl. 260—29.6)

1. A latex coating composition consisting essentially of finely divided hard particles of a copolymer of at least two ethylenically unsaturated monomers selected from the group consisting of acrylonitrile, acrylic acid, the esters of acrylic, fumaric and methacrylic acids with alcohols containing not more than 18 carbon atoms, styrene, alpha-methyl styrene, vinyl halides, vinyl ethers, and vinylidine halides, dispersed in an aqueous solution of the salt of the interpolymer resulting from the polymerization of maleic anhydride with the monomeric components of the copolymer, said salt being selected from the group consisting of amine salts and ammonia salts and said copolymer and interpolymer being present in a ratio of copolymer to interpolymer of from about 1 to about 10.

3,305,506
TERRAZZO COMPOSITION AND METHOD
John A. Murray, Norristown, Pa., assignor to U.S. Terrazzo Panels, Inc., Norristown, Pa., a corporation of Pennsylvania
No Drawing. Filed June 23, 1964, Ser. No. 377,381
3 Claims. (Cl. 260—29.6)

1. A terrazzo composition in the form of a thin tile consisting essentially by weight of

(a) about 40% to about 50% sand,
(b) about 20% to about 25% marble chips,
(c) about 20% to about 25% cement,
(d) about 1% to about 2% of an internally plasticized copolymer of vinyl acetate with dibutyl maleate in emulsion form using polyvinyl alcohol as the protective colloid, and having a viscosity of about 1000–1400 cps. Brookfield, and
(e) about 8% to about 12% water.

3,305,507
WATERPROOFING C_{16-34} ALPHA-OLEFIN POLYMER COMPOSITION
Roy A. White, Somers, and Rudolph D. Deanin, West Hartford, Conn., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Mar. 28, 1963, Ser. No. 268,570
14 Claims. (Cl. 260—29.6)

1. A waterproofing composition for fibrous materials consisting essentially of (1) a polymer of an alpha olefinic hydrocarbon having a molecular weight of at least about 1000 and having in the monomer molecule from about 16 to about 34 carbon atoms; (2) an inert organic diluent having a boiling point of from about 20° C. up to about 300° C. and a melting point of below about 20° C.; and (3) an organic peroxide catalyst, characterized by being substantially inert at room temperature, said catalyst being present in an amount ranging from about 0.001 to about 10.0 weight percent based on a total weight of the ingredients; said polymer being dissolved in said diluent in an amount ranging from about 0.1 to about 50 weight percent based on the diluent.

3,305,508
EMULSIFICATION IN PRESENCE OF AN ALIPHATIC OXYGEN COMPOUND
Gerardus E. La Heij and Jacques A. Waterman, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 13, 1963, Ser. No. 330,266
Claims priority, application Netherlands, Feb. 5, 1963, 288,572
6 Claims. (Cl. 260—29.7)

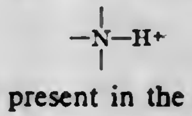
1. In the process for preparing a latex of a polymer of the group consisting of polymers of polymerizable vinylidene compounds wherein one volume of a solution of said polymer in a water-immiscible solvent having 4–10 carbon atoms per molecule, is emulsified with 0.5–5 volumes of an aqueous phase comprising water and an emulsifying agent, by intense agitation whereby colloidal particles of the polymer solution suspended in the aqueous phase are formed, removing the hydrocarbon solvent by vaporization and recovering a latex therefrom, the improvement comprising adding to the mixture of polymer solution and aqueous phase prior to hydrocarbon vaporization 0.5–30% volume based on the aqueous phase of an aliphatic oxygen compound having 4–10 carbon atoms per molecule and having a solubility in water of less than 20 grams per 100 cc. water at 30° C. of the group consisting of alcohols and ketones.

3,305,509
ROOFING COMPOSITION OF RUBBER LATEX AND GLASS FIBER
Raymond R. Waterman, Monroe, and Donald C. Morris, Norwalk, Conn., assignors to Harry H. Miller, Redding Ridge, Conn.
No Drawing. Filed Dec. 6, 1962, Ser. No. 242,627
4 Claims. (Cl. 260—29.7)

1. A roofing composition suitable for one coat application comprising rubber latex, having glass fiber dispersed therein.

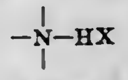
3,305,510
PRESSURE-SPRAYABLE WATER-SOLUBLE ALKYL ACRYLATE POLYMERS
Robert J. Gander, Whitehouse, N.J., assignor to Johnson and Johnson, a corporation of New Jersey
No Drawing. Filed Apr. 9, 1964, Ser. No. 358,641
19 Claims. (Cl. 260—33.2)

1. In a pressurized system for spray application a solution of a film-forming polymer in propellent the solvent for said polymer in said system consisting essentially of a propellent used in said system the propellent of said system including at least one propellent solvent of the group consisting of trichlorofluoromethane, difluorochloromethane, vinyl chloride and dimethyl ether, said film-forming polymer being a polymer of an alkyl acrylate and dimethylaminoethyl methacrylate said alkyl acrylate having an alkyl group of at least four carbons and being present in said polymer in an amount of at least 50 percent by weight, said polymer in the free base polymer form having an intrinsic viscosity of not over 1.6 and present in said solution in a concentration of not over 6.0 percent by weight, said polymer containing about 0.5 to 1.1 percent by weight of the radical



$$-\overset{|}{\underset{|}{N}}-H^+$$

where the radical is present in the salt form

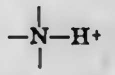


$$-\overset{|}{\underset{|}{N}}-HX$$

X being an acid anion of the group consisting of methanesulfonate and 3-pyridinesulfonate.

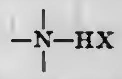
3,305,511
PRESSURE-SPRAYABLE WATER-SOLUBLE ALKYL ACRYLATE POLYMER SOLUTIONS
Robert J. Gander, Whitehouse, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
No Drawing. Filed Apr. 9, 1964, Ser. No. 358,642
19 Claims. (Cl. 260—33.2)

1. In a pressurized system for spray application a solution of a film-forming polymer in propellent the solvent for said polymer in said system consisting essentially of propellent used in said system the propellent of said system including at least one propellent solvent of the group consisting of trichlorofluoromethane, difluorochloromethane, vinyl chloride and dimethyl ether, said film-forming polymer being a polymer of an alkyl acrylate and dimethylaminoethyl methacrylate said alkyl acrylate having an alkyl group of at least four carbons and being present in said polymer in an amount of at least 50 percent by weight, said polymer in the free base polymer form having an intrinsic viscosity of not over 1.6 and present in said solution in a concentration of not over 6.0 percent by weight, said polymer containing about 1.0 to 1.8 percent by weight of the radical



$$-\overset{|}{\underset{|}{N}}-H^+$$

where the radical is present in the salt form

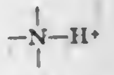


$$-\overset{|}{\underset{|}{N}}-HX$$

X being an acid anion of the group consisting of chloride, bromide and nitrate.

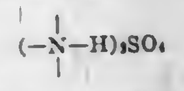
3,305,512
PRESSURE-SPRAYABLE WATER-SOLUBLE ALKYL ACRYLATE POLYMER SOLUTIONS
Robert J. Gander, Whitehouse, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
No Drawing. Filed Apr. 9, 1964, Ser. No. 358,643
9 Claims. (Cl. 260—33.2)

1. In a pressurized system for spray application a solution of a film-forming polymer in propellent the solvent for said polymer in said system consisting essentially of a propellent used in said system the propellent of said system including at least one propellent solvent of the group consisting of trichlorofluoromethane, difluorochloromethane, vinyl chloride and dimethyl ether, said film-forming polymer being a polymer of an alkyl acrylate and dimethylaminoethyl methacrylate said alkyl acrylate having an alkyl group of at least four carbons and being present in said polymer in an amount of at least 50 percent by weight, said polymer in the free base polymer form having an intrinsic viscosity of not over 1.6 and present in said solution in a concentration of not over 6.0 percent by weight, said polymer containing about 1.0 to 2.0 percent by weight of the radical



$$-\overset{|}{\underset{|}{N}}-H^{+}$$

where the radical is present in the salt form



$$(-\overset{|}{\underset{|}{N}}-H)_2SO_4$$

3,305,513
PRESSURE-SPRAYABLE WATER-SOLUBLE ALKYL METHACRYLATE POLYMER SOLUTIONS

Robert J. Gander, Whitehouse, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
No Drawing. Filed Apr. 9, 1964, Ser. No. 358,648
7 Claims. (Cl. 260—33.2)

1. In a pressurized system for spray application a solution of a film-forming polymer in propellent the solvent for said polymer in said system consisting essentially of a propellent used in said system the propellent of said system including at least one propellent solvent of the group consisting of trichlorofluoromethane, difluorochloromethane, vinyl chloride and dimethyl ether, said film-forming polymer being an amine hydrochloride salt of a terpolymer of n-butyl methacrylate, lauryl methacrylate and at least one amine-containing monomer of the group consisting of dimethylaminoethyl methacrylate and tert.-butylaminoethyl methacrylate, the amine-containing monomer portion of said terpolymer consisting of about 25% by weight of the same and the n-butyl methacrylate and lauryl methacrylate portions being present in amounts of 1 part by weight n-butyl methacrylate for each 1 to 3 parts by weight of said lauryl methacrylate, said terpolymer in the free base polymer form having an intrinsic viscosity of not over 1.6 and present in said solution in a concentration of not over 6.0 percent by weight.

3,305,514
VINYL HALIDE RESIN, EPOXY OR ALKYD RESIN, MONOALKENYL AND POLYALKENYL MONOMER REINFORCED THERMOPLASTIC COMPOSITION

Arthur J. Tiffan, Northfield, and Raymond S. Shank, Bedford, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed Feb. 6, 1964, Ser. No. 343,146
16 Claims. (Cl. 260—32.6)

1. The composition comprising a major portion of an intimate, cohesive mixture of components

(A) a thermoplastic vinyl halide resin
(B) a thermosetting synthetic polymer selected from the group consisting of epoxy resins and alkyd resins
(C) a polymerizable polyalkenyl monomer
(D) an N-alkyl amide of acrylamide wherein the alkyl group contains from 4 to 18 carbon atoms and
(E) randomly dispersed reinforcing fibers

wherein there is present from about 7 to 70 parts by weight of component (A) and from about 93 to 30 parts by weight of components (B), (C) and (D) per 100 parts of the sum of $(A)+(B)+(C)+(D)$, from 30 to 70 parts by weight of component (B), from 0 to 40 parts by weight of component (C) and from 10 to 70 parts by weight of component (D) per 100 parts by weight of $(B)+(C)+(D)$, and from 0 to 50 parts by weight of component (E) per 100 parts by weight of components $(A)+(B)+(C)+(D)+(E)$.

3,305,515
SOLVENT FOR POLYBUTADIENE RUBBER

Arthur M. Thomas, Jr., Rahway, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed May 6, 1964, Ser. No. 365,499
5 Claims. (Cl. 260—33.6)

4. A composition of matter consisting essentially of a mixture of a first component chosen from the group consisting of 35 to 40% of 2-methylpentane and 25 to 30 wt. percent of 2,2-dimethylbutane and mixtures thereof and enough of a second component to make 100 wt. percent chosen from the group consisting of n-hexane; 3-methylpentane; 2,3-dimethylpentane and mixtures thereof.

5. A composition of matter consisting essentially of a stereo-polybutadiene rubber having cis-1,4 content of 20 to 99 wt. percent and dissolved in the mixture of claim **4**.

3,305,516
SYNTHETIC RUBBER COMPOSITIONS AND PNEUMATIC TIRE TREADS PREPARED THEREFROM

Owen E. Smith, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed Oct. 15, 1965, Ser. No. 496,672
5 Claims. (Cl. 260—33.6)

1. A rubbery composition having the following proportions:

A. From 10 to 30 parts by weight of a rubbery copolymer of butadine-1,3 and acrylonitrile;
B. From 20 to 50 parts by weight of a rubbery copolymer of butadiene-1,3 and styrene extended with petroleum based rubber processing oil, calculated excluding said oil;
C. From 20 to 60 parts by weight of a rubbery polymer of cis-1,4 polybutadiene;

wherein A+B+C shall equal 100 parts by weight of rubber hydrocarbon.

3,305,517
CROSSLINKED POLYOLEFINS AND PROCESS THEREFOR

Clifton L. Kehr, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
Filed Jan. 18, 1962, Ser. No. 168,025
8 Claims. (Cl. 260—41)

1. The process of crosslinking polyethylene which has been oxidized by heating at about 120—130° C. in air which comprises mixing together 100 parts by weight of said oxidized polyethylene and 0.1 to 20 parts by weight of an ester of quinone dioxime as the sole essential crosslinking agent and thereafter heating the resulting mixture at a temperature of at least 150° C.

3,305,518
PLASTER COMPOSITION CONTAINING POLYVINYL ACETATE

Edwin J. Jakacki, Des Plaines, and Archie L. Hampton, Mount Prospect, Ill., assignors to United States Gypsum Company, a corporation of Illinois
No Drawing. Filed July 9, 1963, Ser. No. 293,827
6 Claims. (Cl. 260—41)

1. Gypsum plaster comprising about 700 to 950 parts by weight of calcium sulfate hemihydrate, about 2 to 50

parts by weight of powdered water-dispersible polyvinyl acetate, and about 50 to 300 parts by weight of finely divided dead burned calcium sulfate having a Blaine surface area value of at least about 10,000 square centimeters per gram.

3,305,519
FRICTION ELEMENTS AND METHODS OF MAKING THE SAME

Sumner B. Twiss and Edward J. Sydor, Grosse Ile, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
No Drawing. Filed Nov. 6, 1961, Ser. No. 150,181
1 Claim. (Cl. 260—41.5)

A method of making friction elements having good friction stability and fade resistance comprising forming a substantially homogeneous wet plastic mixture comprising friction particles predominantly of inorganic fibrous material, in amount between about 78 to 89% by weight of the dry ingredients of the composition, the remainder comprising binder material consisting essentially of uncured synthetic butadiene-styrene copolymer, said mixture being substantially free of peroxide, sulfur and sulfur-donor compounds having a curative effect on said mixture, forming elements of predetermined shape from said mixture, and oxidizing curing the elements with heated air at a temperature above about 290° F. to render said copolymer substantially insoluble and infusible.

3,305,520
POLYCARBONATES STABILIZED BY PHOSPHITES

Gerhard Fritz and Ludwig Bottenbruch, Krefeld-Bockum, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Continuation of application Ser. No. 37,867, June 22, 1960. This application Apr. 6, 1965, Ser. No. 446,089
11 Claims. (Cl. 260—45.7)

1. A polycarbonate plastic derived from a diphenol and stabilized against discoloration by a member selected from the group consisting of a trialkyl phosphite, a triaryl phosphite and a mixed tri(alkyl-aryl) phosphite.

3,305,521
ORGANO - OXYTHIOCARBONYL AROMATIC DISULFIDE STABILIZERS FOR SYNTHETIC RUBBER

Keith Reeve Taylor, Gerrards Cross, England, and Joseph Patrick Brown, Geufron, Llangollen, Wales, assignors to Monsanto Chemicals Limited, London, England, a British company
No Drawing. Filed July 22, 1963, Ser. No. 296,460
Claims priority, application Great Britain, July 26, 1962, 28,691/62
8 Claims. (Cl. 260—45.9)

1. A synthetic rubber which deteriorates by absorption of oxygen from the air selected from the group consisting of homopolymers of butadiene-1,3, homopolymers of isoprene, copolymers of butadiene-1,3 with styrene, acrylonitrile, isobutylene, or methyl methacrylate, and copolymers of ethylene and propylene containing a stabilizing amount of an organo-oxythiocarbonyl aryl disulfide where organo designates a radical selected from the group consisting of alkyl, cycloalkyl, aralkyl, aryloxyalkyl, and aryl.

3,305,522
RUBBER ANTIOXIDANT

Ronald B. Spacht, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed June 21, 1963, Ser. No. 289,755
10 Claims. (Cl. 260—45.95)

1. As oxidizable polymer selected from the group consisting of polychloroprene, polyisoprene, polybutadiene, copolymers of butadiene and styrene, polypropylene oxide, butyl rubbers, polyethylene, polypropylene and ethylene-propylene copolymers containing an antioxidant amount of a reaction product formed by (1) reacting at a temperature of from 25 to 160° C. in the presence of a Friedel-Craft type catalyst, one mol of dicyclopentadiene and at least one mol of a phenolic material selected from the group consisting of phenol, para-cresol, mixed meta-para-cresol and para-ethyl phenol and (2) further reacting the first reaction product in the presence of an acidic alkylation catalyst with at least one-half mol of an olefin selected from the group consisting of isobutylene, tertiary amylenes and tertiary hexylenes.

3,305,523
MODIFICATION OF TELECHELIC-TYPE POLYMERS

Charles H. Burnside, Waco, Tex., assignor to North American Aviation, Inc.
No Drawing. Filed Aug. 30, 1962, Ser. No. 221,654
4 Claims. (Cl. 260—46.5)

1. The compound obtained by the reaction of carboxy-terminated polybutadiene and 1,3-bis [3(2,3-epoxy-propoxy)propyl] tetra methyl disiloxane.

3. The method of improving the physical strength properties of carboxy-terminated polybutadiene which comprises reacting said polybutadiene with 1,3-bis [3(2,3-epoxy-propoxy)propyl} tetra methyl disiloxane.

3,305,524
POLYSILOXANES

John F. Brown, Jr., Schenectady, Christian R. Sporck, Burnt Hills, and Howard A. Vaughn, Jr., Schenectady, N.Y., assignors to General Electric Company, a corporation of New York
No Drawing. Filed Nov. 27, 1962, Ser. No. 240,436
2 Claims. (Cl. 260—46.5)

1. A benzene and toluene soluble diorganopolysiloxane having a molecular weight of at least about ten thousand and consisting essentially of the following recurring structural units:

$$—(C_6H_5)_2Si—O—(C_6H_5)_2Si—O—(C_6H_5)_2Si$$
$$—O—(CH_3)(R)Si—O—$$

where R is an alkyl radical selected from the class consisting of methyl, ethyl, and propyl.

3,305,525
METHOD FOR MAKING ORGANOSILICON POLYMERS

John C. Goossens, Scotia, N.Y., assignor to General Electric Company, a New York corporation
No Drawing. Filed May 3, 1965, Ser. No. 452,933
10 Claims. (Cl. 260—46.5)

1. A method for making organosilicon gums substantially free of volatiles which comprises (1) mixing together at a temperature in the range of between 0° C. to 200° C. under substantially anhydrous conditions, and in the substantial absence of an inert organic solvent, (A) a difunctional silylamine and (B) a silanol-containing organosilicon material and (2) allowing said mixture of (1) to achieve a viscosity of at least 500,000 centipoises at 25° C., where (A) is a member selected from the class consisting of a silylamine of the formula,

$$YSi(R'')_2Y$$

and a silylamine terminated polydiorganosiloxane of the formula,

$$YSiR''_2(OSiR'''_2)_nOSiR''_2Y$$

having a viscosity in the range of between 200 centipoises to 50,000 centipoises at 25° C., and (B) is a member selected from the class consisting of

- (a) a mixture consisting essentially of a silanol-terminated organosilicon polymer, and a member selected from the class consisting of a monofunctional silylamine of the formula,

$$R''_3SiY$$

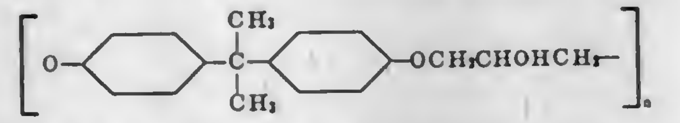
- and (b) a mixture consisting essentially of said silanol-terminated organosilicon polymer and a silanol-containing organosilicon polymer having a terminal unit selected from the class consisting of $R''_3SiO_{0.5}$ and $R'''_3SiO_{0.5}$, where said silanol-terminated organosilicon polymer is a member selected from the class consisting of
  - (i) diorganopolysiloxane consisting essentially of chemically combined R'''_2SiO units,
  - (ii) organosilicon polymer consisting essentially of R'''_2SiO units chemically combined with $R'''_2SiGSiR'''_2O$ units, and
  - (iii) a mixture of (i) and (ii),

and said silanol-containing organosilicon polymer of (b) has said terminal unit chemically combined with organosilicon units selected from the class consisting of R'''_2SiO units, $R'''_2SiGSiR'''_2O$ units and mixtures thereof, where (A) is utilized in combination with (B) in an amount sufficient to provide for a mixture having at least one mole of Y radicals of (A), per mole of silanol radicals of (B), where Y is a monovalent amine radical attached to silicon by a silicon-nitrogen linkage and selected from the class consisting of —NRR′ and a heterocyclic amine radical, R is selected from alkyl radicals and cycloalkyl radicals, R′ is a member selected from the class consisting of hydrogen and R radicals, R″ is a member selected from the class consisting of monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, R‴ is a member selected from the class consisting of R″ radicals and cyanoalkyl radicals, G is an arylene radical, *n* is an integer equal to from 5 to 1,500, inclusive, and said organosilicon gums have terminal radicals selected from the class consisting of $(R'')_3SiO_{0.5}$ and $(R''')_3SiO_{0.5}$, and a ratio of the sum of R″ and R‴ radicals to silicon of about 1.95 to 2.001.

3,305,526
PHENOXY PHOSPHITE POLYMERS

Alvin Guttag, Bethesda, Md., assignor to Weston Chemical Corporation, Newark, N.J., a corporation of New Jersey
No Drawing. Filed July 7, 1964, Ser. No. 380,908
14 Claims. (Cl. 260—47)

7. A process of preparing a phosphite comprising reacting a phenoxy polymer having the formula



where *n* is at least 10, with a trihydrocarbon phosphite and the reactants are employed in the mole ratio of 1 to 200 moles of phosphite per mole of phenoxy polymer with the aid of heat, and the monomeric hydroxy hydrocarbon formed is removed by distillation.

3,305,527
EPOXIDE RESIN COMPOSITIONS

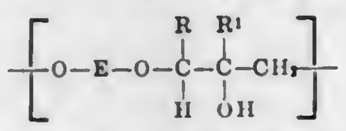
Herbert P. Price, Louisville, Ky., assignor to Celanese Coatings Company, Inc., a corporation of Delaware
No Drawing. Filed Dec. 9, 1964, Ser. No. 417,224
11 Claims. (Cl. 260—47)

1. A composition comprising a polyepoxide resin having a 1,2 epoxy equivalency greater than 1 and from 1 to 80 parts by weight per 100 parts by weight of said polyepoxide of an alkylene 1,2 carbonate having 2 to 10 carbon atoms in its alkylene group.

3,305,528
POLY(HYDROXYETHERS) AND A METHOD FOR THEIR PREPARATION

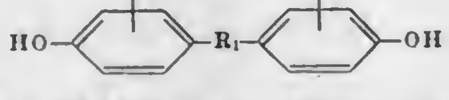
John Wynstra, Berkeley Heights, Norman H. Reinking, Millington, and Austin E. Barnabeo, Plainfield, N.J., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Nov. 30, 1960, Ser. No. 72,567
15 Claims. (Cl. 260—47)

1. A thermoplastic poly(hydroxyether), characterized by the absence of epoxy groups, having: a reduced viscosity of at least 0.43, measured at 25° C. in tetrahydrofuran at a concentration of 0.2 gram per 100 ml. of solution; a melt index at 220° C. of less than about 5 decigrams per minute under a pressure of 44 p.s.i.; a stability index of less than about a 20 percent change; and a tensile impact strength of greater than about 75 ft.lbs./inch³ and consisting essentially of recurring units of the formula:

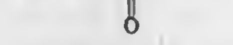


$$\left[-O-E-O-\underset{H}{\overset{R}{C}}-\underset{OH}{\overset{R^1}{C}}-CH_2-\right]$$

wherein R and R¹ are hydrogen or methyl and —O—E—O— is the residue obtained by removing the hydroxyl hydrogen atoms of a dihydric polynuclear phenol which has the formula:



wherein each individual Y and each individual Y_1 is selected from the group consisting of alkyl containing from 1 to 4 carbon atoms inclusive, alkoxy containing from 1 to 4 carbon atoms inclusive and halogen, *m* and *z* are integers each having a value of 0 to 4 inclusive and R_1 is selected from the group consisting of an alkylene radical having a maximum of 16 carbon atoms, an alkylidene radical having a maximum of 8 carbon atoms, a cycloaliphatic radical having a maximum of 12 carbon atoms,



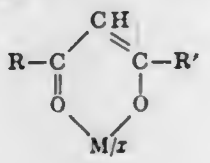
$$-S-S-,\ \underset{\overset{\|}{O}}{C},\ -O-$$

and, a valence bond; and mixtures thereof.

3,305,529
POLYMERIZATION OF FORMALDEHYDE IN THE PRESENCE OF A POLYVALENT METAL CHELATE OF A BETA-DIKETONE

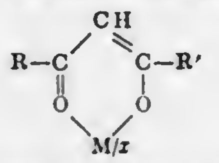
Richard E. Reynolds, Midland Park, N.J., assignor, by mesne assignments, to Tenneco Chemicals, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed July 9, 1963, Ser. No. 293,843
20 Claims. (Cl. 260—67)

1. The process for producing high molecular weight polymers of formaldehyde which comprises polymerizing substantially anhydrous monomeric formaldehyde by bringing the monomer into contact with a reaction medium maintained at a temperature within the range from about −100° C. to about 80° C. and containing a formaldehyde polymerization initiator comprising from about 0.01 to about 50 percent by weight, based on the weight of the monomeric formaldehyde, of a polyvalent metal chelate of a β-diketone having a structure represented by the formula

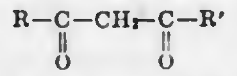


in which R and R′ each represent a radical selected from the group consisting of lower alkyl groups, haloalkyl groups, aryl groups, aralkyl groups, and heterocyclic groups, M is a polyvalent metal, and *x* is an integer representing the valence of the polyvalent metal.

19. A branched chain polyoxymethylene polyacetate comprising the reaction product formed by sequentially (1) polymerizing substantially anhydrous monomeric formaldehyde by bringing the monomer into contact with a reaction medium maintained at a temperature within the range from about 10° C. to about 60° C. and comprising methylene diacetate in which there is dissolved from about 0.1 to about 5 percent by weight, based on the weight of monomeric formaldehyde introduced into the reaction medium, of a polyvalent metal chelate of a β-diketone having a structure represented by the formula



in which R and R′ each represent a radical selected from the group consisting of lower alkyl groups, haloalkyl groups, aryl groups, aralkyl groups, and heterocyclic groups, M is a polyvalent metal selected from the group consisting of iron, copper, zinc, aluminum, cobalt, chromium, cadmium, molybdenum, lead, magnesium, beryllium, nickel, thorium, indium, vanadium, titanium, and zirconium, and *x* is an integer representing the valence of the polyvalent metal thereby forming a suspension in the reaction medium of a high molecular weight, branched chain, partially acetylated polyoxymethylene polyol, and (2) adding a catalytic amount of an alkaline esterification catalyst to the suspension and heating the resultant mixture to a temperature within the range from about 160° C. to about 180° C. to substantially completely acetylate the partially acetylated polyoxymethylene polyol, the branched chain polyoxymethylene polyacetate being characterized by (a) a viscosimetrically determined molecular weight in the range from about 10,000 to about 300,000, (b) a Sidi Number not less than 1.5 when computed in accordance with the formula $S_N=\overline{M}_V/\overline{M}_{IR}$, where S_N represents the Sidi Number, $\overline{M}_V$ represents the viscosimetrically determined apparent molecular weight of the polymer, and $\overline{M}_{IR}$ represents the IR-spectrophotometrically determined molecular weight of the polymer calculated from the intensity of the carbonyl absorption band of the infrared absorption spectrum of the polymer and assuming for the purpose of such calculation that the intensity of such carbonyl absorption band is due to the presence of two carboxylate groups per molecule, and (c) a polyfunctional group in the molecular structure which is evidenced, upon acid hydrolysis of the polymer, by the presence of less than 1 percent by weight of a β-diketone having a structure represented by the formula



$$R-\underset{\overset{\|}{O}}{C}-CH_2-\underset{\overset{\|}{O}}{C}-R'$$

in which R and R′ each represent a radical selected from the groups consisting of lower alkyl groups, haloalkyl groups, aryl groups, aralkyl groups, and heterocyclic groups.

3,305,530
ALDEHYDE POLYMERISATION PROCESS

Charles Kenneth Warren, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, a corporation of Great Britain
No Drawing. Filed June 6, 1963, Ser. No. 285,860
Claims priority, application Great Britain, June 12, 1962, 22,523/62
12 Claims. (Cl. 260—67)

1. A process for the preparation of a polymeric aldehyde which comprises polymerising at least one aldehyde selected from the class consisting of aliphatic aldehydes, cycloaliphatic aldehydes, aromatic aldehydes and substituted derivatives of these aldehydes containing altogether not more than 10 carbon atoms, said aldehyde being contaminated with acid, in the presence of an organometallic compound as catalyst at a temperature below that at which the organo-metallic compound acts as a catalyst for the degradation of the polymer so formed and thereafter rendering the organo-metallic compound ineffective as a catalyst for the degradation of the polymer, said organo-metallic compound containing a metal atom selected from the class consisting of atoms of the alkali metals, the alkaline earth metals, boron, aluminium, germanium, tin and lead linked to an alkoxy radical of the structure

$$—O(—CR'R'')_m—AR_n$$

wherein *m* is an integer in the range 2–3 inclusive, A is selected from the group consisting of nitrogen, phosphorus and sulfur, R is selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl, aralkyl and hydrogen, R′ is selected from the class consisting of radicals of the formula AR_n, alkyl, cycloalkyl, aryl, alkaryl, aralkyl and hydrogen, R″ is selected from the class consisting of alkyl, cycloalkyl, aryl, alkaryl, aralkyl and hydrogen and *n* is a positive integer equal to one less than the valency of A, any valencies on said metal atom not satisfied by said alkoxy radicals being satisfied by a member selected from the group consisting of monovalent hydrocarbon, halogen-substituted monovalent hydrocarbon, halogen and hydrogen.

3,305,531
PROCESS FOR THE PRODUCTION OF POLYALDEHYDES

Charles Kenneth Warren, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 6, 1963, Ser. No. 285,861
Claims priority, application Great Britain, June 12, 1962, 22,523/62
4 Claims. (Cl. 260—67)

1. In a process for the manufacture of a polymeric aldehyde selected from the group consisting of aliphatic aldehydes, cycloaliphatic aldehydes, and aromatic aldehydes by the polymerisation of an aldehyde in the presence of an alkali metal catalyst selected from the group consisting of complex metal hydrides and organo-metallic compounds in which the metal atom is linked to a member selected from the class consisting of hydrocarbon groups and oxyhydrocarbon groups at a temperature below that at which the alkali metal catalyst also acts as a catalyst to degrade the polymeric product, the improvement which comprises adding to the reaction medium, after the polymerisation is completed and before the reaction medium reaches a temperature at which substantial degradation of the polymeric aldehyde may occur, a weak acid having a disassociation constant at 25° C. not greater than 10^{-3} in an amount at least equivalent to the amount of catalyst present.

3,305,532
CONTINUOUS DRYING OF GRANULAR POLYETHYLENE TEREPHTHALATE

Pieter H. Middleburg and Hans Nieuwenhuysen, Arnhem, and Marius E. le Cosquino de Bussy, Emmen, Netherlands, assignors, by mesne assignments, to American Enka Corporation, Enka, N.C., a corporation of Delaware
No Drawing. Filed July 5, 1962, Ser. No. 207,774
Claims priority, application Netherlands, July 7, 1961, 266,836
3 Claims. (Cl. 260—75)

1. A method of continuously drying water-containing

granules of amorphous polyethylene terephthalate comprising:

(a) forming a layer of polyethylene terephthalate granules consisting of from 50 percent to 100 percent by weight of at least partially crystallized polyethylene terephthalate granules and from 50 percent to 0 percent by weight amorphous polyethylene terephthalate granules, the height of said layer being less than such height whereat fluidization and mixing of the granules is adversely affected to the extent that sticking together and conglomeration thereof occur during step (b);

(b) fluidizing said layer of polyethylene terephthalate granules by means of a continuous stream of an inert gas having a temperature of at least 110° C. but less than 200° C., so that the ratio of the height of the layer of the thus fluidized granuies to the height of the layer of the non-fluidized granules of step (a) is at least two;

(c) continuously introducing into and mixing with the said fluidized granules the water-containing amorphous polyethylene terephthalate granules to be dried, whereby said water containing amorphous polyethylene terephthalate granules are at least partially crystallized;

(d) continuously withdrawing from the resulting mixture at least partially crystallized polyethylene terephthalate granules; and

(e) thence at elevated temperatures continuously drying said at least partially crystallized granules which are in at most slow motion relative to each other;

(f) the ratio of the height of the layer of said fluidized granules to the height of the layer of said non-fluidized granules continuously is at least two and the composition of said fluidized granules continuously consists of from 50 percent to 100 percent by weight of at least partially crystallized polyethylene terephthalate granules and from 50 percent to 0 percent by weight amorphous polyethylene terephthalate granules to prevent sticking together of the at least partially crystallized granules during step (e).

3,305,533

POLYURETHANE POLYMERS HAVING URETHANE AND SEMI-CARBAZIDE GROUPINGS

Wilhelm Thoma, Cologne-Flittard, and Heinrich Rinke and Harald Oertel, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation
No Drawing. Filed Dec. 21, 1962, Ser. No. 246,327
Claims priority, application Germany, Dec. 30, 1961, F 35,698
10 Claims. (Cl. 260—75)

1. A process for the preparation of polyurethane polymers which comprises reacting

(1) a substantially linear NCO terminated polyurethane prepolymer prepared by reacting
  (a) an organic compound having a molecular weight of from about 500 to about 5000 and containing active hydrogen atoms which are reactive with —NCO groups and selected from the group consisting of hydroxy polyesters, polyester amides, polyalkylene ethers, polythioethers, polyacetals, and hydroxy-terminated polycarbonates, with
  (b) an excess of an organic diisocyanate with
(2) from about 10 to about 90 equivalent percent of a polyhydric alcohol to form a polyurethane intermediate and reacting said polyurethane intermediate with
(3) from about 90 to about 110 equivalent percent based on the remaining NCO content of said intermediate with a hydrazide having a formula selected from the group consisting of

$$R—NH—NR—A—(XA)_n—NR—NHR$$
$$RNH—Z—A—NR—NHR$$
$$HO—Z—A—NR—NHR$$

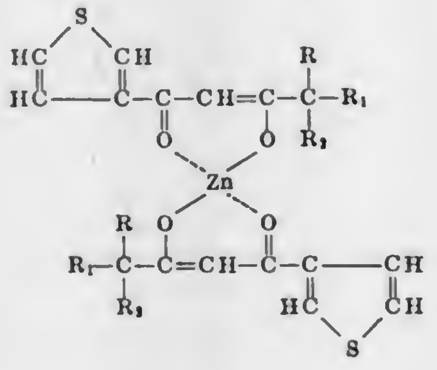
wherein A is selected from the group consisting of CO, CS and SO_2; R is selected from the group consisting of hydrogen, aryl and alkyl; X is selected from the group consisting of alkylene, arylene, aralkylene, OYO and HN—Y—NH where Y is a divalent organic radical; Z is selected from the group consisting of alkylene, arylene, aralkylene, YO and YNH and *n* is a number from 0 to 1.

3,305,534

ZINC CHELATES AS CATALYSTS IN THE PRODUCTION OF POLYESTERS

Henry L. King, Cary, Roland J. Bryan, Raleigh, and Cilton W. Tate, Cary, N.C., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed Feb. 20, 1963, Ser. No. 260,063
7 Claims. (Cl. 260—75)

1. A process for producing polyethylene terephthalate comprising reacting ethylene glycol and dimethyl terephthalate in the presence of a catalytic amount of a zinc chelate catalyst of the formula



wherein R, R_1 and R_2 are members of the group consisting of hydrogen and halogen atoms at elevated temperatures until no further methanol is liberated, and then continuing the reaction in the presence of said catalyst at elevated temperatures and reduced pressure until a linear polyester having the desired degree of polymerization is obtained.

3,305,535

PREPARATION OF POLYURETHANE PLASTICS

Rudolf Merten and Günther Braun, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation
No Drawing. Filed Feb. 28, 1961, Ser. No. 92,145
Claims priority, application Germany, Mar. 3, 1960, F 30,671
2 Claims. (Cl. 260—77.5)

1. A process for preparing polyurethane plastics which comprises reacting an organic polyisocyanate with a polyhydroxyl compound obtained from the reaction of a carbohydrate having at least four carbon atoms with a member selected from the group consisting of alcohols and phenols and at least 0.5 mol per monosaccharide unit of an oxo compound selected from the group consisting of aldehydes and ketones in the presence of water and an acid catalyst, removing water from the product of said first step to a residual water content of less than one percent and thereafter reacting the product with an alkylene oxide.

3,305,536

POLYSULFIDE POLYMERS

Paul F. Warner, Phillips, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Aug. 5, 1963, Ser. No. 300,079
10 Claims. (Cl. 260—79.7)

1. A process for the production of a cross-linked polysulfide polymer which comprises (1) contacting an organic dimercaptan of the formula HS—R—SH, wherein R is a hydrocarbon radical having up to and including 20 carbon atoms per molecule with $P(halide)_3$ at a temperature in the range of 100 to 140° F., (2) adding to the resulting reaction medium an oxidizing agent selected from the group consisting of free sulfur, elemental sulfur, sulfur-donor and sulfur-yielding compounds in a mol ratio of said oxidizing agent to dimercaptan in the range of 2/1 to 5/1 in the presence of a basic catalyst at a temperature in the range of 0 to 500° F. to-form said polymer and (3) recovering said polymer as a product of the process.

3,305,537

METHOD OF CATALYZING THE POLYMERIZATION OF VINYL CHLORIDE

Georgette Steinbach van Gaver, Paris, and Georges Zednik, Neuilly-sur-Seine, France, assignors to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
No Drawing. Filed Oct. 27, 1964, Ser. No. 406,910
9 Claims. (Cl. 260—92.8)

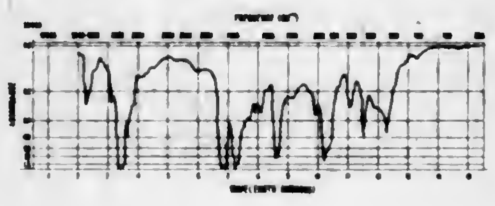
1. A method of making polyvinyl chloride which comprises mixing liquid vinyl chloride with a catalytic quantity not substantially over 5% of an organic peroxide catalyst, a minor quantity of a reducing agent for the peroxide consisting essentially of trialkylboronhydrazine having the alkyl groups attached to boron, and having 1–4 C atoms in each alkyl group, and a plasticizing amount of a plasticizer of polyvinyl chloride, establishing in the mass a temperature below about 0° C. at which polymerization proceeds, and isolating polymer from the mass.

3,305,538

POLYMERIZATION PROCESS

Giulio Natta, Adolfo Zambelli, and Italo Pasquon, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed Nov. 20, 1962, Ser. No. 238,862
Claims priority, application Italy, Nov. 22, 1961, 20,994/61
18 Claims. (Cl. 260—93.7)



1. A process for preparing polypropylene showing crystallinity at the X-rays, the crystallinity resulting substantially exclusively from the syndiotactic structure, which comprises polymerizing the propylene at a temperature below 0° C. in the presence of a catalytic system comprising a hydrocarbon soluble reaction product obtained by reacting vanadium triacetylacetonate, a strong Lewis base and an organic halide aluminum compound of the formula $AlRX_2$ wherein R is selected from the group consisting of alkyl, aryl, alkylaryl, and cycloalkyl groups having up to 10 carbon atoms and X is selected from the group consisting of chlorine and fluorine.

8. A process for preparing polypropylene showing crystallinity at the X-rays, the crystallinity resulting substantially exclusively from the syndiotactic structure which comprises polymerizing the propylene at a temperature below 0° C. in the presence of a catalytic system comprising a hydrocarbon soluble reaction product obtained by reacting vanadium triacetylacetonate and an organic halide aluminum compound of the formula $Al_2R_3X_3$ wherein R is selected from the group consisting of alkyl, aryl and alkylaryl and cycloalkyl groups having up to 10 carbon atoms and X is selected from the group consisting of chlorine and fluorine wherein the aluminum to vanadium atomic ratio is at least 5, in the absence of a Lewis base.

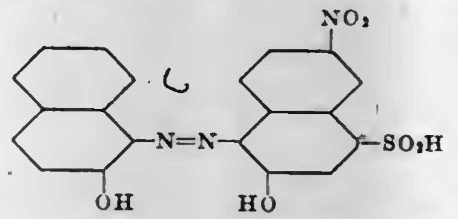
12. A process of preparing polypropylene showing crystallinity at the X-rays, the crystallinity resulting exclusively from the syndiotactic structure which comprises polymerizing the propylene at a temperature below 0° C. in the presence of a catalytic system comprising a hydrocarbon soluble reaction product obtained by reacting a halogenated vanadium compound selected from the group consisting of VCl_4 and VF_5 and an aluminum organic halide compound selected from the group consisting of $AlR'R''X$ and $Al_2R'_3X_3$ wherein R′ and R″ are selected from the group consisting of alkyl, aryl, alkylaryl and cycloalkyl groups having up to 10 carbon atoms and X is the same halogen as in the halogenated vanadium compound and is selected from the group consisting of chlorine and fluorine, in the presence of a weak Lewis base which has a heat of complexation with the metalorganic halide compound below 12,000 calories per mole of metalorganic compound.

3,305,539

1:1 CHROMIUM COMPLEX OF 2-HYDROXYNAPHTHALENEAZO-2-HYDROXY-6-NITRO-7-NAPHTHALENE SULFONIC ACID SOLUBILIZED WITH ALIPHATIC CARBOXYLIC ACIDS

James F. Feeman, Wyomissing, Pa., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts
No Drawing. Filed Dec. 4, 1963, Ser. No. 328,051
2 Claims. (Cl. 260—150)

1. A 1:1 metal complex azo dye formed from trivalent chromium and a monoazo dye having the structure



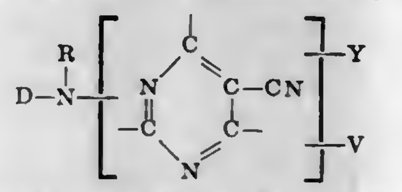
said complex being solubilized with an acid selected from the group consisting of lactic acid, citric acid, oxalic acid, tartaric acid, malic acid, saccharic acid and tartronic acid.

3,305,540

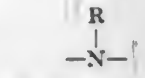
(CHLORO OR BROMO)-5-CYANOPYRIMIDINYLAMINO DYESTUFFS

Herbert Francis Andrew and Victor David Poole, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Jan. 31, 1964, Ser. No. 341,735
Claims priority, application Great Britain, Sept. 12, 1960, 31,298/60
2 Claims. (Cl. 260—154)

1. The dyestuffs which are represented by the formula:



wherein D represents a dyestuff radical selected from the class consisting of dyestuff radicals of the azo, anthraquinone, nitro and phthalocyanine series wherein the group



$$\overset{\displaystyle R}{\overset{|}{-N-}}$$

is attached directly to a carbon atom present in the dyestuff radical D and wherein the carbon atom may form part of an aryl ring present in D, or may form part of an alkyl chain which is directly attached to an aryl ring present in D or is attached through a bridging atom or group selected from the members of the group consisting of —O—, —S—, —CO—, —SO$_2$—, —NH—,

$$\overset{|}{-N}\text{-alkyl}, \ -CONH-, \ -SO_2NH- \text{ and } -SO_2\overset{|}{N}\text{-alkyl}$$

R is selected from the class consisting of hydrogen and lower alkyl;

Y is a halogen atom selected from the class consisting of chlorine and bromine atoms;

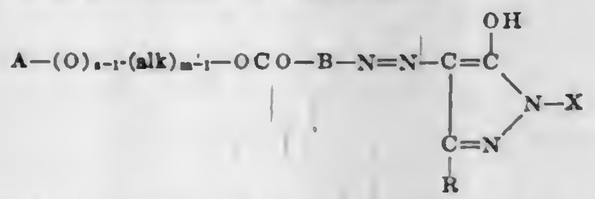
and V is a radical selected from the class consisting of amino, lower alkylamino, hydroxy lower alkylamino, anilino, N-lower alkyl anilino, naphthylamino, and anilino, N-lower alkylanilino and naphthylamino radicals substituted by at least one group selected from the class consisting of carboxylic acid and sulphonic acid groups.

3,305,541
WATER-INSOLUBLE MONOAZO-PYRAZOLONE DYESTUFFS

Hans Wilhelm Liechti, Oberwil, Basel-Land, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed Oct. 7, 1963, Ser. No. 314,548
Claims priority, application Switzerland, Oct. 10, 1962, 11,876/62; Sept. 20, 1963, 11,641/63
9 Claims. (Cl. 260—162)

1. A monoazo dyestuff of the formula



wherein A is a phenyl radical, B is phenylene R is lower alkyl, alk is lower alkylene, X is a member selected from the group consisting of hydroxy lower alkyl and phenyl which may be substituted by a member selected from the group consisting of lower alkyl, lower alkoxy, carbo lower alkoxy, bromine and chlorine and *m* is a number from 1 to 3, *z* is a number from 1 to 2 and wherein *m* must have at least the same value as *z*.

3,305,542
POLYETHERS OF LEVOGLUCOSAN

Lawrence G. Carlberg, Bellevue, and Fraidoun Shafizadeh, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

No Drawing. Filed Mar. 25, 1965, Ser. No. 442,799
4 Claims. (Cl. 260—209)

1. The reaction product of levoglucosan and an alkylene oxide selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, and mixtures thereof.

3,305,543
CARRAGLUCAN POLYSACCHARIDE AND PROCESS FOR ITS PRODUCTION

Theodore H. Haskell, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

Filed Aug. 30, 1965, Ser. No. 483,623
8 Claims. (Cl. 260—209)

1. A polysaccharide, carraglucan, existing in free acid and in salt forms, said polysaccharide being a substance which: is water-soluble, heat stable and non-dialyzable; in purified form is a white or slightly off-white solid; is only slightly soluble in common organic solvents; in free acid form contains the elements carbon, hydrogen, oxygen, sulfur, and nitrogen; affords upon hydrolysis D-galactose, L-galactose, D-glucose, xylose, a reducing substance, and a uronic acid; has a specific rotation value $[\alpha]_D^{26}=-47$ to $-65°$ when determined as a 0.3% solution in 0.1 M phosphate buffer at pH 7.0; has a low degree of sulfation and upon analysis shows less than 2% sulfur; has an intrinsic viscosity of 0.2 to 1.1 determined in 0.1 M phosphate buffer at pH 7.0; has a molecular weight of 6000 to 11,000 determined by an end group reducing assay; gives a positive anthrone test, a positive phloroglucinol test, a positive carbazole test for uronic acids, a negative test for sialic acid, and a negative test for simple alkanoic acid esters; upon microanalysis in sodium salt form gives experimentally determined values of 40.97% carbon, 6.20% hydrogen, 1.85% nitrogen, 0.84% sulfur, and 3.7% ash; exhibits substantially no selective ultraviolet absorption; and exhibits a characteristic infrared absorption spectrum in sodium salt form in a potassium bromide disk substantially as shown in the drawing.

3,305,544
METHOD OF PREPARING 2′,3′-O-ALKYLIDENE RIBONUCLEOSIDES

Osamu Simamura and Tadao Takenishi, Tokyo, Tetsuya Kato, Kawasaki-shi, Kanagawa-ken, and Hisao Mori, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed June 3, 1964, Ser. No. 372,358
Claims priority, application Japan, Mar. 19, 1963, 38/14,741
7 Claims. (Cl. 260—211.5)

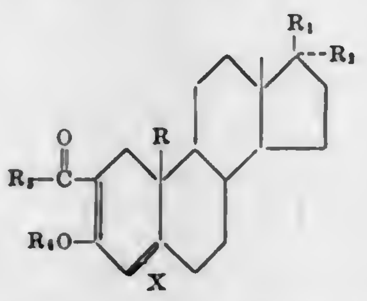
1. An improved method of preparing a 2′,3′-O-alkylidene purine ribonucleoside which comprises reacting a purine ribonucleoside with a di-lower-alkyl ketone in the presence of hydrogen chloride, said ribonucleoside being dissolved in said ketone, the ketone acting both as a solvent and as a reactant, and the initial concentration of said hydrogen chloride in the solution of said ribonucleoside in said ketone being between 10 and 20 percent.

3,305,545
3-LOWER ALKYL ENOLETHERS OF 3-KETO-2-CARBOXY STEROIDS AND DERIVATIVES THEREOF

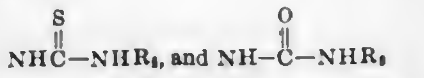
Pietro de Ruggieri, Carmelo Gandolfi, and Umberto Guzzi, Milan, Italy, assignors to Ormonoterapia Richter S.p.A., Milan, Italy, a corporation of Italy

No Drawing. Filed July 6, 1964, Ser. No. 380,640
Claims priority, application Italy, July 5, 1963, 14,024/63; June 9, 1964, 12,668/64
3 Claims. (Cl. 260—211.5)

1. A compound of the formula



where R is a member selected from the group consisting of H and CH$_3$; R$_1$ is a member selected from the group consisting of OH, OR$_2$, R$_2$ being an acyl radical derived from an aliphatic acid of from 2 to 10 carbon atoms, and 2-methyl-isoheptyl; R$_3$ is a member selected from the group consisting of H and lower alkyl; R$_4$ is alkyl of from 1 to 4 carbon atoms; R$_5$ is a member selected from the group consisting of OH, OMe, OEt, CH$_3$, Cl, NH$_2$, CNS, CNO,



$$NH\overset{\overset{\displaystyle S}{\|}}{C}-NHR_6, \text{ and } NH-\overset{\overset{\displaystyle O}{\|}}{C}-NHR_6$$

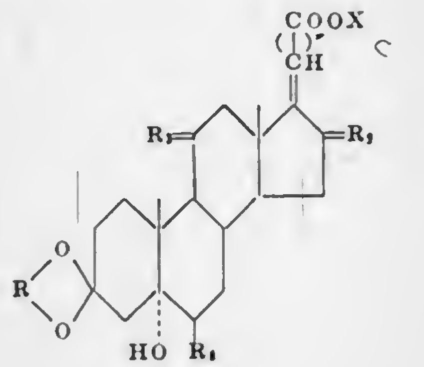
R$_6$ being a member selected from the group consisting of H, alkyl of from 1 to 6 carbon atoms, ribosyl, 2′-deoxyribosyl, 2′,3′,5′-tri-O-benzoyl-ribosyl and 3′,5′-di-O-benzoyl-2′-deoxyribosyl; and X is a member selected from the group consisting of a single and a double bond.

3,305,546
PROCESS FOR THE PRODUCTION OF 16-HALO-17(20)-PREGNENES

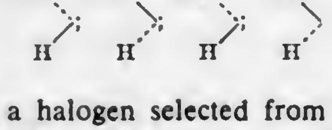
John E. Pike, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Dec. 9, 1963, Ser. No. 329,272
19 Claims. (Cl. 260—239.55)

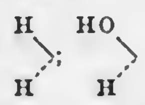
4. 16-substituted - 17(20) - pregnen - 21 - oic, 3-cyclic ethylene acetals of the formula:



wherein R is an alkylene radical containing up to 8 carbon atoms inclusive and the attaching oxygen to carbon bonds are separated by a chain of at least 2 and not more than 3 carbon atoms; wherein R$_2$ is selected from the group consisting of =O;



wherein Hal is a halogen selected from the group consisting of chlorine and fluorine; wherein R$_3$ is selected from the group consisting of



and =O; wherein R$_4$ is selected from the group consisting of hydrogen, fluorine and methyl; and wherein X is selected from the group consisting of hydrogen and lower alkyl.

3,305,547
ALKOXYPIPERIDINE DERIVATIVES AND THEIR SALTS

Kurt Stach and Max Thiel, Mannheim, Friedrich Bickelhaupt, Neckarhausen, near Mannheim, and Wolfgang Schaumann, Mannheim-Waldhof, Germany, assignors to C. F. Boehringer & Soehne G.m.b.H., Mannheim-Waldhof, Germany, a corporation of Germany

No Drawing. Filed Nov. 15, 1962, Ser. No. 238,012
Claims priority, application Germany, Nov. 25, 1961, B 64,932
4 Claims. (Cl. 260—243)

1. 2 - acetyl - 10 - [3 - (4 - methoxy - piperidyl)-propyl]-phenothiazine.

3,305,548
DERIVATIVES OF 3,3-SPIRO-SUBSTITUTED-3,4-DIHYDRO - 1,2,4 - BENZOTHIADIAZINE-1,1-DIOXIDES

James M. Sprague, Gwynedd Valley, and Edward J. Cragoe, Jr., Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 25, 1964, Ser. No. 414,000
6 Claims. (Cl. 260—243)

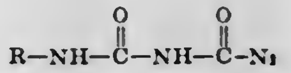
1. Dihydrobenzothiadiazine compounds selected from the group consisting of 2′,3′,5′,6′-tetrahydro-6-R-spiro[2H-1,2,4 - benzothiadiazine-3(4H),4′-(4H)pyran-7-sulfonamide 1,1-dioxide, 2′,3′,5′,6′-tetrahydro-6-R-spiro[2H-1,2,4-benzothiadiazine - 3(4H),4′-(4H)thiopyran]-7-sulfonamide 1,1-dioxide, 2′,4′,5′,6′-tetrahydro-6-R-spiro[2H-1,2,4-benzothiadiazine - 3(4H),3′-(4H)-thiopyran-7-sulfonamide 1,1-dioxide and 6-R-spiro[2H-1,2,4-benzothiadiazine-3(4H),5′-m-dithiane]-7-sulfonamide 1,1-dioxide wherein in each of the foregoing names R is selected from the group consisting of halogen, lower alkyl, lower alkoxy, nitro and amino.

3,305,549
PRODUCTION OF SUBSTITUTED BIURETS

Francis L. Chubb, Pierrefonds, Quebec, Canada, assignor to Frank W. Horner Limited, Mount Royal, Quebec, Canada, a company of Canada

No Drawing. Filed June 2, 1966, Ser. No. 554,676
6 Claims. (Cl. 260—247.2)

1. A process which comprises contacting a compound of the formula:



$$R-NH-\overset{\overset{\displaystyle O}{\|}}{C}-NH-\overset{\overset{\displaystyle O}{\|}}{C}-N_3$$

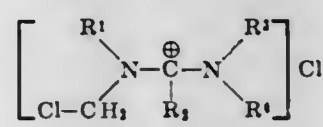
wherein R is selected from the group consisting of hydrogen, alkyl and aralkyl, with an amine having at least one hydrogen atom attached to the amino nitrogen; in an inert normally-liquid substantially non-polar organic medium; at an elevated temperature and for a period of time sufficient to produce a substituted biuret product.

3,305,550
CHLOROMETHYLAMIDINIUM SALTS

Karl-Heinz Koenig and Horst Pommer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 8, 1963, Ser. No. 314,623
Claims priority, application Germany, Oct. 9, 1962, B 69,143
5 Claims. (Cl. 260—247.5)

1. A chloromethylamidinium salt having the formula



wherein R^1 denotes a member selected from the group consisting of alkyl having 1 to 4 carbon atoms, chloroalkyl having 1 to 4 carbon atoms, phenyl, chlorophenyl and nitrophenyl, R^2, R^3 and R^4 each denote a member selected from the group consisting of hydrogen, alkyl having 1 to 4 carbon atoms and aryl with 6 to 10 carbon atoms, R^2 and R^3 when taken together represent the divalent radical $(CH_2)_n$ wherein *n* is an integer of 3 to 5 so as to form a 5- to 7-membered heterocyclic ring, and R^3 and R^4 when taken together represent a divalent radical selected from the class consisting of —CH$_2$CH$_2$—O—CH$_2$CH$_2$— and $(CH_2)_m$ wherein *m* is an integer of 4 to 5 so as to form a 5- to 6-membered heterocyclic ring.

3,305,551

PREPARATION OF TRIAZINE DERIVATIVES

Lewellyn G. Picklesimer, Dayton, Ohio, and Thomas F. Saunders, Vestal, N.Y., assignors to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed Mar. 5, 1965, Ser. No. 437,608
13 Claims. (Cl. 260—248)

1. A process for the preparation of triazine derivatives by reacting a triazinyl halide in an inert organic solvent with a substituent compound containing a replaceable hydrogen atom dissolved in the same organic solvent, and in the presence of a second phase containing an acid-acceptor to accomplish the formation of the desired triazine derivative, and isolating the triazine derivative from the reactants.

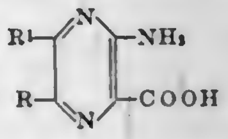
3,305,552

3-AMINOPYRAZINOIC ACIDS AND PROCESS FOR THEIR PREPARATION

Edward J. Cragoe, Jr., and John B. Bicking, both of Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

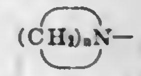
No Drawing. Filed Nov. 22, 1965, Ser. No. 509,220
9 Claims. (Cl. 260—250)

4. A pyrazionic acid of the structure



wherein

R is selected from the group consisting of hydrogen, chloro, bromo, iodo, lower alkyl, cycloalkyl having 3 to 6 nuclear carbons, phenyl, chlorophenyl, bromophenyl, iodophenyl, lower alkoxy, lower alkylthio, lower alkylsulfonyl, phenyl-lower alkylthio, phenyl-lower alkylsulfonyl, amino, lower alkyl amino, (phenyl-lower alkyl)amino, di-lower alkylamino, and



where *n* is selected from 4 and 5;

R¹ is selected from the group consisting of hydrogen, chloro, bromine, iodo, lower alkyl, cycloalkyl having 3 to 6 nuclear carbons, phenyl, amino, mono-lower alkylamino and di-lower alkylamino.

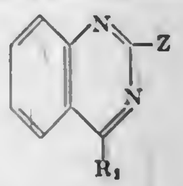
3,305,553

2-AMINOQUINAZOLINE DERIVATIVES

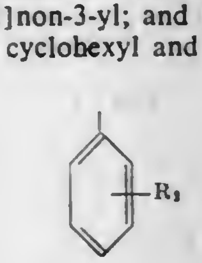
Milton L. Hoefle and Ann Holmes, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed Oct. 18, 1965, Ser. No. 497,473
6 Claims. (Cl. 260—256.4)

1. A member of the class consisting of 2-aminoquinazoline compounds having the formula



and pharmaceutically-acceptable acid-addition salts thereof; where Z is a member of the class consisting of NH_2, NH-lower alkyl, cyclohexylamino, piperidino, 4-methylpiperidino, hexamethyleneimino, 4-methylpiperazinyl, and 3-azabicyclo-[3.2.2]non-3-yl; and R_1 is a member of the class consisting of cyclohexyl and an aryl radical having the formula



where R_2 is a member of the class consisting of hydrogen, lower alkyl, and halogen.

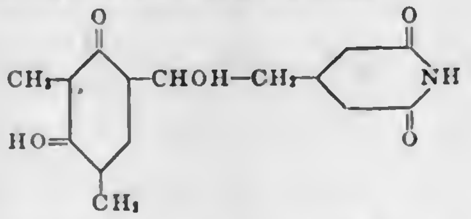
3,305,554

STREPTOVITACINS

Malcolm E. Bergy, Thomas E. Eble, John S. Evans, Ross R. Herr, Robert W. Heinle, and Charles M. Large, all of Kalamazoo, and Walter T. Sokolski, Kalamazoo Township, Kalamazoo County, Mich., assignors to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

Filed Sept. 20, 1965, Ser. No. 492,982
18 Claims. (Cl. 260—281)

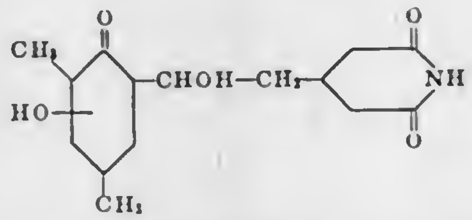
1. As a solid composition of matter 3-[2-(4-hydroxy-3,5 - dimethyl - 2 - oxocyclohexyl) - 2-hydroxyethyl]-glutarimide, having the structural formula:



(II)

and being substantially free of cycloheximide.

4. A solid substance, streptovitacin C_1, having the Formula I



(I)

and having a paper strip mobility in water-saturated ethyl acetate falling between those of streptovitacin B and streptovitacin C_2, and by being substantially free of cycloheximide.

18. A process for the isolation of streptovitacin, a compound having the structural Formula I from the beer produced in a cycloheximide fermentation which comprises filtering the whole beer, removing the cycloheximide by solvent extraction, recovering streptovitacin complex from the spent beer, and isolating at least one of the streptovitacin compounds of said complex.

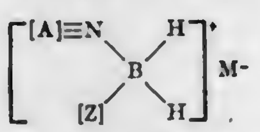
3,305,555

PREPARATION OF TERTIARY AMINE BORANES INCLUDING PYRIDYL BORANES

Stanley Frank Stafiej, Springdale, and Edward Andrew Takacs, South Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Mar. 9, 1964, Ser. No. 351,583
7 Claims. (Cl. 260—290)

1. A compound having the formula



wherein M^- is selected from the group consisting or BF_4^-, and ClO_4^-; wherein [A]≡N is a tertiary amine ligand moiety in which the nitrogen atom shown is bonded to carbon atoms of radicals selected from the group consisting of hydrocarbon radicals and substituted hydrocarbon radicals and not more than one nitrogen atom of another amine radical; and wherein [Z] is a ligand selected from the group consisting of tertiary amines in which the nitrogen atom is bonded only to carbon atoms, nitriles, di-lower alkyl sulfides, and tertiary phosphines in which the phosphorus atom is bonded only to carbon atoms; said [A]≡N always being different from said [A].

3,305,556

NOVEL HYPOGLYCEMIC AGENTS

James M. McManus, Uncasville, William M. McLamore, Groton, and Gerald D. Laubach, Lyme, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 23, 1962, Ser. No. 239,809
13 Claims. (Cl. 260—293.4)

1. A compound selected from the group consisting of A. Those of the formula

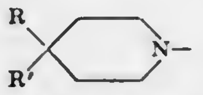
$$Z{-}SO_2NHCONHR'''$$

wherein

(a) R''' is a member selected from the group consisting of alkyl of two to about eight carbon atoms, cycloalkyl-alkyl of from four to about nine carbon atoms, cycloalkyl of three to about eight carbon atoms, bicyclo-[2.2.1]hept-5-ene-2-ylmethyl, bicyclo [2.2.1]hept-2-ylmethy, aralkyl of seven to about thirteen carbon atoms, p-chlorophenyl, p-di(lower alkyl)-aminophenyl and S-(lower alkyl)mercaptophenyl; and

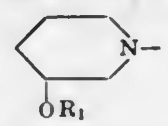
(b) Z represents a radical selected from the group consisting of

(1)



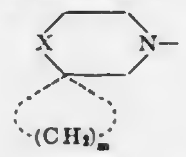
wherein R is a member chosen from the group consisting of hydrogen, lower alkyl, trifluoroethyl, lower alkenyl, cycloalkyl of up to six carbon atoms and cycloalkenyl of up to six carbon atoms; R' is a member chosen from the group consisting of lower alkoxy, lower alkoxy-lower alkoxy, lower alkenyl-lower alkoxy, lower polyfluoroalkoxy and cycloalkoxy of up to six carbon atoms; and when R and R' are taken together, they form a radical selected from the group consisting of $-CH_2CH_2CH_2O-$, $-SCH_2CH_2O-$, $-CH_2CH_2OCH_2-$, $-CH_2CH_2CH_2CH_2O-$, $-CH_2CH_2OCH_2CH_2O-$, $-CH_2CH_2CH_2S-$, $-CH_2CH_2CH_2NH-$ and $-CH_2CH_2CH_2CH_2-$;

(2)



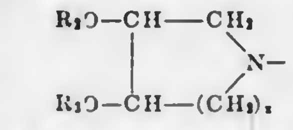
wherein R_1 is lower alkyl;

(3)



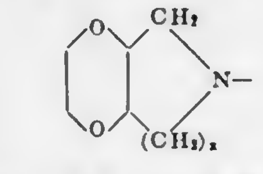
where X is a member chosen from the group consisting of oxygen, sulfur, 1-oxosulfur and 1,1-dioxosulfur, and *m* is an integer of from four to five;

(4)



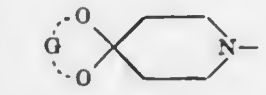
wherein R_2 and R_3 are each lower alkyl, and *x* is an integer from one to two; and

(5)

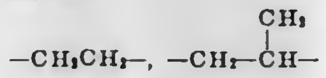


wherein *x* is an integer from one to two; and

(6)

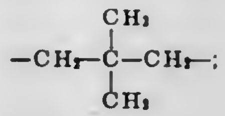


wherein G is a member chosen from the group consisting of



$$-CH_2CH_2-,\ -CH_2-\underset{}{\overset{CH_3}{\overset{|}{C}H}}-$$

and



$$-CH_2-\overset{CH_3}{\underset{CH_3}{\overset{|}{\underset{|}{C}}}}-CH_2-;$$

B. The alkali metal salts of A

C. The alkaline earth metal salts of A

D. The ammonium addition salts of A

E. The amine addition salts of A, and

F. The acid addition salts of A wherein R''' is p-di(lower alkyl)aminophenyl.

2. 1 - [N - (4-methoxypiperidine)sulfonyl]-3-cycloheptylurea.

3,305,557

ALLANTOIN p-AMINOBENZOIC ACID COMPLEXES

Irwin I. Lubowe, 667 Madison Ave.,
New York, N.Y. 10010

No Drawing. Filed Apr. 16, 1965, Ser. No. 448,833
3 Claims. (Cl. 260—299)

1. Allantoin p-aminobenzoic acid.

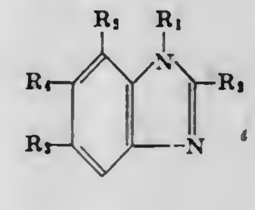
3,305,558

5-, 6- AND 7-CYANOBENZIMIDAZOLE DERIVATIVES

Henri Depoorter, Gerrit Godfried van Mierlo, Marcel Jan Libeer, and Jean Marie Nys, all of Mortsel-Antwerp, Belgium, assignors to Gevaert Photo-Producten N.V., Mortsel-Antwerp, Belgium

No Drawing. Filed Sept. 26, 1960, Ser. No. 58,215
Claims priority, application Great Britain, Sept. 24, 1959, 32,493/59
1 Claim. (Cl. 260—309.2)

A compound of the formula:



wherein

R_1 is a lower alkyl group;

R_2 is methyl;

R_3, R_4 and R_5 are radicals selected from the group consisting of a hydrogen atom, a chlorine atom and a cyano group,

at least one of the substituents R_3, R_4 and R_5 being a cyano group.

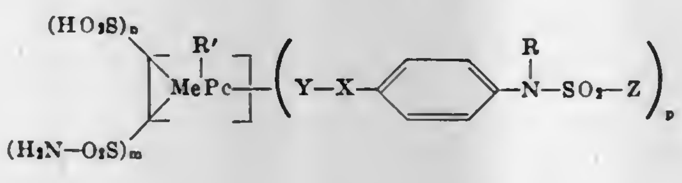
3,305,559

PHTHALOCYANINE DYESTUFFS

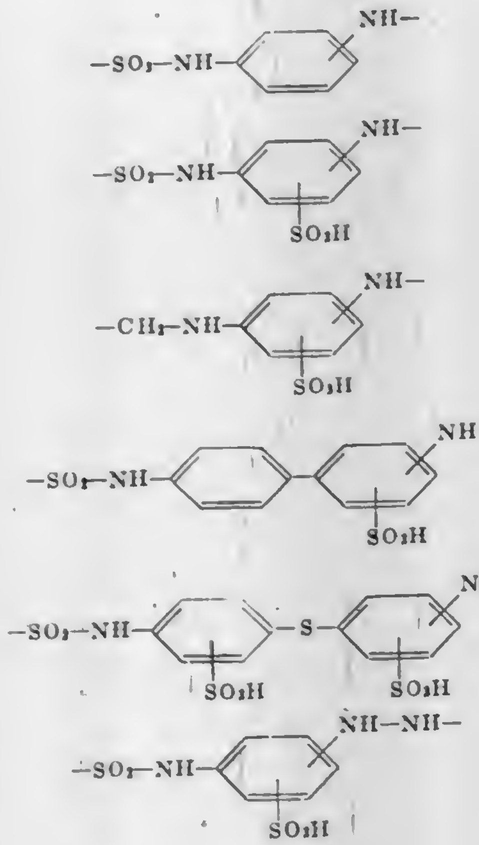
Rudolf Kühne and Fritz Meininger, Frankfurt am Main, and Heinrich Frölich, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed June 9, 1964, Ser. No. 373,859
Claims priority, application Germany, June 10, 1963, F 39,951
6 Claims. (Cl. 260—314.5)

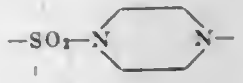
1. The phthalocyanine dyestuff of the formula



wherein Pc represents phthalocyanine, Me represents a member selected from the group consisting of copper and nickel, Y represents a member selected from the group consisting of —NH—, —SO_2—NH-lower alkylene-NH—,



and

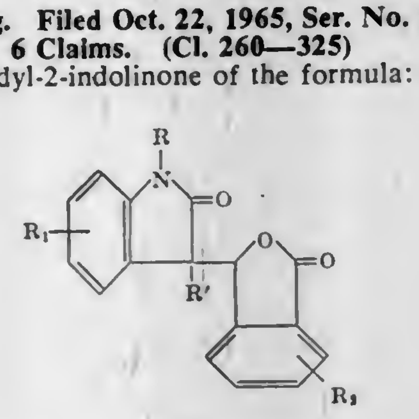


X represents a member selected from the group consisting of —CO—, —SO_2— and —CO—NH—, R represents a member selected from the group consisting of hydrogen and lower alkyl, R′ represents hydrogen or chlorine, Z represents a member selected from the group consisting of —CH═CH_2 and —CH_2—CH_2—Cl, *n* represents an integer from 1 to 3, *m* represents a number from 0 to 2, and *p* represents an integer from 1 to 2.

3,305,560
3-PHTHALIDYL-2-INDOLINONES

Janis Plostnieks, Philadelphia, Pa., assignor to McNeil Laboratories, Incorporated, a corporation of Pennsylvania
No Drawing. Filed Oct. 22, 1965, Ser. No. 502,329
6 Claims. (Cl. 260—325)

1. 3-phthalidyl-2-indolinone of the formula:



wherein R and R′ are each a member selected from the group consisting of hydrogen, lower alkyl and benzyl; R_1 is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, hydroxy and halo; and R_2 is a member selected from the group consisting of hydrogen, halo, lower alkoxy and nitro.

3,305,561
AROMATIC CYCLIC IMIDE PROCESS

William G. Toland, San Rafael, Calif., assignor to Chevron Research Company, a corporation of Delaware
No Drawing. Filed Mar. 1, 1965, Ser. No. 436,368
10 Claims. (Cl. 260—326)

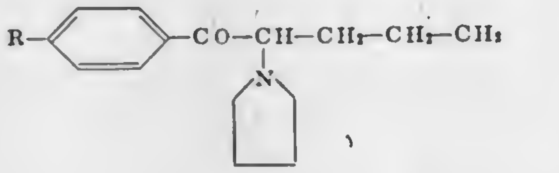
1. Process for the production of aromatic cyclic imides, which comprises reacting in the liquid phase at a temperature in the range from about 115° C. to 260° C. in the presence of mangnaese bromide ammoxidation catalyst, a lower alkyl-substituted aromatic hydrocarbon having less than 4 carbocyclic-aromatic rings and at least one pair of orthodimethyl substituent groups with a gaseous ammoxidation agent consisting essentially of molecular oxygen and ammonia in proportions from about 0.1 to 2.0 mols of ammonia per mol of oxygen, said catalyst being present in the range from about 0.1 to 10 weight percent based upon said hydrocarbon.

8. Process for the production of phthalimide, which comprises reacting in the liquid phase at a temperature in the range from about 115° C. to 260° C. in the presence of manganese bromide ammoxidation catalyst, orthoxylene with a gaseous ammoxidation agent consisting essentially of molecular oxygen and ammonia in proportions from about 0.1 to 2.0 mols of ammonia per mol of oxygen, said catalyst being present in the range from about 0.1 to 10 weight percent based upon orthoxylene.

3,305,562
PROCESS FOR MAKING ALPHA-PYRROLIDINO-VALEROPHENONES

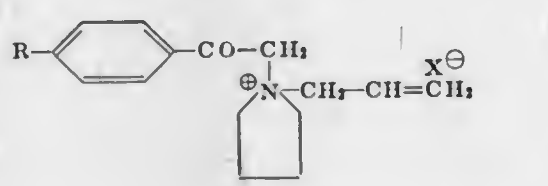
Wilhelm Heffe, Freiburg im Breisgau, Germany, assignor to Dr. A. Wander A.G., Bern, Switzerland, a corporation of Switzerland
No Drawing. Filed May 22, 1961, Ser. No. 111,488
Claims priority, application Switzerland, May 24, 1960, 5,920/60
2 Claims. (Cl. 260—326.5)

1. The process for the production of a free base selected from the group consisting of α-pyrrolidino-valerophenone and p-substituted α-pyrrolidino-valerophenones having the Formula I:



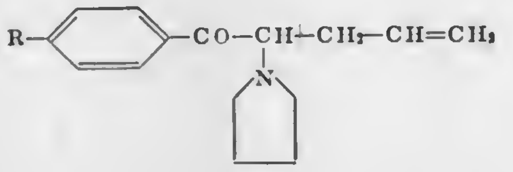
(I)

wherein R is a member selected from the class consisting of hydrogen, methyl and methoxy which comprises; heating a quaternary ammonium compound having the Formula II:



(II)

wherein X denotes an acid anion, R is as defined above, in an aqueous alkaline solution thereby effecting alkaline rearrangement and forming a product having the Formula III:



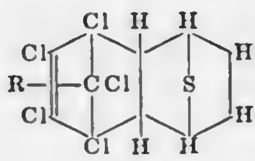
(III)

R is as defined above, thereafter contacting the said product of alkaline rearrangement with hydrogen to saturate the double bond of the terminal unsaturated alkyl radical to form a product having the Formula I.

3,305,563
PESTICIDES (D)

Victor Mark, Norristown, Pa., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Dec. 11, 1963, Ser. No. 329,911
15 Claims. (Cl. 260—332.3)

14. A compound of the structure

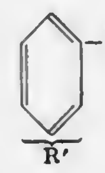


wherein R is an oxaalkyl radical of up to eight carbon atoms.

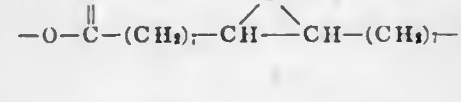
3,305,564
NON-TERMINAL EPOXY PHENOLIC ESTER MONOMERS AND RESINS THEREOF

William S. Port, Norristown, and Daria M. Ostapiak, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Mar. 27, 1961, Ser. No. 98,717
7 Claims. (Cl. 260—348)

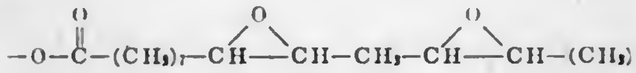
1. A compound of the general formula



wherein R═R′, the position of R′ is selected from the group consisting of ortho, meta, and para with respect to R and R is selected from the groups consisting of



and



3,305,565
POLYEPIHALOHYDRIN PREPARATION USING FLUOBORIC ACID CATALYST

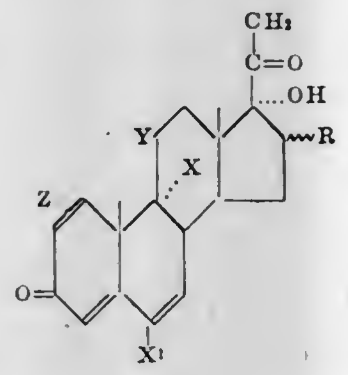
Albert C. Mueller, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed July 8, 1964, Ser. No. 381,262
2 Claims. (Cl. 260—348.6)

1. A process for preparing a polyglycidyl ether which comprises adding an epoxy-halo-substituted alkane in small increments to a mixture of fluoboric acid catalyst and an initiator selected from the group consisting of water and an alcohol in the presence of an inert organic solvent medium wherein said fluoboric acid catalyst is present in an amount of from about 0.1 to about 5% by weight based on the total amount of epoxy-halo-substituted alkane and the mol ratio of epoxy-halo-substituted alkane to initiator is from 4:1 to about 40:1 to form an epoxy-halo-substituted alkane polymer and thereafter treating said polymer with an alkaline material in excess of that required to convert the halohydrin groups to the corresponding epoxy groups.

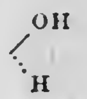
3,305,566
16-METHYL-6α,9α-DIHALO-21-DESOXY CORTICOIDS

Howard J. Ringold and Carl Djerassi, Mexico City, Mexico, assignors, by mesne assignments, to Syntex Corporation, a corporation of Panama
No Drawing. Filed Apr. 28, 1960, Ser. No. 25,198
Claims priority, application Mexico, May 18, 1959, 54,598
9 Claims. (Cl. 260—397.45)

1. A compound of the formula:



wherein R is selected from the group consisting of α-methyl and β-methyl; X and X′ are each selected from the group consisting of chlorine and fluorine; Y is selected from the group consisting of ═O and



and Z is selected from the group consisting of a double bond between C–1 and C–2 and a saturated linkage between C–1 and C–2.

3,305,567
NITRATED FATTY ACID ESTERS

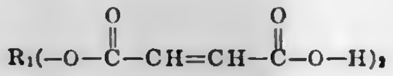
Clifford R. Houle, Renton, and Donald C. Malins, Mountlake Terrace, Wash., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed July 22, 1963, Ser. No. 296,869
6 Claims. (Cl. 260—404.5)

1. Methyl 9(10)-nitro-10(9)-nitrato-octadecanoate.
2. Methyl 9(10)-acetoxy-10(9)-nitro-octadecanoate.

3,305,568
DIALKYLTIN AND DIVALENT METAL SALTS OF ACYCLIC POLYCARBOXYLIC ACIDS

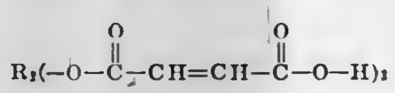
Peter P. Klemchuk, Yorktown Heights, N.Y., assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware
No Drawing. Filed June 11, 1962, Ser. No. 201,255
17 Claims. (Cl. 260—429)

1. A complex metal-organic salt consisting essentially of
- (a) an acidic moiety derived from an acid selected from the group consisting of
  - (i) a compound of the formula



$$R_1(-O-\overset{O}{\overset{\|}{C}}-CH=CH-\overset{O}{\overset{\|}{C}}-O-H)_2$$

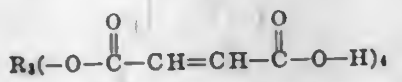
wherein R_1 is selected from the group consisting of alkylene having 2 to 6 carbon atoms, alkenylene having 2 to 6 carbon atoms, and 1,4-dimethylene-cyclohexane,
  - (ii) a compound of the formula



$$R_2(-O-\overset{O}{\overset{\|}{C}}-CH=CH-\overset{O}{\overset{\|}{C}}-O-H)_2$$

wherein R_2 is 1,1,1-tris(lower alkylene) lower alkane, and

(iii) a compound of the formula



$$R_3(-O-\overset{O}{\overset{\|}{C}}-CH=CH-\overset{O}{\overset{\|}{C}}-O-H)_4$$

wherein R_3 is 1,1,1,1-tetrakis(lower akylene) methane, and

(b) a metallic moiety selected from the group consisting of zinc, calcium, cadmium, barium and di(lower alkyl)tin.

3,305,569
ALUMINUM BOROHYDRIDE COMPLEXES

Ivan H. Skoog, East Oakdale Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed July 26, 1961, Ser. No. 128,311

9 Claims. (Cl. 260—448)

1. Complexes formed by reacting aluminum borohydride with a polyether of the formula:

$$Q^1\{(CH_2)_W—(CHR)_X—(CH_2)_Y—O_Z\}_nQ^2$$

wherein Q^1 is selected from the class consisting of hydrogen, hydroxy, alkoxy and alkenyloxy, Q^2 is selected from the class consisting of hydrogen, alkyl and alkenyl, R is selected from the class consisting of hydrogen, an alkyl group containing from 1 to 4 carbon atoms, an aryl group, an alkoxy group containing from 1 to 18 carbon atoms and an aryloxy group, W and Y are integers the sum of which is 0 to 5, X is 0 to 1, Z is zero when X is 1 and R is selected from the class consisting of alkoxy and aryloxy and Z is 1 otherwise and *n* is from about 50 to 100,000, provided that when Z is zero, the sum of W and Y is 1 and that when X is 0, the sum of W and Y is not less than 1.

3. The process which comprises intermixing aluminum borohydride and a polyether in an oxygen-free and water vapor-free environment at a temperature in the range of from about —20° C. to +100° C. for a time sufficient to bring about significant production of an aluminum borohydride-polyether complex, the said polyether having the formula:

$$Q^1\{(CH_2)_W—(CHR)_X—(CH_2)_Y—O_Z\}_nQ^2$$

wherein Q^1 is selected from the class consisting of hydrogen, hydroxy, alkoxy and alkenyloxy, Q^2 is selected from the class consisting of hydrogen, alkyl and alkenyl, R is selected from the class consisting of hydrogen, an alkyl group containing from 1 to 4 carbon atoms, an aryl group, an alkoxy group containing from 1 to 18 carbon atoms and an aryloxy group, W and Y are integers the sum of which is 0 to 5, X is 0 to 1, Z is zero when X is 1 and R is selected from the class consisting of alkoxy and aryloxy and Z is 1 otherwise and *n* is from about 50 to 100,000, provided that when Z is zero, the sum of W and Y is 1 and that when X is 0, the sum of W and Y is not less than 1.

3,305,570
HALOGENATION OF PENTAVALENT-PHOSPHORUS COMPOUNDS-POLYVALENT METAL HALIDE COMPLEXES WITH POLYHALOMETHANES

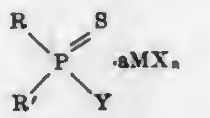
William E. Bacon, Kent, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio, a corporation of Ohio

No Drawing. Filed Oct. 8, 1963, Ser. No. 314,614

23 Claims. (Cl. 260—448)

1. A process for preparing halophosphorus compositions comprising reacting at a temperature of from about 0° to 150° C., a mixture of

(a) a phosphorus- and sulfur-containing complex having the formula



wherein X is a halogen,

Y is a radical selected from the class consisting of —OH, —OR, —SH, —SR, —O—P(S)RR′, —S—S—P(S)RR′, —S—P(S)RR′, —X, and —R,

a is a number from 1 to 2,

M is a metal selected from the class consisting of aluminum, iron, tin, and titanium,

n is the valence of M, and

R and R′ are hydrocarbon radicals, and

(b) a polyhalomethane having at least three halogen radicals.

19. The process for preparing diphenyl phosphinous chloride comprising the steps of preparing the aluminum chloride complex of diphenyl trichlorophosphorane by heating at a temperature of from about 0° to 100° C.,

(a) the aluminum chloride complex of diphenyl phosphinodithioic acid having an aluminum chloride to acid ratio of from 1:1 to 2:1, and

(b) carbon tetrachloride, and

reacting said diphenyl trichlorophosphorane-aluminum chloride complex with a mixture of potassium chloride and aluminum metal at a temperature of from about 75° to 200° C.

3,305,571
METHOD FOR THE INITIATION OF A REACTION BETWEEN ISOPROPYL ALCOHOL AND ALUMINUM

Moses Cenker, Trenton, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Jan. 31, 1963, Ser. No. 255,209

12 Claims. (Cl. 260—448)

1. A method of initiating a reaction between isopropyl alcohol and aluminum at atmospheric pressure which comprises the steps of

(A) introducing aluminum, aluminum isopropoxide and isopropyl alcohol into a reaction vessel, said aluminum isopropoxide constituting about 87 to 95% by weight of the total weight of aluminum isopropoxide and isopropyl alcohol,

(B) mixing said aluminum, aluminum isopropoxide and isopropyl alcohol to form a mixture, and

(C) simultaneously heating the mixture to a temperature of about 88 to 150° C. to initiate the reaction between isopropyl alcohol and aluminum.

9. A process for the production of aluminum isopropoxide at atmospheric pressure which comprises the steps of

(A) introducing aluminum, aluminum isopropoxide and isopropyl alcohol into a reaction vessel, said aluminum isopropoxide constituting about 87 to 95% by weight of the total weight of aluminum isopropoxide and isopropyl alcohol,

(B) mixing said aluminum, aluminum isopropoxide and isopropyl alcohol to form a mixture,

(C) simultaneously heating the mixture to a temperature of about 88 to 150° C. thereby initiating the reaction between isopropyl alcohol and aluminum, and

(D) continuously introducing isopropyl alcohol into the mixture after the reaction has initiated and until substantially all of the aluminum has reacted to maintain the concentration of isopropyl alcohol in the mixture at about 5 to 13% by weight based on the total weight of aluminum isopropoxide and isopropyl alcohol in the mixture.

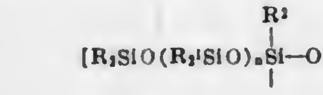
3,305,572
BRANCHED CYCLIC SILOXANES AND PROCESS THEREFOR

George M. Omietanski, Tonawanda, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Apr. 29, 1963, Ser. No. 276,171

6 Claims. (Cl. 260—448.2)

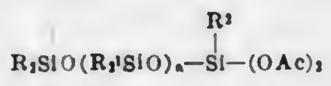
1. Branched cyclic organopolysiloxanes having non-random, ordered structure having the formula:



$$[R_3SiO(R_2^1SiO)_n\overset{R^2}{\overset{|}{Si}}—O—]_m$$

wherein R, R^1 and R^2 are monovalent hydrocarbyl radicals, *m* is an integer having a value of 3 to 5 inclusive and *n* is an integer having a value of 1 to 6 inclusive.

4. A process for the production of branched cyclic organopolysiloxanes having non-random, ordered structure which comprises reacting under substantially anhydrous conditions and in the presence of an inert organic solvent an acyloxy-siloxane having the formula:



$$R_3SiO(R_2^1SiO)_n—\overset{R^2}{\overset{|}{Si}}—(OAc)_2$$

wherein R, R^1 and R^2 are monovalent hydrocarbyl radicals, *n* is an integer having a value of 1 to 6 inclusive and Ac is an acyl radical with an amine selected from the class consisting of primary and secondary amines, said amine being present in an amount sufficient to provide at least two moles of amine per mole of acyloxy-siloxane.

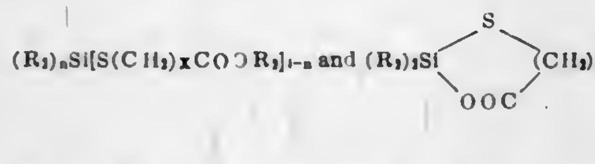
3,305,573
TETRAVALENT STABILIZERS

Kenneth R. Molt, Ingenuin Hechenbleikner, and Otto A. Homberg, Cincinnati, Ohio, assignors to Carlisle Chemical Works, Inc., Reading, Ohio, a corporation of Ohio

No Drawing. Filed Jan. 23, 1963, Ser. No. 253,248

8 Claims. (Cl. 260—448.8)

1. A compound having a formula selected from the group consisting of



where R_2 and R_3 are selected from the group consisting of alkyl, cycloalkyl, carbocyclic aryl, and halophenyl, X is an integer, Y is an integer from 1 to 2 and *n* is selected from the group consisting of 1 and 3.

3,305,574
ISOCYANATE PROCESS

Wilfried Zecher and Hans Holtschmidt, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Nov. 6, 1963, Ser. No. 321,668

Claims priority, application Germany, Nov. 24, 1962, F 38,387

5 Claims. (Cl. 260—453)

1. A process for preparing nuclearly halogenated aromatic isocyanates which comprises contacting a nuclearly halogenated aromatic isocyanate containing a halogenoalkyl side chain, the halogen being either chlorine or bromine, with a nucleophilic aromatic compound at temperature of from about 60° C. to about 200° C. in the presence of a Friedel-Crafts catalyst, thereby removing the halogen from the side chain.

3,305,575
BENZANILIDE DERIVATIVES

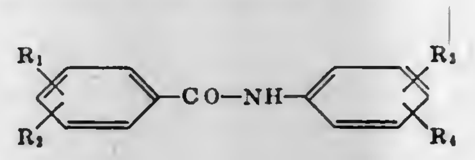
Francois Debarre, Antony, Seine, France, assignor to Rhone-Poulenc S.A., Paris, France, a corporation of France

No Drawing. Filed Sept. 12, 1963, Ser. No. 308,364

Claims priority, application France, Sept. 19, 1962, 909,874; June 19, 1963, 938,633

13 Claims. (Cl. 260—454)

1. A compound of the formula:



in which R_1, R_2, R_3, and R_4 are each selected from the class consisting of hydrogen, chlorine, alkyl of up to 4 carbon atoms, hydroxy, nitro, and isothiocyanato, at least one of R_1, R_2, R_3, and R_4 being isothiocyanato.

3,305,576
3-CHLOROPROPYL DIISOPROPYLTHIOLCARBAMATE

John J. D'Amico, Charleston, and Marion W. Harman, Nitro, W. Va., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Original application July 10, 1959, Ser. No. 826,130. Divided and this application Nov. 13, 1962, Ser. No. 248,170

1 Claim. (Cl. 260—455)

3-chloropropyl diisopropylthiolcarbamate.

3,305,577
STORAGE STABLE FATTY ALCOHOL SULFATES AND METHOD OF MANUFACTURE

Karl Goldann, Dusseldorf, and Werner Stein, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany, a corporation of Germany

No Drawing. Filed Aug. 1, 1963, Ser. No. 299,200

Claims priority, application Germany, Aug. 16, 1962, H 46,653

5 Claims. (Cl. 260—459)

1. A substantially odor-free, storage stable product comprising a sodium salt of a sulfated fatty alcohol containing 8–20 carbon atoms in admixture with 0.05 to 0.2% referred to said sodium salt of a sulfated fatty alcohol of at least one member selected from the group consisting of hydroquinone, dioxydiphenyl, dioxynaphthalene and secondary amines having the formula R_1—NH—R_2 wherein each of the R_1 and R_2 is a member selected from the group consisting of phenyl, pyridyl, and β-naphthylamino-p-phenylene.

3,305,578
METHOD OF PREPARING SUBSTANTIALLY PURE AMINO ACID SALTS OF ALKYL SULFURIC ACIDS

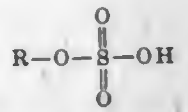
Elmer W. Maurer and Alexander J. Stirton, Philadelphia, and James K. Weil, North Wales, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Apr. 8, 1960, Ser. No. 21,066, now Patent No. 3,133,946, dated May 19, 1964. Divided and this application Oct. 2, 1963, Ser. No. 313,400

7 Claims. (Cl. 260—459)

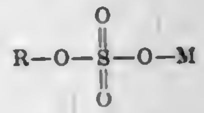
1. A process for preparing a substantially pure amino acid salt of an alkylsulfuric acid comprising reacting chlorosulfonic acid with an n-alkanol of the formula ROH wherein R is an n-alkyl group having 12 to 22 carbon atoms, said n-alkanol being in solution in a low-boiling halogenated hydrocarbon inert with respect to the chlorosulfonic acid, at a temperature below about 30° C.

to convert the alkanol to an alkylsulfuric acid of the formula



$$R{-}O{-}\overset{\overset{\displaystyle O}{\|}}{\underset{\underset{\displaystyle O}{\|}}{S}}{-}OH$$

wherein R has the same significance as above, cooling the reaction solution to below about 0° C. to crystallize the alkylsulfuric acid, collecting the crystallized alkylsulfuric acid from the resulting mixture at about 0° C., and in the absence of moisture to recover substantially pure alkylsulfuric acid, mixing the substantially pure alkylsulfuric acid, in solution in a solvent selected from the group consisting of chloroform, an alkanol, an aqueous alkanol, ether and water, with at least a stoichiometric amount of an amino acid selected from the group consisting of glycine, DL-alanine, DL-leucine, L-methionine, DL-aspartic acid, L-glutamic acid, glycylglycine. and betaine to form the corresponding amino acid salt of the alkylsulfuric acid having the formula



$$R{-}O{-}\overset{\overset{\displaystyle O}{\|}}{\underset{\underset{\displaystyle O}{\|}}{S}}{-}O{-}M$$

wherein R has the same significance as above and M is a substituted ammonium radical corresponding to the the amino acid, cooling the reaction mixture to crystallize the formed salt, and collecting the salt crystals to recover the salt in substantially pure form.

3,305,579
PRODUCTION OF CYCLOHEXENE-(3) CARBOXYLIC ACIDS AND THEIR ESTERS

Robert Stadler and Friedrich Becke, Heidelberg, and Hans Pirzer, Frankenthal, Pfalz, Germany, assignors to Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Oct. 12, 1962, Ser. No. 230,271
Claims priority, application Germany, Oct. 17, 1961, B 64,405
7 Claims. (Cl. 260—468)

1. A process for the production of compounds selected from the group consisting of cyclohexene-(3) carboxylic acids and their esters which comprises reacting a 1,3-diene having 4–10 carbon atoms, 0–2 chlorine atoms, 0–2 alkoxy groups of 1–4 carbons atoms, 0–1 carboxyl groups, 0–1 carboxyl ester groups with 2–5 carbons, and otherwise a hydrocarbon structure, an α-acetylene compound having a hydrocarbon structure and 2–9 carbon atoms, carbon monoxide and at least one member selected from the group consisting of water, alcohols having 1–4 hydroxyl groups, 1–20 carbon atoms, 0–2 alkoxy groups with 1–4 carbon atoms, and otherwise a hydrocarbon structure and phenols having 6–15 carbon atoms, 1–3 hydroxyl groups on the aryl ring, 0–3 chlorine atoms, and otherwise the hydrocarbon structure, at a temperature between 150° C. and 250° C. at a pressure above 10 atmospheres and below the decomposition pressure of the α-acetylene compound employed in the presence of a nickel catalyst formed under the reaction conditions.

3,305,580
CYCLOALKENE-1-MERCAPTOALKANOIC ACIDS, ALKYL ESTERS AND METAL SALTS

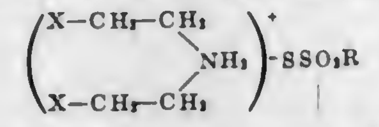
Otto A. Homberg, Woodlawn, and Ingenuin Hechenbleikner and Edith H. Miller, Cincinnati, Ohio, assignors to Carlisle Chemical Works, Inc., Reading, Ohio, a corporation of Ohio
No Drawing. Filed Apr. 2, 1963, Ser. No. 269,863
13 Claims. (Cl. 260—468)

1. A compound having the formula $R_1S(CH_2)_nCOOR_2$ where R_1 is cycloalkenyl in which the double bond is on the carbon atom adjacent to the sulfur atom, R_2 is selected from the group consisting of hydrogen, alkyl and a metal and *n* is an integer of at least 1.

3,305,581
β,β′-DIHALODIETHYLAMMONIUM THIOSULFONATES

Joan H. Rogers, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Oct. 28, 1963, Ser. No. 319,529
4 Claims. (Cl. 260—501)

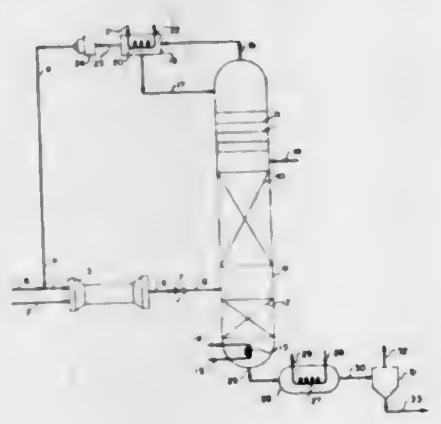
1. A compound corresponding to the formula:



wherein X represents a halogen selected from the group consisting of chlorine, bromine and iodine, and R represents a member of a group consisting of lower alkyl, phenyl, lower alkylphenyl, halophenyl and lower alkylhalophenyl, in which halo represents a member of the group consisting of chlorine, bromine and iodine.

3,305,582
UREA SYNTHESIS WITH RECOVERY OF EXCESS AMMONIA

Lucien H. Cook, Port Washington, and Ivo Mavrovic, New York, N.Y., assignors to Chemical Construction Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 11, 1963, Ser. No. 308,210
7 Claims. (Cl. 260—555)



1. In a urea synthesis process wherein ammonia and carbon dioxide are reacted at elevated urea synthesis pressure and temperature to produce a liquid synthesis effluent stream containing urea, ammonium carbamate, excess ammonia and water, said liquid effluent stream is heated at reduced pressure to produce a hot vapor phase principally containing ammonia and a residual liquid portion, said hot vapor phase is processed to produce ammonia substantially free of carbon dioxide, said residual liquid portion is heated to decompose ammonium carbamate and produce an off-gas containing ammonia and carbon dioxide, and said off-gas is separated from product aqueous liquid urea solution, the improved method of separating carbon dioxide from said hot vapor phase which comprises

(a) scrubbing said hot vapor phase with cold aqueous urea solution substantially free of ammonium carbamate, whereby carbon dioxide is dissolved from said vapor phase into said aqueous urea solution and a residual cooled vapor phase comprising ammonia substantially free of carbon dioxide is produced, and
(b) adding the aqueous urea solution containing dissolved carbon dioxide derived from step (a) to said residual liquid portion.

3,305,583
N,N-DIBUTYL-2-NAPHTHAMIDE

John D. Douros, Jr., Fanwood, N.J., and William D. Vanderwerff, Wilmington, Del., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Oct. 7, 1963, Ser. No. 314,537
1 Claim. (Cl. 260—558)

N,N-dibutyl-2-naphthamide.

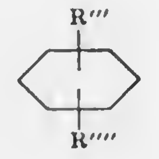
3,305,584
PROCESS OF PREPARING CATALYST FREE AROMATIC DIAMINES

Ronald B. Spacht, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed June 15, 1964, Ser. No. 375,350
4 Claims. (Cl. 260—576)

1. In the process of preparing aromatic diamines comprising reacting (1) a primary amine having the structural formula

$$R{-}NH_2$$

wherein R is selected from the group consisting of primary alkyl radicals containing from 1 to 20 carbon atoms, secondary alkyl radical containing from 1 to 20 carbon atoms, aralkyl radical containing from 7 to 12 carbon atoms, cycloalkyl radical containing from 5 to 8 carbon atoms, and aryl radical conforming to the following structure



wherein R‴ and R⁗ are selected from the group consisting of hydrogen, primary alkyl radicals containing from 1 to 20 carbon atoms, secondary alkyl radicals containing from 1 to 20 carbon atoms, aralkyl radicals containing from 7 to 12 carbon atoms, cycloalkyl radicals containing from 5 to 8 carbon atoms and alkoxy radicals containing from 1 to 9 carbon atoms with (2) a polyhydroxy aromatic compound selected from the group consisting of hydroquinones, resorcinols and catechols at a temperature between 100 and 350° C. in the presence of an iron halide condensation catalyst, the improvement wherein iron is precipitated from the hot reaction mixture in the form of an insoluble iron salt, by the addition of a water-soluble alkali metal salt selected from the group consisting of the alkali metal carbonates, alkali metal hydroxides, alkali metal phosphates, alkali metal sulfides and alkali metal sulfites and thereafter filtering the molten reaction mixture to remove said insoluble iron salt from the resulting diamine.

3,305,585
PROCESS FOR PRODUCING UNSYMMETRICAL DIALKYLHYDRAZINES BY CATALYTIC HYDROGENATION OF DIALKYLNITROSAMINES

Paul Besson and Albert Nallet, La Chambre, and Gilbert Luiset, Saint-Etienne-de-Cuines, France, assignors to Société d'Electro-Chimie, d'Electro-Métallurgie et des Aciéries Electriques d'Ugine, Paris, France, a corporation of France
No Drawing. Filed Nov. 14, 1963, Ser. No. 323,558
Claims priority, application France, Nov. 16, 1962, 915,651; Nov. 24, 1962, 916,495
3 Claims. (Cl. 260—583)

1. A process for production of unsymmetrical dimethylhydrazine comprising hydrogenating dimethylnitrosamine in the liquid phase in the presence of a Raney nickel catalyst whose composition is nickel—40–55%, aluminum—38–60%, cobalt—0–1% and iron—0–6% by weight, said catalyst being subjected to a first treatment with a solution of caustic soda in an amount such that the weight of caustic soda dissolved is substantially that of the weight of the catalyst; after decanting, said catalyst being subjected to a second treatment identical to said first treatment followed by elimination of said caustic soda solution; in carrying out said hydrogenating forming a reaction medium comprising a dimethylnitrosamine and a member selected from the group consisting of a hydroxide of an alkaline metal, of an alkaline earth metal, a salt of an alkaline metal and of an alkaline earth metal, said dimethylnitrosamine being at least 20% by weight of said reaction medium, said member being about 0.001 to 5 moles per dm.^{3} of said reaction medium, said catalyst being present in said reaction medium in a ratio by weight of

$$\frac{\text{catalyst}}{\text{dimethylnitrosamine}}$$

of about 0.001–1.0, said hydrogenating being carried out at a pressure between about 5 and less than 50 atmospheres, and at a temperature between substantially —20° C. and +50° C.

3,305,586
PROCESS FOR PREPARING CYCLOHEXANONE

Bernard Phielix, Sittard, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
Filed Aug. 12, 1963, Ser. No. 301,496
Claims priority, application Netherlands, May 15, 1959, 239,268
10 Claims. (Cl. 260—586)

1. In the process for preparing cyclohexanone by selective catalytic hydrogenation of phenol, the improvement which consists essentially in (1) forming a gaseous mixture of hydrogen and phenol vapors having a molecular ratio of hydrogen to phenol in the range of from about 3:1 to about 25:1; (2) passing this mixture at a temperature from about 75° C. to about 250° C. and at a pressure from about 1 to 5 atmospheres while maintained in the vapor state through a reaction zone and over a fixed bed catalyst consisting essentially of a palladium metal supported on a carrier, said metal being present in a required amount of from about 0.1 to 0.8% of said carrier, whereby the phenol is hydrogenated in the vapor state to cyclohexanone; (3) removing the vapor reaction product from said reaction zone; and (4) thereafter condensing the vapor reaction product and separating cyclohexanone therefrom in high yield.

3,305,587
DEHYDROGENATION OF CYCLOALKANOLS

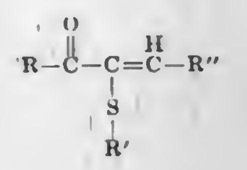
Heinrich Sperbert and Guenter Poehler, Ludwigshafen (Rhine), and Otto Goehre, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Dec. 16, 1963, Ser. No. 330,653
Claims priority, application Germany, Dec. 18, 1962, B 70,020
8 Claims. (Cl. 260—586)

1. A process for the catalytic dehydrogenation of a cycloalkanol of six to twelve carbon atoms at a temperature of 250° to 450° C. in the gas phase which comprises contacting said cycloalkanol with a catalyst comprising zinc oxide which has been obtained by precipitation of an aqueous zinc salt solution with a basic precipitant, separation of the precipitate from the aqueous phase, heating it within at least two hours to about 400° C. and annealing at a temperature between 400° and 600° C. for two to ten hours, the period of heating and temperature being correlated so that a zinc oxide having a surface area of 5 to 20 m.^{2}/g. is formed.

3,305,588
α-ACYLVINYLTHIOETHERS

Alfred A. Schleppnik, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Sept. 17, 1965, Ser. No. 488,277
9 Claims. (Cl. 260—590)

1. An α-acylvinylthioether of the formula



$$R-\overset{\overset{O}{\|}}{C}-\underset{\underset{R'}{|}}{\underset{\underset{S}{|}}{C}}=\overset{H}{C}-R''$$

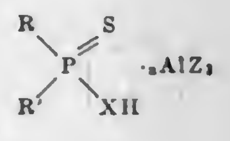
wherein R is an alkyl containing from 1 to 8 carbon atoms, R′ is selected from the group consisting of alkyl containing 1 to 8 carbon atoms, phenyl and lower alkyl phenyl and R″ is selected from the group consisting of alkyl containing from 1 to 8 carbon atoms, phenyl, lower alkyl phenyl and the nuclearly substituted chloro, bromo, nitro, lower alkoxy and di(lower alkyl) amino derivatives of both said phenyl and said lower alkyl phenyl.

3,305,589
PROCESS OF PREPARING TERTIARYARYL PHOSPHINE SULFIDES

William E. Bacon, Kent, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio, a corporation of Ohio
No Drawing. Filed Oct. 8, 1963, Ser. No. 314,646
13 Claims. (Cl. 260—606.5)

1. A process for preparing organophosphorus sulfides comprising reacting at a temperature within the range from about 50° C. to about 200° C.,

(a) a phosphorus-containing reactant having the formula



wherein:

X is selected from the class consisting of oxygen and sulfur

n is a number from 1 to 2,

Z is a halogen, and

R and R′ are hydrocarbon radicals, with

(b) an aromatic compound having an ionization constant of less than 1×10^{-10} at 25° C. in aqueous solution, in the presence of

(c) AlZ_3 wherein Z is as defined above.

3,305,590
DECOMPOSITION OF ALPHA HYDROPEROXY DERIVATIVES OF ALKYL SUBSTITUTED AROMATIC HYDROCARBONS

Ernest L. Pollitzer, Hinsdale, James J. Louvar, Riverside, and George E. Illingworth, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed July 15, 1963, Ser. No. 295,189
10 Claims. (Cl. 260—621)

1. A method of decomposing an alpha hydroperoxy derivative of an alkyl aromatic hydrocarbon and forming a phenol, which method comprises heating said hydroperoxy derivative in contact with a catalytic composite consisting of silica and alumina and comprising from about 60% to about 95% silica and having a surface area of at least 100 square meters per gram.

3,305,591
RESOLUTION OF TERPENE ALCOHOLS BY ELUTION CHROMATOGRAPHY USING OPTICALLY ACTIVE POLYMER

Morton Batlan Epstein, Linden, and John Fred Gerecht, Somerville, N.J., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed May 8, 1963, Ser. No. 279,010
4 Claims. (Cl. 260—631)

1. A process for resolving a mixture of terpene alcohols differing in optical activity which comprises: intimately contacting said mixture with a body of optically active, insoluble, cross-linked, organic polymer containing at least one ester group capable of reaction with said terpene alcohols thereby preferentially reacting said polymer with one of said optically active terpene alcohols, eluting the polymer with a solvent, and separating from the polymer a fraction more concentrated with one of said optically active terpene alcohols than was the original mixture, said optically active polymer being formed by reaction of maleic anhydride, a methacrylate selected from the group consisting of laevo- and dextro-alkyl methacrylates, and a divinyl benzene.

4. The process for resolving racemic menthol, which comprises: contacting a solution of the racemate in tetrahydrofuran containing interesterification catalyst with a body of an optically active polymer; eluting the polymer so contacted with a dilute solution of tetrahydrofuran containing ethyl alcohol and an additional amount of interesterification catalyst; and separating from the polymer a fraction more concentrated with one of the optical antipodes than the racemate; said polymer being selected from the group consisting of esters and amides of an optically active polymer of maleic anhydride, a methacrylate, and a divinyl benzene; said methacrylate being selected from the group consisting of laevo- and dextro-alkyl methacrylates.

3,305,592
SEPARATION OF ALKANOLS FROM HYDROCARBONS USING BENZYL ALCOHOL, DIMETHYLFORMAMIDE, FURFURYL ALCOHOL, FURFURAL AND MIXTURES THEREOF

Jerry A. Acciarri and Eugene F. Kennedy, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed Jan. 17, 1964, Ser. No. 338,322
9 Claims. (Cl. 260—643)

1. A method for separating water-insoluble, normal primary alkanols from a solution thereof in hydrocarbons having substantially the same volatility characteristics as the alkanols which comprise solvent extracting said solution with an agent selected from the group consisting of benzyl alcohol, dimethylformamide, furfuryl alcohol, furfural and mixtures thereof.

9. In a method for the manufacture of α-olefins wherein aluminum is initially reacted with ethylene to produce a growth product which is then reacted with ethylene in either a thermal or catalytic displacement reaction to provide an α-olefin effluent from whence the aluminum content is removed, the improvement of solvent extracting said aluminum-free effluent with an agent selected from the group consisting of benzyl alcohol, dimethylformamide, furfuryl alcohol, furfural and mixtures thereof and recovering from the raffinate phase the α-olefin content thereof.

3,305,593
DEHYDROGENATION OF CYCLOOCTENE

Robert E. Rinehart, Rutherford, and Ronald W. Fuest, Wayne, N.J., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey
No Drawing. Filed June 24, 1965, Ser. No. 466,839
5 Claims. (Cl. 260—666)

1. The method of dehydrogenating cyclooctene to 1,5-cyclooctadiene which comprises heating a solution of cyclooctene and a rhodium salt in methanol at a temperature from 50° C. to 150° C.

3,305,594
STYRENE PRODUCTION

Davis B. Richardson, Amstelveen, Netherlands, and Jennings B. Du Bois, Jr., Pasadena, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 9, 1964, Ser. No. 402,916
5 Claims. (Cl. 260—669)

1. The process of producing styrene by contacting 1,5-cyclooctadiene with from about 2 to about 8 moles of elemental iodine per mole of the cyclooctadiene, at a temperature from about 800° F. to about 1200° F.

3,305,595
AROMATICS SEPARATION AND PURIFICATION BY DIALYSIS

Joseph F. Paulson, Claymont, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Filed June 18, 1963, Ser. No. 288,768
1 Claim. (Cl. 260—674)

Process for increasing the aromatics content and decreasing the quantity of colloidal color bodies in an aromatic oil containing asphaltic components which comprises dialyzing a solution-dispersion of the aromatic oil in a paraffinic solvent through a polypropylene film, said film having a specific gravity of 0.87 to 0.92 and having a maximum extractable fraction of 0.1 to 50 weight percent when extracted with n-hexane at reflux temperature, and recovering the dialyzate.

3,305,596
PROCESS FOR OBTAINING OLEFINS AND/OR CARBON MONOXIDE BY ABSORPTION AND DESORPTION

Kurt Fischer, Neuotting (Inn), and Josef Hirschbeck and Freimuth Lohöfer, Burgkirchen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Mar. 16, 1964, Ser. No. 352,313
Claims priority, application Germany, Mar. 16, 1963, F 39,261
4 Claims. (Cl. 260—677)

1. In the process for obtaining a member selected from the group consisting of olefins and carbon monoxide by absorption in ethanol amine-containing copper salt solutions with subsequent desorption at 30–60° C., the step which comprises heating the ethanol amine copper salt solution in a heat exchanger and with a heating medium the temperature of which is above the temperature to be reached by the copper salt solution and below 90° C.

3,305,597
PROCESS FOR THE REMOVAL OF OXYGEN AND ACETYLENIC CONTAMINANTS FROM NORMALLY GASEOUS OLEFINS

Heinrich K. Straschil, East Orange, and Walter Egbert, Jr., West Paterson, N.J., assignors to Engelhard Industries, Inc., Newark, N.J., a corporation of Delaware
No Drawing. Filed Apr. 17, 1964, Ser. No. 360,748
18 Claims. (Cl. 260—677)

1. A process for the removal of oxygen and acetylenic hydrocarbon contaminants from a normally gaseous olefin, which comprises passing the normally gaseous olefin together with hydrogen present in a stoichiometric excess over the amount required to react with all the oxygen and acetylenic hydrocarbons, at a high space velocity over a catalyst of the group consisting of rhodium, rhodium-platinum and platinum to remove the oxygen from the gas, and then passing the gas from the catalyst over a palladium catalyst at a reaction temperature to remove the acetylenic hyrocarbons therefrom.

3,305,598
THERMAL POLYMERIZATION IN THE PRESENCE OF A HALOGEN

Raymond A. Franz, Kirkwood, and Richard N. Moore, Creve Coeur, Mo., assignors to Monsanto Company, a corporation of Delaware
No Drawing. Filed July 27, 1962, Ser. No. 213,005
12 Claims. (Cl. 260—683.1)

1. A process for the thermal polymerization of polymerizable olefin hydrocarbons which comprises subjecting polymerizable olefin hydrocarbons of 2 to 6 carbon atoms to a temperature of 300 to 500° C., a pressure of no less than 1000 p.s.i.g. in a reaction chamber in the absence of a catalyst and in the presence of a modifying compound selected from the group consisting of HBr, HCl, bromine substituted hydrocarbons, chlorine substituted hydrocarbons and combinations thereof, the modifying compound being present in an amount such as to produce a mole ratio of hydrogen halide to hydrocarbon of 1:10 to 1:500.

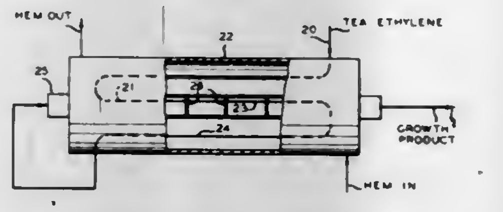
3,305,599
PROPYLENE DIMERIZATION

Mario D. Zadra, Barberton, and James J. Tazuma, Stow, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed Mar. 12, 1963, Ser. No. 264,703
7 Claims. (Cl. 260—683.15)

1. A process for the dimerization of propylene to form 4-methyl-1-pentene which comprises dimerizing propylene in the presence of a catalyst comprising at least one alkali metal selected from the group consisting of potassium, cesium and rubidium which is supported on pellets composed of at least 85% magnesia, said pellets having pellet density from 0.25 to 0.7 gram per cubic centimeter and where the pellets have been heated prior to having the alkali metal added to temperatures ranging from about 750° C. to about 1000° C.

3,305,600
CHEMICAL REACTIONS IN COMPOSITED TUBULAR REACTION ZONE AND APPARATUS THEREFOR

Edward E. Hopper and Charles Alvin Wentz, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed June 20, 1963, Ser. No. 289,312
8 Claims. (Cl. 260—683.15)



1. A method of conducting a reaction which yields exothermic heat and the temperature of which is desirably controlled which comprises passing reactants of sufficient volatility to allow vaporization of at least a portion thereof at reduced pressure through a first elongated zone or passageway maintained under an elevated pressure at an elevated temperature, allowing reaction to take place in said zone while the reactants are flowing therethrough, then passing the thus-reacted reactants through a second elongated zone or passageway, one of said first and sec-

ond zones contiguously surrounding and enclosing at least a portion of the other of said zones, the pressure on the reacted reactants in said second zone being sufficiently reduced to provide for vaporization and expansion of at least a part of the volatile constituents in the reaction phase to provide a reduction in the temperature thereof and a consequent heat transfer from said first to said second zone.

8. Heat exchange apparatus comprising an elongated tube having a closed end, a second tube disposed within said elongated tube and forming an annulus therewith extending substantially the entire length of said elongated tube and almost to said closed end of said elongated tube, said second tube being open at its extremity located near said closed end of said elongated tube thereby forming a continuous passageway with said annulus, said annulus or said second tube having therein at least one pressure drop producing orifice, comprising a flow restriction intermediate the ends of said second tube having a cross sectional area substantially less than the cross sectional area of said annulus or said second tube, the tubes at their upper ends arranged to be separately in open communication with any desired place.

3,305,601
THERMOSET COMPOSITIONS BASED ON CARBOXY POLYMERS AND EPOXIDE RESINS

Darrell D. Hicks, Louisville, Ky., assignor to Celanese Coatings Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 9, 1966, Ser. No. 556,287

7 Claims. (Cl. 260—837)

1. A film forming composition capable of curing at room temperature wherein the film forming components consist essentially of

(A) a carboxy containing copolymer which is a polymerization product of an alpha-beta monoethylenically unsaturated monocarboxylic acid having not more than four carbon atoms and a monoethylenically unsaturated monomer copolymerizable therewith and containing about 20 to about 30 weight percent carboxylic acid based on the total copolymer weight,

(B) a polyepoxide containing more than one 1,2 epoxy group per molecule and being selected from at least one member of the group consisting of glycidyl polyethers of polyhydric phenols, glycidyl polyethers of polyhydric alcohols, glycidyl esters of carboxylic acids epoxy esters, and

(C) a catalyst selected from the group consisting of amines, amine salts, quaternary ammonium hydroxides and quaternary ammonium salts, wherein

(A) and (B) are present in the proportions of 1 carboxy equivalent to about 0.7 to 2 epoxy equivalents and wherein (C) is present in the amount of 0.1 to 2 weight percent based on the sum of the weights of (A) and (B).

3,305,602
COATING COMPOSITIONS (A) A VINYL CHLORIDE ORGANOSOL (B) A VINYL CHLORIDE COPOLYMER SOLUTION (C) AN ACRYLIC RESIN COMPONENT (D) A BUTYLATED UREA-FORMALDEHYDE AND OPTIONALLY, (E) A VINYL CHLORIDE-VINYLIDENE CHLORIDE SOLUTION

Edward J. Bromstead, Waukegan, Ill., assignor to Midland Industrial Finishes Company, Inc., Waukegan, Ill., a corporation of Illinois

No Drawing. Filed Apr. 27, 1962, Ser. No. 190,818

2 Claims. (Cl. 260—853)

1. A liquid coating composition suitable for use in coating metal and being baked thereon to provide an adherent coating, which comprises: an organosol component having a vinyl chloride polymer dispersion resin dispersed in an organic liquid vehicle; a vinyl chloride copolymer solution resin that is a member of the group consisting of vinyl chloride-vinyl acetate and vinyl chloride-one-half lower alkyl ester of maleic acid; and acrylic resin component from the group consisting of polymeric methyl methacrylate in methyl methacrylate monomer, acrylic solution resin which are polymers and/or copolymers of lower alkyl methacrylates or acrylates, and admixtures thereof; a butylated urea-formaldehyde solution resin; and volatile liquid from the group consisting of organic solvent, organic diluent, and admixtures thereof; said composition having about 20–70% by weight non-volatiles containing about 10–50 parts by weight vinyl chloride dispersion resin, about 5–40 parts by weight vinyl chloride copolymer solution resin, about 0.5–10 parts by weight acrylic resin component, and about 1–10 parts by weight of butylated urea-formaldehyde resin; and said composition being capable of being filmed as a compatible, substantially homogeneous composition onto a metal surface and of being baked thereon at a temperature of about 350–500° F. to form a cured adherent coating.

3,305,603
METHOD OF IMPROVING ACID DYEABILITY OF FIBRE-FORMING POLYMERS

James Eric McIntyre and Michael King McCreath, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Sept. 14, 1964, Ser. No. 396,372

Claims priority, application Great Britain, Sept. 23, 1963, 37,350/63

9 Claims. (Cl. 260—860)

1. An acid dyeable meltspun fiber comprising synthetic linear polyster having distributed within it the reaction product of at least one ester selected from the group consisting of alkyl, alkylene and polyalkylene esters of an acid selected from the group consisting of trichloroacetic acid and oxalic acid, with an amine containing at least one member of the group consisting of primary and secondary amines, the amount of said ester being 0.1 to 10% by weight of said fiber.

3,305,604
PEARLESCENT POLYESTER COMPOSITIONS

Gerald M. Armstrong, Gordon C. Newland, and John W. Tamblyn, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Jan. 22, 1965, Ser. No. 427,490

12 Claims. (Cl. 260—860)

1. A process of producing a biphase polyester polymeric product having a pearlescent appearance which comprises forming a comminuted mixture containing from about 70 to about 60% by weight of a copolyester of terephthalic acid and isophthalic acid with 1,4-cyclohexanedimethanol and from about 30 to about 40% by weight of a polyester of carbonic acid with 1,4-cyclohexanedimethanol, heating the mixture to the melting point of the highest melting component and causing the molten material to flow.

4. A process of producing a biphase polyester polymeric product having a pearlescent appearance which comprises forming a comminuted mixture containing from about 70 to about 60% by weight of a copolyester of terephthalic acid and isophthalic acid with 1,4-cyclohexanedimethanol and from about 30 to 40% by weight of a copolyester of sebacic acid and a phthalic acid with 1,4-cyclohexanedimethanol, the total amount of the condensed sebacic acid in the polyester mixture being less than 18 mole percent, heating the mixture to the melting point of the highest melting component and causing the molten material to flow.

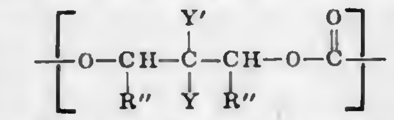
3,305,605
COMPOSITIONS CONTAINING POLYCARBONATE PLASTICIZERS

Fritz Hostettler and Eugene F. Cox, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Feb. 4, 1964, Ser. No. 342,545

15 Claims. (Cl. 260—873)

1. A plasticized composition consisting essentially of a plasticizable solid polymeric material and, as the plasticizer therefor, a solid polycarbonate polymer which has an average molecular weight of at least about 15,000 and which contains the following recurring unit:



$$\left[-O-\underset{R''}{CH}-\overset{Y'}{\underset{Y}{C}}-\underset{R''}{CH}-O-\overset{O}{\overset{\|}{C}}-\right]$$

wherein each R″ is of the group consisting of hydrogen an alkyl; wherein Y is of the group consisting of alkyl, alkoxymethyl, alkanoyloxymethyl, nitro, cyanoalkyl, haloalkyl, and cyanoalkoxymethyl; and wherein Y′ is alkyl, alkoxymethyl, alkanoyloxymethyl, cyanoalkyl, haloalkyl, and cyanoalkoxymethyl.

3,305,606
PROCESS FOR THE PRODUCTION OF GRAFT COPOLYMERS OF VINYL CHLORIDE ONTO A PARTIALLY SAPONIFIED ETHYLENE-VINYL ACETATE COPOLYMER

Dietrich Hardt, Bonn, and Herbert Bartl, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Sept. 21, 1965, Ser. No. 489,047

Claims priority, application Germany, Oct. 13, 1964, F 44,209

8 Claims. (Cl. 260—878)

1. A process for the production of graft polymers from at least one mono-olefinically unsaturated polymerizable compound and partially saponified ethylene-vinyl acetate copolymers in an aqueous dispersion comprising partially saponifying the copolymer in the presence of vinyl chloride, vinylidene chloride or mixtures thereof and polymerizing the resulting saponification solution.

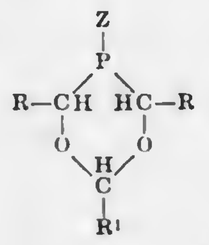
3,305,607
PHOSPHACYCLOHEXANES AS FLAME-RETARDANT AGENTS FOR THERMOPLASTIC POLYMERS

Allan Ellis Sherr, Norwalk, and Helen Currier Gillham, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Feb. 17, 1964, Ser. No. 345,072

7 Claims. (Cl. 260—893)

1. A flame-retardant composition comprising a thermoplastic polymer and a flame retarding amount of a compound having the formula



wherein Z is selected from the group consisting of phenyl, substituted phenyl, alkyl (C_1–C_6) and cyanoethyl radicals, R and R^1 are individually selected from the group consisting of phenyl, substituted phenyl and naphthyl radicals, and said substituents are selected from the group consisting of chloro, bromo, iodo, nitro, hydroxy, lower alkyl and lower alkoxy radicals.

3,305,608
PHENOLIC PHOSPHITES

Charles F. Baranauckas and Irving Gordon, Niagara Falls, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Oct. 8, 1962, Ser. No. 229,180

9 Claims. (Cl. 260—921)

1. A phenolic phosphite obtained by reacting a triorganophosphite selected from the group consisting of triaryl phosphite, trihaloaryl phosphite and trialkylaryl phosphite of 18 to 66 carbon atoms and trialkyl phosphite of 3 to 48 carbon atoms, a polyol selected from the group consisting of hydroxy compounds of 2 to 18 carbon atoms and having at least 2 hydroxy groups and a phenolic compound having between two and three phenolic hydroxyl groups at a temperature between 60° and 180° C., said reactants being present in a reaction zone in proportions of from eight to twelve moles triorgano phosphite, four to six moles polyol, and one and a half to four moles phenolic compound, with the ratio of polyol to phenolic compound being from 1.5:1 to 2.5:1; stripping off the by-products formed by said reactants and recovering the phenolic phosphite.

6. The product of claim 1 wherein the triorganophosphite, polyol and phenolic compound are respectively, triphenyl phosphite, pentaerythritol, and 4,4′-dihydroxydiphenyl sulfide.

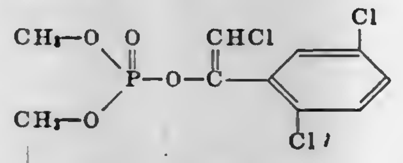
3,305,609
DIMETHYL 2-CHLORO-1-(2,5-DICHLOROPHENYL) VINYL PHOSPHATE

Loyal F. Ward, Jr., and Donald D. Phillips, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 25, 1963, Ser. No. 253,980

1 Claim. (Cl. 260—957)

Dimethyl 2-chloro-1-(2,5-dichlorophenyl)vinyl phosphate of the formula:



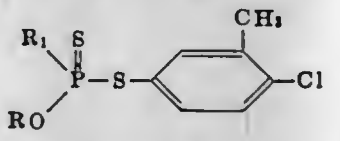
3,305,610
PHOSPHONODITHIOATES AS PESTICIDES

Karoly Szabo, Pleasantville, N.Y., and James T. Hallett, Saratoga, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 2, 1963, Ser. No. 292,492

4 Claims. (Cl. 260—961)

1. A compound of the formula:



wherein R and R, are lower alkyl.

3,305,611
PROCESSES FOR THE BURNING OF MATERIALS IN INDUSTRIAL PROCESSES

Eberhard Spohn, Heidelberg, Germany, assignor to Portland-Zementwerke Heidelberg Aktiengesellschaft, Heidelberg, Germany

No Drawing. Filed Apr. 14, 1964, Ser. No. 359,784

Claims priority, application Germany, Sept. 4, 1963, P 32,520

6 Claims. (Cl. 263—53)

6. A method of correlating the degree of fineness to which a fuel product is ground with the reduction of lime in powder form, said method comprising: grinding the fuel product into separate samples of different degrees of fineness, admixing each of the samples with the lime

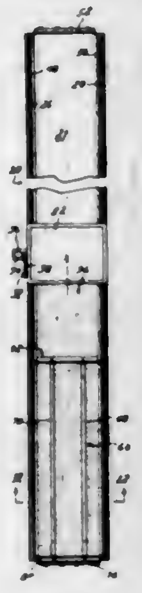
powder in a weight ratio of 1:9, adding water to the resultant mixtures, forming elements of approximately 12 mm. in diameter from the latter mixtures and then drying the elements at a temperature of 105° C., gasifying the elements in an inert atmosphere for 30 minutes at 1000° C. and correlating the portion of the fuel sample which has been gasified with the degree of fineness of grinding thereof.

3,305,612
METHOD FOR FORMING A PREFABRICATED TRUSS DECK

Woodrow W. Frantz, Nazareth, Pa., assignor, by direct and mesne assignments, to Conodec Inc., Easton, Pa., a corporation of Pennsylvania

Filed June 5, 1964, Ser. No. 372,796

4 Claims. (Cl. 264—69)



1. A method of fabricating building slabs comprising the steps of pouring a cementitious mixture into a casting bed substantially longer than the desired length of a slab, providing a preassembled reinforced truss of a length less than the length of the casting bed and having two spaced susbtantially parallel joists, immersing a portion of said truss into a portion of said mixture with the major portion of the joists above and spaced from the mixture, immersing a cut-off bar into said mixture to separate said portion from the remainder of said mixture, vibrating said truss while it is immersed in said mixture, providing a second pre-assembled reinforced truss having two spaced substantially parallel joists, immersing a portion of said second truss into the remainder of said mixture, vibrating said truss while it is immersed in said mixture; permitting said mixture to solidify into slabs integral with said trusses, separating the trusses and their solidified slabs from said bed and cutoff bar, and then turning said slabs and trusses over so that the slabs are supported by the trusses.

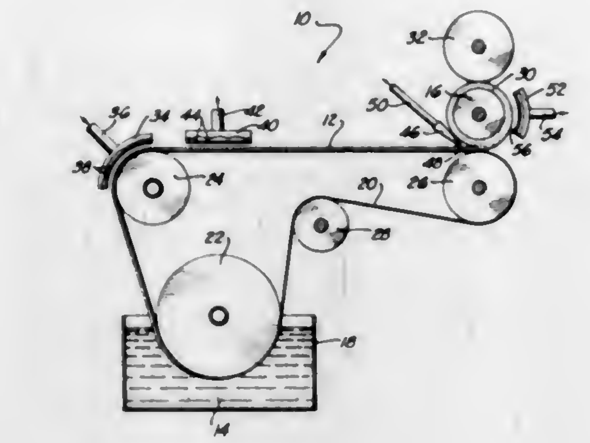
3,305,613
HARDENING A CEMENT MIXTURE

Gerald M. Spence, Tahachapi, Calif., assignor to Monolith Portland Cement Company, Los Angeles, Calif., a corporation of Nevada

Filed June 28, 1963, Ser. No. 291,351

4 Claims. (Cl. 264—82)

1. In a process of manufacturing a Portland cement product in which a layer of a Portland cement mixture containing water is located upon a supporting surface and is transferred from said supporting surface to a form having a shape corresponding to the shape of said product, the improvement which comprises: applying carbon dioxide gas to said mixture prior to the hydration of the cement in said mixture as said mixture is being handled so as to be located upon said form.

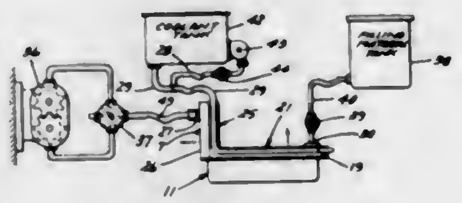


3,305,614
METHOD FOR POTTING ELECTRICAL APPARATUS WITH FILLING MATERIAL

Robert H. Parsons, Danville, Ill., assignor to General Electric Company, a corporation of New York

Filed Nov. 5, 1963, Ser. No. 321,454

7 Claims. (Cl. 264—90)



1. A method for potting a fluorescent lamp ballast in a case with filling material, said case having an opening and a coverplate for closing said opening, said filling material hardening when cooled, said method comprising the steps of: closing the opening in the case with a mold plate, said mold plate having a riser portion connected to a vacuum source and having a connection to a supply of filling material, cooling said mold plate, subjecting the case to a vacuum through the riser portion of said mold plate to draw filling material into the case, said filling material in said riser portion hardening to stop the flow of filling material, causing the mold plate to be separated from the case, and attaching the coverplate to the case.

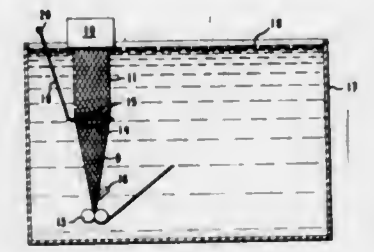
3,305,615
PROCESS AND APPARATUS FOR FLATTENING EXTRUDED CYLINDRICAL NET

Donald Ross McGregor, Williamsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Dec. 10, 1963, Ser. No. 329,455

4 Claims. (Cl. 264—145)

1. In a process having the steps of continuously forming a tubular netting of thermoplastic polymeric material, said netting having a circular cross section formed by a circular former; continuously converting the netting to a flattened condition consisting solely of two plies of netting over the entire width of the netting; continuously converting said netting from the circular cross section to an essentially square cross section by suitable square former means, the periphery of said essentially square cross section being substantially equal to that of the circular cross section, the line connecting the midpoints of two opposite sides of the square being parallel to the line perpendicular to the longitudinal axis of the netting at which line the netting attains a flattened condition and continuously slitting the netting to form at least one flat sheet of netting, the improvement comprising: placing said square former means at about 0.22 times the distance between the bottom of the circular former and the line at which the tubular netting becomes flat and wherein the ratio of (a) the distance between the bottom of the cylindrical former and the line at which the netting becomes flat to (b) the diameter of the circular cross section is at least 2:1, pressing said tubular netting intermediate said circular cross section and said square cross section to hold said netting against the sides of said square former means thereby causing elements of said netting to travel substantially the same distance over said square former means.

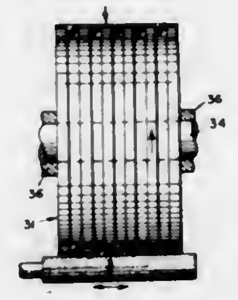


3,305,616
METHOD OF MAKING A MINIATURE RUBBER TIRED WHEEL

Lawrence H. Chanoch, Skokie, Ill., assignor to Webcor, Inc., Chicago, Ill., a corporation of Illinois

Filed May 13, 1963, Ser. No. 280,063

6 Claims. (Cl. 264—157)



1. The method of manufacturing a composite wheel which comprises clamping the wheel of a given diameter between and concentrically with two circular mold plate spacers having equal diameters greater than the diameter of the wheel to create a peripheral wheel cavity above the rim face of the wheel, placing an unvulcanized rubber sleeve about the spacers and wheel applying vulcanizing heat and pressure to the sleeve to force a portion of said sleeve to fill the wheel cavity with rubber, to vulcanize said rubber and to bond the rubber to said rim face, and removing said spacers.

3,305,617
METHOD OF MAKING SEALED PRELUBRICATED PRELOADED BEARINGS

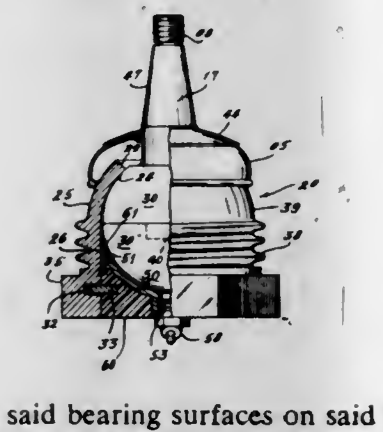
Janis Dumpis, St. Ann, Mo., assignor to Champ-Items, Inc., St. Louis, Mo., a corporation of Missouri

Filed Sept. 20, 1963, Ser. No. 310,336

2 Claims. (Cl. 264—242)

1. The method of assemblying a preloaded joint for an articulated linkage having (1) a prefabricated round male bearing part provided with rounded finished bearing surfaces, (2) a first prefabricated female bearing part open at one side and formed internally with a rounded finished bearing surface to mate with a portion of a rounded bearing surface on said male bearing part, (3) a second prefabricated female bearing part of a size to be accommodated within the open side of said first female bearing part and formed with an internal smooth rounded bearing surface to mate with another portion of a smooth rounded bearing surface on said male bearing part, the steps of,

- (a) inserting said male bearing part within said first female bearing part with a portion of the smooth rounded bearing surfaces on said male part in contact with the smooth bearing surfaces of said first female bearing part,
- (b) inserting said second female bearing part within said first female bearing part with the smooth bearing surfaces of said second female bearing in contact with a portion of the smooth bearing surfaces on said male bearing part,



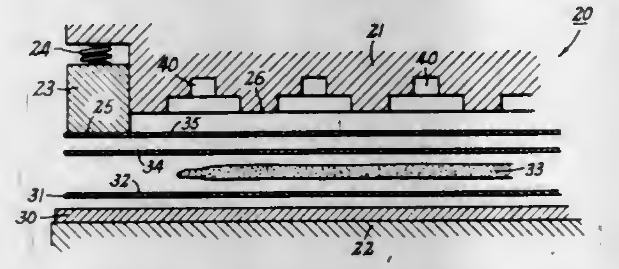
- (c) holding said bearing surfaces on said first and second female parts firmly against bearing surfaces on said male bearing part,
- (d) providing sufficient pressure to cause said bearing surface on said second female part to generally conform to the surface of said male bearing part,
- (e) injecting a lubricant filler into said first female bearing part to partly fill the cavity between said bearing parts, and
- (f) injecting a settable filler to seal the open side of said first female bearing part.

3,305,618
MOLDING PROCESS

Joseph R. Sucher, Woodmere, and Daniel A. Fischler, New Hyde Park, N.Y., assignors, by mesne assignments, to Emsu Company, New York, N.Y., a partnership

Filed May 20, 1963, Ser. No. 281,731

8 Claims. (Cl. 264—316)



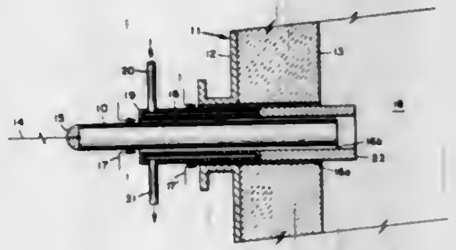
1. The process of compression molding articles from a liquid thermosetting resin composition in a mold comprising first and second opposed mold parts movable toward each other, said first part having a plurality of mold cavities, comprising the steps of disposing a porous sheet between said mold parts, disposing a stretchable film between said sheet and said second mold part, disposing a quantity of liquid thermosetting resin composition between said film and said second mold part, moving said mold parts toward each other into closed position while resisting migration of the resin from the area between said mold parts, and heating the resin in the closed mold.

ELECTRICAL

3,305,619
ELECTRODE INSTALLATION

Byron Victor Molstedt, Robert O. Maak, and Lawrence Joseph Delaune, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Aug. 7, 1963, Ser. No. 300,493
5 Claims. (Cl. 13—20)

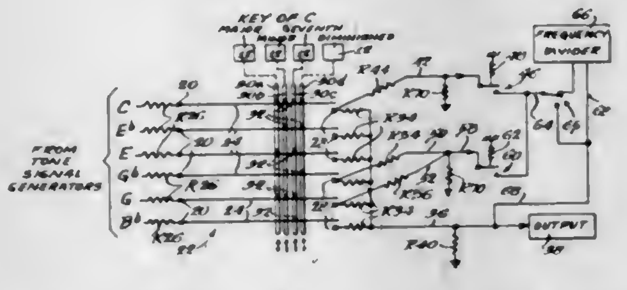


1. An electrode installation within a high temperature electro-fluid reactor comprising in combination (a) a reactor wall; (b) an opening through the reactor wall; (c) an elongated electrode mounted transversely with its forward end extended through the opening; (d) a cooling element, of diameter intermediate that of the electrode and wall opening, circumferentially surrounding said electrode, said cooling element being comprised in part of an electrically non-conductive refractory sleeve surrrounding the forward portion of the electrode, and in part of a thermally conductive sleeve provided with an internal passageway, said cooling element being mounted within the wall opening and positioned to provide an annular passageway between the internal surface of said cooling element and said electrode; and (e) gas inlet means adapted to provide purge gas to said annular passageways to effect cooling.

3,305,620
ORGAN CHORD SWITCHING MECHANISM

Alan C. Young, Park Ridge, Ill., assignor to Hammond Organ Company, Chicago, Ill., a corporation of Delaware

Filed July 20, 1964, Ser. No. 383,726
7 Claims. (Cl. 84—1.17)

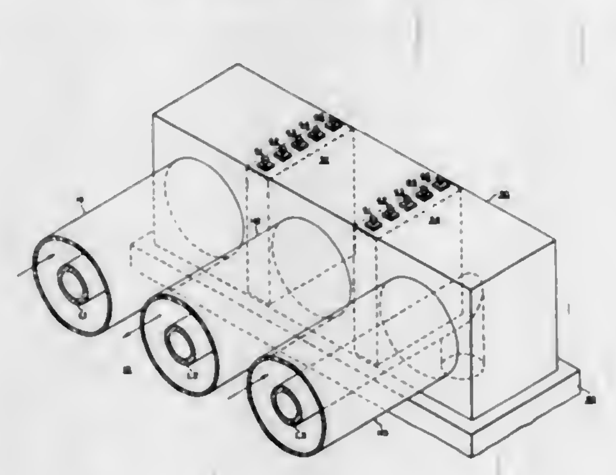


5. In an electrical musical instrument including tone signal generators for generating collectively electrical tone signals corresponding to the twelve tones of the even tempered musical scale, and an output system including electroacoustical translating means, the combination therewith of a multiple-contact switch including a separate movable contact member for each note required to produce the major, minor, seventh, and diminished chords of a given key, said contact members being connected respectively to the ones of said tone signal generators for producing electrical tone signals corresponding to such chord notes, a bus bar associated with each of said contact members for permissive engagement therewith, said bus bars being connected in parallel to said translating means through decoupling impedance elements, a plurality of switch actuators associated with said switch, each of said actuators including means for moving a different combination of said contact members into engagement with their respective associated bus bars for conveying tone signals of said chords in said given key to said translating means, a first separate switch, one of the contacts of said first separate switch being connected through an impedance element to the one of said bus bars adapted to be connected through its associated contact member to the generator for supplying the "root" tone signal of said chords in said given key, a second separate switch, one of the contacts of said second separate switch being connected through an impedance element to the one of said bus bars adapted to be connected through its associated contact member to the generator for supplying the "fifth" tone signal of the major, minor, and seventh chords in said key, said one contact of said second separate switch also being connected independently through an impedance element to the one of said bus bars adapted to be connected through its associated contact member to the generator for supplying the flatted "fifth" tone signal of the diminished chord of said given key, the other contacts of said separate switches being connected through a frequency divider to said translating means, whereby, upon production of any of said chords in said given key by operation of one of said actuators, a "root" bass accompaniment for such chord may be added by closing the said first separate switch, upon production of any of said major, minor, and seventh chords in said given key by operation of the appropriate ones of said actuators, a "fifth" bass accompaniment therefor may be added by closing said second separate switch, and upon production of said diminished chord in said key upon operation of the actuator therefor a flatted "fifth" bass accompaniment for said diminished chord may be added by closing said second separate switch.

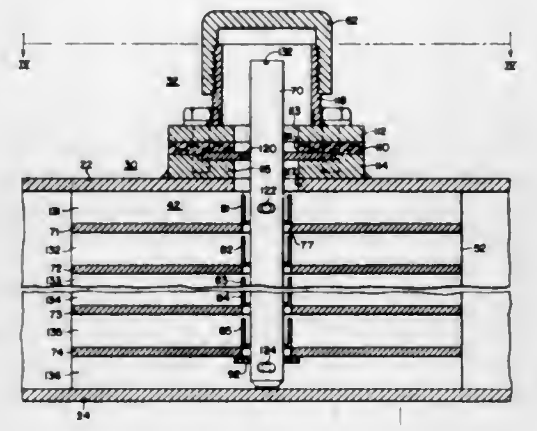
3,305,621
FORCED COOLED ISOLATED PHASE BUS HAVING DEIONIZING MEANS COMPRISING SPACED THERMALLY CONDUCTIVE PLATES WITH ROTATABLE VANE MEMBERS DISPOSED THEREIN

Charles M. Lear, Washington, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 29, 1964, Ser. No. 407,348
10 Claims. (Cl. 174—16)



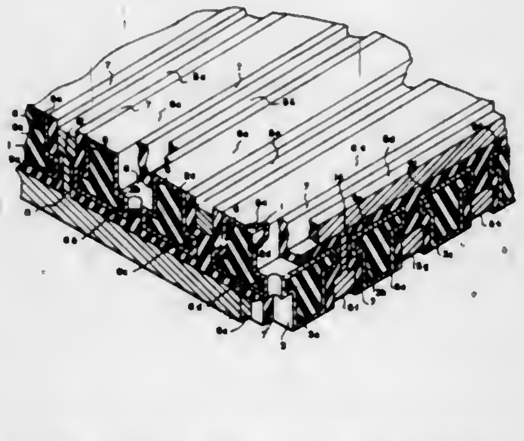
1. An isolated phase bus structure comprising a plurality of spaced conductors, a separate housing spaced from and enclosing each conductor, duct means for interconnecting the interiors of said housings to permit the flow of a cooling fluid therebetween, and deionizing means disposed in said duct means between the adjacent housings, said deionizing means comprising a plurality of spaced thermally conductive plates which define a plurality of fluid passageways therebetween and a plurality of movable vane members disposed in said passageways to vary the effective size of said passageways.



3,305,622
SHIELDED AND INTERCONNECTED CIRCUIT CONDUCTORS

Winston E. Bergsman and Irving W. Christensen, Phoenix, Ariz., assignors to General Electric Company, a corporation of New York

Filed Mar. 23, 1964, Ser. No. 353,873
5 Claims. (Cl. 174—35)

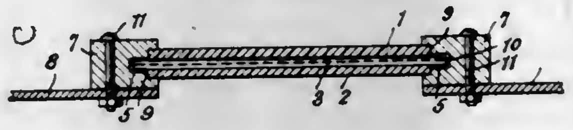


1. A circuit board interconnecting medium comprising: an insulative panel, a first set of spaced grooves formed in one side of said panel, a second set of spaced grooves formed in the opposite side of said panel, said grooves of said second set being transverse to said grooves of said first set, a coating of conductive material deposited on the walls of each of said grooves of said first and said second sets, a plurality of signal conductors, each of said signal conductors being positioned in one of said grooves of said first and said second sets, insulating means provided in each of said grooves of said first and said second sets for insulating said signal conductors from said coatings of conductive material, and a plurality of connecting conductors, each of which extend through said insulative panel between the signal conductor in a selected groove of said first set and the signal conductor in a selected groove of said second set at a point where said selected grooves of said first and said second sets cross each other to thereby electrically connect the signal conductors in said selected grooves, each of said connecting conductors being insulated from said coatings of conductive material in said selected grooves.

3,305,623
SHIELDED WINDOW CONSTRUCTION

Willem F. Bakker, Clark, Arthur J. Johnson, Newark, and Joseph P. Kosiarski, Freehold, N.J., assignors to Metex Corporation, a corporation of Delaware

Filed Oct. 19, 1964, Ser. No. 404,801
6 Claims. (Cl. 174—35)

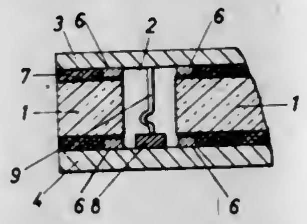


5. A shielded window for a metal enclosure for electronic equipment comprising a substantially flat layer of foraminous metal, a binding strip around the edges thereof and gripping both faces of said layer, at least one sheet of transparent plastic material contacting a face of said layer, a conductive frame surrounding the edge of said layer, sheet and strip, and in contact with said sheet and strip, and means attached to said frame for anchoring said shielded window into an opening in said enclosure.

3,305,624
HERMETICALLY SEALED CASING FOR ELECTRICAL COMPONENTS

Hans Wagner, Nurnberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 3, 1964, Ser. No. 349,026
Claims priority, application Germany, Mar. 13, 1963, St 15,744
9 Claims. (Cl. 174—52)

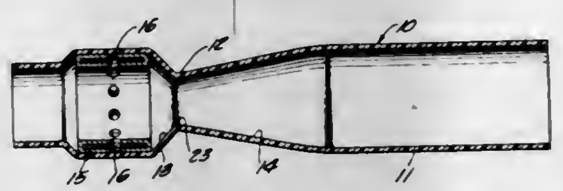


9. An electrical component casing comprising a conductive base having an electrical component mounted thereon, an insulating body secured to said base and having a hole therein to accommodate said component, one end of said hole communicating with said base, a conductive plate adjacent said insulating body and covering the other end of said hole, said insulating body having thermal expansion characteristics different from said base and said plate, and a layer of rigid material extending from said hole to an adjacent edge of said body and forming a seal between said plate and said body only in the space closely surrounding said hole.

3,305,625
HEAT SHRINKABLE SOLDER SLEEVE

Roger H. Ellis, Atherton, Calif., assignor to Raychem Corporation, Redwood City, Calif., a corporation of California

Filed Feb. 10, 1966, Ser. No. 526,516
7 Claims. (Cl. 174—84)



1. A heat recoverable member for facilitating connection with an electrical conductor comprising a heat recoverable sleeve having first and second ends and having an indentation intermediate said ends thereof providing first and second joining tapered portions, said first tapered

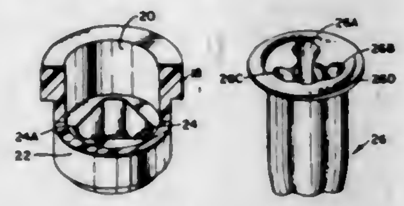
portion serving to limit the travel of the first end of said sleeve onto an electrical conductor, and a solder insert positioned within said first end of said sleeve and substantially adjacent said first tapered portion.

3,305,626
PLURAL SOCKET TERMINAL ASSEMBLY

George E. Mohr, Larchmont, and James Iantorno, Mamaroneck, N.Y., assignors to Sealectro Corporation, Mamaroneck, N.Y., a corporation of New York

Filed Nov. 12, 1965, Ser. No. 507,271

3 Claims. (Cl. 174—153)



1. In combination with a housing panel, a baseboard panel, or the like of a predetermined thickness and having a hole therethrough, an electrical terminal plural socket assembly mounted in said hole for making soldered connections to the ends of one or more lead wires that are inserted into said assembly, said assembly comprising an outer insulating bushing mounted in said hole and having a flange on one end from which there inwardly extends a cylindrical inner wall to a bottom section, said wall defining an axial opening, said bottom section having a polygonal opening therein of a major dimension that is less than the diameter of said cylindrical axial opening, said bushing being of a length greater than said predetermined thickness to position said bottom section on a side of said panel opposite from that of said flange, a tubular electrically conducting element flanged at one end and longitudinally formed to give the bore of said tubular element a cloverleaf configuration as viewed in an axial direction with as many lobes as sides of said polygonal opening in said insulating bushing, said tubular element having an outer surface generally conforming to that of said polygonal opening and positioned longitudinally in said insulating bushing with the end opposite said flange flared to distend said tubular element and said bushing at said polygonal opening to provide a bushing outside diameter greater than the hole in said panel and retain the assembly in position.

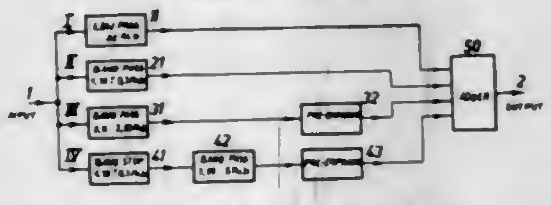
3,305,627
APPARATUS FOR INCREASING THE SIGNAL-TO-NOISE RATIO IN A COMPOUND SIGNAL

Gerhard Krause, Darmstadt, Germany, assignor to Fernseh G.m.b.H., Darmstadt, Germany

Filed Sept. 17, 1964, Ser. No. 397,126

Claims priority, application Germany, Sept. 17, 1963, F 40,775

9 Claims. (Cl. 178—5.2)



1. Apparatus for increasing the signal-to-noise ratio in a compound signal of which a first component is transmitted within a predetermined frequency band and a second component is transmitted as a modulation of a subcarrier which, together with its modulation sidebands, falls within said predetermined frequency band, comprising means for separating said first component into lower and higher frequency portions, means for separating said sidebands of said sub-carrier into lower and higher frequency portions, means for transmitting both said lower frequency portions unmodified, and means operating on said higher-frequency portions of both said first and said second component to produce a relative reduction in the transmission factor of those signals of which the amplitudes are less than a predetermined level corresponding substantially with the noise level in said compound signal, and means for recombining said lower and high frequency portions into a signal of increased signal-to-noise ratio.

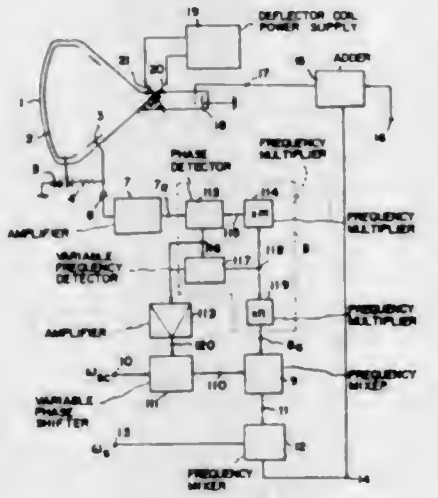
3,305,628
PHASE-CORRECTING DEVICE IN BEAM-INDEXING COLOR TELEVISION RECEIVER

Kosuke Kitamura, Fuchu-shi, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan

Filed Mar. 2, 1964, Ser. No. 348,695

Claims priority, application Japan, Mar. 8, 1963, 38/10,586

1 Claim. (Cl. 178—5.4)



A phase-correcting device in a beam-indexing color television receiver comprising a beam-index signal amplifier; a reference sub-carrier; and chrominance signals; a frequency multiplier connected to said amplifier and consisting essentially of an automatic phase control circuit comprising a phase detector, a variable frequency oscillator and a plurality of frequency multipliers; a couple of frequency mixers for obtaining color signals from the output of said automatic phase control circuit, reference sub-carrier and chrominance signals; means for detecting, from the output of said phase detector, deviations in frequency of the beam-index signal thereby producing a detection signal; and means for effecting rotation of the phase of said frequency deviations in the direction in which the difference between the phase angle of the color signal shifting in accordance with the group delay time of the indexing signal amplification and the phase angle of the reference sub-carrier wave to be applied to one of said frequency mixers is reduced.

3,305,629
DEFRACTING MEDIUM PROJECTION SYSTEM INCLUDING MEANS TO EFFECT A UNIFORM CHARGE OVER SAID MEDIUM

Thomas T. True, Camillus, N.Y., assignor to General Electric Company, a corporation of New York

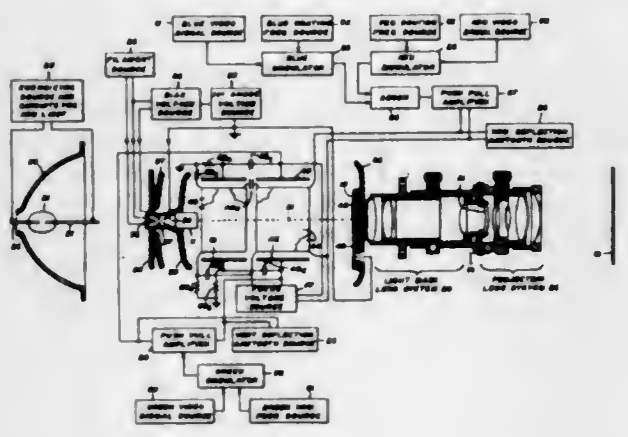
Filed May 7, 1964, Ser. No. 365,631

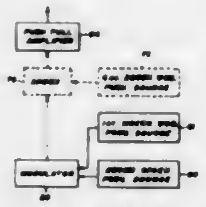
9 Claims. (Cl. 178—5.4)

1. A system for controlling the intensity of each point of a beam of light in response to a respective point in an electrical signal for projecting an image corresponding to said electrical signal comprising:

(a) a transparent light diffracting medium deformable by electric charges deposited thereon.
(b) means for directing said beam of light on said medium,

(c) means for directing a beam of electrons upon said medium to produce said charges in said medium,
(d) means to deflect said electron beam over said medium in one direction at an intermediate frequency rate and in another direction perpendicular to said one direction at a low frquency rate to form a pattern of successive, spaced lines of charge thereon,
(e) means for developing a fixed high frequency wave of predetermined amplitude,
(f) means for developing another fixed high frequency wave having a frequency at least twice the frequency of said one wave, said other wave being smaller in amplitude than said one wave,
(g) means for modulating the position of said beam of electrons in said other direction about a line of charge in response to said waves whereby said electron beam is caused to spread said lines of electron charge uniformly over said medium,





(h) means for modulating said one wave inversely in amplitude by an electrical signal corresponding to the point by point intensity of an image to be projected whereby said lines of charge are caused to appear and to form a diffraction grating thereon having lines of deformation directed in said one direction in which the depth of deformation of a point of said grating corresponds to a respective point of said electrical signal,
(i) a mask having a set of transparent and opaque portions spaced from and disposed parallel to said one direction,
(j) means for imaging light from said beam through said medium onto the opaque portions of said mask in the absence of deformations in said modulating medium, whereby when diffraction gratings are formed in said medium in response to said electrical signals said transparent portions pass diffracted light from each point of said beam incident on a respective point of said medium in proportion to the depth of deformations at said respective point.

3,305,630
DEFORMABLE MEDIUM COLOR PROJECTION SYSTEM

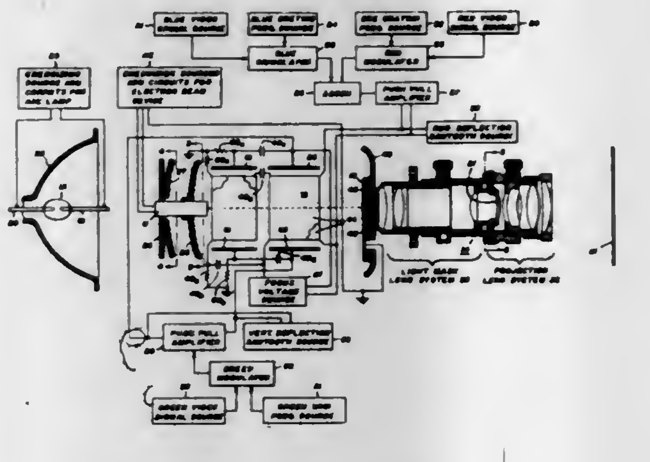
William E. Good, Liverpool, and Michael Graser, Jr., Fayetteville, N.Y., assignors to General Electric Company, a corporation of New York

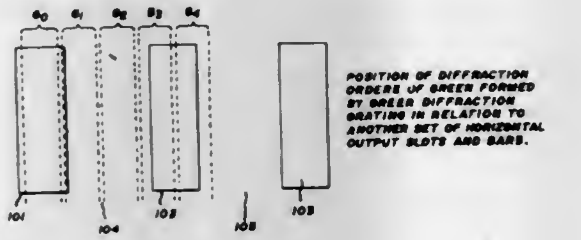
Filed July 10, 1964, Ser. No. 381,634

7 Claims. (Cl. 178—5.4)

1. In a light diffraction system the combination of:

a transparent light diffracting medium deformable by electric charges deposited thereon,
means to deflect an electron beam over said medium in two mutually perpendicular directions line by line and field by field to form a raster, a pair of successive fields being interlaced and forming a frame,
means to modulate said beam to alter the electric charge distribution over said medium perpendicular to the direction of the line deflection in accordance with an electrical signal corresponding to an image to be projected to form a diffraction grating therein having lines of deformation directed in said one direction, adjacent lines corresponding to the adjacent lines in a field, the depth of said deformations varying point by point with the brightness of said image,
a plurality of sources of light,
a mask having a set of parallel slots and bars parallel to said line scan,
said medium being located between said sources of light and said mask,
each of said slots being positioned and of lateral extent in an image surface to pass first and second order light from one of said sources of light and diffracted by said grating.




101
104
105
106
103
POSITION OF DIFFRACTION ORDERS OF GREEN FORMED BY GREEN DIFFRACTION GRATING IN RELATION TO ANOTHER SET OF HORIZONTAL OUTPUT SLOTS AND BARS.

3,305,631
MASKS FOR COLOR PROJECTION

William E. Good, Liverpool, Michael Graser, Jr., Fayetteville, and Henry J. Vanderlaan, Liverpool, N.Y., assignors to General Electric Company, a corporation of New York

Filed Nov. 4, 1964, Ser. No. 408,949

3 Claims. (Cl. 178—5.4)

1. In apparatus for projecting a color image corresponding to deformations contained in a light modulating medium in the form of three superimposed light diffraction gratings, a first grating having lines extending in one direction and second and third gratings having lines extending in another direction orthogonal to said one direction, and deformations of said first grating having an amplitude dependent upon the intensity of a first color component, the deformations of said second grating having an amplitude dependent upon the intensity of a second color com-

ponent and the deformations of a third diffraction grating having an amplitude dependent upon the intensity of a third color component, the line to line spacing of said second diffraction grating being different from the line to line spacing of said third diffraction grating, the combination of:

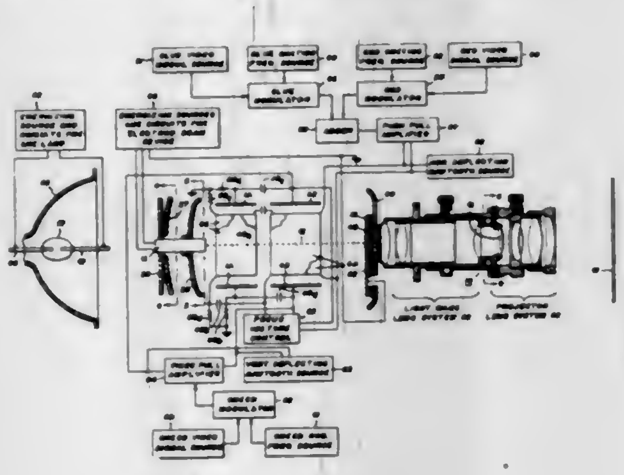
a source of light for producing said three color components of light,

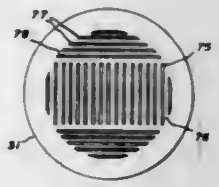
a first mask including a first and a second set of opaque bars and transparent slots, the bars and slots of one set extending in said one direction and the bars and slots of said other set extending in said other direction, said first light mask interposed between said source and said light modulating medium,

said first set of opaque bars and transparent slots contained in one area of said mask and said second set of bars and slots contained in the remaining area of said mask,

a second light mask including a first and second set of opaque bars and transparent slots, the bars and slots of each set extending respectively in said one and said other directions and disposed in the path of light coming from said light modulating medium,

said first set of opaque bars and slots contained in one area of said second light mask and said second set of opaque bars and transparent slots contained in the remaining area of said second mask,





said one area of said light masks being similar in outline and in axial registry and said remaining areas of said light masks being similar in outline and in axial registry,

said one area of said masks consists of two segments of substantially the same area and symmetrically located on the upper and lower sides of said members and said other area consists of the central section between said segments horizontally oriented with respect to said projected image, the slots in said one area of said masks being horizontally oriented and the slots and said other area of said masks being vertically oriented,

means for imaging light of said first color component from said source through said one area of said first mask and said light modulating medium on said one area of said second mask and for imaging light from said source of said second and third color components through said remaining areas of said first mask and said light modulating medium on said one area of said second mask.

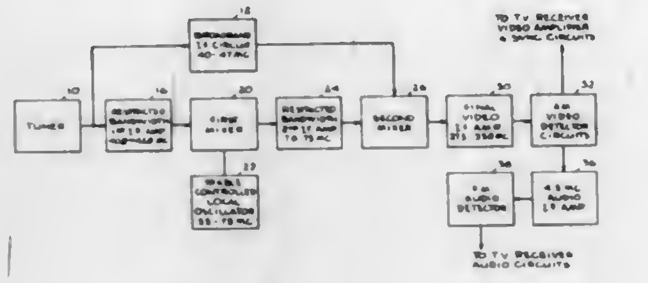
3,305,632

TELEVISION RECEIVER IF FREQUENCY STABILIZING SYSTEM

Patrick R. J. Court, Los Angeles, and Patrick A. C. Segrave, Santa Monica, Calif., assignors to International Telemeter Corporation, Los Angeles, Calif., a corporation of New York

Filed Nov. 14, 1963, Ser. No. 323,792

5 Claims. (Cl. 178—5.8)


TUNER
FIRST MIXER
SECOND MIXER
TO T.V. RECEIVER VIDEO AMPLIFIER & SYNC CIRCUITS
TO T.V. RECEIVER AUDIO CIRCUITS
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1. In a television receiver of the type wherein a tuner provides an output having a first video intermediate frequency carrier and a first audio intermediate frequency carrier and wherein said intermediate frequency carriers have frequency errors, apparatus for eliminating said frequency errors from said intermediate frequency carriers comprising a first mixer circuit, a second mixer circuit, means for applying only said first audio intermediate frequency carrier to said first mixer circuit, a source of stable frequency oscillations, means for applying signals from said source of stable frequency oscillations to said first mixer circuit, means for deriving a second intermediate frequency carrier from said first mixer circuit, means for applying said first intermediate frequency video carrier and said first intermediate frequency audio carrier to said second mixer circuit, means for applying said second intermediate frequency carrier to said second mixer circuit, and means for deriving an output from said second mixer circuit comprising a third audio intermediate frequency carrier at the frequency of said stable frequency oscillations and a stable video frequency carrier having a stable frequency related to that of said stable frequency oscillations.

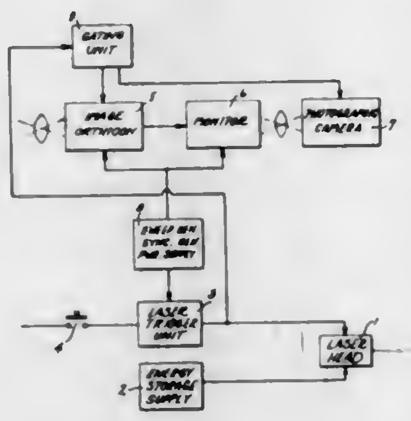
3,305,633

LASER OPTICAL SYSTEM

Joseph P. Chernoch, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed June 26, 1963, Ser. No. 290,739

2 Claims. (Cl. 178—6.8)



1. An infrared optical system adapted for viewing at a relatively long range under conditions of extremely low ambient illumination comprising.

means for generating a pulsed narrow, pulsed beam of infrared radiation directed toward a selected target area located at a relatively long distance therefrom, each pulse of radiation having a duration in the range of 2 to 12 milliseconds and an energy output in the range of 50 to 100 joules,

means highly sensitive to extremely low levels of illumination in the infrared region for detecting infrared radiation being reflected by said target area and for intensifying an optical image thereof, means connected to an output of said detecting and image intensifying means for producing a temporary image of said target area under ambient illumination conditions of substantially total darkness, and

means in optical communication with said temporary image producing mean for photographing the temporary image of said target area to thereby record a permanent image of said target area under ambient illumination conditions of substantially total darkness by an indirect photographic method having approximately 40 times the sensitivity of direct methods of photographing said target area under similar illumination conditions, and

means for synchronizing said detecting and image intensifying means and photographing means with said radiation generating means whereby said dectecting means and photographing means are responsive to the reflected radiation during only a predetermined interval of time thereby preventing undesired radiation occurring at intervals other than during the operation of said infrared optical system from degrading the optical image being permanently recorded.

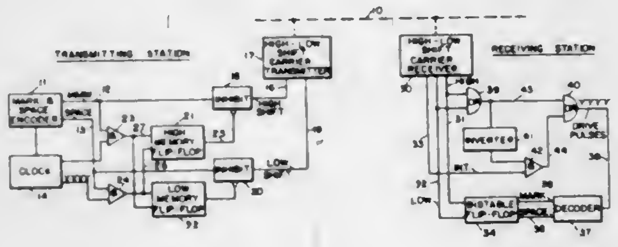
3,305,634

SYSTEM AND METHOD OF CODE COMMUNICATION

Jack H. Rusick, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y., a corporation of New York

Filed June 17, 1963, Ser. No. 288,298

8 Claims. (Cl. 178—66)



1. A code communication system for the transmission of several successive code elements in a binary code by frequency shift carrier applied to a communication channel comprising:

(a) driver means for generating a series of pulses corresponding to the bits of a code,

(b) encoder means for selecting a series of first and second type code elements for transmission,

(c) transmitting means controlled jointly by said driver means and said encoder means for transmitting a selected given carrier frequency or a high or low shift from said given carrier frequency in accordance with the series of first and second type code elements selected by said encoder means,

(d) said transmitting means being effective to transmit a high shift frequency for each of the first type of elements selected by said encoder means and a low shift frequency for each of the second type of elements selected by said encoder means, only provided that the same frequency has not been transmitted as the next preceding bit of the code, and

(e) said carrier transmitting means being effective to transmit said carrier frequency for a second element of the same type in the series of code elements.

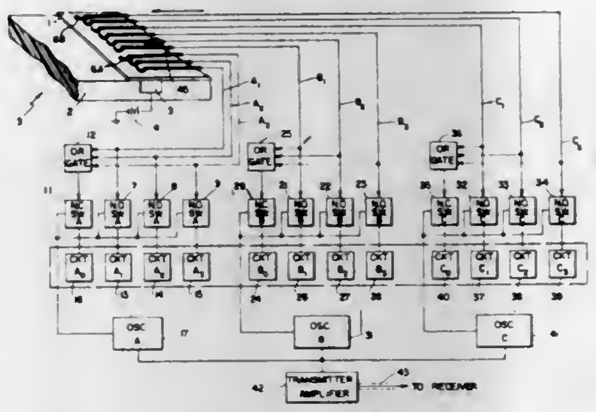
3,305,635

MULTITONE DATA TRANSMISSION SYSTEM WITH DATA BITS COMPRISED OF COMBINATIONS OF DATA TONES AND REST TONES

Albert L. Kadis, Natick, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed Feb. 25, 1963, Ser. No. 260,712

7 Claims. (Cl. 178—66)



1. A data transmission system comprising:

a card having openings punched therein, different groups of two openings representing different bits of information;

means for sequentially detecting each group of openings and producing first signals representative of the openings in said detected group;

means including nine normally open switches each connected to a different one of nine tuned circuits and responsive to said signals for simultaneously generating two different data signals produced by two of said tuned circuits when two of said normally open switches close in response to two of said signals;

means coupled to said first-mentioned means including three OR gates each responsive to any one of three of said first signals and connected to a different normally closed switch connected to a tuned circuit for generating, simultaneously with said data signals, one of three different rest signals produced by one of said tuned circuits when one of said OR gates receives none of said signals and is nonconductive and the connected switch remains closed and for generating said three rest signals during periods when no data signals are generated; and,

means for transmitting said simultaneously generated data and rest signals representing bit information and for transmitting said three rest signals during periods when no data signals are transmitted to squelch undesired signals.

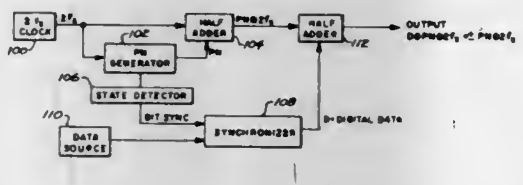
3,305,636

PHASE-SHIFT DATA TRANSMISSION SYSTEM HAVING A PSEUDO-NOISE SYNC CODE MODULATED WITH THE DATA IN A SINGLE CHANNEL

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of James C. Springett, La Canada, Calif.

Filed May 14, 1963, Ser. No. 280,777

15 Claims. (Cl. 178—67)



1. In a digital data communication system, transmitting apparatus including a clock signal source; a cyclic binary code generator; first means connecting said code gen-

erator to said clock signal source for causing the code generated by said generator to modulate the clock signal produced by said clock signal source; a binary data signal source; and second means connecting said data signal source to said first means for causing the data signal produced by said data signal source to modulate said modulated clock signal.

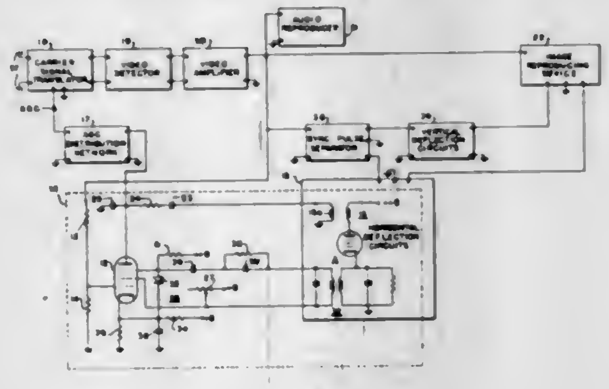
3,305,637

CONTROL APPARATUS FOR A TELEVISION RECEIVER COMPRISING A BACK PORCH KEYED AGC SYSTEM

Bernard D. Loughlin, Centerport, N.Y., and Stephen P. Ronzheimer, Elmhurst, Ill., assignors to Hazeltine Research Inc., a corporation of Illinois

Filed Oct. 31, 1963, Ser. No. 320,293

11 Claims. (Cl. 178—7.5)



1. In a television receiver having an image-reproducing apparatus including a television picture signal-translating channel and an image-reproducing device, control apparatus comprising:

signal supplying means for supplying at least the horizontal back porch blanking level of a television picture signal;

first pulse generating means for supplying pulses whose peak portions are substantially in overlapping time relationship with the synchronizing pulses of said television picture signal;

second pulse generating means for supplying synchronizing pulse-cancelling pulses and other pulses whose peak portions are in overlapping time relationship with said blanking level;

means, responsive to said supply signals and pulses, including synchronizing pulse aperture means, for deriving a signal representative of variations in the amplitude of said blanking level, said aperture means for preventing the deriving of said signal from said synchronizing pulses, said aperture means responsive to said pulses supplied from said second pulse generating means to be inoperative to said blanking level;

and means for utilizing said derived signal to stabilize a characteristic of said image-reproducing apparatus.

3,305,638

CONDENSER MICROPHONE CIRCUIT WITH SOLID ELECTROLYTE BATTERY POLARIZING SOURCE

Steven D. Teachout, 3447 S. El Camino Real, San Mateo, Calif. 94403

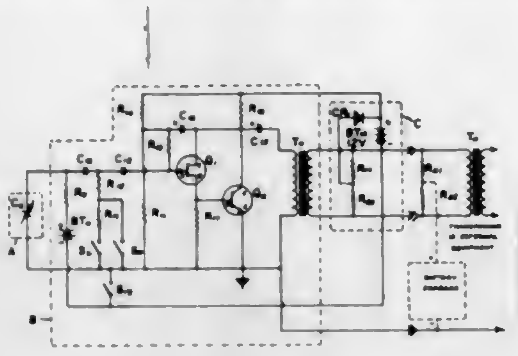
Filed Feb. 17, 1964, Ser. No. 345,136

5 Claims. (Cl. 179—1)

3. A condenser transducer system comprising,

a sound sensitive condenser transducer,

a direct current polarizing source comprising a solid electrolyte battery imposing on said transducer a substantially constant polarizing charge, and in which said transducer and said solid electrolyte battery are contained within a microphone structure of cylindrical shape, lightweight and capable of being held in the hand, and amplifying means for amplifying the signal from said transducer, said amplifying means containing a high-input impedance field-effect transistor.



3,305,639

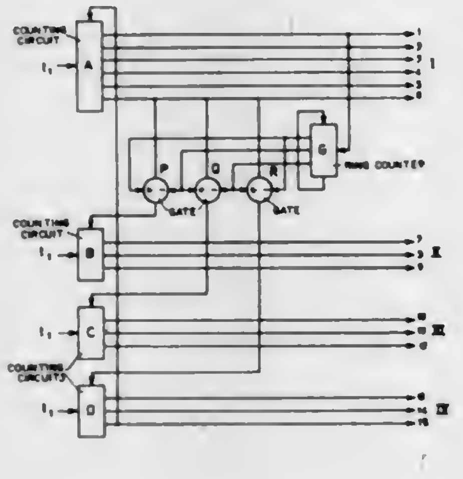
ARRANGEMENT FOR SCANNING A SET OF APPARATUSES PARTITIONED INTO AT LEAST THREE SUBSETS THE APPARATUSES OF DIFFERENT SUBSETS BEING SCANNED AT DIFFERENT FREQUENCIES

Jan Jongkind and Gerrit Mol, Hilversum, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed May 3, 1963, Ser. No. 277,842

Claims priority, application Netherlands, May 8, 1962, 278,196

12 Claims. (Cl. 179—15)



1. A system for applying scanning pulses to a set of wires corresponding to a set of apparatuses, said set of wires having at least three subsets with each subset including a plurality of wires, comprising means for applying said scanning pulses to the wires of at least two subsets at different frequencies, said means comprising counting means, means for connecting said wires to said counting means whereby scanning pulses are sequentially applied to the wires of each subset, means responsive to the application of a pulse to the last wire of each subset for inhibiting the application of scanning pulses to wires of the respective subset and for initiating the application of scanning pulses to the wires of another subset, said last mentioned means comprising means responsive to the application of a scanning pulse to the last wire of one subset for sequentially initiating the application of scanning pulses to the wires of at least two other subsets, and means responsive to the application of scanning pulses to the last wires of said last mentioned two other subsets for initiating the application of scanning pulses to the wires of said one subset.

3,305,640

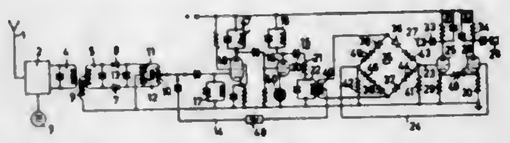
ARRANGEMENT FOR THE STEREOPHONIC REPRODUCTION OF SIGNALS

Rudolf Schutte and Nicolaas Van Hurck, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Apr. 8, 1963, Ser. No. 271,292

Claims priority, application Netherlands, Apr. 19, 1962, 277,477/62

6 Claims. (Cl. 179—15)



1. A circuit for the reproduction of monaural and stereophonic input signals, said stereophonic signals being in the form of a sum signal of first and second coherent signals, a difference signal of said first and second signals modulated on a subcarrier wave with suppressed carrier, and a pilot signal at half the frequency of said subcarrier wave, said circuit comprising a source of said input signals, first and second demodulator circuits, first and second output circuits connected to said first and second demodulator circuit respectively, a first channel for applying said input signals at least in the frequency bands of said sum signal and said modulated subcarrier wave to said first and second demodulator circuits, and a second channel connected to said source comprising means responsive to application thereto of said pilot signal for applying oscillations of the frequency of said subcarrier wave to said first and second demodulator circuits, said second channel comprising an amplifier device having input, common and output electrodes, a two terminal indicating device having a threshold voltage, means applying said pilot signal between said input and common electrodes by way of said indicating device, whereby said amplifier device is cut off in the absence of said pilot signal, and output circuit means connected to said output electrode, for applying said oscillations to said demodulator circuits whereby said second channel is blocked when said amplifier device is cut off.

3,305,641

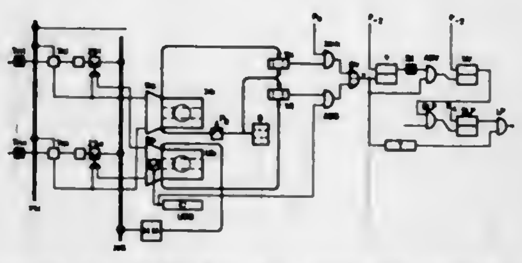
MEANS FOR AVOIDING DOUBLE CONNECTIONS IN TELEPHONE MULTIPLEX SYSTEMS AND THE LIKE

Dieter Von Sanden, Munich-Solln, Germany, and Hubert Suckfüll, Phoenix, Ariz., assignors to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany

Filed Oct. 8, 1963, Ser. No. 314,687

Claims priority, application Germany, Oct. 12, 1962, S 82,007

7 Claims. (Cl. 179—18)



1. A circuit arrangement for avoiding double connections in a switching system, particularly in a telephone system, having storers for addresses indicating subscriber lines to be connected with each other, and having an address register for successively periodically pulse-wise reading individual subscriber lines as to their condition of operation, said address register supplying in cyclic sequence the address of a subscriber line which has just been read until termination of the switching operations which are to be carried out for the respective subscriber line, based upon its condition of operation, comprising means, effective upon the comparison of the subscriber address just supplied by the address register with addresses of subscribers participating in connections which are recorded in an address storer, for counting the cases of the occurrence of identity of address and for giving off a signal, in case of at least two occurrences of identity of address, said signal indicating a double connection, and means controlled by said signal for giving-off a command for the release of those connections in which the subscriber having the address just supplied by the address register is participating.

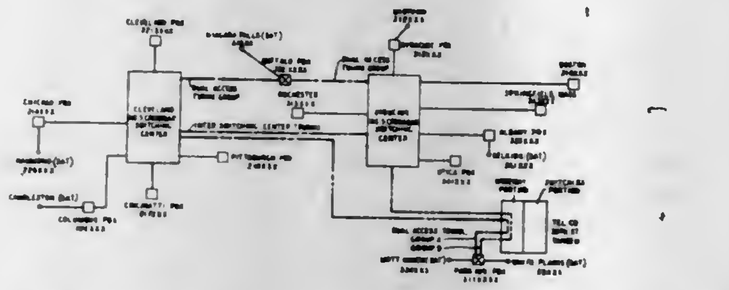
3,305,642

INTERCITY TIE LINE CIRCUIT WITH MULTIPLE ROUTE SEIZURE

John W. Veigl, Franklin Square, N.Y., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 24, 1963, Ser. No. 333,008

9 Claims. (Cl. 179—26)



1. A switching system comprising a first and a second telephone switching center, a respective plurality of private branch exchanges homing on said switching centers, a first plurality of trunks outgoing from one of said exchanges to said first switching center, a second plurality of trunks outgoing from said one of said exchanges to said second switching center, means at said one of said exchanges for normally selecting an idle one of said first and of said second plurality of trunks, means at said one of said exchanges for transmitting a service request signal over said idle one of said trunks to said first and to said second switching centers, and means at said one of said exchanges thereafter responsive to answered supervision from said switching centers for transmitting a called telephone number to both said first and second switching centers.

3,305,643

IMPULSE SENDER MECHANISM FOR AUTOMATIC TELEPHONES

Richard John William Kennell, Vaucluse, New South Wales, Australia, assignor to Telephone and Electrical Industries Pty. Limited, New South Wales, Australia, a corporation of New South Wales

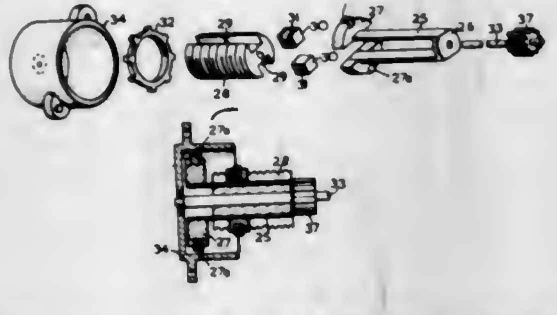
Filed Oct. 8, 1963, Ser. No. 314,729

Claims priority, application Australia, Oct. 11, 1962, 23,115/62

4 Claims. (Cl. 179—90)

1. Impulse sender mechanism for automatic telephones, said mechanism comprising an impulse sending wheel on a shaft carrying a finger plate and a spring to rotate the shaft in the impulse sending direction, a governor to selectively control the impulse sending speed, said governor comprising at least two spring arms fixed by one end to a head and each having a weight on the other end, a brake cup housing for said weights, an externally screwed cylindrical block having two longitudinal slots in the wall thereof, said cylindrical block being inserted between said arms with the arms free in the slots, a slipper slidable in each slot in contact with said arms and movable by a

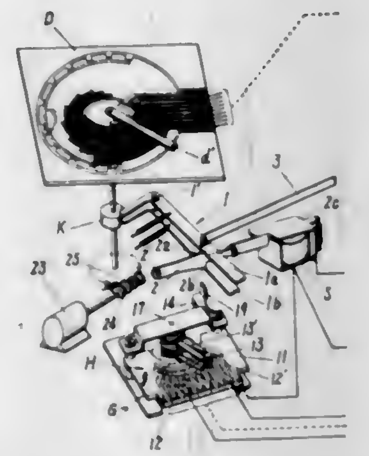
ring nut on said externally screwed cylindrical block, a shaft projecting through said head and axially through said cylindrical block, a pinion on said shaft in engagement with a gear wheel on a lay shaft and a pinion on the lay shaft in engagement with a gear wheel on the impulse sending wheel shaft, said three shafts being mounted in



lubricationless bearings made of plastic bearing material, a one-way clutch in the gear wheel on the impulse sending wheel shaft arranged to immobilise the governor and associated gears on all forward movements of the impulse sender mechanism and to permit overrun at the end of each impulse cycle.

3,305,644
DIGIT NUMBER DISTRIBUTING SYSTEM FOR PUSHBUTTON TYPE TELEPHONE CALLING APPARATUS

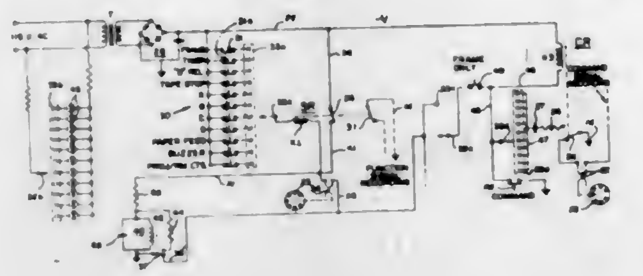
Jun Watanabe, Tokyo, Japan, assignor to Oki Electric Industry Company Limited, Tokyo, Japan, a corporation of Japan
Filed Sept. 5, 1963, Ser. No. 306,833
4 Claims. (Cl. 179—90)



1. In a pushbutton type telephone calling device of the type including a digit number distributor having a wiper cyclically scanning, always in one direction, a plurality of conductors corresponding to the total number of available digits, dialing cards coded with the respective call numbers, circuit connections effected by selective operation of a respective dialing card to initiate cyclical action of said distributor to scan the respective coded called number, the distributor, in each cycle, scanning all the available digits and returning to the cycle start position while still moving in said one scanning direction, and means operable, upon return of the wiper to the cycle start position at the end of a complete scanning cycle, to deactivate said distributor and to restore the selected card to an inoperative position; the improvement comprising means biasing said wiper in the reverse direction to the cycle start positions; latching means restraining movement of said wiper in said reverse direction; and restoring means connected to said latching means and to said distributor and operable, responsive to scanning of a preselected number of said conductors substantially less than said total number of available digits, to release said latching means for return of said wiper in said reverse direction to said cycle start position.

3,305,645
SYSTEM OF RECORDING PROGRAM CONTROL SIGNALS

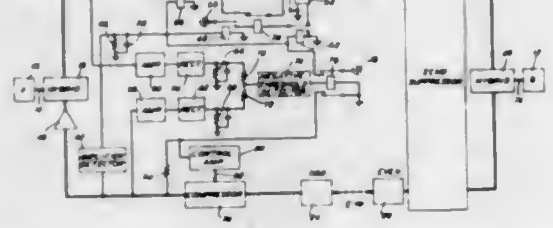
Thomas R. Nisbet, Palo Alto, Calif., assignor, by mesne assignments, to Edex Corporation, Mountain View, Calif., a corporation of Delaware
Filed Dec. 26, 1962, Ser. No. 247,048
13 Claims. (Cl. 179—100.2)



1. In a system for selectively recording upon a record medium two kinds of control signal wherein one kind is adapted to serve as a function selection signal and the other kind is adapted to serve as a command signal, transducer means adapted to record upon a record medium, signal selection apparatus comprising means operatively coupled to said transducer means including a plurality of means settable between two conditions and means for sensing the condition of said plurality of means and recording a selected number of said function selection signals, via said transducer means, for each of said plurality of means sensed in one condition until said sensing means senses one of said plurality of means in the other condition, and means operatively coupled to said transducer means and operable for manual actuation to record a selected number of said command signals.

3,305,646
ECHO SUPPRESSOR WITH IMPROVED BREAK-IN CIRCUITRY

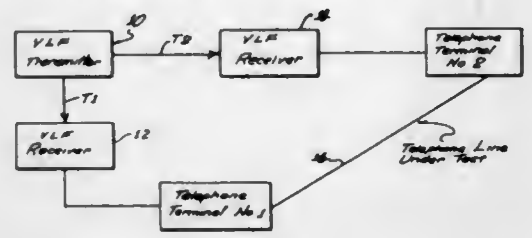
Paul T. Brady, Maplewood, and George K. Helder, Westfield, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Nov. 13, 1963, Ser. No. 323,351
6 Claims. (Cl. 179—170.6)



2. In a communication system, first and second terminals, a two-way local circuit associated with each of said terminals, first and second transmission circuits, means interconnecting said transmission and the local circuits at said terminals to permit two-way transmission between said local circuits and means for suppressing echoes in said transmission despite extended delay in said transmission circuits comprising at each terminal means for detecting incoming speech signals and effectively blocking the transmission circuit to the other of said terminals, means for detecting double talking, a compressor, means responsive to said double talking detector means for reestablishing the transmission path to the other of said terminals and for inserting said compressor in the incoming path to that terminal.

3,305,647
SIGNAL TRANSMISSION ANALYSIS SYSTEM

David Sheffet, Altadena, Calif., assignor to Western Geophysical Company of America, Los Angeles, Calif., a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,808
6 Claims. (Cl. 179—175.3)



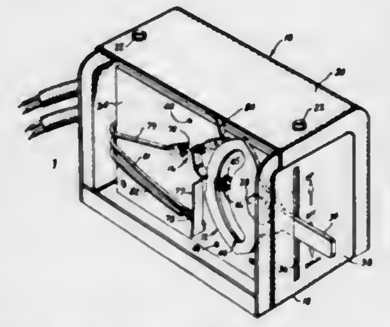
1. Means for measuring the signal transmission time of a signal transmission medium of known length comprising:

radio transmitter means for generating a signal, said radio transmitter being disposed at a predetermined distance from each end of said transmission medium and having computable times of transmission thereto,

radio receiver means for receiving signals received at one of said ends through said transmission medium to be compared in time with said signals at the other end of said medium whereby the time for signal transmission through said transmission medium equals the difference between the time signals which are received directly at one end of said transmission medium from said signal source and the time signals which are received at said end after being received at the other end and transmitted through said transmission medium plus the time of transmission from said source to said first end, minus the time of transmission of said signal from said source to said second end.

3,305,648
TIMING DEVICE

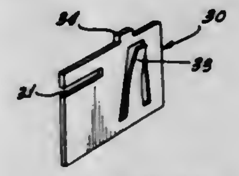
Lynn V. York, Jr., Bloomington, Ill., assignor to General Electric Company, a corporation of New York
Filed May 6, 1965, Ser. No. 453,740
7 Claims. (Cl. 200—35)



1. A timing device comprising in combination, a unidirectional driving motor having a rotatable shaft, a member mounted for movement relative to the shaft in directions transverse to the shaft between a neutral position and a second position spaced from the neutral position, means for moving said member from its neutral position to its second position to initiate a timing period, said member having a wall which is uninterrupted throughout its extent and which is generally parallel to said shaft, said shaft having a periphery which is uninterrupted throughout its extent and which is spaced from said wall when the member is in its neutral position, said member when moved from said neutral position toward said second position moving said wall into frictional engagement with the shaft periphery for any position of said member between said neutral and second positions, said motor being effective when said member is moved from its neutral position to rotate said shaft and its periphery against said wall in a direction to move said member back to its neutral position, and switch means responsive to movement of said member, said motor shaft being rotatable in a single direction and constituting the sole means for driving said member back to its neutral position.

3,305,649
TIMING DISC ASSEMBLY

Fred Hauser, 1544 Midvale Ave., Los Angeles, Calif. 90024
Filed Jan. 12, 1965, Ser. No. 425,035
5 Claims. (Cl. 200—38)



1. A timing disc and adjustable timing part assembly for use in timing devices wherein a timing disc is mounted to a motor means and associated switch means are operable by intereference with the rotating adjustable timing parts, said assembly comprising:

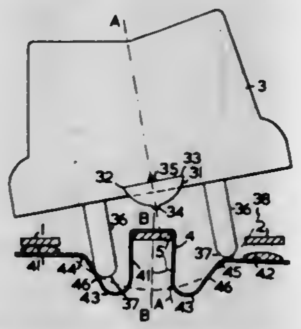
a generally flat timing disc adapted to be mounted to a timing motor and including a plurality of radially inwardly extending slots spaced about the disc circumference, each of said slots including a pair of opposed inner surfaces and a radially inwardly directed stop means formed in one of said inner surfaces; and

a plurality of timing parts mounted on and generally normal to said disc in said slots, each said timing part being selectively movable within one of said slots radially of said disc between an outer switch actuating position and an inner inoperative position; and

wherein each of said adjustable timing parts includes a laterally resilient arm means for slidably abutting said one inner surface during selective radial movement of said part to restrain said part within said slot in said outer switch actuating position by abutting said stop means on radially outward movement of said part in said slot.

3,305,650
MANUALLY OPERABLE SWITCHES SUCH AS ALTERNATING CURRENT SWITCHES SUITABLE FOR DOMESTIC INSTALLATIONS

Joseph Frederick Duffield, Georgetown, Ontario, and Zdzislaw R. Godziemba-Dambski, Bolton, Ontario, Canada, assignors to Smith & Stone Limited, Toronto, Ontario, Canada, a corporation of Ontario, Canada
Filed Feb. 15, 1965, Ser. No. 432,588
Claims priority, application Canada, Dec. 16, 1964, 918,904
3 Claims. (Cl. 200—67)



1. An electrical switch comprising:

a fixed contact,

a movable contact resiliently urged normally into electrical contact with said fixed contact and secured to a member having a bend therein forming a lobe, actuating means movable between a first discrete position and cooperating with said lobe to separate said fixed contact and said movable contact and a second discrete position and cooperating with said lobe to bring said fixed contact and said movable contact into electrical engagement,

a rocker member having trunnions thereon, said actuator being integral with said rocker,

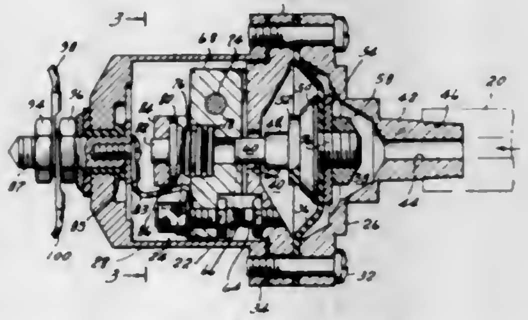
a base including bearing means for receiving said trunnions, said bearing means being recesses and further including retaining means over said recesses for retaining said trunnions therein, at least one of said recesses including a pair of spaced apart slots, and said retaining means being resilient, and

a ridge on at least one of said trunnions for selective engagement with said slots according to the position of said rocker.

3,305,651

OIL SENDER AND SAFETY SWITCH

Joseph Palmerone, 705 Ardsley Road, Scarsdale, N.Y. 10583
Filed Apr. 1, 1965, Ser. No. 444,758
2 Claims. (Cl. 200—83)



1. An engine oil sender and safety switch comprising in combination:

a housing having a first and second end and having an interior;

a flexible diaphragm extending across the interior of the housing to divide the housing interior into a first compartment at the first end and a second compartment at the second end, said housing being comprised of three parts, the first part being at the first end and the second part being at the second end and a central partition in between both ends extending across the housing interior in said second compartment;

the housing first end having an adapter means coupling with the engine and an opening communicating with the first compartment receiving engine oil under pressure flexing the diaphragm between a first position at which there is a predetermined lower pressure and a predetermined higher pressure;

a shaft anchored to the center of the diaphragm and extending into the second compartment;

spring means biasing said diaphragm to said first position and adapted to be overcome by a predetermined safe oil pressure whereupon the diaphragm will be disposed in said second position;

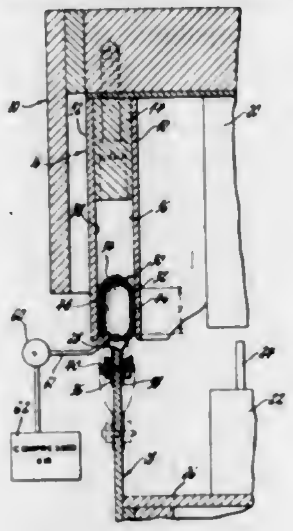
a stationary switch contact mounted by said housing in said second compartment;

a movable switch contact coupled for movement with the shaft away from the stationary contact to break an electrical connection therebetween when the diaphragm is in the second position and in contact with the stationary contact to make an electrical connection therebetween when the diaphragm is in the first position, the stationary contact extending into the second compartment from said partition and a reciprocal arm being mounted by said partition and mounting the movable contact, a bracket extending from said partition into the second compartment, the spring biasing means including a spring having one end engaged with the bracket and having another end engaged with the arm to urge the arm and, consequently, the movable switch into engagement with the closed contact, said shaft extending through an opening in said partition and engaging the arm when the diaphragm is in said second position to urge the arm against the bias of the spring and, consequently, the movable contact away from the stationary contact.

3,305,652

INFLATABLE CONTACT MEMBER FOR ELECTRIC SWITCH

Carl R. Radloff, Grand Rapids, and Karl Sarafian, Lathrup Village, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 4, 1965, Ser. No. 461,271
7 Claims. (Cl. 200—83)



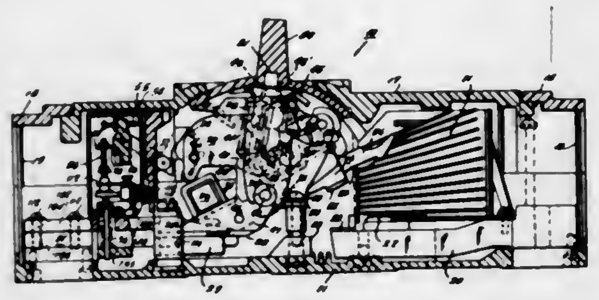
1. An electric switch comprising stationary and movable contact members, one of said contact members having a flexible metallic contact element electrically connected thereto, said element being formed as a loop with the opposite ends thereof mechanically connected to the associated contact member so as to form a cavity which in cross section is completely enclosed, the other of said contact members having a rigid contact surface, inflatable means in said cavity, means for locating the flexible contact element in a position adjacent to the rigid contact surface, and a source of pressurized air for inflating the inflatable means so that the flexible contact element engages the rigid contact surface to provide electrical contact therebetween.

3,305,653

CIRCUIT BREAKER TRIP ASSEMBLY WITH INCREASED COMPENSATION FOR MISALIGNMENT

Albert Strobel, Cherry Hill, N.J., assignor to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed June 21, 1965, Ser. No. 465,304
10 Claims. (Cl. 200—116)

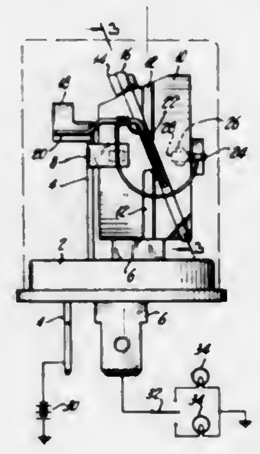
1. A circuit breaker comprising a housing having mounted thereto at least one pair of cooperating contacts, operating means for moving said contacts between an engaged and disengaged position; latch means cooperating with said operating means for maintaining said contacts in their engaged position under normal load conditions, a trip unit including current sensing means operatively responsive to the current flow through the circuit, and including means for releasing said latch means responsive to predetermined overload conditions, means for removably mounting said trip unit as an integral assembly to said circuit breaker housing, such that said circuit breaker accommodates various trip unit assemblies, said trip unit including a rigid terminal strap for securement to cooperating current carrying members carried by said circuit breaker housing, said trip unit including a mounting frame, said current sensing means including a thermally responsive element fixedly secured at a first end to said mounting frame, at a location remote from said terminal strap, a thermal shunt connecting said thermally responsive element to said terminal strap, relief means in the connection between said thermally responsive element and said rigid terminal strap for preventing transmission of stress forces to said thermally responsive element responsive to relative misalignment in the mounting of said terminal strap of the replaceable trip unit assembly to the cooperating current carrying members of the circuit breaker housing, such that the thermal calibration of said thermally responsive element is substantially independent of such stress forces, said relief means including means to compensate for misalignment derived stress forces in both a first and second direction, said first direction resulting from lateral misalignment between said terminal strap and the cooperating current carrying members of the circuit breaker, said second direction resulting from vertical misalignment between said terminal strap and the cooperating current carrying members of the circuit breaker.



3,305,654

SIGNAL FLASHER HAVING A HEATER MOUNTED ON A MANDRIL SEPARATE FROM, BUT ADJACENT TO THE EXPANSIBLE PULL MEANS

Hemming G. Silberg, Union, N.J., assignor to Tung-Sol Electric Inc., a corporation of Delaware
Filed Sept. 18, 1964, Ser. No. 397,487
2 Claims. (Cl. 200—122)

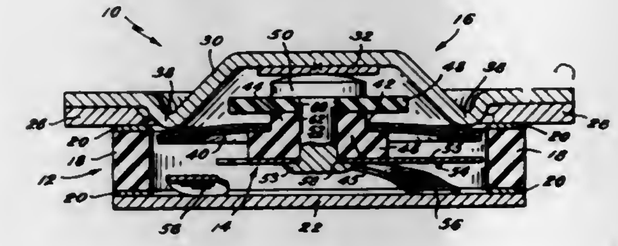


1. In a shunt type flasher of the type wherein a resilient vane having a linear deformation therein has expansible pull means secured under tension thereto which when cold holds the vane in one circuit controlling position and when heated permits the vane to snap to a second circuit controlling position, the combination comprising a fixed support means for the vane about which the vane pivots when snapping from one circuit controlling position to the other, a mandrel fixedly mounted with respect to said support means and extending parallel to the expansible pull means and adjacent thereto when the vane is in said first controlling position, said vane when snapping to said second controlling position laterally moving said pull means away from said mandrel, an electrical heater insulatedly wound about said mandrel and circuit means for energizing said heater to heat said pull means only when the vane is in said first circuit controlling position whereby when said heater is energized it is adjacent said pull means and when it is deenergized and cooling it is spaced from said pull means.

3,305,655

SNAP ACTING THERMALLY RESPONSIVE ELECTRICAL SWITCH

Leo Marcoux, Pawtucket, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Feb. 18, 1965, Ser. No. 433,677
6 Claims. (Cl. 200—138)



1. A thermally responsive electrical switch comprising, in combination:

(a) an open-ended tubular sleeve formed of an electrically insulating material;

(b) a plate member having an electrically conductive portion and secured to and closing one end of the sleeve;

(c) a cap member having an electrically conductive portion and secured to and closing the other end of the sleeve;

(d) a stationary electrically conductive contact mounted on and electrically connected to the electrically conductive portion of the cap member;

(e) a composite, thermally responsive, snap-acting element disposed within the sleeve;

(f) an aperture formed in a central portion of the snap-acting element;

(g) an electrically insulating bushing mounted in the aperture in the snap acting element, the electrically insulating bushing including a shank portion retained in loose fitting relation in the aperture and a head portion on one end of the shank which provides a shoulder to limit the movement of the thermally responsive element with respect to the shank in a first direction,

(h) a movable electrically conductive contact member mounted on the bushing and located for movement into and out of engagement with the stationary contact in response to snap movement of the thermally responsive element;

(i) an electrically conductive plate located between the other end of the bushing shank and the movable contact member, the plate having a diameter greater than the movable contact and the bushing shank whereby the movement of the thermally responsive element in a direction opposite to the first direction along the bushing shank is limited and whereby an arc shield is provided between the contacts and the thermally responsive elements;

(j) an annular abutment portion formed on the cap member and positioned in the sleeve intermediate the thermally responsive element and the contact member for engagement with a portion of the element, the abutment portion engaging peripheral portions of the thermally responsive element when the contacts are out of engagement to permit the thermally responsive element to move with creep movement without permitting the contacts to become engaged, the abutment portion being located out of engagement with the peripheral portions of the thermally responsive member when the contacts are in engagement to permit the thermally responsive element to move with creep movement without its engaging the contacts;

(k) electrically conductive spring means disposed in the sleeve in electrically conductive relationship with the electrically conductive portion of the plate member and a portion of the movable contact thereby establishing an electrically conductive path therebetween, the spring means comprising a member formed of thermally and electrically conductive material having a diameter closely approximating that of the tubular sleeve and including a plurality of spring fingers bent out of the plane of the spring member to engage the plate member in electrically conductive relationship at spaced portions adjacent the periphery of the plate member, the central portion of the spring means abutting the head portion of the bushing, the spring means urging the thermally responsive element for movement away from the plate member and toward the abutment member and stationary contact;

(l) the plate, shield, bushing and spring each having apertures formed in central portions thereof and the plate, shield, bushing and spring being located such that their apertures are in registry and, the contact element including a shank member located within the apertures, one end of the contact shank mounting the movable contact in electrically conductive relation and the other end being headed over to engage the spring member in electrically conductive relation whereby the plate, shield, bushing and spring are retained in unitary static relationship.

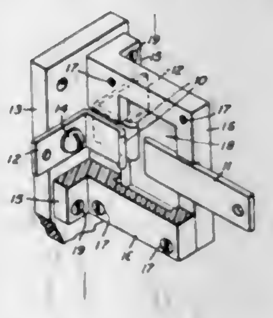
3,305,656

ELECTRICAL INSULATION CONTAINING A MOLECULAR SIEVE HAVING ADSORBED PERHALOGENATED FLUID

John C. Devins, Burnt Hills, N.Y., assignor to General Electric Company, a corporation of New York

Filed Dec. 26, 1963, Ser. No. 333,373

13 Claims. (Cl. 200—144)



1. A fabricated electrical insulating body comprising an organic resinous material having dispersed therein a molecular sieve having adsorbed thereon a perhalogenated fluid having a dielectric strength greater than air, said body being free of porosity caused by desorption of said fluid from the molecular sieve.

3,305,657

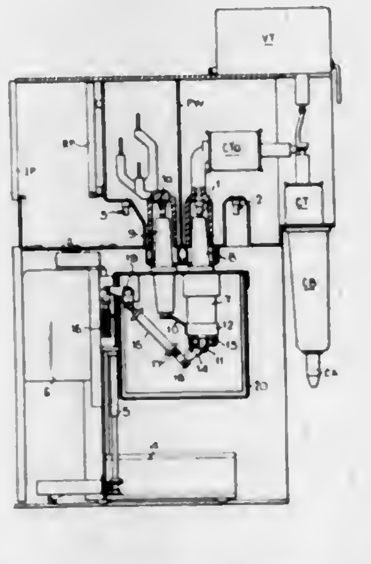
CIRCUIT BREAKER FOR HIGH POWER, HIGH VOLTAGE NETWORKS

Albert Roxburgh, Stanmore, Middlesex, and Arthur Charles Gibson, London, England, assignors to Associated Electrical Industries Limited, London, England, a British company

Filed Mar. 27, 1964, Ser. No. 355,331

Claims priority, application Great Britain, Apr. 1, 1963, 12,834/63

1 Claim. (Cl. 200—144)



In an electric power switchgear for high power, high voltage networks including a plurality of stationary vertical terminals spaced from each other a predetermined amount and a traversible switching unit, the improvement comprising a sealed container supported for horizontal traverse movement and for vertical plugging movement, a pair of terminal bushings extending upwardly from said container, said terminal bushings being in the same spaced relation as said stationary terminals for selective engagement with a pair of said stationary terminals when said sealed container is traversed to a predetermined engaging position and is lifted to plug said terminal bushings into a pair of said stationary terminals, a vacuum switch within said container supported solely on one of the terminal bushings and extending coaxially therewith, an electrical conductor extending from the free end of said vacuum switch to the other of said terminal bushings, finger contacts supported on said vacuum switch and electrically connected to said conductor, said finger contacts slidably engaging a contact extension of said vacuum switch, and operating means connected to said vacuum switch for selectively opening and closing said switch.

3,305,658

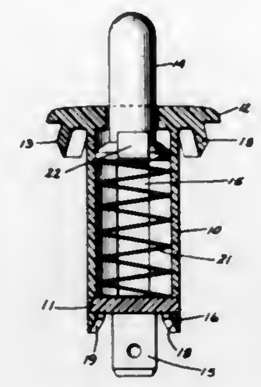
ELECTRICAL SWITCH HOUSING

Edward B. Heyhal, Trumbull, Conn., assignor to General Electric Company, a corporation of New York

Filed Sept. 10, 1965, Ser. No. 486,410

5 Claims. (Cl. 200—168)

1. A housing for electrical apparatus comprising, an elongate body member having a longitudinally extending cavity therein for containing and supporting elements of an electrical apparatus, said body member having an opening at one end into said longitudinally extending cavity to enable said elements of an electrical apparatus to be placed therein and having a pair of integral resilient projections, each said projection having one end located adjacent said opening and said projections extending outwardly from the one end of said body member, each of said resilient projections having an aperture therethrough, and closure means for enclosing and retaining said electrical apparatus in said cavity, said closure means having a pair of extensions each releasably positioned in one of said apertures in said resilient projections when said closure means is assembled with said body member thereby to enable said closure means to be nondestructively disassembled from said body member.



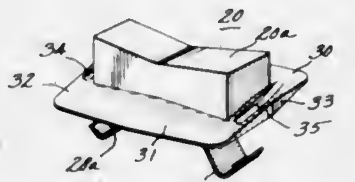
3,305,659

LIQUID DIVERTING SWITCH ACTUATOR

James L. Barden, Los Gatos, Calif., assignor to General Electric Company, a corporation of New York

Filed Mar. 23, 1965, Ser. No. 442,095

6 Claims. (Cl. 200—172)



1. In a motorized appliance having a housing, a top wall on said housing having an aperture therein, and means for controlling the energizing of said appliance comprising: an actuator having a projection portion extending through said aperture and laterally extending flange means within said housing to prevent the removal of said actuator from said housing, a pair of normally open contacts, one of said contacts fixed within said housing and the other of said contacts carried by said actuator and movable into engagement with said first contact, a resilient element having a pair of resilient legs secured to said actuator by said movable contact so that the actuator is biased upwardly away from said fixed contact, and duct means formed on the upper surface of said flange means for directing liquids seeping through said aperture onto said flange away from said switch contacts and said resilient element.

3,305,660

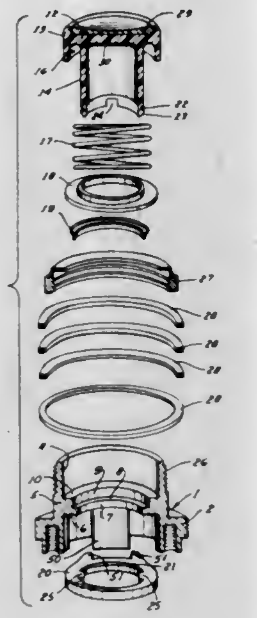
PUSH BUTTON OPERATOR

Carl B. Sohns, Milwaukee, and Dorn L. Pettit, Wauwatosa, Wis., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Oct. 23, 1965, Ser. No. 502,926

11 Claims. (Cl. 200—172)

1. A push button operator comprising a base having a forward end and a rear end, and having a passage extending forwardly and rearwardly therethrough, said base having a forward internal annular guidewall at the forward end of the passage and coaxial therewith, and having a rearward internal annular guidewall coaxial with, and spaced axially rearwardly from, the forward guidewall, a push button comprising a head and a stem, said head disposed in said passage and guided at its outer periphery by said forward guidewall for movement axially forwardly and rearwardly of the passage, said stem having an external peripheral wall disposed in said passage and guided by said rearward guidewall for movement axially forwardly and rearwardly, said base having an internal stop shoulder in said passage disposed rearwardly from said rear guidewall and facing rearwardly of the passage, and retainer means on the stem rearwardly from said shoulder and aligned therewith in position to engage the shoulder and limit the forward movement of the push button, thereby constraining said head and stem from moving forwardly out of guided relation to said forward and rearward guidewalls, respectively.



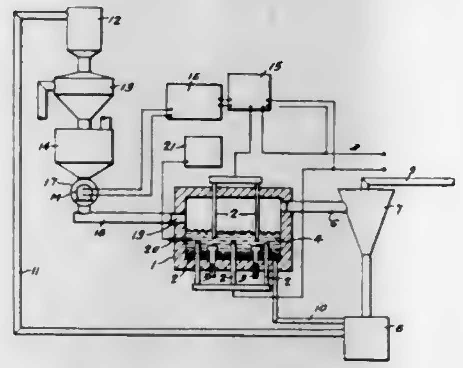
3,305,661

OPERATION OF ELECTRICALLY HEATED FLUIDIZED BEDS

Noel Brendan Shine, Shawinigan South, Quebec, Canada, and Douglas Joseph Kennedy, deceased, late of Shawinigan, Quebec, Canada, by Dorothy Verna Kennedy, executrix, Shawinigan, Quebec, Canada, assignors to Shawinigan Chemicals Limited, Montreal, Quebec, Canada, a corporation of Canada

Filed Feb. 3, 1964, Ser. No. 342,858

15 Claims. (Cl. 219—50)



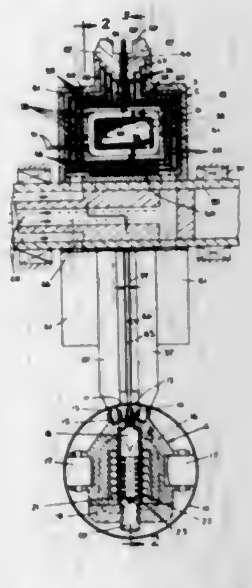
1. A method of controlling the temperature and power consumption of a fluidized bed of electrically-conductive carbon particles, which bed is heated by the passage of an electric current therethrough, which comprises

(a) measuring one parameter from the group consisting of bed temperature and bed power consumption, said power consumption being averaged over a period of at least ten seconds and

(b) adjusting the amount of carbon particles in the bed responsively to deviations of the value of the measured parameter from a desired value, so that the amount of carbon particles in the bed is increased when the value of the measured parameter is below the desired value, and the amount of carbon particles in the bed is decreased when the value of the measured parameter is above the desired value.

3,305,662
APPARATUS FOR ELECTRIC RESISTANCE WELDING

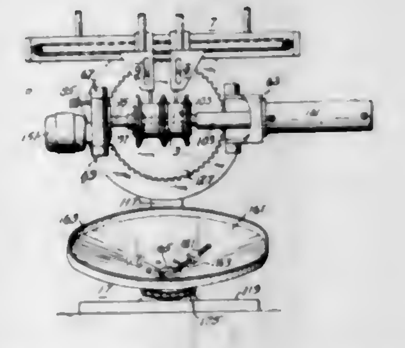
Walter F. Praeg, Palos Park, Ill., assignor to National Can Corporation, Chicago, Ill., a corporation of Delaware
Filed May 4, 1965, Ser. No. 453,161
15 Claims. (Cl. 219—63)



1. A transformer for electrically energizing metallic edges to be welded, said transformer comprising a toroidal primary, a one-turn toroidal secondary having a circumferentially extending split therein and substantially enclosing said primary, said split separating the contact surfaces of said secondary, said primary and said secondary being in spaced insulated relationship and at different voltage potentials, a rotary shaft extending transversely in supporting relationship through said secondary and rotary bearing means on said shaft, said secondary being comprised of a number of shells, said shells being insulated from each other except where they connect to the transformer contact surfaces, and said shells having a thickness small enough to assure approximately uniform distribution of current over the shell cross section at the transformer operating frequency, and a frame to rigidly support the contact surfaces, the shells of the secondary, and the primary on the rotary shaft.

3,305,663
WORK SUPPORTING MEANS IN WELDING APPARATUS

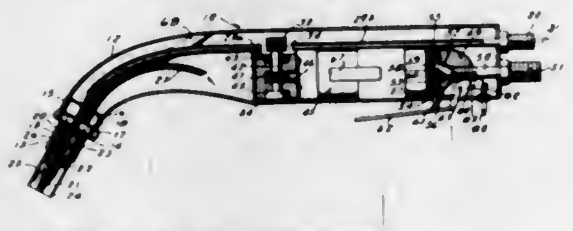
Harvey W. Janssen, Lafayette, Calif., assignor to L & B Welding Equipment, Inc., a corporation of California
Filed Jan. 30, 1964, Ser. No. 341,330
13 Claims. (Cl. 219—76)



1. Apparatus for performing a refacing or welding operation on work comprising
- a welding head,
- a work holder assembly for supporting work beneath said welding head in position to be operated on, said work holder assembly comprising,
- a spindle for supporting work,
- means for mounting said spindle for swinging movement between a work position and a loading and unloading position,
- a cone positioned on said spindle,
- a second cone,
- means for mounting said second cone on a common axis with and facing said first cone when said spindle is in its work position, and adapted to move said second cone toward said first cone to clamp work to be operated on,
- and means for removably supporting work by said spindle and out of range of said welding head in response to withdrawal of said second cone.

3,305,664
WELDING APPARATUS

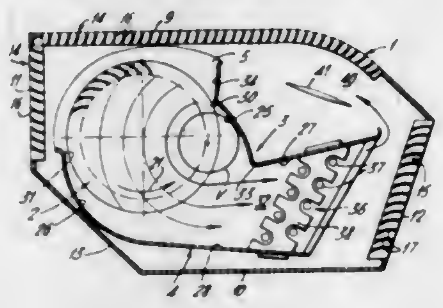
Milo M. Kensrue, 13882 Sanderstead Road, Santa Ana, Calif. 92705
Filed Mar. 18, 1965, Ser. No. 440,897
12 Claims. (Cl. 219—130)



1. An arc welding torch, comprising:
- (a) an elongate tubular housing including a substantially straight hand-grip body portion and a curved extension neck portion at one end of the body;
- (b) a directing nozzle for an inert gas at the outer end of said neck position with its longitudinal axis at an angle to the longitudinal axis of the body portion;
- (c) means in said housing for guiding an electrode wire to said nozzle;
- (d) means in said housing for moving said wire in a feeding direction including a fluid driven motor contained in the hand-grip body portion; and
- (e) a manually operable control carried by the hand-grip body portion including means for continuously variably controlling the amount of fluid delivered to said motor to vary the feeding speed of said wire during the welding operation.

3,305,665
FORCED CIRCULATION ELECTRIC HEATER EMPLOYING CROSS-FLOW TYPE FAN

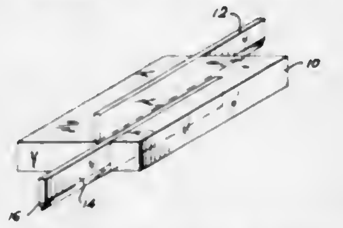
Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application Nov. 17, 1959, Ser. No. 853,596. Divided and this application Aug. 16, 1965, Ser. No. 479,808
1 Claim. (Cl. 219—370)



A fan heater comprising: a casing having an inlet and an outlet; a bladed cylindrical rotor within the casing said rotor defining an interior space; means mounting the rotor for rotation about its axis: drive means to rotate the rotor in a predetermined direction; guide means comprising a pair of end walls in substantial alignment with the ends of the rotor and a pair of spaced guide walls extending generally parallel to the rotor axis between the end walls, said guide means defining an entry region communicating with the inlet and a discharge duct leading directly to the outlet, the guide means and rotor cooperating on rotation of the latter in said predetermined direction to induce a flow of air from the entry region through the path of the rotating blades to the interior space and thence again through the path of the rotating blades to the discharge duct, heater means including an electric resistor element mounted within the discharge duct, means forming an air by-pass passage within the casing between the discharge duct and the entry region, and a thermostat effective to control current supply to the resistor element, the thermostat being located in the entry region and in the path of air flow from the discharge duct through said by-pass passage on blocking of the outlet.

3,305,666
METHODS AND APPARATUS FOR TREATING CONDUCTIVE SURFACES

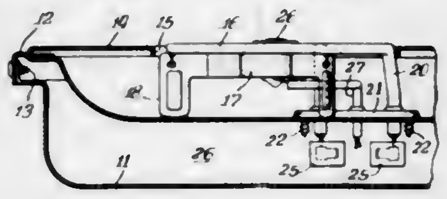
Solomon Zaromb, 376 Monroe St., Passaic, N.J. 07053
Filed Aug. 28, 1963, Ser. No. 305,161
9 Claims. (Cl. 219—383)



1. Apparatus for providing a nonconductive pattern in a conductive coating, said apparatus comprising: at least two metallic blades, a dielectric body, each of said blades being embedded in said body and including a knife edge exposed from one side of said dielectric body in the form of at least part of said pattern, and means for applying a surge of electrical current between said coating and said knife edges, said surge of current being confined by said dielectric body to a narrow area of said coating directly facing said knife edges and being sufficient to effect at least partial destruction of part of said coating in said narrow area.

3,305,667
SURFACE UNIT ASSEMBLY

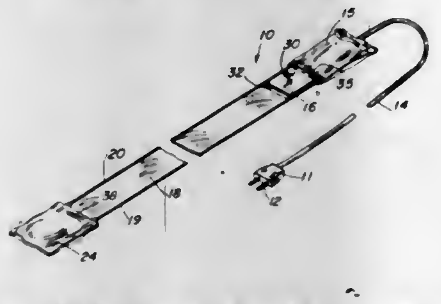
Joseph J. Jasionowski, Niles, Ill., assignor to Ferro Corporation, a corporation of Ohio
Filed May 13, 1964, Ser. No. 367,161
1 Claim. (Cl. 219—447)



A surface unit assembly particularly adaptable for use as a substitute for gas burners in a gas cook stove having a burner rough box comprising, a cook top shaped to overlie the rough box, a grate supported over the bottom of the cook top and having a plurality of openings therein, an electrical heating coil in each opening, a three-legged spider having downwardly extending leg portions resting on the upper surface of the cook top for supporting each coil in a horizontal position in its respective opening, each coil having electric terminals extending vertically downwardly from the coil, a mounting plate having apertures through which the terminals of each coil extend, the edges of the apertures sealingly engaging the terminals, a gasket, means securing the mounting plate to the cook top and compressing the gasket between the bottom of each mounting plate and the upper surface of the cook top to seal the juncture therebetween, and means in the space between the cook top and the burner rough box for supplying electrical energy to said terminals.

3,305,668
CABLE HEATER

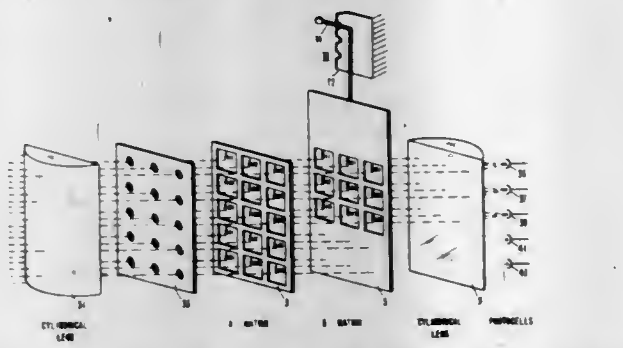
David C. Smith, 18901 Loras Lane, Country Club Hills, Ill. 60477
Filed Aug. 27, 1964, Ser. No. 392,524
4 Claims. (Cl. 219—528)



1. A heating cable device adapted for use in inaccessible locations in which it is difficult to determine whether the device is operating, said device comprising:
- a relatively thin, flexible heating cable including an electrically conductive resistance heating element embedded in a flexible insulator covering;
- a thermostat, electrically connected and adjacent to said heating element, for controlling energization of said heating element;
- indicator means, comprising an indicator lamp electrically connected to said thermostat and to said heating element and energized only upon closing of said thermostat, for indicating energization of said heating element;
- said indicator means further comprising a substantially translucent insulator envelope encompassing said indicator lamp, said envelope being disposed within an opening in said insulator covering of said heating cable and being of a size precluding a substantial increase in the overall dimensions of said cable.

3,305,669
OPTICAL DATA PROCESSING DEVICE

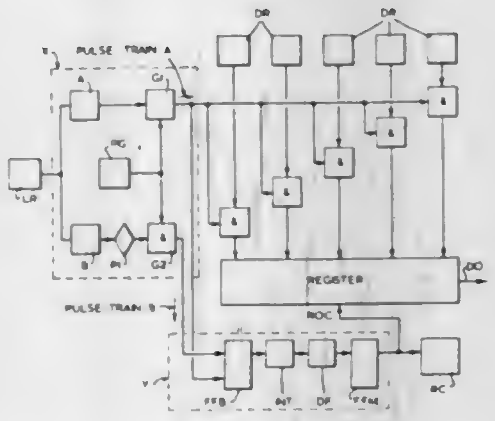
George J. Fan, Briarcliff, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 31, 1962, Ser. No. 248,577
4 Claims. (Cl. 235—61.6)



1. An optical data processing device including a first optical plate having a plurality of storage locations disposed in columns and rows to form a first matrix A with each storage location being variable in transparency to represent data of a first matrix, a second optical plate having a plurality of storage locations disposed in columns and rows to form a second matrix B with each storage location being variable in transparency to represent data, means coupled to said first and second optical plates for aligning selected rows of one optical plate with selected rows of the other optical plate, said last

named means serving further to selectively displace the rows of one optical plate relative to the rows of the other optical plate, a source of light disposed in alignment with said first and second optical plates for sending beams of light through corresponding aligned locations of said optical plates, means combining the light rays passing through selected locations of said first and second plates to form a plurality of products selected ones of which may be added to yield elements of a third matrix C, and means to record the combined light rays.

3,305,670
DATA READING APPARATUS
Roy Thomas, Acton, London, England, assignor to English Electric-Leo Computers Limited, a British company
Filed Sept. 7, 1962, Ser. No. 222,153
Claims priority, application Great Britain, Sept. 11, 1961, 32,497/61
5 Claims. (Cl. 235—61.11)



1. Apparatus for reading data-representing marks on a data carrier having a series of location marks each associated with one of a plurality of successively-readable data marking positions, said apparatus comprising, in combination, control reading means for producing an electrical control output whenever a location mark is passing a reading position, data reading means for producing electrical data outputs from data-representing marks in the marking position associated with that location mark, an oscillator adapted to produce pulses at a relatively high repetition frequency, a register for receiving data read from the data carrier, and first and second gates arranged respectively to be open and to be closed during the existence of each said control output, said first gate when open delivering pulses from the oscillator to serve as strobe pulses gating the data outputs to a data input of the register and said second gate when open connecting the oscillator to a control input of the register to cause read out of data being held therein.

3,305,671
SYSTEM FOR BOUNDING THE RADIUS COORDINATE OF AN ORBITING VEHICLE
Lawrence R. Manoni, Jr., Wethersfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Sept. 28, 1962, Ser. No. 226,200
3 Claims. (Cl. 235—150.25)

1. In a space navigation system for an orbiting vehicle, said navigation system defining the orbit of said vehicle with respect to a reference body in a coordinate system in which said coordinates are range angle, cross range angle and the radius measured along a line connecting said vehicle with the center of said reference body, comprising

means for producing a vehicle acceleration signal for each of said coordinates,

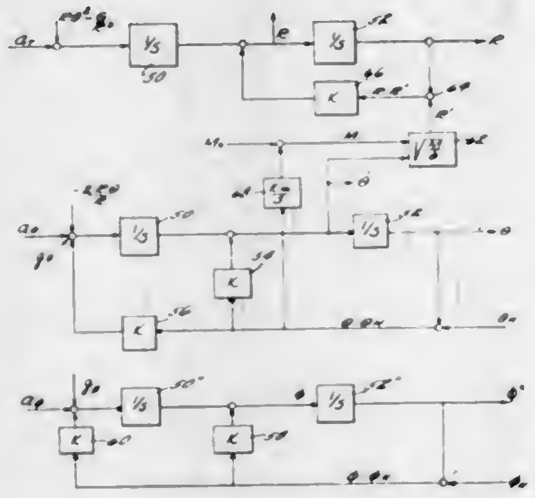
first integrating means for integrating each said vehicle acceleration signal into a vehicle velocity signal for each said coordinate,

second integrating means for integrating each said vehicle velocity signal into a vehicle indicated position signal for each said coordinate,

means for producing a vertical signal indicative of the local vertical of said vehicle with respect to said reference body,

means responsive to said vertical signal for producing signals indicative of the measured position of said vehicle relative to said range angle and cross range angle coordinates,

means for comparing said measured vehicle position signals relative to said range angle and cross range angle coordinates with said indicated vehicle position signals relative to said range angle and cross range angle coordinates and producing therefrom an error signal for each of said range angle and cross range angle coordinates,



means for feeding back said range angle error signal to the input of each of said first and second range angle integrating means, and for feeding back said cross range angle error signal to the input of each of said first and second cross range angle integrating means whereby said range angle and said cross range angle coordinates are bounded,

means for producing a signal indicative of vehicle angular momentum,

means for producing from said vehicle angular momentum signal a reference radius signal,

means for comparing said reference radius signal with said radius coordinate indicated position signal to produce a radius coordinate error signal,

and means for feeding said radius coordinate error signal to the input of said radius coordinate second integrating means whereby said radius coordinate is bounded.

3,305,672
SYSTEM FOR BOUNDING THE RADIUS COORDINATE OF AN ORBITING VEHICLE
David C. Paulson, Thompsonville, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Dec. 27, 1962, Ser. No. 245,937
4 Claims. (Cl. 235—150.25)

1. In a space navigation system for an orbiting vehicle, said navigation system defining the orbit of said vehicle with respect to a reference body in a coordinate system in which said coordinates are range angle, cross range angle and the radius measured along a line connecting said vehicle with the center of said reference body, comprising

means for producing a vehicle acceleration signal for each of said coordinates,

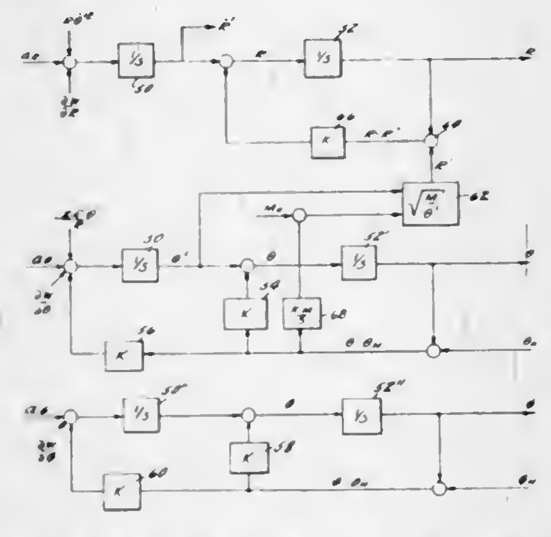
first integrating means for integrating each said vehicle acceleration signal into a vehicle velocity signal for each said coordinate,

second integrating means for integrating each said vehicle velocity signal into a vehicle indicated position signal for each said coordinate,

means for producing a vertical signal indicative of the local vertical of said vehicle with respect to said reference body,

means responsive to said vertical signal for producing signals indicative of the measured position of said vehicle relative to said range angle and cross range angle coordinates,

means for comparing said measured vehicle position relative to said range angle and cross range angle coordinates with said indicated vehicle position signals relative to said range angle and cross range angle coordinates and producing therefrom an error signal for each of said range angle and cross range angle coordinates,



means for feeding back said range angle error signal to the input of each of said first and second range angle integrating means, and for feeding back said cross range angle error signal to the input of each of said first and second cross range angle integrating means whereby said range angle and said cross range angle coordinates are bounded,

means for producing a signal indicative of initial vehicle angular momentum,

means for combining said range angle error signal with said initial vehicle angular momentum signal for producing an updated momentum signal,

and means for producing from said updated momentum signal a radius coordinate error signal and for feeding said radius coordinate error signal to the input of said radius coordinate second integrating means whereby said radius coordinate is bounded.

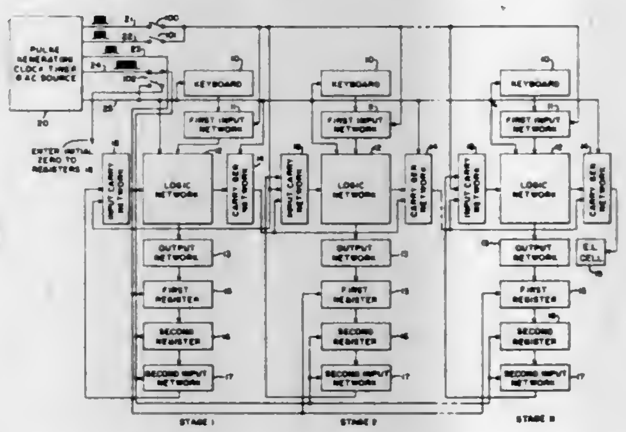
3,305,673
OPTOELECTRONIC COMPUTATIONAL DEVICES
Thomas E. Bray, Clay, N.Y., assignor to General Electric Company, a corporation of New York
Filed Jan. 15, 1963, Ser. No. 251,532
13 Claims. (Cl. 235—164)

5. An optoelectronic computational device for performing addition and subtraction operations with respect to multiorder numbers in a conventional radix system of radix N comprising:

(a) a plurality of logic matrices, one for each order of said multiorder numbers, said matrices each having a first and second array of optoelectronic elements with the elements of each array corresponding to a digit of said radix system, within each matrix the elements of said first array intersecting the elements of said second array at a number of discrete crossover points,

(b) first input means for selectively applying first input signals representing the digits of a first multiorder number to corresponding elements of said first arrays during addition operations and for selectively applying first input signals representing the (N–1's) complement of said digits to corresponding elements during subtraction operations,

(c) second input means for selectively applying second input signals representing the digits of a second multiorder number to corresponding elements of said second arrays in the absence of a carry signal and for selectively applying second input signals representing said second number digits advanced by one to corresponding elements of said second arrays in the presence of a carry signal, the crossover points of corresponding elements in each matrix to which are applied first and second input signals representing digits having sums of less than N each generating an output signal having an assigned value indicative of a completed sum of said first and second input signals, the remaining crossover points of corresponding elements in each matrix to which are applied first and second input signals representing digits having sums of N or greater each generating an output signal having an assigned value indicative of a partial sum of said first and second input signals having sums of N or greater,



(d) first output means for coupling in common output signals of equal assigned values indicative of a completed sum,

(e) second output means for coupling in common output signals of equal assigned values indicative of a partial sum, and

(f) means, coupled to said second output means, for generating and transmitting between matrices a carry signal in response to the application of first and second input signals having sums of N or greater.

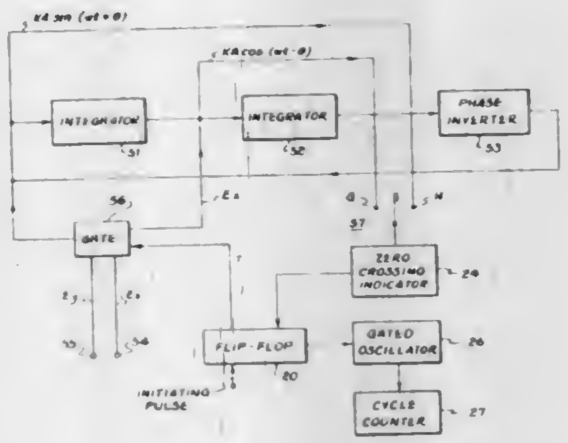
3,305,674
DEVICE FOR DETERMINING AN ANGLE FROM A SET OF ORTHOGONAL COMPONENTS
Herbert D. Cook, Arlington, Va., assignor to the United States of America as represented by the Secretary of Commerce
Original application July 7, 1961, Ser. No. 122,600, now Patent No. 3,270,189, dated Aug. 30, 1966. Divided and this application Mar. 14, 1966, Ser. No. 535,658
8 Claims. (Cl. 235—189)

1. In a device for converting a first direct-current signal representing the x component of a point and having a substantially constant magnitude proportional to $A \cos \theta$ and a second direct-current signal representing the y component of the point and having a substantially constant magnitude proportional to $A \sin \theta$ to a signal having a value proportional to the value of the angle θ of a radius vector A drawn through the point:

(a) means for generating a signal having an exponential sinusoidal transient waveform, said means having a first and second terminal positioned substantially ninety electrical degrees apart,

(b) control means responsive to an initiating pulse for applying said first and second direct-current signal to said first and second terminal, respectively,

(c) means for deriving from said first-mentioned means a sinusoidal signal of the type cos $(\omega t-\theta)$ that is a function of ωt and θ,



(d) phase measuring means responsive to an initiating pulse and to said sinusoidal signal for providing an electrical signal having a value proportional to the value of θ, and

(e) means for applying said initiating pulse to said control means and to said phase measuring means, the occurrence of said initiating pulse representing the time from which said angle θ is measured.

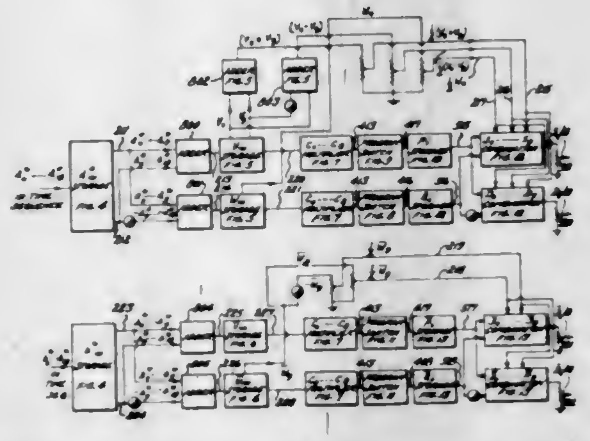
3,305,675

WAVE FORM SYNTHESIZING APPARATUS

Kurt H. Haase, Watertown, Mass., assignor to the United States of America as represented by the Secretary of the Air Force

Filed June 19, 1962, Ser. No. 203,663

1 Claim. (Cl. 235—197)



Apparatus for synthesizing a periodic wave having a non-sinusoidal time function comprising:

first and second sampler switch storage means for storing a predetermined number of sample harmonic values of input signals representative of n periodic coefficients, said first sampler switch means storing signals having the function

$$\sum_{i=1}^{n} y_i \cdot \cos \frac{\pi m}{n} i$$

i, m, and n being integers and y, i representing sample values, and said second sampler switch means storing signals having the function

$$\sum_{i=1}^{n} y_i \cdot \sin \frac{\pi m}{n} i$$

a first grouping stage comprising a plurality of first, second, third and fourth collector switch means, converter means and adder means, all electrically interconnected with each other and to said first and second sampler switch storage means for collecting sums and differences of amplitudes of signals of intercorrelated coefficient values to provide one of the groups of sample values y_1, y_{2n-1}, y_{n+1};

a plurality of storage switch means connected to the outputs of said first grouping stage for storing signals representative of said sums and differences;

a multiplier stage comprising potentiometer means connected to said storage switch means for multiplying the signals of groups obtained from said first grouping stage by their corresponding periodic real number factors;

synchronizing storage means for storing the output product signals from said multiplier stage;

a program array connected to the output of said synchronizing storage means and comprising a plurality of program switches, converters and adders electrically interconnected to provide signals representative of groups of sums of said stored products;

a second grouping stage connected to the outputs of said program array and to the outputs of said first grouping stage and comprising a plurality of collector switches, sampler switches, adders and converters electrically interconnected to provide signals representative of summed values and differences values of said groups of sums of stored products from said program array;

first collector means connected to the output of said second grouping stage for collecting signals representative of said summed values;

second collector means connected to the output of said second grouping stage for collecting signals representative of said difference values;

and means including a sampler switch stage connected to the outputs of said first and second collector means to form $2n$ output signals which represent the periodic waveform being synthesized.

3,305,676

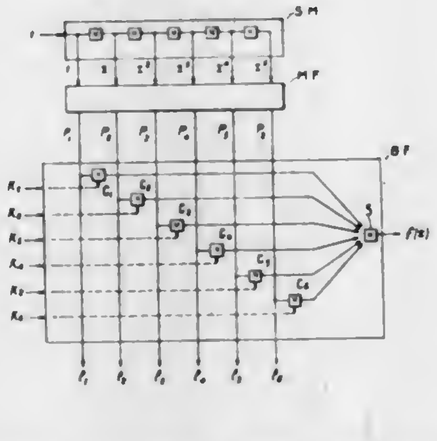
FUNCTION GENERATORS

Etienne Augustin Henry Honore and Emile Leon Gabriel Torcheux, both of 79 Blvd. Haussmann, Paris, France

Filed Dec. 24, 1962, Ser. No. 246,776

Claims priority, application France, Dec. 29, 1961, 883,417

7 Claims. (Cl. 235—197)



1. An analog computing system for representing a given function $f(x)$ of a variable x, within a given range of variation thereof comprising: means for providing a voltage value analog to x; means for multiplying said value by n predetermined magnitudes u_1 to u_n; means for performing n weighted summations of said voltages $u_1 \ldots u_n$ multiplied by said predetermined magnitude, thus delivering n voltages P_1 to P_n; and means for performing a weighted summation of said n voltages P_1 to P_n.

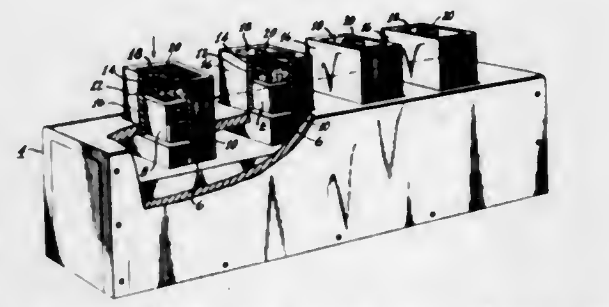
3,305,677

LIGHTED PUSH-BUTTON

Raphael F. Bov, Haddonfield, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Jan. 13, 1965, Ser. No. 425,273

1 Claim. (Cl. 240—2)



A push-button assembly of the type wherein the individual push buttons are releasably lockable in either a depressed or elevated condition comprising:

(a) a plurality of push buttons each having a translucent top and a stem affixed thereto, said top having an upper and lower surface;

(b) a duct-like housing formed with a plurality of apertures designed to receive said push buttons;

(c) a fixed support located within the housing, said support having a like plurality of apertures for receiving the stems of the push buttons;

(d) a first strip of resilient material mounted upon the support, said strip having a like plurality of apertures for receiving said stems, the apertures of said first strip registering with the apertures of said support; and

(e) a second strip formed of a luminous material mounted upon the first strip of resilient material, said second strip having a like plurality of apertures for receiving the stems, the apertures of said second strip registering with the apertures of said first strip, the apertures of the support, and the apertures of the housing, said second strip being disposed beneath the lower surface of the translucent top of each of said buttons so that it is obscured when viewed from the upper surface of said top when a push button is in an elevated condition, and becomes visible upon said push button being in a depressed condition.

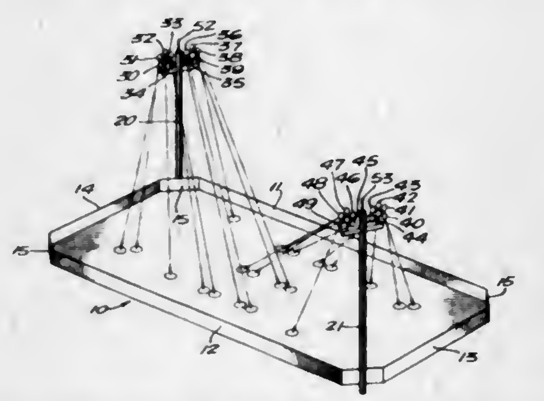
3,305,678

FLOODLIGHTING OF ATHLETIC FIELDS

Samuel M. Neely, 511 N. Mayo, Compton, Calif. 90221

Filed Sept. 29, 1961, Ser. No. 141,753

6 Claims. (Cl. 240—3)



1. An arrangement of floodlights for two hockey rinks disposed with an edge of one in closely-spaced parallel relation to an edge of the other consisting of three poles, each pole having a plurality of flood lamps at its top, one pole being upright at a position adjacent one pair of adjacent corners of the two rinks, the other two poles being located adjacent respective rink corners diagonally opposite said one pole, and the lamps being directed toward respective spots on the playing surfaces of the rinks in a pattern of substantially uniform light intensity throughout said playing surfaces.

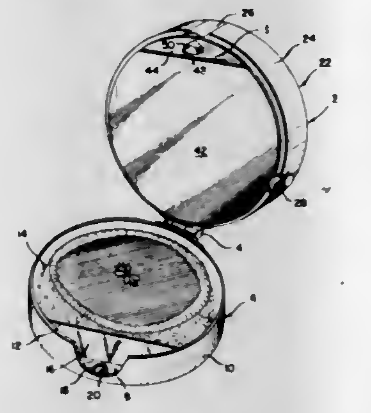
3,305,679

FEMININE ACCESSORY RECEIVING RECEPTACLES

Jose M. Barcita-Peruchena, 500 Patrick Ave., Richmond, Va. 23222

Filed Feb. 11, 1965, Ser. No. 431,912

5 Claims. (Cl. 240—6.45)



1. A feminine accessory receiving receptacle comprising an accessory receiving portion, a fixed housing connected to said portion, said fixed housing including side walls projecting from said portion, said side walls having a slot-like opening therein, an illuminated mirror unit slidably received in said fixed housing, said illuminated mirror unit comprising a removable housing including an end wall having inner and outer faces, side walls projecting from said inner face of said end wall, said end wall having an aperture therein, a mirror fixed to said outer face of said end wall, an illumination unit fixed within said removable housing adjacent said inner face, said illumination unit including a light bulb projecting through said aperture in said end wall to illuminate said mirror, battery means for energizing said bulb, circuit means electrically connecting said battery and said light bulb, and switch means interposed in said circuit means, said switch means including a switch actuator projecting through said openings in said side walls of said fixed and removable housing to rotatably fix said illuminated mirror unit relative to the remainder of the receptacle.

3,305,680

LAMP TERMINAL ASSEMBLY

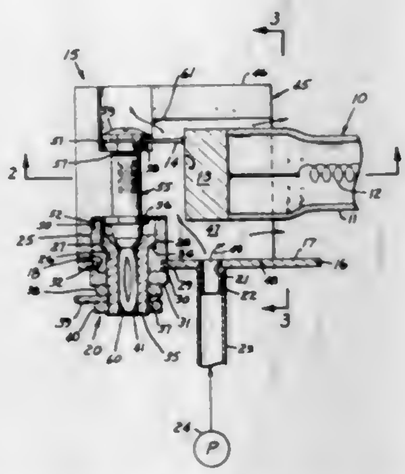
Josef U. Berkl, West Los Angeles, Calif., assignor to Hi-Shear Corporation, Torrance, Calif., a corporation of California

Filed Jan. 11, 1965, Ser. No. 424,689

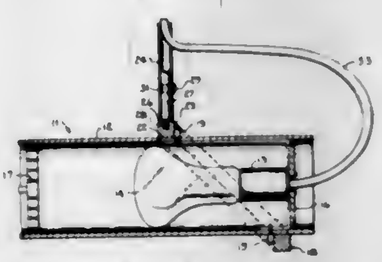
11 Claims. (Cl. 240—47)

1. A terminal assembly for the end of a longitudinally-extending lamp, which lamp has a conductive terminal, said holder comprising: a reflector plate adapted to reflect energy from said lamp, said reflector plate having a hole therethrough; an adaptor assembly mounted to the reflector plate and passing through the hole, said adaptor assembly comprising a tubular temperature-resistant insulator passing through the hole, said insulator having a bore and a counterbore therein which form an internal shoulder, a conductive externally-shouldered and threaded jack in said bore and counterbore, the jack having a stud-receiving port therein, the shoulders abutting each other,

and a nut threaded to the jack to hold it and the insulator to the reflector plate; a lamp holder including a body having an open slot for reception of a lamp end, and a shrouding port, a conductive stud extending through the shrouding port and beyond the body and adapted to enter the stud-receiving port, and the insulator being adapted to enter the shrouding port, the slot in the body opening onto at least a portion of the stud; and means conductively to attach a portion of the lamp to the stud.

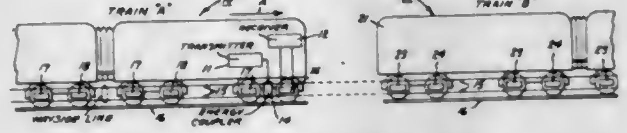


3,305,681
LIGHTING FIXTURE WITH ADJUSTABLE BEAM DIRECTOR
Frederic Lee Green, El Cerrito, Calif., assignor to Prescolite Manufacturing Corporation, San Leandro, Calif., a corporation of California
Filed Oct. 2, 1964, Ser. No. 401,046
12 Claims. (Cl. 240—78)



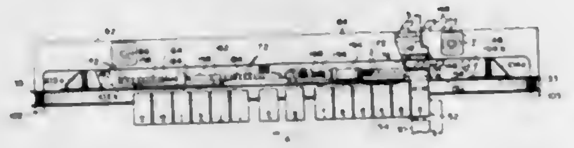
1. A lighting fixture comprising a circular support ring, and a light beam director housing including a portion having an elliptical cross section disposed within said ring in rotational sliding relation thereto with said ring being inclined with respect to the longitudinal axis of said housing portion and the entire inner circumference of the ring contacting the periphery of said housing portion.

3,305,682
RANGING SYSTEM
Morris F. Bolster, Norman C. Gittinger, and Ernest S. Sampson, Schenectady, and James R. Whitten, Ballston Lake, N.Y., assignors to General Electric Company, a corporation of New York
Filed July 26, 1963, Ser. No. 297,789
6 Claims. (Cl. 246—167)



1. A ranging system comprising: A transmission line; means for generating a continuous carrier signal; means for modulating said carrier to produce a continuous carrier modulated signal; energy coupling means disposed proximate said transmission line and at a first location thereof for coupling said continuous carrier modulated signal to said transmission line; means including an energy absorbing device proximate said transmission line for assuring propagation of wave energy therein in one direction only; energy reflecting means remote in the direction of wave propagation from said energy coupling means and disposed near said transmission line for reflecting said wave energy toward said source thereof; and at a location thereof means near said transmission line and at a location thereof intermediate said energy coupling and energy reflecting means and spaced from said energy coupling means a distance sufficient to avoid any appreciable direct coupling from said energy coupling means for simultaneously extracting a first signal from the transmitted wave energy in said transmission line and a second signal from the reflected wave energy in said transmission line; and means for phase comparing said first and second signals so extracted to provide a range signal.

3,305,683
INDEXING MECHANISM FOR IRRADIATING PACKAGES
Angelo T. Volonakis, Emerson, N.J., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Apr. 3, 1964, Ser. No. 357,341
5 Claims. (Cl. 250—52)

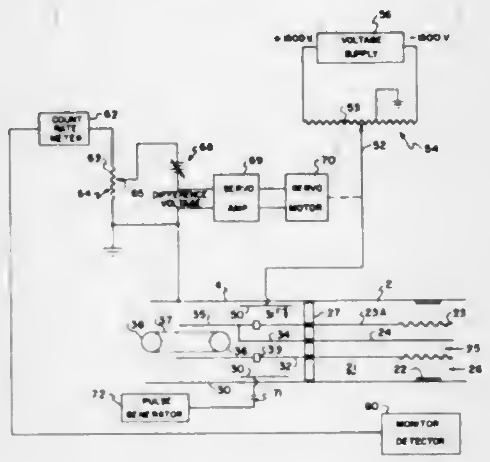


1. Apparatus for the application of selected doses of penetrating radiation to a series of packages comprising
(a) at least one source of said radiation;
(b) means including carriers conveying said packages through a zone of radiation, including means for cyclically moving said packages in a row forming a pause between each forward movement;
(c) means for pushing some of said packages immediately following each forward movement into selected positions with at least one predetermined space between adjacent packages to receive said source; and
(d) means for cyclically thrusting said source into said space for a finite interval of time to expose the adjacent packages to the selected dose of radiation and then withdrawing said source to permit another cycle of package movement and pushing in the forward direction thereby to expose successive packages to said doses of radiation.

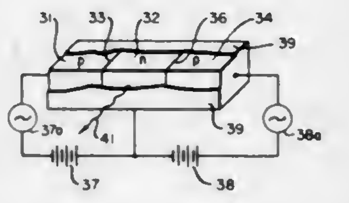
3,305,684
NEUTRON SOURCE HAVING MONITOR SYSTEM FOR ADJUSTING CORONA CURRENT
Eric C. Hopkinson and Arthur H. Youmans, Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed Jan. 10, 1964, Ser. No. 336,920
3 Claims. (Cl. 250—84.5)

1. In a source or radiation comprising an accelerator tube and an electrostatic generator, said accelerator tube including
a static atmosphere substantially composed of at least one isotope of hydrogen,
ionizing means arranged in said atmosphere, and
a grounded target;

said generator including
an endless rotatable belt,
means for developing an electric charge on said belt at a first location,
a collector electrode for receiving said electric charge from said belt at a second location and applying said charge to said ionizing means in said accelerating tube, and
a grounded tank insulated from said collector electrode and housing said generator;
the improvement in combination therewith including
a radiation detector arranged in close proximity to said accelerator tube for providing a first signal composed of electric pulses representative of radiations incident on said detector,
means responsive to said first signal for developing a second signal having a magnitude substantially proportional to the rate of occurrence of said pulses composing said first signal,
a corona electrode mounted in said generator between said tank and said collector electrode,
a corona point mounted on said corona electrode to develop a corona current between said corona point and said collector electrode, and
control means for varying the magnitude of said corona current in response to variations in the magnitude of said second signal.

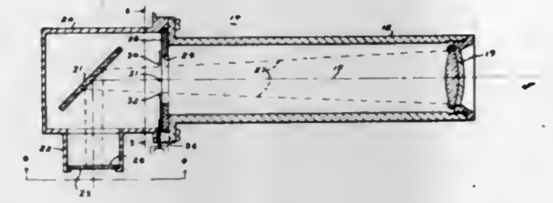


3,305,685
SEMICONDUCTOR LASER AND METHOD
Shyh Wang, Berkeley, Calif., assignor to The Regents of the University of California
Filed Nov. 7, 1963, Ser. No. 322,150
11 Claims. (Cl. 250—199)



1. The method of causing emission of photons in a region of semiconductor material of the type in which the bottom of the conduction band does not occur as the same momentum at the top of the valence band which comprises introducing majority carriers with a momentum corresponding to that of the top of the valence band into the conduction band of said region, and simultaneously introducing minority carriers into the valence band of said region whereby said majority and minority carriers can undergo band-to-band radiative recombination.

3,305,686
HELIOTROPIC DEVICE WITH THERMOCOUPLE SENSORS
Fred V. Carter, R.R. 3, New Carlisle, Ohio 45344, and Dallas R. Jones, 79 Haddon Court, Xenia, Ohio 45383
Filed July 23, 1963, Ser. No. 297,163
2 Claims. (Cl. 250—203)

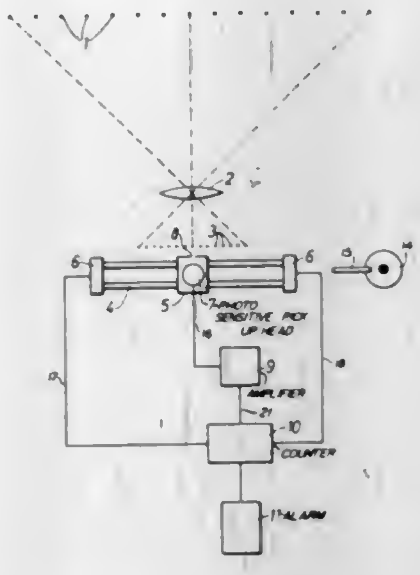


1. A heliotropic device for maintaining the optical axis of a solar radiation receptor in alignment with the center of the sun, comprising: a pair of servomotors for rotating said receptor in either direction about a pair of orthogonal axes; an electro-optical alignment error sensor rigidly attached to said receptor; said sensor comprising a focusing means, having an optical axis parallel to the optical axis of said receptor, for bringing the solar rays to focus at a focal plane, the rays being brought to focus defining and being contained within a truncated cone extending from said focusing means to said focal plane and centered on the optical axis of said focusing means when said axis has zero alignment error with the center of the sun; four thermocouple transducers located on the circumference of a circle that is centered on and normal to the optical axis of said focusing means, that is situated between said focusing means and said focal plane and that has a diameter only slightly greater than the diameter of said cone at said circle, said transducers being located on the circumference of said circle at the points of intersection therewith of two orthogonal diameters of said circle each normal to one of said orthogonal axes; a pair of control circuits for said servomotors; and a pair of error signal circuits each containing two diametrically opposite transducers connected in series opposed relationship and each connected to one of said servomotor control circuits to supply an error signal thereto.

3,305,687
APPARATUS FOR PHOTOELECTRIC INSPECTION OF RUNNING THREADS
Bernhard Vinzelberg, Leverkusen, Konrad Bunge and Otto Koch, Cologne-Stammheim, and Friedrich Linsert and Wilhelm Hager, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Apr. 16, 1963, Ser. No. 273,368
Claims priority, application Germany, Nov. 7, 1959, F 29,799
4 Claims. (Cl. 250—219)

1. Apparatus for continuous photoelectrical inspection of spaced running threads in spinning and textile machines, comprising:
(a) optical means for producing a reduced image of the running threads;
(b) sensing means including a photosensitive means and slit means for exposing the photosensitive means to the thread images one at a time, said photosensitive means absorbing light reflected by each thread and converting it into electrical impulses;
(c) sweep means for movement of the sensing means to sweep said reduced images of the threads for successively exposing the photosensitive means to each of the successive thread images;
(d) counting means operatively connected to the sensing means and responsive thereto for totaling exposures of the sensing means to the thread images dur-

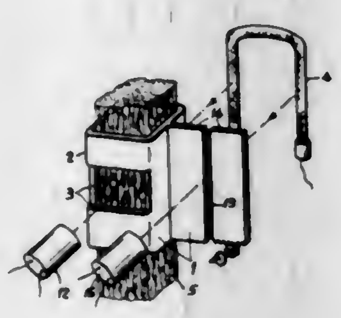
ing a sweeping of the reduced image, and effective to issue a signal upon deviation of the number of thread images counted during a sweeping of the reduced image and a preselected number;



- (e) indicating means responsive to said signal of the counting means and indicating occurrence of said deviation;
- (f) means for resetting the counting means to zero following each sweep of the thread image by the sweep means.

3,305,688
PHOTOSENSITIVE APPARATUS AND METHOD FOR THE CONTINUOUS MEASUREMENT OF THE FIBROUS MASS OF A TEXTILE FIBRE SLIVER

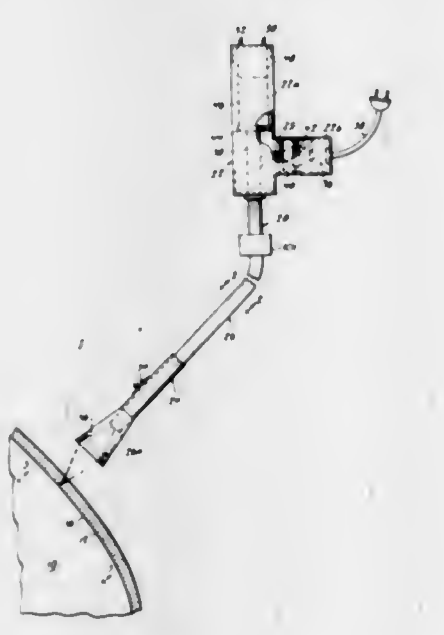
Hansruedi Lamparter, Winterthur, Switzerland, assignor to Maschinenfabrik Rieter A.G., Winterthur, Switzerland, a corporation of Switzerland
Filed Nov. 22, 1963, Ser. No. 325,568
Claims priority, application Switzerland, Nov. 23, 1962, 13,825/62
4 Claims. (Cl. 250—219)



2. An apparatus for determining the fibrous mass of a textile fibre sliver comprising
- a guide channel interposed in the path of the sliver for compacting the sliver passing therethrough, said guide channel having a pair of opposed apertures on opposite sides of the path of the sliver,
- an adjustable shutter positioned adjacent said guide channel,
- a high-intensity stroboscopic lamp disposed relative to said guide channel and said adjustable shutter for passing high-intensity radiation impulses of short duration through said guide channel apertures to irradiate the compacted sliver and said adjustable shutter, and
- at least a pair of photoelectric cells for producing signals in response to light received thereon from said lamp, at least one of said photoelectric cells being disposed relative to said guide channel for receiving light passing through said guide channel apertures, and another of said photoelectric cells being disposed relative to said adjustable shutter for receiving light passing through said adjustable shutter,
- means operatively connected to said photoelectric cells for receiving the produced signals therefrom, said means including an impulse amplifier and an impulse integrator sequentially connected to each other for coordinating and converting the differential of the received produced signals into a single continuous signal whereby the mass of the sliver passing through said guide channel can be determined.

3,305,689
ELECTRO-OPTICAL SIGNAL CONVERTER SYSTEM

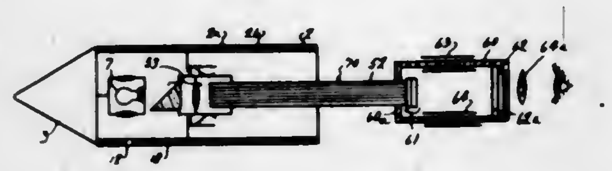
Paul M. Leavy, Jr., Lynnfield, Mass., and John S. Strobel, Nashua, N.H., assignors to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed June 26, 1963, Ser. No. 290,729
25 Claims. (Cl. 250—227)



13. In combination with a cathode ray display tube having
- a multiphosphor coated screen and a writing beam controllable to write upon said screen,
- said screen being coated with a first phosphor having a first frequency characteristic and a second phosphor having different frequency characteristics,
- said screen emitting radiant energy consisting of frequencies from both phosphors at the point of impact of said writing beam as said writing beam scans across said screen,
- light detection means solely responsive to one spectral wavelength for generating a corresponding electrical signal,
- a light source,
- a light pencil,
- output light conductive fibers conveying light from said light source to said light pencil,
- optical focusing means for focusing said conveyed light from said light pencil onto an area external to said pencil and at a predetermined distance from said pencil,
- input light conducting fibers terminating in said light pencil for conducting light from said pencil to said detection means,
- said optical focusing means capturing light emitted at said area and focusing said light onto said input light conductive fibers.

3,305,690
ELECTRON DISCHARGE DEVICE WITH FIBER OPTIC END WALL

Edward Emanuel Sheldon, 30 E. 40th St., New York, N.Y. 11014
Application Feb. 2, 1962, Ser. No. 170,745, now Patent No. 3,205,390, dated Sept. 7, 1965, which is a division of Ser. No. 785,849, Jan. 9, 1959, now Patent No. 3,027,477, dated Mar. 27, 1962, which in turn is a division of Ser. No. 415,699, Mar. 11, 1954, now Patent No. 2,877,368, dated Mar. 10, 1959. Divided and this application Jan. 27, 1965, Ser. No. 428,483
15 Claims. (Cl. 250—227)

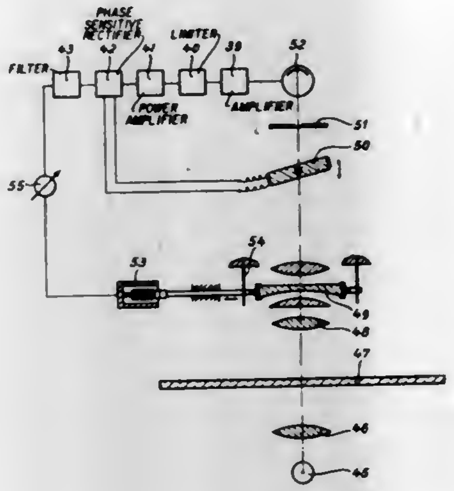


1. A vacuum tube comprising in combination a plurality of members conducting a light image by internal reflection of said light within said members and conducting all of said image, said conducting members being solid, and image responsive means mounted within said tube, said members having a core of material transparent to said light and having a high index of refraction and each of said members provided with its own individual coating means, said coating means being of a lower index of refraction than said core, said coating means mounted on each of said members and preventing spreading of said light from one of said members to another member, said coating means being of the thickness not exceeding a few microns, one endface of all of said light conducting members being mounted within said tube, facing inside of said tube and having said image responsive means mounted on said endface of essentially all said members.

3,305,691
APPARATUS FOR PHOTOELECTRICALLY MEASURING THE POSITION OF A SCALE MARKER

Fromund Hock, Wetzlar (Lahn), Germany, assignor to Ernst Leitz G.m.b.H., Wetzlar (Lahn), Germany
Original application Aug. 27, 1962, Ser. No. 219,417, now Patent No. 3,254,227, dated May 31, 1966. Divided and this application Aug. 25, 1965, Ser. No. 482,439
6 Claims. (Cl. 250—235)

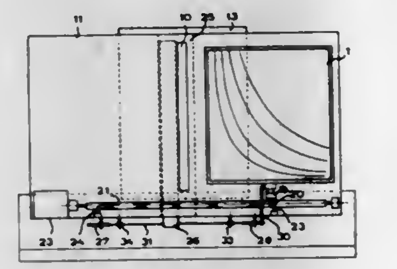
1. Apparatus for photoelectrically measuring the position of a scale marker, the combination comprising: photoelectric receiver means observing said scale marker; an optical modulating element in the light path between said receiver means and said scale marker; electromagnetic means including a pickup coil and an impelling coil and a regenerative feedback loop interconnecting said coils for causing said optical element to oscillate thereby modulating the light as received in said receiver means; optical means defining a light ray path through said optical element onto said receiver means; frequency selective amplifier means connected to said receiver means; phase sensitive rectifier means connected to said amplifier and deriving a reference signal from said feedback loop to provide a direct current output signal proportional to the lateral displacement of said scale member; optical displacement means connected to said direct current output signal for causing a lateral displacement of said ray path in the direction of extension of said scale; and electrical indicating means connected to said rectifier means for



measuring the direct current output signal thereof as an indication of said lateral displacement.

3,305,692
FOURIER TRANSFORM PHOTOELECTRIC OBJECT ANALYZER

André J. Girard, Chatillon-sous-Bagneux, France, assignor to the Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sous-Bagneux, a corporation of France
Filed July 15, 1963, Ser. No. 295,024
Claims priority, application France, July 18, 1962, 904,402
8 Claims. (Cl. 250—237)



1. A Fourier transform object analyzer comprising in combination a support for a plane object to be analyzed, a plane pattern grid located in a plane parallel to that of said object and including alternate transparent and opaque regions, said regions being bounded by branches of a family of curves defined by the Cartesian equation:

$$y=q \sin 2\pi p/x$$

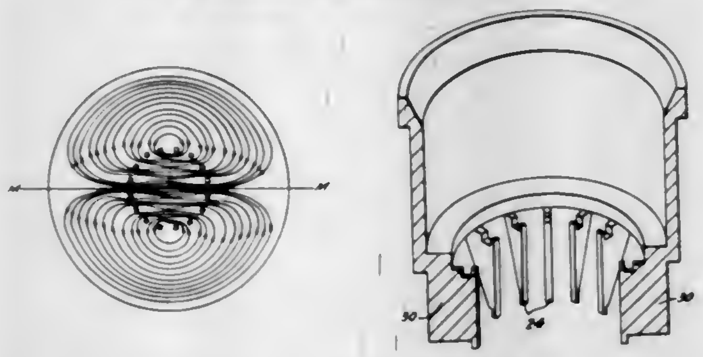
where p is a parameter, q a constant length and x and y the abscissa and ordinate of a point of a curve branch reckoned from rectangular x- and y-axes, each such curve branch being defined by giving to the argument $2\pi p/x$ a different one of a series of successive values differing from each other by π, first means for imparting said pattern grid reciprocation motions sinusoidal with respect to time in front of and with respect to said object-support along said y-axis, second means for step-by-step shifting said plattern grid in front of and with respect to said object-support along said x-axis, each stepped shift succeeding each reciprocation motion, and photosensitive means for collecting the light rays issued from said object through said pattern grid during each reciprocation motion of said pattern grid.

ERRATUM

For Classes 290—40 through 315—39.63 see:
Patent Nos. 3,305,723 through 3,305,753

3,305,693
INTERDIGITAL MAGNETRON INCLUDING MEANS FOR SUPPRESSING UNDESIRED MODES OF OPERATION BY SEPARATING THE FREQUENCY OF POSSIBLE UNDESIRED OPERATING MODES

Joseph F. Hull, Redwood City, Calif., assignor to Litton Industries, Inc., Beverly Hills, Calif.
Filed Jan. 2, 1963, Ser. No. 248,910
9 Claims. (Cl. 315—39.69)



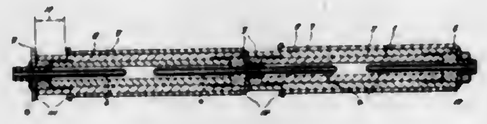
1. An interdigital magnetron comprising:
a cathode assembly;
an anode assembly including an interdigital cavity enclosing said cathode assembly to form an interaction space between the two assemblies, said cavity being capable of oscillation in different modes, wherein the high frequency magnetic field lines are arranged in groupings with a maximum magnetic field in predetermined radial zones separating the groups;
means for applying a steady magnetic field to said interaction space substantially parallel to said cathode;
baffle elements of conductive material disposed within the interdigital cavity along the radial zones as separations between the groupings of high frequency magnetic field lines peculiar to a desired mode of operation; and
means for maintaining said baffles at a fixed predetermined potential.

6. In the anode assembly of an interdigital magnetron:
a cavity structure;
first and second sets of interfitting fingers, each of said fingers including a base connected to said cavity structure and a tip extending away from the point of connection of said finger to said cavity;
the tips of said first set of fingers extending in one direction;
the tips of said second set of fingers extending in the opposite direction;
conductive strapping means connecting the tips of said first set of fingers and in insulated relationship to said second set of fingers; and
conductive strapping means connecting the tips of said second set of fingers and in insulated relationship to said first set of fingers.

3,305,694
ELECTRICAL RESISTOR WITH A PARALLEL HIGH VOLTAGE PROTECTIVE GAP

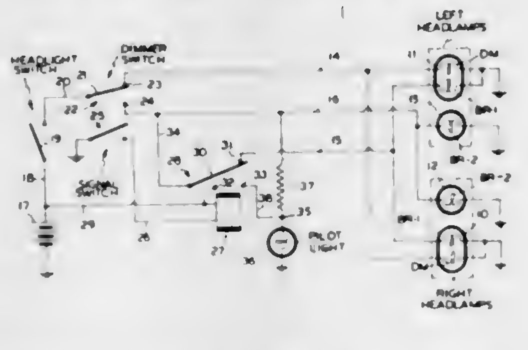
Peter Linley Kirby, Gosforth, England, assignor to Welwyn Electric Limited, Bedlington, England, a company of Great Britain and Northern Ireland
Filed Apr. 30, 1965, Ser. No. 452,192
Claims priority, application Great Britain, May 12, 1964, 19,696/64
8 Claims. (Cl. 315—59)

6. An electrical resistor comprising a hollow resistance carrier member; a resistive element coated over said hollow carrier member; terminal members provided at each end of the carrier member, the resistive element being electrically connected to said terminals; an insulating layer surrounding the outer surface of the resistive element, the resistance value being adjusted to the correct value by cutting a helix along the greater part of the length of the resistive element; a hollow electrode connected to each terminal member, the electrodes extending towards each other inside the hollow resistance carrier member; a conducting sleeve provided over said insulating layer and extending from one terminal member to a short distance from the other; and a metallic annular member provided on the other terminal member, the diameter of said annular member being approximately equal to the outer diameter of the conducting sleeve, the distance between the end of the conducting sleeve and the metallic annular terminal member determined so as to provide a specified breakdown voltage at a level greater than the normal maximum working voltage of the resistor and less than the level which is known to cause damage to the resistive element.



3,305,695
VEHICLE HEADLIGHT SIGNAL SYSTEM

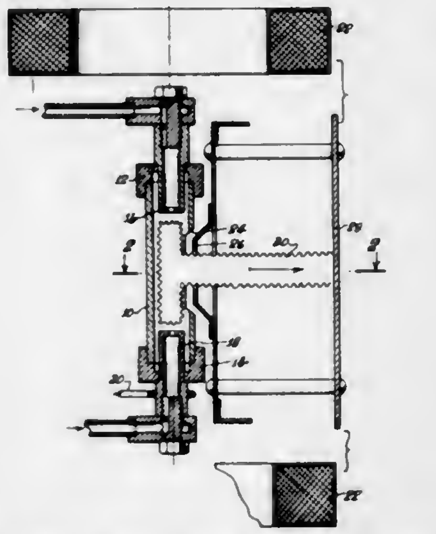
Eric E. Late, Fond du Lac, Wis., assignor to Essex Wire Corporation, Fort Wayne, Ind., a corporation of Michigan
Filed July 31, 1964, Ser. No. 386,680
5 Claims. (Cl. 315—82)



1. An automotive vehicle light and signal system comprising, in combination:
(a) an electric power source;
(b) headlights having low beam filaments connected in a low beam circuit, first high beam filaments connected in a first high beam circuit and second high beam filaments connected in a second high beam circuit;
(c) a headlight control switch having a battery terminal connected to said source and having a headlamp terminal, said headlight control switch having an "on" position and an "off" position;
(d) a two position dimmer switch having a low beam headlamp terminal, a high beam headlamp terminal and a common contact connected to the headlamp terminal of said headlight control switch, said dimmer switch selectively connecting said high beam and low beam headlamp terminals of said common contact;
(e) a first conductor connecting said low beam circuit to the low beam headlamp terminal of said dimmer switch;
(f) a second conductor connecting said first high beam circuit to the high beam headlamp terminal of said dimmer switch;
(g) signal switching means operable by a vehicle operator including a first normally closed contact means connecting said second high beam circuit to the high beam headlamp terminal of said dimmer switch and a second normally open contact means directly connecting one of said high beam circuits to said power source, said signal switch means being operable independently of said headlight control switch and said dimmer switch.

3,305,696
NEGATIVE ION SOURCE HAVING GAS NOZZLE INTEGRAL WITH THE CATHODE

Wallace D. Kilpatrick, Altadena, Calif., assignor to Electro-Optical Systems Inc., Pasadena, Calif., a corporation of California
Continuation of application Ser. No. 336,540, Jan. 8, 1964. This application Oct. 24, 1965, Ser. No. 504,470
11 Claims. (Cl. 315—111)

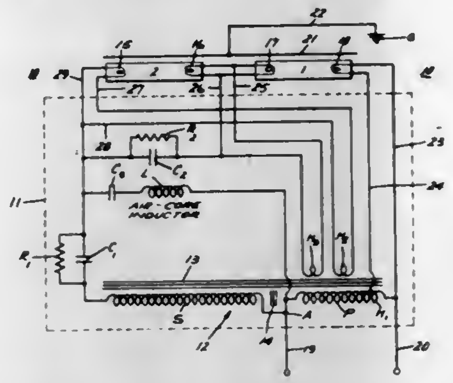


1. An improved negative ion source comprising:
(a) an anode,
(b) a cathode spaced from said anode, said cathode having a negative potential relative to said anode, whereby an arc discharge is created therebetween.
(c) means for injecting an ionizable gas stream at a first pressure in the vicinity of said cathode and for reducing the pressure to a lower second pressure at an area in the discharge region intermediate said cathode and said anode, whereby said gas is ionized,
(d) means for establishing a magnetic field axial to said arc discharge to constrain said ionized gas in said discharge region, and,
(e) means for removing negative ions from said ioized gas at said area of said second pressure in a direction normal to said magnetic field.

3,305,697
BALLAST APPARATUS WITH AIR-CORE INDUCTOR

Frank A. Neusbaum, Danville, Ill., assignor to General Electric Company, a corporation of New York
Filed Nov. 12, 1963, Ser. No. 322,714
4 Claims. (Cl. 315—244)

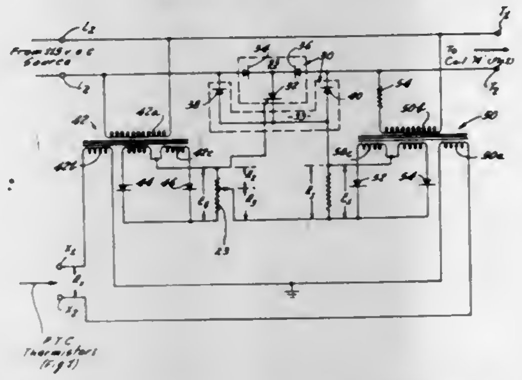
1. In a ballast apparatus for starting and operating at least one electric discharge lamp from an alternating source, said ballast apparatus including a high leakage reactance transformer having a magnetic core, a primary winding and a secondary winding inductively coupled with said primary winding on the magnetic core, said primary winding having a pair of leads for connection to said alternating source, a series capacitor connected in series circuit relation with said secondary winding to provide a net capacitive reactance in the secondary circuit of said high leakage reactance transformer, a shunting capacitor connected in parallel circuit relation with said secondary winding, circuit means including a plurality of output leads for supplying the output current of the apparatus to the lamp, the improvement comprising an air-core in-



ductor connected in series circuit relation with said shunting capacitor and across said secondary winding of said high leakage transformer and said series capacitor.

3,305,698
ELECTRIC MOTOR OVERHEATING PROTECTION CIRCUIT

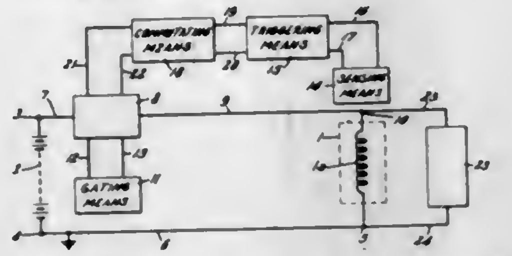
David W. Bargen, Scottsdale, and Bradford O. Van Ness, Phoenix, Ariz., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Sept. 16, 1963, Ser. No. 309,155
7 Claims. (Cl. 317—13)



1. An electric control circuit including in combination: input terminal means for connecting the control circuit to a source of alternating current voltage; output terminal means; circuit means including a switching device coupled to said input terminal means and to said output terminal means; said switching device having a first conductive state whereby said alternating current voltage is applied to said output terminal means and a second non-conductive state; a first transformer having a primary winding connected to said input terminal means and having a first secondary winding and a second secondary winding; a second transformer having first primary winding connected to said output terminal means and having a second primary winding and a secondary winding; a variable resistance sensing element; a pair of control terminals coupled to said variable resistance sensing element; circuit means including said control terminals for connecting said first secondary winding of said first transformer, said second primary winding of said second transformer and said variable resistance sensing element in series; first rectifying circuit means connected to said second secondary winding of said first transformer and to said switching device for producing a first control signal of a polarity to render said switching device nonconductive; and second rectifying circuit means connected to said second secondary winding of said second transformer and to said first rectifying circuit means; said second rectifying means producing a second control signal of a polarity to counterbalance said first control signal and render said switching device conductive only when the resistance of the sensing element varies beyond a predetermined value.

3,305,699
PROTECTIVE CIRCUIT FOR SUPERCONDUCTIVE LOADS

Donald L. Watrous, Scotia, and Stephen H. Minnich, Schenectady, N.Y., assignors to General Electric Company, a corportion of New York
Filed Mar. 8, 1965, Ser. No. 437,726
14 Claims. (Cl. 317—13)

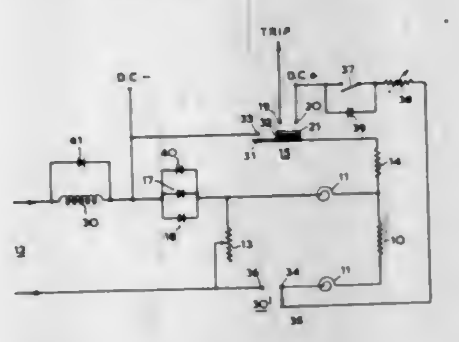


1. A protective circuit for a superconductive load adapted to be connected to a source of electric potential and energized thereby comprising:

(a) load current carrying fast acting electronic controlled conducting means having a conducting state and a non-conducting state, connected in series with said superconductive load and the power supply;
(b) means connected to the load current carrying fast acting electronic controlled conducting means to set said means to a conductive state;
(c) means to sense a current decrease in said superconductive load;
(d) fast acting electron controlled conducting commutating means connected to said load current carrying means and connected to and contolled by said sensing means to set said load current carrying means to a non-conducting state, and
(e) means connected in parallel with said superconductive load to dissipate energy stored therein so as to limit the voltage induced in said superconductive load upon the load current carrying means being rendered non-conductive.

3,305,700
ELECTROMAGNETIC PROTECTIVE RELAYS HAVING A WOUND ROTOR

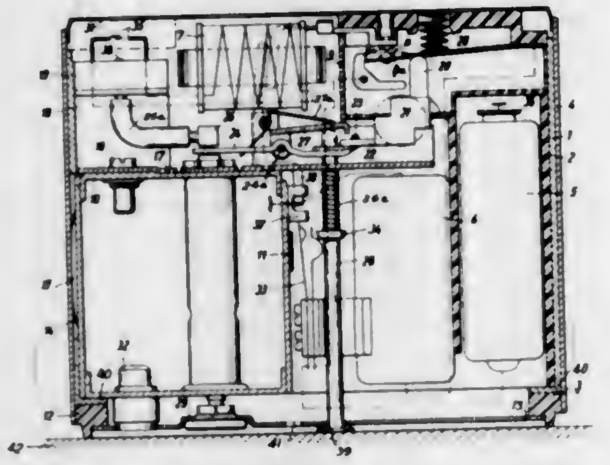
Peter Lewis Moreton, Felton, Somerset, Eric Paddison, Stafford, and Frank Edward Higton, Ashbourne, England, assignors to The English Electric Company Limited, London, England, a British company
Filed Sept. 9, 1963, Ser. No. 307,678
Claims priority, application Great Britain, Sept. 11, 1962, 34,736/62
13 Claims. (Cl. 317—58)



1. An electrical protective relay having a rotor movable between a rest position and a second position in which the relay is operative and carrying a winding, the rotor co-operating with poles of a stationary magnetic flux producing means so that a torque acting on the rotor is produced when the rotor winding carries a direct current, and including electrical circuit means for causing a direct current to be passed through the rotor winding to produce a torque acting on the rotor to return it to its rest position when displaced therefrom, the electrical circuit means being activated by a reduction of a relay input current which displaced the rotor from its rest position to a value below a predetermined level.

3,305,701
ELECTRIC IGNITION TABLE-LIGHTER

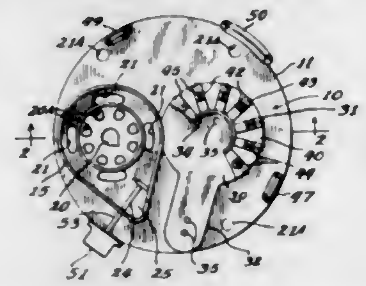
Hermann Remy, Frankfurt am Main-Niederrad, Otto Adler, Heusenstamm, near Offenbach am Main, and Martin Grünbacher, Offenbach am Main, Germany, assignors to Rowenta Metallwarenfabrik G.m.b.H., Offenbach am Main, Germany, a firm
Filed Mar. 25, 1964, Ser. No. 354,629
Claims priority, application Germany, Apr. 1, 1963, R 25,885
7 Claims. (Cl. 317—86)



1. An electrically ignited gas-fueled table lighter comprising, in combination: a first chassis, a second chassis telescoped into the first chassis, a plate-shaped base frame supporting both said chassis, a casing encasing the first chassis and supported by said base frame partly overlying the same, a fuel supply and valve assembly supported by the first chassis, said fuel supply and valve assembly including a fuel tank and a burner nozzle disposed within the casing, an electric ignition assembly supported by the second chassis, said ignition assembly including a pair of electrodes defining a spark gap therebetween and disposed within the casing in coacting relationship with the nozzle for igniting gaseous fuel discharged therefrom, and control means for controlling the fuel supply and valve assembly for discharging gaseous fuel through said burner nozzle and for controlling the electric ignition assembly to effect a spark discharge across said spark gap.

3,305,702
MOUNTING BASE FOR TELEVISION PICTURE TUBE COMPONENTS

Fred P. Manetti, River Forest, and Lewis Klier, Arlington Heights, Ill., assignors to American Plasticraft Company, Chicago, Ill., a corporation of Illinois
Filed Feb. 11, 1965, Ser. No. 431,929
3 Claims. (Cl. 317—99)

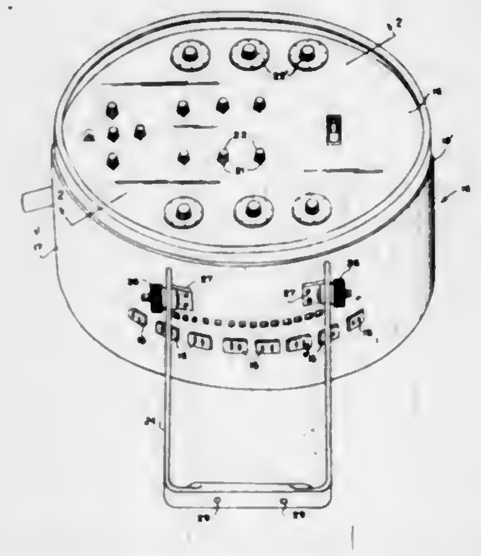


1. A mounting base for a high-voltage rectifier tube and flyback transformer used in a television set comprising in combination,

(a) a base plate arranged to be mounted on the associated television set chassis,
(b) a pad for receiving said transformer formed integrally with said plate,
(c) a socket cup for receiving said tube, said socket cup being formed integrally with said plate, and said socket cup having upstanding side walls which shield the bottom portion of said tube from said transformer,
(d) a spacer wall formed internally in said socket cup for forming a passageway for the leads emanating from said tube to shield said leads from said tube.

3,305,703
PORTABLE DIMMER BOARD FOR ELECTRIC LIGHTING APPARATUS

Hy Hilzen, 1 Shore View Drive, Yonkers, N.Y. 10710
Filed Feb. 23, 1965, Ser. No. 434,579
1 Claim. (Cl. 317—99)

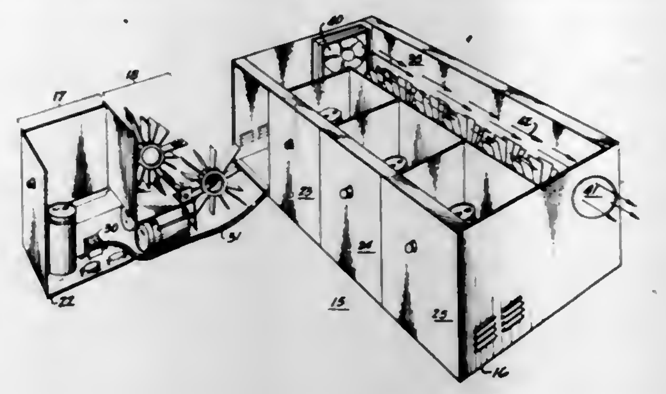


In a dimmer apparatus for selectively controlling the supply of power to a plurality of separate electrical lighting circuits, each of which includes a plug for releasable connection to outlets whose plates are presented by said dimmer apparatus on its casing, the improvement being in that said casing comprises a tubular member on a lane around the periphery of which the plates of said outlets are mounted close one to the other whereby adjacent plates are in obtuse angular relation forming an outlet plates' region; said dimmer apparatus including a U-shaped handle, the distal ends of whose arms extend to brackets fixed on the exterior of said tubular member adjacent said outlet plates' region and substantially equidistant from the ends of said region; each of said arms having a longitudinal slot, said slots facing each other; screw means on said brackets extending through said slots respectively; said handle being swingable and slidable on said screws and means for releaseably fix said handle and screws to said brackets; said tubular member being circular and said region being of a length less than a semicircle.

3,305,704
POWER SUPPLY HEAT SINK

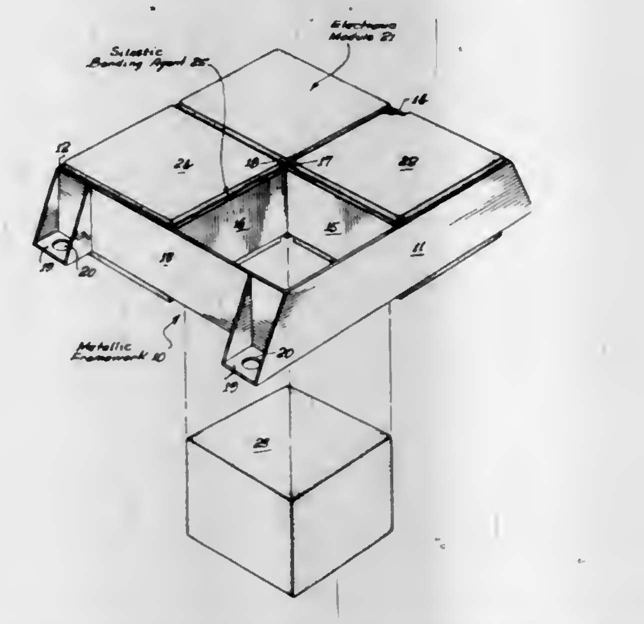
Joseph Battista, Chicago, Ill., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed June 26, 1964, Ser. No. 378,381
3 Claims. (Cl. 317—100)

1. A power supply comprising a cabinet for slidably supporting at least one drawer, one end of said drawer being shaped to support and house electrical components, the other end of said drawer being shaped to cooperate with said cabinet to form an air duct, at least one heat sink movably mounted on the other end of said drawer to move between an operate and a maintenance position, and means for pivotally mounting said heat sink on said drawer to swing between said operate and said maintenance positions, when said drawer is in said cabinet and said heat is in said operate position said heat sink lies athwart a stream of air in said duct.



3,305,705
MODULE SUPPORT STRUCTURE

Kenneth B. Tillmanns, Claremont, and David E. Penniman, Yorba Linda, Calif., assignors to General Dynamics Corporation, Pomona, Calif., a corporation of Delaware
Filed Sept. 3, 1964, Ser. No. 394,123
9 Claims. (Cl. 317—100)



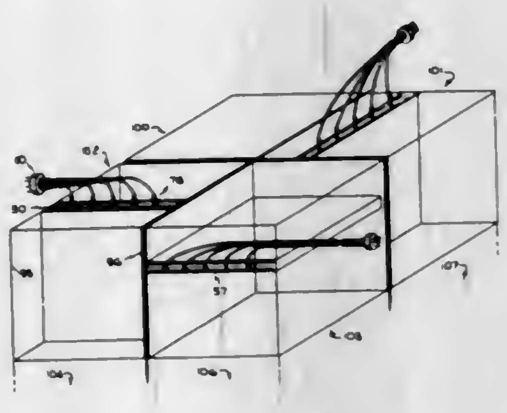
1. A module support structure comprising a framework having at least one opening therein, module means removably positioned in the opening of said framework, said module means being configured to substantially conform with the configuration of said opening, said opening of said framework having accessibility thereto such that said module means may be inserted and removed therefrom in a plurality of directions, and means bonding said module means in said opening wherein said framework provides efficient thermal transfer from the module means due to the large area of contact therebetween, said framework being constructed of material which provides radio frequency shielding for said module.

3,305,706
HIGH DENSITY PACKAGING FOR ELECTRONIC COMPONENTS

Burton Adams Babb, Hinsdale, Ill., assignor to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland
Filed June 11, 1964, Ser. No. 374,484
5 Claims. (Cl. 317—101)

1. A high component density electronic assembly comprising a multi-cellular library rack having at least one

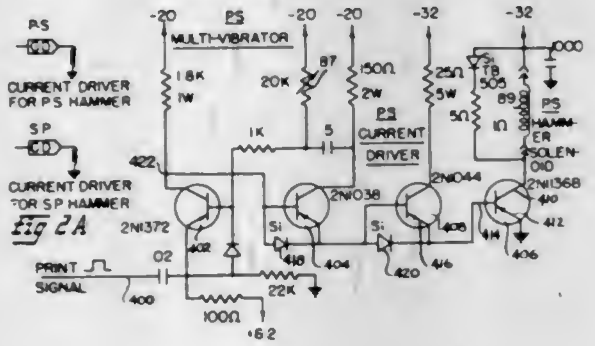
jack field therein for separating at least two of said cells and a plurality of unitary packaged sub-assemblies of components, said sub-assemblies being supported in spaced parallel relation by said library rack, the sub-assemblies in one of said cells being oriented on one side of said jack field with respect to the sub-assemblies in another



of said cells on the other side of said jack field to eliminate the need for inter-sub-assembly cabling by utilizing the jacks in said field to make all inter-sub-assembly electrical connections.

3,305,707
TRANSISTOR BIAS CIRCUITS

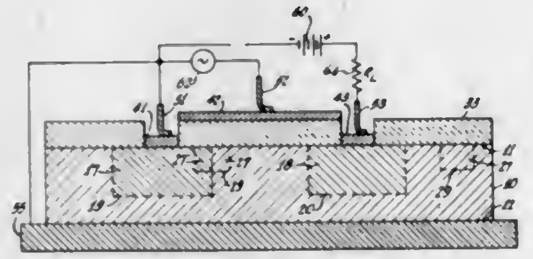
Robert S. Wenman, Lake Zurich, Ill., assignor to SCM Corporation, a corporation of New York
Original application Mar. 30, 1961, Ser. No. 103,183, now Patent No. 3,131,627, dated May 5, 1964. Divided and this application Apr. 23, 1964, Ser. No. 362,050
3 Claims. (Cl. 317—148.5)



1. In combination: a power transistor having base, emitter and collector terminals, means connecting one of said terminals to a first reference potential and another of said terminals through a current coil of an electromagnet to a second reference potential; a germanium driver transistor having base, emitter and collector terminals means connecting said driver transistor to have an emitter-collector current path through the base and said one terminal of said power transistor to said first reference potential and through a circuit separate from said inductor to said second reference potential; a silicon diode connected across the base and one terminal of the driver transistor, said diode having a voltage drop when conducting which exceeds the barrier potential of the driver transistor and poled when conducting to prevent current conduction through the driver transistor; and means for selectively applying a potential of a first polarity relative to said first reference potential to the base of the driver transistor to cause forward current conduction through said diode and prevent current conduction through said power transistor and a potential of opposite polarity to the base of the driver transistor to cause conduction through both transistors, said last mentioned means comprising a monostable multivibrator circuit containing third and fourth transistors, each having base, emitter and collector terminals; means for connecting the emitter terminal from said third transistor to the base of the driver transistor; means for connecting the base of said third transistor to the collector terminal of said fourth transistor; a further diode having properties similar to those of said first diode connected across the base and said emitter terminal of said third transistor to be in series circuit arrangement with said first diode and poled in the same direction as said first diode; and means for changing the conduction condition of said multivibrator circuit to control current conduction through said power transistor.

3,305,708
INSULATED-GATE FIELD-EFFECT SEMICONDUCTOR DEVICE

Norman Harold Ditrick, Raritan, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Nov. 25, 1964, Ser. No. 413,839
6 Claims. (Cl. 317—234)

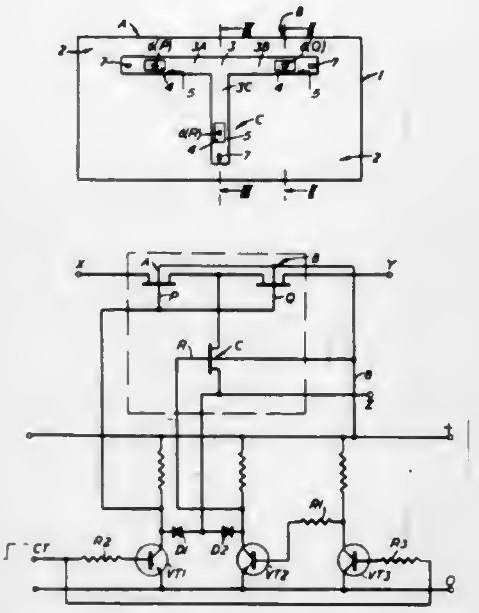


1. An insulated-gate field-effect semiconductor device comprising:
- a crystalline semiconductive body of given conductivity type having at least one major face;
- first and second spaced low-resistivity regions of opposite conductivity type in said body immediately adjacent said one major face;
- first and second metallic contacts on said one major face connected respectively to said first and second spaced regions;
- a low-resistivity zone of said given conductivity type in said body immediately adjacent said one major face and surrounding the lateral periphery of only one of said spaced regions;
- a layer of dielectric material on said one major face covering the gap between said first and second spaced regions; and,
- a metallic contact on said dielectric layer over said gap.

3,305,709
T-SHAPE FIELD-EFFECT SWITCH HAVING A CONTINUOUS HIGH OUTPUT IMPEDANCE

Philip R. Thomas, 8208 Spring Valley Road, Dallas, Tex. 75220, and Melvin W. Larkin, 4907 Point Circle Drive, Monroeville, Pa. 15146
Filed July 24, 1964, Ser. No. 384,943
Claims priority, application Great Britain, July 26, 1963, 29,818/63
4 Claims. (Cl. 317—235)

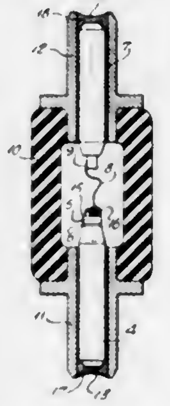
1. A semiconductor switch comprising input, output and common terminals and first and second control terminals, first, second and third field-effect transistors each having a source, a drain and a gate, the source of the first transistor directly connected to the input terminal, the drain of the second transistor directly connected to the output terminal, the drain of the third transistor directly connected to the common terminal, the drain of the first transistor directly connected to the sources of the second and third transistors, the gates of the first and second transistors directly connected together and



to the first control terminal, the gate of the third transistor directly connected to the second control terminal.

3,305,710
VARIABLE-CAPACITANCE POINT CONTACT DIODE

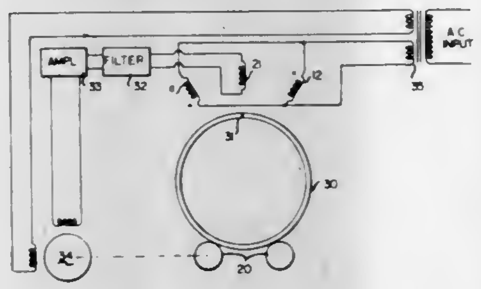
Shoichi Kita and Hisashi Watanabe, Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan, and Nippon Electric Company Limited, Tokyo, Japan, both corporations of Japan
Filed Mar. 13, 1963, Ser. No. 264,983
Claims priority, application Japan, Mar. 29, 1962, 37/12,394
1 Claim. (Cl. 317—236)



A variable capacitance semiconductor diode comprising:
- a first large diameter electrode,
- a metallic layer on said electrode, said layer being selected from one of the group comprising gold, copper and nickel-rhodium,
- a crystal of n-type silicon mounted on said metallic layer, said crystal having a resistivity less than one ohm per centimeter,
- a second large diameter electrode held in spaced relationship with respect to said first electrode,
- a silver alloy wire connected to said second electrode, said wire including approximately 5% gallium, said wire further being in selected point contact with a surface of said crystal,
- a p-n junction being formed at said point contact between said wire and said crystal, said junction having an abrupt voltage-current characteristic,
- said wire having a bend therein adjacent the point of contact with said crystal,
- a small mass of insulator binder material secured to said crystal and to said wire in the region of said bend for reliably maintaining the selected contact between said wire and said crystal,
- means for sealing said diode, and said diode having in the region of zero bias the improved characteristic of higher resistance and a higher rate of capacitance change than similar prior art devices.

3,305,711
APPARATUS FOR POSITIONING A PIPE SAMPLE CIRCUMFERENTIALLY BY SENSING OF DISTURBANCES IN A NULL PLANE BETWEEN OPPOSITELY POLARIZED EXCITER COILS

George F. Quittner, Cleveland Heights, Ohio, assignor, by mesne assignments, to API Instruments Company, Chesterland, Ohio, a corporation of Ohio
Original application Aug. 22, 1962, Ser. No. 218,783, now Patent No. 3,271,662, dated Sept. 6, 1966. Divided and this application Jan. 4, 1966, Ser. No. 518,601
3 Claims. (Cl. 318—31)



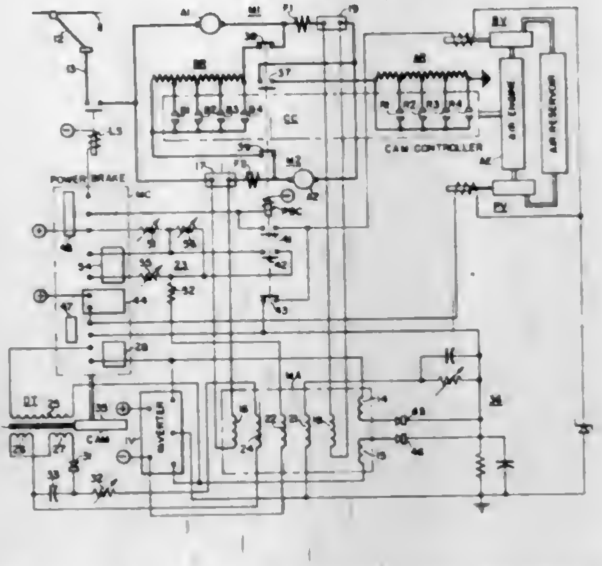
1. In apparatus for positioning a pipe sample circumferentially according to an axially extending discontinuity therein, the combination of:
- an A.C. source of power,
- at least one pair of excitation coils connected with said source of power and arranged with axes substantially perpendicular to the pipe sample periphery while spaced apart around said periphery and oppositely polarized to establish a null plane between them,
- a mechanical drive for rotating the pipe,
- a reversible motor for operating said drive,
- amplifying means connected to said motor for effecting the rotation and direction of rotation of said motor,
- sensing coil means having an axis substantially coincident with said null plane and connected to operate said amplifying means and thus position the pipe according to the location of the discontinuity, said sensing coil being located on the outside of the pipe sample as are the excitation coils also, whereby all coils fall on the same side of the pipe as regards its minor, and material thickness, dimension.

3,305,712
PLURAL MOTOR ACCELERATION AND BRAKING SYSTEM

Lester J. Hoffman, Penn Hills Township, Allegheny County, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 3, 1963, Ser. No. 270,334
5 Claims. (Cl. 318—63)

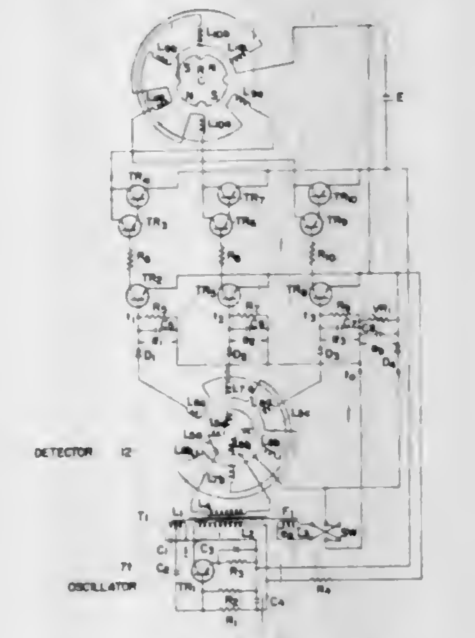
1. In a control system for an electric traction motor, means for connecting the motor to a power source to accelerate the motor, means for establishing connections for dynamic braking of the motor, resistance means for controlling the motor current, control means for progressively varying said resistance means during acceleration and during braking, and magnetic amplifier means for controlling the operation of said control means, said magnetic amplifier means including means responsive to the

motor current for effecting interruption of the operation of the control means when the motor current exceeds a predetermined value, and said magnetic amplifier means including biasing means for biasing the magnetic amplifier differently during acceleration and during braking of the motor, whereby said predetermined value of current may be different for acceleration and for braking.



3,305,713
DIRECT CURRENT BRUSHLESS MOTOR INCLUDING PULSE WIDTH MODULATION

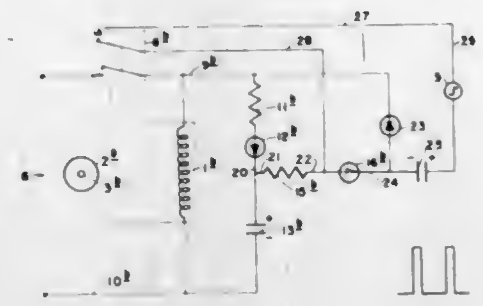
Kazutoshi Ikegami, Kitatama-gun, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed Jan. 2, 1964, Ser. No. 335,147
1 Claim. (Cl. 318—138)



A D.-C. brushless motor comprising: an oscillator to produce triangular waveform signals; a first coil fixed on a rotational shaft and being supplied with signals from said oscillator by electromagnetic coupling; a plurality of second coils disposed around said rotational axis to be consecutively subjected to electromagnetic coupling; a transistor to amplify triangular waveform voltage generated in said second coil to rectangular waveform voltage; a driving winding in which the rectangular wave signal is supplied; a permanent magnet rotor; means to rectify and smooth a part of output of said oscillator; means to vary the bias of said transistor by this voltage, the width of rectangular output of said transistor being varied by variation of said bias voltage, thereby controlling speed of said rotor.

3,305,714
MOTOR-BRAKING DEVICES

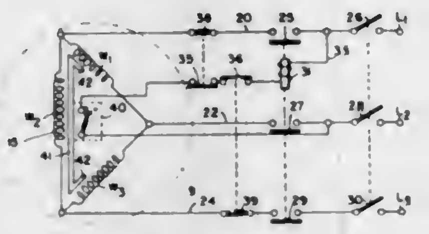
William Henry Plumpe, Jr., St. Louis County, Mo., assignor, by mesne assignments, to Brunswick Corporation, a corporation of Delaware
Filed Jan. 8, 1964, Ser. No. 336,498
12 Claims. (Cl. 318—212)



1. A braking device for use with an alternating-current motor having a field winding, said device comprising a source of alternating current to supply power to the motor, means for interrupting the flow of alternating current to the motor, a source of direct current including a capacitor connected in parallel across the field winding of the motor, rectifier means in series with the capacitor for charging said capacitor from the source of alternating current, a two terminal switching diode of the avalanche type interposed between the capacitor and the field winding for normally blocking the flow of direct current to the field winding, means operable responsive to interruption of the flow of alternating current to said motor for causing the switching diode to become conductive thereby transmitting a direct-current impulse from the capacitor to the motor thereby causing the motor to stop.

3,305,715
MOTOR CONTROL ARRANGEMENT

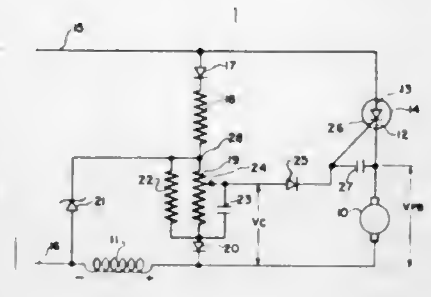
Harvey G. Stenger, Skaneateles, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Oct. 10, 1963, Ser. No. 315,204
4 Claims. (Cl. 318—221)



1. In a control arrangement for a polyphase electric motor operably connected to a source of electric energy, the combination of switch means adapted when moved to a first position to interrupt the connection between the motor windings and the source of electric energy, means for actuating said switch means, and control means for said actuating means including means for sensing temperature of one of said motor windings operable in response to a predetermined temperature to energize said actuating means to move said switch means to said first position, and means for sensing current passing through each of said motor windings operable in response to a predetermined current to energize said actuating means to move said switch means to said first position, said current sensing means including a current sensing element between said switch means and each of the other motor windings.

3,305,716
SPEED CONTROL CIRCUITS FOR SERIES MOTORS

Jerry Wigington, Pickens, S.C., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 30, 1964, Ser. No. 386,367
2 Claims. (Cl. 318—246)



1. A motor control system comprising:

(a) a series commutator motor having an armature winding and a field winding,

(b) a pair of leads adapted for connection to an alternating current source,

(c) a solid state controlled rectifier having an anode, a cathode and a gate, said anode and cathode being connected in series circuit relation with said armature and field windings between said leads for rectifying alternating current from said source for variably energizing said armature and field windings,

(d) a first resistor and a Zener diode connected in series across said leads to establish a D.C. voltage level early in each cycle when the anode voltage is positive with respect to the cathode voltage,

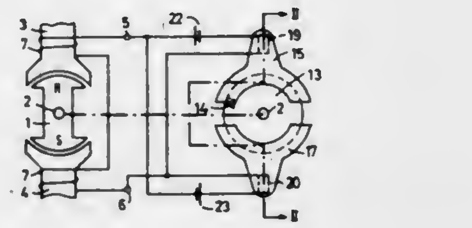
(e) a second resistor and the field winding connected in series across the terminals of said Zener diode to provide constant excitation of the field winding at the D.C. voltage level independently of the residual flux in said field,

(f) a capacitor including means for charging said capacitor toward said D.C. voltage level at an adjustable time rate to provide a control voltage having a positive sloping time function, and

(g) a circuit means for applying to said gate and cathode a voltage equal to the algebraic sum of the control voltage and the armature speed voltage.

3,305,717
ELECTRIC MACHINE WITH CONTACTLESS COMMUTATOR

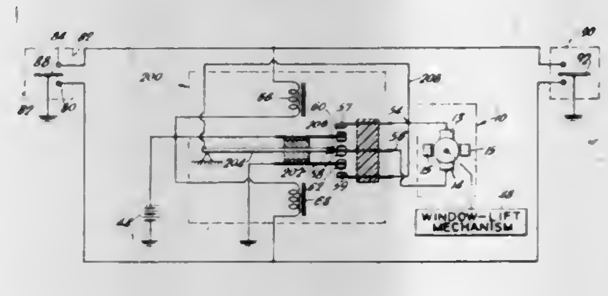
Herbert Weiss, Nurnberg, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt and Erlangen, Germany, a corporation of Germany
Filed Dec. 19, 1963, Ser. No. 331,835
Claims priority, application Germany, Jan. 30, 1963, S 83,487
19 Claims. (Cl. 318—254)



1. In an electric machine having a stator, a rotor, and winding means, a contactless communtator comprising a controlling magnetic circuit having a field gap and having a magnetic part coupled to and rotatable with the rotor for varying the magnetic flux in said gap in dependence upon the position of the rotor relative to the stator, galvanomagnetic resistor means mounted in said gap having an electrical resistance varied in response to magnetic flux variations in said field gap, and an excitation circuit having a polarity-reversible portion including said winding means, said galvanomagnetic resistor means being connected in said circuit for reversing the excitation polarity of said winding means in dependence upon the resistance variation of said resistor means.

3,305,718
SWITCH CONTROL SYSTEM FOR PERMANENT MAGNET MOTORS AND THE LIKE

Claude F. Waldron, Columbus, Miss., assignor to American Bosch Arma Corporation, Columbus, Miss., a corporation of New York
Filed Sept. 19, 1963, Ser. No. 310,037
1 Claim. (Cl. 318—261)



A reversible motor system, comprising:

electrically-controllable voltage-reversing switch means having a pair of voltage input terminals, a pair of voltage output terminals, first and second conductive control elements each of substantial electrical impedance, and an electrical interconnection between one end of said first control element and one end of said second control element, said first control element being responsive to current flowing through it to connect said pair of input terminals to said pair of output terminals respectively in a given order, said second control element being responsive to current flowing through it to connect said pair of input terminals to said pair of output terminals respectively in an order opposite to said given order, said voltage-reversing switch means having a non-actuated position for which at least one of said voltage input terminals is disconnected from said voltage output terminals;

means for supplying an input voltage between said input terminals;

means for applying a control potential to said interconnection;

a source of a potential differing from said control potential;

a plurality of separately operable switches each having at least two switch positions, and each connected to supply said different potential to the other end of said first element in one of its switch positions and to the other end of said second element in another of its switch positions, thereby controllably to provide at said output terminals a voltage of either polarity for permitting reversal of current through a motor armature connected thereto;

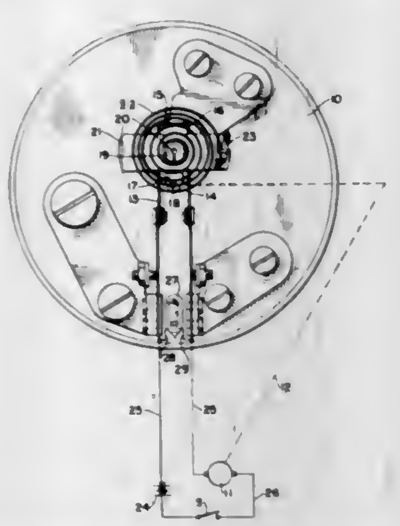
a motor having its armature current supplied from said output terminals;

said voltage-reversing switch means comprising a pair of normally-closed contacts and means connecting said normally-closed contacts directly between said output terminals when said voltage-reversing switch means is in said normal non-actuated position, thereby to produce dynamic braking of said motor when said voltage-reversing switch means is non-actuated.

3,305,719

FAILSAFE STARTING SYSTEM FOR CHRONOMETRICALLY GOVERNED MOTOR

Donald G. Berube, Waterbury, Conn., assignor to Consolidated Electronics Industries Corp., Waterbury, Conn., a corporation of Delaware
Filed Apr. 3, 1964, Ser. No. 357,187
2 Claims. (Cl. 318—311)



1. In a chronometrically governed motor system having a motor winding and an energizing source adapted to drive the motor at speeds in excess of a predetermined, desired speed,

(a) a pair of governor contacts for connecting said winding and said source,
(b) said contacts being operatively associated with and being periodically closable in accordance with the state of a constant frequency device,
(c) said contacts being operatively associated with and periodically openable in accordance with the travel of said motor,
(d) an incandescent lamp connected in parallel, shunt relation to said contacts,
(e) said incandescent control lamp having non-linear resistance characteristics,
(f) said control lamp having a relatively low resistance when cold and a relatively high resistance when heated,
(g) whereby said control lamp provides a low resistance shunt circuit across said contacts when said lamp is cold to accommodate substantially full voltage energizing of said motor regardless of the condition of said contacts at starting,
(h) said relatively high resistance being of a predetermined value to limit said motor speeds to predetermined values less than the desired, predetermined speed of said motor.

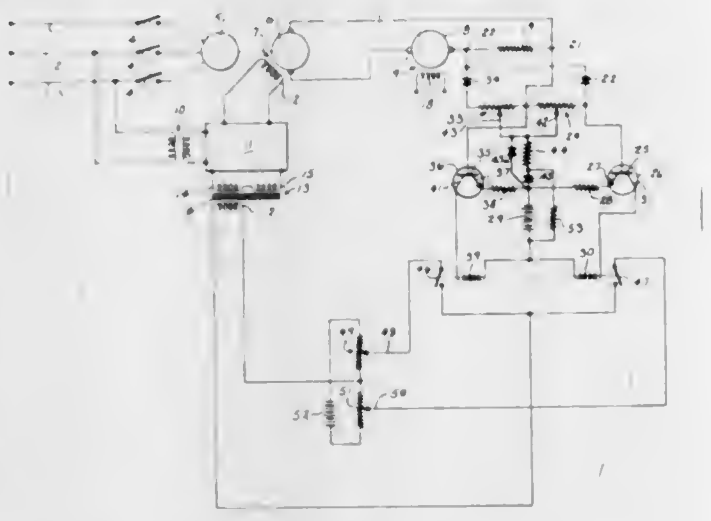
3,305,720

ARMATURE CURRENT LIMITING CIRCUIT FOR A DIRECT CURRENT MOTOR

John G. Safar, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Mar. 2, 1964, Ser. No. 348,456
6 Claims. (Cl. 318—328)

1. In an armature current limiting circuit for a direct current motor, the combination comprising:

a direct current motor armature;
a controllable armature current power supply connected to energize said armature and having a control element;
a pair of input terminals connected across a voltage drop in series with said armature;
a motor current amplifier having a base, an emitter and a collector, said base and emitter being connected across said input terminals in series with a diode oriented to conduct armature current from said power supply;
an armature overload relay having a coil and a set of contacts, said overload relay coil being connected across the emitter and collector of said motor current amplifier;
a deceleration current amplifier having a base, an emitter and a collector, said base and said emitter being connected in series with a diode oriented to conduct current generated in said motor armature across said input terminals;
a motor deceleration relay having a coil and a set of contacts, said deceleration relay coil being connected across said collector and said emitter of said deceleration current amplifier;



an amplifier signal source being connected in series with said emitter and said collector of both of said amplifiers, and being connected to provide a bias across said emitter and said base of each of said amplifiers rendering said amplifiers normally nonconducting;
and an output circuit containing an output signal source, said control element of said motor armature power supply, and said relay contacts, said source and control element and relay contacts connected together such that the actuation of one of said relay contacts imposes a signal from said source on said control element of opposite polarity from a signal imposed on said control element by actuation of the other relay contacts.

3,305,721

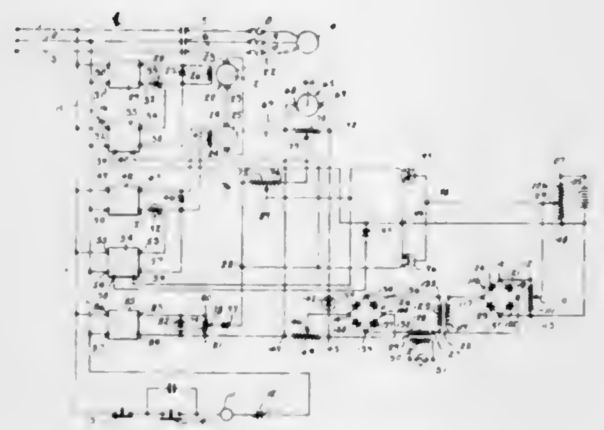
ELECTRICAL CONTROL SYSTEM

John G. Safar, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Mar. 2, 1964, Ser. No. 348,457
5 Claims. (Cl. 318—328)

1. In a control system for controlling the electrical power applied to at least one device, the combination comprising:

at least one electrical device to be controlled, the device including means for receiving electrical power and the operating condition of the device being responsive to the electrical power received;
a controllable power source providing electrical power to each device to be controlled;
a feedback signal source connected to the device to be controlled and providing an electrical signal proportional to the actual condition of the device to be controlled;
a reference signal source providing an electrical reference signal proportional to the desired condition of the device to be controlled;

an error detector adapted to receive a portion of said feedback and reference signals and adapted to compare said signals and produce an error signal proportional to the difference between said feedback and said reference signals;
a control circuit including a plurality of current gates connected in parallel with each other and in series with said error detector to receive said error signal, each of said current gates further including a control element and being individually responsive to trigger signals of different polarity;
the control element of each current gate connected in common with the control element of said other current gate, a first electrode connected in common with the first electrode of said other current gate, and a second electrode;



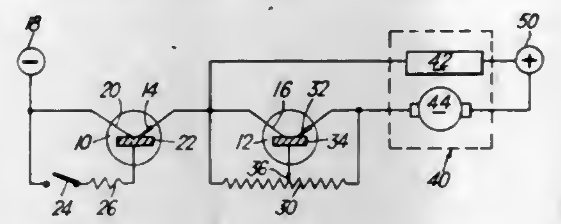
a pair of output power control circuits each connected to control said controllable power source, one of said output power control circuits being connected between said second electrode and said first electrode of one of said current gates, and the other of said output power control circuits being connected between said second electrode and said first electrode of the other of said current gates; and
a trigger signal circuit providing trigger signals for said current gates, the trigger circuit including a fixed direct current voltage source connected across said control elements and said first electrodes of said current gates, a variable direct current voltage source connected across said control elements and said first electrodes of said current gates so as to oppose said fixed direct current voltage source, said variable direct current voltage source comprising a four-terminal bridge rectifier with two terminals connected across a portion of said feedback source, and the remaining two terminals connected to opposite terminals of a series circuit comprising an alternating current voltage source and a winding of a transformer, a second four-terminal bridge rectifier with two terminals connected across a second winding of said transformer, and a variable resistance connected across the remaining two terminals of said second bridge rectifier and across said control elements and said first electrodes.

3,305,722

ELECTRIC MOTOR STARTER CIRCUIT

George Edward Mitchell, Kingsbury, England, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 12, 1963, Ser. No. 308,415
6 Claims. (Cl. 318—390)

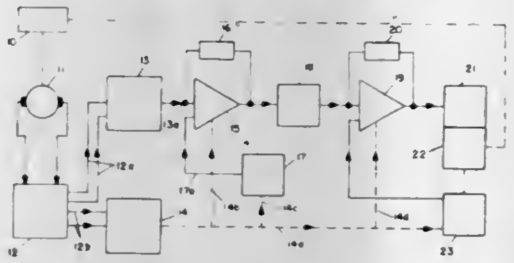
1. An electric motor start circuit, comprising, a motor armature and field winding means, a current switch transistor in series at least with said field winding means, a current control transistor in series with the switch transistor and said motor armature only, and a resistor in parallel with only the control transistor, said resistor being tap connected to control transistor base to provide a bias which decreases in relation to the control transistor collector voltage as motor speed increases.



3,305,723

ENGINE SPEED CONTROL INCLUDING FREQUENCY AND THROTTLE POSITION FEEDBACK

Anthony Clifford Maine, 27 Downs View Road, Hassocks, Sussex, England; David Stuart Terrett, Ruardean, Silverdale Road, Burgess Hill, Sussex, England; and David Jesty Strong, Inglenook, Warminster Road, Bath, Somerset, England
Filed May 1, 1964, Ser. No. 364,240
Claims priority, application Great Britain, May 2, 1963, 17,439/63
9 Claims. (Cl. 290—40)



1. An engine speed control system for controlling the speed of a prime mover by adjusting valve means thereof comprising:

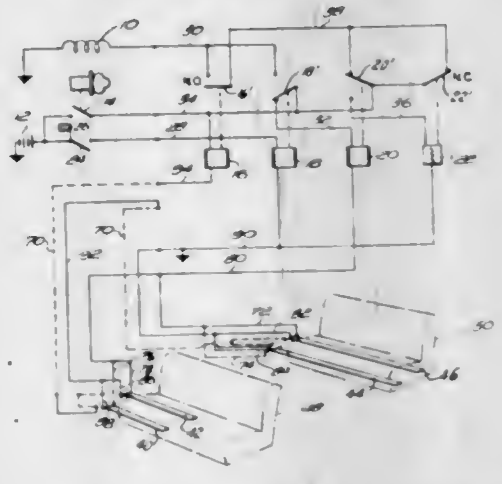
a tachometer generator driven by said prime mover for producing a generated signal having an output frequency proportional to its speed of rotation,
transformer means connected to said tachometer generator for producing a first output and a second output each isolated from each other,
rectifier means connected to said first output for producing a bias control signal independent of frequency,
a frequency sensitive circuit for producing a D.C. signal of magnitude and direction corresponding to the difference between the frequency of an applied signal and a reference signal,
means connecting said second output to said frequency sensitive circuit for producing a D.C. signal corresponding to the difference between the speed of said prime mover and a reference speed,
operating means having applied thereto said D.C. signal for operating said valve means of a respective engine in a direction to counteract an increase or a decrease in the speed of said engine from said reference speed to bring the engine back to its desired speed, said operating means including a first and a second operational amplifier each having a summing junction at substantially ground potential and an output terminal, each of said operational amplifiers including a high-gain D.C. amplifier and feedback resistor each connected between the summing junction and said output terminal and a first and a second input resistor connected to said summing junction,
means for applying said D.C. signal to said first resistor of said first operational amplifier and for applying said bias control signal to the second of said input resistors,

means connecting said output terminal of said first operational amplifier to said first input resistor of said second operational amplifier,

a position reference monitor connected to said valve means for producing a feedback signal, and

means for applying said feedback signal to said second input resistor of said second amplifier for balancing with said D.C. signal.

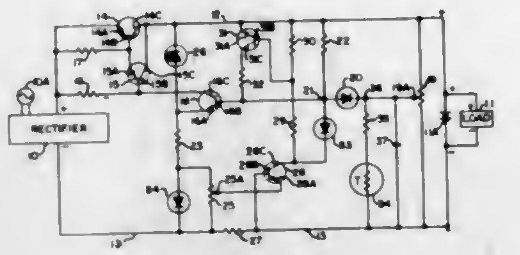
3,305,724
MONITORING SYSTEM FOR TAXI METERS
John Shaheen, 119 Farquhar St.,
Roslindale, Mass. 02131
Filed Sept. 9, 1963, Ser. No. 307,530
5 Claims. (Cl. 307—10)



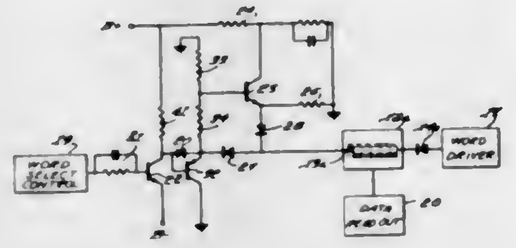
1. In combination with a taxi cab equipped with a fare recording meter having an operative and an inoperative position, a battery, an ignition system, an ignition switch and passenger seats, a system for monitoring said meter, said system including at least one normally open sensing switch mounted to each passenger seat and adapted to be closed by a passenger sitting in said seat, a set of first, second and third relays operatively connected to said sensing switches, to said meter, to said ignition switch and to said ignition system, a cable having a conductive shield connecting said sensing switches to said relays, the coil for said first relay being connected to said ignition switch and adapted to complete a first circuit to said ignition system through the switch for said first relay in series with the switch for said third relay when said ignition switch is closed, said first relay being connected to said shielding whereby rupture of said shielding will de-energize said first relay and thereby de-energize said ignition system, the coil for said second relay being connected to said meter and having a switch normally completing a circuit to the coil for said third relay in one position, said second relay switch in another position completing a second circuit to said ignition system when the second relay coil is energized by said meter being set in an operative position, the switch for said third relay normally completing a circuit to said ignition system in one position, said sensing switches upon closure being adapted to energize said third relay coil to thereby open said first circuit.

3,305,725
FULL CHARGE REGULATOR CIRCUITRY
Henry M. Huge, Bay Village, and Stephen L. Merkel, Cleveland, Ohio, assignors to Lorain Products Corporation, a corporation of Ohio
Filed Dec. 9, 1963, Ser. No. 329,179
13 Claims. (Cl. 307—46)

1. In a voltage regulator circuit having output terminals and adapted to control the voltage and current delivered to a battery from a D.-C. source, in combination, voltage control means, current limiting means, variable conducting means having power electrodes and a control electrode, first voltage divider means connected between the output terminals, means for connecting one of said power electrodes of said variable conducting means to said first voltage divider means and to said voltage control means, means for connecting another of said power electrodes of said variable conducting means to one of said output terminals, second voltage divider means connected from one of said output terminals to said current limiting means, means for connecting the control electrode of said variable conducting means to said second voltage divider means.



3,305,726
MAGNETIC CORE DRIVING CIRCUIT
Harold C. Goodman, Newport Beach, and Willard J. Strong, Costa Mesa, Calif., assignors, by mesne assignments, to Raytheon Company, a corporation of Delaware
Filed Nov. 1, 1962, Ser. No. 234,691
3 Claims. (Cl. 307—88)



1. In a switching circuit having a switch with open and closed states and having a diode with capacitance across the junction thereof,

said switch comprising a first transistor having emitter, base, and collector electrodes,

said base responsively connected to receive control signals for selectively switching said switch to said open and closed states,

a first source of reference potential connected to said first transistor emitter,

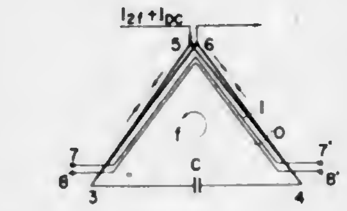
a plurality of juxtaposed magnetic core elements,

a conductor threading said core elements and having one end responsively coupled to said emitter electrode and the other end connected to the n junction of said diode,

means including a source of potential responsively connected to the p-junction of said diode for causing current to flow through the forward direction of said diode, in said conductor through the emitter collector circuit of said first transistor, to said first source of reference potential when said switch is in the closed state,

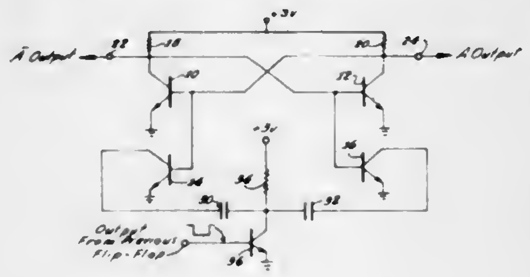
and emitter follower means responsively coupled to the n-junction of said diode for providing a back potential across said diode during periods when said switch is in the open state, said emitter follower means including a second transistor having emitter, base, and collector electrodes, means for connecting the emitter of said first transistor to the base of said second transistor, a second source of reference potential connected to the collector of said second transistor, and means connecting the emitter of said second transistor to said conductor.

3,305,727
PARAMETRON CIRCUIT UTILIZING THIN FILM ELEMENT
Akira Matsushita, Kitatama-gun, Tokyo-to, Japan, assignor to Kabushiki Kaisha Toko Radio Coil Kenkyusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed May 27, 1964, Ser. No. 370,594
Claims priority, application Japan, May 30, 1963, 38/28,074
3 Claims. (Cl. 307—88)



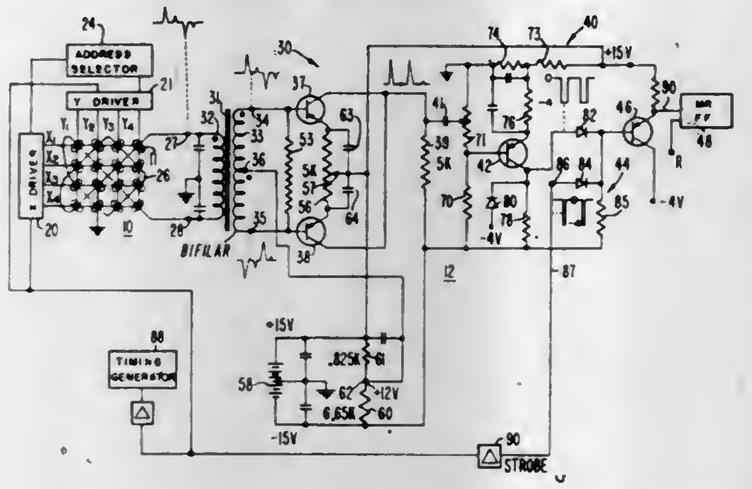
1. A parametron comprising a balanced bridge including arms composed of a wire having a coating of a magnetic material, a tuning capacitor connected across balanced points of said bridge, said bridge being folded along a line passing through said balanced terminals to superpose the arms of said bridge so that excitation current flows therethrough in opposite directions, and input and output coupling coils disposed adjacent and close to said superposed bridge arms.

3,305,728
FLIP-FLOP TRIGGERED BY THE TRAILING EDGE OF THE TRIGGERING CLOCK PULSE
Dean C. Bailey, Scottsdale, Ariz., assignor to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Feb. 5, 1963, Ser. No. 256,369
10 Claims. (Cl. 307—88.5)



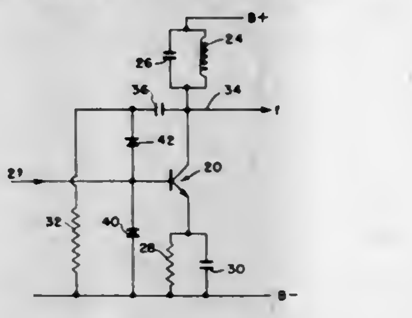
1. In a bi-stable multivibrator circuit which includes first and second transistor means, and a cross-coupling network intercoupling said transistor means into a bi-stable circuit having a first stable state in which said first transistor means is conductive and a second stable state in which said second transistor means is conductive, circuit means coupled to said transistor means for introducing triggering signals thereto for switching the bi-stable circuit between its stable states, said circuit means including in combination: first and second capacitance means; charging circuit means coupled to said first and second capacitance means for introducing an electric charge thereto; said charging circuit means including third and fourth transistor means connected to said first and second capacitance means respectively and electrically coupled to and conductively controlled by said first and second transistor means for permitting a charging path to be completed only through a selected one of said first and second capacitance means when a corresponding one of said first and second transistor means is conducting.

3,305,729
AMPLITUDE SELECTIVE UNIPOLAR AMPLIFIER OF BIPOLAR PULSES
Morris O. Stein, Livonia, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 4, 1963, Ser. No. 270,686
7 Claims. (Cl. 307—88.5)



1. The combination with a source of bipolar signals producing pulses of either polarity, of an amplitude selective unipolar amplifier comprising a pair of amplifying devices having a pair of inputs and a parallel connected, single-ended output, a load circuit common to and connected to the output of said amplifying devices, means coupling the amplifying devices to the bipolar source and providing a balanced input connection for application of input pulses of equal amplitude but opposite polarity to the inputs thereof from a signal pulse of either polarity produced by said bipolar source, and fixed external biasing means biasing the amplifying devices for equal conduction and output current flow therefrom in the absence of the application of an input signal pulse thereto and conditioning each amplifier for class A operation and equal but opposite signal current flow therefrom for an input signal pulse below a predetermined amplitude level and for class AB operation for an input signal pulse above a predetermined amplitude level, whereby only an input signal pulse above a predetermined amplitude level will exert a net effect and appear across the load as a unipolar output signal pulse of one polarity irrespective of its polarity as applied to the input connection of said amplifying devices.

3,305,730
FREQUENCY DIVIDER CIRCUIT
Benjamin Parzen, 241 E. 76th St.,
New York, N.Y. 10021
Filed Apr. 18, 1963, Ser. No. 273,902
3 Claims. (Cl. 307—88.5)

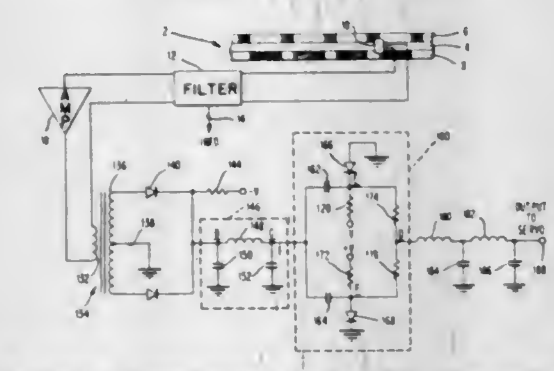


1. A frequency divider circuit for dividing the frequency of a first signal down to a second signal of a desired lower frequency comprising a semiconductor device having means connected thereto for operating said device as a selective amplifier at the frequency of the second signal, said semiconductor device having base, emitter and collector electrodes, said first signal being applied to said base electrode, a frequency selective circuit connected to said collector electrode, said semicon-

ductor device producing a quantity of said second signal at the desired lower frequency and said frequency selective circuit being tuned to present a high impedance to the semiconductor at the desired lower frequency whereby the said second signal is selectively amplified by the semiconductor device, means connected between said collector and base electrodes for feeding back a portion of the amplified second signal at the collector electrode to the base electrode to mix with the first signal and to further increase the amount of the second signal amplified by the semiconductor device, and a first diode connected between said base and emitter electrodes for increasing the mixing action of the first and second signals.

3,305,731
LEVEL CORRECTION CIRCUIT

Herbert Frazer Welsh, Philadelphia, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed May 29, 1963, Ser. No. 284,189
7 Claims. (Cl. 307—88.5)



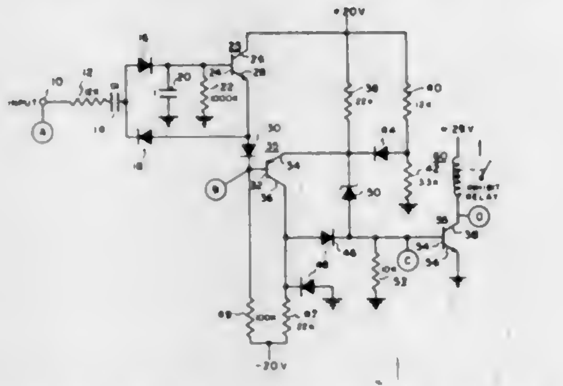
1. A level connecting device for converting single polarity electrical signals of varying levels into bi-polar direct current signals of equal positive and negative levels comprising: an input line adapted to receive said single polarity electrical signals; a first circuit path connected to said input line and further comprising in series relationship a first input capacitor, a first resistor, a second resistor and a first unilateral conducting device connected to a first source of potential at its second terminal, said first circuit path producing a positive direct current level with respect to said first potential source level when the signal applied to said input line changes from a first level to a second higher level, said positive direct current level having a duration equal to the duration said single polarity single remains at said second level; a second circuit path connected to said input line and further comprising in series relationship a second input capacitor, said second resistor, said first resistor, and a second unilateral conducting device connected to a second source of potential at its second terminal, said second circuit path producing a negative direct current level with respect to said second potential source level when the signal applied to said input line changes from said second level to said first level, said negative direct current level having a duration equal to the duration said single polarity signal remains at said first level; and an output line connected to the junction of said first and said second resistors.

3,305,732
SPURIOUS SIGNAL VOID CIRCUIT

David H. Grossman and Monty M. Merlen, Stamford, Conn., assignors to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware
Filed June 10, 1963, Ser. No. 286,669
3 Claims. (Cl. 307—88.5)

1. A spurious signal void circuit which remains inactivated when a desired frequency signal of a given duration is received and is activated when no signals are received or when other than the desired signals are received, comprising

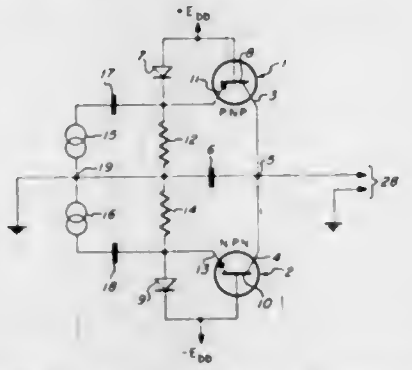
(a) a frequency discriminator for producing a voltage in accordance with an applied received signal,
(b) a transistor having base, collector, and emitter electrodes,
(c) means for applying the voltage from said frequency discriminator means to said base electrode,
(d) a low impedance path connected between a source of potential and said emitter electrode,
(e) a high impedance path connected between said source of potential and said emitter electrode,



(f) inhibit relay means coupled to said collector electrode and responsive to the output thereof,
(g) a Zener diode connected between said emitter electrode and said inhibit relay means,
(h) means for biasing said transistor such that said transistor conducts through said low impedance path when a voltage applied thereto is below a predetermined level and said transistor conducts through said high impedance path between said predetermined level and a higher predetermined level and said transistor stops conducting and said Zener diode conducts above said higher predetermined level.

3,305,733
COMPLEMENTARY SYMMETRY DIFFERENTIAL PULSE INTEGRATOR

Dale M. Jahn, Garden City, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed July 1, 1963, Ser. No. 291,650
3 Claims. (Cl. 307—88.5)

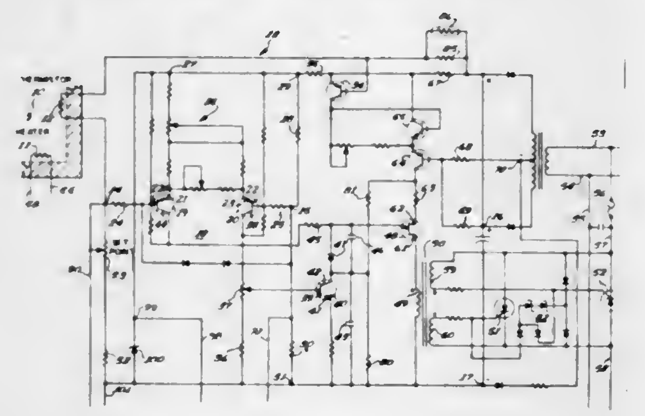


1. A differential pulse integrator comprising
a first transistor,
a second transistor of conductivity type opposite to that of said first transistor,
each transistor having base, emitter and collector electrodes, the collector electrodes of said first and second transistors being connected to each other at a first junction,
means connected to the base and emitter electrodes of said first and second transistors to bias said first and second transistors to cut-off,
a first source for producing a first train of pulses,
a second source independent of said first source for producing a second train of pulses,
the pulses of said second train having areas independent of the areas of the pulses of said first train,

said sources being connected to each other at a second junction,
a capacitor for applying said first train of pulses between the base and emitter electrodes of said first transistor,
a capacitor for applying said second train of pulses between the base and emitter electrodes of said second transistor and
a capacitor connected between said first and second junctions.

3,305,734
CONDITION RESPONSIVE APPARATUS INCLUDING A BRIDGE WITH OUTPUT TERMINALS CONNECTED TO TWO DIFFERENTIAL AMPLIFIERS

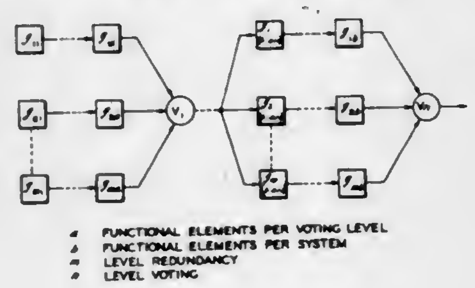
Edward W. Buttenhoff, Excelsior, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Sept. 20, 1963, Ser. No. 310,214
14 Claims. (Cl. 307—88.5)



1. Condition responsive apparatus comprising;
a bridge circuit having a condition sensing element and an output which is variable with the condition of bridge balance as controlled by said condition sensing element,
a differential amplifier connected to be controlled by said bridge output and to have a pair of inversely related amplifier outputs dependent upon the condition of bridge unbalance,
first means controlled by one of said amplifier outputs to provide an output proportional to bridge unbalance within a first range of bridge unbalance,
and second means controlled by the other of said amplifier outputs and connected to control said first means to modify the output thereof when the bridge unbalance is within a second range of bridge unbalance.

3,305,735
SIGNAL SELECTION AND MONITORING SYSTEM UTILIZING REDUNDANT VOTING CIRCUITS

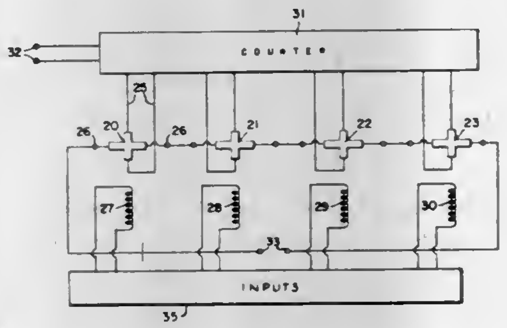
Harold Moreines, Springfield, N.J., assignor to The Bendix Corporation, Teterboro, N.J., a corporation of Delaware
Filed Oct. 7, 1963, Ser. No. 314,397
5 Claims. (Cl. 307—88.5)


FUNCTIONAL ELEMENTS PER VOTING LEVEL
FUNCTIONAL ELEMENTS PER SYSTEM
LEVEL REDUNDANCY
LEVEL VOTING

1. In a system including a plurality of redundant subsystems, a first voter device for selecting from among several signals from one of said redundant subsystems an intermediate amplitude output signal, means for applying said intermediate amplitude output signal from said first voter device to inputs of another of said redundant subsystems, and a second voter device for selecting from among several signals from said other redundant subsystem an intermediate amplitude output signal.

3,305,736
ELECTRICAL APPARATUS

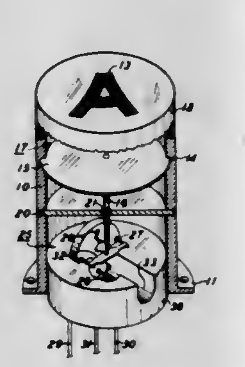
Alton Leger, Jr., Roslyn, Pa., assignor to Honeywell Inc., a corporation of Delaware
Filed Nov. 27, 1963, Ser. No. 326,494
4 Claims. (Cl. 307—88.5)



1. A signal commutator comprising a plurality of Hall-plates, a plurality of current input signal terminals connected to respective ones of said Hall-plates, a plurality of magnetic-field producing means each operatively associated with respective ones of said Hall-plates, and means for successively and individually energizing each of said magnetic-field means.

3,305,737
PRESSURE TRANSDUCING KEY

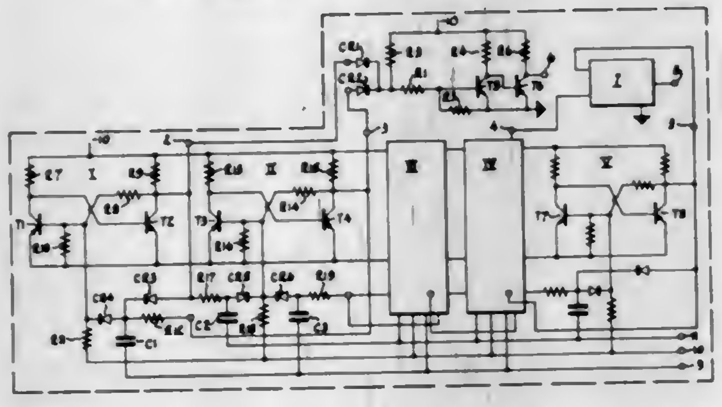
James E. Young, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Dec. 26, 1963, Ser. No. 333,516
6 Claims. (Cl. 307—88.5)



1. A data input key comprising
(a) an elongated hollow body member;
(b) a pressure deformable cap secured to the top portion of said body member;
(c) an uncased transistor unit having a base, an emitter and a semiconductor crystal mounted within said body and connected to a source of potential; and,
(d) a pressure probe supported within said body between said cap and said transistor, said pressure probe being sensitive to a pressure deformation of said cap and responsive thereto to exert a strain on the crystal of said transistor in the base to emitter region thereof and effect an electrical signal output to utilization apparatus.

3,305,738
SINGLE BIT REVERSIBLE SHIFT REGISTER RESPONSIVE TO SEQUENCED (TRANSFER AND CLEAR) PAIR OF INPUT PULSES

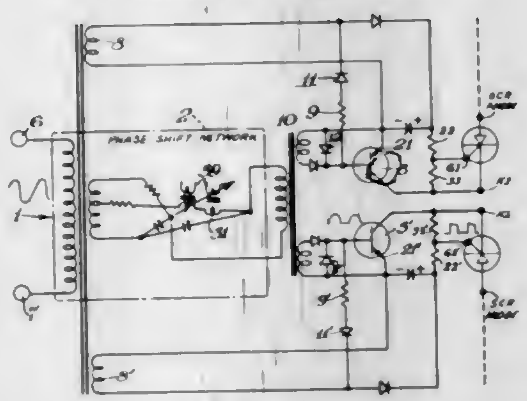
Paul M. Kintner, Huntington Station, N.Y., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Mar. 13, 1964, Ser. No. 351,742
5 Claims. (Cl. 307—88.5)



1. A single bit reversible shift register having a plurality of register elements each comprising transistor flip-flop pairs each of which consists of two cross coupled transistors biased for conventional flip-flop operation with the corresponding transistor of each pair when conducting being indicative of storage of the information bit in that element, means in circuit with one transistor of each pair which when subjected to a sequenced pair of input pulses shifts the information bit between elements in one direction, means in circuit with said one transistor of each pair which when subjected to a sequenced pair of input pulses shifts the information bit between elements in the opposite direction, means providing an output voltage whenever the information bit is in one or the other endmost register element or the register elements respectively immediately adjacent thereto, and means included in at least one register element intermediate the sets of aforementioned endmost and adjacent register elements wherein no output voltage is provided.

3,305,739
PHASE SHIFTING APPARATUS FOR CONTROLLED PULSING OF CONTROLLED RECTIFIERS

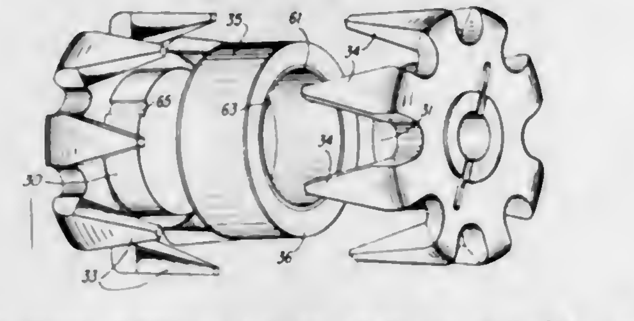
Nicholas G. Muskovac, Williamstown, Mass., and Walter J. Brown, Stamford, Conn., assignors to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Jan. 27, 1966, Ser. No. 523,384
4 Claims. (Cl. 307—88.5)



1. An apparatus for controlling the initiation of firing pulses to the gate of a controlled rectifier energized from an alternating current source, comprising at least one transistor having its emitter-collector circuit in connection to said gate, a first unidirectional current means connecting said transistor to said source and providing a pulsating forward emitter-collector bias thereon, a variable phase shifting means coupled to said source, said phase shifting means providing at the output thereof an alternating current of variable phase angle and a substantially sinusoidal wave form, a second unidirectional current means connecting said output to the base of said transistor and providing positive pulses thereto, and a blocking means comprising a diode and a current limiting resistor serially connecting said output to said source, said blocking means providing a pulsating voltage to block any phase shifter output which would otherwise occur during nonconductive half-cycles of anodization of said controlled rectifier.

3,305,740
ROTOR ASSEMBLY

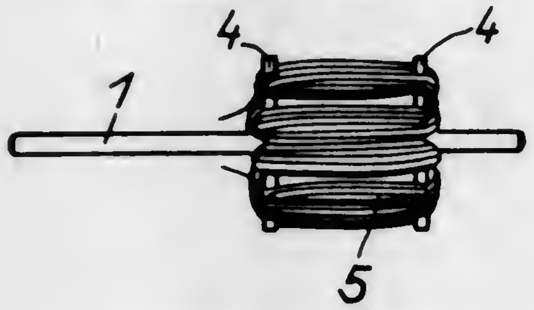
Charles L. Shano, Morton Grove, Ill., assignor to Motorola Inc., Franklin Park, Ill., a corporation of Illinois
Filed Sept. 6, 1963, Ser. No. 307,082
4 Claims. (Cl. 310—42)



1. A rotor assembly for an inductive electrical machine, including in combination, a pair of separable hub portions each having a plurality of integral pole pieces extending therefrom and defining a cavity therewith, with the respective pole pieces being intermeshed, a sleeve member formed with an inwardly disposed lap joint and mounted on said hub portions, an inductance coil wound on said sleeve member to be carried thereby in said cavities, and an axial groove formed in each of said hub portions, said grooves being mutually aligned and receiving said lap joint of said sleeve member therein to secure said sleeve member against rotation relative to said hub portions, said lap joint of said sleeve member cooperating with said grooves in said hub portions to prevent relative movement between said hub portions.

3,305,741
MINIATURE ELECTRIC MOTOR

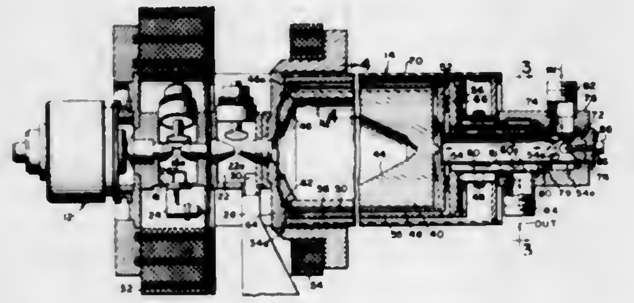
Josef Lindner, Theresienplatz 8, Nurnberg, Germany
Filed Mar. 4, 1964, Ser. No. 349,432
Claims priority, application Germany, Mar. 5, 1963, W 34,019; May 18, 1963, W 34,518
2 Claims. (Cl. 310—261)



1. A small electric motor comprising, in combination, a shaft; a rotor secured to said shaft and in the form of a cylindrical ferro-magnetic body having a substantially smooth and an uninterrupted cylindrical surface without grooves therein; a drum winding on said body in an engagement with said substantially uninterrupted cylindrical surface and secured against displacement circumferentially of said body; a stator surrounding said rotor and having at least two diametrically opposed poles; and a pair of substantially circular disks of insulating material having a diameter substantially equal to that of said cylindrical body and mounted on said shaft in engagement with the opposite ends of said cylindrical body, each of said disks having finger-like projections diametrically opposite to each other; said rotor winding comprising a plurality of separate coils each disposed between and separated circumferentially from each other by said projections; each of said disks being provided on its axially outer surface with an angular recess in each sector between two adjacent projections, said recesses having edges for supporting the windings between said projections.

3,305,742
HIGH FREQUENCY ELECTRON DISCHARGE DEVICE AND COOLING MEANS THEREFOR

Earl W. McCune, Santa Clara, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Sept. 10, 1963, Ser. No. 307,989
2 Claims. (Cl. 313—21)



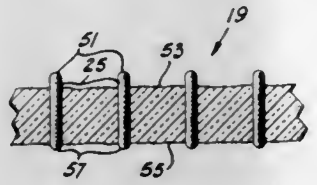
2. A high frequency electron discharge device including beam forming and projecting means disposed at the upstream end portion of said device and beam collector means disposed at the downstream end portion of said device, said beam collector means including a generally tubular collector bucket for receiving the electron beam, said collector bucket having a pair of coaxially disposed metal sleeves disposed thereabout and conductively interconnected to said collector bucket along the mutual axially coextensive portions thereof, said pair of sleeves forming bidirectional fluid flow passageways about the axial extent of said collector bucket, a pair of axially spaced ring members disposed at the downstream end portion of said collector bucket, said ring members being physically coupled at their exterior peripheral surfaces to the said coaxially disposed pair of sleeves at their respective downstream end portions to thereby form bidirectional fluid flow passageways having lateral flow directions with respect to the central axis of said collector bucket, a pair of radially spaced coaxial coolant tubes coupled to the respective internal diameters of said ring members to thereby form a pair of axially bidirectional fluid flow passageways coupled to said lateral bidirectional fluid flow passageways, each of said coolant tubes being provided with a plurality of circumferentially spaced apertures at axially offset regions with respect to each other, coolant manifold means disposed about said pair of coaxially disposed coolant tubes and forming a fluid tight seal thereabout, said manifold being fluid coupled to said respective coolant tubes via said plurality of circumferentially spaced apertures such that radial bidirectional fluid flow occurs therebetween.

3,305,743
CATHODE RAY TUBE MATRIX STRUCTURE

Oscar A. Drake, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Oct. 1, 1963, Ser. No. 312,903
4 Claims. (Cl. 313—73)

1. An electrostatic printing cathode ray tube having a face portion and an electron target printing matrix comprising:

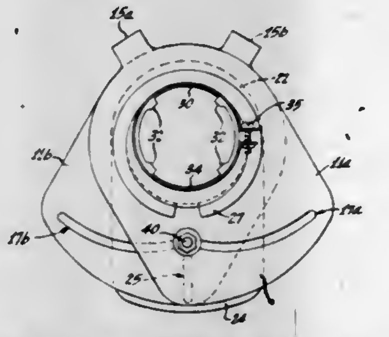
a discrete matrix area of insulative material integrally attached to the face portion of said tube, said material having roughened interior and exterior surfaces free of electrical conductive surface materials thereon; and



a plurality of spaced electrically conductive elements hermetically sealed in spaced parallel array into said insulative matrix material to extend interiorly to exteriorly therethrough to provide a conductive matrix array having insulative interstitial areas with roughened interior and exterior surfaces therein, said elements having substantially rounded exterior and interior terminal portions.

3,305,744
GANGED RING MAGNETS FOR COORDINATED CONTROL OF A PLURALITY OF BEAMS

Joseph Le Roy Werst, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,602
5 Claims. (Cl. 313—77)



1. An adjustable beam position corrector, comprising the combination of:

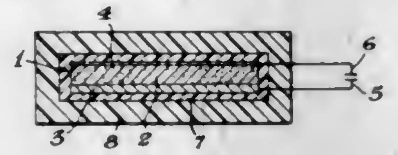
- a mounting structure having a generally cylindrical aperture and including a portion having a cylindrical outer surface eccentrically disposed with respect to said cylindrical aperture;
- a pair of magnetic field producing means, each comprising a magnet ring having a central aperture dimensioned to receive the cylindrical outer surface of said mounting structure, said rings being rotatably supported on said surface, the magnetization of each of said rings being such as to provide each ring with a set of six poles symmetrically located along the ring circumference and alternating in polarity along said circumference;
- and means providing a floating pin linkage between said pair of magnetic field producing means and said mounting structure for ensuring that any rotational adjustment of any one ring of said pair will be accompanied by a rotational adjustment of the other ring of said pair of equal extent but of opposite rotational direction.

3,305,745
ELECTROLUMINESCENT STRUCTURE WITH IMPROVED PROTECTIVE TRANSPARENT FILM

Gerald E. Clock, James K. Rieke, and Edward Strolwas, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Dec. 22, 1961, Ser. No. 161,648
3 Claims. (Cl. 313—108)

1. In an electroluminescent structure comprising an assembly composed of an electrically conducting solid base, a layer of an intimate mixture of a phosphor and a di-

electric material having one face in firm contact therewith, an electrically conducting light transmitting coating in firm contact with the opposing face of said layer, the improvement consisting essentially of a protective transparent film of a copolymer consisting essentially of an olefin containing from 2 to 3 carbon atoms per molecule



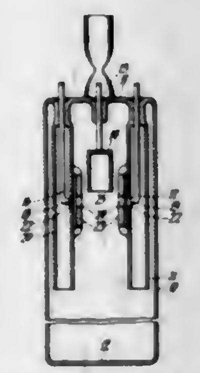
randomly copolymerized with an unsaturated acid selected from the class consisting of acrylic acid, methacrylic acid and mixtures thereof, encapsulating said assembly, and adhered firmly thereto, a second transparent film exterior to and firmly adhered to the first film, said second film being selected from the class consisting of high density polyethylene and polypropylene.

3,305,746

HIGH INTENSITY ATOMIC SPECTRAL LAMPS

Alan Walsh, Brighton, Victoria, and John Vincent Sullivan, Carnegie, Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, Australia

Filed Apr. 27, 1965, Ser. No. 451,206
Claims priority, application Australia, Oct. 15, 1962, 23,182/62
12 Claims. (Cl. 313—178)



1. An atomic spectral lamp comprising a sealed envelope containing a rare gas at a low pressure, first electrode means located within the envelope for producing a first electric glow discharge which gives rise to an atomic vapor by cathodic sputtering, second electrode means for producing a second electric glow discharge, said second set of electrodes being so arranged within the envelope that said second discharge passes through said atomic vapor thereby to produce excitation of the atoms in said vapor giving rise to enhanced emission of atomic spectral radiation from said atoms, and a transparent viewing window in the envelope through which the phenomena inside the envelope may be observed.

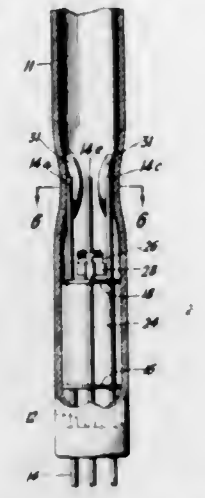
3,305,747

DOUBLE-ENDED TUBE

Lester Feinstein, Bellerose, and Mortimer E. Weiss, Flushing, N.Y., assignors, by mesne assignments, to Sylvania Electric Products Inc., Wilmington, Del., a corporation of Delaware

Filed May 15, 1952, Ser. No. 287,982
6 Claims. (Cl. 313—317)

1. A double ended electron discharge device having an electrode structure, a first group of supporting members extending away from said structure and sealed in a header, an envelope surrounding said structure and sealed to said header, a second group of supporting members extending from said electrode structure oppositely of said first group, an exhaust aperture in the envelope having peripheral recesses adapted to position said sec-



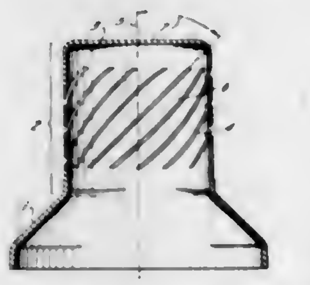
ond group of supporting members with respect to said envelope, whereby said envelope may be exhausted through said aperture and then hermetically sealed by closing said aperture around said second group of positioned supporting members.

3,305,748

GRID ELECTRODE FOR AN ELECTRON DISCHARGE DEVICE

Francois Marie Pehe and Pierre Gerlach, Paris, France, assignors to Compagnie Francaise Thomson-Houston, Paris, France, a corporation of France

Filed Feb. 27, 1963, Ser. No. 261,461
Claims priority, application France, Feb. 28, 1962, 889,492
12 Claims. (Cl. 313—348)



1. An electrode for an electron discharge device comprising a tubular cylindrical body having a plurality of separate, elongated slots formed through the wall of said body, said slots being inclined all in a common direction with respect to the generatrices of the cylindrical surface of the body over at least a major portion of their extent so as to have between said slots skew strips having a substantial free length without transverse bonds therebetween.

3,305,749

ELECTRON DISCHARGE DEVICE HAVING PLURAL ELECTRON BEAMS, SLOW WAVE STRUCTURES, AND R.F. SIGNALS, EACH SIGNAL INTERACTING WITH A PLURALITY OF BEAMS

Harold Alexander Cecil Hogg, Los Altos, Calif., assignor to The M-O Valve Company Limited, London, England

Filed May 6, 1963, Ser. No. 278,376
Claims priority, application Great Britain, May 4, 1962, 17,340/62
8 Claims. (Cl. 315—3.6)

1. An electric discharge device having:

(A) an interaction circuit including

(I) at least two slow wave structures along which electromagnetic waves are arranged to be propagated respectively in operation;

(II) each slow wave structure being formed by a sequence of hollow wave guide sections,

(a) each of which waveguide sections has substantially parallel end walls which extend perpendicular to the axis of the section; and

(b) each of which sections is of such dimensions as to operate in a mode such that there are strong axial electric fields at the center of the section and strong transverse magnetic loops near the periphery of the section,

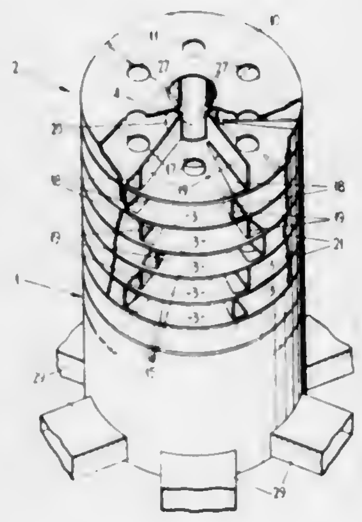
(c) the waveguide sections of each sequence being disposed end to end with adjacent sections coupled together and disposed with their axes parallel, but in non-alignment, so that adjacent waveguide sections in each sequence only partially overlap;

(III) the slow wave structures being disposed alongside one another

(a) with the axes of all the waveguide sections parallel, and

(b) the waveguide sections of the different slow wave structures interleaved so that each wave guide section in each slow wave structure partially overlaps a waveguide section in another slow wave structure,

(c) thereby forming at least two different series of partially overlapping waveguide sections;



(IV) each said series thus being constituted by waveguide sections included in at least two slow wave structures and

(V) each said slow structure being constituted by waveguide sections included in at least two said series; and

(B) at least two electron guns

(I) each of which is arranged to project an electron beam through a different said series of waveguide sections in a direction parallel to the axes of the waveguide sections so that each electromagnetic wave interacts with and thereby couples at least two electromagnetic waves;

(II) each electron beam passing through an approximately central region of each waveguide section of the relevant series via holes formed in the end walls of the section, and

(III) every waveguide section having an electron beam passing through it so that by virtue of the couplings between electron beams and electromagnetic waves, each electromagnetic wave is coupled to every other electromagnetic wave

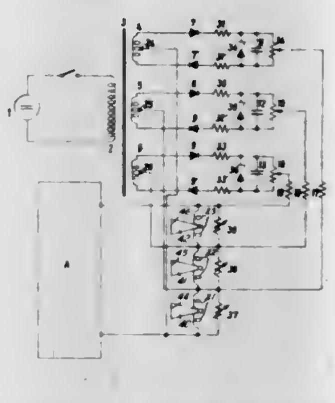
(IV) whereby the electromagnetic waves are locked together in a fixed phase relationship with respect to one another as they are propagated along the interaction circuit.

3,305,750

CIRCUIT FOR PROVIDING COINCIDENCE OF COLOUR TELEVISION PICK-UP TUBE RASTERS

Hans-Dieter Schneider, Grossgerau, Germany, assignor to Fernseh G.m.b.H., Darmstadt, Germany

Filed Sept. 27, 1963, Ser. No. 312,112
Claims priority, application Germany, Sept. 29, 1962, F 37,916
6 Claims. (Cl. 315—27)



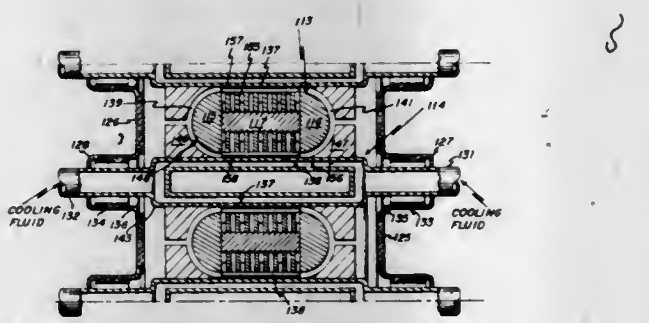
1. In a television apparatus including at least two means for producing separate electron beams, and at least two screen means located in the paths of said electron beams, respectively, each of said means for producing separate electron beams including at least two pairs of deflection coils connected substantially in series for deflecting said electron beams, a magnetic deflection arrangement associated with said deflection coils and superimposing a direct current of variable magnitude and polarity on the deflecting current flowing in said pairs of deflection coils, so that the position of the areas scanned by said electron beams on said screen means can be varied in horizontal and vertical directions, said arrangement comprising transformer means having primary winding means and a plurality of secondary windings; an alternating voltage source connected to said primary winding means; and at least two voltage stabilizing means each connected to one of said pairs of deflection coils on the one hand, and to one of said secondary windings of said transformer means on the other hand, so that the scanned areas on said screen means of said television apparatus can be brought into coincidence.

3,305,751

TRAVELING WAVE DEVICE

William C. Brown, Weston, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed Oct. 26, 1962, Ser. No. 233,381
4 Claims. (Cl. 315—34)



1. An electron discharge device comprising:

an anode structure;

said anode structure having a plurality of parallel axially-extending vanes defining a plurality of linear uncoupled electromagnetic wave conducting paths extending from opposite sides of a common support member;

means at the ends of said paths for causing the phase of waves in spaces between said vanes to change in value from space to space;

an electron emitting cathode structure coextensive with said anode structure defining a substantially continuous interaction space therebetween;

said interaction space viewed in cross-section having two parallel straight sections joined by curved sections with said anode vanes being provided at said straight sections;

means for establishing a magnetic field directed parallel to the axis of said anode structure and an electric field directed radially to said axis whereby the electrons form a space charge in the interaction space which circulates substantially circumferentially;

means for directing electromagnetic waves along the wave conducting paths in an axial direction to result in fringing electric fields between adjacent vanes extending into the interaction space;

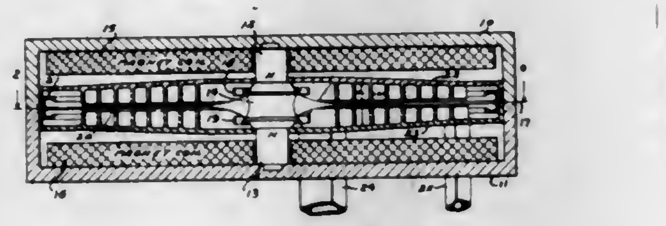
said crossed magnetic and electric fields together with said fringing electric fields imparting a phase focusing effect to the electron space charge such that the crossover point of said space charge and traversed waves is in velocity synchronous relationship along a path coaxial to said linear wave paths whereby said waves are amplified by the net flow of energy from the electron space charge;

and a means for launching said amplified waves from the ends of each of said paths.

3,305,752
FAST WAVE CROSSED FIELD TRAVELING-WAVE TUBE

Walter Friz, Greene County, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force

Filed Dec. 6, 1963, Ser. No. 328,763
1 Claim. (Cl. 315—39)

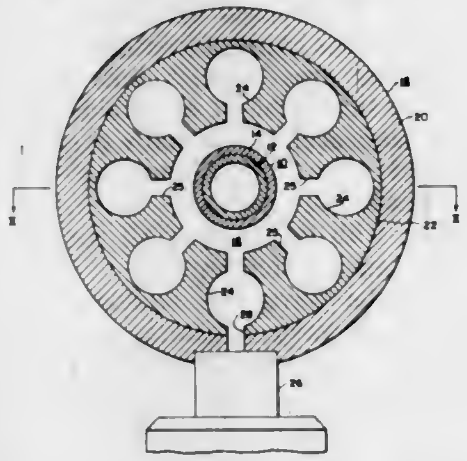


A traveling-wave tube comprising: means including an annular cathode and an annular collector electrode for producing a thin disc-shaped beam of electrons between said cathode and collector; a rectangular waveguide wound in a linear spiral and situated between said cathode and said collector, said spiral waveguide being concentric with said disc-shaped beam and symmetrically positioned with respect to the central plane of said beam, the larger dimension of said waveguide being normal to said central plane and said waveguide being slit at the center of its larger dimension to permit passage of said beam; means for introducing an electromagnetic wave at one end of said spiral waveguide and for removing said electromagnetic wave from the other end of said spiral waveguide after propagation therethrough, said propagated wave interacting with said beam to produce a velocity modulation of its electrons and a resulting density modulation of the beam; and said spiral waveguide further having its larger dimension vary continuously as an inverse function of the spiral angle such that the difference between the phase shift incurred by said electromagnetic wave in traveling around any complete turn of said spiral waveguide and the phase shift incurred by the density modulation of said beam in traveling the radial distance between turns of said spiral waveguide is substantially equal to $n\pi$ radians where n is an even integer.

3,305,753
MAGNETRON HAVING MAGNETIC BIAS OF SUCH STRENGTH AS TO MAKE CYCLOTRON FREQUENCY EQUAL TO TWICE PI FREQUENCY, USEFUL FOR COLD CATHODE OPERATION

Richard A. White, Horseheads, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed May 3, 1963, Ser. No. 277,950
9 Claims. (Cl. 315—39.63)

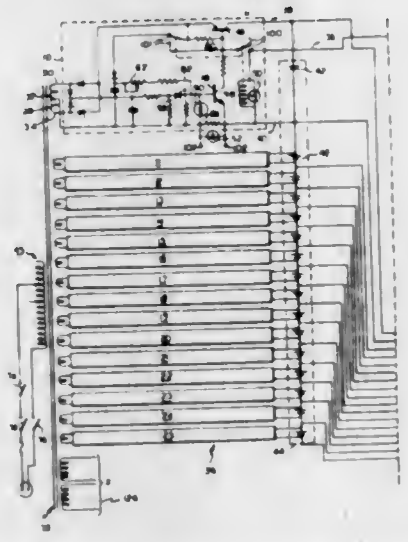


1. An electron discharge device comprising a cathode capable of electron emission, an anode including a plurality of cavity resonators spaced from and circularly arranged about said cathode, said cavity resonators being primarily determinative of the operating frequency of said device, means for applying an electrical potential between said cathode and said anode whereby there is established an electrical field in the region therebetween, and means for the establishment of a magnetic field in the region between said cathode and said anode which is substantially perpendicular to said electrical field, said electrical and magnetic fields acting to impart a substantially epicycloidal motion to electrons emitted from said cathode, said magnetic field being of a value such that the frequency of said cycloidal motion of said electron is equal to approximately twice that of the operating frequency of said device.

3,305,754
CHARGING APPARATUS FOR MULTICELL BATTERIES

Richard W. Oaks and Palmer K. Weir, Tucson, Ariz., assignors to Frederick Research Corporation

Filed June 4, 1963, Ser. No. 285,414
5 Claims. (Cl. 320—37)

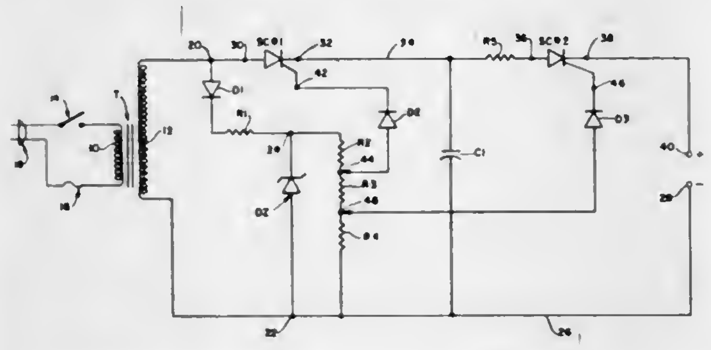


1. A charging circuit for a multicell battery comprising current regulating circuits connecting the cells of the multicell battery to a source of charging current, monitoring means for indicating the absence of a full charge of a cell and further for indicating a full charge condition of a cell, a stepping switch sequentially connecting said cells to said monitoring means, means responsive to said absence indicating means for maintaining said current regulating circuits conductive and said source of charging current thus locked in with their respective cells until a full charge is acquired by a cell, and means for periodically operating said stepping switch.

3,305,755
DUAL CONTROL BATTERY CHARGER

Robert R. Walsh, Wilmington, Del., assignor to All American Engineering Company, Wilmington, Del., a corporation of Delaware

Filed Apr. 24, 1964, Ser. No. 362,358
12 Claims. (Cl. 320—40)



1. Charging means for delivering charging current to a load, said load having a predetermined minimum terminal voltage and a predetermined maximum terminal voltage, said charging means comprising a power source, circuit means connected with said power source deriving first and second voltage standards therefrom equal to said predetermined minimum and maximum terminal voltages, respectively, first and second semiconductor switch means connected in series with said power source and said load, said first and second switch means including first and second gate terminals, respectively, conductor means applying said second voltage standard to said first gate terminal and said first voltage standard to said second gate terminal and capacitance load means connected in series with said first semiconductor switch means and in parallel with said load.

3,305,756
COMBINED GATED PULSE SOURCE-TRANSVERTER-RECTIFIER POWER SUPPLY WITH SAMPLING CONNECTION FOR REGULATION

Robert J. Doss, Cincinnati, and Joseph E. Naylor, Cleveland, Ohio, assignors to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Feb. 3, 1964, Ser. No. 342,087
4 Claims. (Cl. 321—2)

1. A voltage regulator circuit operating from a primary source of direct current voltage for producing a regulated direct current output voltage for application to a load comprising:

a fully regenerative free-running transverter means for converting said direct current voltage into an alternating current voltage,

output means electrically coupled to said transverter means for producing a regulated direct current output voltage of a predetermined amplitude from said alternating current voltage for application to the load,

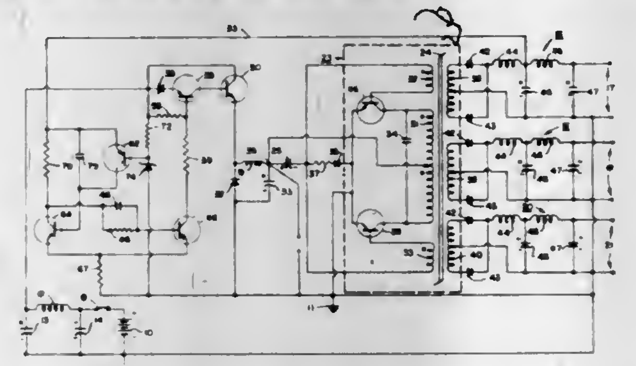
means connected to said output means for sensing the load thereon and producing a signal of an amplitude corresponding to said load,

means for producing a reference signal of an amplitude representative of the predetermined amplitude of said regulated direct current voltage,

means for comparing the signal from said load-sensing means and said reference signal and for producing an output signal corresponding to the deviation of the regulated direct current output voltage from said predetermined amplitude,

controllably operated means connected between said source of direct current voltage and said transverter means for producing a pulse type output voltage in accordance with the conducting time of said means,

filter means connected to said controllably operated means and said transverter means for converting the pulse type output voltage into a direct current voltage for application to said transverter,



an asymmetrical multivibrator circuit connected to said controllably operated means and said comparing means and responsive to the output signal of said comparing means for producing a control signal of varying period to change the conducting time of the controllably operated means in a manner to restore the regulated direct current output voltage to said predetermined amplitude, and

means connected to said load-sensing means and to said controllably operated means for preventing the production of said pulse type output voltage in response to sensing an overload condition in the output means.

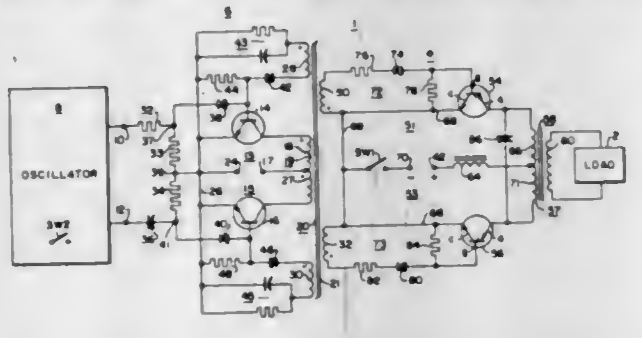
3,305,757
POWER INVERTING NETWORK UTILIZING THYRATRONIC SWITCHES CONTROLLED BY A SATURABLE TRANSFORMER

Leland A. Schlabach, Wilkins Township, Allegheny County, and George W. Nagel, Forest Hills Boro, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 22, 1962, Ser. No. 232,059
2 Claims. (Cl. 321—16)

2. An inverter network, a first pair of source terminals adapted to be energized with direct voltage, a pair of load terminals, first and second thyratronic switches, each said switch having a power path and a control device for rendering said power path conductive, a first power conveying path interconnecting said source terminals and said load terminals and including said power path of said first switch, a second power conveying path connected to said load terminals and including said power path of said second switch, a transformer having a primary winding means and a secondary winding means and a tertiary winding means, said transformer further including a magnetic material core having a hysteresis loop of substantially rectangular configuration linking said winding means, means connecting said secondary winding means to said control devices in such polarity that a flux change in said core in a first direction toward a first saturated condition of said core will actuate said control device of said first switch to render said power path of said first switch conductive and that a flux change in said core in a second direction toward a second saturated condition of said core will actuate said control device of said second switch to render said power path of said second switch conductive, a second pair of source terminals adapted to be energized with direct voltage, first and second valve

devices, each said valve device having a power conveying path and a control path for controlling the initiation and termination of current flow through its said power path, a pair of current paths connecting said primary winding means to said second pair of source terminals, a first of said current paths including said power path of said first valve device and effective when conducting to change said flux in said first direction, a second of said current paths including said power path of said second valve device and effective when conducting to change said flux in said second direction, a pair of bias voltage producing devices, feedback means connecting said tertiary winding means to said control paths of said valve devices and including said bias devices, said feedback means being polarized such that a change in said flux in said first direction renders said control path of said first valve device effective to maintain its said power path conductive and a change in said flux in said second direction renders said control path of said second valve device effective to maintain its said power path conductive, a first of said bias devices being in circuit with said control path of said first valve device and effective to oppose actuation of its said control path, the second of said bias devices being in circuit with said control path of said second valve device and effective to oppose actuation of its said control path, the magnitude of the voltage of said bias devices being not less than the magnitude of the voltages induced in said tertiary winding means due to the change in flux in said core from the magnitude at said first saturated condition to the magnitude at a first remnance condition as a consequence of the termination of current flow through said first current path and from the magnitude at said second saturated condition to the magnitude at a second remnance condition as a consequence of the termination of current flow through said second current path, a source of spaced periodic electrical pulses of alternating polarity, and means connecting said last-named source to said control paths of said valve devices whereby said valve devices are alternately rendered conductive, said primary winding means being so related to the current flow through said current paths and to the flux required to saturate said core that the time required to change said flux from first remnance condition to said second saturated condition and from said second remnance condition to said first saturated condition is substantially less than the time interval between said spaced pulses.



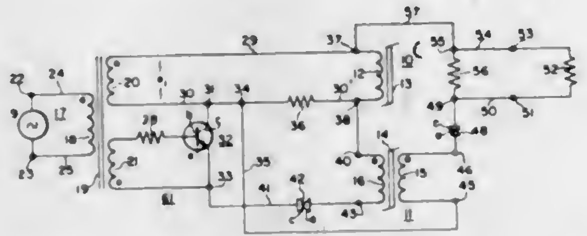
3,305,758
MAGNETICALLY REGULATED POWER SUPPLY

Emor O. Shepard, Wilkins Township, Allegheny County, John F. Reuther, Penn Hills Township, Allegheny County, and Sheldon D. Silliman, Forest Hills, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 12, 1963, Ser. No. 294,708

7 Claims. (Cl. 321—18)

1. An electrical circuit comprising a source of alternating potential, first saturable magnetic core means having a winding, second saturable magnetic core means having first and second windings, first and second impedance means, first and second asymmetrically conductive means, the winding of said first saturable magnetic core means and said first impedance means being serially connected across said source of alternating potential, the first winding of said second saturable magnetic core means and said first asymmetrically conductive device being serially connected across said first impedance means, the second winding of said second saturable magnetic core means, said second asymmetrically conductive means, and said second impedance means being serially connected across said source of alternating potential, said first and second asymmetrically conductive devices being poled to allow current flow through the first and second windings of said second saturable magnetic core means on opposite polarity voltage half cycles of said source of alternating potential, said source of alternating potential having a minimum magnitude large enough to drive said first saturable magnetic core means from one saturation point to the other during a voltage half cycle of said source of alternating potential, and a maximum magnitude which will drive said second saturable magnetic core means only partially from one saturation point to the other, the portion of the voltage half cycle of said alternating potential remaining after saturation of said first saturable magnetic core means being applied to the first winding of said second saturable magnetic core means, driving said second saturable magnetic core means from one saturation point towards the other on voltage half cycles in which current is allowed to flow by said first asymmetrically conductive means, the current flow through the second winding of said second saturable magnetic core means on the succeeding voltage half cycle driving said second saturable magnetic core means back to said one saturation point, the portion of the half cycle remaining after saturation of said second saturable magnetic core means being applied to said second impedance means.

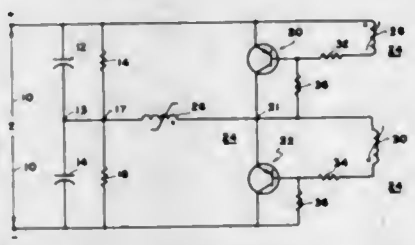


3,305,759
OSCILLATOR

Philip D. Corey, Waynesboro, Va., assignor to General Electric Company, a corporation of New York

Filed Aug. 27, 1962, Ser. No. 219,647

11 Claims. (Cl. 321—25)



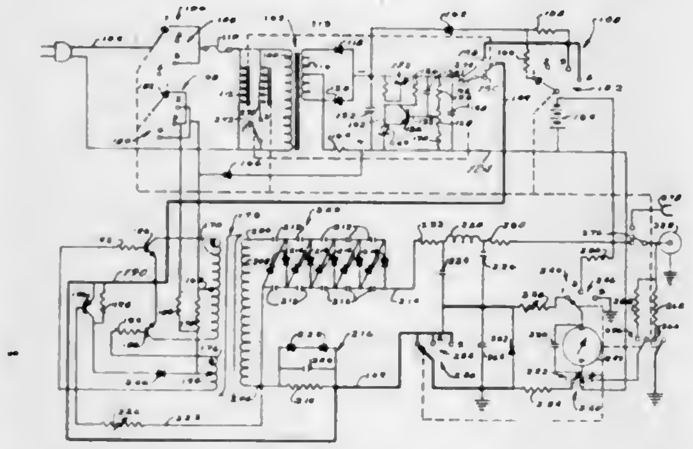
1. In a converter, the combination with a center-tapped unidirectional potential source, of a series arrangement of a pair of transistors, each connected across one half of said source, a transformer comprising a primary winding in circuit with said transistors and said source and a pair of secondary windings, a saturable device comprising a pair of gate windings, a series arrangement of one of said secondary windings and one of said gate windings in circuit with each of said transistors, the saturation of said device in a given direction causing conduction to be switched from one to the other of said transistors, said transistors switching a potential having a value substantially equal only to the value of said source potential, and means for obtaining an output in circuit between the common junction of said transistors and said source.

3,305,760
AUTOMATIC LINE AND BATTERY OPERATED POWER SUPPLY SYSTEM

Larry L. Davis, 4345 Manzanita Drive, San Jose, Calif. 95129, and Arthur H. Iversen, San Francisco, Calif. (519 Nimitz Ave., Redwood City, Calif. 94061)

Filed Jan. 16, 1963, Ser. No. 251,816

5 Claims. (Cl. 321—45)



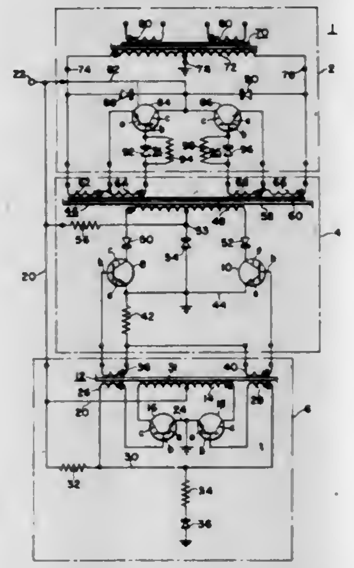
4. An automatic line and battery operated power supply and battery charging apparatus comprising: a line alternating current energized regulated power supply for providing a low voltage direct current output voltage and having a power supply output terminal; a rechargeable battery having an output terminal; a converter input terminal; means, responsive to the existence of said line alternating current for automatically connecting said input terminal to one selectively of said power supply and battery output terminals; means coupled to said power supply for charging said battery when said converter input terminal is connected to said power supply output terminal; a converter transistor network including a square hysteresis loop saturable core transformer having a center tapped primary winding and a center tapped base drive winding and an output winding, each having first and second terminals; first and second switching transistors having their collector electrodes respectively coupled to said first and second terminals of said primary winding and having their emitter electrodes coupled to a circuit node and having their control electrodes coupled respectively to said first and second terminals of said base drive winding; a resistively by-passed control gate transistor coupled between the center tap of said base drive winding and said circuit node; means for coupling said converter input terminal to said center tap of said primary winding; means for coupling at least a portion of the magnitude of the voltage signal at said input terminal to said center tap of said base drive winding; unidirectional current flow means interposed between the latter said center tap and said control gate transistor for isolating said signal from said gate transistor; a multiple stage voltage doubler network having an output terminal and being coupled between said first and second terminals of said output winding; radio frequency isolating means intercoupled between said doubler network and the latter said output terminal; control signal generating means coupled between said second terminal of said output winding and said circuit node for providing a control signal the magnitude of which is a measure of the magnitude of current flowing between said circuit node and said output terminal of said doubler network; coupling means for impressing at least a portion of said control signal upon the control electrode of said control gate transistor; and a meter network including an electric meter movement, a logarithmic scale shunting diode coupled between said circuit node and a ground terminal, and meter switching means for selectively connecting said movement to said battery, to said output terminal, to said doubler network, and between said circuit node and a ground terminal.

3,305,761
CONTROL APPARATUS FOR POWER INVERTER

Theodore M. Heinrich, Aliglaize Township, Allen County, and Andress Kernick, Lima, Ohio, assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 3, 1963, Ser. No. 284,961

14 Claims. (Cl. 321—45)

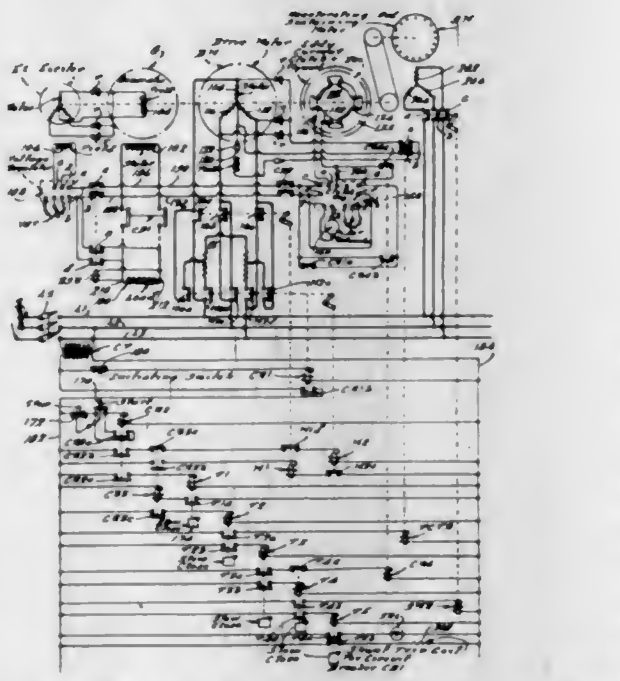


13. In inverting apparatus, a power transformer having primary winding means and secondary winding means, a current transformer having a plurality of winding portions, first and second semiconductor valves, each said valve having a pair of main electrodes and a control electrode, a pair of power input terminals, a first power path connecting said input terminals to a first portion of said primary winding means and including said main electrodes of said first valve and a first of said winding portions, a second power path connecting said input terminals to a second portion of said primary winding means and including said main electrodes of said second valve and a second of said winding portions, said paths being so arranged that when said first valve conducts said power transformer is energized in one polarity and when said second valve conducts said power transformer is energized in the opposite polarity, means connecting a third of said winding portions between one of said main electrodes and said control electrode of said first valve, means connecting a fourth of said winding portions between one of said main electrodes and said control electrode of said second valve, said first and second winding portions being phased to energize said current transformer in opposite polarity as a consequence of the conduction of said first and second valves, said third and fourth winding portions being phased such that when said current transformer is energized as a consequence of the conduction of said first valve said third winding portion renders said first valve conducting and said fourth winding portion renders said second valve non-conducting, first and second unidirectional current conducting devices, means including a portion of said primary means connecting said first unidirectional device in anti-parallel with said first valve and said first winding portion, means including a portion of said primary means connecting said second unilateral device in anti-parallel with said second valve and said second winding portion, first and second switch means, an asymmetric current flow de-

vice, first control circuit means connecting said first switch means and said asymmetric current flow device across a fifth of said winding portions, second control circuit means connecting said second switch means and said asymmetric current flow device across a sixth of said winding portions, a source of unidirectional voltage having a drooping voltage magnitude with increase in current and connected in shunt circuit with said asymmetric current flow device, and means closing said first and second switch means in alternating sequence.

3,305,762
METHOD OF CONTROL OF ELECTRIC POWER

Carl E. Geib, Jr., Mansfield, Ohio, assignor to The Ideal Electric and Manufacturing Company, Mansfield, Ohio, a corporation of Ohio
Original application Oct. 17, 1962, Ser. No. 231,207, now Patent No. 3,196,341. Divided and this application July 19, 1965, Ser. No. 472,979
6 Claims. (Cl. 322—4)

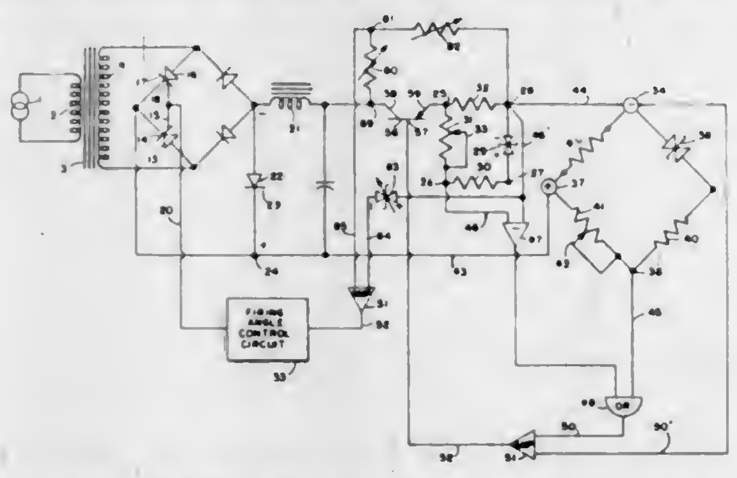


1. The method of supplying, during the continuation of the normal supply of electrical energy, mechanical energy to a rotatable electrical generator to drive that rotatable electrical generator at a preselected rotational velocity and to a rotatable mass to drive that rotatable mass at a selected rotational velocity in preparation for subsequently delivering mechanical energy from the mass to the generator upon the interruption of the normal supply of electrical energy which comprises the steps of delivering mechanical energy from a limited-capacity source of mechanical energy to the generator substantially to accelerate the generator to said preselected speed, and thereafter initiating the delivery of energy from that same limited-capacity source to said rotatable mass to accelerate said mass.

3,305,763
VOLTAGE/CURRENT REGULATED POWER SUPPLIES

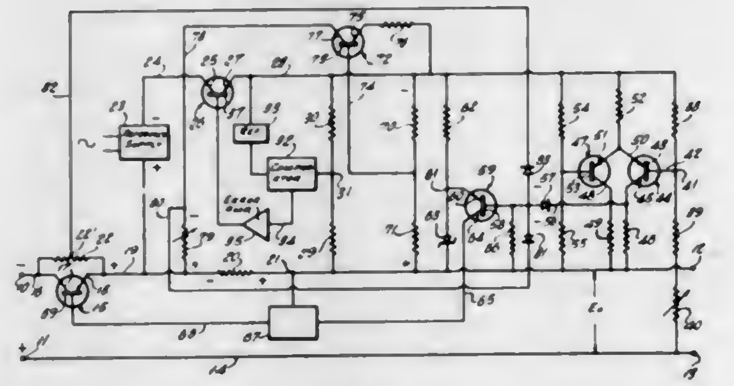
Kenneth Kupferberg and Jaime Ash, Flushing, N.Y., assignors to Forbro Design Corp., New York, N.Y., a corporation of New York
Filed Jan. 29, 1963, Ser. No. 254,720
7 Claims. (Cl. 323—9)

1. In a regulated power supply, the combination of, a source of voltage to be regulated, means for regulating the voltage of said source and responsive to a control signal, connected to said source, a voltage control bridge circuit including first, second, third and fourth terminals, reference voltage means connected between said first and fourth terminals, reference resistance means connected between said third and fourth terminals, adjustable resistance means connected between said second and third terminals, output voltage terminals connected to said first and second terminals, a current control bridge circuit including first, second, third and fourth terminals, a current sensing resistor connected between said first and fourth terminals of said current control bridge, a connection between said fourth terminal of said current control bridge and said regulating means, reference voltage means connected between said first and second terminals of said current control bridge, reference resistance means connected between said second and third terminals of said current control bridge, adjustable resistance means connected between said third and fourth terminals of said current control bridge, a common connection between said first terminal of said voltage control bridge and said first terminal of said current control bridge, an OR gate including two input means and one output means, an amplifier connected to amplify current bridge unbalance voltages connected between said first and third terminals of said current control bridge and one input means of said OR gate, a connection between said third terminal of said voltage control bridge and the other input means of said OR gate whereby the OR gate provides an output depending on the relative unbalance voltages of said third terminals of said bridges, and amplifying means connected between said output of said OR gate and said regulating means for controlling the output across said output terminals as a function of the unbalance voltages of said third terminals of said bridges whereby the output across said output terminals is alternatively under the control of one of said bridges.



3,305,764
CURRENT AND VOLTAGE REGULATED POWER SUPPLY

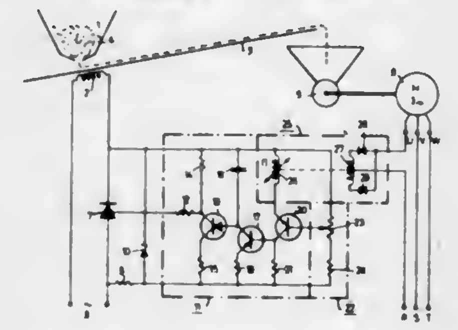
Paul G. Todd, Great Neck, N.Y., assignor to Trygon Electronics Inc., Roosevelt, N.Y., a corporation of New York
Filed May 24, 1963, Ser. No. 282,915
10 Claims. (Cl. 323—9)



3. A power supply comprising a source of voltage to be regulated, a pair of output terminals, voltage regulating means connected between said source and said output terminals, means sensing the voltage on said output voltage terminals and producing a unidirectional error signal in response to deviations of the output voltage from a preselected output voltage, means feeding said error signal to said voltage regulator to modify the output signal until said error signal is at a preselected value, load current sensing means producing a unidirectional signal proportional to the current drain on said output terminals and independent of the current drain of said voltage sensing means, and means feeding the last said signal to said regulating means in conjunction with said error signal whereupon said current signal upon attainment of a magnitude in excess of the preselected value of said voltage error signal limits further increase in current notwithstanding the load demand.

3,305,765
APPARATUS FOR REGULATING LOAD CONSUMPTION

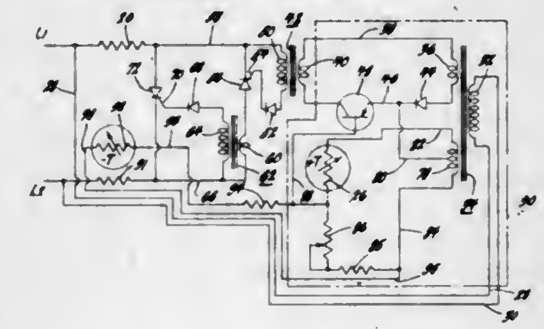
Helmut Rittner, Erlangen, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Dec. 19, 1963, Ser. No. 331,656
Claims priority, application Germany, Dec. 24, 1962, S 83,050
5 Claims. (Cl. 323—19)



2. An apparatus for regulating the consumption of an electric load energized from an alternating source, comprising controllable valve means intermediate said load and said source and having a contrrol circuit, electronic trigger means connected to said control circuit for initiating flow of current through said valve, capacitor means connected to said source so as to be periodically charged thereby for actuating said trigger means upon reaching a predetermined charge, and electrical means including a magnetic-field dependent resistor for establishing the charge rate of said capacitor and responding to an electrical parameter of said load consumption.

3,305,766
FULL WAVE VOLTAGE CONTROL SYSTEMS FOR HEATING LOADS

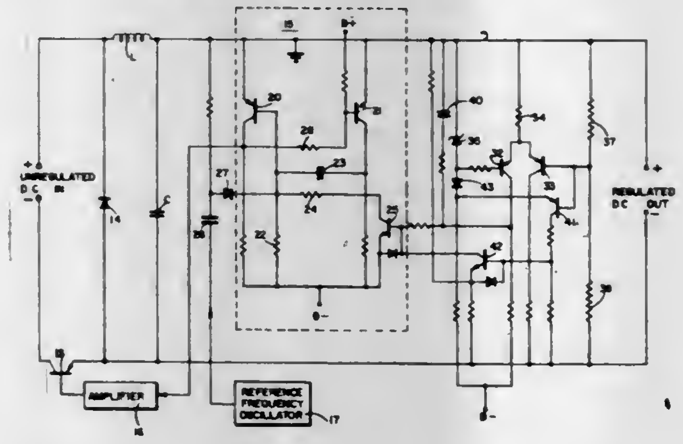
Charles C. Gambill, Tipp City, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 29, 1963, Ser. No. 276,519
5 Claims. (Cl. 323—22)



1. In combination, an electrical load, alternating current supply means electrically connected to said load, a first silicon controlled rectifier having an anode electrode and a cathode electrode connected in series with said load and having a gate, a second silicon controlled rectifier having an anode and a cathode electrode connected in parallel circuit with said first rectifier and in series with said load and having a gate, one of said rectifiers having its anode electrode connected to said load and the other of said rectifiers having its cathode electrode connected to said load, means for applying a peak voltage to the gate of one of said rectifiers, means for increasing and decreasing said peak voltage to cause the one rectifier having the gate to which the peak voltage is applied to conduct or not to conduct, a preponderantly inductive circuit portion comprising a transformer having an input winding connected in series with the electrodes of one of said rectifiers and having an output winding, and a diode rectifier connected in series with said output winding between the gate and one of the electrodes of the other silicon controlled rectifier to cause said other silicon controlled rectifier to conduct or not to conduct for substantially complete half cycles alternatively relative to said one silicon controlled rectifier.

3,305,767
VOLTAGE REGULATOR

Paul A. Beihl, La Habra, and James R. Gandy, Garden Grove, Calif., and Marvin W. Loosle, Salt Lake City, Utah, assignors to North American Aviation, Inc.
Filed Sept. 10, 1963, Ser. No. 307,984
5 Claims. (Cl. 323—22)



1. In a system for producing a regulated voltage through a circuit including a filter adapted to have its output coupled to a load and a switch for cyclically connecting a source of unregulated voltage to the input of said filter, the combination comprising

constant frequency source means,

cyclical means for closing said switch in response to said constant frequency source means whereby said unregulated voltage is cyclically connected to said filter in response to said cyclical means,

means for sensing the output voltage of said filter, and

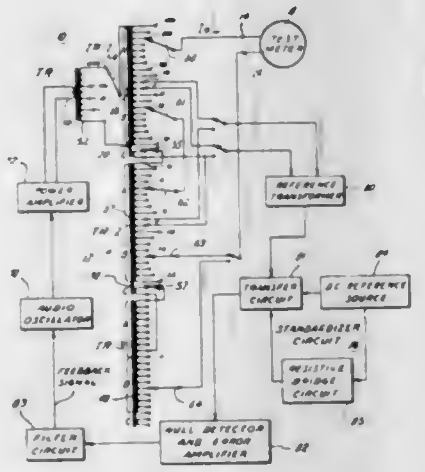
variable means coupled to said sensing means for varying the timing period of said cyclical means proportional to variation of said output voltage.

3,305,768
A.-C. VOLTAGE CALIBRATING APPARATUS

Kenneth J. Koep, South Plainfield, N.J., assignor to Weston Instruments, Inc., a corporation of Delaware
Filed Feb. 14, 1963, Ser. No. 258,580
4 Claims. (Cl. 323—43.5)

1. An A.-C. voltage calibrator comprising a variable source of A.-C. current; at least one transformer inductively coupled to receive current from said source and thereby generating an excitation voltage which varies in amplitude proportionally to variations in amplitude of the A.-C. current from said source, said transformer including at least one group of plural discrete windings hav-

ing end terminals series-connected at least one of said windings being a reference winding and producing thereacross a reference voltage, each discrete winding having the same ratio of impedance to induced voltage as every other discrete winding so that any voltage drop across the end terminals of each winding is a constant percentile of the amplitude of the excitation voltage that is induced in each winding, a device under voltage calibration connected to two selected end terminals including therebetween at least said reference winding, a standardization circuit connected to receive as an input the reference voltage from said reference winding and including a standard voltage source for providing a standard voltage, said standardization circuit comparing the reference voltage to the standard voltage and producing an error signal representing by magnitude and sense the difference between the voltages, and means coupling said source of A.-C. current to said standardization circuit responsive to an error signal from said standardization circuit for adjusting the amplitude of the A.-C. current so that an excitation voltage is induced in each winding having a magnitude and sense such as to compensate for any percentile voltage drop produced across at least said reference winding, whereby a constant calibrating voltage is impressed on said device.

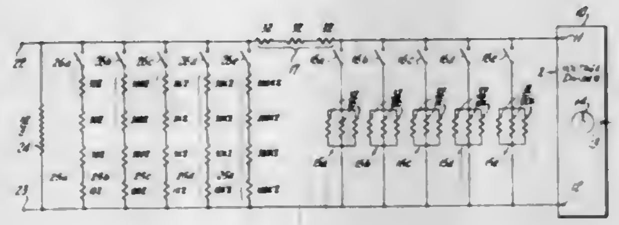


3,305,769
NETWORK FOR EXTENDING THE RANGE OF A VOLTAGE DIVIDER

Loebe Julie, Riverdale, N.Y., assignor to Julie Research Laboratories, Inc., New York, N.Y., a corporation of New York

Filed Oct. 14, 1963, Ser. No. 315,831

10 Claims. (Cl. 323—74)



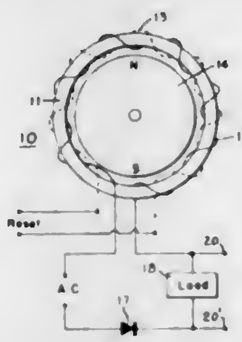
1. A ratio divider for extending the range of a voltage divider system having an input of fixed value impedance and comprising, a first resistor synthesized by a series of resistors each of specified integral multiple value of said input impedance, a first set of plurality of resistors each of progressively decreasing decimal values with respect to the value of said divider input impedance, means for connecting individual ones of said resistors of said first set in parallel across said divider input, said first resistor being in series with the parallel combination of the divider input and the first set resistors in parallel therewith, and each resistor of said first set is synthesized by parallel combinations of resistors each having values which are selected ratios of multiples of ten of said divider input impedance, said synthesized resistors are further characterized by impedance values calibrated by accumulative intercomparisons while employing said divider input as the initial standard, wherein the range of said divider is variable by decimal multiples as respective resistors of said first set are impressed across said divider input.

3,305,770
SATURABLE CORE TRANSDUCERS

Leonard Robin Hulls, Gwynedd Valley, Pa., assignor to Leeds and Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Mar. 29, 1963, Ser. No. 268,879

17 Claims. (Cl. 323—89)



1. A transducer for converting a displacement into a corresponding change in an electrical signal comprising at least one saturable core in the form of a closed loop, a distributed winding on said core, said core having an effective volt second content with respect to said winding, means for periodically exciting said winding to produce a saturation flux around said loop in one sense, means for resetting said core to a saturation flux around said loop in the opposite sense, field producing means including a transversely magnetized member movable in accordance with the motion for producing a change in the effective volt second content of said core with respect to said winding, and circuit means connected between said winding and said exciting means for producing an electrical signal varying with change in position of said movable member.

3,305,771
INDUCTIVE RESISTIVITY GUARD LOGGING APPARATUS INCLUDING TOROIDAL COILS MOUNTED ON A CONDUCTIVE STEM

Jan J. Arps, Dallas, Tex., assignor to Arps Corporation, Dallas, Tex., a corporation of Delaware

Filed Aug. 30, 1963, Ser. No. 305,708

6 Claims. (Cl. 324—6)

1. A system for logging a well which comprises:

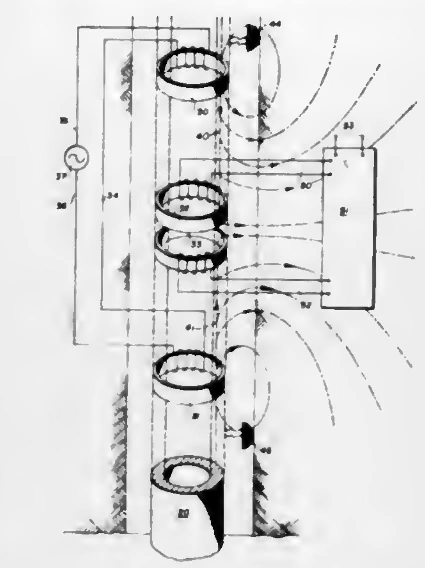
(a) a conductive stem extending along said well and movable along said well past successive earth formations through which said well passes,

(b) a pair of toroidal transmitting coils encompassing said stem at predetermined longitudinally spaced points,

(c) electrical source means connecting said coils in opposing senses for applying alternating current to said coils to induce instantaneously opposed electrical current flow through said stem in the region between said coils and from said region into the formations adjacent to said region,

(d) a pair of longitudinally spaced toroidal detector coils encompassing said stem in a symmetrical array between said transmitting coils, for induction therein of signals dependent upon said current flow in said stem into formations facing said region, and

(e) a signal utilization means connected to said detector coils for combining the signals from said coils for registration of variations in electrical resistivity of formations in said region.

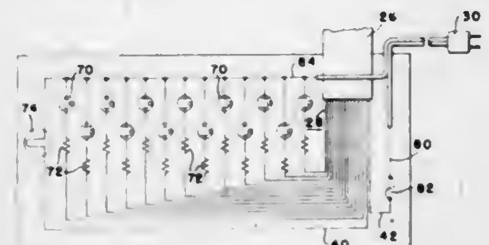


3,305,772
TIMER SEQUENCE TESTER HAVING PLURAL LAMP INDICATORS AND TEMPLATE MEANS

Robert L. Earnhart, Waynesville, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed May 4, 1964, Ser. No. 364,462

4 Claims. (Cl. 324—51)



2. A timer sequence tester adapted for electrical connection to a timer having a plurality of timer switch connectors and a motor for selectively energizing said switch connectors in accordance with the sequencing of said timer, said tester comprising

(a) insulated housing means having a timer circuit test lamp pocket and a timer motor test lamp cavity, said housing means having an indicator opening in light receiving communication with said pocket for illuminating said opening,

(b) means for supporting a template representative of said timer in juxtaposition with said opening to facilitate the comparison of markings on said template with the illumination of said opening,

(c) tester circuit means adapted for interposition between a power source and said timer and selectively energizable in accordance with the selective energization of said switch connectors, said tester circuit means including a continuity test lamp in said pocket, said continuity test lamp adapted for connection in series with one of said timer switch connectors, and a timer motor test lamp in said cavity adapted for connection in series with the motor of said timer through another one of said timer switch connectors, said timer motor test lamp having a sufficient resistance which when serially arranged with the resistance of said motor drops the voltage of power supplied to said motor to approximately the minimum voltage at which said motor is designed to operate,

(d) and power supply conductor means adapted to be connected to a power source and having ground means connected to one side of said lamps and power means adapted to be connected through said motor and said switch connectors of said timer to the other side of said lamps, the motor of said timer being energizable thereby to selectively energize the switch connectors,

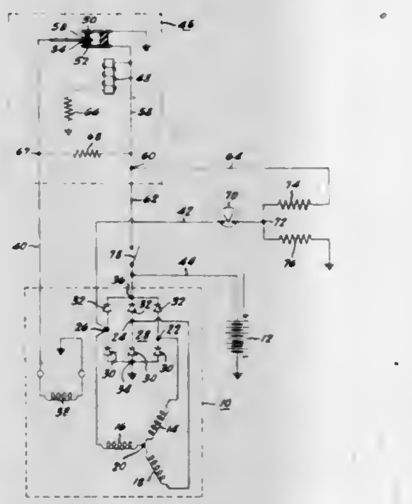
(e) the illumination of said continuity test lamp serving to indicate the proper or improper energization of its respective switch connector.

3,305,773
FAILURE INDICATING SYSTEM FOR DIODE RECTIFIED ALTERNATING CURRENT GENERATORS UTILIZING A COMPARISON OF VOLTAGES

Allen E. Beaty, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 12, 1964, Ser. No. 389,050

6 Claims. (Cl. 324—51)



1. A malfunction indicating system for an electrical system that is powered by a diode-rectified alternating generator comprising, an alternating current generator having a three phase output winding, a three phase full-wave bridge rectifier connected with said output winding, a battery, means connecting said battery across the D.C. output terminals of said bridge rectifier, a voltage dividing network connected across the D.C. output terminals of said bridge rectifier network and across said battery, said voltage dividing network including a first reference potential point, means connected with said output winding providing a second reference potential point, said voltage dividing network being so proportioned that said first and second reference potential points have substantially equal potentials when said alternator and bridge rectifier are operating normally, and an indicator connected between said first and second reference potential points, said indicator being capable of indicating a condition where the potentials of said first and second reference potential points are not equal.

3,305,774
MALFUNCTION INDICATOR FOR DIODE-RECTIFIED ALTERNATOR CURRENT GENERATORS CAPABLE OF INDICATING HIGH VOLTAGE AND OPEN FIELD CONDITIONS

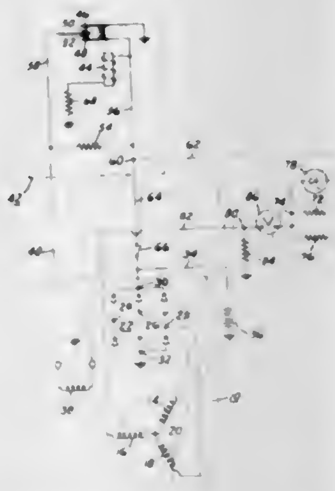
Thomas C. Heath, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 12, 1964, Ser. No. 389,051

10 Claims. (Cl. 324—51)

1. A failure indicating system for a diode-rectified alternating current generator comprising, an alternating current generator having a three phase output winding,

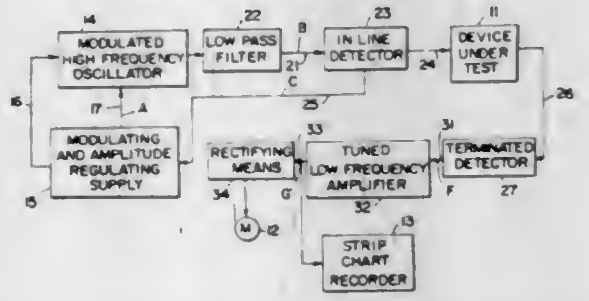
a three phase full-wave bridge rectifier having D.C. output terminals and having A.C. input terminals connected with said output winding, a battery, means connecting said battery across the D.C. output terminals of said bridge rectifier, a voltage divider network connected across the D.C. output terminals of said bridge rectifier ence potential point connected with at least one phase winding of said output winding, said reference potential points having substantially equal voltages when the output voltage of said generator is normal, an indicating de-
having a first reference potential point, a second refer-
vice connected between said first and second reference potential points, said indicating device being capable of indicating a difference in potential between said reference potential points, and a circuit element having resistance connected between said second reference potential point and one of said D.C. output terminals of said bridge rectifier network, said circuit element providing a path for current flowing through said indicating device when said generator has substantially no output voltage.



3,305,775

TRANSFER CHARACTERISTIC MEASURING EMPLOYING SUBSTANTIALLY CONSTANT IMPEDANCE CONSTANT AMPLITUDE SOURCE FOR DRIVING AND TERMINATING INPUT BRANCH

Andrew Alford, Winchester, Mass.
(299 Atlantic Ave., Boston, Mass. 02148)
Filed Dec. 5, 1962, Ser. No. 242,503
8 Claims. (Cl. 324—57)



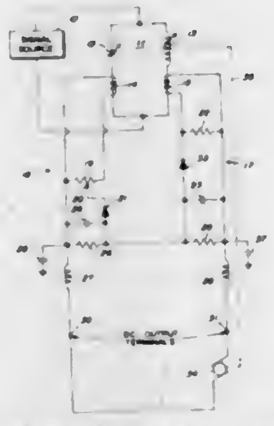
1. Transfer characteristic measuring apparatus comprising,

an input branch for delivering energy to a device under test,
inline detector means including means for terminating said input branch substantially in its characteristic impedance,
said inline detector means including means defining a regulated junction maintained at substantially constant R-F potential when R-F signal is present on said regulated junction,
first side branch means having an impedance of substantially said characteristic impedance for coupling said regulated junction to said input branch and thereby terminating said input branch substantially in its characteristic impedance,
nonlinear detecting means for providing a low frequency signal of amplitude representative of the R-F potential present on said regulated junction,
and means including second side branch means for coupling said regulated junction to said nonlinear detecting means,
the latter means for coupling including attenuating means,
an output branch for receiving that portion of the energy delivered to said input branch that is transmitted by the device under test to said output branch,
a source of periodic bursts of radio frequency energy, each burst consisting of a train of sinusoidal cycles of substantially the same amplitude whose period is much shorter than the duration of each burst and the time interval between consecutive bursts,
means for applying said periodic bursts to said input branch through said inline detector means,
means responsive to said low frequency signal provided by said nonlinear detecting means for developing a control signal,
means responsive to said control signal for maintaining the amplitude of said bursts on said regulated junction substantially constant independently of the sinusoidal cycle period.
and amplifying means for selectively transmitting a sinusoidal signal having the same period as said periodic bursts responsive to the signal on said output branch for providing an output signal representative of the transfer characteristic of a device under test at the frequency corresponding to the contemporary burst sinusoidal cycle period.

3,305,776

PARALLEL RESONANCE DISCRIMINATOR INCLUDING AN INDUCTIVELY COUPLED TUNED CIRCUIT

Loney R. Duncan, Jr., and James J. Smisloff, Marion, Iowa, assignors to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Sept. 24, 1962, Ser. No. 225,571
5 Claims. (Cl. 324—57)



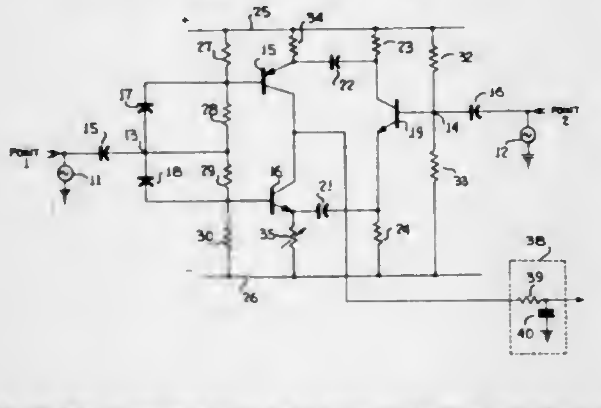
1. In combination with a parallel tuned circuit tuned to the frequency of an applied input signal and comprising:

a capacitive branch and an inductive branch;
and a signal source for supplying an input signal across said parallel tuned circuit;
an impedance discriminator means for detecting differences in the impedances of the two branches of said parallel tuned circuit and comprising:
first circuit means reactively coupled to the capacitive branch of the parallel tuned circuit to produce a direct current signal whose amplitude is proportional to the amplitude of the alternating signal in said capacitive branch;
second circuit means reactively coupled to the alternating signal in the inductive branch of said parallel tuned circuit to produce a second direct current signal whose amplitude is proportional to the amplitude of the alternating signal in said inductive branch;
and means for combining said first and second direct current signals to produce a resultant direct current signal whose amplitude and polarity are indicative of the amount and sense of the difference in the impedances of the two branches of said parallel circuit.

3,305,777

TRANSISTORIZED PHASE COMPARATOR WHEREIN ALL THE TRANSISTORS OPERATE IN CLASS A

Charlie M. Monroe, Huntsville, Ala., assignor to Melpar, Inc., Falls Church, Va., a corporation of Delaware
Filed Dec. 24, 1964, Ser. No. 421,036
7 Claims. (Cl. 324—89)



7. A phase comparator for detecting the relative phase difference between a pair of signals, said comparator comprising a pair of transistors of opposite conductivity types having series-connected output circuits, means responsive to one of said pair of signals for parallel application of said one signal to the input circuits of both said transistors, means biasing said transistors for class A operation, an amplifier responsive to the other of said signals for developing therefrom a pair of oppositely phased signals of substantially the same amplitude, means biasing said amplifier for class A operation, means for respectively applying said oppositely phased signals to the output circuits of said pair of transistors, whereby application of the first-named pair of signals to said phase comparator produces a net current flow through said series-connected output circuits dependent upon the relative phase of like frequency components of said first-named pair of signals, and means for sensing said net current flow for detection of said relative phase difference.

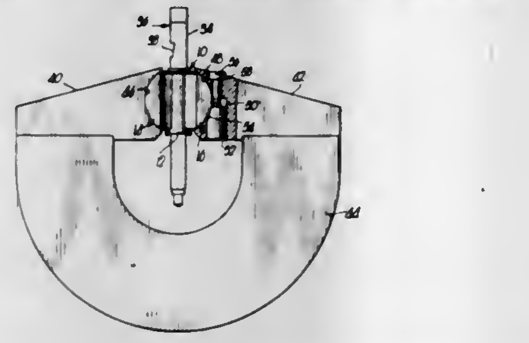
3,305,778

ADJUSTABLE SUPPORT AND LOCKING MEANS FOR MIRROR TYPE GALVANOMETERS

Irvin L. Patterson, Tulsa, Okla., assignor to Midwestern Instruments, Inc., Tulsa, Okla., a corporation of Oklahoma
Filed Mar. 25, 1963, Ser. No. 267,629
10 Claims. (Cl. 324—97)

1. In magnet structure for directing magnetic flux to the pole pieces of a tubular mirror type galvanometer;

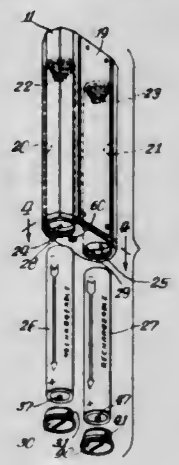
a pair of spaced-apart, flux-carrying members; and
an insert disposed between said members, said insert comprising an elongated, nonmagnetic bushing adapted to receive the galvanometer, a pair of magnetic elements separate from the galvanometer and secured to said bushing in diametrically opposed relationship thereto and each having a pair of ends spaced longitudinally thereof, and a thin, magnetic web integral with said elements and interconnecting one end of one of the elements with the corresponding end of the other element whereby the elements and the web form a monolithic body of magnetic material, the thickness of the web being small relative to the length of each element between the ends thereof, whereby the web saturates at a low flux level relative to the elements thereby leaving the magnetic properties of the insert unimpaired, each of said elements being provided with a pair of opposed sides and an outer, convex edge, one of said sides converging toward the other side as the bushing is approached, each of the members presenting a face in complemental engagement with a corresponding edge, whereby the insert is rotatable with respect to the members.



3,305,779

PORTABLE ELECTRONIC DEVICE FOR OPERATION BY RECHARGEABLE OR NONRECHARGEABLE SELF-CONTAINED BATTERY

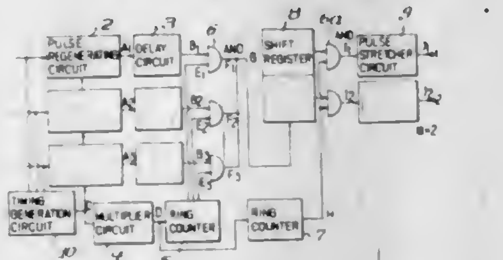
Dominic Errichiello, Melrose Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Continuation of application Ser. No, 155,777, Nov. 29, 1961. This application Oct. 14, 1963, Ser. No. 316,488
7 Claims. (Cl. 325—111)



3. A housing for miniaturized radio apparatus having power consuming electrical components and adapted for operation from self-contained batteries which may be of the rechargeable type with projecting conducting tips on one end thereof, and of the non-rechargeable type with no projecting tips thereon, said housing including in combination, an open end cavity extending along each side for receiving batteries, first and second battery caps removably secured respectively within said open ends of each cavity to secure the batteries within said cavities, and means for recharging rechargeable batteries while within said housing from an external power source and for preventing inadvertent charging of non-rechargeable batteries, said means including resilient contact means restrained within a provided recess in each of said battery caps and adapted to engage the projecting tip of rechargeable batteries in said cavities to establish electrical continuity to the external power source, and a contact

terminal disposed on said housing and connected to the other end of the batteries to complete an electrical circuit to the external power source.

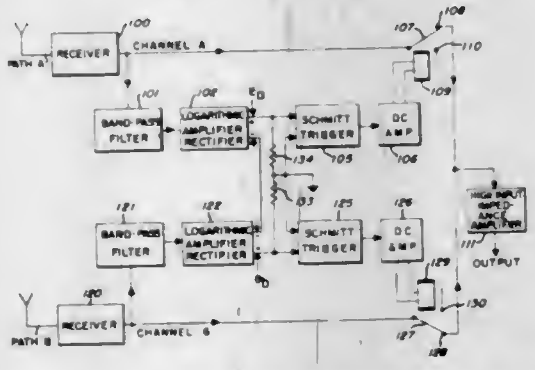
3,305,780
PARALLEL-SERIAL-PARALLEL REGENERATIVE REPEATER FOR PCM SYSTEM
Hiroki Yoshine, Shinagawa-ku, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan
Filed Apr. 30, 1963, Ser. No. 276,961
Claims priority, application Japan, May 4, 1962, 37/17,581
2 Claims. (Cl. 325—38)



1. A regenerative repeating system for pulse-code-modulation distribution-transmission communication comprising means for regenerating code-modulated signals transmitted simultaneously through at least one input-transmission line for each bit slot; means for rearranging the signals thus regenerated into a serial pulse train; and means for distributing the pulses of said pulse train to output transmission lines; the relation between the number *n* of the input transmission lines, the repetition frequency f_n of the input transmission signals, the number *m* of the output transmission lines and repetition frequency f_m of the output transmission signals being

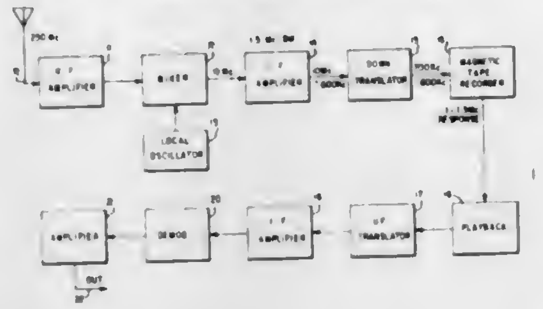
$$(f_n \times n = f_m \times m)$$

3,305,781
DIVERSITY COMBINERS
Peter Robinson, Needham Heights, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Original application Apr. 2, 1963, Ser. No. 269,936. Divided and this application Sept. 9, 1966, Ser. No. 578,399
5 Claims. (Cl. 325—305)



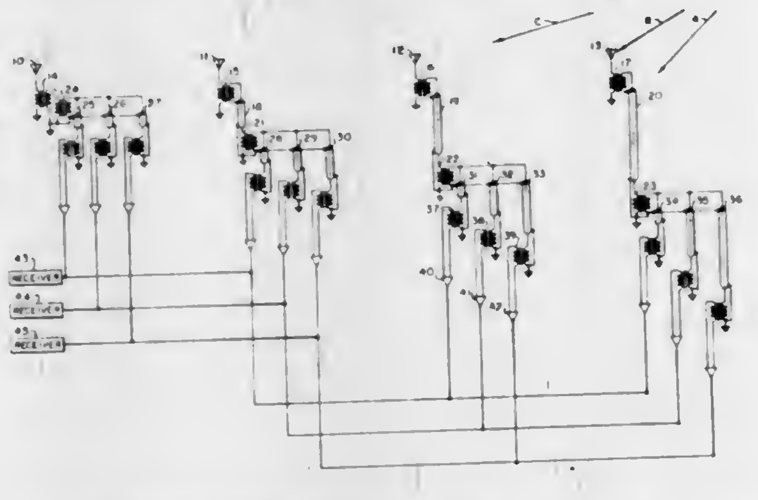
4. A system for combining a plurality of signals representative of a single transmitted signal comprising a plurality of switching devices, each of said switching devices being normally in a low impedance condition, means for permitting one of a plurality of input signals to be applied to each of said switching devices, means for combining said input signals coupled to each of said switching devices, and means for placing selected switching devices in a high impedance condition in accordance with a comparison between a signal representative of the noise power contents of each of said input signals to selectively impede at least one of said input signals from being provided to said means for combining.

3,305,782
METHOD AND APPARATUS FOR PREDETECTION, RECORDING AND PLAYBACK
Raymond S. Rosenberg, Kensington, and Edward E. Swanson, Rockville, Md., assignors to Defense Electronics, Inc., Rockville, Md., a corporation of Maryland
Filed May 25, 1962, Ser. No. 197,712
10 Claims. (Cl. 325—345)



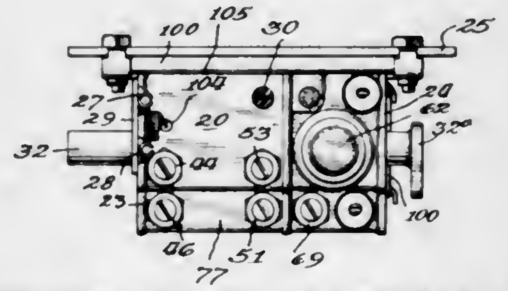
1. The method of recovering information from an intermediate frequency signal containing a high percentage of frequency deviation which comprises the steps of heterodyning said signal down to a frequency approximating the center frequency of said deviation, recording the resulting frequency band, remotely reproducing said recorded signal as a band of frequencies including said deviation bandwidth, recreating said intermediate frequency signal as the sum and difference combination of two quadrature related carrier waves of like magnitude modulated, respectively, by quadrature related versions of the reproduced signal, and demodulating said recreated intermediate frequency signal.

3,305,783
MULTI-DIRECTIONAL ANTENNA SYSTEM
Helmut Brueckmann, Little Silver, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed July 2, 1963, Ser. No. 292,790
1 Claim. (Cl. 325—369)



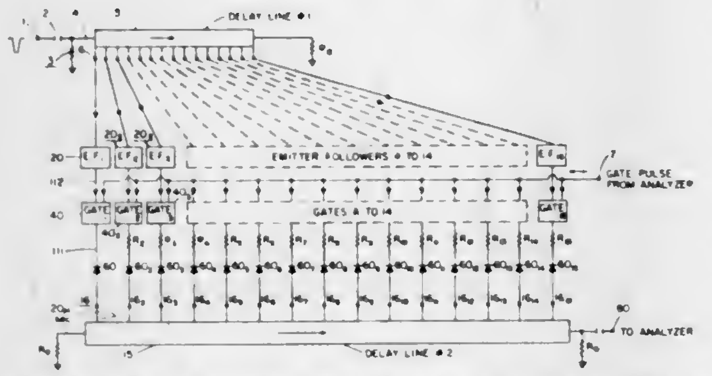
A multi-directional antenna system comprising; a plurality of spaced antennas forming an array; each said antenna having an antenna feed means; a plurality of primary delay lines having differential lengths; each said antenna having a separate one of said primary delay lines at one end connected across said feed means; a plurality of sets of secondary delay lines; said secondary delay lines of each said set having different lengths; a plurality of transformers having primary and secondary coils; the other ends of each said primary delay lines being connected across said primary coil of a separate one of said transformers; each said set having one end of all said secondary delay lines therein connected in parallel with each other and connected across the secondary coil of a separate one of said transformer; a plurality of utilization devices; each said utilization device being coupled to the other end of a separate one of said secondary delay lines of all said sets; and the total delay between each said antenna and each said utilization device being such that signals received by said antennas from a plurality of directions will be in phase at a different utilization device.

3,305,784
UHF TELEVISION TUNER
Edward D. Chalmers, Crystal Lake, John Y. Ma, Algonquin, and Joseph S. Naber, Marengo, Ill., assignors to Oak Electro/Netics Corp., a corporation of Delaware
Filed June 17, 1963, Ser. No. 288,208
14 Claims. (Cl. 325—461)



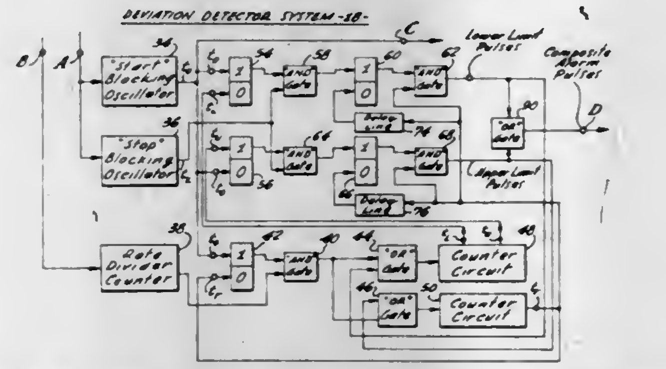
1. A UHF tuner, comprising: a housing of conductive material; a shield in said housing dividing the interior thereof into two compartments; input terminals for connection with an antenna circuit; a first tunable line in one of said compartments and connected with said input terminals for tuning the antenna circuit; a mixer circuit having a portion in each of said compartments and including a second tunable line in said one compartment and in coupled relation with said first tunable line; an oscillator circuit including a third tunable line in said other compartment, said mixer circuit portion in said other compartment being in coupled relation with said oscillator circuit; an output terminal connected with said mixer circuit; and means for tuning said lines.

3,305,785
TIME EXPANDER FOR MULTICHANNEL ANALYZER
Edward E. Carroll, Jr., Bethel Park, Pa., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 26, 1964, Ser. No. 406,635
1 Claim. (Cl. 328—56)



Apparatus for expanding the time scale of a multichannel time distribution analyzer for the measurement of short time period nuclear events comprising an input terminal for receiving successive random input pulses in a continuous series of short time intervals, a series circuit including a capacitor and a resistor for differentiating the pulses, a first delay line connected to said input terminal, the length of said delay line being substantially equal to the time period of said event, a plurality of output taps connected to said first delay line, said output taps being connected at successive equally spaced time delay points on said first delay line with the spacing between two adjacent taps being less than the mean life time of said event, a second delay line substantially longer in time than said first line and having an output at one end thereof, said second delay line having a plurality of successive input pulses which causes the transference of said pulse along the line, the number of said output taps being equal to the number of said input taps, means for individually connecting successive output taps to successive corresponding input taps respectively with individual normally closed gates connecting each output tap to its respective input tap, means for concurrently opening all of said gates for a time period equal to the time delay between adjacent taps on said first delay line, a gating pulse being applied when the first delay line is filled with a train of input pulses which causes the transference of said pulse train to the second delay line, and means for connecting the output of the second delay line to recording apparatus, the recording apparatus including a plurality of signal channels and a plurality of storage channels; means for generating a cyclic time period reference pulse and the gating pulse, only one gating pulse being required to enable all of the gates, means for successively switching said storage channels for sequentially receiving the output of said signal channels at the completion of each time period, the time delay period between successive input taps on the second delay line equalling the cyclic time period.

3,305,786
RATE OF CHANGE THRESHOLD DETECTOR
Lawrence R. Smith, Phoenix, Ariz., assignor to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Feb. 18, 1963, Ser. No. 258,992
13 Claims. (Cl. 328—129)



1. A deviation detector system for indicating deviations in the durations of cyclically repeated time intervals, said system including in combination: first circuit means for producing a pulse indicative of the end of each such time intervals; second circuit means coupled to said first circuit means for producing a lower limit pulse and an upper limit pulse during succeeding ones of said time intervals and time-spaced from one another by a predetermined amount; and control circuitry coupled to said first and second circuit means for producing an alarm pulse whenever said first mentioned pulse occurs before said lower limit pulse and whenever said first mentioned pulse occurs after said upper limit pulse.

3,305,787
PEAK AMPLITUDE PULSE TIME DETECTING CIRCUIT
Robert C. Distler, Sudbury, and Nathan Freedman, West Newton, Mass., assignors to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed June 18, 1963, Ser. No. 288,789
6 Claims. (Cl. 328—151)

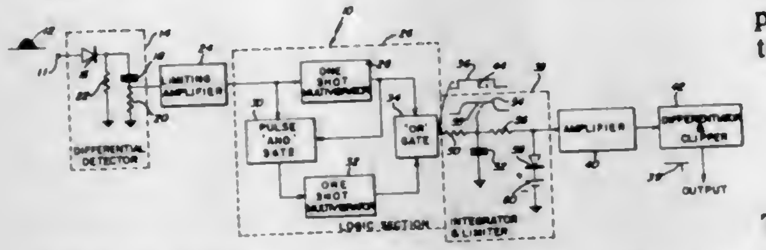
3. A peak time detecting circuit comprising unidirectional current means;

storage means and resistive means connected in series with said unidirectional current means;

said storage means being of a value to become charged by each pulse of a series of pulses of increasing amplitude to substantially the amplitude of said each pulse and connected in circuit with said unidirectional current means;

said resistive means providing an output voltage signal in response to the charging of said storage means;

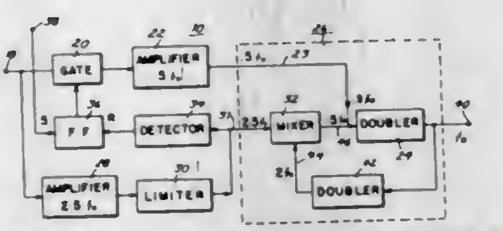
means for discharging said storage means over a time constant greater than the duration of said series of pulses;



means for providing a continuous gating signal in response to an uninterrupted session of output voltage signals;

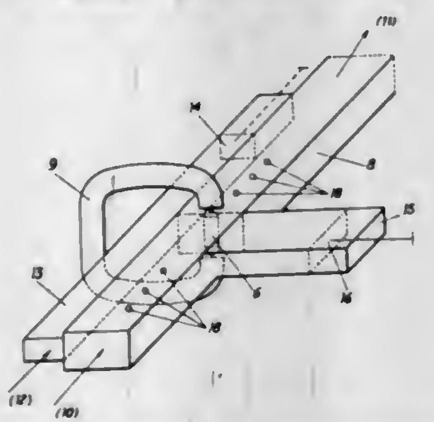
and means for terminating said gating signal a fixed period after the occurrence of the final pulse of said series.

3,305,788
SIGNAL PHASING NETWORK
David E. Sunstein, 464 Conshohocken State Road, Bala-Cynwyd, Pa. 19004
Continuation of application Ser. No. 771,614, Nov. 3, 1958. This application Nov. 25, 1964, Ser. No. 415,855
25 Claims. (Cl. 328—155)



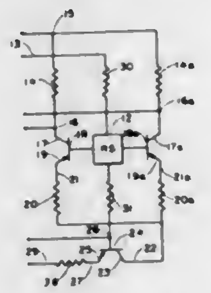
1. A phasing network comprising input means for receiving respective phasing and drive signals, a frequency multiplier circuit adapted to receive from said input means a phasing signal of predetermined frequency for producing an output signal, and a frequency mixing circuit excited by the output signal of said multiplier circuit and adapted to receive from said input means a drive signal having a frequency greater than that of said phasing signal, said mixing circuit delivering its output signal to said multiplier circuit.

3,305,789
UNIDIRECTIONAL HELICON-EFFECT PARAMETRIC AMPLIFIER
Jacques Gremillet, Paris, France, assignor to CSF—Compagnie Generale de Telegraphie San Fil, a corporation of France
Filed Jan. 11, 1966, Ser. No. 519,890
Claims priority, application France, Jan. 19, 1965, 2,442
3 Claims. (Cl. 330—4.9)



1. A unidirectional parametric amplifier comprising: a first waveguide, means for propagating a high frequency signal wave along said waveguide, means for circularly polarizing said signal wave in at least a portion of said waveguide, a diode placed in said portion said diode being made of a semiconductor, in which the helicon effect is easily obtained at the operating signal frequency, means for generating in said portion a direct current magnetic field directed perpendicularly to the plane of polarization of the wave, a pumping source, a second waveguide coupling said pumping source to said first waveguide and a tunable idler circuit coupled to said diode.

3,305,790
COMBINATION HALL-EFFECT DEVICE AND TRANSISTORS
Thomas W. Parsons, Brooklyn, N.Y., and Ziemowit R. S. Ratajski, Cedar Grove, N.J., assignors to General Precision Inc., Little Falls, N.J., a corporation of Delaware
Filed Dec. 21, 1962, Ser. No. 246,399
15 Claims. (Cl. 330—6)



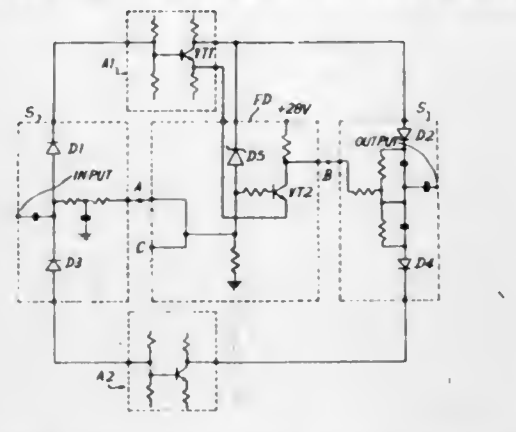
1. An integrated solid-state circuit component, comprising:

a Hall crystal of semi-conductive material of one conductivity-type, said crystal having ohmic current electrodes thereon spaced to pass an electric current along a first axis of the crystal and thus generate a Hall voltage output along a second axis transverse to the first;

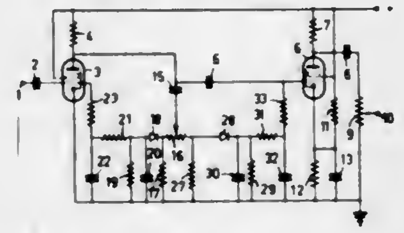
a first and a second region of the opposite conductivity-type forming spaced opposed P-N rectifying junctions in said crystal at a location along said transverse axis, thereby defining a transistor in which the material of the Hall crystal constitutes the base region and, consequently, has the Hall output voltage directly impressed on the transistor base region.

3,305,791
FAULT DETECTING AND SWITCHING CIRCUIT FOR PROVIDING RELIABILITY IN AMPLIFIER CIRCUITS
Brian Sinclair Wolfe and Malcolm Leslie Gilbert, London, England, assignors to Elliott Brothers (London) Limited, London, England
Filed Mar. 9, 1964, Ser. No. 350,314
Claims priority, application Great Britain, Mar. 7, 1963, 9,167/63
6 Claims. (Cl. 330—30)

1. Electronic equipment comprising two similar components arranged for connection alternatively in a signal circuit, switching means in said signal circuit operable to effect said alternative connection, circuit means coupled to only one of said components and operative on failure thereof to actuate said switching means to connect the other said component into the circuit, said one component comprising a first transistor with base, emitter and collector electrodes and said circuit means comprising a second transistor and a Zener diode connected together in combination, which combination has two input terminals connected respectively to two electrodes of the first transistor, the Zener diode having one side connected to one of said input terminals and said circuit means further comprising a series resistor to which the other side of the Zener diode is connected and means connecting the junction of the Zener diode and the series resistor to one input electrode of the second transistor, means connecting the other input electrode of the second transistor to the other input terminal, breakdown conduction of the Zener diode being controlled by the potential difference between said two electrodes of the first transistor and in turn controlling the state of conduction of the second transistor, and output connections from said circuit means coupled to the switching means to control the switching means in response to the states of conductivity of the Zener diode and the second transistor.



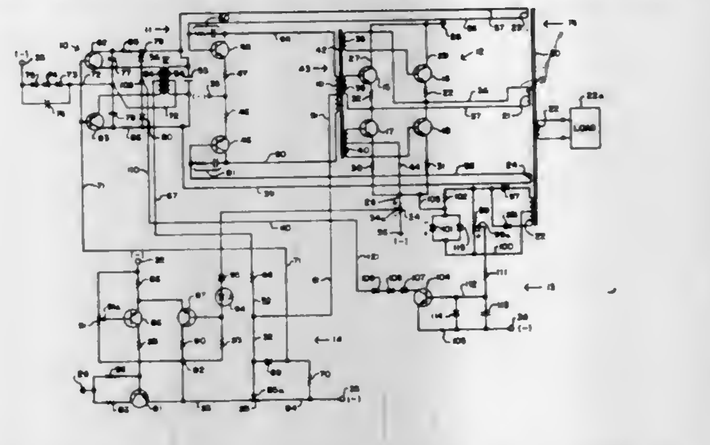
3,305,792
ARRANGEMENT FOR ADJUSTABLE VOLUME CONTROL
Hans-Jürgen Bobzin, Hamburg, Germany, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed June 18, 1963, Ser. No. 288,650
Claims priority, application Germany, July 20, 1962, P 29,867
8 Claims. (Cl. 330—133)



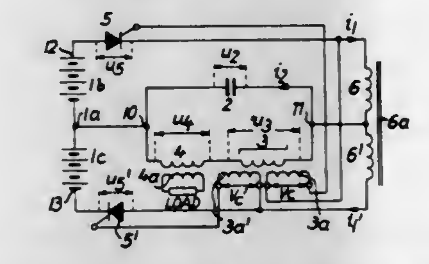
6. An adjustable volume control circuit comprising an amplifier having an input circuit and an output circuit and comprising a controllable amplifier device, a first rectifier circuit connected to said input circuit for producing an expansion control voltage, a second rectifier circuit connected to said output circuit for producing a compression control voltage, a potentiometer connected between said first and second rectifier circuits, said potentiometer having an adjustable arm, means connecting said arm to said controllable device for controlling the amplification therein, whereby the ratio of said expansion and compression control voltages applied to said device depends upon the position of said arm.

3,305,793
D.C. TO A.C. CONVERTER WITH AMPLITUDE REGULATION AND OVERLOAD PROTECTION
Neil A. Kammiller, North Olmsted, Ohio, assignor to Lorain Products Corporation, a corporation of Ohio
Filed Aug. 16, 1965, Ser. No. 480,063
12 Claims. (Cl. 331—62)

10. In a frequency generator adapted to operate from a D.-C. source and having an oscillator, an amplifier, an output transformer provided with primary and secondary windings and means for connecting the output of the oscillator across the primary winding of the outlet transformer through said amplifier, a load being connected across one of said secondary windings, in combination, a control circuit including output voltage responsive means coupled in energy receiving relationship to the output transformer, load current responsive means connected serially in the current path in the amplifier, bistable voltage means coupled in energy receiving relationship to the output transformer, means for connecting said load current responsive means, said bistable voltage means and said output voltage responsive means in circuit relationship to produce a resultant voltage at a point on said output voltage responsive means, switch means, means for connecting said point on said output voltage responsive means to said switch means to control the conduction of said switch means and means for connecting said switch means to said oscillator to de-energize the oscillator when the impedance of said load falls below a predetermined value.



3,305,794
CONTROL RECTIFIER INVERTER WITH RESONANT CIRCUIT AND A CHOKE
Anton Seelig, Weilbach, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Sept. 30, 1964, Ser. No. 400,390
Claims priority, application Germany, Sept. 30, 1963, L 48,984
11 Claims. (Cl. 331—113)

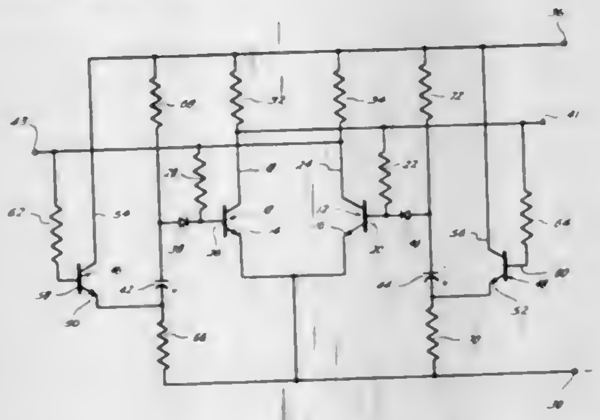


1. An inverter comprising, in combination: a resonant circuit having a capacitor, a resonant circuit inductance, and a choke; and circuit means connecting said resonant circuit to a power supply and including at least one controlled rectifier for periodically charging said capacitor; said choke being a means for preventing the flow of current between said capacitor and said inductance during the periodic magnetic reversals which said choke undergoes while said capacitor is charged by the power supply via said controlled rectifier.

3,305,795
MULTIVIBRATOR FREQUENCY STABILIZED AGAINST VARIATIONS IN SUPPLY VOLTAGE AND LOAD
Fount E. McKee, Houston, Tex., assignor to Tideland Signal Corporation, a corporation of Texas
Filed Mar. 1, 1965, Ser. No. 435,983
5 Claims. (Cl. 331—113)

1. In a free running multivibrator circuit having first and second control switching elements which are connected together and alternately actuated by each other, a first control element connected to the first switching ele-

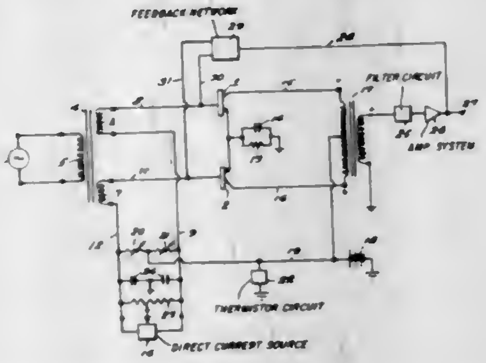
ment, and a second control element connected to the second switching element, the improvement comprising,
- a first diode connected to the first control element passing current towards, but not away from said first control element,
- a second diode connected to the second control element passing current toward, but not away from said second control element,
- a first timing capacitor one side of which is connected to the first diode remote from the first control element,
- a second timing capacitor one side of which is connected to the second diode remote from said second control element,



- a third control switching means connected to said first capacitor on the side remote from said first diode and connected to a voltage source for controlling the charging of said first capacitor, said third switching element connected to and controlled by one of the first and second control switching elements,
- a fourth control switching means connected to said second capacitor on the side remote from the second diode and connected to a voltage source for controlling the charging of said second capacitor, said fourth switching means connected to and controlled by the other of the first and second control switching element,
- a first resistance means connected to said one side of the first capacitor and said voltage source, and
- a second resistance means connected to said one side of the second capacitor and said voltage source.

3,305,796
TRANSISTOR MODULATOR-AMPLIFIER

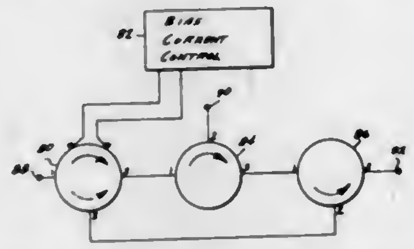
Toivo A. Somer, Detroit, Mich., and Thomas L. Francis, Dallas, Tex., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Sept. 19, 1961, Ser. No. 139,318
2 Claims. (Cl. 332—44)



1. A modulator amplifier circuit comprising:
- (a) first and second transistors, said first and second transistors each having an emitter, collector and base electrode;
- (b) a first source of alternating signals;
- (c) an input transformer having a primary winding and first and second secondary windings, each of said windings having two terminals, said first and second secondary windings being wound to produce an in phase signal at one terminal thereof when the first source of alternating signal is connected to said input transformer primary winding;
- (d) means connecting said first source of alternating signal to said input transformer primary winding;
- (e) conductor means connecting said one terminals of the first and second secondary windings to the base electrodes of said first and second transistors respectively;
- (f) biasing means, said biasing means being adjustable to provide for independent variation of each of said first and second transistors in the quiescent range of operation thereof;
- (g) conductor means connecting said biasing means to the other terminals of the first and second secondary windings;
- (h) an output transformer having a primary and a secondary winding, said primary winding being of the center tap type;
- (i) conductor means connecting outputs from the collector electrodes of said first and second transistors to the ends of the output transformer primary winding;
- (j) a power supply means connected to the center tap of said output transformer primary winding, said power supply means including a stabilizing thermistor network connected thereto to prevent undesired variations in the circuit due to external temperature variations;
- (k) means for connecting the emitter electrodes of said first and second transistors to a common ground;
- (l) a second source of signals connected directly to said biasing means, wherein any variation in said second source of signal varies the output appearing in the output transformer secondary winding; and
- (m) a feedback circuit connected between said output transformer secondary winding and said base electrodes of the first and second transistors, wherein a portion of said output is fed back to said base electrodes.

3,305,797
MICROWAVE SWITCHING NETWORKS

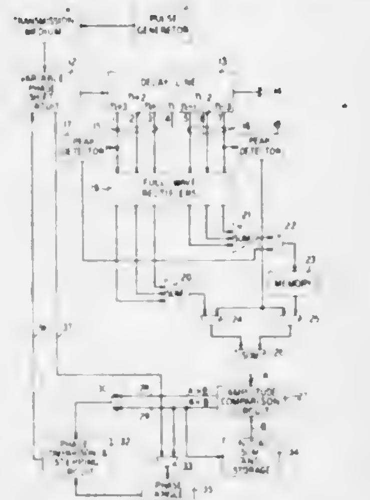
Alvin Clavin, Calabasas, Calif., assignor to Emerson Electric Company, St. Louis, Mo.
Filed Apr. 24, 1964, Ser. No. 362,401
8 Claims. (Cl. 333—1.1)



1. Reciprocal single pole-double throw microwave switch network of the character having input and first and second output terminals and comprising: first nonreciprocal microwave junction ferrite circulator of the character including externally controllable means integrally associated therewith for selectively causing nonreciprocal microwave circulation therewithin, and for reversing the sense of rotation of circulation associated therewith and having first, second and third ports; second nonreciprocal circulator having first, second and third ports; and third nonreciprocal circulator having first, second and third ports, said first port of said first circulator being connected to said network input terminal, said second port of said first circulator being coupled to said first port of said second circulator, said third port of said first circulator being coupled to said second port of said third circulator, said second port of said second circulator being coupled to said network first output terminal, said third port of said second circulator being coupled to said first port of said third circulator, and said third port of said third circulator being coupled to said network second output terminal.

3,305,798
PHASE EQUALIZER CONCATENATED WITH TRANSVERSAL EQUALIZER WHEREIN BOTH ARE AUTOMATICALLY CONTROLLED TO MINIMIZE PULSE DISTORTION AND MINIMIZE BURDEN OF TRANSVERSAL FILTER

Michael A. Rappeport, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 27, 1963, Ser. No. 334,051
12 Claims. (Cl. 333—18)

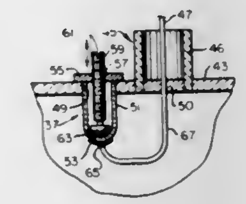


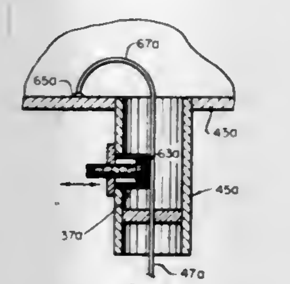
1. Apparatus for correcting phase-distortion imposed upon a communication signal of multiple frequency content by a transmission medium comprising
- a pulse signal source connected to one end of said transmission medium,
- a variable phase-shift network connected to the other end of said transmission medium,
- a tapped delay line driven by said network,
- means for normalizing the outputs from each tap on said delay line,
- first means for summing and storing the normalized outputs of all taps to one side of the center tap when the peak pulse amplitude is detected at the remotest tap on the other side of said delay line,
- second means for summing the normalized outputs of all taps to the other side of the center tap when the peak pulse amplitude is detected at the remotest tap on the one side of said delay line,
- third means for summing the stored output of said first summing and storing means and the sum output from said second summing means, and
- means responsive to the output of said third summing means for adjusting said phase-shift network.

3,305,799
ADJUSTABLE COUPLER FOR ELECTRON TUBES; ADJUSTMENT MADE OUTSIDE THE VACUUM AND THROUGH A DIELECTRIC VACUUM SEAL

Martin E. Levin, Burlingame, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California
Filed June 12, 1963, Ser. No. 287,322
2 Claims. (Cl. 333—24)

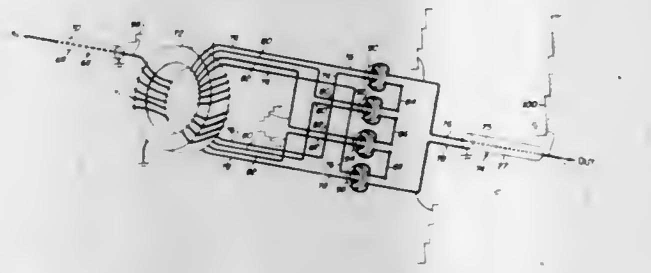
1. An adjustable coupler for extracting energy from an electromagnetic circuit of the type having a conductive wall defining an electromagnetic energy confining circuit comprising a loop insulated from said wall and disposed in said circuit in coupled relationship to the fields of the electromagnetic energy, and connected directly to the center conductor of a coaxial output transmission line, a cylindrical dielectric member having an open end mounted on said wall and a closed end extending into said circuit, a 1st conductive member disposed within said cylindrical dielectric member and mounted directly on said conductive wall for axial movement with respect to said dielectric member, and a 2nd conductive member affixed to said dielectric member and to one end of said loop, said 2nd conductive member being capacitively coupled through the dielectric member to said 1st conductive member whereby the capacitance between said 1st and 2nd conductive member is variable and placed in series with said loop.





3,305,800
ELECTRICAL TRANSFORMER CIRCUIT

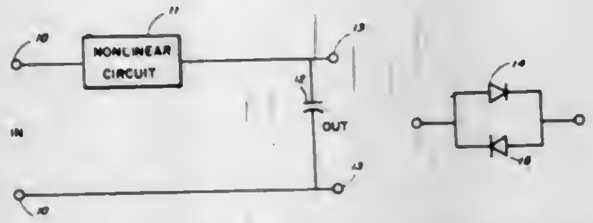
Willem B. Velsink, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Aug. 15, 1963, Ser. No. 302,343
6 Claims. (Cl. 333—32)



1. An electrical transformer circuit, comprising:
- a main transformer core of magnetic material;
- a primary winding providing at least one primary turn for said main core;
- a plurality of secondary windings wound in the same direction about said main core and providing at least one secondary turn with first and second ends for each secondary winding, said secondary windings being connected together in series by at least one short circuit connection between first end of one secondary winding and the second end of another secondary winding and having the second end of said one secondary winding and the first end of the other secondary winding connected as output leads to a pair of output terminals; and
- a plurality of isolation cores of magnetic material positioned with a different one of said isolation cores associated with the opposite ends of each of said secondary windings between said short circuit connections and said main core, to delay signal reflections from the short circuit connections back to the main core and to add the induced voltages produced at the opposite ends of said secondary windings by an input signal applied to said primary winding in order to generate an output voltage at said output terminals which is the sum of said induced voltages.

3,305,801
VARIABLE TIME CONSTANT SMOOTHING CIRCUIT

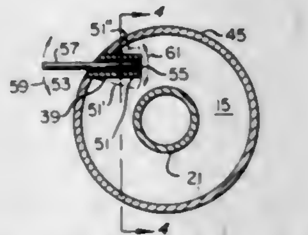
Raymond George Hartenstein, Seabrook, Md., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 6, 1964, Ser. No. 388,023
2 Claims. (Cl. 333—79)



1. A pulse smoothing network comprising: the combination of a non-linear circuit in series with a capacitor element for eliminating random noise from a pulse input signal; said non-linear circuit having a V–I characteristic curve with a high resistance slope to a knee followed by a low resistance slope in the first quadrant and a high resistance slope to a knee followed by a low resistance slope in the third quadrant of a Cartesian co-ordinate system; the input to said network being applied to said series combination; and the output from said network being taken across said capacitor element.

3,305,802
ELECTRON TUBE WITH RESONATOR TUNING BY DEFORMATION OF AN INTERNAL TUBULAR MEMBER

George M. W. Badger, Menlo Park, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California
Filed May 27, 1963, Ser. No. 283,210
5 Claims. (Cl. 333—83)



1. In a klystron tube of the type having interaction gaps surrounded by resonant cavities defined by one or more walls, an elongated hollow member of deformable metal having one end secured to a cavity wall and its other end extending into the cavity in cooperative relationship with the interaction gap in said cavity, said elongated hollow member having no portion which extends outside of said cavity, and means including means defining an opening through said cavity wall communicating with the interior of said hollow member for adjusting from outside the cavity the position within the cavity of said elongated hollow member to thereby permit tuning of the cavity.

3,305,803
LOW THERMAL E.M.F. CONTACTOR

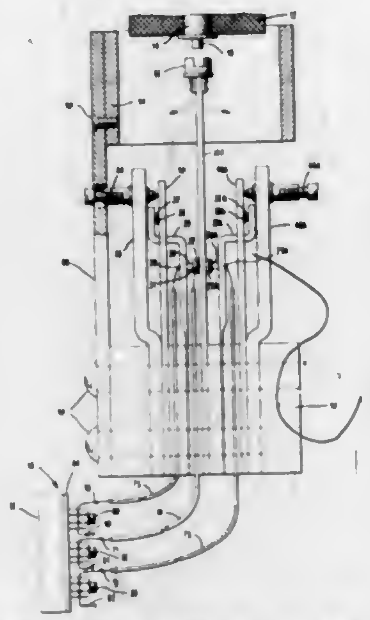
Thomas T. Highley, Jr., Philadelphia, and James J. Hitt, Willow Grove, Pa., assignors to Leeds & Northrup Company, a corporation of Pennsylvania
Filed Apr. 2, 1965, Ser. No. 445,126
24 Claims. (Cl. 335—97)

20. An electrical contacting apparatus for switching low level circuits without introducing significant thermoelectric E.M.F.'s comprising

a first contact structure having a contact element and a supporting element of dissimilar metals,

a second contact strucutre for establishing electrical contact with said first contact structure, and

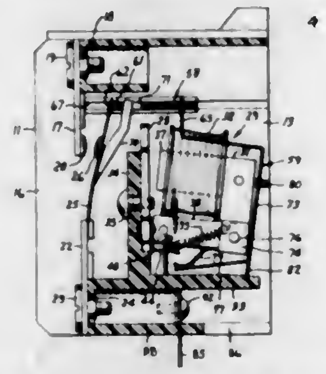
a leadwire of metal having similar thermoelectric characteristics with the metal of said contact element,



said leadwire being connected to said first contact structure in such close proximity to said contact element that the net thermoelectric E.M.F. in the circuit formed by said contact structures is substantially zero.

3,305,804
MAGNETIC CONTACTOR WITH MOVABLE ELECTROMAGNET

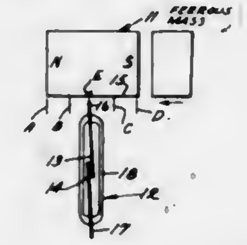
Philip G. Hughes, Bloomington, Ill., assignor to General Electric Company, a corporation of New York
Filed July 9, 1965, Ser. No. 470,831
13 Claims. (Cl. 335—148)



1. A magnetic contactor comprising in combination, an insulating housing, a magnetic armature fixed to the housing, an electromagnet including a magnetic core and a coil on the core, means mounting said electromagnet for movement relative to said armature, means biasing said electromagnet away from said armature, said electromagnet being moved toward said armature in response to energization of said coil, fixed contact means supported by said housing, movable contact means, resilient means supporting said movable contact means for movement relative to said fixed contact means, said resilient means normally biasing said movable contact means out of engagement with said fixed contact means and being deflectible to move said movable contact means into engagement with said fixed contact means, a contact actuator operatively connected to said electromagnet for effecting movement of said movable contact means, and means on said housing mounting said actuator for movement in response to movement of said electromagnet to deflect said resilient means and move said movable contact means relative to said fixed contact means, said armature and said actuator comprising flat plates lying in planes generally perpendicular to each other, said movable contact means being movable in directions generally parallel to the plane of said actuator.

3,305,805
PROXIMITY SWITCH

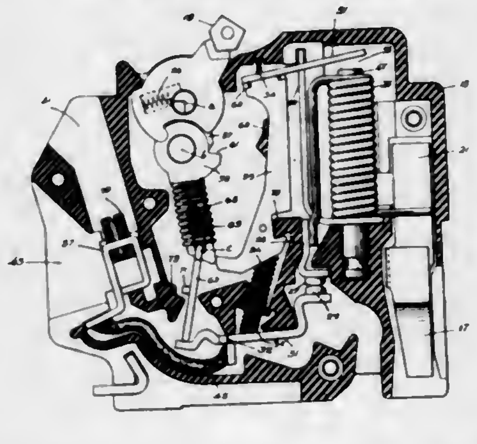
David Tann, 333 Covington Road, Detroit, Mich. 48203
Filed Nov. 14, 1963, Ser. No. 323,637
15 Claims. (Cl. 335—153)



1. A magnetically operated sensing device for detecting the presence of a ferrous mass comprising a housing, a magnet mounted in said housing having a north and a south pole face, and a reed switch, said housing having a plurality of elongated chambers each adapted to retain one end of said reed switch substantially against a surface of said magnet at different positions between said pole faces, said reed switch being positioned in one of said chambers, said reed switch being actuatable from an open to a closed position by a ferrous mass moved into proximity with one of said pole faces, when positioned in another of said elongated chambers said reed switch being actuatable from a closed to an open position by a ferrous mass moved into proximity with one of said pole faces.

3,305,806
AUTOMATICALLY RESETTABLE CIRCUIT BREAKER HAVING TWO SERIALLY CONNECTED TOGGLES

Alexander R. Norden, New York, N.Y., assignor to Murray Manufacturing Corporation, Brooklyn, N.Y., a corporation of New York
Filed Aug. 7, 1964, Ser. No. 388,259
19 Claims. (Cl. 335—174)



1. In a circuit breaker of the type having a pivoted manually operable handle, a pair of complementary contact members, one of which is movable relative the other and biased apart therefrom, and a current responsive means for tripping the breaker upon overload, the improvement therein for producing a quick make of contacts and tripping the breaker upon overload comprising:

(a) a toggle assembly connected to said handle and extending toward said movable contact member, said assembly having a lost motion energy storing link;

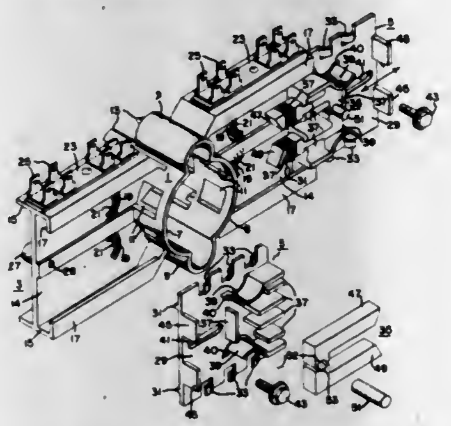
(b) means for causing said link to store energy upon manual handle rotation; and

(c) means for releasing a portion of said energy substantially instantaneously at a predetermined handle displacement as a rectilinear thrust finally bearing upon said movable contact and closing it, said means including means adjacent an intermediate portion of said toggle assembly for causing said assembly to assume a knee-out position subsequent to the release of said energy portion, and

(d) a trip lever releasably latched against movement by the current responsive means and contacting said knee for restraining further lateral motion thereof: whereby said trip lever is released by said current responsive means, said knee may move out, removing the force upon said biased contact member thereby causing contact separation.

3,305,807
CONVERGENCE APPARATUS WITH CONVERGENCE MEMBERS ON OPPOSITE SURFACES OF FLAT MEMBERS

Robert B. Ashley, Raymond S. Joseph, and James V. Vaccaro, Syracuse, N.Y., assignors to General Electric Company, a corporation of New York
Filed July 2, 1965, Ser. No. 469,161
10 Claims. (Cl. 335—210)



1. An electron beam convergence apparatus for use with a cathode ray tube including a neck traversed by a plurality of electron beams, said apparatus comprising;

(a) a generally cylindrical member adapted to encircle the neck of the cathode ray tube in engagement therewith,

(b) a generally flat body member integral with said generally cylindrical member and extending generally transverse thereto,

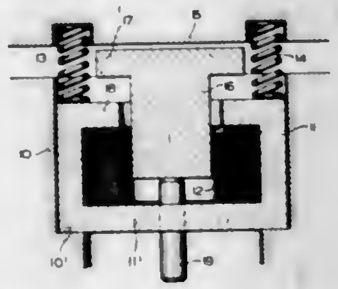
(c) a plurality of magnetic core members mounted to opposite surfaces of said body member and arranged about said cylindrical member in spaced relationship one with the other to control the convergence of the electron beams.

3,305,808
ARRANGEMENT FOR THE PROTECTION OF ACTUATING ELECTROMAGNETS OPERATED BY ALTERNATING CURRENT AGAINST OVERHEATING

Gerhard Widl, Ditzingen, Wurttemberg, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed May 18, 1965, Ser. No. 456,717
Claims priority, application Germany, May 23, 1964, B 76,896
9 Claims. (Cl. 335—243)

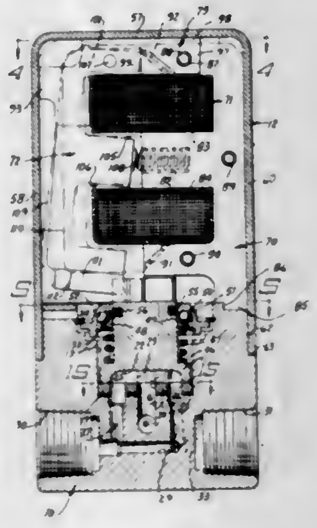
1. Arrangement for the protection of actuating electromagnets operated by alternating current against overheating comprising, in combination, support means having an abutment face; an electromagnet including a yoke normally supported on said abutment face of said support means and being slidably guided by said support means movably away from and toward said abutment face, and a magnet winding carried by said yoke and adapted to be connected to a source of alternating current for energizing said electromagnet; an armature separated by an air gap from said yoke to be moved along

a working stroke when said magnet is energized by an alternating current, whereby the current drawn by said winding is greater at the beginning and smaller at the end of said working stroke; connecting means engaging said armature and being adapted to be connected to an element to be moved by said armature during movement of the latter along said working stroke; and spring means operatively connected to said yoke and arranged and constructed to yieldably press said yoke against said abutment face with a force which at any position of said magnet and said armature relative to each other is smaller than the magnetic force in said air gap but greater than the force to be exerted by said magnet to move under normal operating conditions said armature through its working stroke, whereby when after energizing of said winding said armature is prevented from moving along said working stroke due to jamming or the like of the element connected thereto, said yoke and said winding carried thereby may move against the force of said spring means relative to said armature to a position in which the current drawn by said winding is reduced to prevent thereby overheating of the latter.



3,305,809
SOLENOID WITH SWINGABLE ARMATURE

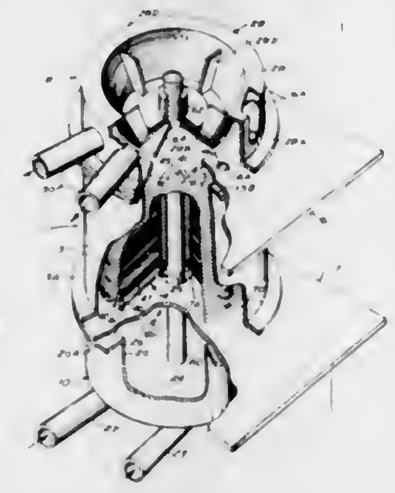
Walter D. Ludwig, Bloomfield Township, Oakland County, Mich., assignor to Mac Valves, Inc., Oak Park, Mich., a corporation of Michigan
Filed Sept. 23, 1964, Ser. No. 398,806
4 Claims. (Cl. 335—250)



1. A solenoid comprising:
- (a) a tubular housing having elongated side walls and being open at one end and closed at the other end by an end wall;
- (b) an E-shaped core in said housing having an inner end adjacent the end wall of the housing;
- (c) a coil supported by said core and centering said core in said housing;
- (d) a bracket in said housing abutting the closed end wall of the housing and having one end connected to said core at the inner end thereof and the other end abutting one of the housing side walls and retaining the assembly of the core and coil in said housing;
- (e) an E-shaped swingable armature having an inner end swingably mounted on said bracket, and an outer end adjacent the open end of the housing; and,
- (f) said swingable armature being provided with a projecting operating member which is moved radially inward when the coil is energized.

3,305,810
SOLENOID CONSTRUCTION

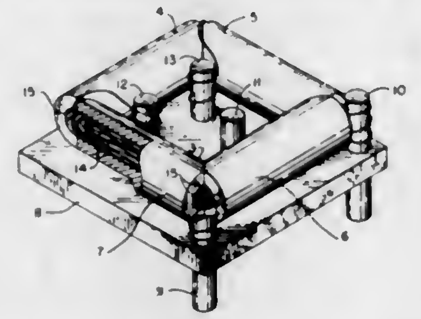
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Rudolph Rust and Ronald M. Noble
Filed Nov. 24, 1964, Ser. No. 413,662
5 Claims. (Cl. 335—300)



1. In a solenoid construction, a coil; said coil including two interleaved spaced spirals of generally flat conducting material with the planes of the flat material of said spirals extending generally parallel; insulating material between a first series of alternate spacings between adjacent convolutions of said spirals; spacer means between a second series of alternate spacings between adjacent convolutions of said spirals; the last mentioned convolutions spaced by spacer means comprising the turns of said coil; said spacer means extending generally radially of said coil and defining with each of said turns a radial fluid flow passage extending radially of the coil, said spacer means comprising a series of radially extending metallic bars contacting said adjacent convolutions which define a turn of said coil.

3,305,811
BROAD BAND RADIO FREQUENCY TRANSFORMER

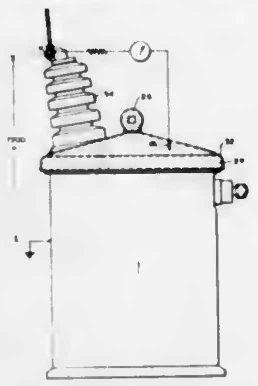
John H. Toombs, Rochester, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Mar. 25, 1965, Ser. No. 442,833
8 Claims. (Cl. 336—83)



4. A wide band radio frequency transformer comprising a plurality of hollow ferrite core elements arranged end-to-end to form a closed loop with one or more windings threaded through the cavity formed by said plurality of core elements.

3,305,812
RESIN COATED HARDWARE AND TANK COVERS FOR DISTRIBUTION TRANSFORMERS

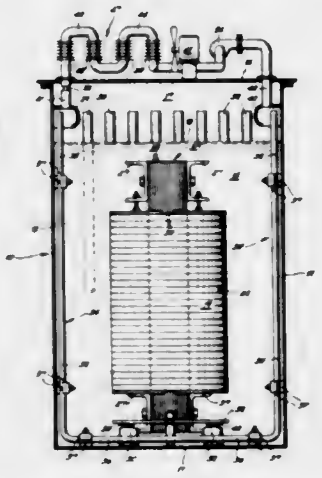
Thomas L. Macchia, Farrell, and George W. Minor, Sharon, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 6, 1962, Ser. No. 242,782
8 Claims. (Cl. 336—90)



1. In a distribution transformer having a tank cover at ground potential and means proximate to the cover at a high potential, the cover and proximate means so disposed that small animals can form a bridge between the cover and the proximate means and be electrocuted by a current surge, the improvement comprising a melt-flowed resinous coating of a thickness of from 10 to 30 mils deposited on the cover so that the current through an animal bridging the coated cover and the proximate means is only enough to drive the animal from the transformer but not enough to electrocute the animal.

3,305,813
COOLING AND NOISE REDUCING ARRANGEMENT FOR STATIONARY INDUCTION APPARATUS

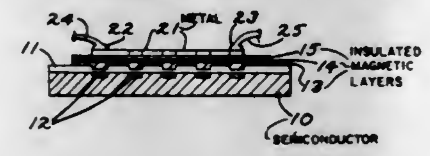
Lawrence R. Toothman, Houston, and Leo S. La Sota, Carnegie, Pa., assignors to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Nov. 21, 1961, Ser. No. 154,006
9 Claims. (Cl. 336—100)



1. In combination, a tank, an insulating dielectric liquid partially filling said tank, a gaseous dielectric medium filling said tank above said liquid dielectric, a transformer core and coil assembly immersed in said liquid dielectric within said tank and including a magnetic core and electrical windings linking said core, means for reducing the vibratory forces originating in said magnetic core transmitted by said dielectric liquid tending to vibrate the walls of said tank including a plurality of elongated, hollow, thin-walled spaced apart, U-shaped, compliant tubes of high thermal conductivity immersed in said dielectric liquid adjacent the bottom wall and sidewalls of said tank and having open ends in communication with said gaseous medium, intake and exhaust manifolds each of which registers with one open end of said tubes, means including conduit means communicating with said manifolds for inducing circulation of said gaseous medium through said tubes, and means in said conduit means for cooling said gaseous medium after it has circulated through said tubes.

3,305,814
HYBRID SOLID STATE DEVICE

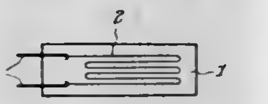
Richard H. Moyer, Southampton, Pa., assignor, by mesne assignments, to United Aircraft Corporation, a corporation of Delaware
Original application Aug. 7, 1963, Ser. No. 300,548. Divided and this application Dec. 21, 1965, Ser. No. 535,622
2 Claims. (Cl. 336—200)



1. A micro inductor having a magnetic core comprising a substrate of semiconducting material,
- a plurality of spaced conductors integrated within the substrate and electrically insulated from the surface of the substrate,
- a thin layer of magnetic material supported by the substrate and overlying the integrated conductors,
- and a series of thin film conductors supported over the magnetic layer and having portions passing through the surface of the substrate to interconnect the integrated conductors within the substrate and form a continuous conducting path encircling the magnetic layers.

3,305,815
STRAIN GAUGES

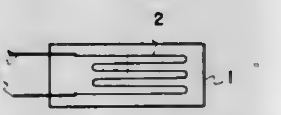
Toshio Doi, Minamitama-gun, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company
Filed July 9, 1964, Ser. No. 381,438
Claims priority, application Japan, July 13, 1963, 38/38,299
2 Claims. (Cl. 338—2)



2. In a strain gauge device consisting of a strain element, leads, and a backing strip, an improvement wherein a ternary alloy of platinum, rhodium and osmium is used as said strain element, said alloy being composed of 45 to 90 atomic percent platinum, 10 to 45 atomic percent rhodium, and 0.1 to 10 atomic percent osmium.

3,305,816
TERNARY ALLOY STRAIN GAUGE

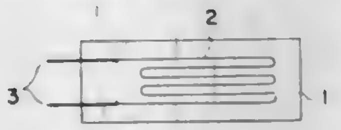
Toshio Doi, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed Jan. 27, 1965, Ser. No. 428,430
Claims priority, application Japan, Feb. 8, 1964, 39/6,478
3 Claims. (Cl. 338—2)



1. A mechano-electrical strain gauge having at least one filament made of a ternary allow which consists essentially of 20–60 atomic percent platinum, 20–60 atomic percent palladium, and 5–30 atomic percent iridium.

3,305,817
ELECTRIC STRAIN GAUGE HAVING PLATINUM-PALLADIUM - MOLYBDENUM ALLOY FILAMENT

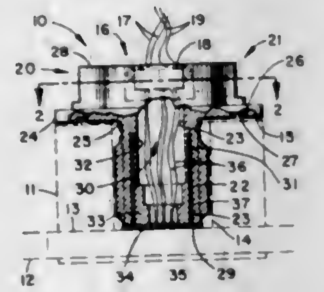
Toshio Doi, Minamitama-gun, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed Mar. 25, 1965, Ser. No. 442,598
Claims priority, application Japan, Apr. 2, 1964, 39/8,297
3 Claims. (Cl. 338—2)



1. An electric strain gauge comprising at least one filament made of a ternary alloy consisting of 15–80 atomic percent platinum, 15–80 atomic percent palladium, and 2–15 atomic percent molybdenum.

3,305,818
SENSOR STRUCTURE

Leo Brueggeman, Pasadena, and Will Timm, Altadena, Calif., assignors, by mesne assignments, to Electro-Optical Systems, Inc., Pasadena, Calif, a corporation of California
Filed Dec. 23, 1964, Ser. No. 420,697
5 Claims. (Cl. 338—4)



1. A simple, sensitive sensor structure which supports its sensor element while substantially protecting it from external stresses on the structure comprising:

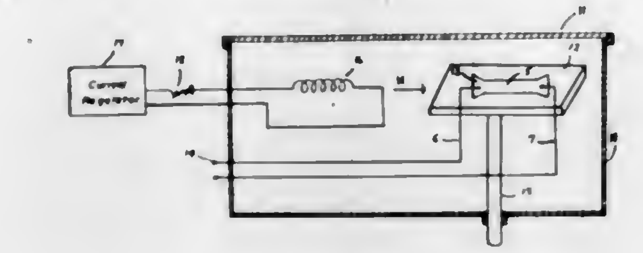
(a) a housing including a cylindrical shaft having an outer end and an inner end and said inner end is adapted to be inserted into a body being measured, said shaft having an axial bore therethrough; and,

(b) a sensor element including a sleeve positioned substantially coaxially with and integrally joined at its first end to said shaft, said sleeve and the inner portion of said shaft bore being formed from a single body by a circumferential groove in the inner end of said shaft, a diaphragm mounted over the second end of said sleeve, and at least one strain gauge mounted on the upper surface of said diaphragm.

3,305,819
SUPERCONDUCTOR DEVICES

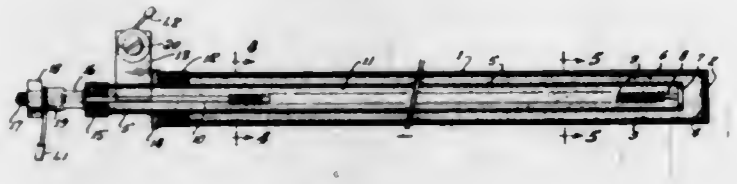
John Chadwick Brice, Copthorne, and David Reginald Tilley, Tilgate, England, and Gerardus Josephus Van Gurp and Cornelis Willem Berghout, Geldrop, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y.
Filed Sept. 8, 1965, Ser. No. 485,679
Claims priority, application Great Britain, Sept. 9, 1964, 36,907/64
19 Claims. (Cl. 338—32)

1. A device comprising a single crystal consisting of a Type 2 superconductor material having a noncubic crystal lattice structure, said crystal exhibiting a lower and an upper critical magnetic field value, first and second conductors connected to said crystal, means for maintaining said crystal at a temperature below the critical temperature of the superconductor material, means for applying a magnetic field to said crystal which is greater than said lower critical magnetic field value of the crystal, means for relatively moving said crystal and field applying means so that the orientation of the magnetic field relative to the crystal axis can be varied thereby to cause the resistance of said crystal to vary between a first and a second value of resistance.



3,305,820
RESISTANCE HEATING ELEMENT

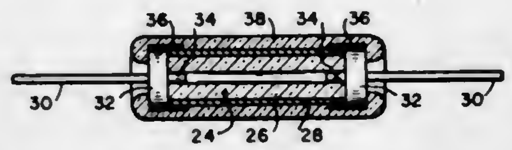
Thomas H. Lennox, 1947 Via Santiago, Corona, Calif. 91720
Filed Mar. 23, 1964, Ser. No. 354,070
4 Claims. (Cl. 338—240)



1. A resistance heating element for operation at temperatures in excess of 1600° F. comprising an elongated, first tubular metal outer sheath means comprising a tubular inner component formed of steel having no chromium content and a tubular outer component formed of a chromium containing alloy coextensive with and tightly embracing said inner component, said first outer sheath means including front and rear end portions, said alloy being capable of remaining structurally stable at temperatures at which said inner component loses structural stability, the front end portions of said tubular inner and outer components each being provided with end closure members of a material compatible with the inner and outer components, respectively, a second elongated tubular metal inner sheath means disposed in spaced coaxial relation within said outer sheath means including front and rear ends, electrically conductive metallic means forming a closure for said front end of said second inner sheath means, an electrical resistance assembly disposed in spaced coaxial relation within said second inner sheath means, one end of said electrical resistance being connected to said closure means, a first mass of compacted magnesium oxide disposed between and holding said outer and inner sheath means in spaced parallel relation, a second mass of compacted magnesium oxide disposed in and filling said inner sheath means and holding said resistance assembly in said spaced coaxial relation therein, the rear end portion of said first outer sheath means and said inner sheath means being provided with insulating closing means to prevent the entrance of atmosphere into said first mass and said second mass of magnesium oxide, and terminal means for completing an electrical circuit through said electrical resistance assembly and inner sheath means.

3,305,821
GLASS-SEALED ELECTRICAL RESISTOR

John C. Manley, Bradford, Pa., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Oct. 3, 1963, Ser. No. 313,513
3 Claims. (Cl. 338—275)



1. An electrical resistor comprising

(a) a resistor element comprising a coating of metallic oxide applied to a vitreous substrate having a substantially cylindrical shape,

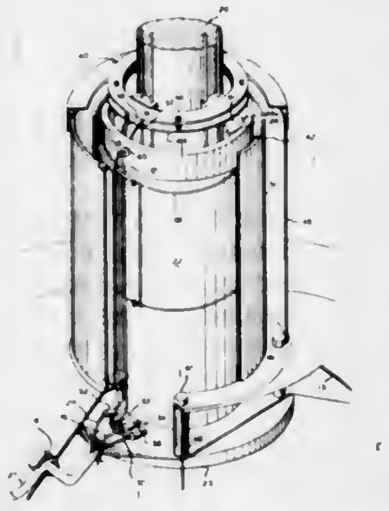
(b) a pair of leads each having a disc at one end thereof, said leads being disposed with the disc adjacent the ends of said element along the longitudinal axis thereof,

(c) a band of conductive material disposed about each junction of said discs and said element, and

(d) a continous adherent impervious coating of glass sprayed over said element and a portion of said discs, said discs being maintained adjacent said ends in electrical contact with said element through the bands of conductive material by said coating of glass.

3,305,822
ELECTRICALLY SUPPLIED BARBER CHAIR

John A. Dlouhy, Oak Park, and Charles L. Redfield, Downers Grove, Ill., assignors to Emil J. Paidar Company, Chicago, Ill., a corporation of Illinois
Filed Oct. 14, 1963, Ser. No. 315,956
8 Claims. (Cl. 339—5)



1. In a barber chair having a base including a cylinder and a piston member slidably carried in the cylinder and supporting a chair thereon for rotational and elevational movement, the combination comprising,

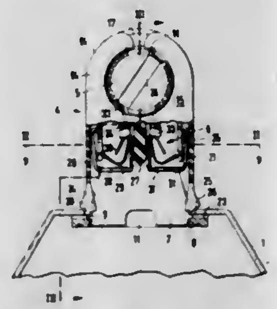
first rigid electrical conductor means carried by the base for connecting to a source of electric power,

second rigid electrical conductor means comprising a pair of vertical rods carried by and mounted in fixed assembly on the chair for elevational and rotational movement therewith,

a carrier member mounted on said rods for slidable engagement therewith and having passages therein, each of said passages opening at one end thereof to one of said rods and at the other end thereof to said first electrical conductor means, brush members slidably carried in said passages and engageable with said first electrical conductor means and with one of said rods for providing an electrical connection therebetween, and biasing means in said passages for biasing said brush members into engagement with said first conductor means and said rods, said brush members being only elevationally movable relative to one of said electrical conductor means and being only rotatably movable relative to the other of said electrical conductor means.

3,305,823
LIGHTING FIXTURE SUPPORT FOR A TUBULAR ELECTRIC LAMP

Hermann Dahlhaus, Am Ramsberg 12a, Ludenscheid, Germany; Horst Günter Nachtrodt, Am Brutenberg 37, Ludenscheid-Bierbaum, Germany; and Fritz Knüppel, Hoher Strasse 24, Stuttinghausen, Germany
Filed Mar. 17, 1966, Ser. No. 535,224
Claims priority, application Germany, Oct. 5, 1961, V 21,412; June 1, 1962, V 22,594
17 Claims. (Cl. 339—53)



1. A lamp holder for use in a lighting fixture for a tubular electric lamp comprising, in combination:

(a) a unitary shell having a base portion and a receptacle portion,

(1) the base portion having a face,

(2) the receptacle portion having a front wall, a rear wall, and two side walls connecting the front and rear walls, said walls extending from said base portion in a direction transverse to said face and defining a cavity in said receptacle portion, said base portion being formed with an opening therein communicating with said cavity,

(3) said side walls defining respective shoulders on said face and being each formed with a substantially U-shaped slot therethrough, the U-shape being open in said transverse direction away from said face, and the slot defining a tong portion of the side wall,

(4) said tong portion being resiliently pivotable relative to the remainder of the side wall inward and outward of the cavity, and normally projecting from said remainder in an outward lateral direction, and having a cam face opposite an associated shoulder when in the normal position thereof, and

(5) said front wall being formed with a lamp receiving opening having an axis substantially parallel to said face;

(b) two contact assemblies arranged in said cavity for simultaneous engagement with respective portions of a lamp received in said opening of the front wall; and

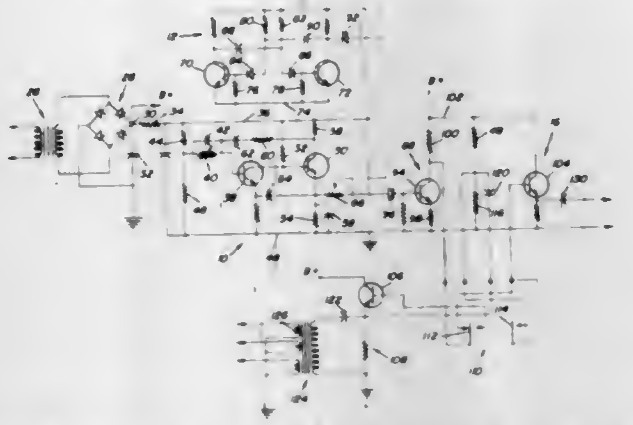
(c) securing means securing said assemblies to said receptacle portion.

3,305,824
PEST REPELLING DEVICE

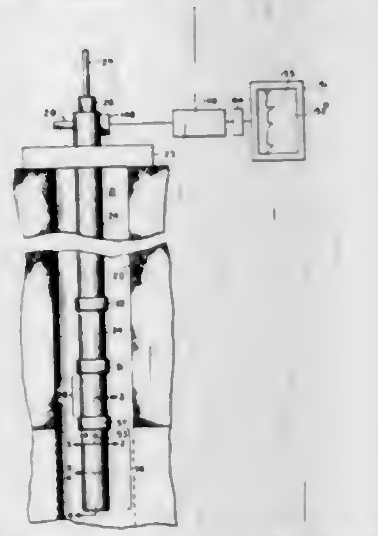
Miles N. Brooks, 938 Robbins Ave., Niles, Ohio 44446, and Walter H. Nelsen, 5515 W. Meadowbrook, Phoenix, Ariz. 58031
Filed Aug. 9, 1965, Ser. No. 478,318
10 Claims. (Cl. 340—15)

1. In combination with a signal generator, a plurality of continuously operative transducers for emitting audio frequency energy and means for distributing signal energy

to the transducers from the generator comprising, signal amplifying means connected to the generator for amplifying the signal energy to a regulated level, gating means connected to said amplifying means for intermittently interrupting operation thereof, a plurality of output units respectively connected to different groups of transducers, and switch means operatively connecting said signal amplifying means to the output units for synchronizing the amplified signal energy fed to all of the output units.

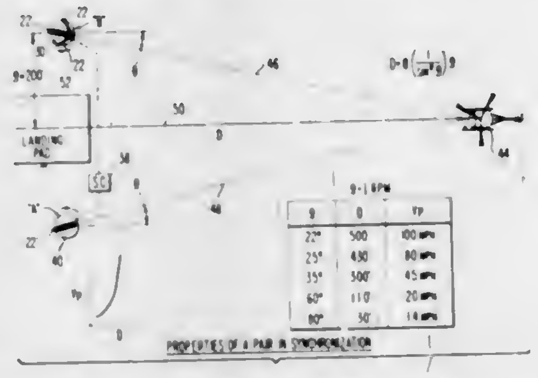


3,305,825
TELEMETERING DEVICE AND SYSTEM FOR PUMPING WELLS
John K. Godbey, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York
Filed Aug. 26, 1963, Ser. No. 304,316
11 Claims. (Cl. 340—18)



1. A system for the measurement of a condition in a well comprising:
- (a) a reciprocating pump mounted in the well for displacing well fluids,
- (b) a telemetering device positioned in the well below the pump, said device comprising
  - (1) a mechanical connecting means secured to a reciprocating part of the pump,
  - (2) gear means connected to the mechanical connecting means for producing a rotary motion in an element from the reciprocation of the pump part,
  - (3) a generator secured to the gear means for producing electrical energy from the rotary motion of the element,
  - (4) a battery connected to the generator through a circuit including a diode to store electrical energy,
  - (5) a voltage control circuit including a Zener diode connected to the battery to provide a relatively constant D.C. voltage,
  - (6) a D.C. motor connected to the voltage control circuit through a circuit including a transducer means exposed to well fluid for providing a resistance in such circuit proportional to the measurement of the condition in the well, and
  - (7) a sounder for producing acoustic pulses connected to the motor whereby the acoustic pulses are modulated by the resistance of the transducer means, and
- (c) means at the earth's surface for receiving the acoustic pulses, converting the pulses into the desired measurement, and recording the same.

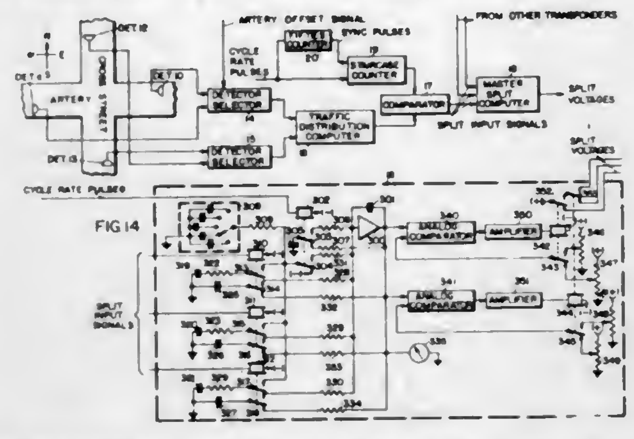
3,305,826
VISUAL GUIDANCE SYSTEM FOR APPROACH AND LANDING OF AIRCRAFT
David H. Kaplan, King of Prussia, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Feb. 3, 1964, Ser. No. 342,147
7 Claims. (Cl. 340—26)



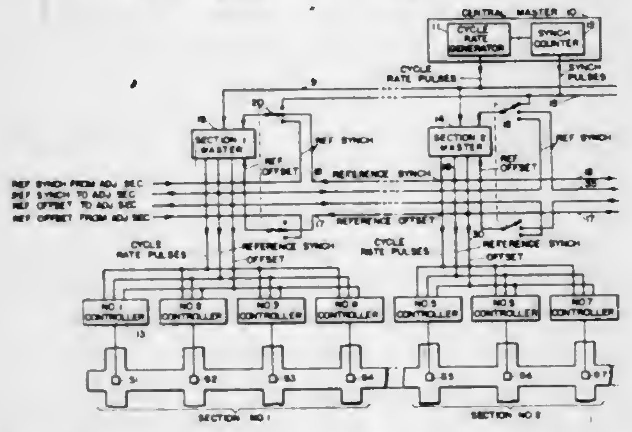
2. Vehicular guidance apparatus comprising:
- (a) first electromagnetic energy radiating means for radiating detectable, sensible energy into an area adjacent said means,
- (b) second electromagnetic energy radiating means for radiating energy into an area adjacent said means,
- (c) each of said radiating means including a pair of angularly oriented energy radiators and a further energy radiator disposed at the apex thereof providing a course rate cue for an observer utilizing said apparatus,
- (d) means for rotating said first and second radiating means at a constant angular velocity effective to cause the energy radiated thereby to intersect at a point remote therefrom and to define a line which effectively moves toward a line joining the radiating means at a constantly decreasing velocity so that with the observer moving at the same rate as the movement of said line toward said radiating means the observer is effectively led to a position substantially midway between said radiating means, and
- (e) a third electromagnetic energy radiating means operably associated with said first and second radiating means and substantially identical thereto providing a course angle cue for the observer relative to the other two radiating means.

3,305,827
TRAFFIC SIGNAL CYCLE SPLIT CONTROL SYSTEM
John H. Auer, Jr., Fairport, and Klaus H. Frielinghaus, Rochester, N.Y., assignors to The General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Dec. 20, 1963, Ser. No. 332,077
9 Claims. (Cl. 340—36)

1. In a traffic control system, means for controlling the cycle split of traffic signals at an intersection comprising, vehicle detector means responsive to vehicles approaching said intersection, first means responsive to said vehicle detector means for generating a manifestation representative of the relative amounts of vehicular traffic on respectively different conflicting approaches to said intersection, second means responsive to the length of the signal cycle of said traffic signals at any given time, and third means controlled both by said first and second means for generating a cycle split signal for controlling the change of display of signal indications by said traffic signals from a first combination of indications to a second combination.



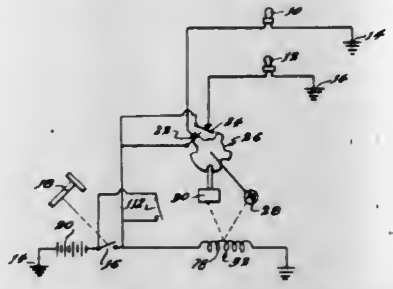
3,305,828
PROGRESSIVE TRAFFIC SIGNAL CONTROL SYSTEM
John H. Auer, Jr., Fairport, and Jerry P. Huffman and Terence W. Brady, Rochester, N.Y., assignors to The General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Apr. 7, 1964, Ser. No. 357,915
19 Claims. (Cl. 340—40)



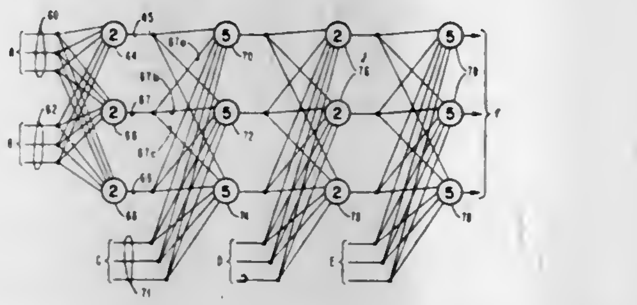
1. In a control system for traffic moving along a plurality of successive route sections, a first plurality of traffic signals governing traffic moving along a first route section, a second plurality of traffic signals governing traffic moving along a second route section, first control means for each traffic signal for demarcating a signal cycle of predetermined duration at any given time, second control means for at times shifting the time phase of the successive signal cycles demarcated by the respective control means for at least one of said traffic signals of said first plurality relative to that of any other of said first plurality of traffic signals, and third control means for maintaining a predetermined phase relationship between the signal cycles demarcated by the said first control means for a selected one of said second plurality of traffic signals and the signal cycles demarcated by said first control means for said one of said first plurality of traffic signals in response to said shifts in phase produced by said second means.

3,305,829
REAR-ALERTING SIGNAL FOR AUTOMOTIVE VEHICLES
August J. Knez, 12600 S. Roma Road, Palos Park, Ill. 60465
Filed Mar. 30, 1964, Ser. No. 355,855
5 Claims. (Cl. 340—72)

1. A signalling system responsive to actuation of a speed control of a motor vehicle comprising a first and a second lamp mounted on the vehicle and visible from the exterior thereof, a first series circuit including the first lamp, a source of electromotive force for illuminating the lamp, and switch means having an actuation member mechanically coupled to the speed control of the vehicle, a second series circuit including the second lamp, the source of electromotive force, and the switch means, upon actuation of said speed control said switch means alternately closing the first series circuit and the second series circuit for a period of time less than five seconds, thereafter maintaining the first and second series circuits closed, and opening the first and second series circuits upon deactuation of the speed control.



3,305,830
ERROR CORRECTING REDUNDANT LOGIC CIRCUITRY
Gregory Constantine, Jr., Poughkeepsie, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed May 24, 1963, Ser. No. 283,067
8 Claims. (Cl. 340—146.1)

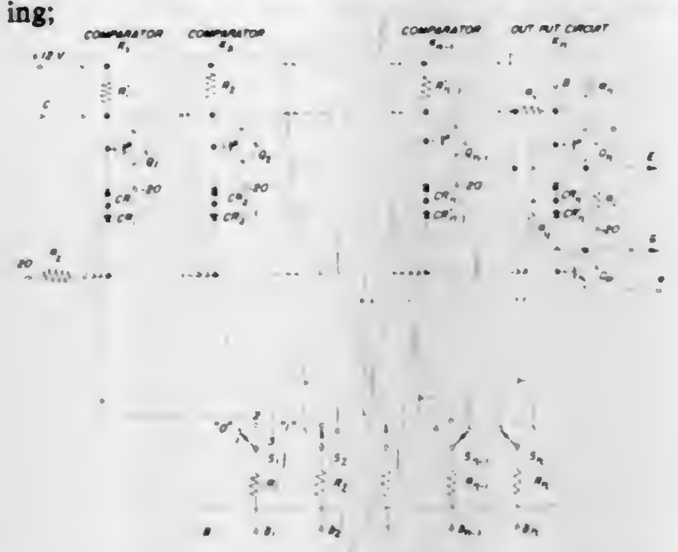


1. A logical circuit including:
- means for generating multiple representations of each of a plurality of operands; and
- threshold devices, each threshold device having a threshold which differs from a true logical function by the number of expected errors per level of logic, each acting on multiple representations of each operand and providing outputs according to the presence of a predetermined number of said representations.

3,305,831
INEQUALITY COMPARISON CIRCUIT
Raymond L. Nelson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Apr. 22, 1964, Ser. No. 361,769
3 Claims. (Cl. 340—146.2)

1. Apparatus for comparing one binary quantity as represented by N number of electrical inputs with a second binary quantity, said apparatus comprising:
- (a) a plurality of N–1 number of comparator units electrically connected in parallel configuration for producing output circuit control signals, in response to N–1 number of said electrical inputs applied respectively to said units;
- (b) an output circuit for producing output signals indicative of the relative magnitude of the two binary quantities in response to said control signals;
- (c) means for applying said control signals to said output circuit; and

(d) means for selectively applying said N–1 number of electrical inputs to the N–1 number of comparator units respectively and the Nth of said N number of electrical inputs to said output circuit and comprising;



(1) multi-position switch means for conditioning said comparator units and output circuit to receive electrical inputs corresponding respectively to and representative of said second binary quantity at one of two circuit locations each having a preselected effective activating signal response level so that said control signals drive the output circuit to produce output signals which indicate an equal, greater or less than relation of the two binary quantities, and

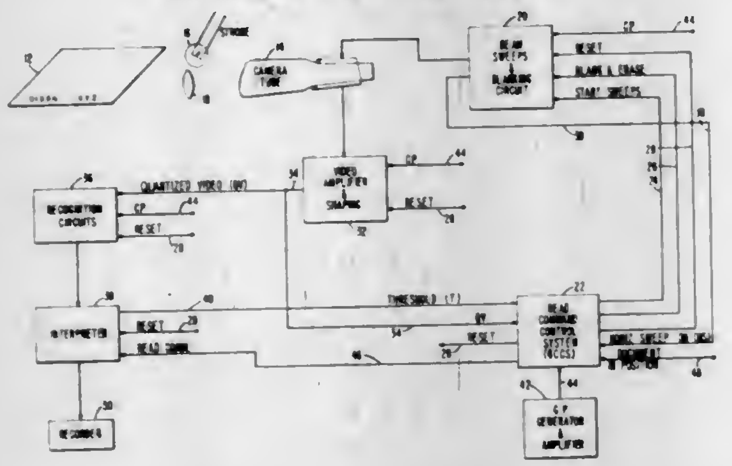
(2) current limiting impedance means in series with each said multi-position switch means for coupling each digit of the one binary quantity to a corresponding digit of the second binary quantity.

3,305,832
END OF CHARACTER DETECTOR

Eugene H. Griffin, Dallas, and James W. Gunn, Garland, Tex., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 24, 1962, Ser. No. 225,751

12 Claims. (Cl. 340—146.3)



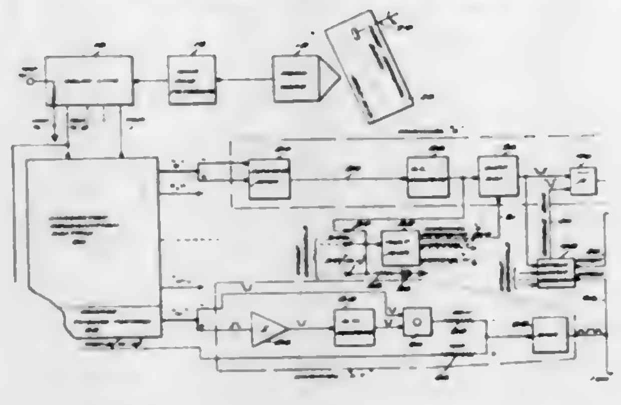
1. A character recognition system comprising means to successively scan a plurality of characters to derive characteristic outputs therefrom, correlation means coupled to receive said outputs and to indicate on a plurality of conductors the degree of correlation between the character being scanned and a plurality of known characters, means to interrogate said conductors for deriving a signal indicating that correlation approaches, means coupled to receive said signal for controlling the duration of the scanning action after said signal is received, and means coupled to said last named means for initiating an interrogate command at the end of the duration of the scanning action.

3,305,833
CIRCUIT FOR INDICATING READABLE, UNREADABLE OR MISSING CHARACTERS

Bennie L. Gallien, Hurst, Tex., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed June 28, 1963, Ser. No. 291,423

17 Claims. (Cl. 340—146.3)



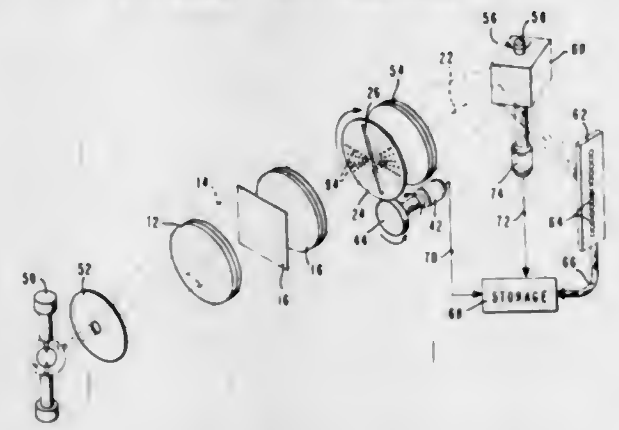
8. A character recognition system comprising, a reading means for producing unique signals indicative of the characters being scanned, means coupled to said reading means for utilizing said unique signals to identify the characters being scanned, sensing means coupled to said last named means for testing for the presence or absence of a valid character signal, first gate means connected to said sensing means for receiving signals indicative of a valid character, first indicator means connected to said first gate means for indicating the scanning of a valid character, second gate means connected to said sensing means for indicating an invalid character, bistable means coupled to said second gate and settable thereby, a pair of gates coupled respectively to the outputs of said bistable means, separate indicator means connected to each of said pair of gates to indicate missing or unreadable characters respectively, and means for strobing said pair of gates and resetting said bistable means, said means for strobing being operable only in response to a signal from said sensing means indicative of the absence of a valid character.

3,305,834
OPTICAL SYSTEM UTILIZING FRAUNHOFER DIFFRACTION PATTERNS FOR SPECIMEN IDENTIFICATION PURPOSES

Lawrence Cooper, Endwell, and Richard W. Kern, Vestal, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 31, 1963, Ser. No. 334,806

8 Claims. (Cl. 340—146.3)



1. An optical system for specimen identification purposes comprising means for generating a Fraunhofer diffraction pattern of the specimen to be identified,

a relatively opaque mask having a radially disposed, relatively transparent slit therein disposed in the diffraction plane of said generating means,

means to rotate said slit about the major axis of the optical system, and

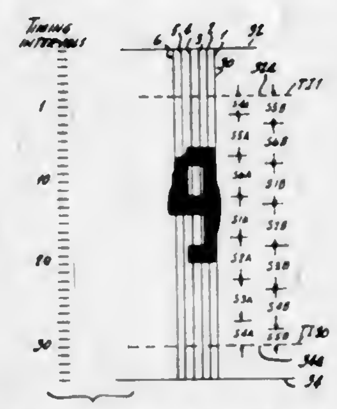
means for sensing radiant energy transmitted through said mask as a function of the angular position of said slit.

3,305,835
ZONING CIRCUITS FOR A CHARACTER READER

John P. Beltz, Willingboro, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Aug. 28, 1964, Ser. No. 392,797

6 Claims. (Cl. 340—146.3)



1. In a character reader for reading characters from a document, said characters being formed of one or more distinctive features occurring in a plurality of sections in said characters, said system including means for scanning each character to derive signals serially representing the features of said character, the combination comprising,

means coupled to said scanning means for detecting a predetermined feature in a character,

means for starting the division of the area on said document encompassing said character into a predetermined number of substantially equal vertical sections beginning at a first section when said predetermined feature is detected in a scan line, and

means for restarting the division of said area into said predetermined number of vertical sections beginning when said predetermined feature is redetected in a section of a succeeding scan line differing from said first section.

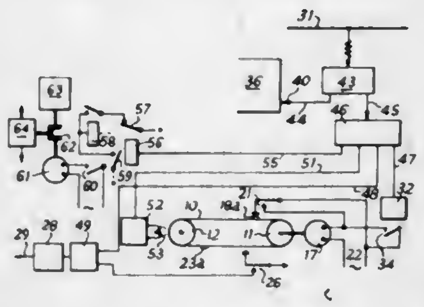
3,305,836
SUBSCRIPTION TELEVISION, RADIO AND LIKE INFORMATION SUPPLY SYSTEMS

Cyril C. Buckle, Stanmore, and Denis William Heightman, Elstree, England, assignors to British Home Entertainment Limited, London, England, a British company

Filed June 3, 1963, Ser. No. 285,082

Claims priority, application Great Britain, June 8, 1962, 22,298/62

13 Claims. (Cl. 340—147)



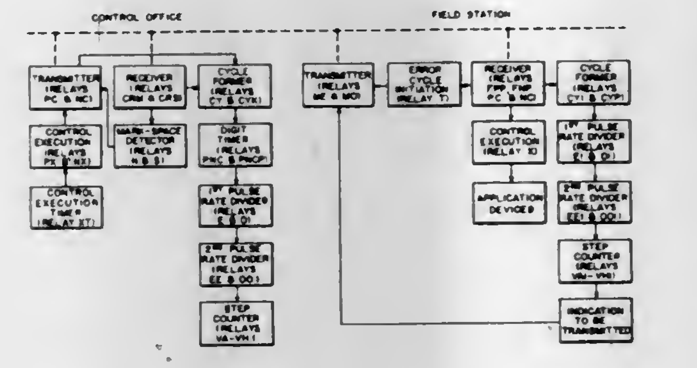
1. An apparatus arrangement for registering acceptance of signals by a subscriber in a system for conveying television or radio programmes or other information on a subscription basis to each of a plurality of subscribers by way of a common channel, and in which a series of time-spaced reference signals of a particular identifiable form are transmitted over said common channel with the information signals, which apparatus arrangement comprises for each subscriber a cyclically operating timing device including an endless loop of flexible material, driving means for moving said loop in one direction, first switching means operated by said endless loop after movement thereof by said driving means by a predetermined distance from a given datum position of said loop, and signal controlled means for initiating operation of said driving means to move said loop, reference signal detecting means for detecting the arrival of each of said reference signals at the subscriber's apparatus and therefrom deriving a control signal to operate said reference signal controlled means to initiate operation of said driving means, acceptance signal generating means for generating a signal output in response to each energisation of a control input thereto, circuit means coupling said pulse signal output to said common channel for transmission to a common recording point and circuit means including said first switching means to cause operation of said acceptance signal generating means after a predetermined time delay determined by the movement of said endless loop subsequent to receipt of each reference signal, the time delay value provided by said endless loop being different for each of said subscribers whereby the respective time delay values of the receipt of different acceptance signals at said common recording point relative to the timing of each reference signal identify those subscribers who are receiving the offered signals.

3,305,837
CODED SUPERVISORY CONTROL SYSTEM

William M. Barker, Scottsville, N.Y., assignor to General Signal Corporation

Filed Dec. 3, 1962, Ser. No. 242,006

15 Claims. (Cl. 340—163)


CONTROL OFFICE
FIELD STATION
TRANSMITTER (RELAYS PC & NC)
RECEIVER (RELAYS CRN & CRS)
CYCLE FORMER (RELAYS CY & CYX)
CONTROL EXECUTION (RELAYS PX & NX)
MARK-SPACE DETECTOR (RELAYS N & S)
DIGIT TIMER (RELAYS PNC & PNCP)
CONTROL EXECUTION TIMER (RELAY XT)
1ST PULSE RATE DIVIDER (RELAYS E & O)
2ND PULSE RATE DIVIDER (RELAYS EE & OO)
STEP COUNTER (RELAYS VA-VH)
TRANSMITTER (RELAYS NE & NO)
ERROR CYCLE INITIATION (RELAY T)
RECEIVER (RELAYS FPP, FNP, PC & NC)
CYCLE FORMER (RELAYS CYI & CYP)
CONTROL EXECUTION (RELAY X)
APPLICATION DEVICES
1ST PULSE RATE DIVIDER
2ND PULSE RATE DIVIDER (RELAYS EE & OO)
STEP COUNTER (RELAYS VA-VH)
INDICATION TO BE TRANSMITTED

1. A normally at rest code communication system for code communication between two stations comprising:

(a) code transmitting means at each of the stations for transmitting a plurality of selected binary time spaced code characters as respective digits of a multiple digit cycle over a communication channel to the other station,

(b) said code transmitting means having at one station odd and even code character selecting relays for selecting the code characters transmitted during respective odd and even digits,

(c) means for selectively energizing said odd character selecting relay during an odd numbered digit and for selectively energizing said even character selecting relay during an even numbered digit,

(d) stick circuit means for maintaining said odd character selecting relay energized during the next following even digit if it has been picked up during an odd digit,

(e) stick circuit means for maintaining said even character selecting relay energized during the next following odd digit if it has been picked up during an even digit,

(f) means at the other station for transmitting a code character in each digit opposite in character to the character received at that station during the preceding digit, and

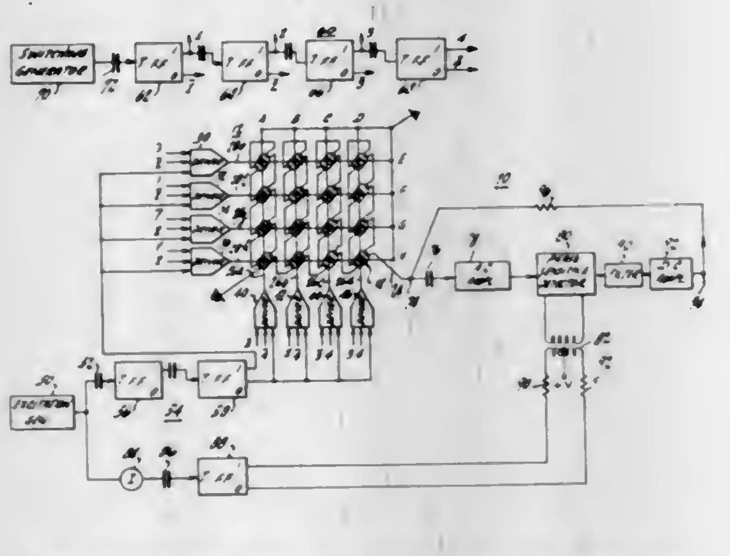
(g) checking means at said one station including contacts of said code character selecting relays for distinctively registering whenever a code character is received from the other station that is not opposite in character relative to the character that was transmitted from said one station during the next preceding digit.

3,305,838
BALANCED MODULATOR SWITCHING SYSTEMS

Marshall C. Kidd, Wayland, and Alan G. Atwood, Chelmsford, Mass., assignors to Radio Corporation of America, a corporation of Delaware

Filed Aug. 14, 1963, Ser. No. 302,172

7 Claims. (Cl. 340—166)



1. A switching system comprising in combination,
first and second groups of magnetic balanced modulators, each modulator of which exhibits a pair of stable saturation states,
a single signal line serially coupled to said first and second groups of modulators,
a plurality of signal lines coupled separately to each of said balanced modulators,
first excitation means coupled to drive said first group of modulators to saturation in one of said stable states by a series of first excitation signals,
second excitation means coupled to drive said second group of modulators to saturation in the other stable state by a series of second excitation signals interlaced with said first excitation signals so that a balanced modulator common to both of said groups is driven to saturation alternately in both of said stable states by said first and second excitation signals,
means for applying input signals to one or the other of said single signal line and plurality of signal lines, and
means for deriving an output signal from the other of said single signal line and plurality of signal lines.

3,305,839
BUFFER SYSTEM

Floyd W. Looschen, Arcadia, and Richard Stanton Sharp, Sierra Madre, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Mar. 22, 1963, Ser. No. 267,120

18 Claims. (Cl. 340—172.5)

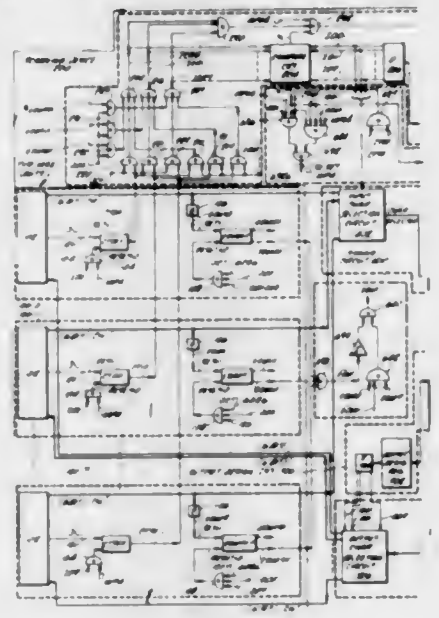
15. In an inquiry system, the combination comprising:

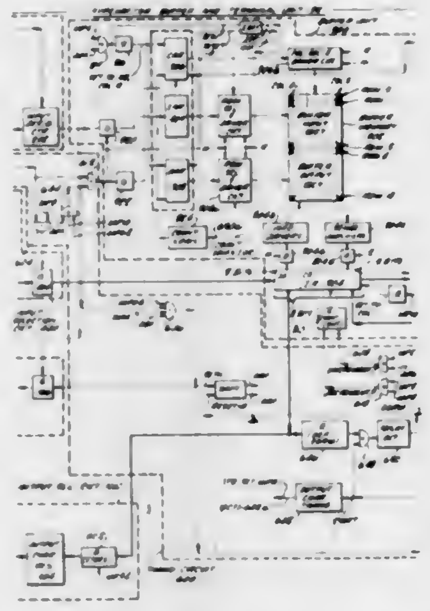
(a) a reply device for receiving inquiry messages and for forming reply messages thereto, the messages being composed of a series of characters;

(b) a plurality of inquiry devices each arranged for forming a series of characters repesenting an inquiry message for the reply device and for receiving a reply message thereto, each reply device including means for forming a ready signal for each inquiry character formed thereby;

(c) buffer storage means including a separate buffer portion for each inquiry device;

(d) counting means for counting through a sequence of states corresponding to each of the inquiry devices and a corresponding buffer portion responsive to count signals;





(e) means for comparing the inquiry devices forming ready signals with the counting means including means for applying count signals to the counting means in the absence of equality therebetween;

(f) means coupled to be responsive to the detection of equality by the comparing means for storing the character formed by the inquiry device into the buffer portion corresponding to the state of the counting means;

(g) output designating means including means for detecting the last character of a complete inquiry message stored into a buffer portion and means for storing an indication of the inquiry device forming such character;

(h) means for reading a complete inquiry message out of a buffer portion for the reply device and means for storing a reply message from the reply device into said buffer means;

(i) means for reading a reply message out of the buffer means; and

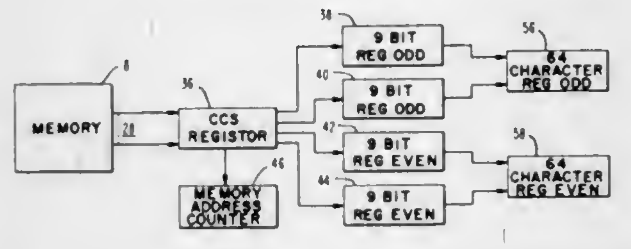
(j) selection means for coupling the characters of a reply message read out of the buffer means back to the inquiry device indicated by said output designating means.

3,305,840
HIGH SPEED PRINT SYNCHRONIZER

Wei Ming Shih, deceased, late of Flourtown, Pa., by Phoebe H. Y. Shih, executrix, Flourtown, Pa., and Robert L. Bast, executor, Ambler, Pa., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed July 10, 1963, Ser. No. 294,206

30 Claims. (Cl. 340—172.5)



1. A synchronizer for transmitting data in the form of pulses from a source to a receiver where the rate of data transmission from the source is different from the rate of data reception by the receiver, said data comprising sets of groups of pulses, each group having a number of pulse positions wherein a first portion of the pulse positions is available for pulses indicative of a character and a second portion is available for control pulses, and each set comprises a number of said groups, said synchronizer comprising: a recirculating shift register means having an input and an output for receiving a plurality of sets of groups of pulses from said source; means for automatically inserting a pulse into a selected pulse position of a second portion of some of the said groups in a set as said groups of a set are received by said register means, the inserted pulses identifying the last set received by said register means; and control means coupled to said recirculating register means and governed by said inserted pulses of said last set, for causing the transfer into said recirculating register means of the next set in a position next to the last set previously received and for altering the past combination in a second portion of the groups comprising the set previously rereceived.

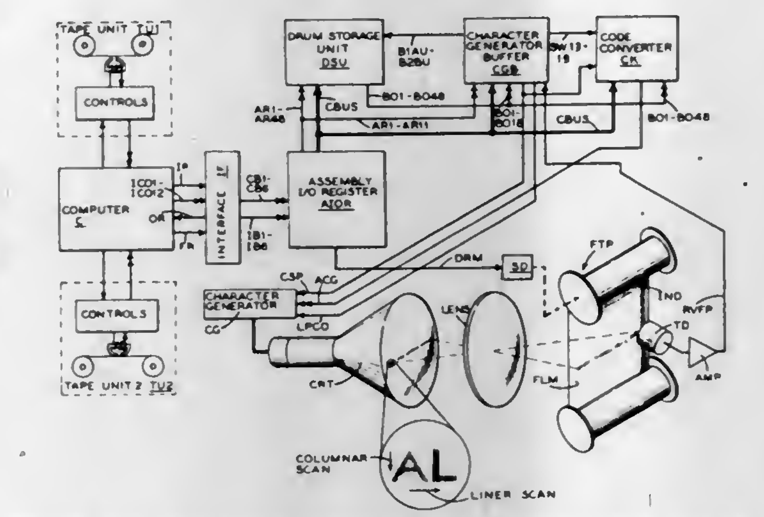
3,305,841
PATTERN GENERATOR

Milton Schwartz, Roslyn Harbor, N.Y., assignor to Alphanumeric Incorporated, Jericho, N.Y., a corporation of Delaware

Filed Sept. 30, 1963, Ser. No. 312,405

24 Claims. (Cl. 340—172.5)

1. In a system for presenting a pattern to an electromagnetic radiation sensitive medium wherein said pattern includes an area divisible into columnar regions, said area having a first visual state and an array of linear portions in said area having a second visual state, means for storing a coded representation of said pattern as a plurality of coded combinations of indicia wherein at least one of each of said coded combinations of indicia is respectively associated with one of said columnar regions, each of said coded combinations of indicia including at least a first coded group of indicia for indicating where in the associated columnar region a column segment having said second visual state begins and at least a second coded group of indicia for indicating the columnar extent of said column segment, electromagnetic radiation source means for scanning in a sequential columnar manner said electromagnetic radiation sensitive medium, means responsive to said first coded groups of indicia for energizing said electromagnetic radiation source means and means responsive to said second coded groups of indicia for de-energizing said electromagnetic radiation source means during each columnar scan.



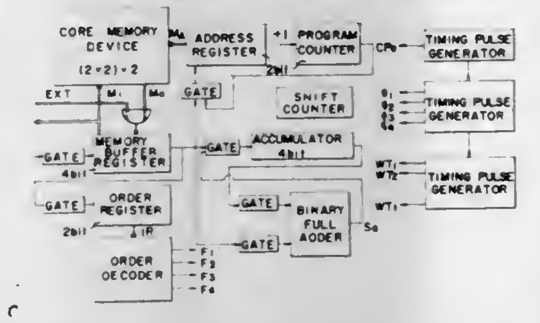
3,305,842
TIME-DIVISION MULTIPLEX DIGITAL COMPUTER

Yuichiro Oya, Kodaira-shi, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan

Filed Nov. 5, 1963, Ser. No. 321,564

Claims priority, application Japan, Nov. 9, 1962, 37/48,996

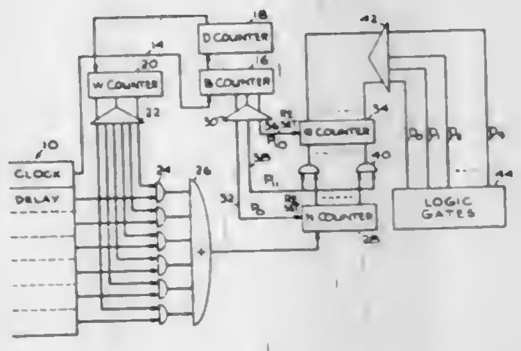
1 Claim. (Cl. 340—172.5)



A time-division multiplex digital computer comprising a memory device; an arithmetic operation device constituted by a register, a decoder, an accumulator and auxiliary operational devices formed by dynamic flip-flop circuits, said dynamic flip-flop circuits being composed of a pulse delaying device having a delay time for the number of bit corresponding to the number of the required multiplex channel; a regenerative circuit for regeneratively amplifying the delayed output pulse of said pulse delaying device and a feedback loop for feeding back the output of said regenerative circuit to the input side of said pulse delaying device; and means for imparting clock pulses to said regenerative circuit; a memory buffer register constituted by a static flip-flop circuit through which transfer of information between said memory device and said arithmetic operation device is accomplished by carrying out writing-in and reading-out of said informations with respect to a designated address within said memory device; a first channel separating device to separate and parallelize for each channel the time-division multiplex memory address information; a first synchronizing circuit to multiplex the read-out signals from said memory device; a second channel separating device to separate and parallelize for each chanel the time-division multiplex write-in information; means for supplying multiplex synchronizing pulses of a phase number corresponding to the number of said multiplex channel and word dividing pulses to divide one word time into the number of said multiplex channel to said first and second channel separating devices and said first synchronizing circuit; a second synchronizing circuit for time-division multiplexing input signals of a plurality of channels from outside of a computer; and a third channel separating device for separating the output of said memory buffer register to separate channels and supplying said separated outputs to the outside.

3,305,843
DISPLAY APPARATUS

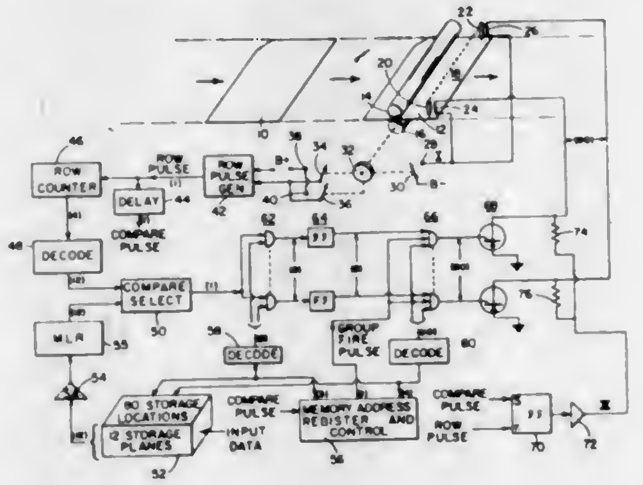
Thomas J. Scuitto, Malibu, Calif., assignor to Wyle Laboratories, El Segundo, Calif., a corporation of California
Filed Dec. 16, 1963, Ser. No. 330,843
7 Claims. (Cl. 340—172.5)



1. In combination with a source of pulse signals, each signal randomly occurring during a different one of successive bit periods, means for counting the total number of pulse signals occurring during each of a plurality of successive digit periods, each digit period comprised of a predetermined number of bit periods, and for displaying a plurality of digits, each digit representing the total number of pulses counted during a different digit period, said means including:
- a first counter;
- means for incrementing said first counter in response to each of said pulse signals;
- a second counter;
- means for clearing said first counter and for transferring the count therein to said second counter once during each of said digit periods;
- decoding means having a plurality of output terminals and responsive to each possible count in said second counter for energizing a different one of said output terminals;
- means for generating sine wave and cosine wave signals;
- first and second signal modifying circuits each having an input terminal and an output terminal;
- means responsive to the energized decoding means output terminal for selectively applying either said sine wave signal or said cosine wave signal to the input terminals of said first and second signal modifying circuits during each of said bit periods;
- means in each of said signal modifying circuits responsive to said energized output terminal for selectively reducing the amplitude of the signal applied thereto during each of said bit periods;
- means in each of said signal modifying circuits responsive to said energized output terminal for selectively reversing the polarity of the signal applied thereto during each of said bit periods;
- means in each of said signal modifying circuits responsive to said energized output terminal for applying a selected direct current bias level signal to the corresponding signal modifying circuit output terminal during each of said bit periods;
- a cathode ray tube including beam generating means and horizontal and vertical beam deflecting means; and
- means for respectively coupling said first and second signal modifying circuit output terminals to said horizontal and vertical deflecting means.

3,305,844
APPARATUS FOR STORAGE IN A MOVABLE MEDIUM

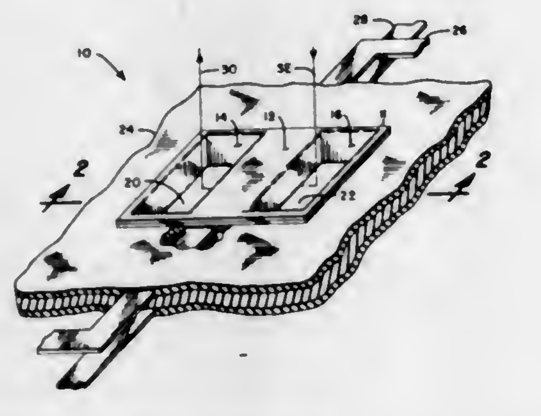
Kamla P. Yadav, Waltham, and Allen C. Hirtle, Braintree, Mass., assignors to Honeywell Inc., a corporation of Delaware
Filed Mar. 16, 1964, Ser. No. 352,023
11 Claims. (Cl. 340—172.5)



6. A switching circuit comprising a plurality of silicon-controlled rectifiers each adapted to drive a load corresponding thereto, each of said rectifiers having a separate sustaining resistor connected in a series combination therewith, means including a first switch for simultaneously applying a voltage across each of said series combinations during a predetermined time interval adapted to sustain current flow in each rectifier, means for applying input signals to selected ones of said rectifiers to render them conductive during a first portion of said time interval, and means including a second switch for simultaneously coupling each of said loads across its corresponding rectifier in series with said sustaining voltage during a second portion of said time interval to shunt said current flow through said loads.

3,305,845
MAGNETIC MEMORY CORE AND METHOD

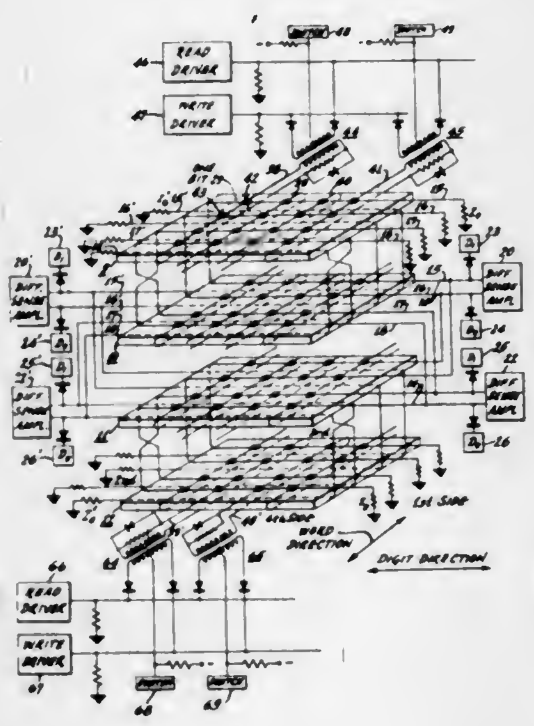
Kenneth T. Grace, Minneapolis, and Robert J. Teply, Hopkins, Minn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 1, 1963, Ser. No. 255,627
24 Claims. (Cl. 340—174)



1. A memory element comprising:
- a nonmagnetizable base member having at least first and second spaced-apart apertures therethrough forming a web therebetween,
- a magnetizable material affixed to the walls of said apertures and to said web forming flux paths around said aperture walls and said web,
- a printed circuit conductor disposed upon said web threading said web formed flux path, and
- insulating material electrically insulating said printed circuit conductor from said web formed flux path.

3,305,846
MEMORY WITH IMPROVED ARRANGEMENT OF CONDUCTORS LINKING MEMORY ELEMENTS TO REDUCE DISTURBANCES

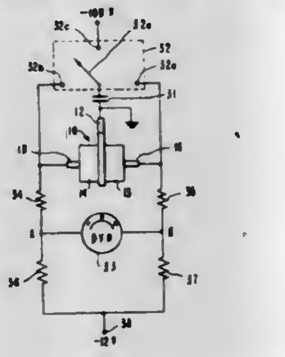
Hiroshi Amemiya, Levittown, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed June 5, 1963, Ser. No. 285,783
11 Claims. (Cl. 340—174)



7. A memory comprising
- an even plurality of memory planes arranged in a stack and each having a top side and a bottom side, each side including an array of pairs of memory elements arranged in digit pair rows and word columns,
- digit conductor pairs linking pairs of memory elements along corresponding rows on the top sides of all planes, and digit conductor pairs linking pairs of memory elements along corresponding rows on the bottom sides of all planes, the conductors of the digit conductor pairs on each of the top and bottom sides of all planes extending between planes with alternating staggered straight paths and crossed paths, the digit conductor pairs on the top sides of all planes extending between planes on alternating sides of the stack so that the conductor pairs follow rectangular zigzag paths, the digit conductor pairs on the bottom sides of all planes extending between planes on different alternating sides of the stack so that the conductor pairs follow complementary rectangular paths,
- impedance terminations connected at both ends of all digit conductors, the digit conductors on the top sides of the planes having terminations on a first side of the stack and digit conductors on the bottom sides of the planes having terminations on the opposite second side of the stack, and
- digit drivers and differential sense amplifiers coupled on said first and second sides of the stack to the midpoints of respective digit conductor pairs.

3,305,847
ADAPTIVE MEMORY DEVICE

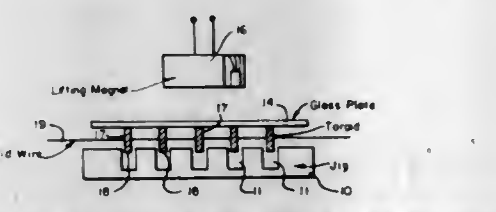
Genung L. Clapper, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 19, 1963, Ser. No. 331,775
8 Claims. (Cl. 340—173)



4. An adaptive memory device comprising a first body of coherable particles, a second body of coherable particles arranged adjacent to said first body but spaced therefrom and out of contact therewith, and means connected to said bodies and adapted to pass a decohering current selectively through either one of said bodies individually which action increases the coherence of the other one of said bodies.

3,305,848
TOROIDAL CORE MEMORY ARRAY

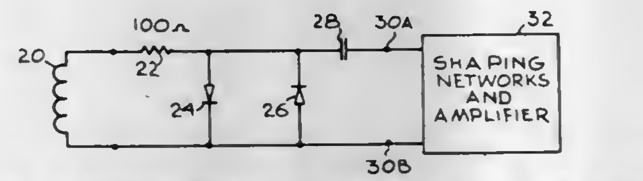
William J. Bartik, Jenkintown, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Original application Jan. 26, 1956, Ser. No. 561,540, now Patent No. 3,117,368, dated Jan. 14, 1964. Divided and this application Sept. 12, 1963, Ser. No. 308,423
5 Claims. (Cl. 340—174)



1. In an article of manufacture known as an information storage array, an adhesive mat like member, and a plurality of toroidal core members held in upright positions on said member.

3,305,849
CIRCUIT FOR PREVENTING ACCIDENTAL ERASURE OF CLOCK SIGNALS

Milton G. Bienhoff, Canoga Park, Calif., assignor to The Houston Fearless Corporation, West Los Angeles, Calif., a corporation of California
Filed Oct. 11, 1962, Ser. No. 229,935
3 Claims. (Cl. 340—174.1)



1. In a system wherein a magnetic drum has a track set aside with signals recorded thereon which are to be read by a reading head having first and second output terminals, a protective circuit for preventing accidental erasure of said signals comprising means connected in series with said reading head for substantially attenuating signals having a frequency below the frequency of said recorded signals and for substantially passing signals at the frequencies of said recorded signals,

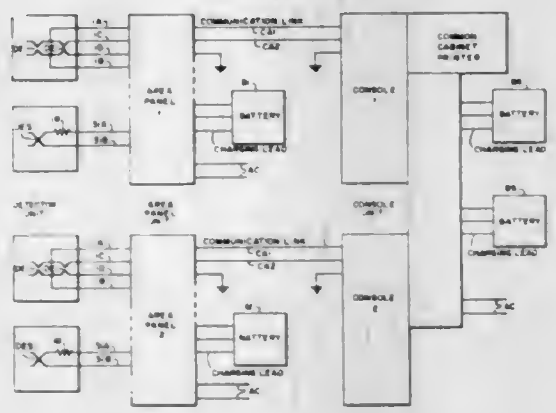
means connected in shunt with said reading head for presenting a high impedance to signals below a predetermined level and for providing substantially a short circuit to signals exceeding said predetermined level, and means connected in series with said reading head for limiting the level of current which can flow in the presence of a voltage at said predetermined level to a value which is sufficiently low to leave said recorded signals substantially unaffected.

3,305,850
SUPERVISORY APPARATUS

John Suozzo, Paramus, and Emmett J. Ward, Maplewood, N.J., Brian P. Ward, Manhattan Beach, Calif., and William R. Caputo, Jersey City, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 7, 1963, Ser. No. 322,242

11 Claims. (Cl. 340—213.2)



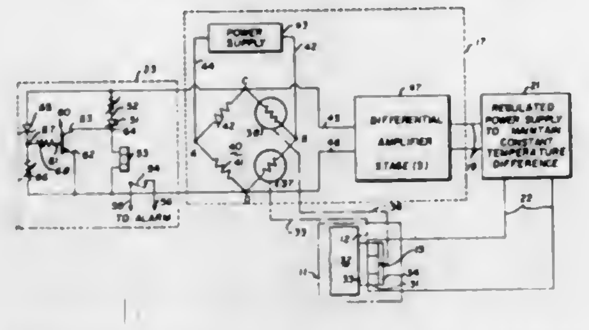
6. A communication system for communicating the condition of apparatus, said apparatus being normally in a first condition but being capable of being in a second condition and of being converted from said second condition to said first condition, the said system comprising a plurality of detectors connected to said apparatus actuable on the occurrence of a transition from said first condition to said second condition and being reset on the restoring of said apparatus from the second condition to the first condition, a transmitting station and a receiving station, means responsive to actuation of a detector on the transition of said apparatus to said second condition for actuating said transmitting station to transmit a first signal to said receiving station, means responsive to the resetting of said actuated detector on the restoration thereafter of said apparatus from said second condition to said first condition for actuating said transmitting station to transmit a second signal to said receiving station, a first sensory indicator and a second sensory indicator corresponding to each detector, means responsive to said first signal for actuating the first sensory indicator corresponding to the actuated detector to produce at said receiving station, a first sensory indication of said second condition of said apparatus to the extent that said second condition is detected by said actuated detector, and means responsive to said first signal and to said second signal for actuating said second sensory indicator corresponding to the actuated detector, to produce a second separate sensory indication of the transition of said apparatus respectively from said first condition to said second condition to the extent only that the second condition is detected by the actuated detector and from said second condition to said first condition to the extent only that the first condition is detected by the resetting of the actuated detector, said second sensory indication being separately identifiable from said first indication as an indication of said transitions and not as an indication of the existence of a said condition.

3,305,851
ICING CONDITION DETECTION APPARATUS

Boleslaw Brandtszteter, Los Angeles, Calif., assignor to Solid State Engineering Co., Los Angeles, Calif.

Filed Sept. 3, 1964, Ser. No. 394,197

6 Claims. (Cl. 340—234)


POWER SUPPLY
DIFFERENTIAL AMPLIFIER STAGE (S)
REGULATED POWER SUPPLY TO MAINTAIN CONSTANT TEMPERATURE DIFFERENCE
TO ALARM
22

1. Apparatus sensitive to changes in preselected ambient conditions surrounding a preselected surface area for providing a warning of the approach of icing conditions comprising:

first means for detecting a change in said ambient conditions including,

a thermo-electric element having a hot surface, a cold surface and a P-N junction, the hot surface thereof contacting said preselected surface,

a source of current connected to said thermoelectric element for maintaining the temperature difference between the hot and cold surfaces thereof equal to or greater than a predetermined amount, and

second means for indicating the attainment of icing conditions including,

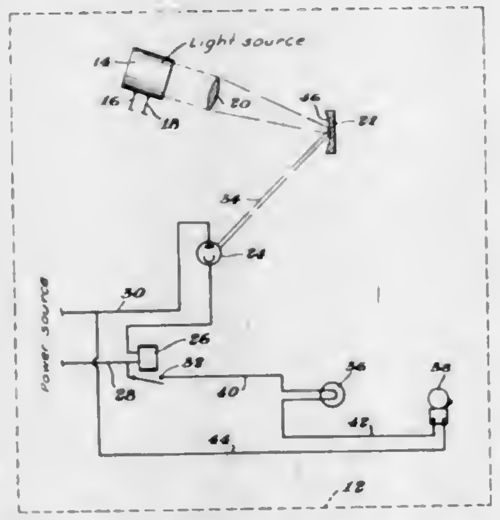
temperature sensor elements disposed adjacent said hot and cold surfaces of said thermoelectric element, circuit means including said sensor elements and responsive to changes therein to provide an electrical signal, and indicator means responsive to said electrical signal reaching a predetermined magnitude to provide a warning that said preselected ambient conditions have been reached.

3,305,852
CUMULATIVE DETECTOR FOR CHLORINE GAS

Jerome C. Cates, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Dec. 9, 1963, Ser. No. 328,943

4 Claims. (Cl. 340—237)



1. In photo-electric apparatus for detecting the presence of chlorine gas, said apparatus comprising a light source, means for directing light from said source onto a fixedly disposed surface of a silver mirror, a photocell so-disposed with respect to said light source and said

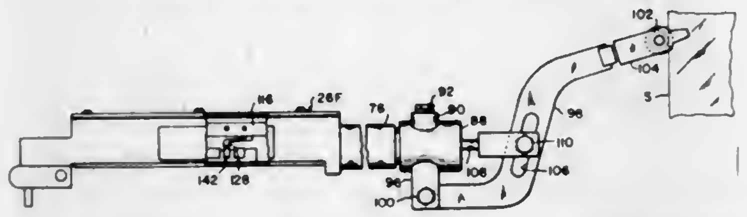
silver mirror that light from said source is reflected from said surface onto said photocell, a light tight enclosure, said light source, silver mirror and photocell being disposed in said enclosure, and means actuated by said photocell for providing a signal on a predetermined change in light intensity impinging on said cell, the improvement wherein said exposed surface of said silver mirror undergoes a physical change in light reflective properties on exposure to said chlorine gas.

3,305,853
POSITION SENSING DEVICE

Thomas A. Insollo and John M. Chump, Sr., Jeannette, Pa., assignors to American-Saint Gobain Corporation, Kingsport, Tenn., a corporation of Delaware

Filed June 20, 1962, Ser. No. 203,862

8 Claims. (Cl. 340—259)



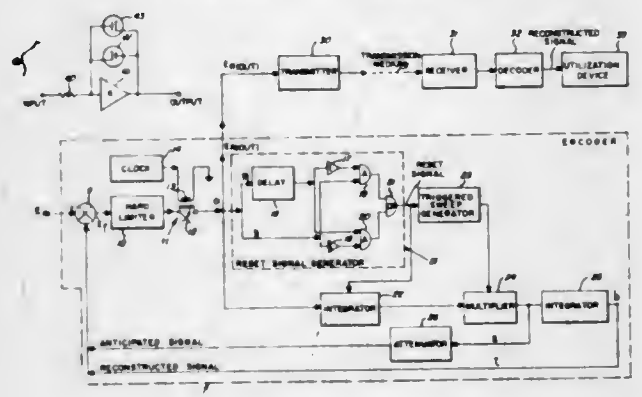
1. A position sensing device comprising a body portion having a cylindrical end portion, a sleeve member positioned on said cylindrical end portion in rotatable relation thereto, an arm member pivotally connected to said sleeve member, said arm member arranged to pivot in an arcuate path in a plane containing the axis of said body portion, said arm member having a sensing portion movable in said arcuate path, said sleeve member and said arm member and sensing portion arranged to rotate about the longitudinal axis of said body portion, first contact means connected to said arm member, second contact means carried by said body portion and adapted to cooperate with said first contact means upon movement of said arm member, and indicating means actuated by said contact means to indicate the arcuate position of said sensing portion from said end portion and the angular position of said sensing portion about said longitudinal axis of said body portion.

3,305,854
SAMPLED DATA SYSTEM

Richard P. Witt, Framingham, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed Dec. 19, 1963, Ser. No. 331,718

8 Claims. (Cl. 340—347)



1. A system comprising means for comparing an input signal with a feedback signal to provide a coded output signal, and means responsive to said output signal for altering said feedback signal, said last means comprising means for providing a reconstructed input signal from said coded output signal and for adding to said reconstructed input signal a signal related to the expected changes in magnitude of said reconstructed signal which would result from taking of the next sample.

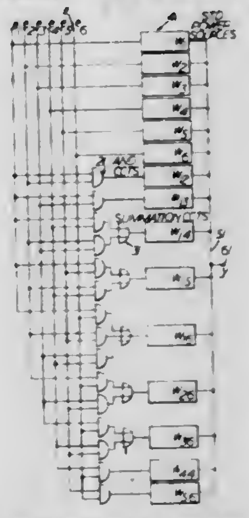
3,305,855
ENCODER AND A DECODER WITH NON-LINEAR QUANTIZATION

Hisashi Kaneko, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan, a corporation of Japan

Filed Nov. 1, 1963, Ser. No. 320,622

Claims priority, application Japan, Nov. 8, 1962, 37/50,370

4 Claims. (Cl. 340—347)



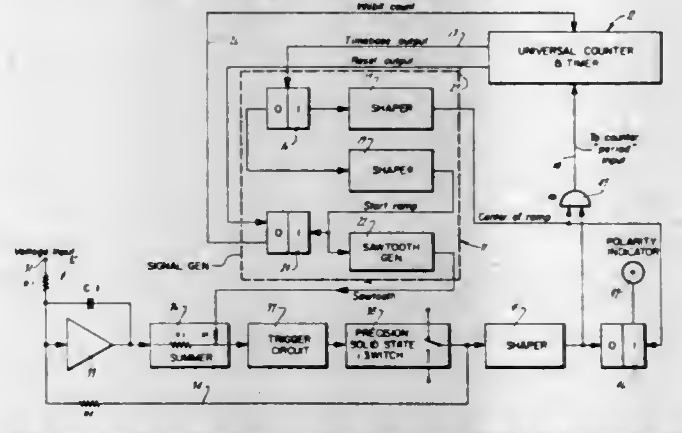
1. A device for conversion between an analogue signal and a digital signal with non-linear quantization comprising a plurality of input terminals for receiving digit codes composing a codeword, respectively; logical operation circuits connected to said input terminals for performing logical operation for each predetermined combination of at least one of said digit codes to produce logical output codes; a plurality of standard power sources connected to said input terminals and said logical operation circuits, and respectively controlled by said digit codes and said logical output codes to respectively generate electric quantities in response thereto, and in accordance with a predetermined law; and means connected to said standard power sources to combine said electric quantities to deliver the desired decoded output.

3,305,856
ANALOG TO DIGITAL CONVERSION APPARATUS

Frederic William Jenkinson, Lafayette, Calif., assignor to Systron-Donner Corporation, Concord, Calif., a corporation of California

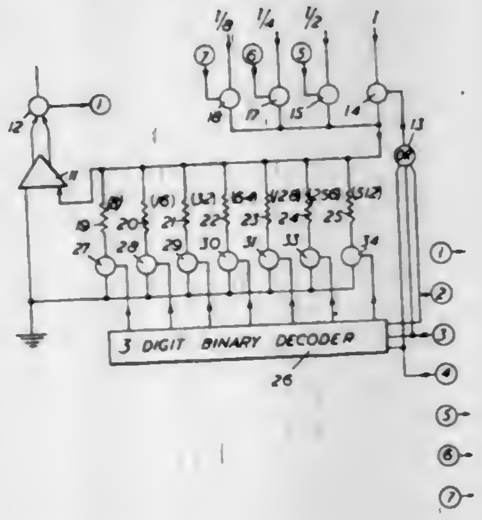
Filed Feb. 3, 1964, Ser. No. 341,949

1 Claim. (Cl. 340—347)



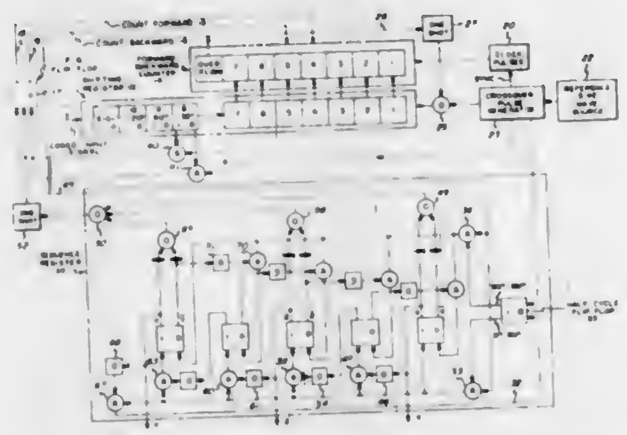
In apparatus for converting analog information to digital information, a counter, means for generating a sawtooth waveform with a precisely determined period and having a plurality of ramps, such means including means for forming a start-of-ramp pulse at predetermined time intervals together with means connected to such means for preventing said counter from starting to count at the second pulse in a pulse pair, switching means connected to said means for generating a sawtooth waveform and having an output which is switched between precise positive and negative voltages in accordance with the sawtooth waveform to produce a rectangular waveform which has a period which is precisely related to the period of the sawtooth waveform, means combining the rectangular waveform with the analog input to produce an error signal, means for integrating the error signal to produce a bias signal, means combining the bias signal with the sawtooth waveform, the bias signal serving to bias the sawtooth waveform so that the sawtooth waveform causes switching of the switching means at points determined by the bias so that the duty cycle of the rectangular waveform is proportional to the analog input signal, means for creating a reference pulse at a time precisely half-way between the start and completion of a ramp, means connected to the output of the switching means to create a timing pulse when the rectangular waveform goes positive, and means for supplying the reference pulses and the timing pulses to the counter whereby the time difference between a reference-pulse-timing-pulse pair is proportional to the analog input signal, polarity indicating means responsive to said reference and timing pulses for indicating a first polarity if said reference pulse is received first, and a second polarity if said timing pulse is received first.

3,305,857
DECODING EQUIPMENT
Donald Robert Barber, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 30, 1964, Ser. No. 355,650
Claims priority, application Great Britain, Apr. 17, 1963, 15,070/63
11 Claims. (Cl. 340—347)



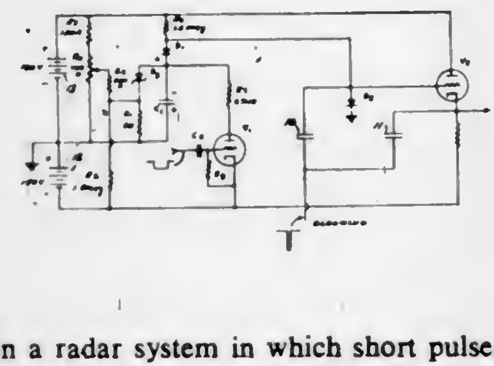
1. Decoding equipment comprising:
- a first source of code combinations each having at least a first group of code digits and a second group of code digits;
- a plurality of constant current sources, each of said sources providing a constant current having a predetermined by different weighted values;
- a current combining output means;
- a first means coupled to said first source and a selected one of said current sources responsive to a given value of any one of the digits of said group of digits to couple said selected one of said current sources to said output means;
- second means coupled to said first source and the others of said current sources responsive to a given value of associated ones of the digits of said second group of digits to couple said others of said current sources to said output means; and
- third means coupled to said first source and said output means responsive to the combined values of the digits of said first group of digits to adjust the value of the combined constant currents in said output means to provide at the output of said output means the analog signal represented by each of said code combinations.

3,305,858
DIGITAL TO ANALOG CONVERTER SIMULATING A ROTARY INDUCTOR DEVICE
John J. King, Jericho, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed Mar. 30, 1964, Ser. No. 357,011
12 Claims. (Cl. 340—347)



1. A digital to analog converter adapted to receive a digitally coded signal representing an angular quantity between 0° and ±180° and adapted to produce on separate output signal lines N analog signals representing the signals that would be derived from the N stator windings of a simulated rotary inductor device whose rotor winding is displaced from its zero reference axis by an angle equal to said coded angular quantity, said converter comprising,
- reversible counting means for receiving the digit position signals from the least significant digit positions of said coded signal that represent angles less than $\psi°$, where $\psi°$ is equal to one-half the electrical angle between adjacent stator windings of the simulated rotary inductor device,
- said counting means operating to produce an overflow signal after counting in the forward direction to a count representing an angle $\psi°$ and after counting in the backward direction to its empty condition,
- means for providing a reference oscillatory signal,
- means for detecting when said oscillatory signal passes through predetermined reference phases,
- means for coupling pulses to be counted to said reversible counting means,
- means for transferring said least significant digit position signals to said counting means each time said oscillatory signal passes through said reference phases and each time said counting means counts to overflow in either direction,
- means for setting said counting means to first count in a first direction only when the angle to be decoded lies between the ranges of 0° and $\pm\psi°$ and odd multiples of said ranges and to first count in the opposite direction only when the angles to be decoded lie in angular sectors intermediate the above-named ranges,
- means operating in response to the overflow signals of said counting means to reverse the direction of counting after the first and every second successive overflow thereafter,
- means responsive to said overflow signals for successively starting N gating pulses, respectively, after each successive one of the Nth odd-numbered overflows of said counting means and for successively terminating said N gating pulses, respectively, after the next successive Nth odd-numbered overflows of said counting means,
- means responsive to the more significant digit position signals of said digitally coded signal for coupling said reference oscillatory signal to each of said output signal lines with respective polarities that correspond to the polarities of the output signals on the respective stator windings of a simulated rotary inductor device whose rotor winding is at an angular position corresponding to the angle represented by said digitally coded signal, and
- means responsive to the more significant digit signals of said digitally coded signal for successively gating on with said N gating pulses the respective N output signal lines that correspond to the simulated rotary inductor device stator windings whose axes are at progressively larger angles with respect to the axis of the rotor winding of said device.

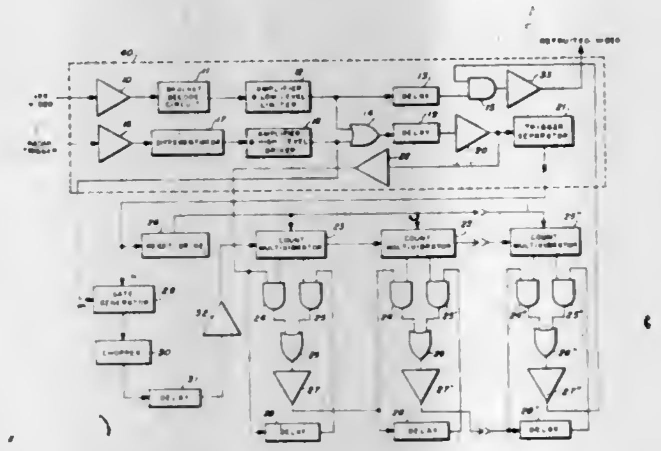
3,305,859
FUNCTION GENERATOR FOR RADAR STC CIRCUITS
Edward C. Schwartz, Cheektowaga, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force
Filed July 2, 1965, Ser. No. 472,754
3 Claims. (Cl. 343—5)



2. In a radar system in which short pulses of high frequency energy are periodically radiated and in which echoes of said pulses are received in a receiver the gain of which may be controlled by an applied gain control voltage, apparatus for controlling the gain of said receiver as a direct predetermined function of range, comprising: a capacitor; a source of direct voltage; a charging circuit connecting said source to said capacitor for charging said capacitor to a predetermined voltage; a pair of discharge circuits connected in parallel across said capacitor, said circuits providing different discharge time constants; means synchronized with said radiated pulses for opening said charging circuit following each radiated pulse for an interval less than the repetition period of said pulses; a zener diode connected as a series element in the discharge circuit having the shorter time constant, said zener diode having a breakdown voltage lying between the capacitor voltages at the beginning and the end of said interval; and means for applying the voltage across said capacitor to said receiver as a gain control voltage.

3,305,860
DIGITAL SYNCHRONIZER
Bernarr H. Humpherys, Escondido, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 26, 1965, Ser. No. 428,276
2 Claims. (Cl. 343—6.5)

1. A digital synchronizer for synchronizing an IFF defruiter with an associated radar system;
- said IFF defruiter including means for receiving and storing IFF signals and comparing the received signals against subsequently received signals;
- said IFF defruiter having an output comprising a bracket decode pulse;
- said IFF defruiter also having an input comprising a radar trigger from an associated radar system;
- the digital synchronizer comprising;
- difference gate generator means having an on-input and an off-input;
- said gate generator means being operable to measure the time difference between the storage time of the IFF defruiter and the interval between trigger pulses from the associated radar system;
- the on-input to the gate generator comprising a signal from the IFF defruiter which has been stored;
- the off-input to the gate generator means comprising the radar trigger pulses which have not been stored;
- pulse chopper means coupled to the output of the gate generator means for chopping the output of the gate generator means between the on and off interval into a series of discrete pulses having equal time intervals;
- a multiplicity of counting means operatively connected to the output of the pulse chopper for counting the number of pulses at the output of the pulse chopper means;

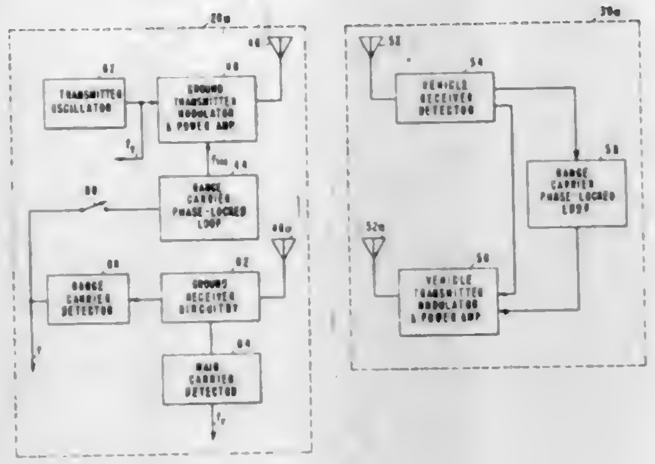


- each of the counting means having associated with it coincidence means and a delay increment;
- the coincidence means deriving inputs from the outputs of the respective counting means;
- the respective delay increments receiving outputs from the coincidence means and being associated with the respective coincidence means in such a manner that the delay increment may be switched into and out of series with the output of the bracket decode pulse from the output of the IFF defruiter;
- said digital synchronizer functioning to measure the time difference between the length of the storage interval and the radar trigger pulses so that delay increments are inserted in series with the IFF video until the storage time of the IFF video matches the interval between radar triggers.

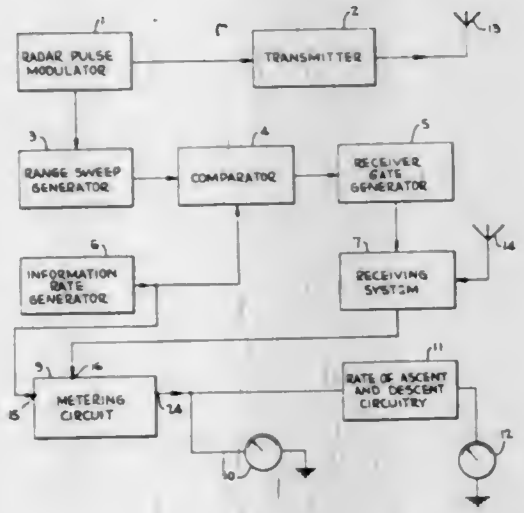
3,305,861
CLOSED LOOP RANGING SYSTEM
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Robert C. Bunce, La Crescenta, Calif.
Filed Feb. 11, 1965, Ser. No. 432,027
13 Claims. (Cl. 343—12)

11. The method of determining the range between two stations, each including a signal communication system, the steps comprising communicating with radio signals between the stations in a closed-loop arrangement whereby the number of cycles of the radio signals in the closed-loop is fixed, determining the fixed number of cycles of the radio signals used to communicate between the sta-

tions in the closed-loop arrangement; measuring the propagation time of the fixed number of cycles; and computing on the basis of the measured propagation time the range between the two stations.


28a
46
TRANSMITTER OSCILLATOR
GROUND TRANSMITTER MODULATOR & POWER AMP
RANGE CARRIER PHASE-LOCKED LOOP
RANGE CARRIER DETECTOR
GROUND RECEIVER CIRCUITRY
MAIN CARRIER DETECTOR
46a
30a
52
VEHICLE RECEIVER DETECTOR
RANGE CARRIER PHASE LOCKED LOOP
52a
VEHICLE TRANSMITTER MODULATOR & POWER AMP

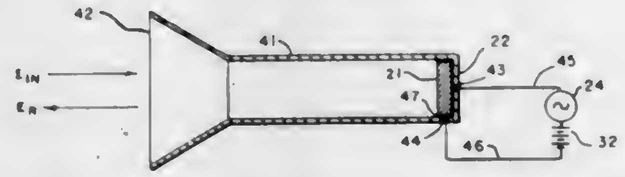
3,305,862
SIGNAL SEEKING PULSE RADAR ALTIMETER AND DISTANCE MEASURING SYSTEMS
James Samuel, Washington, D.C., and James Salerno, Rockville, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed Feb. 6, 1962, Ser. No. 171,541
16 Claims. (Cl. 343—13)



1. In a pulse modulation radar system comprising a receiver system, an altitude indicator comprising:

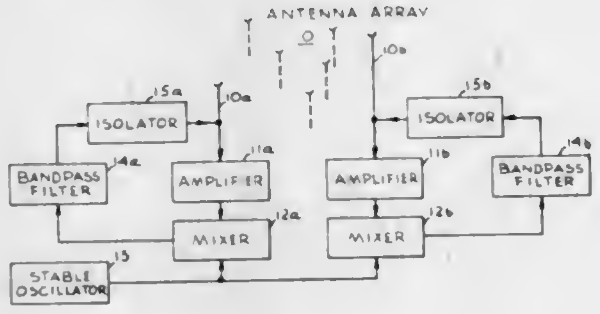
(a) first generator means for producing linear voltage waveforms in response to pulses produced by said radar system,
(b) second generator means for producing a continuously recurring voltage waveform,
(c) comparator means for receiving the outputs of said first and second generators and for producing an output pulse at each time that an equality exists between said generator outputs,
(d) metering means having an information input and a gating input,
(e) means connecting the output of said second generator means to said metering means information input,
(f) means controlled jointly by the output of said comparator means and by pulses received by said radar receiver system to apply a gating pulse to said metering means gating input whenever a pulse produced at the output of said comparator means coincides in time with the return of a transmitted pulse to said radar system, and
(g) information storage means connected to store the voltage appearing at said information input of said metering means at each instant that a pulse appears at said gating input of said metering means.

3,305,863
VARIABLE REFLECTOR OF ELECTROMAGNETIC RADIATION
Harold Jacobs, West Long Branch, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 22, 1965, Ser. No. 504,295
14 Claims. (Cl. 343—18)



1. A variable reflector of electromagnetic radiation comprising a slab of bulk semiconductor material mounted on a conductive metallic base, and conductivity modulation means coupled to said semiconductor to vary the reflectivity of said reflector.

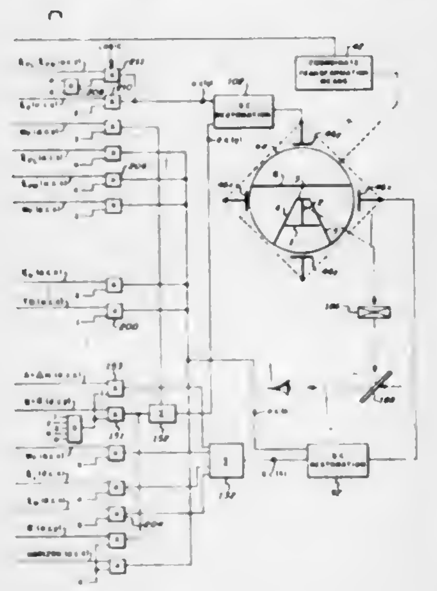
3,305,864
STEERABLE ANTENNA COMMUNICATIONS SYSTEM
Rabindra N. Ghose, Los Angeles, Calif., assignor to Space-General Corporation, Glendale, Calif.
Filed July 18, 1961, Ser. No. 124,916
14 Claims. (Cl. 343—100)



1. Communications apparatus for automatically retransmitting a carrier signal in the direction from which it is received, said apparatus comprising: an antenna array for intercepting the received signal, the antennas in said array respectively producing output signals that are phased according to the spacings between the antennas and the angle of arrival of the incident wave; networks respectively coupled to the antennas in said array for circulating the output signals therefrom back to their respective antennas for retransmission, said networks respectively including circuits for converting the initial phases of said output signals to their complex conjugates.

11. A system for transferring information between two distant stations, the transmission to the second station automatically being accomplished with optimum directivity, said system comprising: a number of antennas for intercepting a modulated first carrier signal received from the first station and an unmodulated second carrier signal received from the second station, said antennas, in response to the latter signal, respectively producing a corresponding number of unmodulated second carrier signals that are phased according to the spacings between said antennas and the angles of arrival of the received unmodulated second carrier signal relative thereto; a number of networks arranged to respectively feed said second carrier signals back to said antennas, said networks respectively including circuits for changing the phases of said second carrier signals to the complex conjugates of said spatial phases; and a number of additional circuits respectively coupled between said antennas and said networks for transferring to said second carrier signals the modulation contained in said first carrier signals.

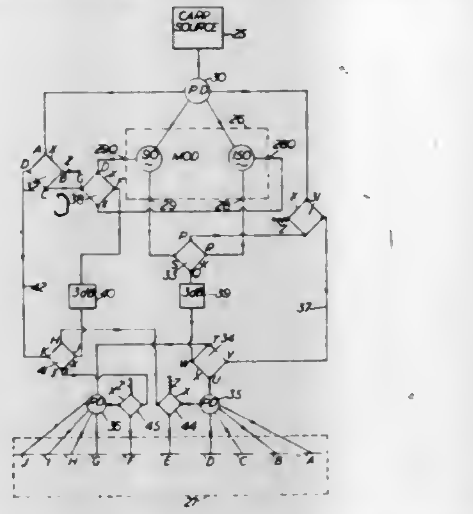
3,305,865
RUNWAY IMAGE GENERATING APPARATUS
John H. Gassler, Levittown, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed June 29, 1964, Ser. No. 378,927
11 Claims. (Cl. 343—108)



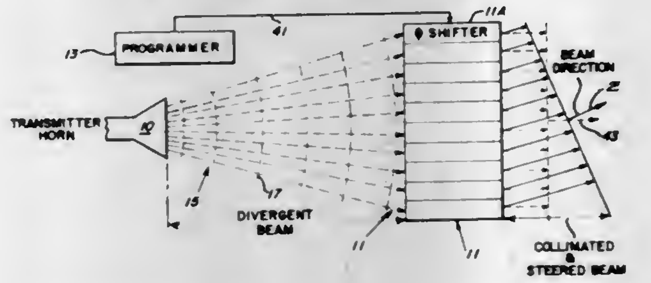
1. Aircraft instrument apparatus for use in landing an aircraft comprising a cathode ray tube, means for producing a first trace on the face of said cathode ray tube, means for producing a second trace on said cathode ray tube, said first trace being representative of the threshold of a real world runway and said second trace being representative of the center line of said real world runway, means for so aligning said first and second traces on the face of said cathode ray tube that said second trace runs toward said first trace, and means for eliminating said first trace from the face of said cathode ray tube and extending the length of said second trace when said craft is at and below a predetermined altitude.

3,305,866
RADIO COURSE LINE BEACON RADIATING A CLEARANCE SIGNAL
Charles William Earp, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 24, 1964, Ser. No. 354,294
Claims priority, application Great Britain, Apr. 26, 1963, 16,555/63
9 Claims. (Cl. 343—109)

1. A course line guidance beacon including means to define the course line by spatial overlap between two highly directive radiation lobes having different amplitude modulation envelopes, and means to radiate as a clearance signal a less directive lobe, which has an amplitude modulation envelope in phase quadrature with the envelope of one of the highly directive lobes and which is positioned generally on the same side of the course line as the said one lobe.



3,305,867
ANTENNA ARRAY SYSTEM
Aldo R. Miccioli, Acton, Mass., and Donald H. Archer, Santa Barbara, Calif., assignors to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Nov. 5, 1963, Ser. No. 322,008
8 Claims. (Cl. 343—113)



2. An antenna array system comprising:

an array of passive variable electrical length elements, each including at least one diode phase shifter means for phase shifting energy incident upon said passive elements, said diode phase shifter means comprising a four-port hybrid having a pair of conjugate arms and a pair of orthogonal arms, and variable admittance means in shunt across said conjugate arms;
antenna means disposed in spaced apart relation from said array for accepting energy at certain intervals of time and propagating energy at other intervals of time; and,
means for controlling the collimating and directing of energy from said antenna means during the propagating interval and focusing energy reflected from objects in the path of said propagated energy during the accepting interval comprising means for controlling the electric length of selected variable electric length elements.

3,305,868
AUTOMATIC POSITION DETECTING SYSTEM
Kikuo Oki, Hayao Motomatsu, Mamoru Yamaguchi, and Tomoyuki Watanabe, Shiba Mita, Minatoku, Tokyo, Japan, assignors to Nippon Electric Company, Ltd., Tokyo, Japan
Filed Mar. 11, 1964, Ser. No. 350,971
Claims priority, application Japan, Mar. 19, 1963 38/14,726
4 Claims. (Cl. 343—117)

1. An automatic position detecting system mounted upon a moving body comprising:

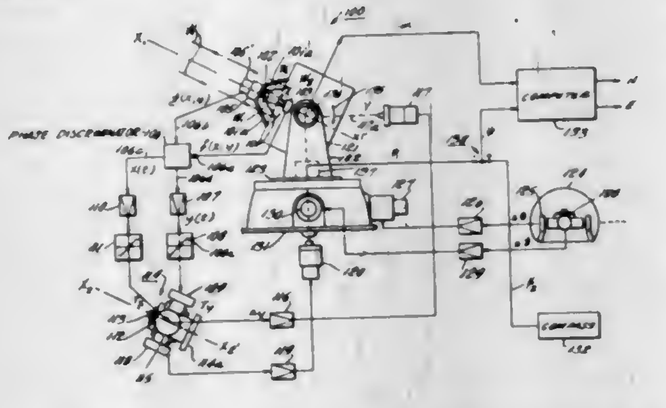
a passive antenna means including eccentrically mounted collector means for receiving electromagnetic waves from an object in space;

first means secured to said antenna means for generating synchronous output signals representing movement along two axes of the antenna coordinate system;

second means secured to said antenna means for synchronously displacing said antenna collector means along said two axes;

third means receiving the electromagnetic waves collected by said antenna means and receiving the first output signals generated by said first means for generating second output signals representing the phase difference between the first output signals and the signals collected by said antenna means;

first and second gyro means for each of said two axes secured to said antenna means each being initially positioned to maintain predetermined preserve attitudes;



first and second torque motors for respectively displacing said first and second gyro means from their preserve attitudes under control of said second output signals;

first and second displacement detector means for respectively detecting the amount of displacement experienced by said first and second gyro means;

first and second motor means respectively receiving signals from said first and second displacement detector means for altering the attitude of said antenna means to null the phase difference between said first means output signals and the electromagnetic waves received by said antenna means.

platform means for supporting said antenna means;

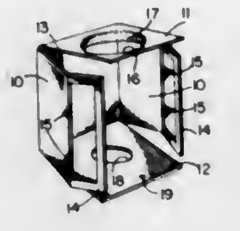
stabilizing means for continuously maintaining said platform means in a horizontal plane throughout the position detection operation to prevent reaction of said antenna system to deviations from the horizontal plane and thereby enabling high speed response of the system;

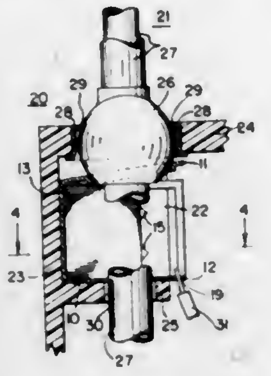
third means for generating output signals representative of the attitude of said antenna means at any given instant of time.

3,305,869
CLIP FOR MOUNTING ROTATABLE ANTENNA ON RECEIVER CABINET, THE CLIP HELD SECURE BY OUTWARD FORCES EXERTED BY RESILIENT CLIP ARMS

William L. Arrington, Roselle, Ill., assignor to Admiral Corporation, Chicago, Ill., a corporation of Delaware
Filed July 1, 1964, Ser. No. 379,478
8 Claims. (Cl. 343—702)

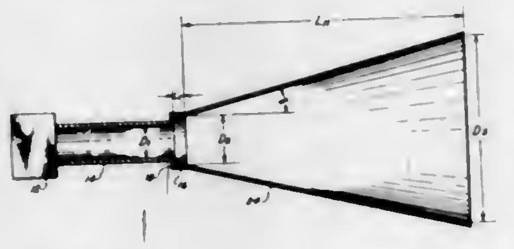
1. In combination with a receiver cabinet and a rotatable antenna, said receiver cabinet having an enclosure therein with a first and a second pair of oppositely disposed walls, one wall of said first pair of oppositely disposed walls defining an aperture therein, said rotatable antenna having a spherical base with an antenna element affixed thereto; an antenna clip for mounting said rotatable antenna to said receiver cabinet comprising: a base; first and second resilient arms affixed to said base; and gripping means affixed to said base independent of said first and second resilient arms; said first and second resilient arms cooperating with said first pair of oppositely disposed walls to rotatably position said spherical base between said first resilient arm and said one wall, said antenna element extending through said aperture in said one wall; said gripping means cooperating with said second pair of oppositely disposed walls to insure immobility of said antenna clip.





3,305,870
DUAL MODE HORN ANTENNA

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Philip D. Potter, Tujunga, Calif.
Filed Aug. 12, 1963, Ser. No. 301,683
6 Claims. (Cl. 343—786)



6. In combination:

a circular waveguide having an input end and an output end;

means for feeding electromagnetic wave energy in the TE$_{11}$ mode into said input end of said circular waveguide;

means connected to the output end of said waveguide for converting a portion of said TE$_{11}$ mode energy in said circular waveguide to TM$_{11}$ mode energy, said means comprising a transition section of waveguide having a diameter larger than said circular waveguide; and

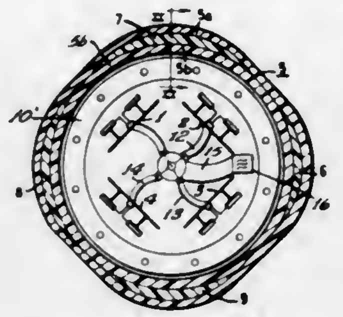
a conical horn antenna connected to the output end of said transition section, the length and the diameter of said transition section and the length and flare angle of said conical horn antenna being chosen so that the main beam emanating into free space from said horn antenna of both said TE$_{11}$ and TM$_{11}$ modes are in phase.

3,305,871
SENDER ANTENNA ENVELOPED BY A TUBULAR CARRIER MAST

Wolfgang Kruger, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed Nov. 6, 1963, Ser. No. 321,735
Claims priority, application Germany, Nov. 12, 1962, S 82,411
7 Claims. (Cl. 343—872)

1. A sender antenna enveloped by a tubular mast serving as a carrier and as weather protection for antenna elements which are fastened to the inner wall thereof, said

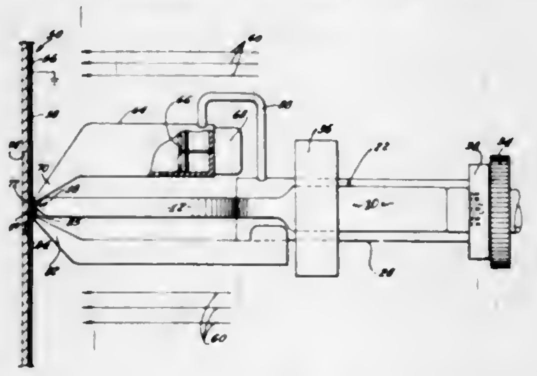
tubular mast being constructed as a tubular insulating body with the wall thereof being formed by an outer and an inner sheath, generally concentrically disposed and wound of insulating material layers, and cross-sectionally crescent-shaped reinforcing inserts, which are prefabricated parts extending parallel to the longitudinal axis of



said tubular insulating body and angularly uniformly distributed throughout such wall with such inserts being embedded between said sheaths, said antenna elements being so arranged with respect to the wall of said tubular insulating body that the main radiation directions extend through wall portions of minimum thickness.

3,305,872
CATHODE RAY TUBE APPARATUS FOR RECORDING AND DISPLAYING COLOR IMAGES

Norman F. Fyler, Menlo Park, Calif., assignor to Litton Precision Products, Inc., a corporation of Delaware
Filed Jan. 10, 1962, Ser. No. 165,435
4 Claims. (Cl. 346—74)



1. In an assembly for visually and continuously displaying electrically transmitted signals representative of information which is subjected to changes:

a cathode ray tube having a substantially longitudinally extending faceplate, a plurality of individual wire sections embedded in and extending through the faceplate for transferring to the exterior surface of the faceplate electrical charges as they are impressed on the inner wire section ends by the impinging electron beam and in accordance with the signals applied to the tube,

a display screen cooperating with the tube, the screen comprising a transparent base plate, a conductive transparent intermediate layer and a transparent dielectric layer facing the faceplate for receiving said charges,

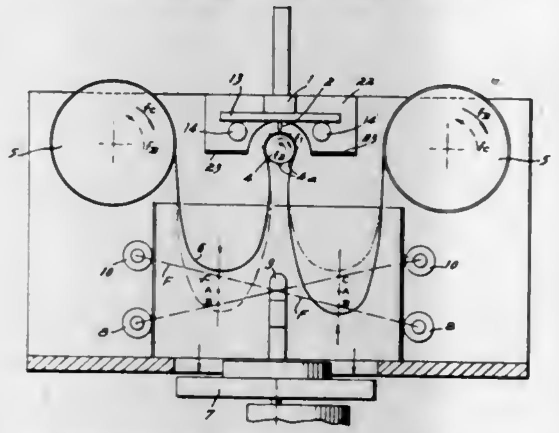
means for producing repeated relative sweeping motion of the tube and the screen, one with respect to the other, for periodically scanning the screen to apply a charge pattern to it, with each screen location receiving a charge in accordance with the signals received during each cycle of the sweeping motion,

means subject to an analogous sweeping motion for applying particulate material to each location of the screen once during each cycle and following exposure of the location to the faceplate for visually displaying, by adhesion of said material to the charged screen areas, an image of the charge pattern,

and means, also subject to an analogous sweeping motion, for removing the image formed by the particulate material from each location during each cycle immediately preceding subsequent exposure of the location to the faceplate, whereby said material is retained to represent a pattern image by adhering to each location on the screen for the duration of substantially one complete cycle of the sweeping motion.

3,305,873
GRAPHIC RECORDER

Jean Mourier, Savigny-sur-Orge, France, assignor to Benson-France, Fontenay-sous-Bois, Seine, France, a French limited-liability company
Filed Nov. 2, 1964, Ser. No. 408,159
Claims priority, application France, Nov. 8, 1963, 953,207
3 Claims. (Cl. 346—112)



1. In an instrument for recording information comprising:

a pair of spools with flexible sheet material extending therebetween,

an information transferring head,

means for displacing said head transversely across the flexible material during transferring of information,

a driving means contacting the flexible material between said pair of spools,

said driving means including

a control spindle being of low rotational inertia and having a minimum diameter compatible with the flexibility of said flexible material,

and air pressure means to hold said flexible material against a portion of the surface of said control spindle and applied between said control spindle and each of said pair of spools forming loops therebetween and isolating said control spindle from the inertial action of said spools,

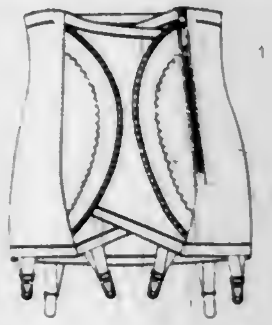
whereby said control spindle and said air pressure means positively control movement of said flexible material between said spools.

DESIGNS

FEBRUARY 21, 1967

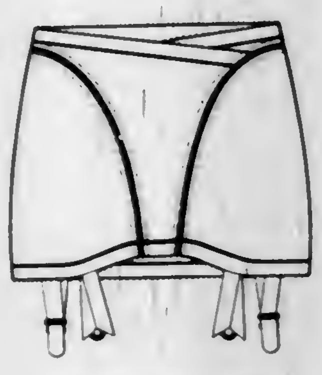
206,989
GIRDLE

Ursula Bozovic, London, England, assignor to Daintifyt Brassiere Company Limited, London, England, a company of Great Britain
Filed Jan. 6, 1966, Ser. No. 490
Claims priority, application Great Britain Oct. 12, 1965
(Cl. D2—2)
Term of patent 14 years



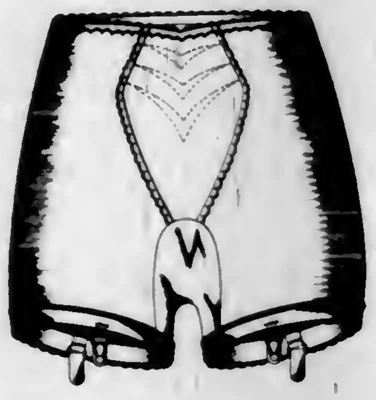
206,990
GIRDLE

Ursula Bozovic, London, England, assignor to Daintifyt Brassiere Company Limited, London, England, a company of Great Britain
Filed Jan. 6, 1966, Ser. No. 496
Claims priority, application Great Britain Sept. 17, 1965
Term of patent 14 years
(Cl. D2—2)



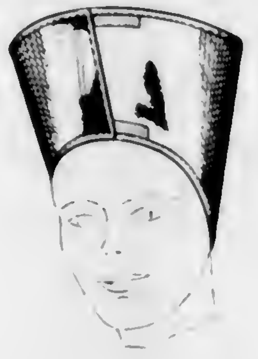
206,991
PANTY GIRDLE

Carl R. Glines, Dover, Del., assignor to International Latex Corporation, Dover, Del., a corporation of Delaware
Original design application Oct. 23, 1962, Ser. No. 72,220, now Patent No. 204,377, dated Apr. 12, 1966. Divided and this application Oct. 23, 1965, Ser. No. 1,168
Term of patent 14 years
(Cl. D2—4)



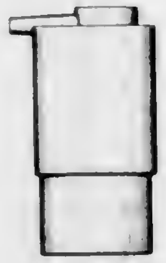
206,992
HAIR PROTECTOR

Herman Skier, 16 E. 42nd St., Brooklyn, N.Y. 11203
Filed May 4, 1966, Ser. No. 2,163
Term of patent 14 years
(Cl. D2—253)



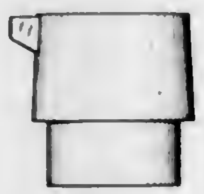
206,993
DENTIFRICE DISPENSER

Jack F. Baker, Glenview, Ill., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
Filed Feb. 7, 1966, Ser. No. 938
Term of patent 14 years
(Cl. D4—3)



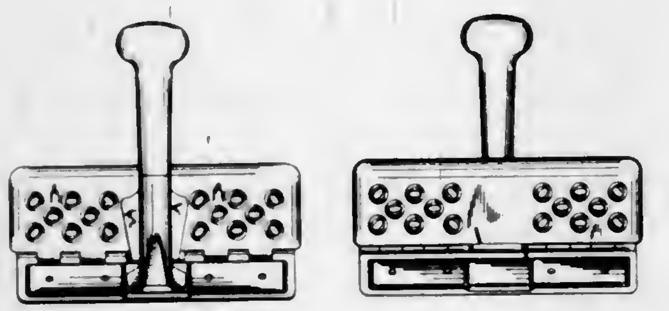
206,994
DENTIFRICE DISPENSER

Jack F. Baker, Glenview, Ill., assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
Filed Feb. 7, 1966, Ser. No. 957
Term of patent 14 years
(Cl. D4—3)



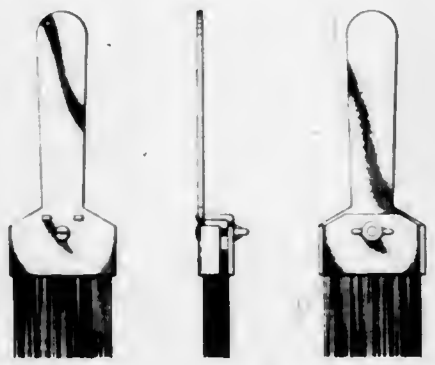
206,995
MOP HOLDER

Jerome Wank, 672 Nancy Place, North Woodmere, N.Y. 11598, and Robert Fusco, 2727 Ocean Parkway, Brooklyn, N.Y. 11235
Filed Sept. 21, 1965, Ser. No. 87,099
Term of patent 3½ years
(Cl. D9—2)



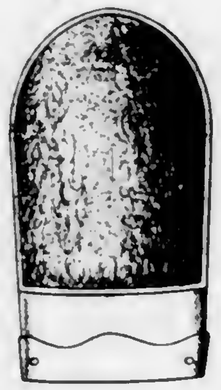
206,996
COMBINED PAINTBRUSH HANDLE AND DISPOSABLE BRISTLES

Bill G. Blount, 1417 Oak Lea Drive, Irving, Tex. 75060
Filed Sept. 30, 1965, Ser. No. 87,242
Term of patent 14 years
(Cl. D9—2)



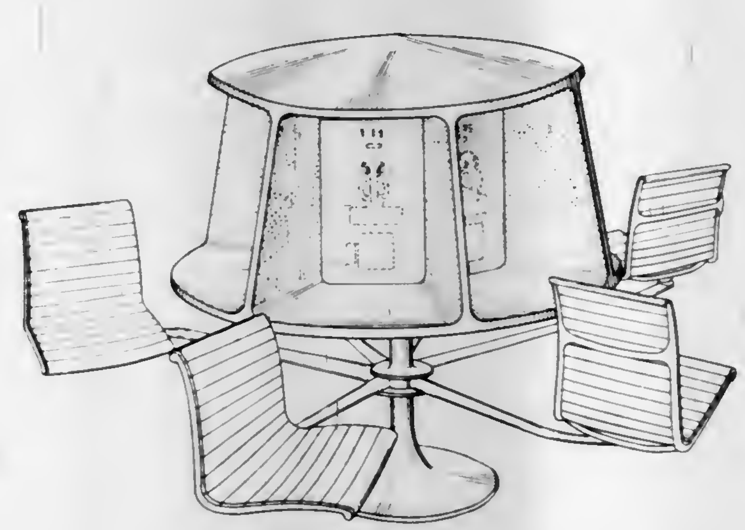
206,997
SCRUBBING MITT

Morris E. Epstein, Swampscott, and Earl H. Barry, Marblehead, Mass., assignors to Bay State Mop Wringer Co., Inc., Wilmington, Mass., a corporation of Massachusetts
Filed Oct. 22, 1965, Ser. No. 87,754
Term of patent 14 years
(Cl. D9—2)



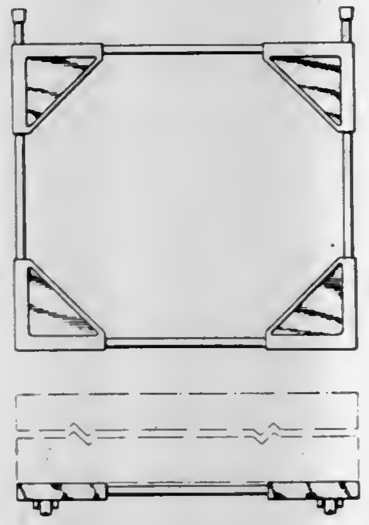
206,998
TELEPHONE BOOTH STRUCTURE OR THE LIKE

E. Burton Benjamin, Highland, Park, Ill., assignor to Burgess-Day, Inc., Libertyville, Ill., a corporation of Delaware
Filed Mar. 17, 1966, Ser. No. 1,523
Term of patent 14 years
(Cl. D13—1)



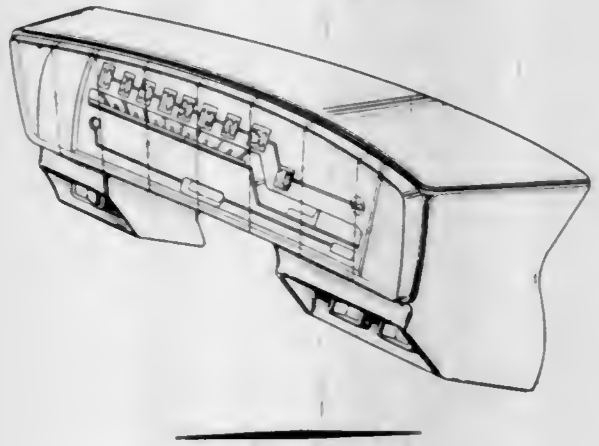
206,999
ROLL-OUT BASE FOR REFRIGERATORS

Avraham Michaeli, 143 Rutgers St., Rochester, N.Y. 14607
Filed Feb. 15, 1966, Ser. No. 1,043
Term of patent 7 years
(Cl. D14—3)



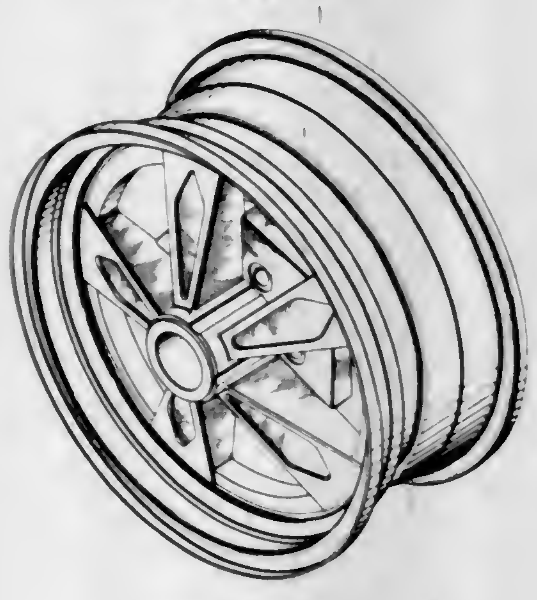
207,000
INSTRUMENT PANEL FOR AN AUTOMOBILE DASHBOARD

Gaetan de Coye de Castelet, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France
Filed Dec. 24, 1964, Ser. No. 83,145
Claims priority, application France June 25, 1964
Term of patent 14 years
(Cl. D14—6)



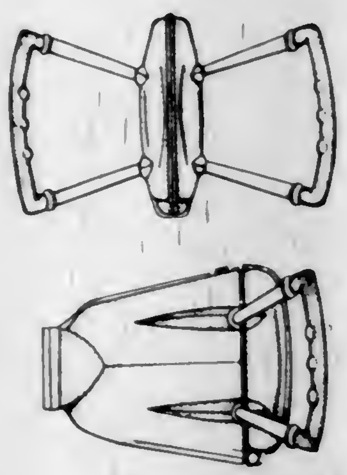
207,001
WHEEL

Aaron J. Fenton, 1301 Monaco Drive, Pacific Palisades, Calif. 90272
Filed Dec. 3, 1965, Ser. No. 42
Term of patent 14 years
(Cl. D14—30)



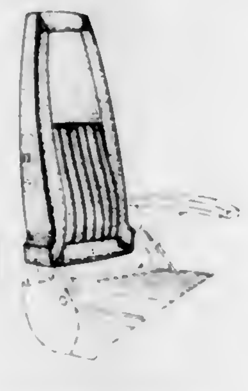
207,002
FOLDABLE STEERING ASSEMBLY

John T. Le Rose, 61 Joseph St., Iowa City, Iowa 52240
Filed Mar. 8, 1965, Ser. No. 84,144
Term of patent 7 years
(Cl. D14—30)



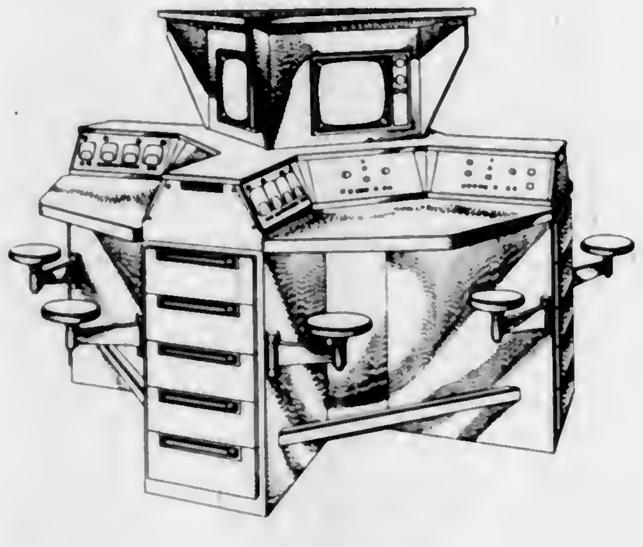
207,003
BACK REST FOR DENTAL CHAIR OR SIMILAR ARTICLE

John M. Gardella and Rudolph Vetere, Staten Island, N.Y., assignors to S. S. White Company, a corporation of Pennsylvania
Filed July 27, 1965, Ser. No. 86,306
Term of patent 14 years
(Cl. D15—3)



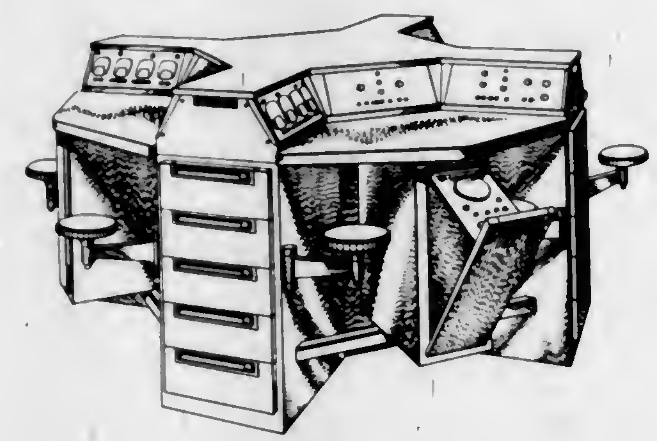
207,004
ELECTRONIC LABORATORY WORK CENTER

Arthur W. Carlson, Muskegon, Mich., assignor to E. H. Sheldon & Company, Muskegon, Mich., a corporation of Michigan
Filed May 2, 1966, Ser. No. 2,082
Term of patent 14 years
(Cl. D16—2)



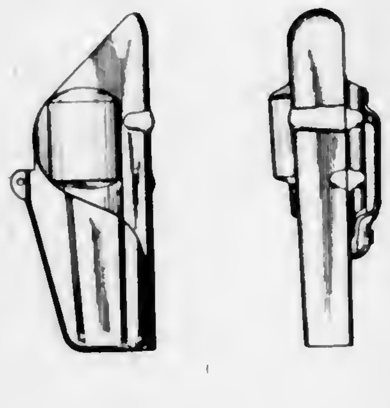
207,005
ELECTRONIC LABORATORY WORK CENTER

Arthur W. Carlson, Muskegon, Mich., assignor to E. H. Sheldon & Company, Muskegon, Mich., a corporation of Michigan
Filed May 3, 1966, Ser. No. 2,138
Term of patent 14 years
(Cl. D16—2)



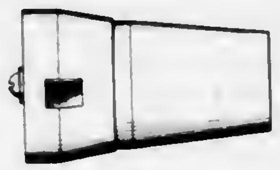
207,006
PISTOL HOLSTER

John R. Couper, Denver, Colo., assignor to J. C. & G. Ltd., a corporation of Colorado
Filed Oct. 23, 1965, Ser. No. 87,882
Term of patent 14 years
(Cl. D22—13)



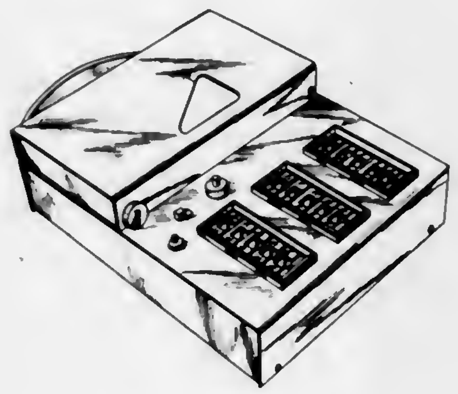
207,007
COMBINED BUTT CAP AND MEASURING TAPE FOR FISHING ROD HANDLES

Ralph V. Mears, 2374 Marconi Ave., Sacramento, Calif. 95821
Filed Feb. 17, 1966, Ser. No. 1,089
Term of patent 14 years
(Cl. D22—23)



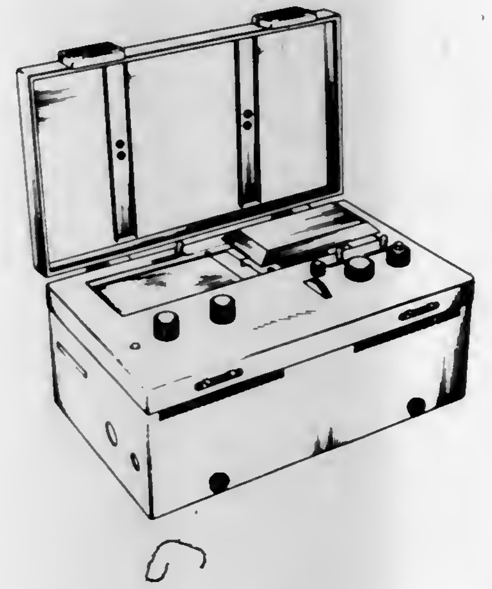
207,008
PORTABLE RECORDER

Raymond B. Larsen, 103 E. Sunset, Riverton, Wyo. 82501
Filed Aug. 26, 1965, Ser. No. 86,734
Term of patent 14 years
(Cl. D26—14)



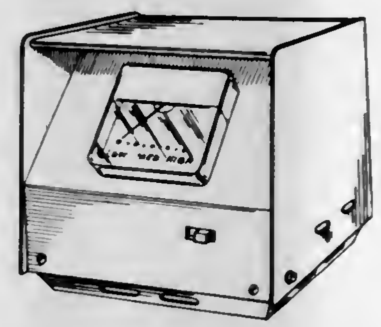
207,009
TAPE RECORDER OR SIMILAR ARTICLE

Rod G. Bergstedt and Jan M. Farlow, Fort Wayne, Ind., assignors to The Magnavox Co., Fort Wayne, Ind., a corporation of Indiana
Filed Oct. 12, 1965, Ser. No. 87,443
Term of patent 7 years
(Cl. D26—14)



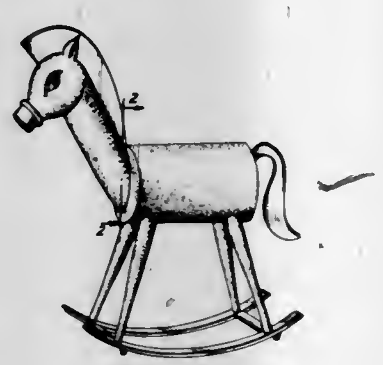
207,010
PORTABLE BATTERY CHARGER

Eugene B. Raymond, 4041 Grove St., Skokie, Ill. 60076
Filed Sept. 7, 1965, Ser. No. 86,878
Term of patent 3½ years
(Cl. D26—15)



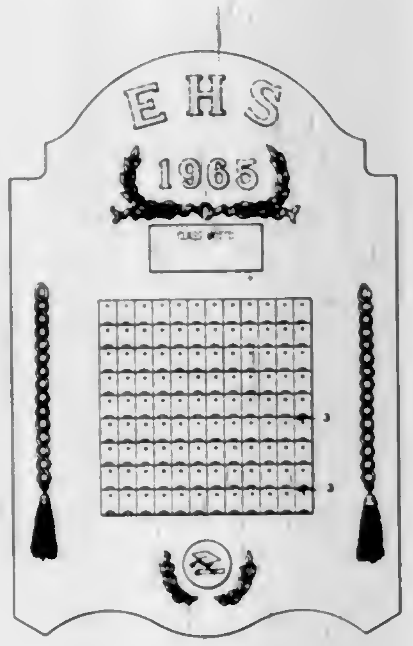
207,011
CHRISTMAS TREE ORNAMENT

Dario Moranduzzo, Via Aretina 161, Florence, Italy
Filed Oct. 22, 1965, Ser. No. 87,818
Term of patent 3½ years
(Cl. D29—1)



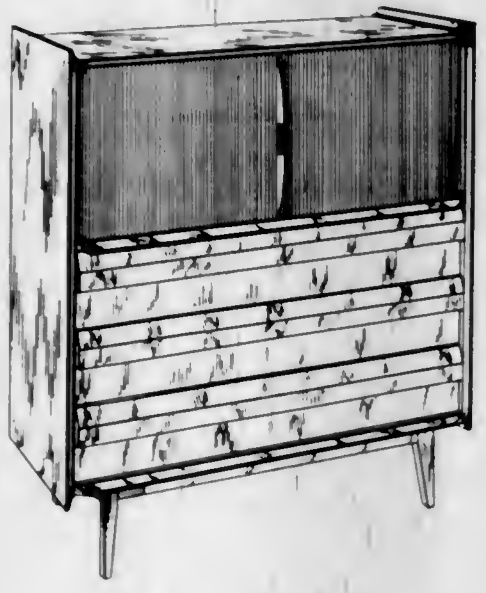
207,012
SCHOOL PLAQUE OR THE LIKE

Clyde Ray Minix, P.O. Box 366,
Edwardsburg, Mich. 49112
Filed July 1, 1965, Ser. No. 85,985
Term of patent 3½ years
(Cl. D29—23)



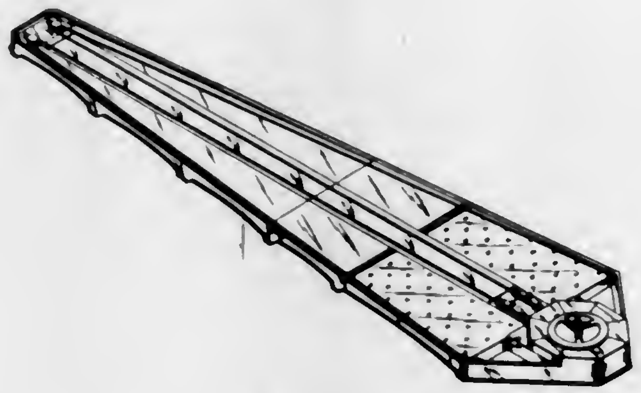
207,013
ARMOIRE

Bert J. Klein and Andre Bus, Altavista, and John B. Thorn, Lynchburg, Va., assignors to The Lane Company, Inc., Altavista, Va., a corporation of Virginia
Original design application Apr. 19, 1965, Ser. No. 84,863, now Patent No. 205,620, dated Aug. 30, 1966. Divided and this application May 23, 1966, Ser. No. 2,847
Term of patent 14 years
(Cl. D33—6)



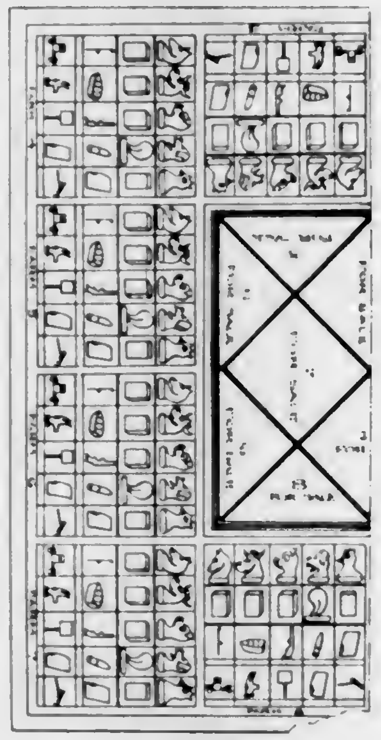
207,014
RACING GAME BOARD

John W. Ryan, Bel-Air, and Cecil Frederick Adickes, Jr., Woodland Hills, Calif., assignors to Mattel, Inc., a corporation of California
Filed Jan. 28, 1966, Ser. No. 804
Term of patent 14 years
(Cl. D34—5)



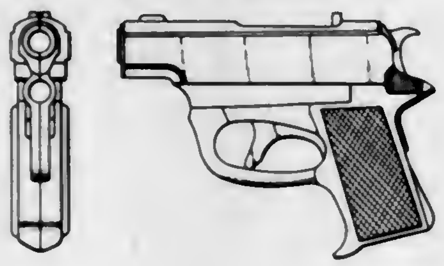
207,015
GAME BOARD

Humbert Robertson, 965 Tinton Ave.,
Bronx, N.Y. 10456
Filed Sept. 23, 1965, Ser. No. 87,145
Term of patent 14 years
(Cl. D34—5)



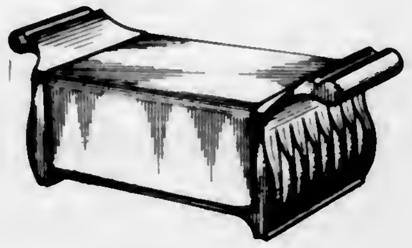
207,016
TOY GUN

Hiroshi Yano, 2 1-chome, Jinai-cho, Moriguchi-shi,
Osaka, Japan
Filed Nov. 16, 1964, Ser. No. 82,602
Term of patent 14 years
(Cl. D34—15)



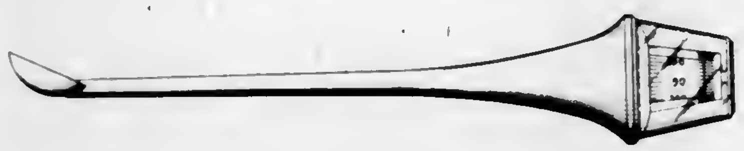
207,017
BUTTER DISH

Roger Dulac, 15–17 Ave. Rapp, Paris, France
Filed Oct. 6, 1965, Ser. No. 87,342
Claims priority, application France Apr. 8, 1965
Term of patent 3½ years
(Cl. D44—5)



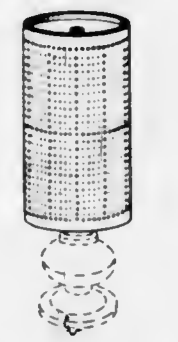
207,018
SPOON

Luigi Di Benedetto, Inglewood, Calif., assignor to Gaydell, Inc., Santa Monica, Calif., a corporation of California
Filed Apr. 22, 1966, Ser. No. 1,979
Term of patent 14 years
(Cl. D44—29)



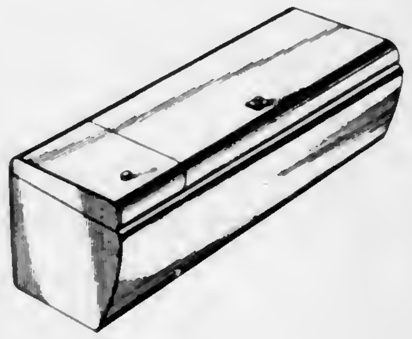
207,019
LAMP SHADE

Arthur Jones, 1810 Demaree Lane,
Houston, Tex. 77029
Filed Dec. 6, 1965, Ser. No. 101
Term of patent 14 years
(Cl. D48—16)



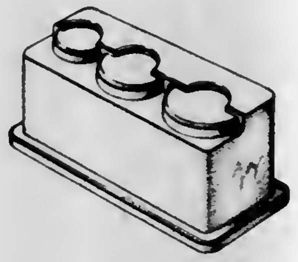
207,020
MOTOR DRIVEN DISPENSER FOR PAPER TOWELING OR THE LIKE

Kenneth R. Bartleson, 824 W. 34th St.,
Baltimore, Md. 21211
Filed Oct. 4, 1965, Ser. No. 87,294
Term of patent 3½ years
(Cl. D52—2)



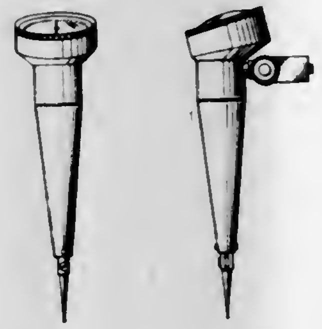
207,021
COMBINED COIN HOLDER AND DISPENSER

Jack E. Browder, 45 Sacks St., Dayton, Ohio 45403
Filed Mar. 8, 1966, Ser. No. 1,355
Term of patent 14 years
(Cl. D52—4)



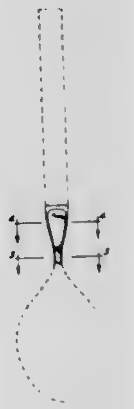
207,022
DIAL INDICATOR

Harry W. Hanley, P.O. Box 140B, Rte. 2,
Victorville, Calif. 92392
Filed Feb. 25, 1966, Ser. No. 1,190
Term of patent 14 years
(Cl. D52—6)



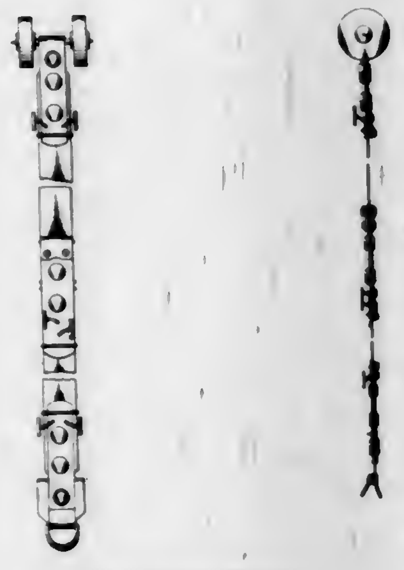
207,023
SPOON OR THE LIKE

Richard S. Latham, Chicago, Ill., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 3, 1965, Ser. No. 44
Term of patent 14 years
(Cl. D54—12)



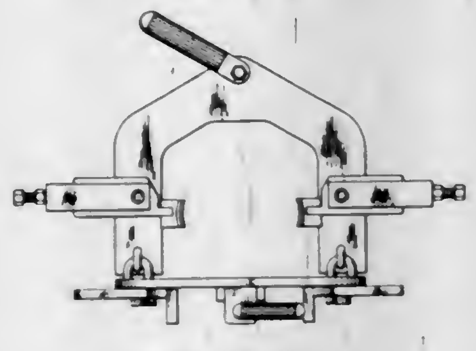
207,024
FEEDER TAPE FOR INSTALLING ELECTRIC CABLES

Edward James Martin, 31 Llanthewy Road,
Newport, England.
Filed Aug. 9, 1965, Ser. No. 86,530
Claims priority, application Great Britain June 9, 1965
Term of patent 14 years
(Cl. D54—13)



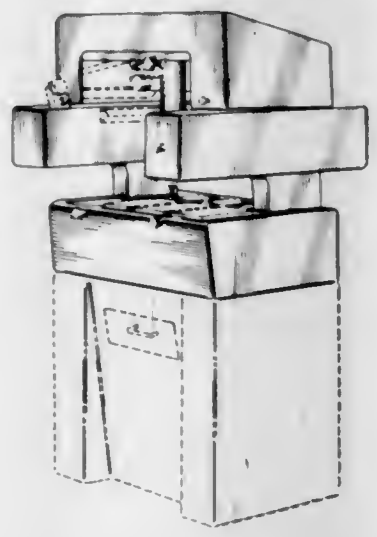
207,025
PIPE TOOL

Beauford E. Steely, Dallas, Tex., assignor to Cranford Corporation, Dallas, Tex.
Filed Oct. 21, 1965, Ser. No. 87,687
Term of patent 3½ years
(Cl. D54—13)



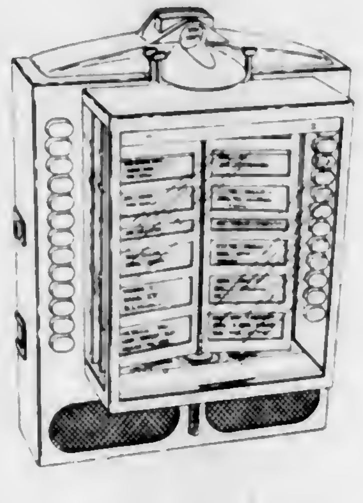
207,026
COORDINATE MEASURING MACHINE

Robert I. Leach, Clinton, and John H. Lanahan, Whitesboro, N.Y., assignors to The Bendix Corporation, a corporation of Delaware
Filed July 1, 1965, Ser. No. 86,021
Term of patent 3½ years
(Cl. D55—1)



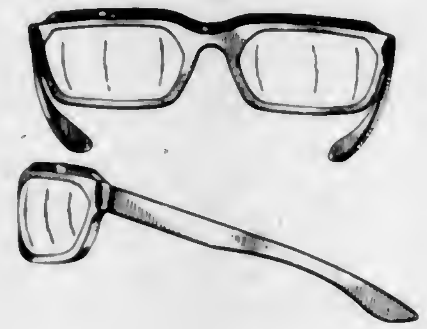
207,027
COMBINED AUTOMATIC PHONOGRAPH REMOTE CONTROL UNIT AND EXTENSION LOUDSPEAKER OR SIMILAR ARTICLE

Christopher John Sheils, 216 Guildwood Parkway,
Scarborough, Ontario, Canada
Filed Oct. 6, 1965, Ser. No. 87,343
Term of patent 3½ years
(Cl. D56—4)



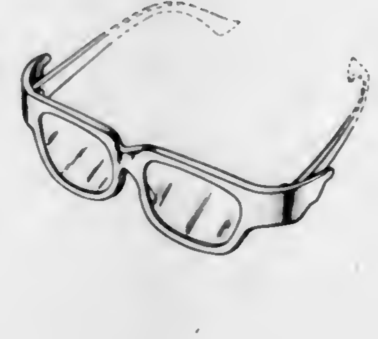
207,028
PAIR OF SPECTACLES

Michael A. Griss, Toronto, Ontario, Canada, assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Dec. 6, 1965, Ser. No. 102
Term of patent 14 years
(Cl. D57—1)



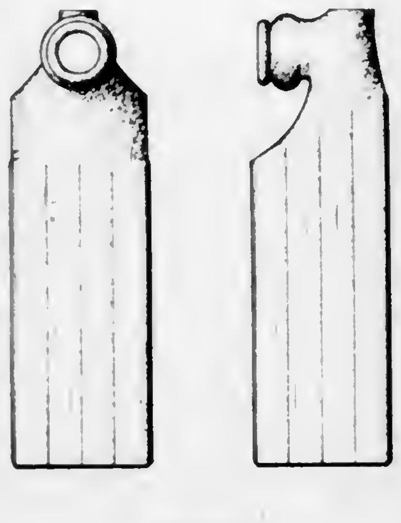
207,029
PAIR OF SUNGLASSES OR THE LIKE

Jack Block, Leominster, and Vitallino Marchi, Concord, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass., a corporation of Delaware
Filed Nov. 29, 1965, Ser. No. 88,250
Term of patent 14 years
(Cl. D57—1)



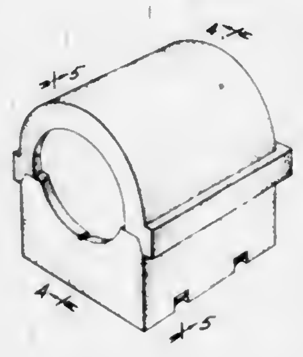
207,030
BOTTLE

Robert G. Terrell, Jr., 1445 S. 28th St.,
Arlington, Va. 22206
Filed Oct. 11, 1965, Ser. No. 87,410
Term of patent 3½ years
(Cl. D58—6)



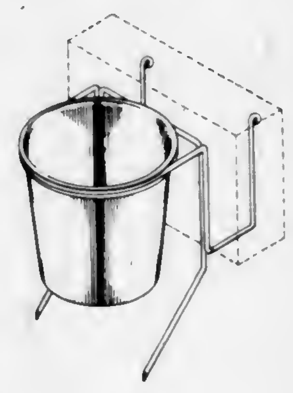
207,031
TWO-PIECE INSULATED CONTAINER HAVING AN OPEN END

Edward R. Jerore, 23030 Shoreview,
St. Clair Shores, Mich. 48082
Filed Feb. 23, 1965, Ser. No. 83,925
Term of patent 3½ years
(Cl. D58—17)



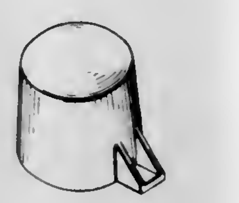
207,032
COMBINATION STAND, RECEPTACLE AND HOLDER FOR TISSUE DISPENSER

Orville T. Stall, Whittier, Calif.
(13545 Excelsior Drive, Norwalk, Calif. 90650)
Filed Aug. 27, 1965, Ser. No. 86,738
Term of patent 3½ years
(Cl. D58—17)



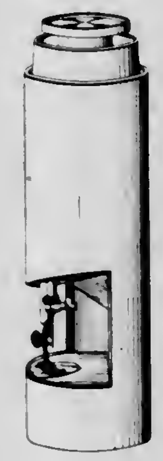
207,033
TAMPER-PROOF CAP FOR CONTAINERS

Earl R. Bowker, Aurora, Ill., assignor to Anfinsen Plastic Molding, Inc., a corporation of Illinois
Filed July 22, 1965, Ser. No. 86,254
Term of patent 3½ years
(Cl. D58—26)



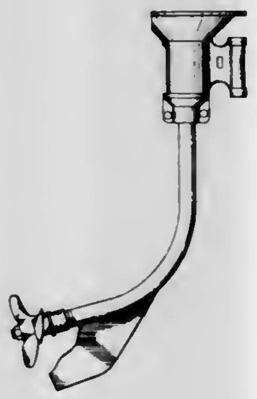
207,034
SEWING MACHINE OR SIMILAR ARTICLE

Lloyd G. Kent, Jr., Middletown, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed May 17, 1966, Ser. No. 2,327
Term of patent 14 years
(Cl. D70—1)



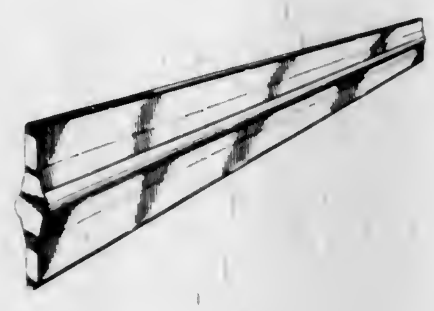
207,035
OUTBOARD MOTOR DRIVE

Willie E. Huston, Rte. 2, Box P15, Conroe, Tex. 77301
Filed May 20, 1966, Ser. No. 2,483
Term of patent 14 years
(Cl. D71—1)



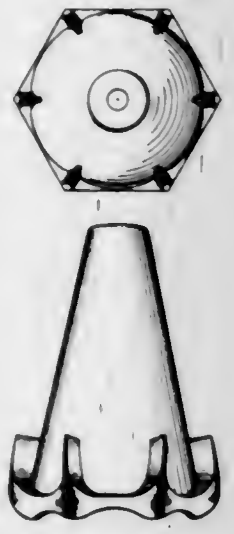
207,036
SAIL BATTEN

Charles R. Newpher, Shaker Heights, Ohio, assignor to The Glastic Corporation, Cleveland, Ohio, a corporation of Ohio
Filed June 28, 1965, Ser. No. 85,937
Term of patent 14 years
(Cl. D71—1)



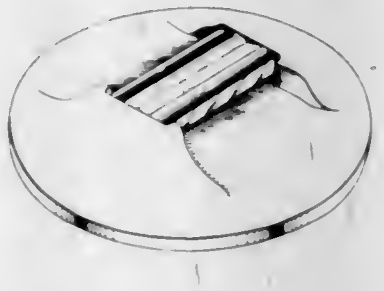
207,037
TRAFFIC CONE

Robert E. Dawson, Huntingdon Valley, Pa., assignor to R. E. Dietz Company, Syracuse, N.Y., a corporation of New York
Filed Jan. 5, 1966, Ser. No. 485
Term of patent 14 years
(Cl. D72—1)



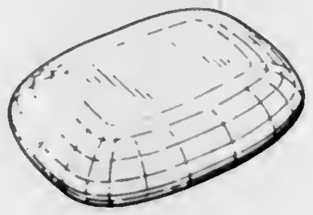
207,038
COMBINED REFLECTIVE HIGHWAY LANE DIVIDER AND ROAD MARKER

Dwight L. Haley, Tyler, Tex., assignor to Ferro Corporation, Cleveland, Ohio, a corporation of Ohio
Filed July 5, 1966, Ser. No. 2,924
Term of patent 14 years
(Cl. D72—1)



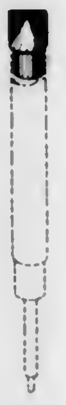
207,039
SOAP TABLET OR THE LIKE

Edmund James Cliffe Sillett, Maidenhead, England, assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
Filed Mar. 23, 1964, Ser. No. 79,123
Claims priority, application Great Britain Sept. 25, 1963
Term of patent 14 years
(Cl. D73—1)



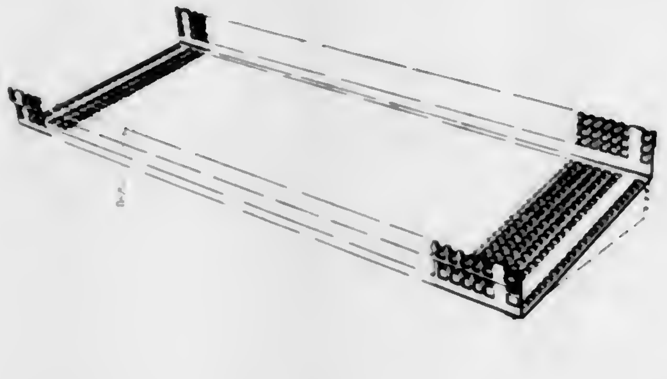
207,040
CLOSURE PLUG FOR A BALLPOINT REFILL OR THE LIKE

Robert John Darst, Fort Madison, Iowa, assignor to Textron, Inc., Providence, R.I., a corporation of Rhode Island
Filed May 24, 1965, Ser. No. 85,427
Term of patent 14 years
(Cl. D74—17)



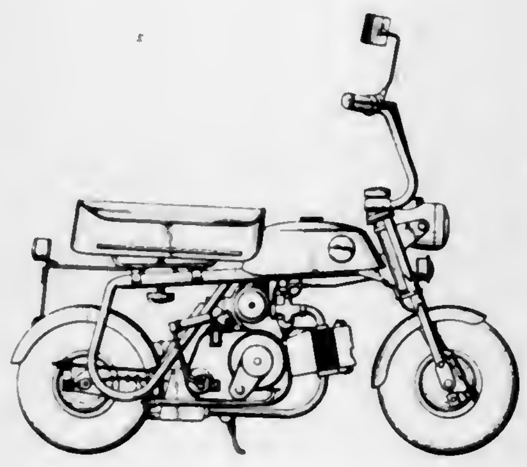
207,041
SHELF

Arthur Goldstein, Scarsdale, N.Y., and Theodore Sobel. South Orange, N.J., assignors to Butler Industries, Inc., Newark, N.J., a corporation of New York
Filed Dec. 20, 1965, Ser. No. 239
Term of patent 14 years
(Cl. D80—9)



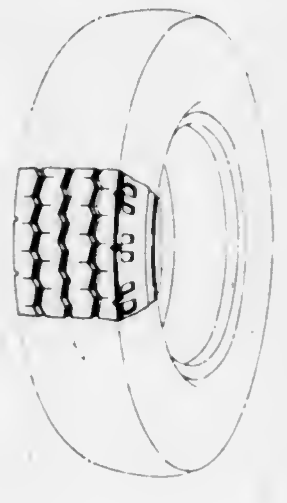
207,042
MOTORCYCLE

Norimoto Otsuka, Tokyo, and Makoto Hori, Yamatomachi, Kitaadachi-gun, Japan, assignors to Kabushiki Kaisha Honda Gijutsu Kenkyusho, Saitama-ken, Japan
Filed Apr. 21, 1966, Ser. No. 1,969
Claims priority, application Japan Oct. 26, 1965
Term of patent 14 years
(Cl. D90—8)



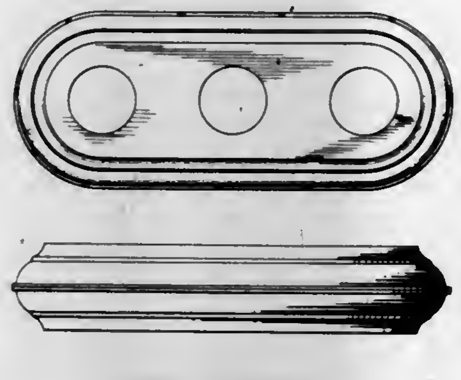
207,043
TIRE

John O. Antonson, Tallmadge, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed May 2, 1966, Ser. No. 2,079
Term of patent 14 years
(Cl. D90—20)



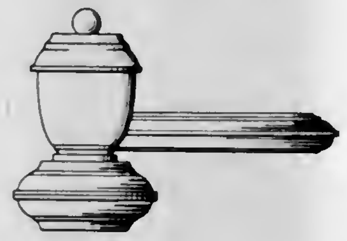
207,044
BASE FOR A WATER FAUCET OR SIMILAR ARTICLE

Julius Hurwitz, 96—10 57th Ave., Forest Hills, N.Y. 11375
Filed Sept. 27, 1965, Ser. No. 87,178
Term of patent 3½ years
(Cl. D91—3)



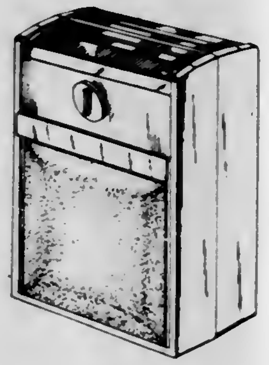
207,045
FAUCET FIXTURE OR SIMILAR ARTICLE

Julius Hurwitz, 96—10 57th Ave., Forest Hills, N.Y. 11375
Filed Sept. 27, 1965, Ser. No. 87,179
Term of patent 3½ years
(Cl. D91—3)



207,046
SHAVER

Raymond A. Somers, Fairfield, and Robert J. Tolmie, Bridgeport, Conn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 6, 1965, Ser. No. 84,635
Term of patent 14 years
(Cl. D95—3)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Bostrom Corp.: *See*—
    Simons, Allison K., Radke, and Tengler. Re. 26,162.

Crost, Joseph G.: *See*—
    Sorensen, Egon, and Crost. Re. 26,160.

Leimbach, John G., and A. Owens, to Sporlan Valve Co. Thermostatic expansion valve with an auxiliary port. Re. 26,161, 2-21-67, Cl. 62—225.

Owens, Alan: *See*—
    Leimbach, John G., and Owens. Re. 26,161.

Radke, Arthur O.: *See*—
    Simons, Allison K., Radke, and Tengler. Re. 26,162.

Simons, Allison K., A. O. Radke, and H. N. Tengler, to Bostrom Corp. Vehicle seat rebound control. Re. 26,162, 2-21-67. Cl. 248—400.

Sorensen, Egon, and J. G. Crost, to Sunroc Corp. Water cooling system. Re. 26,160, 2-21-67, Cl. 62—391.

Sporlan Valve Co.: *See*—
    Leimbach, John G., and Owens. Re. 26,161.

Sunroc Corp.: *See*—
    Sorensen, Egon, and Crost. Re. 26,160.

Tengler, Harvey N.: *See*—
    Simons, Allison K., Radke, and Tengler. Re. 26,162.

LIST OF PLANT PATENTEES

Gavello, Louis E. Hebe (Veronica) plant. 2,720, 2-21-67, Cl. 54.

McDade, Everest. Orchid plant. 2,716, 2-21-67, Cl. 68.

Moore, Ralph S. Rose plant. 2,717, 2-21-67, Cl. 6.

Moore, Ralph S. Rose plant. 2,718, 2-21-67, Cl. 9.

Moore, Ralph S. Rose plant. 2,719, 2-21-67, Cl. 5.

LIST OF DESIGN PATENTEES

Adickes, Cecil F., Jr.: *See*—
    Ryan, John W., and Adickes. 207,014.

American Home Products Corp.: *See*—
    Latham, Richard S. 207,023.

Anfinsen Plastic Molding, Inc.: *See*—
    Bowker, Earl R. 207,033.

Antonson, John O., to The B. F. Goodrich Co. Tire. 207,043, 2-21-67, Cl. D90—20.

Baker, Jack F., to Lever Bros. Co. Dentifrice dispenser. 206,993, 2-21-67, Cl. D4—3.

Baker, Jack F., to Lever Bros. Co. Dentifrice dispenser. 206,994 2-21-67, Cl. D4—3.

Barry, Earl H.. *See*—
    Epstein, Morris E., and Barry. 206,997.

Bartleson, Kenneth R. Motor driven dispenser for paper towelling or the like. 207,020, 2-21-67, Cl. D52—2.

Bausch & Lomb Inc.: *See*—
    Griss. Michael A. 207,028.

Bay State Mop Wringer Co., Inc.: *See*—
    Epstein, Morris E., and Barry. 206,997.

Bendix Corp., The: *See*—
    Leach, Robert I., and Lanahan. 207,026.

Benjamin. E. Burton, to Burgess-Day, Inc. Telephone booth structure or the like. 206,998, 2-21-67, Cl. D13—1.

Bergstedt, Rod G., and J. M. Farlow, to The Magnavox Co. Tape recorder or similar article. 207,009, 2-21-67, Cl. D26—14.

Block, Jack, and V. Marchi, to Foster Grant Co., Inc. Pair of sunglasses or the like. 207,029, 2-21-67, Cl. D57—1.

Blount, Bill G. Combined paintbrush handle and disposable bristles. 206,996, 2-21-67, Cl. D9—2.

Bowker, Earl R., to Anfinsen Plastic Molding, Inc. Tamperproof cap for container. 207,033, 2-21-67, Cl. D58—26.

Bozovic, Ursula, to Daintifyt Brassiere Co. Ltd. Girdle. 206,989, 2-21-67, Cl. D2—2.

Bozovic, Ursula, to Daintifyt Brassiere Co. Ltd. Girdle. 206,990, 2-21-67, Cl. D2—2.

Browder, Jack E. Combined coin holder and dispenser. 207,021, 2-21-67, Cl. D52—4.

Burgess-Day, Inc.: *See*—
    Benjamin, E. Burton. 206,998.

Bus, Andre: *See*—
    Klein, Bert J., Bus, and Thorn. 207,013.

Butler Industries, Inc.: *Sec*—
    Goldstein, Arthur, and Sobel. 207,041.

Carlson, Arthur W., to E. H. Sheldon & Co. Electronic laboratory work center. 207,004, 2-21-67, Cl. D16—2.

Carlson, Arthur W., to E. H. Sheldon & Co. Electronic laboratary work center. 207,005, 2-21-67, Cl. D16—2.

Couper, John R., to J.C. & G., Ltd. Pistol holster. 207,006, 2-21-67, Cl. D22—13.

Cranford Corp.: *See*—
    Steely, Beauford E. 207,025.

Daintifyt Brassiere Co. Ltd.: *See*—
    Bozovic, Ursula. 206,989.
    Bozovic, Ursula. 206,990.

Darst, Robert J., to Textron, Inc. Closure plug for a ballpoint refill or the like. 207,040, 2-21-67, Cl. D74—17.

Dawson, Robert E., to R. E. Dietz Co. Traffic cone. 207,037, 2-21-67, Cl. D72—1.

De Castelet, Gaetan deC., to Regie Nationale des Usines Renault. Instrument panel for an automobile dashboard. 207,000, 2-21-67, Cl. D14—6.

Di Benedetto, Luigi, to Gaydell, Inc. Spoon. 207,018, 2-21-67, Cl. D44—29.

Dietz, R. E., Co.: *See*—
    Dawson, Robert E. 207,037.

Dulac, Roger. Butter dish. 207,017, 2-21-67, Cl. D44—5.

Epstein, Morris E., and E. H. Barry, to Bay State Mop Wringer Co., Inc. Scrubbing mitt. 206,997, 2-21-67, Cl. D9—2.

Farlow, Jan M.: *See*—
    Bergstedt, Rod G., and Farlow. 207,009.

Fenton, Aaron J. Wheel. 207,001, 2-21-67, Cl. D14—30.

Ferro Corp.: *See*—
    Haley, Dwight L. 207,038.

Foster Grant Co., Inc.: *See*—
    Block, Jack, and Marchi. 207,029.

Fusco, Robert: *See*—
    Wank, Jerome, and Fusco. 206,995.

Gardella, John M., and R. Vetere, to S. S. White Co. Back rest for dental chair or similar article. 207,003, 2-21-67, Cl. D15—3.

Gaydell, Inc.: *See*—
    Di Benedetto, Luigi. 207,018.

Glastic Corp., The: *See*—
    Newpher, Charles R. 207,036.

Glines, Carl R., to International Latex Corp. Panty girdle. 206,991, 2-21-67, Cl. D2—4.

Goldstein, Arthur, and T. Sobel, to Butler Industries, Inc. Shelf. 207,041, 2-21-67, Cl. D80—9.

Goodrich, B. F., Co., The: *See*—
    Antonson, John O. 207,043.

Griss, Michael A., to Bausch & Lomb Inc. Pair of spectacles. 207,028, 2-21-67, Cl. D57—1.

Haley, Dwight L., to Ferro Corp. Combined reflective highway lane divider and road marker. 207,038, 2-21-67, Cl. D72—1.

Hanley, Harry W. Dial indicator. 207,022, 2-21-67, Cl. D52—6.

Hori, Makoto: *See*—
    Otsuka, Norimoto, and Hori. 207,042.

Hurwitz, Julius. Base for a water faucet or similar article. 207,044, 2-21-67, Cl. D91—3.

Hurwitz, Julius. Faucet fixture or similar article. 207,045, 2-21-67, Cl. D91—3.

Huston, Willie E. Outboard motor drive. 207,035, 2-21-67, Cl. D71—1.

International Latex Corp.: *See*—
    Glines, Carl R. 206,991.

J.C. & G., Ltd.: *See*—
    Couper, John R. 207,006.

Jerore, Edward R. Two-piece insulated container having an open end. 207,031, 2-21-67, Cl. D58—17.

Jones, Arthur. Lamp shade. 207,019, 2-21-67, Cl. D48—16.

Kaoushiki Kaisha Honda Gijutsu Kenkyusho: *See*—
    Otsuka, Norimoto, and Hori. 207,042.

Kent, Lloyd G., Jr., to The Singer Co. Sewing machine or similar article. 207,034, 2-21-67, Cl. D70—1.

Klein, Bert J., A. Bus, and J. B. Thorn, to The Lane Co., Inc. Armoire. 207,013, 2-21-67, Cl. D33—6.

- Lanahan, John H.: *See—*
  - Leach, Robert I., and Lanahan. 207,026.
- Lane Co., Inc., The: *See—*
  - Klein, Bert J., Bus, and Thorn. 207,013.
- Larsen, Raetaoinshrdlu
- Larsen, Raymond B. Portable recorder. 207,008, 2-21-67, Cl. D26—14.
- Latham, Richard S., to American Home Products Corp. Spoon or the like. 207,023, 2-21-67, Cl. D54—12.
- Leach, Robert I., and J. H. Lanahan, to The Bendix Corp. Coordinate measuring machine. 207,026, 2-21-67, Cl. D55—1.
- LeRose, John T. Foldable steering assembly. 207,002, 2-21-67, Cl. D14—30.
- Lever Brothers Co.: *See—*
  - Baker, Jack F. 206,993.
  - Baker, Jack F. 206,994.
  - Sillett, Edmund J. C. 207,039.
- Magnavox Co., The: *See—*
  - Bergstedt, Rod G., and Farlow. 207,009.
- Marchi, Vitallino: *See—*
  - Block, Jack, and Marchi. 207,029.
- Martin, Edward J. Feeder tape for installing electric cables. 207,024, 2-21-67, Cl. D54—13.
- Mattel, Inc.: *See—*
  - Ryan, John W., and Adickes. 207,014.
- Mears, Ralph V. Combined butt cap and measuring tape for fishing rod handles. 207,007, 2-21-67, Cl. D22—23.
- Michaeli, Avraham. Roll-out base for refrigerators. 206,999, 2-21-67, Cl. D14—3.
- Minix, Clyde R. School plaque or the like. 207,012, 2-21-67, Cl. D29—23.
- Moranduzzo, Dario. Christmas tree ornament. 207,011, 2-21-67, Cl. D29—1.
- Newpher, Charles R., to The Glastic Corp. Sail batten. 207,036, 2-21-67, Cl. D71—1.
- Otsuka, Norimoto, and M. Hori, to Kabushiki Kaisha Honda Gijutsu Kenkyusho. Motorcycle. 207,042, 2-21-67, Cl. D90—8.
- Raymond, Eugent B. Portable battery charger. 207,010, 2-21-67, Cl. D26—15.
- Regie Nationale des Usines Renault: *See—*
  - De Castelet, Gaetan D. 207,000.
- Robertson, Humbert. Game board. 207,015, 2-21-67, Cl. D34—5.
- Ryan, John W., and C. F. Adickes, Jr., to Mattel, Inc. Racing game board. 207,014, 2-21-67, Cl. D34—5.
- Shells, Christopher J. Combined automatic phonograph remote control unit and extension loudspeaker or similar article. 207,027, 2-21-67, Cl. D56—4.
- Sheldon, E. H., & Co.: *See—*
  - Carlson, Arthur W. 207,004.
  - Carlson, Arthur W. 207,005.
- Sillett, Edmund J. C., to Lever Bros. Co. Soap tablet or the like. 207,039, 2-21-67, Cl. D73—1.
- Singer Co., The: *See—*
  - Kent, Lloyd G., Jr. 207,034.
- Skier, Herman. Hair protector. 206,992, 2-21-67, Cl. D2—253.
- Sobel, Theodore: *See—*
  - Goldstein, Arthur, and Sobel. 207,041.
- Somers, Raymond A., and R. J. Tolmie, to Sperry Rand Corp. Shaver. 207,046, 2-21-67, Cl. D95—3.
- Sperry Rand Corp.: *See—*
  - Somers, Raymond A., and Tolmie. 207,046.
- Stall, Orville T. Combination stand, receptacle and holder for tissue dispenser. 207,032, 2-21-67, Cl. D58—17.
- Steely, Beauford E., to Cranford Corp. Pipe tool. 207,025, 2-221-67, Cl. D54—13.
- Terrell, Robert G., Jr. Bottle. 207,030, 2-21-67, Cl. D58—6.
- Textron, Inc.: *See—*
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- Thorn, John B.: *See—*
  - Klein Bert J., Bus, and Thorn. 207,013.
- Tolmie, Robery J.: *See—*
  - Somers, Raymond A., and Tolmie. 207,046.
- Vetere, Rudolph: *See—*
  - Gardella, John M., and Vetere. 207,003.
- Wank, Jerome, and R. Fusco. Mop holder. 206,995, 2-21-67, Cl. D9—2.
- White, S. S., Co.: *See—*
  - Gardella, John M., and Vetere. 207,003.
- Yano, Hiroshi. Toy gun. 207,016, 2-21-67, Cl. D34—15.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AGA Aktiebolag: *See—*
  - Granqvist, Carl-Erik. 3,304,786.
  - Granqvist, Carl-Erik. 3,304,788.
- AGFA Aktiengesellschaft: *See—*
  - Riester, Oskar, and Stracke. 3,305,362.
- AMP Inc.: *See—*
  - Broske, William F. 3,304,962.
  - Stark, Frank B. 3 304,605.
- API Instruments Co.: *See—*
  - Quittner, George F. 3,305,711.
- Abel, Donald J. Component computers. 3,304,611, 2-21-67, Cl. 33—1.
- Abernethy, Robert R. Combination pen and pencil holder. 3,304,916. 2-21-67, Cl. 120—3.
- Abex Corp.: *See—*
  - Kouns, Herbert H. 3,304,884.
- Abramenko, Yury E.: *See—*
  - Vologdin, Vladislav V., Demichev, Suchkousov, Lakedemonsky, and Abramenko. 3,304,589.
- Acciarri, Jerry A., and E. P. Kennedy, to Continental Oil Co. Separation of alkanols from hydrocarbons using benzyl alcohol, dimethylformamide, furfuryl alcohol, furfural and mixtures thereof. 3,305,592, 2-21-67, Cl. 260—643.
- Achler, Howard S., and H. Kaufmann, to Kaufmann Tool and Engineering Corp. Machine for rolling arcuate sheet metal shapes. 3,304,757, 2-21-67, Cl. 72—166.
- Ackermann, Karl: *See—*
  - Herold, Charles V., and Ackermann. 3,305,398.
- Adamovske strojirny, narodni podnik: *See—*
  - Jurny, Josef. 3,304,863.
- Adams, Arthur A. Selectable pitch rafter cutting guide. 3,304,614, 2-21-67, Cl. 33—75.
- Adams, Dale C., to Ford Motor Co. Positive drive differential gearing. 3,304,806, 2-21-67, Cl. 74—711.
- Adams Rite Mfg. Co.: *See—*
  - Eads, Charles L. 3,304,756.
- Adams-Steven Leather Goods, Inc.: *See—*
  - Guterman, Isadore, and Frost. 3,304,978.
- Addleburg, John W.: *See—*
  - Ritchie, Kim, and Addleburg. 3,305,378.
- Adler, Otto: *See—*
  - Remy, Hermann, Adler, and Grunbacher. 3,305,701.
- Admiral Corp.: *See—*
  - Arrington, William L. 3,305,869.
- Adomines, Alfred A., to Sperry Rand Corp. Magnetic film having uniformly variable H and method therefor. 3,305,380. 2-21-67, Cl. 117—7.
- Aero Chem Research Laboratories, Inc.: *See—*
  - Mantell, Russell M., and Ormand. 3,305,297.
- Aetna Chemical Corp.: *See—*
  - Copeland, Wayne E. 3,304,875.
- Agevnin, Rostislav M.: *See—*
  - Zhadaev, Valentin G., Kuznetsov, Morozova, Byderovyskij, Maliovanov, Novikova, Novskij, Fominov, Pruzhiner, Agevnin, and Grishin. 3,305,272.
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- Airpax Electronics, Inc.: *See—*
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- Aitchison, Robert B. Process and apparatus for making steel. 3,305,350. 2-21-67, Cl. 75—40.
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- Alford, Andrew. Transfer characteristic measuring employing substantially constant impedance constant amplitude for driving and terminating input branch. 3,305,775, 2-21-67, Cl. 324—57.
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- Allen, Edward L.: *See—*
  - Bez, Renatus S., and Allen. 3,305,031.
- Allen, Henry W. Heat exchanger bundle. 3,305,012, 2-21-67, Cl. 165—178.
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  - Beavers, Dorothy J., and Allentoff. 3,305,363.
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  - Donegan, Joseph W. 3,304,667.
  - Hartford, Winslow H., and Hoyt. 3,305,303.
  - Voelker, Walter D. 3,305,419.
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  - Piotrowski, Norman C. 3,305,224.
  - Swiecicki, Ignacy, and Whippen. 3,305,215.
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- Amemiya, Hiroshi, to Radio Corp. of America. Memory with improved arrangement of conductors linking memory elements to reduce disturbances. 3,305,846, 2-21-67, Cl. 340—174.
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- American Bosch Arma Corp.: *See—*
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- American Cyanamid Co.: *See—*
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  - Greif, Martin, and Morris. 3,305,077.
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  - Sherr, Allan E., and Gillham. 3,305,607.
  - Stafiej, Stanley F., and Takacs. 3,305,555.
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  - Leijser, Hendrikus J. 3,304,753.
- American Fastener Corp.: *See—*
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- American Pipe and Construction Co.: *See—*
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- Anderson, George W. Hair treatment cap for selectively treating locks of hair. 3,304,945, 2-21-67, Cl. 132—9.
- Anderson, Gerald R., to FMC Corp. Fruit preparation machine. 3,305,071, 2-21-67, Cl. 198—33.
- Anderson, Mauritz G., and E. Eagle, to Swift & Co. Method of destroying trichinella spiralis in meat infested therewith. 3,305,367, 2-21-67, Cl. 99—157.
- Anderson, Otto L., and M. L. Naylor. Metal arm guard for bow and arrow hunters. 3,304,555, 2-21-67, Cl. 2—16.
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Birdwell, Benjamin F., to Anel Engineering Industries, Inc. Interlocking structural system for buildings. 3,304,680, 2–21–67, Cl. 52—332.
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- Bobzin, Hans-Jurgen, to North American Philips Co., Inc. Arrangement for adjustable volume control. 3,305,792, 2-21-67, Cl. 330—133.
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  - Murata, Yorihiro, and Sucharski. 3,305,374.
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- Chmelik, George F., J. Danaczko, Jr., J. Johnsen, and J. E. Kinsey, to Western Electric Co., Inc. Method of fluxing an article to be soldered with noncorrosive fluxing compositions. 3,305,406, 2-21-67, Cl. 148—23.

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Doi, Toshio, to Kabushiki Kaisha Hitachi Seisakusho. Ternary alloy strain gauge. 3,305,816, 2-21-67, Cl. 338—2.
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  Clock, Gerald E., Rieke, and Stroiwas. 3,305,745.
  Dollarhide, Francis E. 3,305,017.
  Flynn, James P., and Strayer. 3,305,413.
  Gilson, James R., and Massicotte. 3,305,478.
  Hanlon, Robert G. 3,305,196.
  Katzer, Melvin F. 3,305,019.
  Koeplinger, Ronald D. 3,305,407.
  Leddy, James J., and Schechter. 3,304,618.
  Mayer, Raymond P., and Stowe. 3,305,311.
  Oldershaw, Charles F., and Valle-Riestra. 3,305,472.
  Rogers, Joan H. 3,305,581.
  Schechter, Dale L., and Leddy. 3,305,310.
  Swan, William O., Jr. 3,304,868.
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Downer, John M., D. B. Wootton, and D. G. Hobbs, to Imperial Chemical Industries Ltd. Coating compositions comprising butadiene-1,3 copolymer, starch and mineral pigment. 3,305,500, 2-21-67, Cl. 260—17.4.
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  Richardson, Davis B., and Du Bois. 3,305,594.
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  Krochta, Harry. 3,304,695.
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- Dumpis, Janis, to Champ-Items, Inc. Method of making sealed prelubricated preloaded bearings. 3,305,617, 2-21-67, Cl. 264—242.
- Duncan, Douglas W., C. C. Walden, and P. C. Trussell, to British Columbia Research Council. Accelerated microbiological ore extraction process. 3,305,353, 2-21-67, Cl. 75—101.
- Duncan, Emmett B., to Borg-Warner Corp. Axial locking clutch. 3,305,061, 2-21-67, Cl. 192—114.
- Duncan, Loney R., Jr., and J. J. Smisloff, to Collins Radio Co. Parallel resonance discriminator including an inductively coupled tuned circuit. 3,305,776, 2-21-67, Cl. 324—57.
- Duncan, Rea E. Shade control. 3,304,992, 2-21-67, Cl. 160—32.
- Dunkel, Morris, and D. J. Eckhardt, to Universal Oil Products Co. Treatment of fibrous materials with certain amino compounds and certain polyacid polyhalides. 3,305,391, 2-21-67, Cl. 117—141.
- Dunn, William E., to Blaw-Knox Co. Continuous crystallizers. 3,304,734, 2-21-67, Cl. 62—123.
- Du Pont de Nemours, E. I., and Co.: *See*—
  - Ebert, Philip E. 3,304,620.
  - McGregor, Donald R. 3,305,615.
- Duquette, William L. Tension-restrained air supported structure. 3,304,664, 2-21-67, Cl. 52—2.
- Dura Corp.: *See*—
  - Doerschlag, Christian. 3,304,566.
- Dusterhoft, William F. Telephone wall cabinet. 3,305,284, 2-21-67, Cl. 312—242.
- Dvorak, Wencil C. Farm gate. 3,304,656, 2-21-67, Cl. 49—247.
- Dyna Mfg. Co.: *See*—
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- Dynamics Corp. of America: *See*—
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  - Anderson, Mauritz G., and Eagle. 3,305,367.
- Earle-Picker Co., The: *See*—
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  - Chupp, John P., and Early. 3,305,440.
- Earnhart, Robert L., to General Motors Corp. Timer sequence tester having plural lamp indicators and template means. 3,305,772, 2-21-67, Cl. 324—51.
- Earp, Charles W., to International Standard Electric Corp. Radio course line beacon radiating a clearance signal. 3,305,866. 2-21-67, Cl. 343—109.
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  - Znamirowski, Henry. 3,305,256.
- Eastman, Ernest A. Exhaust converter. 3,304,711, 2-21-67, Cl. 60—29.
- Eastman Kodak Co.: *See*—
  - Beavers, Dorothy J., and Allentoff. 3,305,363.
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- Herman, Daniel F., A. L. Resnick, and D. Simone, to National Lead Co. Process for making particle-polymer compositions. 3,305,498, 2-21-67, Cl. 260—8.
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- Heyhal, Edward B., to General Electric Co. Electrical switch housing. 3,305,658, 2-21-67, Cl. 200—168.

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- Hilstrom, Hollis R. Device for feeding a work piece into a fabricating machine. 3,305,103, 2-21-67, Cl. 214—1.5.
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- Hoefle, Milton L., and A. Holmes, to Parke, Davis & Co. 2-aminoquinazoline derivatives. 3,305,553, 2-21-67, Cl. 260—256.4.
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- Hogg, Harold A. C., to The M-O Valve Co. Ltd. Electron discharge device having plural electron beams, slow wave structures, and R.F. signals, each signal interacting with a plurality of beams. 3,305,749, 2-21-67, Cl. 315—3.6.
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  - Ulman, Don H. 3,305,482.
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- Hughes, Philip G., to General Electric Co. Magnetic contactor with movable electromagnet. 3,305,804, 2-21-67, Cl. 335—148.
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- Hulls, Leonard R., to Leeds and Northrup Co. Saturable core transducers. 3,305,770, 2-21-67, Cl. 323—89.
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  - Jewell, Ronald C., and Murphy. 3,305,335.
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  - Ward, Cecil R., and Rau. 3,304,615.
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Schenk, Gustav, to Monroe Calculating Machine Co. Ribbon-displacing device for the printing mechanism of calculating machines and the like. 3,304,859, 2-21-67, Cl. 101—102.

Schlabach, Leland A., and G. W. Nagel, to Westinghouse Electric Corp. Power inverting network utilizing thyratronic switches controlled by a saturable transformer. 3,305,757, 2-21-67, Cl. 321—16.

Schlecht, Raymond J. Boat ladder. 3,305,045, 2-21-67, Cl. 182—97.

Schleiss, David R., to Davco (Proprietary) Ltd. Sedimentation apparatus. 3,305,096, 2-21-67, Cl. 210—195.

Schleppnik, Alfred A., to Monsanto Co. α-Acylvinylthioethers. 3,305,588, 2-21-67, Cl. 260—590.

Schlumberger Technology Corp.: *See—*
Lebourg, Maurice P. 3,305,020.
Lebourg, Maurice P. 3,305,021.

Schlumberger Corp.: *See—*
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Schmeckenbecher, Arnold F., to International Business Machines Corp. Electroless plating of magnetic materials and magnetic memory element. 3,305,327, 2-21-67, Cl. 29—195.

Schmidt, Arthur W., to Consolidated Stamp Mfg. Co. Punch printing elements and kits. 3,304,857, 2-21-67, Cl. 101—30.

Schmidt, Rudolph. Method of assembling threaded fastener and lock washer units. 3,304,562, 2-21-67, Cl. 10—86.

Schneider, Hans-Dieter, to Fernseh G.m.b.H. Circuit for providing coincidence of colour television pick-up tube rasters. 3,305,750, 2-21-67, Cl. 315—27.

Schneider, Kurt R. Intermittent driving mechanism. 3,305,056, 2-21-67, Cl. 192—33.

Schnell, Carl, ½ to The Griffith Laboratories, Inc. Comminuting machine. 3,304,976, 2-21-67, Cl. 146—182.

Schnell, Hermann: *See—*
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Scholl Mfg. Co., Inc., The: *See—*
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Schramm, Charles H., and E. J. Frilhauf, to J. T. Baker Chemical Co. Oxazolidonyl sulfones and method of making same. 3,305,494, 2-21-67, Cl. 260—2.

Schramm, Harold J., to International Harvester Co. Four wheel steering system. 3,305,041, 2-21-67, Cl. 180—79.2.

Schroeder, Victor C., Jr., to Brunswick Corp. Wire book rack. 3,305,099, 2-21-67, Cl. 211—43.

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Schug, Milton H.: *See—*
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Schumann, Fritz: *See—*
Muller, Nicolaus, Schumann, and Bystron. 3,304,820.

Schurhoff, Heinrich, and W. Jakobi, to Heinrich Koppers G.m.b.H. Buoner for blast furnace stoves. 3,304,983, 2-21-67, Cl. 158—11.

Schuster, Nick A., and W. T. Bell, to Schlumberger Corp. Well completion apparatus. 3,305,032, 2-21-67, Cl. 175—4.52.

Schutte, Rudolf, and N. Van Hurck, to North American Philips Co., Inc. Arrangement for the stereophonic reproduction of signals. 3,305,640, 2-21-67, Cl. 179—15.

Schwartz, Edward C., to United States of America, Air Force. Function generator for radar STC circuits. 3,305,859, 2-21-67, Cl. 343—5.

Schwartz, Milton, to Alphanumeric Inc. Pattern generator. 3,305,841, 2-21-67, Cl. 340—172.5.

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Schwing, Joseph A., to Philco-Ford Corp. Laundry apparatus, 3,304,751, 2-21-67, Cl. 68—23.

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Scientific Industries Inc.: *See—*
Natelson, Samuel. 3,305,097.

Scoltock, Brian T.: *See—*
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Scott, David B. Drilling apparatus. 3,304,814, 2-21-67, Cl. 77—31.

Scott Paper Co.: *See—*
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Scroggins, Elva J. Pump assembly. 3,304,871, 2-21-67, Cl. 103—46.

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Seaman, Gary G., to Western Electric Co., Inc. Method of and apparatus for feeding spiral articles. 3,305,131, 2-21-67, Cl. 221—278.

Seelig, Anton, to Licentia Patent-Verwaltungs-G.m.b.H. Control rectifier inverter with resonant circuit and a choke. 3,305,794, 2-21-67, Cl. 331—113.

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Seiler, Fritz, to Edouard Dobied et Cie (Societe Anonyme). Cam-box for a jacquard flat knitting machine. 3,304,748, 2-21-67, Cl. 66—64.

Sellers, Harvey A., Jr. Glider kite. 3,305,198, 2-21-67, Cl. 244—153.

Sennewald, Kurt, W. Vogt, J. Kandler, and R. Sommerfeld, to Knapsack Aktiengesellschaft. Process for isolating hydrocyanic acid or mixtures of hydrocyanic acid with nitriles from gas mixtures containing ammonia. 3,305,308, 2-21-67, Cl. 23—151.

Seress, George, and W. W. Hewitt, to Parks-Cramer Co. Traveling cleaner for looms. 3,304,570, 2-21-67, Cl. 15—312.

Seress, George, and W. W. Hewitt, to Parks-Cramer Co. Process for cleaning automatic textile winding machines. 3,305,184, 2-21-67, Cl. 242—35.5.

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Gaynor, Joseph, Metlay, and Sewell. 3,305,361.

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Shackelford, James R., to The B. F. Goodrich Co. Expansible hollow rivet having a polygonal shank. 3,304,830, 2-21-67, Cl. 85—70.

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Shaw, John T., to American Cyanamid Co. Process for treating proteinaceous and cellulosic materials with perfluoroguanamines. 3,305,390, 2-21-67, Cl. 117—141.

Shawhan, Harry H. Box scorer. 3,304,613, 2-21-67, Cl. 33—42.

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Sheffet, David, to Western Geophysical Co. of America. Signal transmission analysis system. 3,305,647, 2-21-67, Cl. 179—175.3.

Sheldon, Edward E. Electron discharge device with fiber optic end wall. 3,305,690, 2-21-67, Cl. 250—227.

Shell Oil Co.: *See—*
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La Heiji, Gerardus E., and Waterman. 3,305,508.
Manger, Willem H., and Verburg. 3,304,694.
Mueller, Albert C. 3,305,565.
Richardson, Davis B., and Du Bois. 3,305,594.
Ward, Loyal F., Jr., and Phillips. 3,305,609.

Shelton, Dothan L. Earth working tool point. 3,305,029, 2-21-67, Cl. 172—713.

Shepard, Emor O., J. F. Reuther, and S. D. Silliman, to Westinghouse Electric Corp. Magnetically regulated power supply. 3,305,758, 2-21-67, Cl. 321—18.

Sheppard, Albert S., to The G. C. Breidert Co. Ventilator. 3,305,163, 2-21-67, Cl. 230—117.

Sheppard, Ronald L. Self inflating pneumatic tires. 3,304,981, 2-21-67, Cl. 152—426.

Sherbrook, Victor A. Wrap-around wedge welt for goodyear welt construction. 3,304,630, 2-21-67, Cl. 36—17.

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Sherr, Allan E., and H. C. Gillham, to American Cyanamid Co. Phosphacyclohexanes as flame-retardant agents for thermoplastic polymers. 3,305,607, 2-21-67, Cl. 260—893.

Shih, Phoebe H. Y.: *See—*
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Shih, Wei M., deceased (by P. H. Y. Shih, executrix, and R. L. Bast, executor), to Sperry Rand Corp. High speed print synchronizer. 3,305,840, 2-21-67, Cl. 340—172.5.

Shine, Noel B., and D. J. Kennedy, deceased (by D. V. Kennedy, executrix), to Shawinigan Chemicals Ltd. Operation of electrically heated fluidized beds. 3,305,661, 2-21-67, Cl. 219—50.

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Hakata, Hiroshi, Maeda, and Higuchi. 3,304,911.

Siebert, Karl: *See—*
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Siegel, Peter, to Gebr. Bellmer K.G. Maschinenfabrik. Pulp roller for a papermaking machine. 3,305,439, 2-21-67, Cl. 162—314.

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Kruger, Wolfgang. 3,305,871.
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Silberg, Hemming G., to Tung-Sol Electric Inc. Signal flasher having a heater mounted on a mandril separate from, but adjacent to, the expansible pull means. 3,305,654, 2-21-67, Cl. 200—122.

Silliman, Sheldon D.: *See—*
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Silver, Harold, to United States of America, Army. High speed hollow drum. 3,305,169, 2-21-67, Cl. 233—1.

Simamura, Osamu, T. Takenishi, T. Kato, and H. Mori, to Ajinomoto Co., Inc. Method of preparing 2′,3′-O-alkylidene ribonucleosides. 3,305,544, 2-21-67, Cl. 260—211.5.

Simone, Dominic: *See—*
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Laidig, Manfred R. 3,304,896.
Wigington, Jerry. 3,305,716.

Singh, Kartar, S. N. Sehgal, and C. Vezina, to Wisconson Alumni Research Foundation. Conversion of penicillin V to 6-aminopenicillanic acid by the use of spores. 3,305,453, 2-21-67, Cl. 195—36.

Singleton, Benoit M., to O. S. Keene Co., Inc. Skiff windshield for boats. 3,304,657, 2-21-67, Cl. 49—399.

Sirgo, Valdeko H., and J. L. Richards, to Philco Ford Corp. Method of producing gallium phosphide in crystalline form. 3,305,313, 2-21-67, Cl. 23—204.

Skinner, Clayton H., to Litton Industries, Inc. Expansion joint. 3,305,251, 2-21-67, Cl. 285—229.

Skinner, Earl R. Swaging means. 3,304,762, 2-21-67, Cl. 72—479.

Skoog, Ivan H., to Minnesota Mining and Mfg. Co. Aluminum borohydride complexes. 3,305,569, 2-21-67, Cl. 260—448.

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Slaughter, Clarence S. Fluid particle coupling. 3,305,055, 2-21-67, Cl. 192—21.5.

Sloan, Flora M. and H. J. Electrically heated ice cream scoop. 3,304,890, 2-21-67, Cl. 107—48.

Sloan, Howard J.: *See—*
Sloan, Flora M. and H. J. 3,304,890.

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Smith, Alan J., and J. K. Warren, to Minnesota Mining & Mfg. Co. Electrolytic electrocopying method and apparatus. 3,305,459, 2-21-67, Cl. 204—18.

Smith, David C. Cable heater. 3,305,668, 2-21-67, Cl. 219—528.

Smith, Edwin J., and E. P. Spencer, to National Steel Corp. Steel foil. 3,305,323, 2-21-67, Cl. 29—180.

Smith, H. B., Co., Inc., The: *See—*
Fisher, Leonard A. 3,304,982.

Smith, Horace L., Jr., to Hupp Corp. Radiant panel for two media with offset return bends. 3,305,011, 2-21-67, Cl. 165—171.

Smith, Lawrence R. to Motorola, Inc. Rate of change threshold detector. 3,305,786, 2-21-67, Cl. 328—129.

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Snitchler, Lewis C., to Eastman Kodak Co. Lenses for focusing infrared utilizing elements of silicon and of zinc sulfide. 3,305,291, 2-21-67, Cl. 350—1.

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Societe Anonyme Babbitless: *See—*
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Societe Anonyme Des Usines Chausson: *See—*
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Societe Anonyme: Etablissements Kuhlmann: *See—*
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Societe Anonyme Francaise du Ferodo: *See—*
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Societe Anonyme Societe Alsacienne de Constructions Atomiques de Telecommunications et d'Electronique: *See—*
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Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine: *See—*
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Societe de Producta Chimiques d'Auby: *See—*
Oster, Felix. 3,305,491.

Societe des Accumulateurs Fixes et de Traction, (Societe Anonyme): *See—*
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Societe Lupembourgeois de Brevets et de Participations: *See—*
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Sohns, Carl B., and D. L. Pettit, to Square D Co. Push button operator. 3,305,660, 2-21-67, Cl. 200—172.

Sokolski, Walter T.: *See—*
Bergy, Malcolm E., Eble, Evans, Herr, Heinle, Large, and Sokolski. 3,305,554.

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Solomon, Ralph E., to International Telephone and Telegraph Corp. Timer adjusted oven temperature control. 3,305,174, 2-21-67, Cl. 236—46.

Somer, Toivo A., and T. L. Francis, to United States of America, Army. Transistor modulator-amplifier. 3,305,796, 2-21-67, Cl. 332—44.

Sommerfeld, Rolf: *See—*
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Spacht, Ronald B., to The Goodyear Tire & Rubber Co. Rubber antioxidant. 3,305,522, 2-21-67, Cl. 260—45.95.

Spacht, Ronald B., to The Goodyear Tire & Rubber Co. Process of preparing catalyst free aromatic diamines. 3,305,584, 2-21-67, Cl. 260—576.

Spalding, Joseph M., to Celanese Coatings Co., Inc. Water solubilized epoxy resin esters of fumaric- or itaconic-fatty acid adducts. 3,305,501, 2-21-67, Cl. 260—18.

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Spence, Gerald M., to Monolith Portland Cement Co. Hardening a cement mixture. 3,305,613, 2-21-67, Cl. 264—82.

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Diaz, Ben. 3,305,152.
Gallien, Bennie L. 3,305,833.
Gassler, John H. 3,305,865.
Grace, Kenneth T., and Teply. 3,305,845.
Griffin, Eugene H., and Gunn. 3,305,832.
Jahn, Dale M. 3,305,733.
King, John J. 3,305,858.
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Phillips, Edwin R., and Jacoby. 3,305,171.
Shih, Wei M. 3,305,840.
Tarbox, John P., and Bender. 3,304,889.
Welsh, Herbert F. 3,305,731.
Zilberfarb, Saul N. 3,305,170.

Spier, Hans G., to Baldwin-Lima-Hamilton Corp. Method of assembling a pair of railroad wheels and an axle. 3,304,600, 2-21-67, Cl. 29—168.

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Horowitz, Norman, and Spigner. 3,304,609.

Spinks, M. H., Sr., Enterprises, Inc.: *See—*
Gunn Paul C. 3,305,264.

Spisak, Edward G., to Gar Wood Industries, Inc. Wheel cover. 3,305,275, 2-21-67, Cl. 301—37.

Spohn, Eberhard, to Portland-Zementwerke Heidelberg Aktiengesellschaft. Processes for the burning of materials in industrial processes. 3,305,611, 2-21-67, Cl. 263—53.

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Sprague Electric Co.: *See—*
Muskovac, Nicholas G., and Brown. 3,305,739.

Sprague, James M., and E. J. Cragoe, Jr., to Merck & Co., Inc. Derivatives of 3,3-spiro-substituted-3,4-dihydro-1,2,4-benzothiadiazine-1,1-dioxides. 3,305,548, 2-21-67, Cl. 260—243.

Spurlock, A. D. Multiple water ski handle. 3,304,904, 2-21-67, Cl. 115—6.1.

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Sohns, Carl B., and Pettit. 3,305,660.

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Stadden, Richard C. Nonwoven fabric with foam binder. 3,305,429, 2-21-67, Cl. 161—169.

Stadler, Robert, F. Becke, and H. Pirzer, to Anilin & Soda-Fabrik Aktiengesellschaft. Production of cyclohexene-(3) carboxylic acids and their esters. 3,305,579, 2-21-67, Cl. 260—478.

Stafiej, Stanley F., and E. A. Takacs, to American Cyanamid Co. Preparation of tertiary amine boranes including pyridyl boranes. 3,305,555, 2-21-67, Cl. 260—290.

Stahl, Filip T., to Aktiebolaget Flygts Pumpar. Viscosity pump for cooling face seals. 3,304,876, 2-21-67, Cl. 103—87.
Staley, Thomas G. Trap for bugs and the like. 3,304,646, 2-21-67, Cl. 43—131.
Stallings, John P., and D. H. Wagner, to Diamond Alkali Co. Cellular polyurethanes produced using a mixture of (A) chloroform and (B) a fluorine substituted alkane as the blowing agent. 3,305,497, 2-21-67, Cl. 260—2.5.
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Standard Oil Co., The: *See*—
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Stangeland, Ole I. Power transmission mechanism. 3,304,807, 2-21-67, Cl. 74—751.
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Stark, Frank B., to AMP Inc. Cable stripping device. 3,304,605, 2-21-67, Cl. 30—90.1.
Stark, Robert E., to Union Carbide Corp. Method of producing charged negative cadmium electrodes by spraying with molten mixture of cadmium and a metal displaced by treatment with a cadmium salt and hydrofluoric acid bath. 3,305,397, 2-21-67, Cl. 136—24.
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Sutton, William J., and Lauck. 3,305,366.
Szabo, Karoly, and Hallett. 3,305,610.
Stauffer, Norman L., to Honeywell Inc. Air puff tonometer. 3,304,769, 2-21-67, Cl. 73—80.
Steck, Joseph B., and D. H. Slater. Double action power actuator. 3,305,228, 2-21-67, Cl. 267—1.
Steed, Stanley: *See*—
Brownlee, Winston E., Ritchey, and Steed. 3,305,420.
Stetely, Stephen F. Liquid coating equipment. 3,304,573, 2-21-67, Cl. 15—553.
Stein, A., & Co., Inc.: *See*—
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Stein, Morris O., to Burroughs Corp. Amplitude selective unipolar amplifier of bipolar pulses. 3,305,729, 2-21-67, Cl. 307—88.5.
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Goldann, Karl, and Stein. 3,305,577.
Steinke, Heinz-Dieter: *See*—
Bender, Alfred, and Steinke. 3,305,209.
Steisslinger, Kurt, and H. Ettischer, to Eastman Kodak Co. Locking means for the cover flap and/or mirror of a single-lens reflex camera. 3,304,848, 2-21-67, Cl. 95—42.
Stenger, Harvey G., to Carrier Corp. Motor control arrangement. 3,305,715, 2-21-67, Cl. 318—221.
Stetter, Charles W., to Continental Can Co., Inc. Inverted can and test can detecting device. 3,305,088, 2-21-67, Cl. 209—75.
Stevens, Glenn W., and A. A. Siewert, to Stevens Steel and Equipment Co. Hot press outfeed cooling apparatus. 3,304,622, 2-21-67, Cl. 34—55.
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Stockton, Thomas R., to Ford Motor Co. Motor vehicle transmission providing high traction drive. 3,304,803, 2-21-67, Cl. 74—665.
Stolwas, Edward: *See*—
Clock, Gerald E., Rieke, and Stolwas. 3,305,745.
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178–	5.2	3,305,627
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	6.8	3,305,633
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	175.3	3,305,647
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	51	3,305,039
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	82.1	3,305,042
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	33	3,305,044
182–	97	3,305,045
	179	3,305,046
187–	8.41	3,305,047
188–	24	3,305,048
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192–	3	3,305,053
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	180	3,305,478
	192	3,305,479
	273	3,305,480
209–	73	3,305,088
	74	3,305,087
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211–	43	3,305,099
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214–	1.5	3,305,103
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	515	3,305,117
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219–	50	3,305,661
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222–	66	3,305,132
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	195	3,305,142
	386.5	3,305,143
	402.13	3,305,144
	522	3,305,145
223–	68	3,305,146
224–	1	3,305,147
	5	3,305,148
225–	2	3,305,149
226–	97	3,305,150
	181	3,305,151
	188	3,305,152
	192	3,305,153
227–	90	3,305,154
	116	3,305,155
	132	3,305,156
228–	1	3,305,157
229–	2.5	3,305,158
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229–	93	3,305,161
230–	47	3,305,162
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242–	35.5	3,305,184
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	38	3,305,192
244–	1	3,305,193
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	153	3,305,197
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246–	167	3,305,682
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303–	20	3,305,277
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	53	3,305,823
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	174	3,305,845
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	174.1	3,305,849
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	259	3,305,853
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	113	3,305,867
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350–	1	3,305,291
	150	3,305,292
	201	3,305,293
351–	169	3,305,294
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D 2–	2	206,989
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	30	207,001
		207,002
D15–	3	207,003
D16–	2	207,004
		207,005
D22–	13	207,006
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D26–	14	207,008
D26–	14	207,009
	15	207,010
D29–	1	207,011
	23	207,012
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		207,025
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D57–	1	207,029
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	17	207,031
		207,032
	26	207,033
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D71–	1	207,035
		207,036
D72–	1	207,037
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PLANT PATENTS

4 : 2,717

4 : 2,718

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4 : 2,720

32 : 2,716

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

February 21, 1967 Volume 835 Number 3

TRADEMARKS

NOTICES

Powers of Attorney in Registered Trademark Files

On and after February 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

C. M. WENDT,
Director.

Jan. 30, 1967.

CONDITION OF TRADEMARK APPLICATIONS AS OF DECEMBER 31, 1966

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	28,133
Date of oldest new application	Dec. 16, 1965
Date of oldest amended application (filing date)	Nov. 7, 1963

C. M. WENDT, Director, Trademark Examining Operation TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	12-16-65	12-12-63
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	1-13-66	11-7-63
Renewals (All Classes)	12-5-66	----
Sec. 12(c) Publications (All Classes)	11-28-66	----

Applications filed during the month of December 1966—2,208

Registrations Issued ---- 397—No. 824,257 to No. 824,653
Renewals Issued ---- 70

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962. 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 223,613. Kaysons International, Ltd., Los Angeles, Calif. Filed July 19, 1965.

RALEIGH

Class 26—Measuring and Scientific Appliances

For Binoculars.
First use Mar. 3, 1964.

Class 36—Musical Instruments and Supplies

For Tape Recorders.
First use Feb. 22, 1963.

SN 248,400. The Singer Company, New York, N.Y. Filed June 20, 1966.
Owner of Reg. Nos. 49,600, 809,521, and others.

SINGER

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Textile Dyeing Machinery, Packaging Machinery, Parts and Attachments Therefor.
First use Mar. 20, 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Textile Drying and Curing Ovens.
First use Sept. 25, 1965.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1 — Raw or Partly Prepared Materials

SN 238,604. Bonded Fibers, Incorporated, Buena Vista, Va. Filed Feb. 11, 1966.

MORI-FRESH PROCESSED

No claim is made to the word "Processed" apart from the mark as shown. Owner of Reg. No. 796,182.
For Leather Substitute With Bactericidal and Fungicidal Agent for Use in Making Shoes, Etc.
First use Sept. 14, 1965.

SN 238,660. Pfister and Vogel Tanning Company, Inc., Milwaukee, Wis. Filed Feb. 11, 1966.

MOCCO

Owner of Reg. No. 615,526.
For Leather.
First use Mar. 29, 1951.

SN 246,669. Ferro Corporation, Cleveland, Ohio. Filed May 26, 1966.

HI-CHAR

For Resin Pre-Impregnated Reinforcing Material (Such as Fiberglass Roving, for Example) for Ultimate Curing Into a Finished Reinforced Laminate, Which, in Use, Will Display Ablative Properties.
First use on or about Feb. 11, 1966.

SN 247,907. Fiberfil, Inc., Evansville, Ind. Filed June 13, 1966.

URAGLAS

Owner of Reg. No. 793,860.
For Plastics, Specifically Synthetic Injection Molding Materials in Pellet or Granular Form.
First use May 18, 1966.

SN 247,909. Fiberfil, Inc., Evansville, Ind. Filed June 13, 1966.

POLYCARBAGLAS

Owner of Reg. No. 742,798.
For Plastics, Specifically Synthetic Injection Molding Materials in Pellet or Granular Form.
First use May 11, 1966.

SN 249,152. Franklin Fibre-Lamitex Corp., Wilmington, Del. Filed June 28, 1966.

FRANPLAS

For Plastic Sheets, Rods, and Tubes for General Use in the Industrial Arts.
First use Oct. 4, 1965.

SN 249,399. Armstrong Cork Company, Lancaster, Pa. Filed July 1, 1966.

TEMSHEET

For Flexible, Electrically Conducting Asbestos Composition Sheet.
First use June 10, 1966.

SN 250,556. Buena Park Greenhouses, Inc., Brea, Calif. Filed July 19, 1966.

PINK THUMB

For Planter Marketed With a Plant Therein.
First use Aug. 23, 1965.

SN 256,409. Surpass Leather Company, Camden, N.J. Filed Oct. 14, 1966.

BABY PIN

Applicant disclaims "Pin" apart from the mark as a whole.
For Shoe Leather.
First use June 17, 1966.

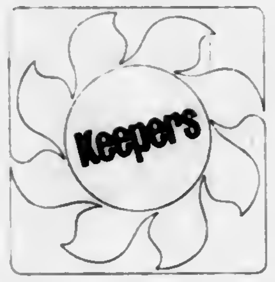
Class 2 — Receptacles

SN 226,959. Union Camp Corporation, New York, N.Y., by change of name from Union Bag-Camp Paper Corporation, New York, N.Y. Filed Sept. 1, 1965.

KEEPERS

For Household Bags.
First use July 3, 1965.

SN 226,960. Union Camp Corporation, New York, N.Y., by change of name from Union Bag-Camp Paper Corporation, New York, N.Y. Filed Sept. 1, 1965.



For Household Bags.
First use July 3, 1965.

SN 229,402. Atlantic Richfield Company, Philadelphia, Pa., by change of name from The Atlantic Refining Company, Philadelphia, Pa. Filed Oct. 6, 1965.

BULKTAINER

For Metal Container for Shipping, Storing, and Dispensing Large Quantities of Grease.
First use on or about Dec. 31, 1964.

SN 232,254. West Virginia Pulp and Paper Company, New York, N.Y. Filed Nov. 5, 1965.

CORRACOOL

For Corrugated Paperboard Boxes.
First use Oct. 21, 1965.

SN 232,318. Brown Company, New York, N.Y., assignee of KVP Sutherland Paper Company, Kalamazoo, Mich. Filed Nov. 8, 1965.

RESISTO

Owner of Reg. No. 442,460.
For Receptacles—Namely, Cartons and Paper Plates.
First use Aug. 10, 1946, as to cartons.

SN 233,362. Lone Star Cement Corporation, New York, N.Y. Filed Nov. 26, 1965.

CYLINDER SOCK

Applicant disclaims the word "Cylinder" apart from the mark as shown.
For Moisture Barrier Polyethylene Bags, for Use With Test Cylinders of Concrete.
First use Oct. 22, 1965.

SN 252,845. Gessner Products Company, Inc., Ambler, Pa. Filed Aug. 22, 1966.

COLONIAL

For Napkin Holders.
First use Mar. 1, 1966.

SN 255,150. Gessner Products Company, Inc., Ambler, Pa. Filed Sept. 22, 1966.

DAISY

For Coaster Sets.
First use July 4, 1966.

SN 256,367. National Periodical Publications, Inc. New York, N.Y. Filed Oct. 13, 1966.

BATMAN

Owner of Reg. Nos. 378,913, 382,770, and 804,709.
For Lunch Kits, Vacuum Bottles, Combined Plastic Cups and Straws, Various Types of Bags for Cosmetics, Garments, Toiletries, and the Like.
First use March 1966.

Class 4 — Abrasives and Polishing Materials

SN 230,427. Puritan Chemical Company, Atlanta, Ga. Filed Oct. 18, 1965.

VALOR

For Self-Polishing, Waxless Floor Polish.
First use on or about Jan. 4, 1965.

SN 257,436. Alberto-Culver Company, Melrose Park, Ill. Filed Oct. 27, 1966.

MOONSUN MANOR

For Floor Wax.
First use Oct. 17, 1966.

SN 257,877. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Nov. 3, 1966.

SCOTCH-MESH

For Floor Sanding Discs.
First use July 28, 1966.

Class 6 — Chemicals and Chemical Compositions

SN 247,912. Fuller Pharmaceutical Company, Minneapolis, Minn. Filed June 13, 1966.

VERNITEST

For Diagnostic Reagent Stain Used in Vaginal Cytology—Namely, for Laboratory Use.
First use May 4, 1966.

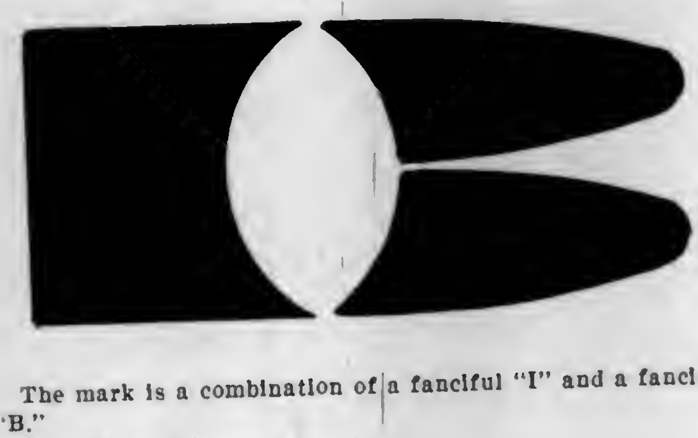
SN 250,612. Wilco Company, Los Angeles, Calif. Filed July 19, 1966.

POP

For Chemicals for Use in Industrial Plating of Metals on Plastics.
First use Mar. 18, 1966.

Class 11—Inks and Inking Materials

SN 236,262. Illinois Bronze Powder & Paint Co., Lake Zurich, Ill. Filed Jan. 12, 1966.



The mark is a combination of a fanciful "I" and a fanciful "B."
For Stencil Inks.
First use on or about Sept. 9, 1965.

Class 12—Construction Materials

SN 240,949. Permatex Company, Inc., Brooklyn, N.Y. Filed Mar. 14, 1966.

PERMATEX

Owner of Reg. Nos. 93,418, 554,544, and others.
For Pipe Joint Compound and Sealants for Sealing Unions, Joints, Gaskets, Heating Ducts, and Threaded Assemblies.
First use June 1960 on pipe joint compound.

SN 243,437. Benjamin Foster Company, Philadelphia, Pa. Filed Apr. 14, 1966.

FLEXTRA

For Asphalt Based Bedding and Joint Sealer Compound for Use With Vapor Barriers and Cellular Glass Insulation and the Like.
First use Jan. 31, 1966.

SN 245,739. Movable Walls Corporation, Covina, Calif. Filed May 16, 1966.

MOWALCO

For Partition Walls and Components Thereof Intended Primarily for Industrial and Commercial Uses.
First use June 1959.

SN 246,415. Nathan Wiseblood, d.b.a. Wiseblood Company, Maldin, Mass. Filed May 23, 1966.

TRACKLITE

For Rubber Containing Mixture To Be Used in Bituminous Concrete.
First use Feb. 11, 1966.

SN 246,551. Henry Fuchs & Son, Inc., Brooklyn, N.Y. Filed May 25, 1966.

BAMFLEX

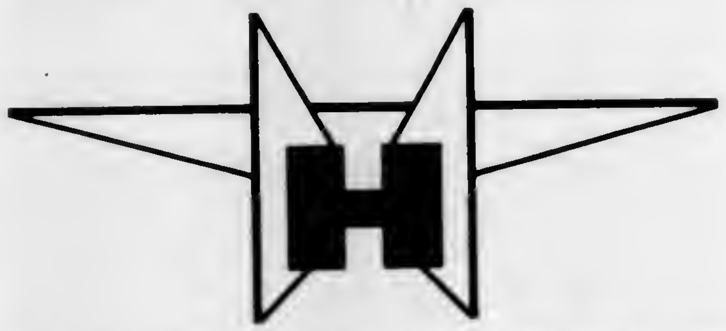
For Fiberboard.
First use July 15, 1945.

SN 246,749. Century Manufacturing Company, Inc., Dallas, Tex. Filed May 27, 1966.

Honey Oak

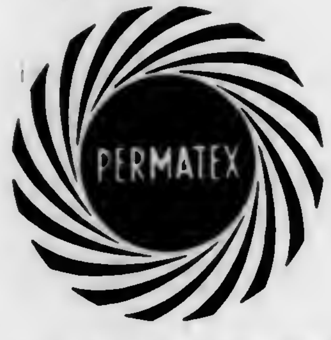
Applicant disclaims the word "Oak" apart from the mark.
For Wooden Thresholds Having Resilient Weatherstrip Inserts Therein, and the Like.
First use on or about July 12, 1957.

SN 246,786. The E. F. Hauserman Company, Cleveland, Ohio. Filed May 27, 1966.



For Movable Partitions, Acoustical Ceilings, and Components Thereof.
First use in or about August 1963.

SN 250,806. Permatex Company, Inc., Brooklyn, N.Y. Filed July 22, 1966.



Owner of Reg. Nos. 93,418, 554,544, and others.
For Pipe Joint Compound for Use on Threaded Connections and Flange Surfaces in Pipe Lines, Etc.; and Sealants for Threaded Joints, Gaskets, Flanged Joints, Heating Ducts, Air Conditioners, Etc.
First use June 1960 on pipe joint compound.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 226,240. Indiana Brass Company, Incorporated, Frankfort, Ind. Filed Aug. 23, 1965.

HYDRO SURE

For Tank Valves and Related Parts.
First use May 17, 1965.

SN 231,547. Continental Oil Company, Ponca City, Okla. Filed Oct. 24, 1965.

TWELL

For Plastic Pipe.
First use Sept. 18, 1961.

SN 232,720. Republic Industrial Corporation, New York, N.Y. Filed Nov. 15, 1965.

PERMA-THREAD

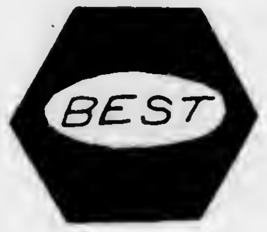
For Thread Inserts.
First use Oct. 1, 1963.

SN 239,988. General Fittings Company, Warwick, R.I. Filed Mar. 2, 1966.

FIL-VAL

For Pressure Reducing Valves.
First use on or about Aug. 13, 1965.

SN 244,361. Sevell Tool Company Incorporated, New York, N.Y. Filed Apr. 26, 1966.



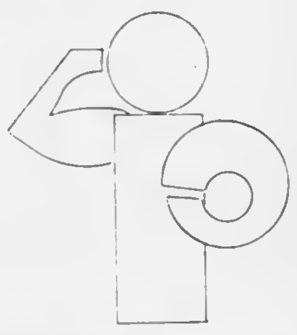
For Metal Fastenings, Particularly Screws, as Exemplified by Socket Screws.
First use Oct. 28, 1965.

SN 245,737. Nestor Moseres, Barranquilla, Colombia. Filed May 16, 1966.

Nestormald

For Combination of Tray, Molds, and Sticks for Making Frozen Confections.
First use Apr. 1, 1966; in commerce Apr. 5, 1966.

SN 248,109. The Bishop and Babcock Corporation, Toledo, Ohio. Filed June 15, 1966.



Owner of Reg. No. 784,263.
For Sheet Metal Fastening Devices, Including J-Shaped Clips; C-Shaped Clips; Flat Nuts Having Screw-Receiving Impressions; Bridge Spacers; Capacitor Clips; Push-On Fasteners; Tube and Wire Clips; Yoke Clamp Fasteners; Snap Nut Fasteners; Retainer Rings; Angle Bracket Fasteners; and Vehicle Body Fasteners.
First use June 8, 1966.

SN 253,259. Clayton Mark & Company, Evanston, Ill. Filed Aug. 29, 1966.

HYDROMARK

Owner of Reg. Nos. 160,916, 664,928, and others.
For Drive Shoes for Water Wells.
First use at least as early as July 1, 1962.

Class 14—Metals and Metal Castings and Forgings

SN 230,914. Societa Metallurgica Italiana, Florence, Italy. Filed Oct. 21, 1965.

SMI

Owner of Italian Reg. No. 155,869, dated Mar. 10, 1961.
For Semi-Finished Products—Namely, Bars, Sheets, Plates, and Bands Made of Copper and Copper Alloys and Nickel and Nickel Alloys; Sheets and Bands of Steel Plated With Copper and Copper Alloys and Nickel and Nickel Alloys; and Sheets and Wire of Stainless Steel.

Class 15—Oils and Greases

SN 236,550. W. Wesley Anderson, d.b.a. Anderson Enterprises, Muskegon, Mich. Filed Jan. 17, 1966.

RELEASE

For Lubricant for Safety Bindings and Cables on Skis.
First use Jan. 29, 1965.

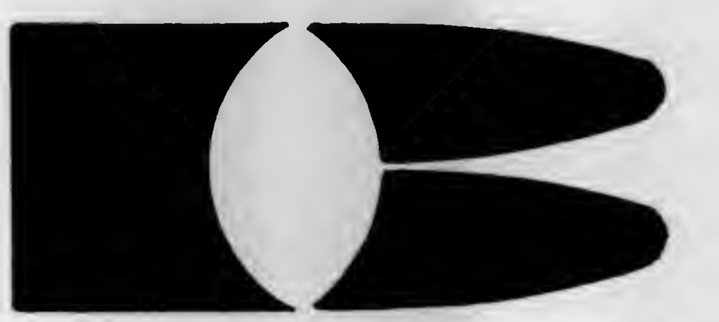
SN 240,950. Permatex Company, Inc., Brooklyn, N.Y. Filed Mar. 14, 1966.

PERMATEX

Owner of Reg. Nos. 93,417, 365,534, and others.
For Lubricating Oil for Degumming, Decarbonizing and Preventing Formation of Sludge in Interior Working Parts of Internal Combustion Engines, Penetrating Oil, Emulsion Lubricant for Water Pumps, Automatic Transmission Fluid, Hydraulic Jack Oil and Knee-Action-Jack-Shock Absorber Oil, Prussian Blue Lubricant, and Anti-Seize Grease Compound.
First use Jan. 1, 1923.

Class 16—Protective and Decorative Coatings

SN 236,263. Illinois Bronze Powder & Paint Co., Lake Zurich, Ill. Filed Jan. 12, 1966.



The mark is a design resembling the combination of a fanciful "I" and "B."
For Anti-Rust Primer and Rust Inhibitor for Inclusion in Paint; Epoxy Spray Coatings; Metallic Coatings and Metallic Spray Paints; Hammer and Wrinkle Finish Spray Coatings; Pressurized Products for Coloring Fresh Cut Flowers and Floral Arrangements; Glass Frosting; Enamel; Aerosol Spray Paints; Acrylic Plastic Coatings; Chromium Finish Enamel, Aluminum Enamel, and Colored Enamel.
First use at least as early as May 31, 1964.

SN 237,480. Proctor Paint and Varnish Co., Inc., Yonkers, N.Y. Filed Jan. 27, 1966.

MIRACLE MAID

For Interior and Exterior House Paints.
First use Jan. 19, 1966.

SN 242,048. Ranetite Manufacturing Co., Inc., St. Louis, Mo. Filed Mar. 28, 1966.

RANETITE

For Priming Coat for Inside Walls, Metallic Base Cement Bonding Compound, and Clear Water-Repellent Coating.
First use June 15, 1917.

SN 244,141. Royaltone, Inc., d.b.a. Royal Paint & Varnish Co., San Francisco, Calif. Filed Apr. 22, 1966.

Colorplus

For Oil Based Wall Paint.
First use June 24, 1964.

SN 245,011. Plasti-Kote, Inc., Medina, Ohio. Filed May 5, 1966.

HOT PAINT

The word "Paint" is disclaimed separate and apart from the mark as shown.
For Heat Resistant Aerosol Spray Paint.
First use at least as early as Feb. 24, 1966.
Subj. to Intf. with SN 249,270.

SN 245,641. West Paint & Varnish Company, Everett, Mass. Filed May 13, 1966.

touraine paints

No claim is made to the exclusive use of the word "Paints" apart from the mark as shown. Owner of Reg. Nos. 559,259, 594,786, and 687,082.
For Interior and Exterior Oil and Latex Base Paints.
First use May 1965 on interior latex base paint.

SN 245,913. Claremont Polychemical Corporation, Roslyn Heights, N.Y. Filed May 18, 1966.

"CALIBRITE"

For Aluminum Paste Employed in Coloring Plastics.
First use Oct. 13, 1964.

SN 247,900. DBA Products Co., Inc., Deerfield, Ill. Filed June 13, 1966.

DURA-GLIDE

For Lacquer-Type Coating for Bowling Alley Approaches.
First use May 1, 1966.

SN 249,270. U.S. Paint Corporation, Hempstead, N.Y. Filed June 29, 1966.

HOT PAINT

Without waiving any of its common-law rights and for purposes of this registration only, applicant disclaims the word "Paint" apart from the mark as shown.
For Silicone Base, High Temperature Resistant Paint.
First use on or about Aug. 1, 1964.
Subj. to Intf. with SN 245,011.

Class 18—Medicines and Pharmaceutical Preparations

SN 235,705. Orbit Pharmaceutical, Inc., Kansas City, Kans. Filed Jan. 3, 1966.

ORBISULFAS-AD

For Nasal Decongestant With Antibacterial.
First use Apr. 1, 1963.

SN 236,177. Burlington Pharmacal, Inc., Burlington, N.C. Filed Jan. 11, 1966.

AMOSED

For Sedative.
First use July 1, 1965.

SN 236,396. Merck & Co., Inc., Rahway, N.J. Filed Jan. 13, 1966.

DECAGEL

Owner of Reg. No. 692,712.
For Dermatologic Preparations for Local External Application.
First use Dec. 28, 1965.

SN 242,621. Marshman Development Corporation, Chicago, Ill. Filed Apr. 4, 1966.

DEXTROSE 50

The word "Dextrose" is disclaimed apart from the mark as shown without prejudice to any common law rights therein.
For Preparation Taken Internally for Use in the Clinical Diagnosis of Diabetes.
First use May 11, 1965.

SN 248,293. Betan Company, Inc., Knoxville, Tenn. Filed June 17, 1966.

SYRIDYL

For Antihistaminic Decongestants for the Relief of Respiratory Congestion Associated With Colds, Allergic Rhinitis, and Sinusitis.
First use at least as early as November 1955.

SN 249,353. Chas. Pfizer & Co., Inc., New York, N.Y. Filed June 30, 1966.

TNT

For Antibiotic Preparation for Animal Use.
First use Feb. 1, 1966.

Class 19—Vehicles

SN 214,589. Viking Cycles Limited, Wolverhampton, England. Filed Mar. 19, 1965.

VIKING

For Adult Cycles and Children's Cycles, Not Being Playthings.
First use not later than Dec. 31, 1908; in commerce not later than June 30, 1955.

SN 240,439. The Huffman Manufacturing Company, Miamisburg, Ohio. Filed Mar. 8, 1966.

BAT-CYCLE

For Bicycles, and Parts Therefor.
First use Feb. 2, 1966.

SN 241,339. Helio Aircraft Corporation, Bedford, Mass. Filed Mar. 18, 1966.

HELIOPORT-ER

For Aircraft.
First use Jan. 21, 1966.

SN 241,494. National Auto Glass Co., Inc., Los Angeles, Calif. Filed Mar. 21, 1966.

NATIONAL AUTO GLASS COMPANY

For Motor Vehicle Windshields.
First use Feb. 14, 1966.

SN 241,562. Western Bye-Hoe, Incorporated, San Martin, Calif. Filed Mar. 21, 1966.

SLEDMASTER

For Sled Formed by an Open Frame and Supporting Runners, Adapted To Be Moved Through a Field by a Tractor, for Carrying Crop Cultivating Machinery.
First use June 1964.

SN 241,689. Rubbermaid Incorporated, Wooster, Ohio. Filed Mar. 23, 1966.

IVANHOE

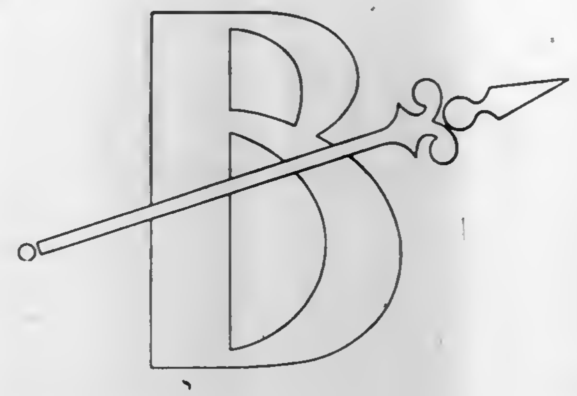
For Automobile Floor Mats of Plastic Material.
First use Jan. 3, 1966.

SN 242,480. Persons-Majestic Mfg. Company, Worcester, Mass. Filed Apr. 1, 1966.

HAMMOCK

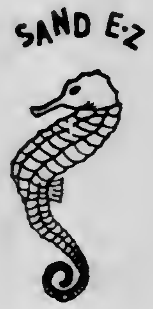
For Bicycle Saddles.
First use Oct. 1, 1935.

SN 242,555. Boanza Mobile Homes, Inc., Birmingham, Ala. Filed Apr. 4, 1966.



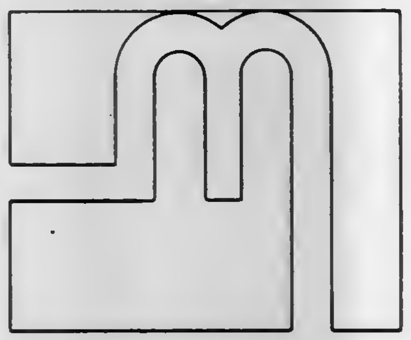
For Mobile Homes.
First use Oct. 19, 1965.

SN 242,583. Gasprey, Inc., New Shrewsbury, N.J. Filed Apr. 4, 1966.



For Hand Cart.
First use June 16, 1965.

SN 242,743. McNair Boat Works Inc., Port Washington, N.Y. Filed Apr. 5, 1966.



For Boats.
First use May 15, 1965.

SN 243,162. Outboard Marine Corporation, Waukegan, Ill. Filed Apr. 11, 1966.

PLAYMATE

For Boats.
First use approximately Dec. 15, 1964.

SN 243,207. White Motor Corporation, Cleveland, Ohio. Filed Apr. 11, 1966.

THE TREND

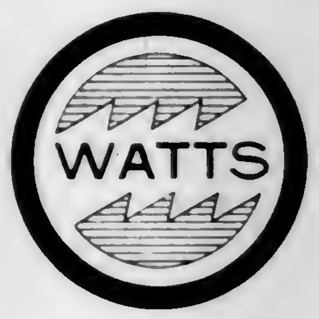
For Trucks, Highway Tractors, and Parts Therefor.
First use on or about July 10, 1965.

SN 243,213. American Fabricators, Inc., Orangeburg, S.C. Filed Apr. 12, 1966.

For Boats.
First use at least as early as January 1958.

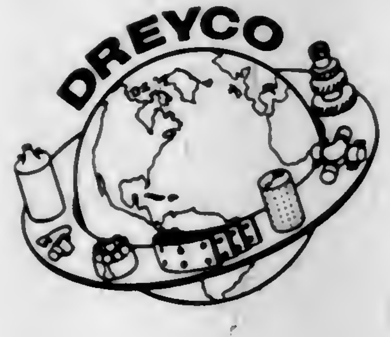
Class 21 — Electrical Apparatus, Machines, and Supplies

SN 218,241. Republic Industrial Corporation, New York, N.Y. Filed Mar. 22, 1965.



The drawing is lined for the color blue.
For Automotive Light Sockets.
First use Feb. 25, 1965.

SN 220,284. Dreyco Motor Products, Inc., New York, N.Y. Filed June 3, 1965.



The representation of the goods are disclaimed apart from the mark as shown. Owner of Reg. No. 637,128.
For Electrical Parts—Namely, Starters, Generators, Batteries, Spark Plugs, Distributor Caps, Distributor Rotors, Ignition Points, Starter Solenoids, Condensers, Voltage Regulators, Cut Outs, Starter Switches, Ignition Coils, Dimmer Switches, and Headlight Switches.
First use Jan. 1, 1951.

SN 224,284. Z & T Importing Co., Inc., Los Angeles, Calif. Filed July 26, 1965.

ESSEX

For Radio Transmitters and Receivers—Namely, Walkie-Talkies.
First use at least as early as Jan. 9, 1963.

SN 228,461. Indiana General Corporation, Valparaiso, Ind. Filed Sept. 23, 1965.

MAGNEMODULE

For Permanent Magnets—Namely, Permanent Magnetic Units.
First use prior to Aug. 27, 1965.

SN 229,349. Harco Corporation, Cleveland, Ohio. Filed Oct. 5, 1965.

HARCO

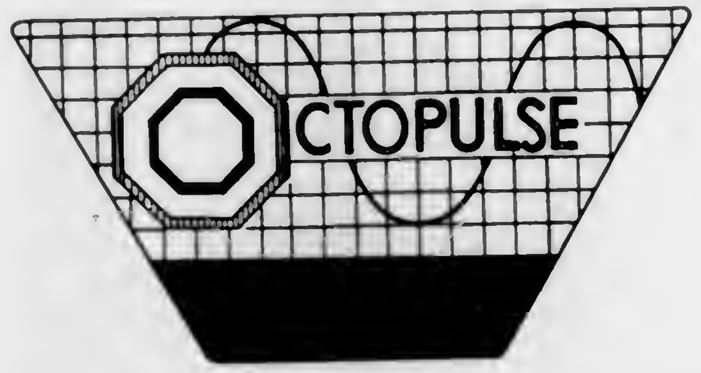
For Cathodic Protection Systems and Components Therefor, Including Metal and Graphite Anodes, Anode Assemblies, and Rectifiers.
First use in or about March 1949.
Subj. to Intf. with SN 229,005.

SN 231,744. Diecraft, Inc., Sparks, Md. Filed Oct. 28, 1965.

RAYSCAN

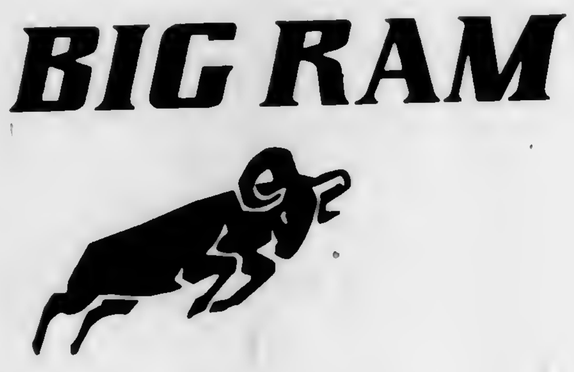
For Closed Circuit Television System, Television Camera, and Television Camera Control Unit.
First use June 2, 1965.

SN 232,127. Handebois, Inc., Hawthorne, Calif. Filed Nov. 4, 1965.



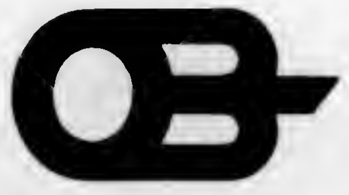
The drawing is lined for the color red, but no claim is made to color.
For Electronic Automobile Engine Ignition System.
First use May 31, 1965.

SN 232,458. General Battery and Ceramic Corp., Reading, Pa. Filed Nov. 10, 1965.



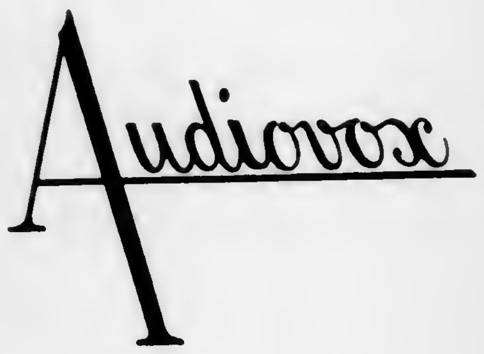
For Storage Batteries for Use in Vehicles.
First use April 1962; April 1957 as to the words "Big Ram."

SN 233,190. The Ohio Brass Company, Mansfield, Ohio. Filed Nov. 23, 1965.



Owner of Reg. Nos. 501,138, 577,255, and others.
For Bushings, Bushing Terminals and Bushing Insulators; Cable Terminals, Cable Terminal Assemblies, and Parts for Cable Terminals; Capacitors, Capacitor Assemblies and Capacitor Control Devices; Circuit Breakers, Switches and Control Devices for Electric Circuits; Conductor Holders, Spacers and Fittings for Electric Power Line Conductors; Corona Devices, Arc Suppressors and Noise Suppressors for Electric Conductors; Electric Conductors, Connectors, and Taps; Electric Couplers, Connectors and Parts Therefor; Electric Rail and Trolley Lines, and Parts Therefor; Hardware, Fittings, and Parts for Electric Power Lines; Insulated Booms and Ladders, Conductive Shields and Electrical Connectors for Energized Line Working; Insulators and Insulated Supports; Lightning Arrestors, Over-Voltage Discharge Devices, and Over-Voltage Suppressors; Switches, Sections, and Turnouts for Electric Trolley Lines; and Unitary Insulator Assemblies for Electric Power Lines.
First use on or about Dec. 1, 1963.

SN 233,884. Custom Imports, Inc., New York, N.Y. Filed Dec. 3, 1965.



For Radios.
First use Nov. 17, 1965.

SN 234,568. International Telephone and Telegraph Corporation, New York, N.Y. Filed Dec. 14, 1965.

DIGITOR

For Electric Alarm and Supervisory System.
First use May 26, 1965.

SN 237,163. Stenocord Corporation, Los Angeles, Calif. Filed Jan. 24, 1966.

STENOCLASS

For Electrical Volume and Channel Controls and Selectors for Use With Transcribing Apparatus.
First use July 30, 1965.

SN 237,262. Thomas Industries Inc., Louisville, Ky. Filed Jan. 25, 1966.

MODUTONE

For Electrically Actuated General Signaling Device Which May Be Used for Alarms, Paging, Annunciators, Etc.
First use Oct. 1, 1965.

SN 244,945. York Lighting, Inc., York, Pa. Filed May 4, 1966.

LIGHT PATROL

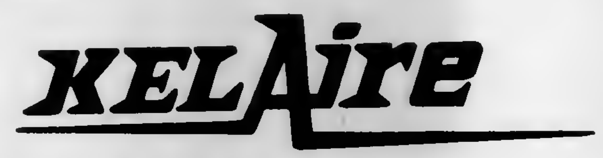
For Battery-Powered Emergency Lighting Units.
First use Mar. 29, 1963.

SN 244,946. York Lighting, Inc., York, Pa. Filed May 4, 1966.

LINK-BOY

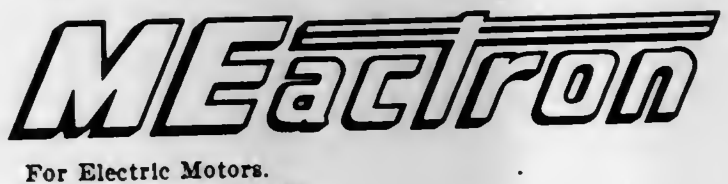
For Battery-Powered Emergency Lighting Units.
First use Mar. 27, 1964.

SN 256,034. Keller Industries, Inc., Miami, Fla. Filed Oct. 10, 1966.



For Electric Portable Fans.
First use Jan. 17, 1965.

SN 258,863. Marathon Electric Manufacturing Corporation, Wausau, Wis. Filed Nov. 17, 1966.



For Electric Motors.
First use Sept. 20, 1966.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

SN 219,891. Machine Shop Equipment Limited, London, England. Filed May 27, 1965.

Owner of British Reg. No. 787,238, dated Feb. 11, 1959.
For Centrifugal Coolant Clarifiers and Parts Thereof, for Use With Grinding Machines, Drilling Machines, Lathes, Capstans, Boring Machines, Shapers, Milling Machines and Similar Types of Special Purpose Machines Used in the Working of Metals Making Use Mainly of Cutting Action of the Tools Which Are an Integral Part of the Machine.

SN 225,523. George S. Wuchinich, Mount Kisco, N.Y. Filed Aug. 11, 1965.

PUMPING WITCHES' BREW

The word "Pumping" is disclaimed apart from the mark as shown, but applicant waives none of his common law rights in the mark as shown or any feature thereof.
For Pumps for Industrial Applications.
First use Dec. 15, 1959.

SN 225,782. Laminators, Inc., Cleveland, Ohio. Filed Aug. 16, 1965.

PLASTICMASTER

For Laminating Machines, Die Cutters, Trimming Boards, Slot and Hole Punches, and Rivet Setters.
First use about 1947.

SN 225,911. Johann Hochreuter, d.b.a. Hochreuter & Baum, Ansbach/Mittelfranken, Germany. Filed Mar. 3, 1966.

ELSA

For Machinery Couplings—Namely, Flexible Shaft Couplings, Safety Couplings, Clutch Couplings, and Parts Thereof.
First use Feb. 12, 1965; in commerce July 9, 1965.

SN 228,420. Walker Manufacturing Company, Racine, Wis. Filed Sept. 22, 1965.

SPEED PAK

For Air-Hydraulic Power Units for Force Applying Devices Such as Jacks and Lifting Units for Motor Vehicles.
First use Aug. 23, 1965.

SN 230,067. Oakland Metal Fabricators Inc., Warren, Mich. Filed Oct. 13, 1965.

Wig Jig

No claim is made to the word "Wig" separate and apart from the mark.
For Frame Mounted on Stand for Holding Wigs When They Are Being Serviced, Such as Tinting, Bleaching, Toning, Styling, Frosting, and the Like, and Parts Thereof Used Primarily by Beauticians.
First use on or about Mar. 5, 1965.

SN 230,272. May Pressenbau GmbH, Schwaebisch-Gmuend, Germany. Filed Oct. 15, 1965.

MAYPRES

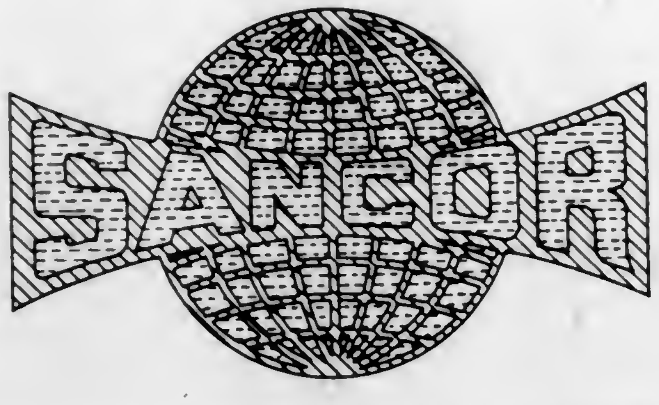
Owner of German Reg. No. 630,967, dated Nov. 7, 1952.
For Metalworking Presses.
First use at least as early as December 1952; in commerce December 1952.

SN 231,537. Ernest R. Casale, d.b.a. Casale Engineering, City of Industry, Calif. Filed Oct. 24, 1965.

CASALE

For Transmissions.
First use summer of 1956.

SN 232,240. Sancor Corporation, Hawthorne, Calif. Filed Nov. 5, 1965.



The drawing is lined for the colors silver and green, but no claim is made to such colors.
For Aircraft and Missile Ground Support Equipment—Namely, Jacks, Tire Tools, Hydraulic Systems for Operating Jacks and Tire Tools, and Repair Parts for Said Jacks, Tire Tools, and Hydraulic Systems.
First use March 1965; not later than Dec. 31, 1951, as to the word "Sancor" in another form.

SN 232,632. Yardney Electric Corporation, New York, N.Y. Filed Nov. 12, 1965.

TORQ-SLIP

For Drill Heads and Chucks.
First use May 22, 1964.

SN 232,913. Gay-Nor Products Corporation, Skokie, Ill. Filed Nov. 18, 1965.

FP

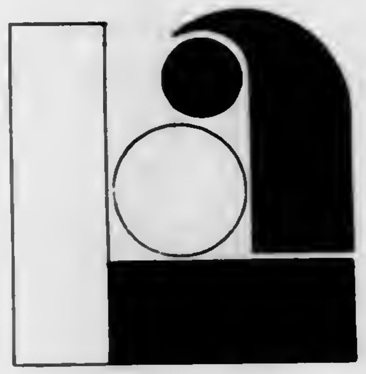
For Fire Extinguishers.
First use June 11, 1965.

SN 234,224. N·C Carpet Binding & Equipment Corporation, Newark, N.Y. Filed Dec. 8, 1965.

N·C

For Carpet Binding and Fringing Machinery.
First use Mar. 4, 1964.

SN 234,758. L. & A. Products, Inc., St. Paul, Minn. Filed Dec. 16, 1965.



The drawing for the letter monogram is depicted in black and white, but no claim is made to particular colors.
For High Pressure Spray Washers.
First use Apr. 26, 1962.

SN 238,789. Ray Control Corp., New York, N.Y. Filed Feb. 14, 1966.

FONTANA

For Stainless Steel Kitchen Tools; Bar Accessories, Consisting of Cork Screws, Ice Cube Crushers, Lobster and Nut Crackers, Tongs, Bottle Openers; Packaged Bar Sets, Consisting of Bar Knife, Spoon, Pick, Combination Bottle and Can Opener, and Jigger.
First use June 1964.

SN 241,097. Thiokol Chemical Corporation, Bristol, Pa. Filed Mar. 15, 1966.

DYNASTAR

For Internal Combustion Engines.
First use December 1965.

SN 241,098. Thiokol Chemical Corporation, Bristol, Pa. Filed Mar. 15, 1966.

For Internal Combustion Engines.
First use December 1965.

SN 241,418. B & G Equipment Company, Plumsteadville, Pa. Filed Mar. 21, 1966.

EXTENDA-BAN

For Spraying Apparatus for Liquids.
First use Mar. 15, 1961.

SN 241,564. Wilkerson Corporation, Englewood, Colo. Filed Mar. 21, 1966.

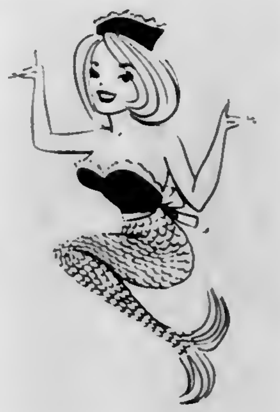
FLOW-GUIDE

Owner of Reg. No. 655,243.
For Air Line Lubricators.
First use Dec. 9, 1965.

SN 243,716. The Salmon Stiles Corporation, El Monte, Calif. Filed Apr. 18, 1966.

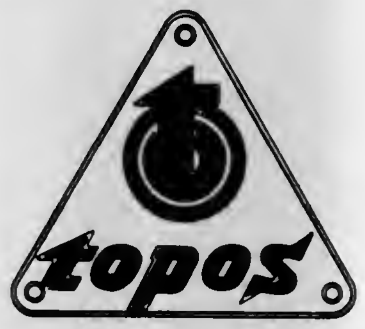
Owner of Reg. No. 777,685.
For Internal Combustion Engines.
First use June 1961.

SN 244,786. Whitaker Construction Company, Tucson, Ariz. Filed May 2, 1966.



For Automatic Swimming Pool Cleaning System.
First use Dec. 15, 1965.

SN 245,064. Chepos, Zavody Chemickeho a Potravinarskeho Strojirenstvi, Oborovy Podnik, Brno, Brno, Czechoslovakia. Filed May 6, 1966.



Owner of Czechoslovakian Reg. No. 151,745, dated Nov. 23, 1954.
For Food Products Processing Machinery and Equipment, Comprising Centrifugal Self-Sucking Pumps and Domestic Water-Supply Pumps.

SN 247,887. Birma Products Corporation, Sayreville, N.J. Filed June 13, 1966.

PLI-GRIP

For Tool Employed for Fastening Aluminum Jacketing Around Pipe Covering, Tanks, Towers and Other Equipment Requiring Jacketing for Protection.
First use January 1961.

SN 252,322. United Engineering and Foundry Company, Pittsburgh, Pa. Filed Aug. 15, 1966.

APEX

For Machined Rolls for Use in Rolling Mills and Calender Stacks.
First use Mar. 30, 1956.

SN 255,749. The O. M. Scott & Sons Company, Marysville, Ohio. Filed Oct. 5, 1966.

SCOTTS AUTOMATIC

No registration rights are claimed in the word "Automatic" apart from the mark as shown. Owner of Reg. No. 563,454.
For Hand-Operated Mechanical Wheeled Spreaders for Seeding, Weeding and Feeding.
First use June 1, 1966.

SN 258,867. Johnson & Johnson, d.b.a. Devro, New Brunswick, N.J. Filed Nov. 17, 1966.

Devro

Owner of Reg. No. 697,465.
For Knives.
First use May 16, 1966.

Class 24 — Laundry Appliances and Machines

SN 239,731. The Connecticut Hard Rubber Company, New Haven, Conn. Filed Feb. 28, 1966.

FSR

For Clothes Pressing Machines, Including Garment Permanent Pressing Apparatus, and Parts Thereof.
First use on or about Jan. 17, 1961.

Class 26 — Measuring and Scientific Appliances

SN 203,067. Sea & Ski Corporation, San Francisco, Calif., assignee of Botany Industries, Inc., Reno, Nev. Filed Oct. 1, 1964.

RENAULD

Owner of Reg. Nos. 777,360, 792,190, and 803,054.
For Sunglasses and Cases Therefor.
First use on or about May 23, 1964.

SN 226,586. Siemens & Halske Aktiengesellschaft, Munich, Germany. Filed Aug. 26, 1965.

KRISTALLOFLEX

Owner of German Reg. No. 474,446, dated Feb. 20, 1935.
For Industrial X-Ray Apparatus for X-Ray Diffraction and X-Ray Fluorescence Analysis, and Components Thereof.

SN 229,005. Harco Laboratories, Incorporated, Stamford, Conn. Filed Sept. 30, 1965.

HARCO

For Electrical and Electronic Apparatus, Instruments, Components and Fittings Therefor—Namely, Thermocouples; Thermocouple Harnesses; Thermocouple Leads; Thermocouple Connectors; Pitot Static Probes; Total Pressure Probes; Total and Static Pressure Probes; Average Pressure Probes; Thermocouple Generators; Potentiometers; and Thermocouple Calibrators.
First use in or about 1952.
Subj. to Intf. with SN 229,349.

SN 236,779. Propper Manufacturing Company, Inc., Long Island City, N.Y. Filed Jan. 18, 1966.

EVRMARK

For Thermometers.
First use Jan. 10, 1966.

SN 237,046. Spiratone, Inc., Flushing, N.Y. Filed Jan. 21, 1966.

MACROTAR

Owner of Reg. No. 805,942.
For Photographic Lenses.
First use Jan. 11, 1966.

SN 237,047. Spiratone, Inc., Flushing, N.Y. Filed Jan. 21, 1966.

MACROTEL

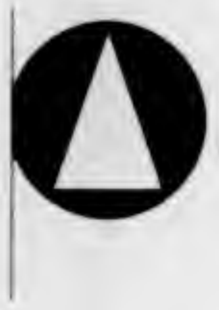
Owner of Reg. No. 805,942.
For Photographic Lenses.
First use Jan. 11, 1966.

SN 238,220. Karl Heitz, d.b.a. K. Heitz Import Company, New York, N.Y. Filed Feb. 7, 1966.

Tessina

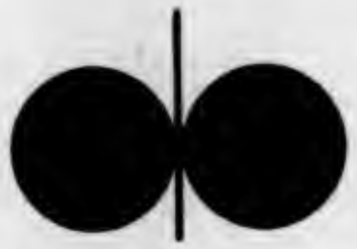
For Photographic Cameras and Accessories—Namely, Photo Flash Devices, Lens Attachments, Filter Attachments, Range Finders, Film Case Sets, Film Bags and Plate Holders, Timers, Enlargers, Projectors, and View Finders.
First use Feb. 28, 1961.

SN 239,994. Hanover Instrument Co., Trevose, Pa. Filed Mar. 2, 1966.



For Flowmeters.
First use November 1965.

SN 241,373. Reevesound Company, Inc., Long Island City, New York, N.Y. Filed Mar. 18, 1966.



For Projectors for Motion Pictures and Sound Recording and Reproducing Equipment Used in Connection With the Motion Picture Projectors.
First use February 1963.

Class 28 — Jewelry and Precious-Metal Ware

SN 238,224. Charles Hopkins of Chapel Hill, Inc., Chapel Hill, N.C. Filed Feb. 7, 1966.

charles hopkins of chapel hill

"Charles Hopkins" identifies Charles Clifton Hopkins, whose consent is of record.
For Jewelry.
First use on or about Apr. 1, 1956.

SN 238,235. Morris Kaplan & Sons, New York, N.Y. Filed Feb. 7, 1966.

oMo

For Precious Metal Jewelry—Namely, Finger Rings.
First use June 1, 1965.

SN 255,255. Weight Watchers International, Inc., Forest Hills, N.Y. Filed Sept. 28, 1966.

WEIGHT WATCHERS

For Tie Clips, Cuff Links, and Ladies' Breast Pins.
First use May 15, 1963.

SN 255,256. Weight Watchers International, Inc. Forest Hills, N.Y. Filed Sept. 28, 1966.

The mark consists of the letters "WW" in fancy script form within a circle with the numeral 10 therein.
For Tie Clips, Cuff Links, and Ladies' Breast Pins.
First use May 15, 1963.

Class 29 — Brooms, Brushes, and Dusters

SN 236,259. I. Sekine Company, Inc., New York, N.Y. Filed Jan. 12, 1966.

BRUSH-N-CURL

For Hairbrushes.
First use Dec. 29, 1964.

SN 237,750. I. Sekine Company, Inc., New York, N.Y. Filed Feb. 1, 1966.

NIP 'N TUCK

For Hairbrushes.
First use Dec. 13, 1965.

SN 254,850. American Home Products Corporation, New York, N.Y. Filed Sept. 21, 1966.

EASY-OFF

Owner of Reg. Nos. 716,968, 781,858, and others.
For Floor Mops.
First use Aug. 31, 1966.

Class 30 — Crockery, Earthenware, and Porcelain

SN 223,680. Kaysons International, Ltd., Los Angeles, Calif. Filed July 19, 1965.

KAYSONS

Owner of Reg. No. 776,569.
For China Dinnerware.
First use Aug. 20, 1957.

SN 236,130. Noritake Co., Inc., New York, N.Y. Filed Jan. 10, 1966.

FANFARE

For China Dinnerware and Tableware and Ironstone China Dinnerware and Tableware.
First use Jan. 13, 1965.

SN 237,317. Crown Staffordshire China Company, Ltd., Fenton, Stoke-on-Trent, England. Filed Jan. 26, 1966.

FINE BONE CHINA
CROWN
ESTD 1801
STAFFORDSHIRE
ENGLAND

The words "Fine Bone China," "Staffordshire England," and "Estd. 1801" are disclaimed apart from the mark as shown.
For English Bone China, Porcelain China, Earthenware, and Ceramics of All Types.
First use 1801; in commerce 1865.

Class 31 — Filters and Refrigerators

SN 229,100. M & S Food Service Equipment Co., d.b.a. Imperium Refrigerator Co., Chicago, Ill. Filed Oct. 1, 1965.

IMPERIUM

For Refrigerators and Refrigerating Equipment.
First use May 15, 1964.

SN 236,634. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

BACTERIA GUARD

For Filter Cartridges for Water Purification.
First use Dec. 13, 1963.

SN 236,635. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

IRON GUARD

For Cartridges for Feeding Chemicals and Filtration in Water Purification.
First use Dec. 13, 1963.

SN 236,636. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

DIRT GUARD

For Filter Cartridges for Water Purification.
First use Dec. 13, 1963.

SN 236,637. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

TASTE & ODOR GUARD

For Sorbent and Filter Cartridges for Water Purification.
First use Dec. 13, 1963.

SN 236,638. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

STAIN GUARD

For Cartridges for Acid Neutralizing and Filtration in Water Purification.
First use Dec. 13, 1963.

SN 236,639. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

HARD GUARD

For Cartridges for Ion Exchange and Filtration in Water Purification.
First use Dec. 13, 1963.

SN 236,640. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

PALL GUARD

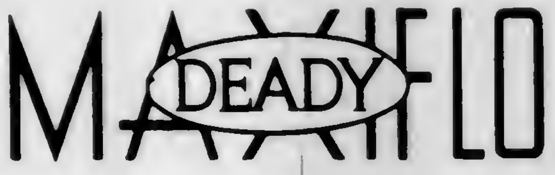
For Water Purification Apparatus.
First use Dec. 13, 1963.

SN 236,641. Pall Corporation, Glen Cove, N.Y. Filed Jan. 17, 1966.

MINERAL GUARD

For Cartridges for Ion Exchange and Filtration in Water Purification.
First use Dec. 13, 1963.

SN 238,058. Deady Chemical Company, Kansas City,, Kans. Filed Feb. 4, 1966.



Owner of Reg. No. 749,981.
For Water Softeners of the Cation Exchange (Zeolite) Type.
First use Nov. 16, 1956.

SN 251,023. Union Tank Car Company, Chicago, Ill. Filed July 25, 1966.

MONOCLUSTER

Owner of Reg. Nos. 708,634, 776,180, and others.
For Liquid Filters.
First use prior to July 25, 1966.

Class 32 — Furniture and Upholstery

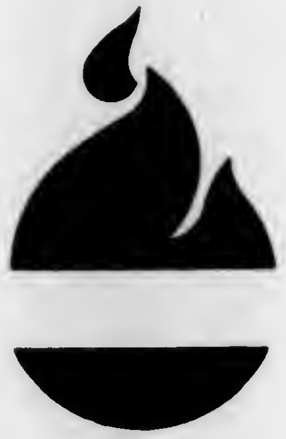
SN 226,168. Sealy, Incorporated, Chicago, Ill. Filed Aug. 20, 1965.

POSTURE POISE

Applicant claims use for the continental United States, except California and Arizona. Owner of Reg. No. 755,075.
For Mattresses and Box Springs.
First use Aug. 30, 1962.
Subj. to Con. Use Proc. with SN 173,470.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 232,630. Max Weishaupt G.m.b.H., Schwendi, Wurttemberg, Germany, Filed Nov. 12, 1965.



Owner of German Reg. No. 809,331, dated May 14, 1965.
For Oil Burners and Gas Burners.

SN 243,228. Dorr - Oliver Incorporated, Stamford, Conn. Filed Apr. 12, 1966.

TORCO

For Apparatus and Systems Thereof—Namely, Fluidized Bed Reactor for the Treatment of Ores.
First use Feb. 23, 1965.

SN 243,821. Weil-McLain Company, Inc., Michigan City, Ind. Filed Apr. 20, 1966.

SUITE HEATER

Applicant disclaims the term "Heater" apart from the mark as shown.
For Boilers for Heating Water.
First use Jan. 15, 1966.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 237,766. United States Rubber Company, New York, N.Y. Filed Feb. 1, 1966.

MATCHLESS S/S

Owner of Reg. Nos. 225,665, 808,511, and others.
For Steam Hose.
First use Dec. 22, 1965.

SN 238,179. The Dayton Tire & Rubber Company, Dayton, Ohio. Filed Feb. 7, 1966.

DUALOAD

For Resilient Vehicle Tires.
First use Dec. 20, 1965.

Class 36 — Musical Instruments and Supplies

SN 221,085. Glen H. Parker, Portland, Oreg. Filed June 14, 1965.

BODY-GUARD

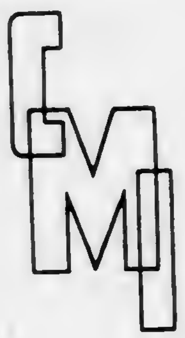
For Protective Covers for Hand Held Musical Stringed Instruments.
First use Mar. 29, 1965.

SN 224,285. Z & T Importing Co., Inc., Los Angeles, Calif. Filed July 26, 1965.

ESSEX

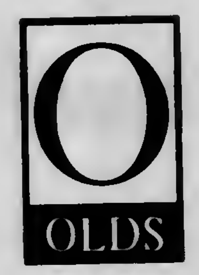
For Tape Recorders.
First use at least as early as Nov. 19, 1963.

SN 230,509. Chicago Musical Instrument Co., Chicago, Ill. Filed Oct. 19, 1965.



For Band Instruments—Namely, Cornets, Flugel Horns, Trumpets, Herald Trumpets, Trombones, Bass Trombones, Valve Trombones, French Horns, Baritones, Altos, Mellophones, Aida Horns, Post Horns, Tubas, Recording Basses, Sousaphones, Alto Saxophones, Tenor Saxophones, Baritone Saxophones, Oboes, Bassoons, Clarinets, Alto Clarinets, Bass Clarinets, Flutes, Piccolos, Acoustic Guitars, Electric Guitars, Electric Bass Guitars, Electric Acoustic Guitars, Double Bass Guitars, Mandolins, Electric Mandolins, Double Electric Mandolins, Electric Guitar Tone Signal Transducers, Electric Guitar Reverberation-Echo Units, Electraharps, Multiharps, Electric Tenor Guitars, Banjos, Electric Banjos, Plectrum Banjos, Plectrum Tenor Banjos, Steel Guitars, and Double-Neck Steel Guitars; and Accessories Therefor—Namely, Band Instrument Cases, Covers for Band Instrument Cases, Mouthpieces for Brass and Woodwind Band Instruments, Reeds, Finger Rest pickups for Electric Stringed Instruments, Vibrato Units for Guitars, Strings, and Valve Guards for Valved Band Instruments; Accordions; Electronically Augmented Accordions and parts Thereof—Namely, Tone Signal Generators and Tone Signal Transducers; and Toy Musical Instruments.
First use at least as early as Dec. 31, 1953.

SN 230,511. Chicago Musical Instrument Co., Chicago, Ill. Filed Oct. 19, 1965.



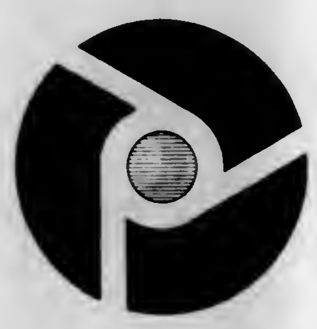
For Band Instruments—Namely, Cornets, Flugel Horns, Trumpets, Herald Trumpets, Trombones, Bass Trombones, Valve Trombones, French Horns, Baritones, Altos, Mellophones, Aida Horns, Post Horns, Tubas, Recording Basses, Sousaphones, Alto Saxophones, Tenor Saxophones, Baritone Saxophones, Oboes, Bassoons, Clarinets, Alto Clarinets, Bass Clarinets, Flutes, and Piccolos; Accessories Therefor—Namely, Band Instrument Cases, Covers for Band Instrument Cases, Mouthpieces for Brass and Woodwind Instruments, and Valve Guards for Valved Band Instruments; and Phonograph Records.
First use at least as early as Feb. 28, 1963; prior to November 1931 as to "Olds."

SN 231,244. Scholastic Magazines, Inc., New York, N.Y. Filed Oct. 22, 1965.

Scholastic Records

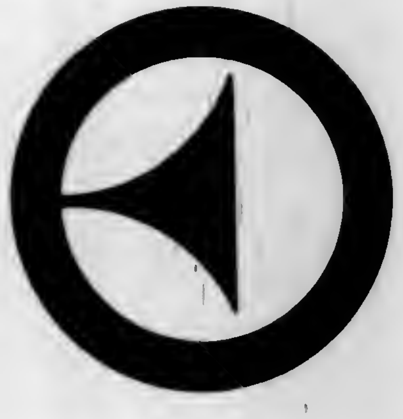
The word "Records" is disclaimed apart from the mark as shown. Owner of Reg. No. 799,911.
For Phonograph Records.
First use Aug. 25, 1965.

SN 232,474. Pacific Electro Magnetics Co., Inc., Palo Alto, Calif. Filed Nov. 10, 1965.



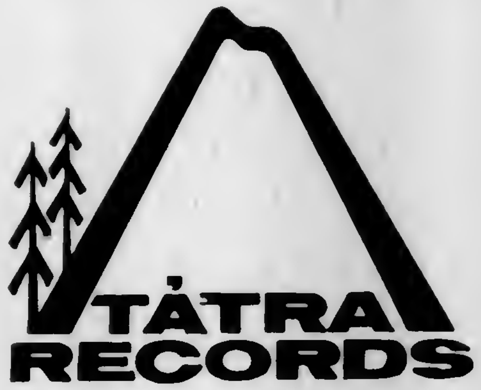
The circular design which comprises the mark, represents a tape reel which is in motion. The three tangential spaces provided in the mark form three lowercase "p's" which are spaced 120 degrees apart. The drawing is lined for the color blue, but color is not a feature of the mark. Owner of Reg. No. 725,626.
For Magnetic Tape Recorders.
First use July 6, 1965.

SN 232,566. G. Leblanc Corporation, Kenosha, Wis. Filed Nov. 12, 1965.



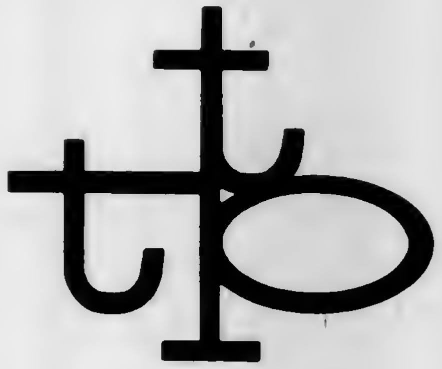
The mark is a design of a bell within a circle.
For Musical Wind Instruments, Parts Thereof, and Accessories Therefor.
First use Sept. 1962.

SN 233,515. Frank Mikisits, Bethlehem, Pa. Filed Nov. 29, 1965.



Applicant disclaims the word "Records" apart from the mark as shown. The word "Tatra" is of Hungarian origin and refers to the highest mountain of Hungary before World War I. This mountain presently lies in Rumania and Czechoslovakia.
For Phonograph Records.
First use Oct. 8, 1965.

SN 233,759. Triangle Theatrical Productions, Inc., Chicago, Ill. Filed Dec. 1, 1965.



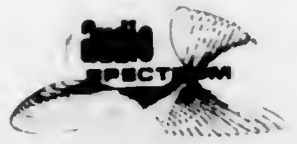
For Phonograph Records.
First use Oct. 12, 1965.

SN 234,153. Synthetic Plastics Company, d.b.a. Tifton Record Co., Newark, N.J. Filed Dec. 7, 1965.

TIFTON

For Phonograph Records of the Circular Disc Type.
First use June 28, 1965.

SN 235,271. Budget Sound, Inc., Los Angeles, Calif. Filed Dec. 27, 1965.



For Pre-Recorded Phonograph Records and Magnetic Tape.
First use May 22, 1964.

SN 236,524. Sony Corporation of America, New York, N.Y. Filed Jan. 14, 1966.

ROTO-COIL

For Electronic Video Signal Tape Recorder and Reproducer.
First use Oct. 30, 1963.

SN 246,026. National Business Music Company of the Southeast, Inc., Charlotte, N.C. Filed May 19, 1966.

NEWSIC

For Magnetic Tape Consoles and Pre-Recorded Magnetic Tapes.
First use July 1, 1965.

SN 257,004. Allen Organ Company, Macungie, Pa. Filed Oct. 24, 1966.

EXPLORER

For Organs.
First use July 1966.

Class 37 — Paper and Stationery

SN 235,003. Lakeside Central Company, Chicago, Ill. Filed Dec. 21, 1965.

COMPAC

For Composition and Theme Books, Notebooks, Tablets, Pads, Scrapbooks, Autograph Books, and Stenographer Notebooks.
First use Nov. 22, 1965.

SN 235,263. Blaisdell Pencil Company, Bethayres, Pa. Filed Dec. 27, 1965.

SPEE-D-MARK

Owner of Reg. No. 717,605.
For Felt Tip Markers.
First use Nov. 12, 1965.

SN 235,730. Thilmany Pulp & Paper Company, Kaukauna, Wis. Filed Jan. 3, 1966.

THILMANY

Owner of Reg. No. 818,683.
For Foil Mounting, Carbonizing, Packaging, Laminated, Wrapping, Waxed, and Decorated Papers, and Paper for Bags.
First use Jan. 13, 1964.

SN 249,280. Spectra-Kote Corporation, Gettysburg, Pa. Filed June 30, 1966.

Spectra-kote

For Color Clay Coatings, Applied to and Sold as a Part of Rolls of Linerboard, Box Board, and Bag Paper.
First use July 9, 1957.

SN 251,973. The Waterbury Pen Co., Inc., Stratford, Conn. Filed Aug. 8, 1966.

KINETO

For Ball Point Cartridges.
First use on or about July 1, 1957.

SN 252,013. James E. Klosterman, d.b.a. Chatham Company, Dayton, Ohio. Filed Aug. 9, 1966.

STOCK-WATCH

For Portfolio and Removable Forms Attachable Therein, Particularly Adapted for Use for Investment Records.
First use Nov. 1, 1964.

SN 253,492. Boise Cascade Corporation, Boise, Idaho. Filed Aug. 31, 1966.

MINUTEMAN

For Envelopes.
First use Mar. 22, 1966.

SN 256,630. Paper Mate Manufacturing Company, Santa Monica, Calif. Filed Oct. 18, 1966.

LINE-LIGHTER

For Pens.
First use Aug. 30, 1966.

SN 259,062. Regent Standard Forms, Inc., Philadelphia, Pa. Filed Nov. 21, 1966.

LETTER-LIMINATOR

For Carbon Interleaved Message Forms.
First use at least Sept. 1, 1958.

Class 38 — Prints and Publications

SN 222,556. Dow Jones & Company, Inc., New York, N.Y. Filed July 2, 1965.

WHO'S NEWS

Owner of Reg. No. 557,133.
For Section of a Daily Newspaper Describing Personnel Changes in Business.
First use June 1, 1950.

SN 231,672. The Diners' Club, Inc., New York, N.Y. Filed Oct. 27, 1965.

DINERS
CLUB MAGAZINE

Applicant disclaims any rights to the word "Magazine" apart from the mark as shown. Owner of Reg. Nos. 634,205 and 649,729.
For Periodical Publication—Namely, a Magazine Published Monthly.
First use on or about Sept. 27, 1965; October 1950 in a different form.

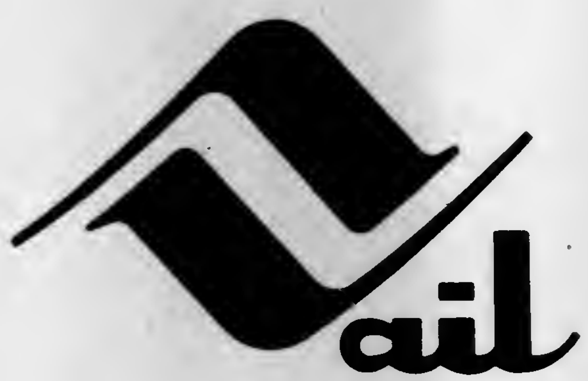
SN 233,404. Scanco, Incorporated, Chicago, Ill. Filed Nov. 26, 1965.

FORMS-PAK

For Computer Programming Translator Cards for Use in Data Processing Operation.
First use Jan. 30, 1965.

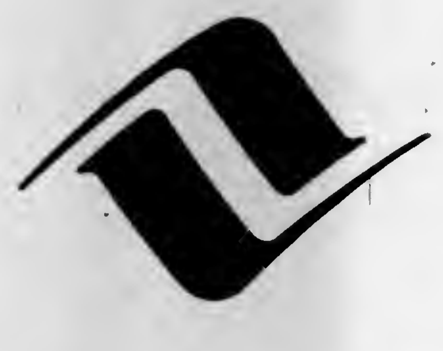
Class 39 — Clothing

SN 212,078. Vail Associates, Ltd., Vail, Colo. Filed Feb. 15, 1965.



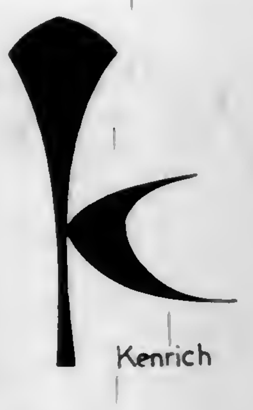
For Ski Gloves, Ski Parkas, Hats, Sweat Shirts, Sweaters, Turtleneck Shirts, and Handkerchiefs.
First use on or about Jan. 29, 1963.

SN 212,081. Vail Associates, Ltd., Vail, Colo. Filed Feb. 15, 1965.



For Ski Gloves, Ski Parkas, Hats, Sweat Shirts, Sweaters, Turtleneck Shirts, and Handkerchiefs.
First use on or about Jan. 29, 1963.

SN 219,582. Kenrich Shoe Corporation, Maysville, Ky. Filed May 24, 1965.



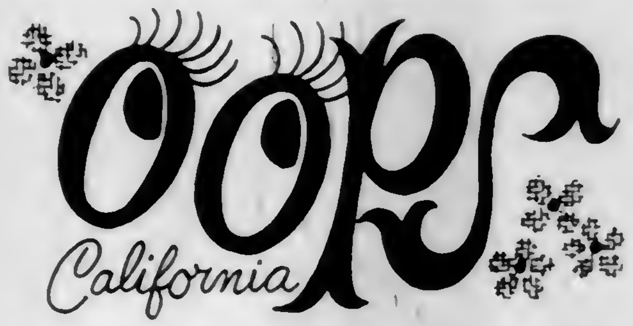
For Shoes.
First use Apr. 5, 1965.

SN 226,978. Amos & Smith Hosiery Company, High Point, N.C. Filed Sept. 2, 1965.

LADY LURE

For Ladies' and Misses' Hosiery.
First use Aug. 18, 1965.

SN 227,104. OOPS, Los Angeles, Calif. Filed Sept. 1, 1965.



The word "California" is disclaimed apart from the mark as shown. The drawing is lined for gold or yellow.
For Dresses, Suits, Coats, Jackets, Hats, Lingerie, Blouses, Stockings, Shoes, Sweaters, Pants, Skirts, Neckties, and Swimsuits.
First use July 20, 1965.

SN 228,642. Con-Stan Industries, Inc., El Monte, Calif. Filed Sept. 27, 1965.

JEUNIQUE

The mark is fanciful.
For Lingerie, Brassieres, and Girdles; Blouses, Weskits, Pants, Shorts, Skirts, and Sets of Blouses and Pants; Hostess Sets; Capes, Coats, Jackets, Dresses, and Sets of Coats and Dresses.
First use Aug. 19, 1965.

SN 230,080. J. Rosoff and Son, Inc., Philadelphia, Pa. Filed Oct. 13, 1965.

HOLIDAY PARK

For Men's and Boys' Suits, Slacks, Jackets, Topcoats, Overcoats, and Rainwear.
First use Sept. 16, 1965.

SN 230,194. Quabaug Rubber Company, North Brookfield, Mass. Filed Oct. 14, 1965.

ARMORTRED

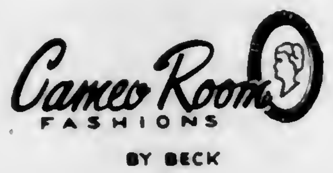
For Shoe Soles and Heels.
First use July 10, 1934.

SN 232,549. Globe Superior, Inc., Greensboro, N.C. Filed Nov. 12, 1965.

LARAMIE

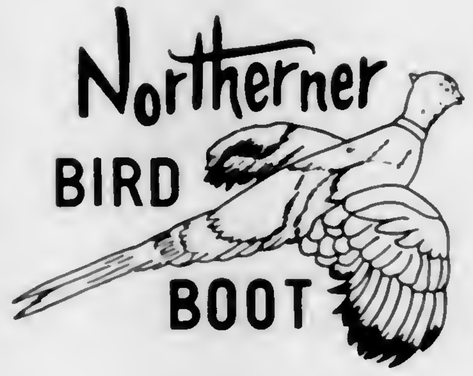
Owner of Reg. No. 776,661.
For Men's and Boys' Jeans, Jackets, and Shirts.
First use Nov. 8, 1965.

SN 232,657. A. S. Beck Shoe Corporation, New York, N.Y. Filed Nov. 15, 1965.



The word "Fashions" is disclaimed apart from the mark as shown. The female profile shown in the drawing is fanciful. Owner of Reg. No. 688,368.
For Shoes.
First use July 18, 1956.

SN 234,081. The Servus Rubber Company, Rock Island, Ill. Filed Dec. 6, 1965.



The word "Boot" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 621,814 and 808,547.
For Footwear.
First use about September 1965.

SN 234,117. Costa del Sol of Miami, Inc., Miami Beach, Fla. Filed Dec. 7, 1965.

COSTA DEL SOL

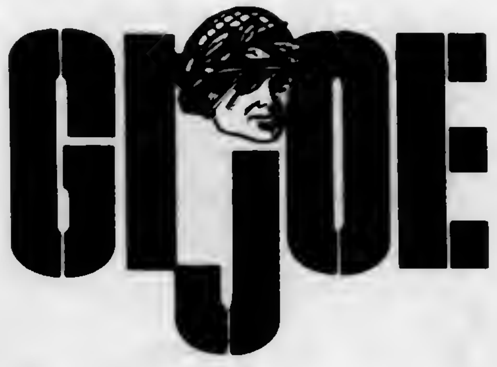
The words "Costa del Sol" mean "sunny coast" or "coast of the sun" in Spanish.
For Bathing Suits, Beachwear, Ladies' Slack Sets, Skirts, Swimsuits, Sunbacks, Shifts, Shorts, and Beach Coats.
First use Nov. 3, 1963.

SN 235,842. Maidenform, Inc., New York, N.Y. Filed Jan. 5, 1966.

SWEET THING

Owner of Reg. Nos. 332,295, 765,977, and others.
For Foundation Garments.
First use Dec. 3, 1965.

SN 236,863. Hassenfeld Bros., Inc., Pawtucket, R.I. Filed Jan. 20, 1966.



Owner of Reg. Nos. 773,150 and 787,088.
For Children's Play Suits and Costumes.
First use on or about Apr. 9, 1965.

SN 241,024. Bernard Industries, Inc., New York, N.Y. Filed Mar. 15, 1966.

SARSINI

"Sarsini" is an invented word. Owner of Reg. No. 751,323.
For Men's Neckwear and Cravats, Men's Knit Shirts, Sweaters, and Suede Jackets; Ladies' Knitted Dresses, Sweaters, Suits, Suede and Wool Jackets.
First use at least since March 1961.

SN 241,025. Bernard Industries, Inc., New York, N.Y. Filed Mar. 15, 1966.

BARDINI

"Bardini" is a fictitious name. Owner of Reg. No. 751,323.
For Men's Neckwear, Sportshirts and Sweaters; Ladies' Knitted Dresses and Suits, Pullovers, Wool and Suede Jackets.
First use May 17, 1962.

SN 241,026. Bernard Industries, Inc., New York, N.Y. Filed Mar. 15, 1966.

Owner of Reg. Nos. 691,318 and 713,901.
For Men's Neckwear and Cravats, Sweaters, Pullovers, Cardigans and Knitted Shirts; and Ladies' Knitted Dresses and Suits, Suede and Wool Jackets.
First use June 19, 1959.

SN 241,039. Daisy's Originals, Inc., Miami, Fla. Filed Mar. 15, 1966.

Owner of Reg. No. 758,235.
For Reversible Pants, Blouses, Jackets, Shifts, Dresses, and Shorts.
First use Dec. 17, 1965.

SN 242,128. Hodges Research & Development Company, New York, N.Y. Filed Mar. 29, 1966.

RAMI-LIFE

Owner of Reg. Nos. 773,344, 789,115, and others.
For Frocks for Use as Hospital and Industrial Work Garments.
First use June 1965.

SN 242,736. Marx & Newman Company, Inc., New York, N.Y. Filed Apr. 5, 1966.

For Shoes.
First use Mar. 1, 1966.

SN 243,682. The H. D. Lee Company, Incorporated, Kansas City, Mo. Filed Apr. 18, 1966.

MASTER CLASSIC

The word "Classic" is disclaimed apart from the mark as shown.
For Pants and Slacks.
First use Mar. 25, 1966.

SN 243,736. United States Rubber Company, New York, N.Y. Filed Apr. 18, 1966.

DUCKS

Owner of Reg. Nos. 18,185, 63,782, and others.
For Waterproof Footwear.
First use Apr. 5, 1966.

SN 243,975. Jack Finn, Inc., Boston, Mass. Filed Apr. 21, 1966.

MICKEY FINN

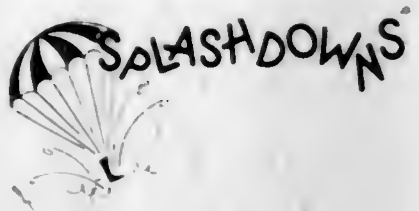
"Mickey Finn" is the commonly used nickname of Henry M. Finn, an officer of applicant corporation. Owner of Reg. No. 795,644.
For Men's Pants, Shirts, Coats, Suits, Hosiery, Underwear, Sweaters; Women's Jeans, Raincoats, Jerseys, Sweaters; Athletic Hose, Shirts and Sweaters; and Ski Boots, Baseball Uniforms and Shoes, Football Uniforms and Shoes, Basketball Uniforms, and Hockey Uniforms.
First use at least as early as 1944.

SN 244,150. The Strong-Wear Co., Baltimore, Md. Filed Apr. 22, 1966.

MIRACLE "88"

For Wearing Apparel—Namely, Men's Suits, Topcoats, Overcoats, and Sport Coats.
First use Mar. 15, 1966.

SN 244,722. Joseph B. Nadler, New York, N.Y. Filed May 2, 1966.

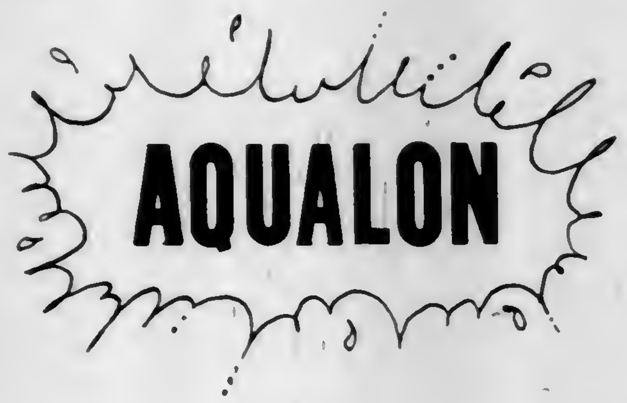


For Ornamented Waterproof Footwear.
First use Nov. 2, 1965.

SN 244,781. Wembley, Inc., New Orleans, La. Filed May 2, 1966.

For Men's Neckwear.
First use Feb. 16, 1966.

SN 244,783. Wembley, Inc., New Orleans, La. Filed May 2, 1966.



For Men's Neckwear.
First use Dec. 1, 1965.

SN 244,989. Indian Head Mills, Inc., New York, N.Y. Filed May 5, 1966.

DANITA

For Women's and Misses' Hosiery, Stockings, Half-Hose, Textured Hosiery and Tights, Both Full-Fashioned and Seamless.
First use Sept. 16, 1956.

SN 245,106. Russ Togs, Inc., New York, N.Y. Filed May 6, 1966.

ST. AUMONT

For Children's, Girls', and Ladies' Skirts, Dresses, Jackets, Blouses, Slacks, Pants, and Sweaters.
First use Jan. 2, 1962.

SN 245,422. Irving M. Schuyler, New York, N.Y. Filed May 11, 1966.

KNIT-MATES

For Ladies' and Misses' Slips and Petticoats.
First use Dec. 20, 1965.

SN 245,866. Textron Inc., Providence, R.I. Filed May 17, 1966.

For Men's Shoes Made Principally of Leather and of Combinations of Leather and Rubber.
First use Dec. 10, 1964.

SN 246,281. Curlee Clothing Company, St. Louis, Mo. Filed May 23, 1966.

ARCHWAY

For Men's Suits, Topcoats, Sport Coats, and Slacks.
First use Nov. 1, 1965.

SN 247,539. Superba Cravats, Inc., Rochester, N.Y. Filed June 7, 1966.

M&W

For Neckwear.
First use May 23, 1966.

SN 248,498. Manhasset Casuals, Inc., New York, N.Y. Filed June 20, 1966.

MANHASSET

For Women's and Misses' Slacks, Blouses, Shorts, and Skirts.
First use March 1960.

SN 258,443. Maidenform, Inc., New York, N.Y. Filed Nov. 14, 1966.

FIRMAMENT

For Foundation Garments.
First use Oct. 28, 1966.

SN 258,444. Maidenform, Inc., New York, N.Y. Filed Nov. 14, 1966.

SEAMAIDEN

For Foundation Garments.
First use Oct. 28, 1966.

SN 258,445. Maidenform, Inc., New York, N.Y. Filed Nov. 14, 1966.

SHAPE-MATE

Owner of Reg. No. 569,154.
For Foundation Garments.
First use Oct. 28, 1966.

SN 258,446. Maidenform, Inc., New York, N.Y. Filed Nov. 14, 1966.

COUNTERPOISE

Owner of Reg. No. 437,024.
For Foundation Garments.
First use Oct. 28, 1966.

SN 258,457. Hart Schaffner & Marx, Chicago, Ill. Filed Nov. 14, 1966.

VIRACLE-LITE

Owner of Reg. Nos. 559,384 and 817,410.
For Men's Suits, Sport Coats, and Pants.
First use Aug. 5, 1966; Apr. 10, 1951, as to "Viracle."

Class 40—Fancy Goods, Furnishings, and Notions

SN 247,965. Quick Service Textiles Inc., Chicago, Ill. Filed June 13, 1966.

BANS-ROL

Owner of Reg. Nos. 768,236 and 775,025.
For Waistband Material Adapted To Be Incorporated With the Waistband or Similar Edge Portion of a Garment.
First use May 4, 1966.

SN 247,966. Quick Service Textiles Inc., Chicago, Ill. Filed June 13, 1966.

BAN-A-ROL

Owner of Reg. Nos. 768,236 and 775,025.
For Waistband Material Adapted To Be Incorporated With the Waistband or Similar Edge Portion of a Garment.
First use May 4, 1966.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 250,744. Deering Milliken, Inc., New York, N.Y. Filed July 21, 1966.

AIRSPUN

For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers, and Combinations Thereof.
First use June 7, 1963.

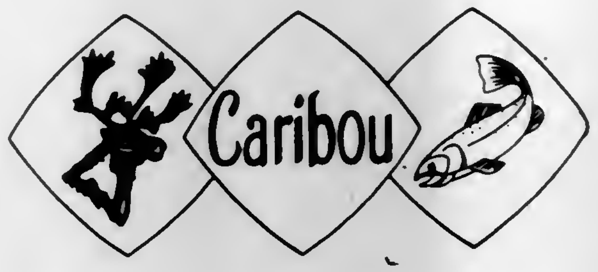
SN 250,778. J. P. Stevens & Co., Inc., New York, N.Y. Filed July 21, 1966.

ANGELEEN

Owner of Reg. No. 627,076.
For Piece Goods of One or More Natural Fibers Including Wool and Cotton, or of Synthetic Fibers or Cellulosic Fibers, or of Blends of the Foregoing.
First use Nov. 1, 1930.

Class 46—Foods and Ingredients of Foods

SN 220,318. John Penny & Sons, Limited, Ramea, Newfoundland, Canada. Filed June 3, 1965.



The representation of a fish is disclaimed apart from the mark as shown. Owner of U.S. Reg. Nos. 564,574 and 564,575.
For Fresh Frozen and Smoked Frozen Fish—Namely, Fillets of Ocean Perch, Haddock, Cod, Sole, Flounder, and Greysole.
First use in or about August 1962; in commerce Sept. 6, 1962.

SN 231,512. VAN MELLE N.V., Rotterdam, Netherlands. Filed Oct. 23, 1965.

Applicant hereby disclaims the words "Assorted Candy Dragees" and "Made by VAN MELLE N.V. Rotterdam, Holland." Owner of U.S. Reg. No. 775,086; and Dutch Reg. No. 156,168, dated June 18, 1965.
For Confectionery—Namely, Assorted Candy Dragees.

SN 232,228. Peavey Company, Minneapolis, Minn. Filed Nov. 5, 1965.

Mardi Gras

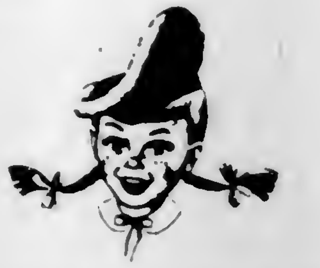
For Prepared French Bread Base, Sold Only to the Baking Industry.
First use January 1965.

SN 233,231. Peavey Company, Minneapolis, Minn. Filed Nov. 22, 1965.

GALAXY

For Prepared Cake and Doughnut Mix, Sold Only to the Baking Industry.
Filed October 1962.

SN 234,330. Bishop Baking Company, Cleveland, Tenn. Filed Dec. 10, 1965.



The picturization is fanciful, and not the picture of any living person.
For Cakes and Cookies.
First use Sept. 26, 1965.

SN 236,009. Ralston Purina Company, St. Louis, Mo. Filed Jan. 7, 1966.

KADOOS

For Cereal Derived Snack Food.
First use Dec. 20, 1965.

SN 236,646. Plantation Foods, Inc., Waco, Tex. Filed Jan. 17, 1966.

THRIFTY

For Frozen Processed Turkeys.
First use Sept. 21, 1965.

SN 238,614. Colgate-Palmolive Company, New York, N.Y. Filed Feb. 11, 1966.

WHITE APRON

For Salad Dressing.
First use Jan. 11, 1966.

SN 238,949. General Mills, Inc., Minneapolis, Minn. Filed Feb. 16, 1966.

TROPICANA

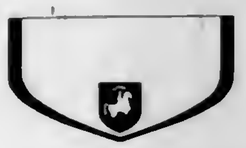
For Cake Mixes.
First use at least as early as May 30, 1964.

SN 239,020. Colgate-Palmolive Company, New York, N.Y. Filed Feb. 17, 1966.

DAIRYFIELD

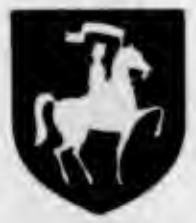
For Nonfat Dry Milk.
First use Jan. 27, 1966.

SN 239,272. The Illinois Canning Co., Hoopeston, Ill. Filed Filed Feb. 21, 1966.



Owner of Reg. Nos. 513,287, 721,101, and 746,320.
For Canned Vegetables.
First use as early as Sept. 3, 1963.

SN 239,273. The Illinois Canning Co., Hoopeston, Ill. Filed Feb. 21, 1966.



Owner of Reg. Nos. 513,287, 721,101, and 746,320.
For Canned Vegetables.
First use as early as Sept. 3, 1963.

SN 241,509. Philip Morris Incorporated, d.b.a. Clark Gum Co., New York, N.Y. Filed Mar. 21, 1966.

CLARKETTES

Owner of Reg. Nos. 609,236, 791,935, and others.
For Chewing Gum.
First use Mar. 2, 1966.

SN 241,631. Blue Goose Growers, Inc., Fullerton, Calif. Filed Mar. 23, 1966.

VENTURA CREST

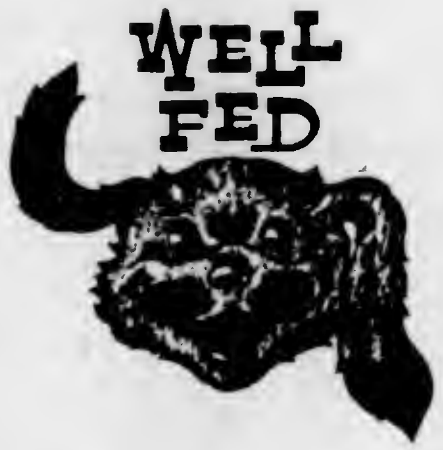
For Fresh Citrus Fruits.
First use Mar. 13, 1961.

SN 241,632. Blue Goose Growers, Inc., Fullerton, Calif. Filed Mar. 23, 1966.

LANCER

For Fresh Citrus Fruits.
First use Mar. 13, 1961.

SN 242,718. Daily Diet Pet Food Co., d.b.a. Well Fed Pet Food Co., Huntington Park, Calif. Filed Apr. 5, 1966.



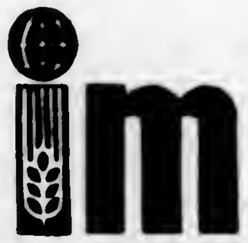
For Canned Pet Food.
First use Mar. 11, 1966.

SN 245,902. British Chemotheutic Products Limited, Bradford, York, England. Filed May 18, 1966.

HONEYJEL

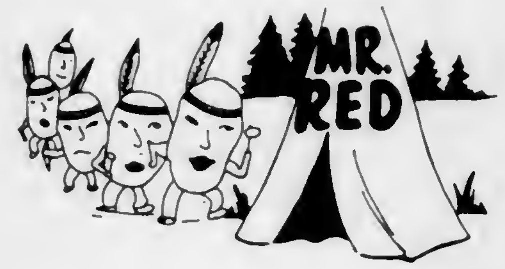
Owner of Reg. No. 753,773.
For Dietetic Food Preparations in Jelly Form, All Containing Honey.
First use June 9, 1960; in commerce Nov. 28, 1965.

SN 249,914. International Milling Company, Inc., Minneapolis, Minn. Filed July 11, 1966.



Owner of Reg. No. 307,135.
For Flour, Cake and Doughnut Baking Mixes, Poultry and Livestock Feeds, and Dog Foods.
First use Dec. 11, 1965.

SN 251,380. Central Sands Produce, Inc., Bancroft, Wis. Filed Aug. 1, 1966.



No registration rights are claimed for the word "Red" apart from the mark shown, but the applicant waives none of its common law rights in the mark as shown or any feature thereof.
For Red Potatoes in Natural State.
First use August 1963.

Class 49 — Distilled Alcoholic Liquors

SN 240,623. D. Johnston & Company (Laphroaig) Limited, Port Ellen, Isle of Islay, Scotland. Filed Mar. 10, 1966.

LAPHROAIG

Owner of U.S. Reg. No. 613,647.
For Whisky.
First use Jan. 1, 1866; in commerce Apr. 30, 1948.

SN 259,371. E. Martinoni Co., d.b.a. The Richards Company, San Francisco, Calif. Filed Nov. 25, 1966.

Bond Street

For Gin.
First use July 29, 1959.

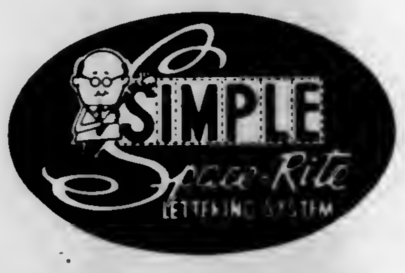
SN 259,377. Puerto Rico Distillers, Inc., d.b.a. Compania de Bebidas del Tanama, Arecibo, Puerto Rico. Filed Nov. 25, 1966.

EL COQUI

The word "Coqui" is the name of a particular species of small Puerto Rican frog. Owner of Reg. Nos. 782,171 and 813,132.
For Alcoholic Beverages—Namely, a Sparkling Rum Specialty.
First use Sept. 8, 1965.

Class 50 — Merchandise Not Otherwise Classified

SN 247,537. Sun Valley Silk Screen Sign Co., Phoenix, Ariz. Filed June 7, 1966.



The words "Simple Lettering System" are disclaimed apart from the mark as shown.
For Laminated Sheet Letters for Making and Lettering Signs and the Like.
First use Apr. 25, 1966.

SN 252,816. Onie N. Cass, d.b.a. Danell Plastics, Palatka, Fla. Filed Aug. 22, 1966.

DIRECTO

For Shields for Attachment to Pressurized Cans, Primarily to Hair Spray Cans.
First use July 7, 1964.

SN 254,384. Jonathan C. Gibbs, Jr., d.b.a. Doctor's Panti-Dri, Jersey City, N.J. Filed Sept. 13, 1966.

PANTI-DRI

For Clothes Hangers.
First use June 13, 1966.

Class 51 — Cosmetics and Toilet Preparations

SN 200,070. Clairol Incorporated, New York, N.Y. Filed Aug. 18, 1964.

IS IT TRUE . . . BLONDES HAVE MORE FUN?

For Hair Bleaching Preparation.
First use August 1958.

SN 217,284. Slade di Angelo Callegari & C. Soc. Acc. Semplice, Monza, Milan, Italy. Filed Apr. 26, 1965.

EGLANTIOL

Owner of Italian Reg. No. 163,503, dated July 17, 1963.
For Cosmetic Products—Namely, Body Lotions, Toilet Waters, Toilet Powders, Hair Tonics and Pomades, Body Creams, Lipsticks, Eye Pencils, and Rouge.

SN 231,368. Elizabeth Arden Sales Corporation, New York, N.Y. Filed Oct. 23, 1965.

SUN CONTROL

For Moisturizing Cream to Prevent Sunburn.
First use Jan. 2, 1963.

SN 243,648. Daggett and Ramsdell International Corporation, New York, N.Y. Filed Apr. 18, 1966.

ARABESQUE

For Perfumes.
First use Mar. 28, 1966.

SN 249,309. The Dentists' Supply Company of New York, York, Pa. Filed June 30, 1966.

TRUBRITE

Owner of Reg. Nos. 135,649 and 708,513.
For Denture Cleanser.
First use Apr. 6, 1966.

SN 254,905. Alberto-Culver Company, Melrose Park, Ill. Filed Sept. 22, 1966.

CONSORT

For Colognes, Shave Soaps, Shave Lotions, Personal Deodorants; Preparations for the Hair, Comprising Hair Spray, Hair Setting Gel, Hair Dressing and Conditioner, and Dandruff Preparation.
First use Aug. 26, 1965, on hair spray.

Class 52 — Detergents and Soaps

SN 205,681. Mitchell S. Fain, d.b.a. New-Tex Industries, Salisbury, N.C. Filed Nov. 6, 1964.

VALET-DUO

For Dry Cleaning Fluid and Applicator Pad, Packaged Together in a Tear-Open Envelope, for Use in Removing Stains and Spots from Clothing.
First use Oct. 19, 1964.

SN 242,147. Permatex Company, Inc., Brooklyn, N.Y. Filed Mar. 29, 1966.

PERMATEX

Owner of Reg. Nos. 93,418, 519,207, 761,075, and others.
For Fabric Cleaner, Plastic Cleaner, Liquid for Cleaning Glass Wind-Shields, Radiator Cooling System Cleaner and Conditioner, Radiator Cleaner, Tar Remover, Cold Parts Cleaner and Carburetor Cleaner, Grease Cutter, Car Wash, and Fast Flush.
First use Dec. 1, 1921, on tar remover.

SN 242,823. Iron Magic, Inc., Fort Wayne, Ind. Filed Apr. 6, 1966.

IRON MAGIC

For Chemical Cleaners—Namely, a Chemical Preparation for Removing Rust and Stains From Water Softeners, Water Softener Mineral Filter Bed Material, Sinks, Toilets, Lavatories, and the Like, e.g. Metal and Porcelain-Like Materials.
First use Nov. 23, 1965.

SN 245,361. West Chemical Products, Inc., Long Island City, N.Y. Filed May 10, 1966.

TADO

For Floor Cleaning and Wax Removing Preparation for Industrial and Institutional Use.
First use Apr. 1, 1966.

SN 253,086. C. J. Webb Inc., Dresher, Pa. Filed Aug. 24, 1966.

CRC

Owner of Reg. Nos. 696,251, 765,728, and others.
For Motor and Equipment Cleaner.
First use Aug. 5, 1966.

SERVICE MARKS

Class 100 — Miscellaneous

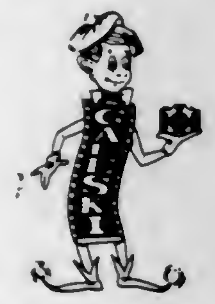
SN 235,726. Standard Uniform Rental Service, Inc., Boston, Mass. Filed Jan. 3, 1966.

CHEM-KLEEN

For Rental Services for Rugs and Mops Specially Treated for Dirt Removal.
First use Mar. 29, 1963.

Class 101 — Advertising and Business

SN 228,456. Galeski Photo Center, Incorporated, Richmond, Va. Filed Sept. 23, 1965.



Owner of Reg. No. 795,364.
For Retail Camera Store Services.
First use November 1962.

Class 103 — Construction and Repair

SN 204,474. International Roll-Call Corporation, Richmond, Va. Filed Oct. 21, 1964.

ROLL-CALL

For Design, to the Specifications of Others, Rental and Maintenance of Legislative Voting Machines, Voting Systems, and Associated Sound Systems, and Related Equipment.
First use at least as early as 1948.

SN 228,946. Sentinel Printing, Inc., Indianapolis, Ind. Filed Sept. 29, 1965.

SPARKLE PRINT

The word "Print" is disclaimed apart from the mark as shown.
For Custom Manufacturing of Specially Treated Cellophane Packaging for Others, Including Printing Thereon.
First use Sept. 16, 1965.

CERTIFICATION MARKS

Class A — Goods

SN 237,222. Independent Battery Manufacturers Association, Inc., Largo, Fla., by change of name from The Independent Battery Manufacturers of America, Inc., Largo, Fla. Filed Jan. 25, 1966.

A WORLD OF POWER

WORLD

The mark certifies that the batteries and/or allied products bearing the mark meet certain minimum standards and specifications of quality set by applicant. Owner of Reg. Nos. 666,121, 762,896, and 791,998.
For Batteries and Allied Products.
First use on or about Dec. 13, 1965.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1—Raw or Partly Prepared Materials

824,257. CELLIDOR. Farbenfabriken Bayer Aktiengesellschaft. SN 177,618. Pub. 8–11–64. Filed 9–24–63.

824,258. PLUMB. Fayette R. Plumb, Inc. SN 201,143. Pub. 12–6–66. Filed 9–2–64.

824,259. FA. Thiokol Chemical Corporation. SN 223,748. Pub. 12–6–66. Filed 7–19–65.

824,260. ALLEY CAT. Albert Trostel & Sons Company. SN 236,162. Pub. 8–2–66. Filed 1–10–66.

824,261. FTD ETC. AND DESIGN. Florists' Transworld Delivery Association. MULTIPLE CLASS (Classes 1, 50, and 200). SN 236,948. Pub. 12–6–66. Filed 1–21–66.

824,262. ST. REGIS. St. Regis Paper Company. MULTIPLE CLASS (Classes 1 and 6). SN 238,313. Pub. 12–6–66. Filed 2–7–66.

824,263. LO-VIS SELECTS. American Gilsonite Company. SN 238,328. Pub. 12–6–66. Filed 2–8–66.

824,264. DEWEY AND ALMY. W. R. Grace & Co. SN 241,455. Pub. 12–6–66. Filed 3–21–66.

824,265. NORYL. General Electric Company. SN 249,638. Pub. 12–6–66. Filed 7–6–66.

824,266. CORFAM. E. I. du Pont de Nemours and Company. SN 250,716. Pub. 12–6–66. Filed 7–21–66.

824,267. FAIRPRENE. E. I. du Pont de Nemours and Company. SN 250,717. Pub. 12–6–66. Filed 7–21–66.

Class 2—Receptacles

824,268. MELT-A-WAY. Foresight Corporation. SN 214,938. Pub. 12–6–66. Filed 3–24–65.

824,269. HOUSE OF FISKE AND DESIGN. The Brearley Company. MULTIPLE CLASS (Classes 2 and 32). SN 239,582. Pub. 12–6–66. Filed 2–25–66.

824,270. DISPENS-A-TRAY. Brown Company. SN 247,676. Pub. 12–6–66. Filed 6–9–66.

824,271. KLEAR-TAINER. Heidi Plastics Corp. SN 252,379. Pub. 12–6–66. Filed 8–15–66.

Class 4—Abrasives and Polishing Materials

824,272. UF. Universal Foods Corporation. SN 245,260. Pub. 12–6–66. Filed 5–9–66.

Class 5—Adhesives

824,273. GLUE GIANT. Schramm Fiberglass Products, Inc., assignee of Cory Corporation. SN 205,667. Pub. 12–6–66. Filed 11–6–64.

824,274. INSCO. H. B. Fuller Company. SN 240,087. Pub. 12–6–66. Filed 3–3–66.

Class 6—Chemicals and Chemical Compositions

824,262. (See Class 1 for this trademark.)

824,275. I O F E C. Whitmoyer Laboratories, Inc. SN 230,730. Pub. 12–6–66. Filed 10–20–65.

824,276. ESPANTONE. Universal Oil Products Company. SN 233,021. Pub. 12–6–66. Filed 11–19–65.

824,277. HERBANDIN. Universal Oil Products Company. SN 233,022. Pub. 12–6–66. Filed 11–19–65.

824,278. SURATEST. Miles Laboratories, Inc., assignee of Ames Company, Inc. SN 234,715. Pub. 12–6–66. Filed 12–16–65.

824,279. HARNSTIX. Miles Laboratories, Inc., assignee of Ames Company, Inc. SN 234,716. Pub. 12–6–66. Filed 12–16–65.

824,280. VI-CAD. Vineland Chemical Co. SN 235,874. Pub. 12–6–66. Filed 1–5–66.

824,281. MERCURAM. Vineland Chemical Co. SN 235,875. Pub. 12–6–66. Filed 1–5–66.

824,282. WEED-E-RAD. Vineland Chemical Co. SN 235,876. Pub. 12–6–66. Filed 1–5–66.

824,283. DAL-E-RAD. Vineland Chemical Co. SN 235,877. Pub. 12–6–66. Filed 1–5–66.

824,284. CLARIFLOW. Chevron Chemical Company. SN 237,539. Pub. 12–6–66. Filed 1–28–66.

824,285. BIOCHEK 60. Calgon Corporation. SN 239,717. Pub. 12–6–66. Filed 2–28–66.

824,286. NUTRITONE. Cudahy Company. SN 241,318. Pub. 12–6–66. Filed 3–18–66.

824,287. SODINE. J & J Oven Co., Inc. SN 241,366. Pub. 12–6–66. Filed 3–18–66.

824,288. DEWEY AND ALMY. W. R. Grace & Co. SN 241,456. Pub. 12–6–66. Filed 3–21–66.

824,289. FIRON. Electro Materials Corp. of America. SN 242,228. Pub. 12–6–66. Filed 3–30–66.

824,290. LAKE MAID. Hardy Salt Company. MULTIPLE CLASS (Classes 6 and 46). SN 243,242. Pub. 12–6–66. Filed 4–12–66.

824,291. AMOCO. The American Oil Company. SN 243,380. Pub. 12–6–66. Filed 4–14–66.

824,292. VINYZORB. Scientific Chemicals, Inc. SN 243,720 Pub. 12–6–66. Filed 4–18–66.

824,293. HERCOSOL. Hercules Incorporated, by change of name from Hercules Powder Company. SN 244,486. Pub. 12–6–66. Filed 4–28–66.

824,294. TINTEX. Tintex Corporation. SN 245,258. Pub. 12–6–66. Filed 5–9–66.

824,295. MODERN AGE. Wilson Chemical Distributing Company. SN 246,507. Pub. 12–6–66. Filed 5–24–66.

Class 8—Smokers' Articles, Not Including Tobacco Products

824,296. PROMETHEUS. Prometheus Metallwerke G.m.b.H. SN 238,364. Pub. 12–6–66. Filed 2–8–66.

Class 10—Fertilizers

824,297. MACTRAM. Red Barn Chemicals, Inc. SN 243,581. Pub. 12–6–66. Filed 4–15–66.

824,298. POWR-FLO AND DESIGN. Armour Agricultural Chemical Company. SN 243,623. Pub. 12–6–66. Filed 4–18–66.

824,299. PLANT GUARD AND DESIGN. Dubois Fence & Garden Co., Inc. SN 253,262. Pub. 12–6–66. Filed 8–29–66.

Class 11—Inks and Inking Materials

824,300. SAFE-GUARD. I. C. Compound Company. SN 247,929. Pub. 12–6–66. Filed 6–13–66.

Class 12—Construction Materials

824,301. UNIFOAM. UMC Industries, Inc., by change of name from Universal Match Corporation. SN 209,557. Pub. 12–6–66. Filed 1–7–65.

824,302. V FRAME. William L. (Roy) DeWitt. SN 220,083. Pub. 12–6–66. Filed 6–1–65.

824,303. WONDER WOOD. Western Red Cedar Shake Association, Incorporated. SN 229,160. Pub. 12–6–66. Filed 10–1–65.

824,304. ONE HUNDRED TO ONE MILLION—QUICK. Glen-Gery Shale Brick Corporation. SN 230,532. Pub. 12–6–66. Filed 10–19–65.

824,305. ROAMIN' CANDLE. Kolberg Manufacturing Corporation. MULTIPLE CLASS (Classes 12 and 21). SN 230,990. Pub. 12–6–66. Filed 10–22–65.

824,306. RIGID-STONE. Alside, Inc. SN 232,110. Pub. 12–6–66. Filed 11–4–65.

824,307. PARAGON AND DESIGN. Paragon Swimming Pool Co., Inc. SN 234,932. Pub. 12–6–66. Filed 12–20–65.

824,308. "TAHITIAN POOLS." Du-Rite Chemical Company, Inc. SN 235,499. Pub. 12–6–66. Filed 12–29–65.

824,309. PCO. General Refractories Company. SN 237,217. Pub. 12–6–66. Filed 1–25–66.

824,310. HOMASOTE EASY-PLY. Homasote Company. SN 237,840. Pub. 12–6–66. Filed 2–2–66.

824,311. TRADEWIND. Clopay Corporation. SN 237,941. Pub. 12–6–66. Filed 2–3–66.

824,312. STEVENS. General Refractories Company. SN 239,898. Pub. 12–6–66. Filed 3–1–66.

824,313. TERRA-CAL. AllianceWall Corporation. SN 241,219. Pub. 12–6–66. Filed 3–17–66.

824,314. CONO/CRETE. Con/Chem, Inc. SN 244,063. Pub. 12–6–66. Filed 4–22–66.

824,315. C 100'. Caradco Incorporated. SN 246,837. Pub. 12–6–66. Filed 5–31–66.

824,316. PATRICIAN. Kinkead Industries Incorporated. SN 247,810. Pub. 12–6–66. Filed 6–10–66.

824,317. WEATHERMATE AND DESIGN. New Castle Products, Inc. SN 247,997. Pub. 12–6–66. Filed 6–14–66.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

824,318. ERAFLEX AND DESIGN. Arthur Schmid. SN 228,196. Pub. 12–6–66. Filed 9–20–65.

824,319. PLUMB CRAFT. Plumb Craft Manufacturing Corp. SN 234,935. Pub. 12–6–66. Filed 12–20–65.

824,320. ROTOTROL. Swimquip, Inc. SN 241,284. Pub. 12–6–66. Filed 3–17–66.

824,321. EK-ALUM. American Home Products Corporation. SN 243,522. Pub. 12–6–66. Filed 4–15–66.

824,322. SHOWER SWAN. Lerner Manufacturing, Inc. SN 245,322. Pub. 12–6–66. Filed 5–10–66.

824,323. BATH SUSAN. Lerner Manufacturing, Inc. SN 245,325. Pub. 12–6–66. Filed 5–10–66.

824,324. IN-THREAD. Accurate Automatic Parts, Inc. SN 248,199. Pub. 12–6–66. Filed 6–16–66.

824,325. VAPO-VALVE. Cook Chemical Company, d.b.a. Bakan Plastics. SN 248,215. Pub. 12–6–66. Filed 6–16–66.

824,326. HAYSTITE. Hays Manufacturing Company. SN 248,230. Pub. 12–6–66. Filed 6–16–66.

Class 14—Metals and Metal Castings and Forgings

824,327. M MAYFAIR AND DESIGN. Arden-Mayfair, Inc., d.b.a. Mayfair Markets. SN 239,203. Pub. 12–6–66. Filed 2–21–66.

824,328. RELIALLOY. Eaton Yale & Towne Inc. SN 239,756. Pub. 12–6–66. Filed 2–28–66.

Class 15—Oils and Greases

824,329. TINY TAPERS. Victrylite Candle Co. SN 236,679. Pub. 12–6–66. Filed 1–14–66.

824,330. GEOTEX. Texaco Inc. SN 240,678. Pub. 12–6–66. Filed 3–10–66.

Class 16—Protective and Decorative Coatings

824,331. FERRODOR AND DESIGN. Griffiths Bros. & Co., London, Limited. SN 228,679. Pub. 12–6–66. Filed 9–27–65.

824,332. "040." Atracta Wax Corporation. SN 236,226. Pub. 10–18–66. Filed 1–12–66.

824,333. P BOY BRUSH AND BUCKET DESIGN. Phelan-Faust Paint Manufacturing Company. SN 238,283. Pub. 12–6–66. Filed 2–7–66.

824,334. INSTANTIQUE. Osrow Products Company, Inc. SN 242,384. Pub. 12–6–66. Filed 3–31–66.

824,335. DAZE. Peck's Products Company. SN 242,841. Pub. 12–6–66. Filed 4–6–66.

824,336. 3M. Minnesota Mining and Manufacturing Company. SN 255,501. Pub. 12–6–66. Filed 9–30–66.

Class 17—Tobacco Products

824,337. WANAMINGO. Grayce Kolbe Anderson. SN 229,045. Pub. 12–6–66. Filed 10–1–65.

824,338. CATALINA. Universal Cigar Corporation. SN 239,946. Pub. 12–6–66. Filed 3–1–66.

824,339. SOMBRERO. Universal Cigar Corporation. SN 239,948. Pub. 12–6–66. Filed 3–1–66.

Class 18—Medicines and Pharmaceutical Preparations

824,340. BIOGASTRONE. Biorex Laboratories Limited. SN 155,558. Pub. 5–14–63. Filed 10–22–62.

824,341. TANTUM. Aziende Chimiche Riunite Angelini Francesco. SN 197,653. Pub. 8–3–65. Filed 7–13–64.

824,342. F 44. Richardson-Merrell Inc. SN 229,290. Pub. 10–11–66. Filed 10–4–65.

824,343. THE PEAK OF QUALITY AND DESIGN. Colorado Serum Company. SN 230,236. Pub. 12–6–66. Filed 10–15–65.

824,344. BLUE BAND ON WHITE CAPSULE (DESIGN). Parke, Davis & Company. SN 235,335. Pub. 12–6–66. Filed 12–27–65.

824,345. AIMAX. Imperial Chemical Industries Limited. SN 236,189. Pub. 12–6–66. Filed 1–11–66.

824,346. PSICOPERIDOL. Cilag-Chemie Aktiengesellschaft, d.b.a. Cilag-Chimie Societe Anonyme, Cilag-Chemie Limited. SN 237,309. Pub. 12–6–66. Filed 1–26–66.

824,347. PHENOSE. Central Drug & Pharmaceutical Company. SN 237,532. Pub. 12–6–66. Filed 1–28–66.

824,348. BITRIN. Hudson National, Inc., d.b.a. Hudson Vitamin Products. SN 242,012. Pub. 12-6-66. Filed 3-28-66.

824,349. FUNDUSCEIN. Smith, Miller & Patch, Inc. SN 242,508. Pub. 12-6-66. Filed 4-1-66.

824,350. NAVIDRIL. Ciba Corporation. SN 243,223. Pub. 12-6-66. Filed 4-12-66.

824,351. VETCO. Raymond Epstein, d.b.a. Vetco Company. SN 245,582. Pub. 12-6-66. Filed 5-13-66.

824,352. TIA. British Chemotheutic Products Limited. SN 245,903. Pub. 12-6-66. Filed 5-18-66.

824,353. INDIBRAN. Chilva Laboratories Limited. SN 245,911. Pub. 12-6-66. Filed 5-18-66.

824,354. TEDRAL - 25. Warner - Lambert Pharmaceutical Company. SN 246,004. Pub. 12-6-66. Filed 5-18-66.

824,355. COYDEN. The Dow Chemical Company. SN 246,162. Pub. 12-6-66. Filed 5-20-66.

824,356. HETACLOXILLIN. Bristol-Myers Company. SN 247,192. Pub. 12-6-66. Filed 6-3-66.

Class 19 — Vehicles

824,357. GILERA AND DESIGN. Moto Gilera S.p.A. SN 202,124. Pub. 9-27-66. Filed 9-16-64.

824,358. MISCELLANEOUS DESIGN. Republic Industrial Corporation. SN 206,648. Pub. 12-6-66. Filed 11-20-64.

824,359. KAR-RITE. Manlee Industries, Inc. SN 209,524. Pub. 12-6-66. Filed 1-7-65.

824,360. INSIGNIA (DESIGN). The La Fleur Corporation. SN 227,591. Pub. 12-6-66. Filed 9-10-65.

Class 20 — Linoleum and Oiled Cloth

824,361. CAMBRIAN. Armstrong Cork Company. SN 236,173. Pub. 12-6-66. Filed 1-11-66.

824,362. PUSSYFOOT. American Biltrite Rubber Co., Inc. SN 242,177. Pub. 12-6-66. Filed 3-30-66.

Class 21 — Electrical Apparatus, Machines, and Supplies

824,305. (See Class 12 for this trademark.)

824,363. LC. Atlantic Research Corporation. SN 206,112. Pub. 12-6-66. Filed 11-12-64.

824,364. SONY-MATIC. Sony Corporation. SN 209,550. Pub. 12-6-66. Filed 1-7-65.

824,365. CARBON-MET. American Components Incorporated. SN 221,438. Pub. 12-6-66. Filed 6-18-65.

824,366. SONOTITE. Linden Laboratories, Inc. SN 221,938. Pub. 12-6-66. Filed 6-24-65.

824,367. ULTRADYNE. Channel Master Corporation. SN 221,993. Pub. 12-6-66 Filed 6-25-65.

824,368. OHMSTAT. The Superior Electric Company. SN 222,779. Pub. 12-6-66. Filed 7-6-65.

824,369. VIDEO-MAT. Sony Corporation of America. SN 223,594. Pub. 12-6-66. Filed 7-16-65.

824,370. PILOT STRIP. Cole-Parmer Instrument & Equipment Co. SN 228,636. Pub. 12-6-66. Filed 9-27-65.

824,371. PILOT BOX. Cole-Parmer Instrument & Equipment Co. SN 228,637. Pub. 12-6-66. Filed 9-27-65.

824,372. TRAK MICROWAVE AND DESIGN. Trak Microwave Corporation. SN 228,851. Pub. 12-6-66. Filed 9-28-65.

824,373. AID AND DESIGN. Aid Stores, Inc. SN 229,715. Pub. 12-6-66. Filed 10-11-65.

824,374. ECONOSTAT. Aquariums Incorporated. SN 229,727. Pub. 12-6-66. Filed 10-11-65.

824,375. MONITOR. Aquariums Incorporated. SN 229,736. Pub. 12-6-66. Filed 10-11-65.

824,376. SMOOTHTROL. The Imperial Electric Company. SN 230,051. Pub. 12-6-66. Filed 10-13-65.

824,377. RELIABLE HI-ENERGY. Standard Electric Co., Inc. SN 230,451. Pub. 12-6-66. Filed 10-18-65.

824,378. KAISER. Kaiser Aerospace & Electronics Corporation. SN 233,356. Pub. 12-6-66. Filed 11-26-65.

824,379. STARTO-JET AND DESIGN. Starto Jet Inc. SN 235,351. Pub. 12-6-66. Filed 12-27-65.

824,380. CORRO-DUTY. Emerson Electric Co. SN 237,682. Pub. 12-6-66. Filed 2-1-66.

824,381. CONWED. Wood Conversion Company. SN 242,165. Pub. 12-6-66. Filed 3-29-66.

824,382. DELTA AND DESIGN. Sternco Industries, Inc. SN 246,206. Pub. 12-6-66. Filed 5-20-66.

Class 22 — Games, Toys, and Sporting Goods

824,383. TRI·GRIP. Southwestern Drug Corporation. SN 231,306. Pub. 12-6-66. Filed 10-22-65.

824,384. SKI·MOR. Ski-Mor, Inc. SN 231,856. Pub. 12-6-66. Filed 10-29-65.

824,385. TOP SECRET. Mark W. Kalatsky. SN 233,912. Pub. 12-6-66. Filed 12-3-65.

824,386. WHIP-IT. Brian P. Randall. SN 235,012. Pub. 12-6-66. Filed 12-21-65.

824,387. DOLLY DARLINGS. Dolly Darling Clothes, Inc. SN 236,885. Pub. 12-6-66. Filed 1-20-66.

824,388. SUPERLASTEK. Dunlop Tire and Rubber Corporation. SN 238,345. Pub. 12-6-66. Filed 2-8-66.

824,389. COP-E-CAT. Lou J. Eppinger Manufacturing Company. SN 238,942. Pub. 12-6-66. Filed 2-16-66.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

824,390. VACTOR. The Myers-Sherman Company. SN 185,703. Pub. 2-16-65. Filed 1-30-64.

824,391. WHITLOCK. Whitlock Associates, Inc. SN 217,812. Pub. 12-6-66. Filed 4-30-65.

824,392. BLACKSTONE AND DESIGN. Blackstone Corporation. SN 225,268. Pub. 12-6-66. Filed 8-9-65.

824,393. TRIDAIR. Tridair Industries. SN 227,093. Pub. 12-6-66. Filed 8-23-65.

824,394. AID AND DESIGN. Aid Stores, Inc., d.b.a. Aid Auto Supply Stores. SN 229,716. Pub. 12-6-66. Filed 10-11-65.

824,395. HI-PLAINS. American Products, Inc. SN 229,721. Pub. 12-6-66. Filed 10-11-65.

824,396. VANGUARD. Aquariums Incorporated. SN 229,725. Pub. 12-6-66. Filed 10-11-65.

824,397. WHIZ - WAND. Aquariums Incorporated. SN 230,126. Pub. 12-6-66. Filed 10-14-65.

824,398. AIRMATIC. The Mosler Safe Company, assignee of Airmatic Systems Corporation. SN 231,798. Pub. 12-6-66. Filed 10-29-65.

824,399. LITE-PAK. Nicholson File Company, assignee of Borg-Warner Corporation. SN 232,184. Pub. 12-6-66. Filed 11-5-65.

824,400. VIBRASTAT. Rosco Manufacturing Company. SN 233,398. Pub. 12-6-66. Filed 11-26-65.

824,401. AIR-PAC. Rosco Manufacturing Company. SN 233,400. Pub. 12-6-66. Filed 11-26-65.

824,402. TRI-FLO. Ladish Co. SN 239,523. Pub. 8-23-66. Filed 2-24-66.

824,403. TRI-FLO AND DESIGN. Ladish Co. SN 239,524. Pub. 8-23-66. Filed 2-24-66.

824,404. PAR AND DESIGN. Programmed & Remote Systems Corporation. SN 239,656. Pub. 12-6-66. Filed 2-25-66.

824,405. ROTOCAST. Lee Patten Seed Company. SN 239,791. Pub. 12-6-66. Filed 2-28-66.

824,406. PERF-O-MATOR. Pierce-All Manufacturing Limited. SN 240,646. Pub. 12-6-66. Filed 3-10-66.

824,407. MCCANNAMATIC. Hills-McCanna Company. SN 246,309. Pub. 12-6-66. Filed 5-23-66.

824,408. SOUTHERN ELEVATOR. Southern Elevator Company. SN 247,098. Pub. 12-6-66. Filed 6-2-66.

824,409. MULTI-PORT. The Young Machinery Company, Inc. SN 247,747. Pub. 12-6-66. Filed 6-9-66.

824,410. SEAMSTRESS. Allied Sewing Machine Distributors, Inc. SN 248,284. Pub. 12-6-66. Filed 6-17-66.

824,411. 3M. Minnesota Mining and Manufacturing Company. SN 254,845. Pub. 12-6-66. Filed 9-21-66.

Class 26 — Measuring and Scientific Appliances

824,412. PICON. American Meter Company Incorporated. SN 175,371. Pub. 12-6-66. Filed 8-20-63.

824,413. FEND·ALL. Fendall Company. SN 199,731. Pub. 12-6-66. Filed 8-12-64.

824,414. RUDMOSE AND DESIGN. Tracor, Inc. SN 213,374. Pub. 12-6-66. Filed 3-4-65.

824,415. UNOPLAN. Shandon Scientific Company Limited. SN 219,623. Pub. 12-6-66. Filed 5-24-65.

824,416. AMLOC. Pall Corporation. MULTIPLE CLASS (Classes 26 and 34). SN 227,633. Pub. 12-6-66. Filed 9-13-65.

824,417. AMPROBE INSTRUMENT AND DESIGN. Soss Manufacturing Company. SN 230,447. Pub. 12-6-66. Filed 10-18-65.

824,418. OPTICARE. Russell Burton, O.D. SN 232,056. Pub. 12-6-66. Filed 11-3-65.

824,419. OPTRONIC. Seneca Falls Machine Company. SN 233,135. Pub. 12-6-66. Filed 11-22-65.

824,420. COPPERTONE SUN GLASSES AND DESIGN. Plough, Inc. SN 235,078. Pub. 12-6-66. Filed 12-20-65.

824,421. COGITO. SCM Corporation. SN 235,233. Pub. 12-6-66. Filed 12-23-65.

824,422. FOCUS-TRONIC. Bell & Howell Company. SN 235,261. Pub. 12-6-66. Filed 12-27-65.

824,423. CILCHROME. Ciba Limited. SN 235,388. Pub. 12-6-66. Filed 12-28-65.

824,424. CILCOLOR. Ciba Limited. SN 235,389. Pub. 12-6-66. Filed 12-28-65.

824,425. QDI AND DESIGN. Quantametric Devices, Inc. SN 235,526. Pub. 12-6-66. Filed 12-29-65.

824,426. DETECTACHLOR. Fischer & Porter Co. SN 235,826. Pub. 12-6-66. Filed 1-5-66.

824,427. GAMMATROL. Chesley F. Carlson Company. SN 236,179. Pub. 12-6-66. Filed 1-11-66.

Class 27 — Horological Instruments

824,428. MARSHALL ADD-A-UNIT. Morrie Chaitlen, d.b.a. C. & E. Marshall Co. SN 232,977. Pub. 12-6-66. Filed 11-19-65.

Class 28 — Jewelry and Precious-Metal Ware

824,429. APEX ART. Charles Goldman, d.b.a. Apex Art Novelty Co. SN 236,485. Pub. 12-6-66. Filed 1-14-66.

Class 29 — Brooms, Brushes, and Dusters

824,430. G·U·M. John O. Butler Company. SN 250,721. Pub. 12-6-66. Filed 7-21-66.

Class 30 — Crockery, Earthenware, and Porcelain

824,431. AMCREST AND DESIGN. Aimcee Wholesale Corporation. SN 240,400. Pub. 12-6-66. Filed 3-8-66.

Class 31 — Filters and Refrigerators

824,432. CRYO-QUICK. Air Products and Chemicals, Inc. SN 236,869. Pub. 12-6-66. Filed 1-20-66.

Class 32 — Furniture and Upholstery

824,269. (See Class 2 for this trademark.)

824,433. CHASE. Schnadig Corporation. SN 229,297. Pub. 12-6-66. Filed 10-4-65.

824,434. ALMA. Alma Desk Company. SN 235,086. Pub. 12-6-66. Filed 12-22-65.

824,435. FAST-FOLD. Thayer, Inc. SN 239,341. Pub. 12-6-66. Filed 2-21-66.

824,436. SWAY-A-WAY. Jacob E. Rhodes, Sr., and Mary L. Rhodes (joint owners), d.b.a. Sway-A-Way Co. SN 239,446. Pub. 12-6-66. Filed 2-23-66.

824,437. SEVENTH HEAVEN. Whiting Manufacturing Company, Inc. SN 239,562. Pub. 12-6-66. Filed 2-24-66.

824,438. AIRECTOR. Jarke Corporation. SN 243,991. Pub. 12-6-66. Filed 4-21-66.

824,439. KANGAROO. Kangaroo Chair, Inc. SN 251,861. Pub. 12-6-66. Filed 8-8-66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

824,416. (See Class 26 for this trademark.)

824,440. UNITHERM. Cherry-Burrell Corporation. SN 224,717. Pub. 12-6-66. Filed 8-2-65.

824,441. HOYT. Pioneer Manufacturing Co. SN 240,339. Pub. 12-6-66. Filed 3-7-66.

824,442. FLAME (DESIGN). Victrylite Candle Co. SN 252,321. Pub. 12-6-66. Filed 8-15-66.

Class 36 — Musical Instruments and Supplies

824,443. SCHOLASTIC. E. K. Blessing Co. Inc. SN 222,457. Pub. 8-30-66. Filed 7-1-65.

824,444. AUDITION. F. W. Woolworth Co. SN 226,695. Pub. 12-6-66. Filed 8-27-65.

Class 37 — Paper and Stationery

824,445. MAGIC MARGIN. Westab Inc. SN 206,105. Pub. 12-6-66. Filed 11-12-64.

824,446. STENO-PAD. Stenographic Machines, Inc. SN 230,305. Pub. 12-6-66. Filed 10-15-65.

824,447. CONTIN-U-TAB. Service Business Forms, Inc. SN 232,729. Pub. 12-6-66. Filed 11-15-65.

824,448. MI AND DESIGN. Millen Industries, Inc. SN 240,635. Pub. 12-6-66. Filed 3-10-66.

824,449. TEGO-TEX AND DESIGN. Th. Goldschmidt A.-G. SN 241,096. Pub. 12-6-66. Filed 3-15-66.

824,450. ELECTROCOLOR. Minnesota Mining and Manufacturing Company. SN 245,545. Pub. 12-6-66. Filed 5-13-66.

824,451. SHARPSETTE. Hammermill Paper Company. SN 247,694. Pub. 12-6-66. Filed 6-9-66.

Class 38 — Prints and Publications

824,452. AS YOU LIKE IT. The Seton Guild of St. Ann's Infant and Maternity Home. SN 196,815. Pub. 12-6-66. Filed 6-30-64.

824,453. F & F FINDINGS & FORECASTS. Arthur Wiesenberger & Company. SN 199,425. Pub. 12-6-66. Filed 8-6-64.

824,454. ELECTRONICS ILLUSTRATED. Fawcett Publications, Inc. SN 232,777. Pub. 12-6-66. Filed 11-16-65.

824,455. POST-A-NOTE. Current, Inc. SN 239,389. Pub. 12-6-66. Filed 2-23-66.

824,456. NCH AND DESIGN. Needham Christopher Hines. SN 253,944. Pub. 12-6-66. Filed 9-6-66.

Class 39 — Clothing

824,457. LAFITTE. Lafitte, Inc. SN 182,428. Pub. 12-6-66. Filed 12-5-63.

824,458. GRASSHOPPER. United States Rubber Company. SN 187,633. Pub. 11-1-66. Filed 2-27-64.

824,459. HOP-INS. Barad Lingerie Company. SN 217,261. Pub. 12-6-66. Filed 4-26-65.

824,460. PIONEER. Wilson Footwear Company. SN 223,930. Pub. 12-6-66. Filed 7-21-65.

824,461. STERLING & HUNT. Hart Schaffner & Marx. SN 225,311. Pub. 12-6-66. Filed 8-9-65.

824,462. MAILED ARM HOLDING A FLOWER (DESIGN). A. Rivetz Co., Inc. SN 229,375. Pub. 12-6-66. Filed 10-5-65.

824,463. F/JR. Chadbourn Gotham, Inc. SN 231,983. Pub. 12-6-66. Filed 11-2-65.

824,464. ROMNEY FROCKS. Romney Fashions, Inc. SN 232,153. Pub. 12-6-66. Filed 11-4-65.

824,465. QUALITA BY DI ANTI. Darby Trousers, Incorporated. SN 232,195. Pub. 12-6-66. Filed 11-5-65.

824,466. LADY B.V.D. The B.V.D. Company, Inc. SN 232,763. Pub. 12-6-66. Filed 11-16-65.

824,467. MISS B.V.D. The B.V.D. Company, Inc. SN 232,764. Pub. 12-6-66. Filed 11-16-65.

824,468. MADRAS AND DESIGN. Calzaturificio Madras di Valentino Piccolotto S.A.S. SN 232,001. Pub. 12-6-66. Filed 11-18-65.

824,469. ALLEY CAT. Le Damor, Inc. SN 234,128. Pub. 10-11-66. Filed 12-7-65.

824,470. KNUCKLE CORD. McGregor-Doniger Inc. SN 237,581. Pub. 12-6-66. Filed 1-28-66.

824,471. AN ORIGINAL CREATION BY TED BODIN AND DESIGN. Ted Bodin. SN 238,161. Pub. 12-6-66. Filed 2-7-66.

824,472. DE LONK. Lord Jeff Knitting Company, Incorporated. SN 238,647. Pub. 12-6-66. Filed 2-11-66.

824,473. DAVID JONATHAN. David Jonathan Limited. SN 238,718. Pub. 12-6-66. Filed 2-14-66.

824,474. COURT SQUARE. Brilliant Brothers Co. SN 239,119. Pub. 12-6-66. Filed 2-18-66.

824,475. EQUITY. Kelly-Green Hosiery Co., Inc. SN 239,156. Pub. 12-6-66. Filed 2-18-66.

824,476. LORD BUXTON. Buxton, Incorporated. SN 239,494. Pub. 12-6-66. Filed 2-24-66.

824,477. BUXTON. Buxton, Incorporated. SN 239,495. Pub. 12-6-66. Filed 2-24-66.

824,478. CARTER AND DESIGN. J. W. Carter Company. SN 239,880. Pub. 12-6-66. Filed 3-1-66.

824,479. MONTGOMERY STREETER. Rough Rider, Inc. SN 241,523. Pub. 12-6-66. Filed 3-21-66.

824,480. TUFGUM. Interco Incorporated. SN 242,015. Pub. 12-6-66. Filed 3-28-66.

824,481. LITTLE TEX. Stockton Manufacturing Co., Inc. SN 242,066. Pub. 12-6-66. Filed 3-28-66.

824,482. BRIEFLEE. Maidenform, Inc. SN 242,138. Pub. 12-6-66. Filed 3-29-66.

824,483. BARE N' LOW. S.D.S., Inc., d.b.a. Renee of Hollywood. SN 242,149. Pub. 12-6-66. Filed 3-29-66.

824,484. HACKING AROUND. Melville Shoe Corporation. SN 242,467. Pub. 12-6-66. Filed 4-1-66.

824,485. KUTIE KAY. M. D. Hall, d.b.a. Kutie Kay. SN 242,594. Pub. 12-6-66. Filed 4-4-66.

824,486. AMERICAN SCENE. American Scene, Inc. SN 247,303. Pub. 12-6-66. Filed 6-6-66.

824,487. GINORI. Originala Incorporated. SN 250,509. Pub. 12-6-66. Filed 7-18-66.

824,488. EEEK'S AND DESIGN. Parkcrest of Dallas, Inc. SN 252,965. Pub. 12-6-66. Filed 8-23-66.

824,489. BLEEKER STREET. Bleeker Street, Inc. SN 254,487. Pub. 12-6-66. Filed 9-15-66.

824,490. MR. SPENCE. Cherberg Company, Inc. SN 254,849. Pub. 12-6-66. Filed 0-21-66.

Class 40 — Fancy Goods, Furnishings, and Notions

824,491. YOO DOO KIT. Stanley/Berroco, Inc. SN 238,013. Pub. 12-6-66. Filed 2-3-66.

824,492. HUSH PUPPIES. Wolverine Shoe and Tanning Corporation. SN 243,745. Pub. 12-6-66. Filed 4-18-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

824,493. SALTY DOG. Canton Textile Mills, Inc., by change of name from Canton Cotton Mills. SN 231,620. Pub. 12-6-66. Filed 10-25-65.

824,494. BESTMESH. Asten - Hill Mfg. Company. SN 234,266. Pub. 12-6-66. Filed 12-9-65.

824,495. GLEN-PRESS. Glen Raven Cotton Mills, Inc. SN 239,902. Pub. 12-6-66. Filed 3-1-66.

824,496. WINDBEAM. Deering Milliken, Inc. SN 239,978. Pub. 12-6-66. Filed 3-2-66.

824,497. COCOONA. Burlington Industries, Inc. SN 241,634. Pub. 12-6-66. Filed 3-23-66.

824,498. CRIMP DE PRIX. Waumbec Mills Incorporated. SN 242,303. Pub. 12-6-66. Filed 3-30-66.

Class 43 — Thread and Yarn

824,499. TWIST DE LUXE. The American Thread Company. SN 213,084. Pub. 12-6-66. Filed 3-2-65.

824,500. HAPPILY . . . IT'S CAPROLAN. Allied Chemical Corporation. SN 233,163. Pub. 12-6-66. Filed 11-23-65.

Class 44 — Dental, Medical, and Surgical Appliances

824,501. TIP TROL. Brunswick Corporation. SN 216,793. Pub. 12-6-66. Filed 4-19-65.

824,502. POSITIONEZE. Dupaco Incorporated. SN 245,175. Pub. 12-6-66. Filed 5-9-66.

Class 45 — Soft Drinks and Carbonated Waters

824,503. BJARE. AB Bjäre Industrier. MULTIPLE CLASS (Classes 45 and 46). SN 231,355. Pub. 12-6-66. Filed 10-23-65.

824,504. DEL MONTE. California Packing Corporation. SN 240,255. Pub. 12-6-66. Filed 3-7-66.

824,505. FABULA. Canada Dry Corporation. SN 240,408. Pub. 12-6-66. Filed 3-9-66.

Class 46 — Foods and Ingredients of Foods

824,290. (See Class 6 for this trademark.)

824,503. (See Class 45 for this trademark.)

824,506. BLOC-O-LONI. Micell Dairy Products Co. SN 225,589. Pub. 12-6-66. Filed 8-12-65.

824,507. WAYNE FARMS. Allied Mills, Inc. SN 227,910. Pub. 12-6-66. Filed 0-16-65.

824,508. DON PANCHO AND DESIGN. Juan Fransisco De Lara, d.b.a. De Lara Sausage Co. SN 228,018. Pub. 12-6-66. Filed 9-17-65.

824,509. SOYLEC. Archer-Daniels-Midland Company. SN 229,331. Pub. 12-6-66. Filed 10-5-65.

824,510. ALLORGANIC. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,312. Pub. 12-6-66. Filed 10-15-65.

824,511. ARGINEX. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,314. Pub. 12-6-66. Filed 10-15-65.

824,512. BIO-DENT. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,315. Pub. 12-6-66. Filed 10-15-65.

824,513. VASCULIN. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,319. Pub. 12-6-66. Filed 10-15-65.

824,514. ORCHEX. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,324. Pub. 12-6-66. Filed 10-15-65.

824,515. MYO-PLUS. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,326. Pub. 12-6-66. Filed 10-15-65.

824,516. MIN-TRAN. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,327. Pub. 12-6-66. Filed 10-15-65.

824,517. MIN-CHEX. Vitamin Products Company, d.b.a. Standard Process Laboratories. SN 230,328. Pub. 12-6-66. Filed 10-15-65.

824,518. GOLDEN LIGHT. Cain's Coffee Co. SN 232,185. Pub. 12-6-66. Filed 11-5-65.

824,519. DEAN'S COUNTRY CHARM QUALITY AND DESIGN. Dean Foods Company. SN 232,294. Pub. 12-6-66. Filed 11-8-65.

824,520. PATMAN'S GOOD TASTE IN MEAT AND DESIGN. Urban N. Patman, Inc. SN 232,586. Pub. 12-6-66. Filed 11-12-65.

824,521. PATMAN'S PORTION PAK. Urban N. Patman, Inc. SN 232,587. Pub. 12-6-66. Filed 11-12-65.

824,522. DRISCOLL AND DESIGN. Driscoll Strawberry Associates, Inc. SN 234,398. Pub. 12-6-66. Filed 12-13-65.

824,523. TOPS-ALL. H. C. Brill Company, Inc. SN 234,820. Pub. 12-6-66. Filed 12-17-65.

824,524. SWEET TREAT. H. J. Heinz Company. SN 234,821. Pub. 12-6-66. Filed 12-17-65.

824,525. HARTEX. H. E. Butt Grocery Company, d.b.a. Harlingen Canning Company. SN 235,272. Pub. 12-6-66. Filed 12-27-65.

824,526. CAL-A-MAR OF CALIFORNIA AND DESIGN. Del Mar Fish, Inc. SN 235,283. Pub. 12-6-66. Filed 12-27-65.

824,527. FRUESLI. Mapleton's Foods Limited. SN 235,472. Pub. 12-6-66. Filed 12-9-65.

824,528. NIP. Ben Hill Griffin, Inc. SN 235,546. Pub. 12-6-66. Filed 12-30-65.

824,529. VILLAGE GREEN. National Dairy Products Corporation. SN 235,574. Pub. 12-6-66. Filed 12-30-65.

824,530. LIGHT N' LIVELY. National Dairy Products Corporation. SN 235,575. Pub. 12-6-66. Filed 12-30-65.

824,531. HONEY BROOK. Foremost Dairies, Inc., d.b.a. Meriden Creamery Company. SN 235,661. Pub. 12-6-66. Filed 1-3-66.

824,532. SEASON-ALL. McCormick & Company, Incorporated. SN 235,924. Pub. 12-6-66. Filed 1-6-66.

824,533. CAESAR STEAKS. Pierce Pre-Cooked Foods, Inc. SN 236,285. Pub. 12-6-66. Filed 1-12-66.

824,534. SLIDE ROCK. Tom T. Pendley, d.b.a. Tom Pendley. SN 237,018. Pub. 12-6-66. Filed 1-21-66.

824,535. EARTHEN BOWL. Colgate-Palmolive Company. SN 237,428. Pub. 12-6-66. Filed 1-27-66.

824,536. BIG MASTER. Harrisburg Grocery Co. SN 237,696. Pub. 12-6-66. Filed 2-1-66.

824,537. BUTTOLA. E. L. Richman, d.b.a. Edwin L. Richman's Enterprises. SN 237,874. Pub. 12-6-66. Filed 2-2-66.

824,538. SUGAR PLUM. Swift & Company. SN 238,016. Pub. 12-6-66. Filed 2-3-66.

824,539. MAJESTIC. Wilson & Co., Inc. SN 238,133. Pub. 12-6-66. Filed 2-4-66.

824,540. PURPLE PINK. Pine Forest Co. SN 238,662. Pub. 12-6-66. Filed 2-11-66.

824,541. GARDGUM. Chiclecraft, Inc. SN 239,724. Pub. 12-6-66. Filed 2-28-66.

824,542. KINGSTON. Kingston Products Company. SN 240,006. Pub. 12-6-66. Filed 3-2-66.

824,543. JOHN COPE'S. John F. Cope Co., Inc., d.b.a. John F. Cope, Cope Brothers, and/or Cope Bros. SN 240,070. Pub. 12-6-66. Filed 3-3-66.

824,544. COLBY CHEESE ETC. AND DESIGN. B.N.S. International Sales Corporation. SN 251,583. Pub. 12-6-66. Filed 8-3-66.

824,545. MR. RUSSET ETC. AND DESIGN. Central Sands Produce, Inc. SN 251,892. Pub. 12-6-66. Filed 8-8-66.

824,546. MAN (DESIGN). Copeland Sausage Company, Inc., d.b.a. Copeland Sausage Co. SN 252,232. Pub. 12-6-66. Filed 8-12-66.

824,547. HI! PA'DNER AND DESIGN. Mendota Growers & Shippers, Inc. SN 252,325. Pub. 12-6-66. Filed 8-15-66.

824,548. TARZAN. Banner Productions, Inc. SN 254,218. Pub. 12-6-66. Filed 9-12-66.

824,549. OCTAVIUS I. Edward Morton, d.b.a. Morton's Restaurant. SN 254,490. Pub. 12-6-66. Filed 9-15-66.

824,550. PIONEER SILAGE-MATE. Hales & Hunter Co. SN 254,929. Pub. 12-6-66. Filed 9-22-66.

Class 47 — Wines

824,551. HEART-SHAPED BOTTLE (DESIGN). Paul Masson, Inc., d.b.a. Paul Masson Vineyards. SN 153,185. Pub. 12-6-66. Filed 9-14-62.

824,552. ONZERUST. Ko-Operatieve Wijnbouwers Vereniging Van Zuid-Afrika Beperkt. SN 228,705. Pub. 12-6-66. Filed 9-27-65.

824,553. PARTY TYME. Party Tyme Products, Inc. SN 232,027. Pub. 12-6-66. Filed 11-2-65.

824,554. VOORTREKKER. South African Wine Farmers Association (London) Limited. SN 233,142. Pub. 12-6-66. Filed 11-22-65.

824,555. CHIANTI ALVINO. Riccardo Alvino. SN 236,872. Pub. 12-6-66. Filed 1-20-66.

824,556. ROSANNAY. John Harvey & Sons Ltd. SN 238,351. Pub. 12-6-66. Filed 2-8-66.

824,557. THE DOURO FATHERS. C. da Silva (Vinhos), S.A.R.L., d.b.a. Raphael Moreira & Co. SN 238,843. Pub. 12-6-66. Filed 2-15-66.

824,558. MAISON PIGALLE. Monte Carlo Wine Industries, Ltd., d.b.a. Champagne Industries, Ltd. SN 240,016. Pub. 12-6-66. Filed 3-2-66.

824,559. SABRINA. Monte Carlo Wine Industries, Ltd., d.b.a. U.S. Champagne Industries, Ltd. SN 240,017. Pub. 12-6-66. Filed 3-2-66.

824,560. CHAM-BERRY. San Martin Vineyards Company, d.b.a. San Martin Winery. SN 240,960. Pub. 12-6-66. Filed 3-14-66.

Class 48 — Malt Beverages and Liquors

824,561. A·1 AND DESIGN. Carling Brewing Company Incorporated, d.b.a. Carling Brewing Company. SN 239,377. Pub. 12-6-66. Filed 2-23-66.

824,562. APOSTROPHIC IMAGE (DESIGN). Oertel Brewing Company. SN 248,665. Pub. 12-6-66. Filed 6-22-66.

Class 49 — Distilled Alcoholic Liquors

824,563. ROYAL DELUXE AND DESIGN. Old Stanley Distillery, Incorporated, d.b.a. Royal DeLuxe Distilling Co. SN 218,132. Pub. 12-6-66. Filed 5-5-65.

824,564. E. R. MCCORMICK. McCormick Distilling Co. SN 227,309. Pub. 12-6-66. Filed 9-7-65.

824,565. DUMONT. L. N. Renault & Sons, Inc. SN 236,844. Pub. 12-6-66. Filed 1-19-66.

824,566. CREST (DESIGN). Cointreau Corporation. SN 250,562. Pub. 12-6-66. Filed 7-19-66.

Class 50 — Merchandise Not Otherwise Classified

824,261. (See Class 1 for this trademark.)

824,567. DI-NOC. Minnesota Mining and Manufacturing Company. SN 233,807. Pub. 12-6-66. Filed 12-2-65.

824,568. SURVIVO. The Outlet Store, Inc. SN 236,132. Pub. 12-6-66. Filed 1-10-66.

824,569. DEWEY AND ALMY. W. R. Grace & Co. SN 241,659. Pub. 12-6-66. Filed 3-21-66.

824,570. BETA. Van Blarcom Closures, Inc. SN 244,275. Pub. 12-6-66. Filed 4-25-66.

824,571. DELTA. Van Blarcom Closures, Inc. SN 244,276. Pub. 12-6-66. Filed 4-25-66.

824,572. ALPHA. Van Blarcom Closures, Inc. SN 244,277. Pub. 12-6-66. Filed 4-25-66.

824,573. PRESPLATES. Pendergast Industries, Incorporated. SN 246,097. Pub. 12-6-66. Filed 5-19-66.

824,574. ADJUST - O - VASE. Gorham Corporation. SN 246,170. Pub. 12-6-66. Filed 5-20-66.

824,575. DELTA AND DESIGN. Sternco Industries, Inc. SN 246,205. Pub. 12-6-66. Filed 5-20-66.

824,576. DRINKSTIRS. Stone Straw Corporation. SN 246,494. Pub. 12-6-66. Filed 5-24-66.

824,577. DELTA AND DESIGN. Sternco Industries, Inc. SN 247,077. Pub. 12-6-66. Filed 6-1-66.

Class 51 — Cosmetics and Toilet Preparations

824,578. LADY LENORE. General Nutrition Corporation, d.b.a. Natural Sales Company. SN 180,572. Pub. 10-20-64. Filed 11-6-63.

824,579. LADY HUDSON AND DESIGN. Hudson National, Inc., by change of name from Hudson Vitamin Products, Inc. SN 191,977. Pub. 12-6-66. Filed 4-24-64.

824,580. ARVAL. Laboratoires Biologiques Arval S.A. Sion. SN 210,018. Pub. 12-6-66. Filed 1-15-65.

824,581. SLICKER. Yardley of London, Inc. SN 211,404. Pub. 12-6-66. Filed 2-4-65.

824,582. CARIB-TAN AND DESIGN. Elizabeth of Sweden. SN 219,412. Pub. 12-6-66. Filed 5-21-65.

824,583. CITY SLICKER. Yardley of London, Inc. SN 226,012. Pub. 12-6-66. Filed 8-18-65.

824,584. STARDUST. Beauty Counselors, Inc. SN 228,119. Pub. 12-6-66. Filed 9-20-65.

824,585. FIESTA BRAVA. Royal London, Ltd. SN 230,198. Pub. 12-6-66. Filed 10-14-65.

824,586. ANSON AND DESIGN. Anson Incorporated. SN 230,498. Pub. 12-6-66. Filed 10-19-65.

824,587. TRU-STIM. Southwestern Drug Corporation. SN 231,310. Pub. 12-6-66. Filed 10-22-65.

824,588. BEAU DE COLOGNE. Curt H. Abel, d.b.a. Novis Co. SN 235,477. Pub. 12-6-66. Filed 12-29-65.

824,589. MILLY MARVEL. Inter-Hamol S.A. SN 237,705. Pub. 12-6-66. Filed 2-1-66.

824,590. CUSTOM BLENDS. I. Posner, Inc. SN 238,966. Pub. 12-6-66. Filed 2-16-66.

824,591. FENJAL. Doetsch, Grether & Cie AG. MULTIPLE CLASS (Classes 51 and 52). SN 241,568. Pub. 12-6-66. Filed 3-22-66.

824,592. NEW HANDS. Bristol - Myers Company. SN 241,742. Pub. 12-6-66. Filed 3-24-66.

824,593. WRISLEY. The House of Wrisley, Inc. SN 242,247. Pub. 12-6-66. Filed 3-30-66.

824,594. BOLD MOVE. Johnson & Johnson. SN 242,257. Pub. 12-6-66. Filed 3-30-66.

824,595. IMAGE AND DESIGN. Freeman-L.A. Barber and Beauty Supply Company. SN 247,594. Pub. 12-6-66. Filed 6-8-66.

824,596. NOB HILL. Diplomat Products, Inc. SN 248,313. Pub. 12-6-66. Filed 6-17-66.

824,597. CARRY ON. The Procter & Gamble Company. MULTIPLE CLASS (Classes 51 and 52). SN 249,100. Pub. 12-6-66. Filed 6-28-66.

824,598. FORTITUDE. The Procter & Gamble Company. MULTIPLE CLASS (Classes 51 and 52). SN 249,102. Pub. 12-6-66. Filed 6-28-66.

824,599. FORTRESS. The Procter & Gamble Company. MULTIPLE CLASS (Classes 51 and 52). SN 249,103. Pub. 12-6-66. Filed 6-28-66.

824,600. STALWART. The Procter & Gamble Company. MULTIPLE CLASS (Classes 51 and 52). SN 249,104. Pub. 12-6-66. Filed 6-28-66.

824,601. RIVE GAUCHE. Yves Saint Laurent Parfums Corp. SN 252,794. Pub. 12-6-66. Filed 8-22-66.

Class 52 — Detergents and Soaps

824,591. (See Class 51 for this trademark.)

824,597. (See Class 51 for this trademark.)

824,598. (See Class 51 for this trademark.)

824,599. (See Class 51 for this trademark.)

824,600. (See Class 51 for this trademark.)

824,602. WASH D AND DESIGN. Big 'D' Chemical Company, by change of name from Le Fevre Chemical Company. SN 222,386. Pub. 5-31-66. Filed 6-30-65.

824,603. TPS AND DESIGN. Santa Monica Chemical Corporation. SN 237,631. Pub. 12-6-66. Filed 12-30-65.

824,604. DIP 'N DRI. Alconox, Inc. SN 239,362. Pub. 12-6-66. Filed 2-23-66.

824,605. NEOLATUM. Stiefel Laboratories, Inc. SN 240,036. Pub. 12-6-66. Filed 3-2-66.

824,606. SPOTZ - A - WAY. Langen Industries, Inc. SN 241,260. Pub. 12-6-66. Filed S.R. 3-17-66; Am. P.R. 9-30-66.

824,607. SPEEDY FELS AND DESIGN. Purex Corporation, Ltd. SN 242,148. Pub. 12-6-66. Filed 3-29-66.

824,608. WRISLEY. The House of Wrisley, Inc. SN 242,248. Pub. 12-6-66. Filed 3-30-66.

824,609. ELLEMENE. EmCor, Inc. SN 243,553. Pub. 12-6-66. Filed 4-15-66.

824,610. BLUE RIBBON. The Procter & Gamble Company. SN 245,103. Pub. 12-6-66. Filed 5-6-66.

Service Marks

Class 100 — Miscellaneous

824,611. CARROLS ETC. AND DESIGN. Carrols Drive-In System, Inc. SN 134,040. Pub. 3-23-65. Filed 1-2-62.

824,612. SAHARA. Sahara - Nevada Corporation. SN 188,581. Pub. 12-6-66. Filed 3-12-64.

824,613. UNICOMP. Attilio B. Lospinoso. SN 207,065. Pub. 12-6-66. Filed 11-27-64.

824,614. GATSBY'S. Gatsby's, Inc. SN 210,668. Pub. 12-6-66. Filed 1-26-65.

824,615. DESIGN OF G AND F. Gregory F. Fossella, d.b.a. Gregory Fossella Associates. SN 226,351. Pub. 12-6-66. Filed 8-24-65.

824,616. UNI-SPEC. Central Bio-Analytical Laboratories, Inc. SN 235,816. Pub. 12-6-66. Filed 1-5-66.

Class 101 — Advertising and Business

824,617. THE DIFFERENCE IS FRESH! Gridley, Maxon & Co. SN 221,043. Pub. 12-6-66. Filed 6-14-65.

824,618. START YOUR OWN BUSINESS EXPOSITION. Enterprise Expositions, Inc. SN 221,163. Pub. 12-6-66. Filed 6-15-65.

824,619. VALLEY MART. Valley Landscape Company Inc. SN 229,314. Pub. 12-6-66. Filed 10-4-65.

824,620. SCAN. Photronix, Inc. SN 233,280. Pub. 12-6-66. Filed 11-24-65.

824,621. STS. Herbert A. and Susan F. Fischer (joint owners), d.b.a. Scientific Translation Service. SN 252,087. Pub. 12-6-66. Filed 8-10-66.

Class 102 — Insurance and Financial

824,622. GOLD CARPET SERVICE AND DESIGN. Financial Advertising Agency. SN 214,633. Pub. 12-6-66. Filed 3-22-65.

824,623. PEG. Pacific Employers Insurance Company. SN 228,389. Pub. 12-6-66. Filed 9-22-65.

824,624. SPLIT CIRCLE (DESIGN). The Diners' Club, Inc. SN 235,496. Pub. 12-6-66. Filed 12-29-65.

Class 103 — Construction and Repair

824,625. BROADWAY MAINTENANCE AND DESIGN. Broadway Maintenance Corp. SN 226,408. Pub. 12-6-66. Filed 8-25-65.

824,626. DOMESTICARE. Domesticare, Inc. SN 233,327. Pub. 12-6-66. Filed 11-26-65.

824,627. M MARATHON AND DESIGN. Marathon Oil Company. SN 253,406. Pub. 12-6-66. Filed 8-30-66.

Class 104 — Communication

824,628. WHIO 7 TV DAYTON, O. AND DESIGN. Miami Valley Broadcasting Corporation. SN 233,618. Pub. 12-6-66. Filed 11-30-65.

824,629. RADIO WHIO 1290 DAYTON, O. AND DESIGN. Miami Valley Broadcasting Corporation. SN 233,619. Pub. 12-6-66. Filed 11-30-65.

Class 107 — Education and Entertainment

824,630. AFRICA. Operation Crossroads Africa, Inc. SN 191,069. Pub. 12-6-66. Filed 4-14-64.

824,631. OF LANDS AND SEAS. Olas Corporation. SN 222,499. Pub. 12-6-66. Filed 7-1-65.

824,632. HULLABALOO. General Artists Corporation. SN 253,716. Pub. 12-6-66. Filed 9-1-66.

Collective Membership Marks

Class 200

824,261. (See Class 1 for this trademark.)

Certification Mark

Class A — Goods

824,633. INCRAGRIND. International Copper Research Association, Inc. SN 248,475. Pub. 12-6-66. Filed 6-20-66.

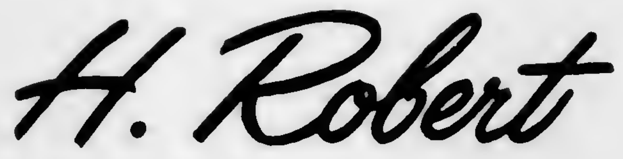
SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

SECTION 1

(Combined Certificates)

824,640. H. Robert Industries, Inc., St. Louis, Mo. SN 229,293. Filed P.R. 10-4-65; Am. S.R. 12-6-66.



Class 32—Furniture and Upholstery

For Room Furniture for Hospitals and Institutions—Namely, Dormitory Beds, Dressers, Chests, Night Stands, Chairs, Settees and the Like.

Class 44—Dental, Medical, and Surgical Appliances

For Hospital Head Lift Beds, Examining and Treatment Tables, Instrument Tables and Operating Room Furniture.

First use Nov. 14, 1964.

SECTION 2

Class 18 — Medicines and Pharmaceutical Preparations

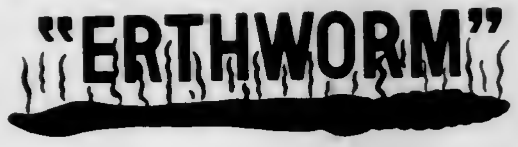
824,634. Miller Pharmacal Company, West Chicago, Ill. SN 229,112. Filed P.R. 10-1-65; Am. S.R. 12-16-66.

Mg-PLUS

For Dietary Supplement.
First use Apr. 12, 1965.

Class 22 — Games, Toys, and Sporting Goods

824,635. Burke Flexo-Products Company, Traverse City, Mich. SN 228,623. Filed P.R. 9-27-65; Am. S.R. 11-21-66.



For Artificial Fishing Lures Resembling a Worm or Night Crawler.
First use Aug. 26, 1965.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

824,636. W. J. Dennis & Company, Franklin Park, Ill. SN 226,728. Filed P.R. 8-30-65; Am. S.R. 12-12-66.

SHARP-CUT

For Lawn Edgers.
First use on or about Aug. 12, 1965.

824,637. For-Tron Glas & Pump, Inc., Pullman, Wash. SN 229,228. Filed P.R. 10-4-65; Am. S.R. 12-12-66.

GLASPRAY

For Fiberglass and Emulsion Spray System for Mixing and Spraying a Mixture of Asphalt and Glass Fibers Upon Surfaces, Such as Roofs.
First use Apr. 14, 1965.

Class 24 — Laundry Appliances and Machines

824,638. The Ironees Company, Philadelphia, Pa. SN 207,214. Filed P.R. 12-1-64; Am. S.R. 9-20-65.

LAUNDRYWARE

For Clothespin Bag; Dampening Bag; Clothes Basket Liner; Laundry Cart Liner; Pressing Cloth; Ironing Board Cover; Ironing Board Pad; Laundry Bag; Sadiron Rest; and Washing Machine Bag.
First use Aug. 21, 1964, on ironing board cover.

Class 27 — Horological Instruments

824,639. Eversharp, Inc., Milford, Conn. SN 223,222. Filed P.R. 7-13-65; Am. S.R. 12-20-66.

SCHICK

Owner of Reg. Nos. 224,639, 789,653, and others.
For Wrist Watches.
First use July 7, 1965.

Class 32 — Furniture and Upholstery

824,640. See Section 1 (Combined certificate).

Class 38 — Prints and Publications

824,641. Pittsburgh Railways Company, Cleveland, Ohio. SN 233,282. Filed P.R. 11-24-65; Am. S.R. 12-12-66.

SCHOOL PURCHASING DIGEST

For Trade Magazine.
First use in or about November 1965.

824,642. The McNaught Syndicate, Inc., New York, N.Y. SN 239,781. Filed P.R. 2-28-66; Am. S.R. 12-20-66.

CHILDREN'S TALES

For Newspaper Feature in the Nature of a Comic Strip.
First use Oct. 17, 1965.

Class 39 — Clothing

824,643. American Argo Corporation, New York, N.Y., assignee of Atlas General Industries, Inc., New York, N.Y. SN 179,689. Filed P.R. 10-24-63; Am. S.R. 11-14-66.

Tiny Tees

For Juvenile Polo Shirts.
First use July 24, 1963.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

824,644. Astrotex Ltd., New York, N.Y. SN 247,669. Filed 6-9-66.

FABRICS THAT FASHION THE FUTURE

For Fabrics Composed of Silk, Wool, Cotton, Synthetics, or Any Combination Thereof.
First use Apr. 4, 1962.

Class 44 — Dental, Medical, and Surgical Appliances

824,640. See Section 1 (Combined certificate).

Class 46 — Foods and Ingredients of Foods

824,645. Reddi-Bacon, Inc., Los Angeles, Calif. SN 203,332. Filed P.R. 10-5-64; Am. S.R. 12-9-66.

REDDI-BACON

For Sliced Precooked Bacon.
First use Sept. 16, 1964.

824,646. A. E. Staley Manufacturing Company, Decatur, Ill. SN 226,577. Filed P.R. 8-26-65; Am. S.R. 12-12-66.

SWEET-CANE

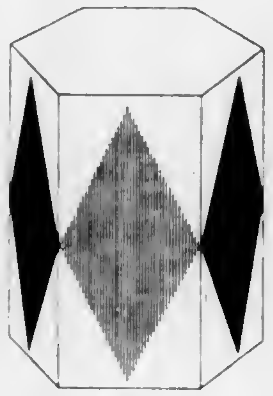
For Dried Molasses Concentrate for Livestock Feed.
First use July 22, 1965.

824,647. Lovell & Christmas Limited, London, England. SN 237,515. Filed P.R. 12-7-65; Am. S.R. 9-20-66.

CHI-CAN

Owner of British Reg. No. B875,417, dated Feb. 10, 1965.
For Canned Poultry.

824,648. Pellar Laboratories, Inc., Chicago, Ill. SN 239,436. Filed 2-23-66.



The drawing is lined for the color red. The mark is a hexagonal container and design into which the goods are placed and shipped to a customer.
For Spices.
First use May 14, 1959.

Class 51 — Cosmetics and Toilet Preparations

824,649. Clairol Incorporated, New York, N.Y. SN 232,388. Filed P.R. 11-9-65; Am. S.R. 12-20-66.

DOES HE OR DOESN'T HE— ONLY HIS BARBER KNOWS FOR SURE

Owner of Reg. No. 777,608.
For Haircoloring Preparation for Men.
First use Apr. 23, 1965.

824,650. Revlon, Inc., New York, N.Y. SN 233,748. Filed 12-1-65.

BLASÉ APRICOT

For Nail Enamel and Lipstick.
First use Apr. 6, 1962.

Class 52 — Detergents and Soaps

824,651. Philadelphia Carpet Company, Cartersville, Ga. SN 234,141. Filed P.R. 12-7-65; Am. S.R. 12-5-66.

Blotaway

For Carpet Spot Remover.
First use Nov. 15, 1965.

Service Marks

Class 100 — Miscellaneous

824,652. Hospitality Motor Inns, Cleveland, Ohio. SN 200,346. Filed P.R. 8-21-64; Am. S.R. 11-21-66.

HOSPITALITY MOTOR INN

The words "Motor Inn" are disclaimed apart from the mark as shown.
For Motel Services Including Providing Lodgings and Meals in Motels.
First use Jan. 3, 1964.

Class 103 — Construction and Repair

824,653. Vasco Metals Corporation, Latrobe, Pa., by change of name from Vanadium-Alloys Steel Company, Latrobe, Pa. SN 215,296. Filed P.R. 3-29-65; Am. S.R. 11-25-66.

METALLURGY IS OUR BUSINESS

For Custom Engineering and Manufacture of Specialty Metals.
First use Oct. 19, 1964.

TRADEMARK REGISTRATIONS RENEWED

28,558. REX. Cl. 46. 7–7–1896.
50,295. REX. Cl. 46. 3–6–06.
54,172. LIBBEY. Cl. 33. 6–19–06.
56,244. OLD COMPANY'S LEHIGH AND DESIGN. Cl. 1. 9–4–06.
56,600. HARNESSED HORSE (DESIGN). Cl. 18. 10–9–06.
56,601. BE SURE AND WORK THE HORSE AND DESIGN. Cl. 18. 10–9–06.
56,602. GALL CURE AND DESIGN. Cl. 18. 10–9–06.
59,098. REX. Cl. 46. 1–1–07.
59,371. PROGRESS. Cl. 43. 1–8–07.
59,372. CARLISLE. Cl. 43. 1–8–07.
59,654. EMPRESS. Cl. 43. 1–15–07.
59,687. GOOD VALUE. Cl. 43. 1–15–07.
59,688. MANSFIELD. Cl. 43. 1–15–07.
59,690. COLUMBUS. Cl. 43. 1–15–07.
59,846. PACIFIC. Cl. 43. 1–15–07.
59,851. HARRIS. Cl. 15. 1–22–07.
59,867. TROJAN. Cl. 43. 1–22–07.
61,285. REUTER. Cl. 52. 3–12–07.
61,286. BARCLAY & CO. AND DESIGN. Cl. 52. 3–12–07.
212,966. THE WISCONSIN FARMER. Cl. 38. 5–18–26.
213,392. LITTLE WAITER. Cl. 46. 5–25–26.
215,247. FLEECE TWIST. Cl. 39. 7–13–26.
217,375. WGY. Cl. 46. 8–31–26.
221,856. WORK THE HORSE. Cl. 18. 12–14–26.
221,901. BLONDEX. Cl. 51. 12–14–26.
222,875. SPARTAN MILLS. Cl. 42. 1–11–27.
222,963. HER MAJESTY. Cl. 39. 1–11–27.
223,732. MONTAGUE. Cl. 22. 2–8–27.
223,862. BE-VE-CO. Cl. 16. 2–15–27.
224,096. O-B. Cl. 44. 2–15–27.
224,249. OLDSMOBILE. Cl. 19. 2–22–27.
225,867. MINNESOTA QUEEN. Cl. 46. 3–29–27.
225,953. JAQUEQUINA AND DESIGN. Cl. 18. 3–29–27.
226,850. BASKET WEAVE. Cl. 37. 4–19–27.
227,085. E-Z. Cl. 2. 4–26–27.
227,297. JIFFY. Cl. 18. 5–3–27.
228,375. WAX-RITE AND DESIGN. Cl. 16. 5–31–27.
421,118. LADLE AND SPOON AND DESIGN. Cl. 46. 5–21–46.
422,098. KAY WAVE. Cl. 39. 7–2–46.
422,099. PRINCELLA. Cl. 39. 7–2–46.
422,457. SYNTILITE. Cl. 1. 7–23–46.
423,081. FEATHER RIDE AND DESIGN. Cl. 19. 8–20–46.
423,366. MARY DUNHILL. Cl. 51. 8–27–46.
423,440. MANSAVER. Cl. 23. 9–3–46.
425,157. CARVEN. Cl. 51. 11–5–46.
425,681. BUTANEFRINE. Cl. 18. 11–26–46.
426,075. TWIN TREES GARDEN, INC. AND DESIGN. Cl. 46. 12–17–46.
426,171. MICRO GROUND. Cl. 44. 12–17–46.
426,190. STEER BRAND. Cl. 2. 12–17–46.
426,463. ZENITH. Cl. 21. 12–24–46.
426,613. ME TOO. Cl. 46. 1–7–47.
426,614. ALL-WEATHER. Cl. 2. 1–7–47.
426,740. TEXTITE. Cl. 2. 1–7–47.
426,899. CHESTY AND DESIGN. Cl. 46. 1–21–47.
426,917. OTOCAINE AND DESIGN. Cl. 18. 1–21–47.
427,010. RAMPART. Cl. 46. 1–21–47.
427,086. BEMILIN. Cl. 2. 1–28–47.
427,145. MAVECO. Cl. 39. 1–28–47.
428,075. B-Y-21. Cl. 18. 3–11–47.
428,286. BATTLE SHIP AND DESIGN. Cl. 12. 3–18–47.
428,488. FORTUNA. Cl. 39. 3–25–47.
428,508. F-M. Cl. 1. 3–25–47.
428,563. PAL. Cl. 22. 3–25–47.
428,802. PS. Cl. 12. 4–1–47.
429,057. P.F. Cl. 39. 4–15–47.
429,529. TEMT. Cl. 46. 5–6–47.
429,596. ALUMA CRAFT. Cl. 19. 5–6–47.
429,677. DANDIE DINMONT AND DESIGN. Cl. 49. 5–13–47.
429,795. TEXFOAM. Cl. 1. 5–20–47.
430,221. VULTROL. Cl. 6. 6–10–47.

TRADEMARK REGISTRATIONS CANCELED

Section 7(d)

157,074. QUEEN MAKE AND DESIGN. Cl. 39. 7–25–22.
500,016. QUEEN MAKE. Cl. 39. 3–30–48.
654,653. RIS-VAN. Cl. 10. 11–19–57.
657,157. DEBBI DAY. Cl. 39. 1–14–58.
681,347. RIS-VAN AND DESIGN. Cl. 10. 7–7–59.
700,226. THE QUEENMAKER. Cl. 39. 6–28–60.
721,362. DEBBI PETITE. Cl. 39. 9–21–61.
784,663. NUTRO GOLF GREEN. Cl. 10. 2–9–65.
787,736. CHYMOCYCLINE. Cl. 18. 4–6–65.

Section 8

19,158. TIKI AND DESIGN. Cl. 16. 3–10–1891.
137,370. PAINTSEED. Cl. 16. 11–23–20.
140,395. THE HARLEY-DAVIDSON ENTHUSIAST. Cl. 38. 3–5–21.
229,231. MAPLE LEAF AND DESIGN. Cl. 46. 6–21–27.
381,549. A LIFE PRESERVER FOR OIL WELLS AND DESIGN. Cl. 23. 10–1–40.
385,229. PLYNIK. Cl. 14. 2–18–41.

The following registrations issued Jan. 3, 1961

709,168. 536A. Cl. 1.
709,173. TRUBRYTE. Cl. 2.
709,175. THRU-LINER AND DESIGN. Cl. 2.
709,180. MOSAIC MADISON AND DESIGN. Cls. 2 and 8.
709,181. CHEMBOND. Cl. 5.
709,194. G.H.I. Cl. 6.
709,200. BI-O-KEM. Cl. 10.
709,201. ALKI-MEM. Cl. 10.
709,204. VITRO CHIP. Cl. 12.
709,205. VITRO TILE. Cl. 12.
709,209. AC GLAZE AND DESIGN. Cl. 12.
709,211. SOLANA BRAND CEDAR AND DESIGN. Cl. 12.
709,215. GLC AND DESIGN. Cl. 12.
709,216. THERMO-SHEATH. Cl. 12.
709,217. SI-DURA. Cl. 12.
709,220. FRANKLIN ETC. AND DESIGN. Cl. 13.
709,222. WEHAG AND DESIGN. Cl. 13.
709,225. BBCC AND DESIGN. Cl. 14.
709,229. GRPC AND DESIGN OF A TREE. Cl. 14.
709,238. ASCOT. Cl. 17.
709,243. NEO-DILODERM. Cl. 18.
709,247. ROCKET-N-EMA. Cl. 18.
709,253. CORPASTIN. Cl. 18.
709,257. OPTIVIMS. Cl. 18.
709,262. ULOZENS. Cl. 18.
709,271. MOTORCRAFT. Cl. 19.
709,272. TOTEALL AND DESIGN. Cl. 19.
709,274. FLYING DUTCHMAN. Cl. 19.
709,276. SAIL KING AND DESIGN. Cl. 19.
709,288. T-BIRD. Cl. 21.
709,292. ELECTROPACK. Cl. 21.
709,293. RITH-ME-TIC AND DESIGN. Cl. 22.
709,294. DUAL-PAK. Cl. 22.
709,295. FETHERWATE. Cl. 22.
709,296. CROWN. Cl. 22.
709,300. CHESSERS. Cl. 22.
709,301. COMICO CLOWN. Cl. 22.
709,303. CONCRA. Cl. 23.
709,304. TRANSLOADER. Cl. 23.
709,308. WALLRAMANT. Cl. 23.
709,314. SPEEDIAL. Cl. 23.
709,318. LIFETEX AND DESIGN. Cl. 23.
709,331. K (DESIGN). Cl. 26.
709,335. TORCH. Cl. 27.
709,337. LOOKOUT. Cl. 27.
709,338. BONUS. Cl. 27.
709,339. RAVEN. Cl. 27.

709,340. EVERMINE DIAMOND DREAMS. Cl. 27.
709,342. KLERE-VUE. Cl. 29.
709,345. GOLD SHIELD AND DESIGN. Cl. 31.
709,346. POLYFILTER. Cl. 31.
709,347. CARBOSTAT. Cl. 31.
709,356. "NO SQUEAL" AND DESIGN. Cl. 35.
709,357. ABEL LABEL TANDEM FALCON AND DESIGN. Cl. 35.
709,359. CONDADO. Cl. 37.
709,360. SWISS CHALET. Cl. 37.
709,363. LINDY JR. Cl. 37.
709,365. YALE. Cl. 37.
709,366. JOBBER EXECUTIVE. Cl. 38.
709,371. STEREO VISION AND DESIGN. Cl. 38.
709,379. PELUSA-CALF. Cl. 39.
709,381. RUBAL'S. Cl. 39.
709,382. BAY TRAIL. Cl. 39.
709,387. PERMA-TEE ETC. Cl. 42.
709,389. POWER-ETC. AND DESIGN. Cl. 42.
709,391. GEMS BY UXBRIDGE. Cl. 42.
709,405. BREAKFAST CUP. Cl. 46.
709,407. SUPER VALU AND DESIGN. Cl. 46.
709,413. BULK 'N BAG. Cl. 46.
709,417. FIGLETTES. Cl. 46.
709,422. LITTLE KING AND DESIGN. Cl. 46.
709,429. YOUR HIGHNESS. Cl. 46.
709,435. ROLLEASY. Cl. 50.
709,436. POLYLITE. Cl. 50.
709,442. AIR BP AND DESIGN. Cl. 52.
709,444. PANTALOON DAILY MAINTAINER. Cl. 52.
709,445. SAFE-SEE. Cl. 52.
709,448. AMYLAZE. Cl. 52.
709,455. AM-SU-MATIC. Cl. 102.
709,458. DESCO. Cl. 103.
709,459. SELLARAMA HOLIDAYS. Cl. 105.
709,462. QUALITY TESTED AND CERTIFIED AND TRIANGLE DESIGN. Cl. A.
709,466. DRI-FLOR. Cl. 6.
709,467. MARINE. Cl. 6.
709,470. REPRESENTATION OF TRIANGULAR PRISM PACKAGE. Cl. 21.
709,474. DUCTUS DEDICATIONE. Cl. 26.
709,477. KWIKFOLD. Cl. 32.
709,481. REDI-EGG. Cl. 46.
709,489. 'FLAMA GRANDE.' Cl. 51.
709,490. BRIGHTENER BY HOST AND DESIGN. Cl. 52.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

57,034. COLGATE'S. Cl. 51. 10–30–06. Colgate & Co. Colgate-Palmolive Company, New York, N.Y. Amended to appear:

COLGATE

58,667. ELEPHANT AND DESIGN. Cl. 37. 12–18–06. The Union Bag & Paper Company. Union Camp Corporation, New York, N.Y. Amended to appear:

ELEPHANT

58,668. KANGAROO AND DESIGN. Cl. 37. 12–18–06. The Union Bag & Paper Company. Union Camp Corporation, New York, N.Y. Amended to appear:

KANGAROO

667,199. ELIZABETH POST. Cl. 51. 9–16–58. The Lander Co. Inc., New York, N.Y. Corrected: In the statement, column 1, line 1, "The" should be deleted.

714,702. RCA 501. Cl. 26. 5–2–61. Radio Corporation of America, New York, N.Y. Corrected: In the statement, column 1, line 1, "New York" should be deleted and *Delaware* should be inserted.

721,522. E-CONO-CORE. Cl. 14. 9–19–61. Wheeling Steel Corporation, Wheeling, W. Va. Corrected: In the statement, column 1, line 1, "West Virginia" should be deleted and *Delaware* should be inserted.

774,077. ASTEK. Cl. 26. 7–28–64. Astek Instrument Corp., Armonk, N.Y. Corrected: In the statement, column 1, line 1, "New York" should be deleted and *Delaware* should be inserted.

790,150. AIRSPEEDATA. Cl. 26. 5–25–65. Astek Instrument Corp., Armonk, N.Y. Corrected: In the statement, column 1, line 1, "New York" should be deleted and *Delaware* should be inserted.

814,707. BOOBY TRAP. Cl. 107. 9–6–66. JC Sales Co., Inc. Parker Brothers, Inc., Salem, Mass. Corrected: In the statement, column 1, before line 1, *Parker Brothers, Inc. (Maine corporation), 190 Bridge St., Salem, Mass., assignee of* should be inserted.

815,383. ISO-GRAD. Cl. 21. 9–20–66. Repco, Inc., Ivoryton, Conn. Corrected: In the statement, column 1, line 1, "Pepco" should be deleted and *Repco* should be inserted.

817,252. ALUMA-TRAK. Cl. 13. 10–25–66. Zero Manufacturing Co., Burbank Calif. Corrected: In the statement, column 2, line 6, "Aluma-trak" should be deleted and *Alum-A-Trak* should be inserted.

817,789. QUIK-AIR. Cl. 34. 11–1–66. Clements Mfg. Co., Chicago, Ill. Corrected as follows:

QUIK-AIR

819,337. DIANOL. Cls. 6 and 15. 11–29–66. Mills-Pearson Corp., St. Petersburg, Fla. Corrected: In the statement, column 2, line 4, "Ingredient" should be deleted and *lubricant* should be inserted.

TRADEMARK REGISTRATIONS—NEW CERTIFICATES

New Certificates issued under sections 7(c), 7(f), 7(g) of the Trademark Act of 1946 for the unexpired term of the original registrations.

432,111. TRANSVISION. Cl. 21. Transvision Inc. 8–19–47. New Cert. Sec. 7(c) to Dynascan Corporation, Chicago, Ill.

438,006. ELECTRONAMIC. Cl. 26. Precision Apparatus Company, Inc. 4–6–48. New Cert. Sec. 7(c) to Dynascan Corporation, Chicago, Ill.

703,935. TEMP-PLATE. Cl. 26. Pyrodyne, Inc. 9–6–60. New Cert. Sec. 7(c) to William Wahl Corporation, Santa Monica, Calif.

725,883. INSULUBE AND DESIGN. Cl. 21. Herbert A. Henderson, doing business as H. A. Henderson. 1–2–62. New Cert. Sec. 7(c) to International Electronic Research Corporation, Los Angeles, Calif.

731,469. DUALITH. Cl. 23. Mergenthaler Linotype Company, assignee of Davidson Corporation. 5–15–62. New Cert. Sec. 7(c) to Fairchild Camera and Instrument Corporation, Syosset, N.Y.

775,156. MOLYKOTE. Cls. 1 and 15. The Alpha Molykote Corporation. 8–18–64. New Cert. Sec. 7(c) to Dow Corning Corporation, Midland, Mich.

804,789. VIBROSAN. Cl. 44. Sodeco Societe des Compteurs de Geneve. 3–1–66. New Cert. Sec. 7(c) Vibrosan S.A., Geneva, Switzerland.

INDEX OF REGISTRANTS

FEBRUARY 21, 1967

(Registered ; Renewed ; Canceled ; Amended, Disclaimed, Corrected, etc. ; New Certificates ; 12c **Publications.**)

AB Bjare Industrier, Karpalund, Sweden. 824,503, pub. 12–6–66. Multiple Class (Classes 45 and 46).
ABC Sales Co., from Thomson & Taylor Spice Co., Chicago, Ill. 709,405, canc. Cl. 46.
Abel Corp., The, Columbus, Ohio. 709,357, canc. Cl. 35.
Abel, Curt H., d.b.a. Novis Co., Long Island City, N.Y. 824,588, pub. 12–6–66. Cl. 51.
Accurate Automatic Parts, Inc., Brookfield, Wis. 824,324, pub. 12–6–66. Cl. 13.
Aid Auto Supply Stores: *See—*
  Aid Stores, Inc.
Aid Stores, Inc., Woodside, N.Y. 824,373, pub. 12–6–66. Cl. 21.
Aid Stores, Inc., d.b.a. Aid Auto Supply Stores, Woodside, N.Y. 824,394, pub. 12–6–66. Cl. 23.
Aimcee Wholesale Corp., New York, N.Y. 824,431, pub. 12–6–66. Cl. 30.
Air Products and Chemicals, Inc., Allentown, Pa. 824,432, pub. 12–6–66. Cl. 31.
Airmatic Systems Corp.: *See—*
  Mosler Safe Co., The.
Alco Pictures Corp., Los Angeles, Calif. 709,371, canc. Cl. 38.
Alconox, Inc., New York, N.Y. 824,604, pub. 12–6–66. Cl. 52.
Alexander, A., & Co. Ltd., Edinburgh, Scotland. 429,677, ren. 2–21–67. Cl. 49.
Alliancewall Corp., Topton, Pa. 824,313, pub. 12–6–66. Cl. 12.
Allied Chemical Corp., New York, N.Y. 824,500, pub. 12–6–66. Cl. 43.
Allied Mills, Inc., Chicago, Ill. 824,507, pub. 12–6–66. Cl. 46.
Allied Sewing Machine Distributors, Inc., Oak Park, Mich. 824,410, pub. 12–6–66. Cl. 23.
Alma Desk Co., High Point, N.C. 824,434, pub. 12–6–66. Cl. 32.
Alpex Corp.: *See—*
  Flour City Ornamental Iron Co., The.
Alpha Molykote Corp., The, to Dow Corning Corp., Midland, Mich. 775,156, new cert. Multiple Class (Classes 1 and 15).
Alside, Inc., Akron, Ohio. 824,306, pub. 12–6–66. Cl. 12.
Aluma Kraft Mfg. Co., St. Louis, Mo. 709,217, canc. Cl. 12.
Alvino, Riccardo, San Francisco, Calif. 824,555, pub. 12–6–66. Cl. 47.
American Argo Corp., from Atlas General Industries, Inc., New York, N.Y. 824,643. Cl. 39.
American Biltrite Rubber Co., Inc., Trenton, N.J. 824,362, pub. 12–6–66. Cl. 20.
American Components Inc., Conshohocken, Pa. 824,365, pub. 12–6–66. Cl. 21.
Amerace Corp., New York, N.Y. 709,391, canc. Cl. 42.
American Chain & Cable Co., Inc.: *See—*
  J.B. Engineering Sales Co.
American Gilsonite Co., Salt Lake City, Utah. 824,263, pub. 12–6–66. Cl. 1.
American Home Products Corp., New York, N.Y. 824,321, pub. 12–6–66. Cl. 13.
American Meter Co., Inc., Philadelphia, Pa. 824,412, pub. 12–6–66. Cl. 26.
American Oil Co., The, Chicago, Ill. 824,291, pub. 12–6–66. Cl. 6.
American Products, Inc., Spearville, Kans. 824,395, pub. 12–6–66. Cl. 23.
American Scene, Inc., St. Louis, Mo. 824,486, pub. 12–6–66. Cl. 39.
American Scientific Laboratories, Inc., Madison, Wis. 709,253, canc. Cl. 18.
American Surety Co. of N.Y., New York, N.Y. 709,455, canc. Cl. 102.
American Thread Co., The, New York, N.Y. 59,654, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,687, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,688, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,690, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,846, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,867, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,372, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 59,371, ren. 2–21–67. Cl. 43.
American Thread Co., The, New York, N.Y. 824,499, pub. 12–6–66. Cl. 43.
American Tuna Canning Co., Terminal Island, Calif. 709,429, canc. Cl. 46.
Ames Co., Inc.: *See—*
  Miles Laboratories, Inc.
Anderson, Grayce K., Arlington Height, Ill. 824,337, pub. 12–6–66. Cl. 17.
Anson Inc., Providence, R.I. 824,586, pub. 12–6–66. Cl. 51.
Apex Art Novelty Co.: *See—*
  Goldman, Charles.
Aquariums Inc., Maywood, N.J. 824,374, pub. 12–6–66. Cl. 21.
Aquariums Inc., Maywood, N.J. 824,375, pub. 12–6–66. Cl. 21.
Aquariums Inc., Maywood, N.J. 824,396, pub. 12–6–66. Cl. 23.
Aquariums Inc., Maywood, N.J. 824,397, pub. 12–6–66. Cl. 23.
Archer-Daniels-Midland Co., Minneapolis, Minn. 824,509, pub. 12–6–66. Cl. 46.
Arden-Mayfair, Inc., Los Angeles, Calif. 824,327, pub. 12–6–66. Cl. 14.
Armour Agricultural Chemical Co., Atlanta, Ga. 824,298, pub. 12–6–66. Cl. 10.
Armstrong Cork Co., Lancaster, Pa. 824,361, pub. 12–6–66. Cl. 20.
Associated Laboratories, Inc.: *See—*
  Guaranteed Products, Inc.
Astek Instrument Corp., Armonk, N.Y. 790,150, cor. Cl. 26.
Astek Instrument Corp., Armonk, N.Y. 774,077, cor. Cl. 26.
Asten-Hill Mfg. Co., Philadelphia, Pa. 824,495, pub. 12–6–66. Cl. 42.
Asten-Hill Mfg. Co., Philadelphia, Pa. 824,494, pub. 12–6–66. Cl. 42.
Astrotex Ltd., New York, N.Y. 824,644. Cl. 42.
Atlantic Research Corp., Alexandria, Va. 824,363, pub. 12–6–66. Cl. 21.
Atlas General Industries, Inc.: *See—*
  American Argo Corp.
Atlas Supply Co., Newark, N.J. 709,356, canc. Cl. 35.
Atracta Wax Corp., Chicago, Ill. 824,332, pub. 10–18–66. Cl. 16.
Autoline Oil Co., The: *See—*
  Pittsburgh Oil Refining Corp.
Aziende Chimiche Riunite Angelini, Rome, Italy. 824,341, pub. 8–3–65. Cl. 18.
B.N.S. International Sales Corp., New York, N.Y. 824,544, pub. 12–6–66. Cl. 46.
B.V.D. Co., Inc., The, New York, N.Y. 824,466, pub. 12–6–66. Cl. 39.
B.V.D. Co., Inc., The, New York, N.Y. 824,467, pub. 12–6–66. Cl. 39.
Banner Productions, Inc., Los Angeles, Calif. 824,548, pub. 12–6–66. Cl. 46.
Barad Lingerie Co., St. Louis, Mo. 824,459, pub. 12–6–66. Cl. 39.
Barclay & Barclay, New York, N.Y., to Lanman & Kemp-Barclay & Co., Inc., Palisades Park, N.J. 61,285, ren. 2–21–67. Cl. 52.
Barclay & Barclay, New York, N.Y., to Lanman & Kemp-Barclay & Co., Inc., Palisades Park, N.J. 61,286, ren. 2–21–67. Cl. 52.
Bates File Mfg. Co., The: *See—*
  Bates, C. J., & Son.
Bates, C. J., & Son, Chester, to The Bates File Mfg. Co., Newington, Conn. 426,171, ren. 2–21–67. Cl. 44.
Bay Trail Shoe Co., Inc., South Weymouth, Mass. 709,382, canc. Cl. 39.
Bearing Bronze Casting Co., The: *See—*
  Bridgeport Brass Co.
Beauty Counselors, Inc., Grosse Pointe, Mich. 824,584, pub. 12–6–66. Cl. 51.
Bell & Howell Co., Chicago, Ill. 824,422, pub. 12–6–66. Cl. 26.
Bemis Bro. Bag Co., St. Louis, Mo., to Bemis Co., Inc., Minneapolis, Minn. 427,086, ren. 2–21–67. Cl. 2.
Bemis Bro. Bag Co., St. Louis, Mo., to Bemis Co., Inc., Minneapolis, Minn. 426,740, ren. 2–21–67. Cl. 2.
Bemis Co., Inc.: *See—*
  Bemis Bro. Bag Co.
Ben-Hur Mfg. Co., Milwaukee, Wis. 709,345, canc. Cl. 31.
Bickmore Gall Cure Co., Old Town, Maine, to Bickmore, Inc., Evanston, Ill. 56,600, ren. 2–21–67. Cl. 18.
Bickmore Gall Cure Co., Old Town, Maine, to Bickmore, Inc., Evanston, Ill. 56,601, ren. 2–21–67. Cl. 18.
Bickmore Gall Cure Co., Old Town, Maine, to Bickmore, Inc., Evanston, Ill. 56,602, ren. 2–21–67. Cl. 18.
Bickmore, Inc.: *See—*
  Bickmore Co., The.
  Bickmore Gall Cure Co.
Bickmore Co., The, Old Town, Maine, to Bickmore, Inc., Evanston, Ill., 221,856, ren. 2–21–67. Cl. 18.
Big 'D' Chemical Co., from Le Fevre Chemical Co., Oklahoma City, Okla. 824,602, pub. 12–6–66. Cl. 52.
Biorex Laboratories Ltd., London, England. 824,340, pub. 5–14–63. Cl. 18.
Blackstone Corp., Jamestown, N.Y. 824,392, pub. 12–6–66. Cl. 23.
Bleeker Street, Inc., New York, N.Y. 824,489, pub. 12–6–66. Cl. 39.
Blessing, E. K., Co., Inc.,Elkhart, Ind. 824,443, pub. 8–30–66. Cl. 36.
Bodin, Ted, Hialeah, Fla. 824,471, pub. 12–6–66. Cl. 39.
Borg-Warner Corp.: *See—*
  Nicholson File Co.
Borneo Sumatra Trading Co., Inc., New York, N.Y. 709,274, canc. Cl. 19.
Bradley & Vrooman Co., Chicago, Ill. 223,862, ren. 2–21–67. Cl. 16.

Brearley Co., The, Rockford, Ill. 824,269, pub. 12-6-66. Multiple Class (Classes 2 and 32).
Breon Laboratories Inc.: *See*—
Winthrop Chemical Co., Inc.
Bridgeport Brass Co., Bridgeport, Conn., from The Bearing Bronze Casting Co., Cleveland, Ohio. 709,225, canc. Cl. 14.
Brill, H. C., Co., Inc., Cedar Grove, N.J. 824,523, pub. 12-6-66. Cl. 46.
Brilliant Bros. Co., Boston, Mass. 824,474, pub. 12-6-66. Cl. 39.
Bristol-Myers Co., New York, N.Y. 824,592, pub. 12-6-66. Cl. 51.
Bristol-Myers Co., New York, N.Y. 824,356, pub. 12-6-66. Cl. 18.
British Chemotheutic Products Ltd., Bradford, York, England. 824,352, pub. 12-6-66. Cl. 18.
British Petroleum Co. Ltd., The, Finsburg Circus, London, England. 709,442, canc. Cl. 52.
Brown Co., Kalamazoo, Mich. 824,270, pub. 12-6-66. Cl. 2.
Broadway Maintenance Corp., Long Island City, N.Y. 824,625, pub. 12-6-66. Cl. 103.
Brunswick-Balke-Collender Co., The: *See*—
Brunswick Corp.
Brunswick Corp., Chicago, Ill. 824,501, pub. 12-6-66. Cl. 44.
Brunswick Corp., from The Brunswick-Balke-Collender Co., Chicago, Ill. 709,294, canc. Cl. 22.
Brunswick Corp., from The Brunswick-Balke-Collender Co., Chicago, Ill. 709,295, canc. Cl. 22.
Brunswick Corp., from The Brunswick-Balke-Collender Co., Chicago, Ill. 709,296, canc. Cl. 22.
Burke Flex-Products Co., Traverse City, Mich. 824,635. Cl. 22.
Burlington Industries, Inc., New York, N.Y. 824,497, pub. 12-6-66. Cl. 42.
Burns & Russell Co. of Baltimore City, The, Baltimore, Md. 709,209, canc. Cl. 12.
Burton, Russell, O.D., Inglewood, Calif. 824,418, pub. 12-6-66. Cl. 26.
Butler, John O., Co., Chicago, Ill. 824,430, pub. 12-6-66. Cl. 29.
Butt, H. E., Grocery Co., d.b.a. Harlingen Canning Co., Corpus Christi, Tex. 824,525, pub. 12-6-66. Cl. 46.
Buxton, Inc., Agawam, Mass. 824,476, pub. 12-6-66. Cl. 39.
Buxton, Inc., Agawam, Mass. 824,477, pub. 12-6-66. Cl. 39.
Cain's Coffee Co., Oklahoma City, Okla. 824,518, pub. 12-6-66. Cl. 46.
Calgon Corp., Pittsburgh, Pa. 824,285, pub. 12-6-66. Cl. 6.
California Packing Corp., San Francisco, Calif. 824,504, pub. 12-6-66. Cl. 45.
Carlson, Chesley F., Co., Minneapolis, Minn. 824,427, pub. 12-6-66. Cl. 26.
Calzaturificio Madras di Valentino Piccolotto S.A.S., Grappa, Italy. 824,468, pub. 12-6-66. Cl. 39.
Canada Dry Corp., New York, N.Y. 824,505, pub. 12-6-66. Cl. 45.
Canton Textile Mills, Inc., from Canton Cotton Mills, Canton, Ga. 825,493, pub. 12-6-66. Cl. 42.
Canton Cotton Mills: *See*—
Canton Textile Mills, Inc.
Caradco Inc., Dubuque, Iowa. 824,315, pub. 12-6-66. Cl. 12.
Carling Brewing Co., Inc., d.b.a. Carling Brewing Co., Cleveland, Ohio. 824,561, pub. 12-6-66. Cl. 48.
Carling Brewing Co.: *See*—
Carling Brewing Co., Inc.
Carrols Drive-In Systems, Inc., Chicago, Ill. 824,611, pub. 3-23-65. Cl. 100.
Carter, J. W., Co., Nashville, Tenn. 824,478, pub. 12-6-66. Cl. 39.
Carven S.A.: *See*—
Societe A. Responsabilite Limitee Carven.
Cellowax Co., The, Baltimore, Md. 709,444, canc. Cl. 52.
Central Drug & Pharmaceutical Co., New Haven, Conn. 824,347, pub. 12-6-66. Cl. 18.
Central Sands Produce, Inc., Bancroft, Wis. 824,545, pub. 12-6-66. Cl. 46.
Central Bio-Analytical Laboratories, Inc., Levittown, N.Y. 824,616, pub. 12-6-66. Cl. 100.
Chaitlen, Morrie, d.b.a. C. & E. Marshall Co., Chicago, Ill. 824,428, pub. 12-6-66. Cl. 27.
Champagne Industries, Ltd.: *See*—
Monte Carlo Wine Industries, Ltd.
Channel Master Corp., Ellenville, N.Y. 824,367, pub. 12-6-66. Cl. 21.
Cherberg Co., Inc., Philadelphia, Pa. 824,490, pub. 12-6-66. Cl. 39.
Chesty Foods: *See*—
Waulters Potato Chip Co.
Chessers Co., The: *See*—
Phillips Publishers, Inc.
Cherry-Burrell Corp., Cedar Rapids, Iowa. 824,440, pub. 12-6-66. Cl. 34.
Chevron Chemical Co., San Francisco, Calif. 824,284, pub. 12-6-66. Cl. 6.
Chiclecraft, Inc., Knoxville, Tenn. 824,541, pub. 12-6-66. Cl. 46.
Chilva Laboratories Ltd., Bradford, York, England. 824,353, pub. 12-6-66. Cl. 18.
Ciba Ltd., Basel, Switzerland. 824,423, pub. 12-6-66. Cl. 26.
Ciba Ltd., Basel, Switzerland. 824,424, pub. 12-6-66. Cl. 26.
Ciba Corp., New York, N.Y. 824,350, pub. 12-6-66. Cl. 18.
Cilag-Chimie Societe Anonyme: *See*—
Cilag-Chemie Aktiengesellschaft.
Cilag-Chemie Aktiengesellschaft, d.b.a. Cilag-Chimie Societe Anonyme, Schaffhouse, Switzerland. 824,346, pub. 12-6-66. Cl. 18.
Clairol Inc., New York, N.Y. 824,649. Cl. 51.
Clements Mfg. Co., Chicago, Ill. 817,789, cor. Cl. 34.
Clopay Corp., Cincinnati, Ohio. 824,311, pub. 12-6-66. Cl. 12.
Cluett, Peabody & Co., Inc.: *See*—
Schoeneman, J., Inc.
Coca-Cola Co., The, Atlanta, Ga. 709,347, canc. Cl. 31.
Cointreau Corp., New York, N.Y. 824,566, pub. 12-6-66. Cl. 49.
Colgate-Palmolive Co., New York, N.Y. 57,034. Am. 7(d). Cl. 51.
Colgate-Palmolive Co., New York, N.Y. 824,535, pub. 12-6-66. Cl. 46.
Cole-Parmer Instrument & Equipment Co., Chicago, Ill. 824,370, pub. 12-6-66. Cl. 21.
Cole-Parmer Instrument & Equipment Co., Chicago, Ill. 824,371, pub. 12-6-66. Cl. 21.
Colorado Milling & Elevator Co., The: *See*—
Schultz, Baujan, & Co.
Colorado Serum Co., Denver, Colo. 824,343, pub. 12-6-66. Cl. 18.
Commercial Solvents Corp., New York, N.Y. 428,075, ren. 2-21-67. Cl. 18.
Con/Chem, Inc., Los Angeles, Calif. 824,314, pub. 12-6-66. Cl. 12.
Concra Co., Inc., The, Angola, N.Y. 709,303, canc. Cl. 23.
Consolidated Foods Corp.: *See*—
Levi, Jonathan, Co., Inc.
Continental Tobacco Co., Huntington, W. Va. 709,238, canc. Cl. 17.
Cook Chemical Co., d.b.a. Bakan Plastics, Kansas City, Mo. 824,325, pub. 12-6-66. Cl. 13.
Cope, John F., Co., Inc., d.b.a. John F. Cope, Cope Brothers, and/or Cope Bros., Manheim, Pa. 824,543, pub. 12-6-66. Cl. 46.
Cope, John F.: *See*—
John F. Cope Co., Inc.
Cope Brothers: *See*—
John F. Cope Co., Inc.
Cope Bros.: *See*—
John F. Cope Co., Inc.
Copeland Sausage Co.: *See*—
Copeland Sausage Co., Inc.
Copeland Sausage Co., Inc., d.b.a. Copeland Sausage Co., Alachua, Fla. 824,546, pub. 12-6-66. Cl. 46.
Cory Corp.: *See*—
Schramm Fiberglass Products.
Cox, William H., Lincoln, Nebr. 709,293, canc. Cl. 22.
Cudahy Packing Co., The, Chicago, Ill., and Omaha, Nebr., to Cudahy Co., Phoenix, Ariz. 50,295, ren. 2-21-67. Cl. 46.
Cudahy Packing Co, The, Chicago, Ill., and South Omaha, Nebr., to Cudahy Co., Phoenix, Ariz. 28,558, ren. 2-21-67. Cl. 46.
Cudahy Packing Co., The, Chicago, Ill., to Cudahy Co., Phoenix, Ariz. 59,098, ren. 2-21-67. Cl. 46.
Cudahy Co.: *See*—
Cudahy Packing Co., The.
Cudahy Co., Phoenix, Ariz. 824,286, pub. 12-6-66. Cl. 6.
Current, Inc., Colorado Springs, Colo. 824,455, pub. 12-6-66. Cl. 38.
Darby Trousers, Inc., New York, N.Y. 824,465, pub. 12-6-66. Cl. 39.
Da Silva, C., (Vinhos), S.A.R.L., d.b.a. Raphael Moneira & Co., Vila Nova de Gaia, Portugal. 824,557, pub. 12-6-66. Cl. 47.
Day, Debbi, Inc., New York, N.Y. 721,362, canc. Cl. 39.
Dean Foods Co., Franklin Park, Ill. 824,519, pub. 12-6-66. Cl. 46.
Deering Milliken, Inc., New York, N.Y. 824,496, pub. 12-6-66. Cl. 42.
De Lara, Juan F., d.b.a. De Lara Sausage Co., Los Angeles, Calif. 824,508, pub. 12-6-66. Cl. 46.
De Lara Sausage Co.: *See*—
De Lara, Juan F.
Del Mar Fish, Inc., San Pedro, Calif. 824,526, pub. 12-6-66. Cl. 46.
Dennis, W. J., & Co., Franklin Park, Ill. 824,636. Cl. 23.
Desco and Diesel Engine Supply Co.: *See*—
Janis, Ray.
De Witt, William L. (Roy), Roscommon, Mich. 824,302, pub. 12-6-66. Cl. 12.
Diners' Club, Inc., The, New York, N.Y. 824,624, pub. 12-6-66. Cl. 102.
Diplomat Products, Inc., Los Angeles, Calif. 824,596, pub. 12-6-66. Cl. 51.
Doetsch, Grether & Cie AG, Basel, Switzerland. 824,591, pub. 12-6-66. Multiple Class (Classes 51 and 52).
Dolly Darling Clothes, Inc., Miami, Fla. 824,387, pub. 12-6-66. Cl. 22.
Domesticare, Inc., Wyckoff, N.J. 824,626, pub. 12-6-66. Cl. 103.
Dow Chemical Co., The, Midland, Mich. 824,355, pub. 12-6-66. Cl. 18.
Drake, William A., d.b.a. W. A. Drake and Co., to Me Too, Inc., Blairstown, Iowa. 426,613, ren. 2-21-67. Cl. 46.
Drake, W. A., and Co.: *See*—
Drake, William A.
Driscoll Strawberry Associates, Inc., Salinas, Calif. 824,522, pub. 12-6-66. Cl. 46.
Dubois Fence & Garden Co., Inc., New York, N.Y. 824,299, pub. 12-6-66. Cl. 10.
Dubuque Packing Co., Dubuque, Iowa. 429,529, ren. 2-21-67. Cl. 46.
Dunhill, Alfred, of London, Inc.: *See*—
Dunhill, Mary, Ltd.
Dunhill, Mary, Ltd., London, England, to Alfred Dunhill of London, Inc., New York, N.Y. 423,366, ren. 2-21-67. Cl. 51.
Dunlop Tire and Rubber Corp., Buffalo, N.Y. 824,388, pub. 12-6-66. Cl. 22.

Dupaco Inc., Arcadia, Calif. 824,502, pub. 12-6-66. Cl. 44.
Du Pont de Nemours, E. I., and Co., Wilmington, Del. 824,266, pub. 12-6-66. Cl. 1.
Du Pont de Nemours, E. I., and Co., Wilmington, Del. 824,267, pub. 12-6-66. Cl. 1.
Du-Rite Chemical Co., Inc., Brentwood, Md. 824,308, pub. 12-6-66. Cl. 12.
E-Z Opener Bag Co., Decatur, Ill., to Gulf States Paper Corp., Tuscaloosa, Ala. 227,085, ren. 2-21-67. Cl. 2.
Eaton Yale & Towne Inc., Cleveland, Ohio. 824,328, pub. 12-6-66. Cl. 14.
Economy Cover Corp., Brooklyn, N.Y. 709,436, canc. Cl. 50.
Egan, H. B., Mfg. Co., Muskogee, Okla. 709,181, canc. Cl. 5.
Ekstrand, Ernest W., d.b.a. Good Health Institute, Arlington, Va. 709,194, canc. Cl. 6.
Electro Materials Corp. of America, Mamaroneck, N.Y. 824,289, pub. 12-6-66. Cl. 6.
Elizabeth of Sweden, Haledon, N.J. 824,582, pub. 12-6-66. Cl. 51.
Emcor, Inc., Des Plaines, Ill. 824,609, pub. 12-6-66. Cl. 52.
Emerson Electric Co., St. Louis, Mo. 824,380, pub. 12-6-66. Cl. 21.
Engstfeld, Fa. Wilh., Heiligenhaus, Rhineland, Germany. 709,222, canc. Cl. 13.
Enterprise Expositions, Inc., New York, N.Y. 824,618, pub. 12-6-66. Cl. 101.
Eppinger, Lou J., Mfg. Co., Dearborn, Mich. 824,389, pub. 12-6-66. Cl. 22.
Epstein, Raymond, d.b.a. Vetco Co., Sharon, Mass. 824,351, pub. 12-6-66. Cl. 18.
Essex Wire Corp., Fort Wayne, Ind. 709,470, canc. Cl. 21.
Evermine Inc., New York, N.Y. 709,340, canc. Cl. 27.
Eversharp, Inc., Milford, Conn. 824,639. Cl. 27.
Fairmont Foods Co.: *See*—
Waulters Potato Chip Co.
Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany. 824,257, pub. 8-11-64. Cl. 1.
Fawcett Publications, Inc., Greenwich, Conn. 824,454, pub. 12-6-66. Cl. 38.
Feather Ride, Inc., Portland, Oreg., to Painter-Williamette Trailer Co., Inc., Edmonds, Wash. 423,081, ren. 2-21-67. Cl. 19.
Fendall Co., Chicago, Ill. 824,413, pub. 12-6-66. Cl. 26.
Ferry Morse Seed Co., Mountain View, Calif. 428,508, ren. 2-21-67. Cl. 1.
Financial Advertising Agency, Cincinnati, Ohio. 824,622, pub. 12-6-66. Cl. 102.
First, Inc., Phoenix, Ariz. 709,200, canc. Cl. 10.
Fischer, Herbert A. and Susan F., d.b.a. Scientific Translation Service, Ann Arbor, Mich. 824,621, pub. 12-6-66. Cl. 101.
Fischer & Porter Co., Warminster, Pa. 824,426, pub. 12-6-66. Cl. 26.
Florists' Transworld Delivery Association, Detroit, Mich. 824,261, pub. 12-6-66. Multiple Class (Classes 1, 50, and 200).
Flour City Ornamental Iron Co., The, to Alpex Corp., Minneapolis, Minn. 429,596, ren. 2-21-67. Cl. 19.
Ford Motor Co., Dearborn, Mich. 709,271, canc. Cl. 19.
Foremost Dairies, Inc., d.b.a. Meriden Creamery Co., San Francisco, Calif. 824,531, pub. 12-6-66. Cl. 46.
Foresight Corp., Chicago, Ill. 824,268, pub. 12-6-66. Cl. 2.
For-Tron Glas & Pump, Inc., Pullman, Wash. 824,637. Cl. 23.
Fortuna Foundations, Inc.: *See*—
Wolfe & Lang, Inc.
Fossella, Gregory, Associates: *See*—
Fossella, Gregory F.
Fossella, Gregory F., d.b.a. Gregory Fossela Associates, Boston, Mass. 824,615, pub. 12-6-66. Cl. 100.
Foster Freight Lines, Inc., Long Beach, Calif. 709,175, canc. Cl. 2.
Franklin Brass Mfg. Co., Los Angeles, Calif. 709,220, canc. Cl. 13.
Freundenberg, Carl, Kommanditgesellschaft Auf Aktien, Weinheim an der Bergstrasse, Germany. 709,379, canc. Cl. 39.
Fulco: *See*—
Fullerton, George H.
Fuller, H. B., Co., St. Paul, Minn. 824,274, pub. 12-6-66. Cl. 5.
Fullerton, George H., d.b.a. Fulco, Smyrna, Ga. 709,445, canc. Cl. 52.
Freeman-L.A., Barber and Beauty Supply Co., Los Angeles, Calif. 824,595 pub. 12-6-66. Cl. 51.
Gatsby's Inc., New York, N.Y. 824,614, pub. 12-6-66. Cl. 100.
Geerlings: *See*—
Geerlings Feed Mills, Inc.
Geerlings Feed Mills, Inc., d.b.a. Geerlings, Waterloo, Iowa. 709,413, canc. Cl. 46.
General Artists Corp., New York, N.Y. 824,632, pub. 12-6-66. Cl. 107.
General Electric Co., Schenectady, N.Y. 824,265, pub. 12-6-66. Cl. 1.
General Nutrition Corp., d.b.a. Natural Sales Co., Pittsburgh, Pa. 824,578, pub. 10-20-64. Cl. 51.
General Time Corp., New York, N.Y. 709,339, canc. Cl. 27.
General Time Corp., New York, N.Y. 709,337, canc. Cl. 27.
General Time Corp., New York, N.Y. 709,335, canc. Cl. 27.
General Time Corp., New York, N.Y. 709,338, canc. Cl. 27.
General Motors Corp., Detroit, Mich. 224,249, ren. 2-21-67. Cl. 19.
General Refractories Co., Philadelphia, Pa. 824,309, pub. 12-6-66. Cl. 12.
General Refractories Co., Philadelphia, Pa. 824,312, pub. 12-6-66. Cl. 12.
Genesco Inc., Nashville, Tenn. 709,381, canc. Cl. 39.
Getz, Alex, Chicago, Ill., from D. E. Wentzel, d.b.a. Maple Leaf Duck Farm, Milford, Ind. 229,231, canc. Cl. 46.
Ginsberg, I., & Bros., New York, N.Y., from Lincoln Mfg. Co., Fayetteville, Tenn. 157,074, canc. Cl. 39.
Ginsberg, Isaac, & Bros., Inc., New York, N.Y. 500,016, canc. Cl. 39.
Ginsberg, Isaac, & Bros., Inc., New York, N.Y. 657,157, canc. Cl. 39.
Ginsberg, Isaac, & Bros., Inc., New York, N.Y. 700,226, canc. Cl. 39.
Glen-Gery Shale Brick Corp., Reading, Pa. 824,304, pub. 12-6-66. Cl. 12.
Globe Roofing Products Co., Inc., Whiting, Ind. 709,216, canc. Cl. 12.
Goldman, Charles, d.b.a. Apex Art Novelty Co., New York, N.Y. 824,429, pub. 12-6-66. Cl. 28.
Goldschmidt, Th., A.-G., Essen, Germany. 824,449, pub. 12-6-66. Cl. 37.
Good Health Institute: *See*—
Elkstrand, Ernest W.
Goodrich, B. F., Co., The, Akron, Ohio. 430,221, ren. 2-21-67. Cl. 6.
Goodrich, B. F., Co., The: *See*—
Sponge Rubber Products Co., The.
Goodrich, B. F., Co., The, Akron, Ohio. 429,057, ren. 2-21-67. Cl. 39.
Gorham Corp., Providence, R.I. 824,574, pub. 12-6-66. Cl. 50.
Gotham, Chadbourn, Inc., Charlotte, N.C. 824,463, pub. 12-6-66. Cl. 39.
Grace, W. R., & Co., Cambridge, Mass. 824,264, pub. 12-6-66. Cl. 1.
Grace, W. R., & Co., Cambridge, Mass. 824,569, pub. 12-6-66. Cl. 50.
Grace, W. R., & Co., Cambridge, Mass. 824,288, pub. 12-6-66. Cl. 6.
Grace, W. R., & Co.: *See*—
Vestal Chemical Co.
Grand Rapids Plating Co., Inc., Grand Rapids, Mich. 709,229, canc. Cl. 14.
Greenheart Lumber Co., Inc., The, New York, N.Y. 709,215, canc. Cl. 12.
Greenwood Stripping Corp.: *See*—
Lehigh Coal & Navigation Co., The.
Gridley, Maxon & Co., Chicago, Ill. 824,617, pub. 12-6-66. Cl. 101.
Griffin, Ben Hill, Inc., Frostproof, Fla. 824,528, pub. 12-6-66. Cl. 46.
Griffiths Bros. & Co., London, Ltd., Wednesfield, Wolverhampton, England. 824,331, pub. 12-6-66. Cl. 16.
Guaranteed Products, Inc., to Associated Laboratories, Inc., New York, N.Y. 221,901, ren. 2-21-67. Cl. 51.
Gulf States Paper Corp.: *See*—
E-Z Opener Bag Co.
Hawkridge Bros. Co., Boston, Mass. 385,229, canc. Cl. 14.
Hales & Hunter Co., Chicago, Ill. 824,550, pub. 12-6-66. Cl. 46.
Harley-Davidson Motor Co., Milwaukee, Wis. 140,395, canc. Cl. 38.
Hall, Henry T., d.b.a. National Laboratory Co., Montgomery, Ala. 709,448, canc. Cl. 52.
Hall, M. D., d.b.a. Kutie Kay, Fort Worth, Tex. 824,485, pub. 12-6-66. Cl. 39.
Hamilton Drug Co., Inc.: *See*—
Poloris Co. Inc.
Hammermill Paper Co., Erie, Pa. 824,451, pub. 12-6-66. Cl. 37.
Hardy Salt Co., St. Louis, Mo. 824,290, pub. 12-6-66. Multiple Class (Classes 6 and 46).
Harlingen Canning Co.: *See*—
Butt, H. E., Grocery Co.
Harrisburg Grocery Co., Harrisburg, Pa. 824,536, pub. 12-6-66. Cl. 46.
Harris, Abraham W., Providence, to A. W. Harris Oil Co., East Providence, R.I. 59,851, ren. 2-21-67. Cl. 15.
Harris, A. W., Oil Co.: *See*—
Harris, Abraham W.
Harvey, John, & Sons Ltd., Bristol, England. 824,556, pub. 12-6-66. Cl. 47.
Hart, Schaffner & Marx, Chicago, Ill. 824,461, pub. 12-6-66. Cl. 39.
Hays Mfg. Co., Erie, Pa. 824,326, pub. 12-6-66. Cl. 13.
Heddon's, James, Sons, Dowagiac, Mich. 428,563, ren. 2-21-67. Cl. 22.
Heidi Plastics Corp., Yonkers, N.Y. 824,271, pub. 12-6-66. Cl. 2.
Heinz, H. J., Co., Pittsburgh, Pa. 824,524, pub. 12-6-66. Cl. 46.
Helps to Health, Inc., New York, N.Y. 709,247, canc. Cl. 18.
Henderson, Herbert A., d.b.a. H. A. Henderson, Los Angeles, Calif. 725,883, new cert. Cl. 21.
Hercules Powder Co.: *See*—
Hercules Inc.
Hercules Inc., from Hercules Powder Co., Wilmington, Del. 824,293, pub. 12-6-66. Cl. 6.
Her Majesty Underwear Co.: *See*—
Magill, Samuel N., Inc.
Hills-McCanna Co., Carpentersville, Ill. 824,407, pub. 12-6-66. Cl. 23.
Holmen Canning Co.: *See*—
West Salem Canning Co., The.
Homasote Co., Trenton, N.J. 824,310, pub. 12-6-66. Cl. 12.
Homestead Co., The, Des Moines, Iowa, to Wisconsin Farmer Co., Inc., Racine, Wis. 212,966, ren. 2-21-67. Cl. 38.
Hospitality Motor Inns, Cleveland, Ohio. 824,652. Cl. 100.
House of Wrisley, Inc., The, Paris, Tenn. 824,608, pub. 12-6-66. Cl. 52.
House of Wrisley, Inc., The, Paris, Tenn. 824,593, pub. 12-6-66. Cl. 51.
Hudson National, Inc., from Hudson Vitamin Products, Inc., New York, N.Y. 824,579, pub. 12-6-66. Cl. 51.
Hudson National, Inc., d.b.a. Hudson Vitamin Products, New York, N.Y. 824,348, pub. 12-6-66. Cl. 18.

- Hudson Vitamin Products: *See*—
  - Hudson National, Inc.
- Hudson Vitamin Products, Inc.: *See*—
  - Hudson National, Inc.
- Humphrey, W. H., Co.: *See*—
  - Humphrey, Warren H.
- Humphrey, W. H., Mfg. Co.: *See*—
  - Humphrey, Warren H.
- Humphrey, Warren H., d.b.a. W. H. Humphrey Mfg. Co., and as W. H. Humphrey Co., Warsaw, N.Y. 709,272, canc. Cl. 19.
- Hunter, John G.: *See*—
  - Phillips Publishers, Inc.
- Hunter Publishing Co., Chicago, Ill. 709,366, canc. Cl. 38.
- I.C. Compound Co., Gardena, Calif. 824,300, pub. 12-6-66. Cl. 11.
- Imperial Chemical Industries Ltd., London, England. 824,345, pub. 12-6-66. Cl. 18.
- Imperial Electric Co., The, Akron, Ohio. 824,376, pub. 12-6-66. Cl. 21.
- Industrial Wiping Cloth Co., Inc., Long Island City, N.Y. 709,342, canc. Cl. 29.
- Inland Container Corp., Indianapolis, Ind. 426,614, ren. 2-21-67. Cl. 2.
- Interco Inc., St. Louis, Mo. 824,480, pub. 12-6-66. Cl. 39.
- Institute of Fine Fibres, Ltd., New York, N.Y. 709,462, canc. Cl. A.
- Inter-Hamol S.A., Zurich, Switzerland. 824,589, pub. 12-6-66. Cl. 51.
- International Copper Research Association, Inc., New York, N.Y. 824,633, pub. 12-6-66. Cl. A.
- International Minerals & Chemical Corp., Skokie, Ill. 709,201, canc. Cl. 10.
- Ironees Co., The, Philadelphia, Pa. 824,638. Cl. 24.
- JC Sale Co., Inc., to Parker Bros., Inc., Salem, Mass. 814,707, cor. Cl. 107.
- J. B. Engineering Sales Co., New Haven, Conn., to American Chain & Cable Co., Inc., New York, N.Y. 423,440, ren. 2-21-67. Cl. 23.
- J & J Oven Co., Inc., Pennsauken, N.J. 824,287, pub. 12-6-66. Cl. 6.
- James Textile Corp., The, New York, N.Y. 709,387, canc. Cl. 42.
- Janis, Ray, d.b.a. Desco and Diesel Engine Supply Co., Chicago, Ill. 709,458, canc. Cl. 103.
- Jarke Corp., Chicago, Ill. 824,438, pub. 12-6-66. Cl. 32.
- Johnson & Johnson, New Brunswick, N.J. 824,594, pub. 12-6-66. Cl. 51.
- Jonathan, David, Ltd., Manchester, England. 824,473, pub. 12-6-66. Cl. 39.
- Kaiser Aerospace & Electronics Corp., Oakland, Calif. 824,378, pub. 12-6-66. Cl. 21.
- Kalatsky, Mark W., Canoga Park, Calif. 824,385, pub. 12-6-66. Cl. 22.
- Kangaroo Chair, Inc., Evanston, Ill. 824,439, pub. 12-6-66. Cl. 32.
- Kayser, Julius, & Co., to Kayser-Roth Corp., New York, N.Y. 422,098, ren. 2-21-67. Cl. 39.
- Kayser, Julius, & Co., to Kayser-Roth Corp., New York, N.Y. 422,099, ren. 2-21-67. Cl. 39.
- Kayser-Roth Corp.: *See*—
  - Kayser, Julius, & Co.
- Kearin, Pat, Productions: *See*—
  - Kearin, Ralph D.
- Kearin, Ralph D., d.b.a. Pat Kearin Productions, Los Angeles, Calif. 709,301, canc. Cl. 22.
- Kelly-Green Hosiery Co., Inc., New York, N.Y. 824,475, pub. 12-6-66. Cl. 39.
- Kem Button Corp., Brooklyn, N.Y. 709,314, canc. Cl. 23.
- Kendall C., The: *See*—
  - Kendall Mills, Inc.
- Kendall Mills, Inc., to The Kendall Co., Walpole, Mass. 224,096, ren. 2-21-67. Cl. 44.
- Kerr Wire Products Co., The, Chicago, Ill. 709,477, canc. Cl. 32.
- Kinkead Industries Inc., Chicago, Ill. 824,316, pub. 12-6-66. Cl. 12.
- King Kullen Grocery Co., Inc., Jamaica, N.Y. 709,422, canc. Cl. 46.
- Kingston Products Co., Skokie, Ill. 824,542, pub. 12-6-66. Cl. 46.
- Knott Chemical Co., from R. O. Knott, d.b.a. Knott Chemical Co., Des Moines, Iowa. 709,466, canc. Cl. 6.
- Knott, Robert O.: *See*—
  - Knott Chemical Co.
- Kolberg Mfg. Corp., Yankton, S. Dak. 824,305, pub. 12-6-66. Multiple Class (Classes 12 and 21).
- Ko-Operatieve Wijnbouwers Vereniging Van Zuid-Afrika, Beperkt, Cape Province, Republic of South Africa. 824,552, pub. 12-6-66. Cl. 47.
- Laboratoires Biologiques Arval SA., Sion, Switzerland. 824,580, pub. 12-6-66. Cl. 51.
- Ladish Co., Cudahy, Wis. 824,403, pub. 8-23-66. Cl. 23.
- Ladish Co., Cudahy, Wis. 824,402, pub. 8-23-66. Cl. 23.
- Lafitte, Inc., New York, N.Y. 824,457, pub. 12-6-66. Cl. 39.
- La Fleur Corp., The, Los Angeles, Calif. 824,360, pub. 12-6-66. Cl. 19.
- Lander Co., Inc., The, New York, N.Y. 667,199, cor. Cl. 51.
- Langen Industries, Inc., Los Angeles, Calif. 824,606, pub. 12-6-66. Cl. 52.
- Lanman & Kemp-Barclay & Co., Inc.: *See*—
  - Barclay & Barclay.
- Layne, Leslie A., Houston, Tex. 381,549, canc. Cl. 23.
- Le Damor, Inc., Philadelphia, Pa. 824,469, pub. 10-11-66. Cl. 39.
- Le Fevre Chemical Co.: *See*—
  - Big 'D' Chemical Co.
- Lehigh Coal & Navigation Co., The, Philadelphia, to Greenwood Stripping Corp., Nasquehoning, Pa. 56,244, ren. 2-21-67. Cl. 1.
- Lerner Mfg., Inc., Melville, N.Y. 824,323, pub. 12-6-66. Cl. 13.
- Lerner Mfg., Inc., Melville, N.Y. 824,322, pub. 12-6-66. Cl. 13.
- Levi, Jonathan, Co., Inc., Schenectady, N.Y., to Consolidated Foods Corp., Chicago, Ill. 217,375, ren. 2-21-67. Cl. 46.
- Leonard Tissue Corp., d.b.a. Leonard Tissue Co., Medford, Mass. 709,365, canc. Cl. 37.
- Leonard Tissue Co.: *See*—
  - Leonard Tissue Corp.
- Libbey Glass Co., The, to Owens-Illinois, Inc., Toledo, Ohio. 54,172, ren. 2-21-67. Cl. 33.
- Lincoln, John, d.b.a. The John Lincoln Co., San Francisco, Calif. 709,467, canc. Cl. 6.
- Lincoln, John, The: *See*—
  - Lincoln, John.
- Linden Laboratories, Inc., State College, Pa. 824,366, pub. 12-6-66. Cl. 21.
- Lindy Pen Co., Inc., Culver City, Calif. 709,363, canc. Cl. 37.
- Lord Jeff Knitting Co., Inc., Maspeth, N.Y. 824,472, pub. 12-6-66. Cl. 39.
- Lospinoso, Attilio B., Wayne, N.J. 824,613, pub. 12-6-66. Cl. 100.
- Lovell & Christmas Ltd., London, England. 824,647. Cl. 46.
- Madison Glass Specialty Co., Inc., Jamaica, N.Y. 709,180, canc. Multiple Class (Classes 2 and 8).
- Magill, Samuel N., Inc., Philadelphia, Pa., to Her Majesty Underwear Co., Greenville, S.C. 222,963, ren. 2-21-67. Cl. 39.
- Maidenform, Inc., New York, N.Y. 824,482, pub. 12-6-66. Cl. 39.
- Manlee Industries, Inc., Yonkers, N.Y. 824,359, pub. 12-6-66. Cl. 19.
- Maple Leaf Duck Farm: *See*—
  - Getz, Alex.
- Mapleton's Foods Ltd., Garston, Liverpool, England. 824,527, pub. 12-6-66. Cl. 46.
- Marshall, C. & E., Co.: *See*—
  - Chaitlen, Morrie.
- San Martin Vineyards Co., d.b.a. San Martin Winery, San Martin, Calif. 824,560, pub. 12-6-66. Cl. 47.
- Marathon Oil Co., Findlay, Ohio. 824,627, pub. 12-6-66. Cl. 103.
- Masson, Paul, Inc., d.b.a. Paul Masson Vineyards, San Francisco, Calif. 824,551, pub. 12-6-66. Cl. 47.
- Masson, Paul, Vineyards: *See*—
  - Masson, Paul, Inc.
- Mavest, Inc., to Mavest, Inc., New York, N.Y. 427,145, ren. 2-21-67. Cl. 39.
- McCormick & Co., Inc., Baltimore, Md. 824,532, pub. 12-6-66. Cl. 46.
- McCormick Distilling Co., Weston, Mo. 824,564, pub. 12-6-66. Cl. 49.
- McGregor-Doniger Inc., New York, N.Y. 824,470, pub. 12-6-66. Cl. 39.
- McNaught Syndicate, Inc., The, New York, N.Y. 824,642. Cl. 38.
- Me Too, Inc.: *See*—
  - Drake, William A.
- Melville Shoe Corp., New York, N.Y. 824,484, pub. 12-6-66. Cl. 39.
- Mendota Growers & Shippers, Inc., Mendota, Calif. 824,547, pub. 12-6-66. Cl. 46.
- Mergenthaler Linotype Co., to Fairchild Camera and Instrument Corp., Syosset, N.Y. 731,469, new cert. Cl. 23.
- Meriden Creamery Co.: *See*—
  - Foremost Dairies, Inc.
- Miceli Dairy Products Co., Cleveland, Ohio. 824,506, pub. 12-6-66. Cl. 46.
- Miami Valley Broadcasting Corp., Dayton, Ohio. 824,628, pub. 12-6-66. Cl. 104.
- Miami Valley Broadcasting Corp., Dayton, Ohio. 824,629, pub. 12-6-66. Cl. 104.
- Miles Laboratories, Inc., from Ames Co., Inc., Elkhart, Ind. 824,278, pub. 12-6-66. Cl. 6.
- Miles Laboratories, Inc., from Ames Co., Inc., Elkhart, Ind. 824,279, pub. 12-6-66. Cl. 6.
- Millen Industries, Inc., New York, N.Y. 824,448, pub. 12-6-66. Cl. 37.
- Miller Pharmacal Co., West Chicago, Ill. 824,634. Cl. 18.
- Mills-Pearson Corp., St. Petersburg, Fla. 819,337, cor. Multiple Class (Classes 6 and 15).
- Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,336, pub. 12-6-66. Cl. 16.
- Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,450, pub. 12-6-66. Cl. 37.
- Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,411, pub. 12-6-66. Cl. 23.
- Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,567, pub. 12-6-66. Cl. 50.
- Montague City Rod Co., Montague City, Mass., to True Temper Corp., Cleveland, Ohio. 223,732, ren. 2-21-67. Cl. 22.
- Monte Carlo Wine Industries, Ltd., d.b.a. Champagne Industries, Ltd., New Brunswick, N.J. 824,558, pub. 12-6-66. Cl. 47.
- Monte Carlo Wine Industries, Ltd., d.b.a. Champagne Industries, Ltd., New Brunswick, N.J. 824,559, pub. 12-6-66. Cl. 47.
- Morton, Edward, d.b.a. Morton's Restaurant, Chicago, Ill. 824,549, pub. 12-6-66. Cl. 46.
- Morton's Restaurant: *See*—
  - Morton, Edward.
- Morris, Frank: *See*—
  - Morris, Franklin L.
- Morris, Franklin L., d.b.a. Frank Morris, North Hollywood, Calif. 709,257, canc. Cl. 18.
- Mosler Safe Co., The, New York, N.Y., from Airmatic Systems Corp., Rochelle Park, N.J. 824,398, pub. 12-6-66. Cl. 23.

- Moto Gilera S.p.A., Arcore, Milano, Italy. 824,357, pub. 9-27-66. Cl. 19.
- Myers-Sherman Co., The, Streator, Ill. 824,390, pub. 2-16-65. Cl. 23.
- National Dairy Products Corp., New York, N.Y. 824,529, pub. 12-6-66. Cl. 46.
- National Dairy Products Corp., New York, N.Y. 824,530, pub. 12-6-66. Cl. 46.
- National Laboratory Co.: *See*—
  - Hall, Henry T.
- National Sales Co.: *See*—
  - General Nutrition Corp.
- Needham Christopher Hines, Arlington, Va. 824,456, pub. 12-6-66. Cl. 38.
- New Castle Products, Inc., New Castle, Ind. 824,317, pub. 12-6-66. Cl. 12.
- Nicholson File Co., East Providence, R.I., from Borg-Warner Corp., Chicago, Ill. 824,399, pub. 12-6-66. Cl. 23.
- Northeast Airlines, Inc., Boston, Mass. 709,459, canc. Cl. 105.
- Novis Co.: *See*—
  - Abel, Curt H.
- Oertel Brewing Co., Louisville, Ky. 824,562, pub. 12-6-66. Cl. 48.
- Old Stanley Distillery, Inc., d.b.a. Royal Deluxe Distilling Co., Stanley, Ky. 824,563, pub. 12-6-66. Cl. 49.
- Originala Inc., New York, N.Y. 824,487, pub. 12-6-66. Cl. 39.
- Outlet Store, Inc., The, Denver, Colo. 824,568, pub. 12-6-66. Cl. 50.
- Owens-Illinois, Inc.: *See*—
  - Libbey Glass Co., The.
- Pacific Employers Insurance Co., Los Angeles, Calif. 824,623, pub. 12-6-66. Cl. 102.
- Painter-Willamette Trailer Co., Inc.: *See*—
  - Feather Ride, Inc.
- Pall Corp., Glen Cove, N.Y. 824,416, pub. 12-6-66. Multiple Class (Classes 26 and 34).
- Panther Oil & Grease Mfg. Co., to Texas Refinery Corp., Fort Worth, Tex. 428,286, ren. 2-21-67. Cl. 12.
- Paragon Swimming Pool Co., Pleasantville, N.Y. 824,307, pub. 12-6-66. Cl. 12.
- Parke, Davis & Co., Detroit, Mich. 824,344, pub. 12-6-66. Cl. 18.
- Parkcrest of Dallas, Inc., Dallas, Tex. 824,488, pub. 12-6-66. Cl. 39.
- Party Tyme Products, Inc., New York, N.Y. 824,553, pub. 12-6-66. Cl. 47.
- Patman, Urban N., Inc., Los Angeles, Calif. 824,520, pub. 12-6-66. Cl. 46.
- Patman, Urban N., Inc., Los Angeles, Calif. 824,521, pub. 12-6-66. Cl. 46.
- Patten, Lee, Seed Co., Moonachie, N.J. 824,405, pub. 12-6-66. Cl. 23.
- Peck's Products Co., St. Louis, Mo. 824,335, pub. 12-6-66. Cl. 16.
- Pellar Laboratories, Inc., Chicago, Ill. 824,648. Cl. 46.
- Pendley, Tom: *See*—
  - Pendley, Tom T.
- Pendergast Industries, Inc., Terre Haute, Ind. 824,573, pub. 12-6-66. Cl. 50.
- Pendley, Tom T., d.b.a. Tom Pendley, Sedona, Ariz. 824,534, pub. 12-6-66. Cl. 46.
- Pepperell Mfg. Co., Boston, Mass. 709,389, canc. Cl. 42.
- Perce Pre-Cooked Foods, Inc., Moorefield, W. Va. 824,533, pub. 12-6-66. Cl. 46.
- Pervel Industries, Inc.: *See*—
  - Plastic Film Corp.
- Phelan-Faust Paint Mfg. Co., St. Louis, Mo. 824,333, pub. 12-6-66. Cl. 16.
- Philadelphia Carpet Co., Cartersville, Ga. 824,651. Cl. 52.
- Phillips Publishers, Inc., Newton, Mass., from J. G. Hunter, d.b.a. The Chessers Co., Columbus, Ohio. 709,300, canc. Cl. 22.
- Photo Tech: *See*—
  - Ver Keljik.
- Photronix, Inc., Clayton, Mo. 824,620, pub. 12-6-66. Cl. 101.
- Pierce-All Mfg., Ltd., Rexdale, Ontario, Canada. 824,406, pub. 12-6-66. Cl. 23.
- Pine Forest Co., Chicago, Ill. 824,540, pub. 12-6-66. Cl. 46.
- Pioneer Mfg. Co., Los Angeles, Calif. 824,441, pub. 12-6-66. Cl. 34.
- Pittsburgh Oil Refining Corp., from The Autoline Oil Co., Baltimore, Md. 137,370, canc. Cl. 16.
- Pittsburgh Railways Co., Cleveland, Ohio. 824,641. Cl. 38.
- Plastic Contact Lens Co., The, Chicago, Ill. 709,474, canc. Cl. 26.
- Plastic Film Corp., New York, N.Y., to Pervel Industries, Inc., Plainfield, Conn. 422,457, ren. 2-21-67. Cl. 1.
- Plough, Inc., Memphis, Tenn. 824,420, pub. 12-6-66. Cl. 26.
- Plumb, Fayette R., Inc., Philadelphia, Pa. 824,258, pub. 12-6-66. Cl. 1.
- Plumb Craft Mfg. Corp., Bedford Height, Ohio. 824,319, pub. 12-6-66. Cl. 13.
- Pollak Steel Co., The, Cincinnati, Ohio. 428,802, ren. 2-21-67. Cl. 12.
- Poloris Co., Inc., New York, N.Y., to Hamilton Drug Co., Inc., Jersey City, N.Y. 227,297, ren. 2-21-67. Cl. 18.
- Posner, I., Inc., Corona, N.Y. 824,590, pub. 12-6-66. Cl. 51.
- Precision Apparatus Co., Inc., to Dynascan Corp., Chicago, Ill. 438,006, new cert. Cl. 26.
- Procter & Gamble Co., The, Cincinnati, Ohio. 824,599, pub. 12-6-66. Multiple Class (Classes 51 and 52).
- Procter & Gamble Co., The, Cincinnati, Ohio. 824,598, pub. 12-6-66. Multiple Class (Classes 51 and 52).
- Procter & Gamble Co., The, Cincinnati, Ohio. 824,597, pub. 12-6-66. Multiple Class (Classes 51 and 52).
- Procter & Gamble Co., The, Cincinnati, Ohio. 824,610, pub. 12-6-66. Cl. 52.
- Procter & Gamble Co., The, Cincinnati, Ohio. 824,600, pub. 12-6-66. Multiple Class (Classes 51 and 52).
- Professional Pharmacal Co., Inc., San Antonio, Tex. 426,917, ren. 2-21-67. Cl. 18.
- Programmed & Remote Systems Corp., St. Paul, Minn. 824,404, pub. 12-6-66. Cl. 23.
- Prometheus Metallwerke G.m.b.H., Kempten, Germany. 824,296, pub. 12-6-66. Cl. 8.
- Purex Corp., Lakewood, Calif. 824,607, pub. 12-6-66. Cl. 52.
- Pyrodyne, Inc., to William Wahl Corp., Santa Monica, Calif. 703,935, 12(c) pub. 2-21-67. Cl. 26.
- Olas Corp., Gates Mills, Ohio. 824,631, pub. 12-6-66. Cl. 107.
- Operation Crossroads Africa, Inc., New York, N.Y. 824,630, pub. 12-6-66. Cl. 107.
- Osrow Products Co., Inc., Glen Cove, N.Y. 824,334, pub. 12-6-66. Cl. 16.
- Quantametric Devices, Inc., Binghamton, N.Y. 824,425, pub. 12-6-66. Cl. 26.
- Racine Industrial Plant, Inc., Racine, Wis. 709,490, canc. Cl. 52.
- Radio Corp. of America, New York, N.Y. 714,702, cor. Cl. 26.
- Randall, Brian P., Asheville, N.C. 824,386, pub. 12-6-66. Cl. 22.
- Raphael Moneira & Co.: *See*—
  - Da Silva, C., (Vinhos), S.A.R.L.
- Red Barn Chemicals, Inc., Shreveport, La. 824,297, pub. 12-6-66. Cl. 10.
- Reddi-Bacon, Inc., Los Angeles, Calif. 824,645. Cl. 46.
- Renault, L. N., & Sons, Inc., Egg Harbor City, N.J. 824,565, pub. 12-6-66. Cl. 49.
- Renee of Hollywood: *See*—
  - S.D.A., Inc.
- Repco, Inc., Ivoryton, Conn. 815,383, cor. Cl. 21.
- Republic Industrial Corp., New York, N.Y. 824,358, pub. 12-6-66. Cl. 19.
- Revlon, Inc., New York, N.Y. 709,489, canc. Cl. 51.
- Revlon, Inc., New York, N.Y. 824,650. Cl. 51.
- Rhodes, Sr., Jacob E., and Mary L., d.b.a. Sway-A-Way Co., Livermore, Calif. 824,436, pub. 12-6-66. Cl. 32.
- Richman, E. L., d.b.a. Edwin L. Richman's Enterprises, Chicago, Ill. 824,537, pub. 12-6-66. Cl. 46.
- Richmman's, Edwin L., Enterprises: *See*—
  - Richman, E. L.
- Richardson-Merrell Inc., New York, N.Y. 824,324, pub. 10-11-66. Cl. 18.
- Ris-Van, Inc., Belmond, Iowa. 654,653, canc. Cl. 10.
- Ris-Van, Inc., Belmond, Iowa. 681,347, canc. Cl. 10.
- Rivetz, A., Co., Inc., Boston, Mass. 824,462, pub. 12-6-66. Cl. 39.
- Robert, H., Industries, Inc., St. Louis, Mo. 824,640. Multiple Class (Classes 32 and 44).
- Romney Fashions, Inc., New York, N.Y. 824,464, pub. 12-6-66. Cl. 39.
- Rosco Mfg. Co., Minneapolis, Minn. 824,400, pub. 12-6-66. Cl. 23.
- Rosco Mfg. Co., Minneapolis, Minn. 824,401, pub. 12-6-66. Cl. 23.
- Rough Rider, Inc., Napa, Calif. 824,479, pub. 12-6-66. Cl. 39.
- Royal Deluxe Distilling Co.: *See*—
  - Old Stanley Distillery, Inc.
- Royal London, Ltd., New York, N.Y. 824,585, pub. 12-6-66. Cl. 51.
- Rusconi, C. E.: *See*—
  - Santa Maria Distributors.
- Rytex Co., The, Indianapolis, Ind. 709,360, canc. Cl. 37.
- S.D.S., Inc., d.b.a. Renee of Hollywood, Los Angeles, Calif. 824,483, pub. 12-6-66. Cl. 39.
- Saffir, Jacob A., Los Angeles, Calif. 709,173, canc. Cl. 2.
- Sahara-Nevada Corp., Las Vegas, Nev. 824,612, pub. 12-6-66. Cl. 100.
- St. Regis Paper Co., New York, N.Y. 824,262, pub. 12-6-66. Multiple Class (Classes 1 and 6).
- San Martin Winery: *See*—
  - San Martin Vineyards Co.
- Sanford-Day Iron Works, Inc., Knoxville, Tenn. 709,304, canc. Cl. 23.
- Santa Maria Distributors, Santa Maria, to C. E. Rusconi, French Camp, Calif. 427,010, ren. 2-21-67. Cl. 46.
- Santa Anita Engineering Co. of Calif., Pasadena, Calif. 709,292, canc. Cl. 21.
- Santa Monica Chemical Corp., Santa Monica, Calif. 824,603, pub. 12-6-66. Cl. 52.
- SCM Corp., New York, N.Y. 824,421, pub. 12-6-66. Cl. 26.
- Schell, William H., New York, from William H. Schell, Inc., Brooklyn, N.Y. 19,158, canc. Cl. 16.
- Schell, William H., Inc.: *See*—
  - Schell, William H.
- Schenlabs Pharmaceuticals, Inc., New York, N.Y. 709,262, canc. Cl. 18.
- Schoeneman, J., Inc., Baltimore, Md., to Cluett, Peabody & Co., Inc., New York, N.Y. 215,247, ren. 2-21-67. Cl. 39.
- Schmid Arthur, Grundweg, Switzerland. 824,318, pub. 12-6-66. Cl. 13.
- Schnadig Corp., Chicago, Ill. 824,433, pub. 12-6-66. Cl. 32.
- Schramm Fiberglass Products, from Cory Corp., Chicago, Ill. 205,667, pub. 12-6-66. Cl. 5.
- Schering Corp., Bloomfield, N.J. 709,243, canc. Cl. 18.
- Schultz, Baujan & Co., Beardstown, Ill., to The Colorado Milling & Elevator Co., Denver, Colo. 225,867, ren. 2-21-67. Cl. 46.
- Scientific Translation Service: *See*—
  - Fischer, Herbert A., and Susan F. Fischer.

Scientific Chemicals, Inc., Chicago, Ill. 824,292, pub. 12–6–66. Cl. 6.
Seneca Falls Machine Co., Seneca Falls, N.Y. 824,419, pub. 12–6–66. Cl. 26.
Seton Guild of St. Ann's Infant and Maternity Home, The, Hyattsville, Md. 824,452, pub. 12–6–66. Cl. 38.
Service Business Forms, Inc., Wichita, Kans. 824,447, pub. 12–6–66. Cl. 37.
Shandon Scientific Co. Ltd., London, England. 824,415, pub. 12–6–66. Cl. 26.
Sharp Export, Ltd., Lynbrook, N.Y. 709,359, canc. Cl. 37.
Ski-Mor, Inc., Kenilworth, N.J. 824,384, pub. 12–6–66. Cl. 22.
Smith-Corona Marchant, Inc., Syracuse, N.Y. 709,331, canc. Cl. 26.
Smith-Douglas Co., Inc., Norfolk, Va. 784,663, canc. Cl. 10.
Smith, Miller & Patch, Inc., New York, N.Y. 824,349, pub. 12–6–66. Cl. 18.
Societe d'Applications Chimiques d'Etudes et de Recherches "Sacer," Princesse Charlotte, Monte Carlo (Monaco). 787,736, canc. Cl. 18.
Societe a Responsabilite Limitee Carven, to Carven S.A., Paris, France. 425,157, ren. 2–21–67. Cl. 51.
Sodeco Societe des Compteurs de Geneva Vibrosan S.A., Geneva, Switzerland. 804,789, new cert. Cl. 44.
Solana Cedar & Milling Co., Solana Beach, Calif. 709,211, canc. Cl. 12.
Sony Corp., Tokyo, Japan. 824,364, pub. 12–6–66. Cl. 21.
Sony Corp. of America, New York, N.Y. 824,369, pub. 12–6–66. Cl. 21.
Sorg Paper Co., The: *See*—
Wrenn Paper Co., The.
Soss Mfg. Co., Detroit, Mich. 824,417, pub. 12–6–66. Cl. 26.
South African Wine Farmers Association, London, England. 824,554, pub. 12–6–66. Cl. 47.
Southern Advance Bag & Paper Co., Inc., Bangor, Maine, and Boston, Mass., to Union Camp Corp., New York, N.Y. 426,190, ren. 2–21–67. Cl. 2.
Southern Elevator Co., Greensboro, N.C. 824,408, pub. 12–6–66. Cl. 23.
Southwestern Drug Corp., Dallas, Tex. 824,383, pub. 12–6–66. Cl. 22.
Southwestern Drug Corp., Dallas, Tex. 824,587, pub. 12–6–66. Cl. 51.
Spartan Mills, Spartanburg, S.C. 222,875, ren. 2–21–67. Cl. 42.
Sponge Rubber Products Co., The, Shelton, Conn., to The B. F. Goodrich Co., Akron, Ohio. 429,795, ren. 2–21–67. Cl. 1.
Staley, A. E., Mfg. Co., Decatur, Ill. 824,646. Cl. 46.
Standard Electric Co., Inc., San Antonio, Tex. 824,377, pub. 12–6–66. Cl. 21.
Standard Process Laboratories: *See*—
Vitamin Products Co.
Stanley/Berroco, Inc., Uxbridge, Mass. 824,491, pub. 12–6–66. Cl. 40.
Sternco Industries, Inc., Allendale, N.J. 824,577, pub. 12–6–66. Cl. 50.
Starto Jet Inc., Quebec, Canada. 824,379, pub. 12–6–66. Cl. 21.
Stenographic Machines, Inc., Skokie, Ill. 824,446, pub. 12–6–66. Cl. 37.
Sternco Industries, Inc., Allendale, N.J. 824,575, pub. 12–6–66. Cl. 50.
Sternco Industries, Inc., Allendale, N.J. 824,382, pub. 12–6–66. Cl. 21.
Stiefel Laboratories, Inc., Oak Hill, N.Y. 824,605, pub. 12–6–66. Cl. 52.
Stockton Mfg. Co., Inc., Dallas, Tex. 824,481, pub. 12–6–66. Cl. 39.
Stone Straw Corp., Washington, D.C. 824,576, pub. 12–6–66. Cl. 50.
Super Valu Stores, Inc., Hopkins, Minn. 709,407, canc. Cl. 46.
Superior Electric Co., The, Bristol, Conn. 824,368, pub. 12–6–66. Cl. 21.
Sway-A-Way Co.: *See*—
Rhodes, Sr., Jacob E., and Mary L.
Swift & Co., Chicago, Ill. 824,538, pub. 12–6–66. Cl. 46.
Swingquip, El Monte, Calif. 824,320, pub. 12–6–66. Cl. 13.
Sydney Ross Co., The, New York, N.Y. 225,953, ren. 2–21–67. Cl. 18.
Technical Appliance Corp., Sherburne, N.Y. 709,288, canc. Cl. 21.
Texaco Inc., New York, N.Y. 824,330, pub. 12–6–66. Cl. 15.
Texas Muffler Corp., Dallas, Tex. 709,318, canc. Cl. 23.
Texas Refinery Corp.: *See*—
Panther Oil & Grease Mfg. Co.
Thiokol Chemical Corp., Bristol, Pa. 824,259, pub. 12–6–66. Cl. 1.
Thayer, Inc., Gardner, Mass. 824,435, pub. 12–6–66. Cl. 32.
Thomson & Taylor Spice Co.: *See*—
ABC Sales Co.
Tintex Corp., Jamaica, N.Y. 824,294, pub. 12–6–66. Cl. 6.
Tracor, Inc., Austin, Tex. 824,414, pub. 12–6–66. Cl. 26.
Tracy, O. H., Portland, Oreg. 709,481, canc. Cl. 46.
Trak Microwave Corp., Tampa, Fla. 824,372, pub. 12–6–66. Cl. 21.
Transvision Inc., to Dynascan Corp., Chicago, Ill. 432,111, new cert. Cl. 21.
Tridair Industries, Redondo Beach, Calif. 824,393, pub. 12–6–66. Cl. 23.
Trostel, Albert, & Sons Co., Milwaukee, Wis. 824,260, pub. 8–2–66. Cl. 1.
True Temper Corp.: *See*—
Montague City Rod Co.

Twin Trees Gardens, Inc., Lynbrook, N.Y., to Vavalon, U.S. Spice, Inc., Lebanon; N.J. 426,075, ren. 2–21–67. Cl. 46.
Twin Trees Gardens, Inc., Lynbrook, N.Y., to Vavalon, U.S. Spice, Inc. Lebanon, N.J. 421,118, ren. 2–21–67. Cl. 46.
UMC Industries, Inc., from Universal Match Corp., St. Louis, Mo. 824,301, pub. 12–6–66. Cl. 12.
United States Rubber Co., New York, N.Y. 824,458, pub. 11–1–66. Cl. 39.
Universal Cigar Corp., New York, N.Y. 824,339, pub. 12–6–66. Cl. 17.
Universal Cigar Corp., New York, N.Y. 824,338, pub. 12–6–66. Cl. 17.
Universal Foods Corp., Milwaukee, Wis. 824,272, pub. 12–6–66. Cl. 4.
Union Camp Corp.: *See*—
Southern Advance Bag & Paper Co., Inc.
Union Bag & Paper Co., The. Union Camp Corp., New York, N.Y. 58,668. Am. 7(d). Cl. 37.
Union Bag & Paper Co., The. Union Camp Corp., New York, N.Y. 58,667. Am. 7(d). Cl. 37.
Universal Match Corp.: *See*—
UMC Industries, Inc.
Universal Oil Products Co., Des Plaines, Ill. 824,277, pub. 12–6–66. Cl. 6.
Universal Oil Products Co., Des Plaines, Ill. 824,276, pub. 12–6–66. Cl. 6.
Utility Appliance Corp., Los Angeles, Calif. 709,346, canc. Cl. 31.
Valley Landscape Co., Inc., Baltimore, Md. 824,619, pub. 12–6–66. Cl. 101.
Vanadium-Alloys Corp.: *See*—
Vasco Metals Corp.
Van Blarcom Closures, Inc., Brooklyn, N.Y. 824,571, pub. 12–6–66. Cl. 50.
Van Blarcom Closures, Inc., Brooklyn, N.Y. 824,570, pub. 12–6–66. Cl. 50.
Van Blarcom Closures, Inc., Brooklyn, N.Y. 824,572, pub. 12–6–66. Cl. 50.
Vasco Metals Corp., from Vanadium-Alloys Steel Co., Latrobe, Pa. 824,653. Cl. 103.
Vavalon, U.S. Spice, Inc.: *See*—
Twin Trees Gardens, Inc.
Vetco Co.: *See*—
Epstein, Raymond.
Ver Keljik, d.b.a. Photo Tech, St. Paul, Minn. 709,435, canc. Cl. 50.
Verine Shoe and Tanning Corp., Rockford, Mich. 824,492, pub. 12–6–66. Cl. 40.
Vestal Chemical Co., St. Louis, Mo., to W. R. Grace & Co., New York, N.Y. 228,375, ren. 2–21–67. Cl. 16.
Victrylite Candle Co., Oshkosh, Wis. 824,329, pub. 12–6–66. Cl. 15.
Victrylite Candle Co., Oshkosh, Wis. 824,442, pub. 12–6–66. Cl. 34.
Viking Reinforced Plastic, Inc., Elbow Lake, Minn. 709,276, canc. Cl. 19.
Vineland Chemical Co., Vineland, N.J. 824,283, pub. 12–6–66. Cl. 6.
Vineland Chemical Co., Vineland, N.J. 824,282, pub. 12–6–66. Cl. 6.
Vineland Chemical Co., Vineland, N.J. 824,281, pub. 12–6–66. Cl. 6.
Vineland Chemical Co., Vineland, N.J. 824,280, pub. 12–6–66. Cl. 6.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,517, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,516, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,515, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,514, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,513, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,512, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,511, pub. 12–6–66. Cl. 46.
Vitamin Products Co., d.b.a. Standard Process Laboratories, Milwaukee, Wis. 824,510, pub. 12–6–66. Cl. 46.
Vitron Mfg. Co., Inc., Seattle, Wash. 709,205, canc. Cl. 12.
Vitron Mfg. Co., Inc., Seattle, Wash. 709,204, canc. Cl. 12.
Wallram Hartmetallwerk und Hartmetallwerk-Zeugfabrik Meutsch, Voigtlander & Co., Essen, Germany. 709,308, canc. Cl. 23.
Warner-Lambert Pharmaceutical Co., Morris Plains, N.J. 824,354, pub. 12–6–66. Cl. 18.
Waukesha Foundry Co., Waukesha, Wis. 709,168, canc. Cl. 1.
Waulters Potato Chip Co., now by change of name Chesty Foods, Milwaukee, Wis., to Fairmont Foods Co., Omaha, Nebr. 426,899, ren. 2–21–67. Cl. 46.
Waumbec Mills Inc., New York, N.Y. 824,498, pub. 12–6–66. Cl. 42.
Wentzel, Donald E.: *See*—
Getz, Alex.
Westab Inc., Dayton, Ohio. 824,445, pub. 12–6–66. Cl. 37.
West Salem Canning Co., The, West Salem, to Holmen Canning Co., Holmen, Wis. 213,392, ren. 2–21–67. Cl. 46.
Western Red Cedar Shake Association, Inc., Seattle, Wash. 824,303, pub. 12–6–66. Cl. 12.
Wheeling Steel Corp., Wheeling, W. Va. 721,522, cor. Cl. 14.
Whitlock Associates, Inc., Oak Park, Mich. 824,391, pub. 12–6–66. Cl. 23.
Whitmoyer Laboratories, Inc., Meyerstown, Pa. 824,275, pub. 12–6–66. Cl. 6.
Whiting Mfg. Co., Inc., Cincinnati, Ohio. 824,437, pub. 12–6–66. Cl. 32.

Wiesenberger, Arthur, & Co., New York, N.Y. 824,453, pub. 12–6–66. Cl. 38.
Wilson Chemical Distributing Co., Wilson, N.C. 824,295, pub. 12–6–66. Cl. 6.
Wilson & Co., Inc., Chicago, Ill. 824,539, pub. 12–6–66. Cl. 46.
Wilson Footwear Co., Boston, Mass. 824,460, pub. 12–6–66. Cl. 39.
Winthrop Chemical Co., Inc., to Breon Laboratories Inc., New York, N.Y. 425,681, ren. 2–21–67. Cl. 18.
Wisconsin Farmer Co., Inc.: *See*—
Homestead Co., The.
Wolfe & Lang, Inc., to Fortuna Foundations, Inc., New York, N.Y. 428,488, ren. 2–21–67. Cl. 39.
Wolff, S. M., Co., Inc., New York, N.Y. 709,417, canc. Cl. 46.
Wood Conversion Co., St. Paul, Minn. 824,381, pub. 12–6–66. Cl. 21.

Woolworth, F. W., Co., New York, N.Y. 824,444, pub. 12–6–66. Cl. 36.
Wrenn Paper Co., The, to The Sorg Paper Co., Middletown, Ohio. 226,850, ren. 2–21–67. Cl. 37.
Yardley of London, Inc., Totowa, N.J. 824,581, pub. 12–6–66. Cl. 51.
Yardley of London, Inc., Totowa, N.J. 824,583, pub. 12–6–66. Cl. 51.
Young Machinery Co., Inc., The, Muncy, Pa. 824,409, pub. 12–6–66. Cl. 23.
Yves Saint Laurent Parfums Corp., New York, N.Y. 824,601, pub. 12–6–66. Cl. 51.
Zenith Radio Corp., Chicago, Ill. 426,463, ren. 2–21–67. Cl. 21.
Zero Mfg. Co., Burbank, Calif. 817,252, cor. Cl. 13.

U.S. GOVERNMENT PRINTING OFFICE: O—1967

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
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PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of January 1967

Examiner affirmed	259
Examiner affirmed in part	39
Examiner reversed	74
Total	372

Adjudicated Patents

(C.A.S.C.) Winter Patent No. 2,905,945 (2—132), for COLLAR CONSTRUCTION FOR SHIRTS, *Held* invalid and not infringed. *Mabs, Inc.* v. *Piedmont Shirt Co.,* 368 F. 2d 570; 151 USPQ 473.

(D.C. Tex.) Duvall and Barnard Patent No. 2,494,799 (280—433), for TRAILER COUPLING. Claims 1 and 2 *Held* valid and not infringed. *Barnard* v. *Fruehauf Trailer Co.,* 260 F. Supp. 605; 151 USPQ 103.

(D.C.N.Y.) Saxl Patent No. 2,591,724 (73—144), for THREE-ROLLER TENSION METER USEFUL TO MEASURE OF STANDING OR MOVING FILAMENTS. Claims 2, 3, 5, 6, 7, 8, 10 and 11 *Held* invalid. *Tensitron, Inc.* v. *Bromley,* 260 F. Supp. 457; — USPQ —.

(D.C. Ohio) Wagner Patent No. 2,778,736 (99—1), for METHOD OF DEEP FAT COOKING FOODS UNDER PRESSURE. Claims 2 and 3 *Held* valid but not infringed, *Ballantyne Instruments & Electronics, Inc.* v. *Wagner,* 360 F. Supp. 540; 151 USPQ 174.

(D.C. Colo.) Graves Patent No. 2,853,027 (107—14), for FOOD PROCESSING MACHINE, *Held* not infringed. *Graves* v. *Dorsey McComb Distributors, Inc.,* 260 F. Supp. 546; — USPQ —.

(D.C. Colo.) Graves Patent No. 3,067,671 (99—238), for FOOD PROCESSING MACHINERY. Claims 3 and 4 *Held* not infringed. *Id.*

Erratum

In the OFFICIAL GAZETTE, vol. 833, p. 464, second column, under the heading, "Adjudicated Patents," line 1 thereof, for "3,438,173" read *2,438,173.*

Patents Available for Licensing or Sale

3,097,471. METHOD AND APPARATUS FOR COVERING THREAD. Boutwell H. Foster, Maplewood, N.J. Correspondence to: David B. Miller, 30 Timber Acres Road, Short Hills, N.J., 07078.

3,132,788. TAPE TRANSPORTING MEANS FOR A MAGNETIC RECORDER. Axel H. Johnson, 1133 Oregon St., Racine, Wis., 53405.

3,211,071. PHOTOELECTRIC DEVICES. Emil J. Bolsey, et al., 160 Concord Avenue, White Plains, N.Y., 10606.

3,283,429. VARIABLE DISPLAY BOARD. Contraves A.G., Zurich, Switzerland. Correspondence to: Michael S. Striker, 360 Lexington, Ave., New York, N.Y., 10017.

3,296,915. CUTTING DEVICE. Gaylen D. Johnson, P.O. Box 4643, Sacramento, Calif., 95825.

3,305,967. MAGNETIC TOY, TRICK, GAME AND EDUCATIONAL DEVICE. Joseph A. Weisbmecker. Correspondence to: Robert K. Youtie, 2338 P.S.F.S. Bldg., 12 S. 12th St., Philadelphia, Pa., 19107.

The Procter & Gamble Company is willing to grant non-exclusive licenses under the following 2 patents upon reasonable terms.

Applications for license may be directed to: Patent Division, T. F. Waters, Director, The Procter & Gamble Company, Ivorydale Technical Center, Cincinnati, Ohio, 45217.

3,304,263.	PHOSPHINE OXIDE DETERGENT COMPOSITION.
3,304,330.	TERTIARY PHOSPHINE OXIDE COMPOUNDS.

General Electric Company is prepared to grant non-exclusive licenses under the following 29 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following 6 patents may be addressed to: General Electric Company, Industrial Drives Systems Division, 3001 E. Lake Road, Erie, Pa., 16501. Attn: Patent Counsel.

3,126,618.	METHOD OF MANUFACTURING ARMATURES.
3,133,237.	ROTARY CONVERTER FED MOTOR CONTROL FOR A VEHICLE.
3,159,777.	DIRECT CURRENT MOTOR.
3,164,888.	METHOD OF MAKING COILS.
3,165,685.	SOLID-STATE COMMUTATOR DIRECT CURRENT MOTOR EMPLOYING HALL EFFECT ELEMENTS.
3,183,386.	MULTIPLE OUTPUT GENERATOR.

Applications for license under the following 9 patents may be addressed to: Patent Counsel, Major Appliance & Hotpoint Division, General Electric Company, Appliance Park, Louisville, Ky., 40225.

3,163,017.	ICE CUBE MAKER HAVING BIN CONTROL.
3,163,018.	CUBE TYPE ICE MAKER HAVING ELECTRIC HEATER AND CAM EJECTOR.
3,286,149.	CONTROL MEANS FOR ELECTRIC MOTOR SHAFT WINDING.
3,288,380.	SUPPORT SYSTEM FOR A FOOD WASTE DISPOSER.
3,289,584.	ARTICLE RETAINING DEVICE.
3,289,896.	DOOR STRUCTURE FOR WASHING APPLIANCE.
3,289,953.	LUBRICATED SHAFT AND SHAFT SEAL.

New Applications Received During January 1967

Patents	6606
Designs	386
Plant Patents	7
Reissues	11
Total	7010

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Patents	1326—No.	3,305,874	to No.	3,307,199, incl.
Designs	37—No.	207,047	to No.	207,083, incl.
Plant Patents	2—No.	2,721	to No.	2,722, incl.
Reissues	3—No.	26,163	to No.	26,165, incl.
Total	1368			

3,292,387. AIR CONDITIONING EQUIPMENT INCLUDING TIME DELAY CONTROL CIRCUITRY.

3,292,984. RACK SYSTEM FOR DISHWASHER.

Applications for license under the following 14 patents may be addressed to: General Electric Company, Patent Counsel, Insulating Materials Department, Bldg. 33, Rm. 209, 1 River Road, Schenectady, N.Y., 12305.

2,912,410. PROCESS OF PREPARING A CURED BLEND OF FORM-STAGLE, CROSS LINKED POLYETHYLENE AND POLYBUTADIENE AND COMPOSITIONS THEREOF.

2,919,473. MOLDING OF POLYETHYLENE IRRADIATED WITH HIGH ENERGY ELECTRONS.

2,921,006. POLYMERIZATION WITH HIGH ENERGY ELECTRONS.

2,924,559. POLYETHYLENE BLEND.

2,936,261. SEALING IRRADIATED POLYETHYLENE.

2,945,792. POLYOLEFINS.

2,948,666. IRRADIATION PROCESS.

2,967,137. IRRADIATION OF NYLON.

2,989,451. IRRADIATED POLYETHYLENE.

2,997,418. COLD WELDING OF ORGANOPOLYSILOXANES.

2,997,419. COLD WELDING OF POLYESTER RESINS.

3,110,299. TREATMENT OF LAMINATED MATERIALS.

3,214,408. ETHOXYLINE RESIN COMPOSITIONS.

3,227,679. EPOXY RESIN COMPOSITIONS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 19, 1966

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-24-63	10-18-61
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-13-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	8-29-63	10- 3-61
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	7-11-63	3-12-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Metallurgical Apparatus; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	7- 2-63	10-23-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-15-63	8-30-62
SECURITY, GROUP 220—S. BOYD, Manager Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	4-16-64	4-25-62
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; StorageDevices and Related Arts.	5- 9-63	7- 3-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave TransmissionLines and Networks; Optics; Radiant Energy; Measuring.	5-15-63	12- 1-61
PHYSICS, GROUP 280—R. L. EVANS, Manager Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-13-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager Industrial Arts; Household, Personal and Fine Arts.	9-22-65	3-12-65

Total number of pending applications (excluding Designs)	197, 247
Total number of Design applications pending	4, 319
Total number of applications awaiting action (excluding Designs)	140, 694
Total number of Design applications awaiting action	2, 617
Date of oldest new application awaiting action	May 9, 1963
Date of oldest amended application awaiting action	July 3, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during February 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 690. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1953*.

Patents	Numbers 2,496,256 to 2,499,344, inclusive
Plant Patents	Numbers 919 to 925, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	11-23-64	5-31-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	9- 8-64	9-24-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	7- 7-64	6-18-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	3-12-65	1-13-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	12- 3-64	8-20-62
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	7- 8-64	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

KRAVIG *v.* HENDERSON

No. 7862. Decided July 14, 1966

[53 CCPA —; 302 F.2d 1015; 150 USPQ 377]

1. INTERFERENCE—BURDEN OF PROOF.

"Since the effective filing date of Henderson is subsequent to the issue date of the Kravig patent, he has the burden of proving priority beyond a reasonable doubt."

2. SAME—REDUCTION TO PRACTICE—CORROBORATED ORAL TESTIMONY SUFFICIENT—*Walker* v. *Altorfer* DISTINGUISHED.

"The mere fact that the Board's finding of reduction to practice is based on corroborated oral testimony not supported by a dated exhibit does not warrant reversal of the Board's decision and the decisions cited by Kravig do not so hold. In *Walker* v. *Altorfer*, 27 CCPA 1130, 111 F.2d 164, 45 USPQ 317, appellee's admission that documentary exhibits, 'upon which much of the oral proof concerning reduction to practice depends, have been changed or altered' was found to be an element of weakness in a case requiring proof beyond a reasonable doubt. By contrast, the dates asserted with respect to the model found reduced to practice here were based on association with events established independently of the 'multilated' drawings. Moreover, evidence of the actual existence of the model (Exhibits 3A and 3B) was produced in the present case and all three witnesses with knowledge thereof fixed a date not later than spring of 1956 with respect to it. While the model had been altered subsequent to that date, the alterations were in the nature of efforts toward improvement and their lack of pertinence to the broad subject matter of the counts was satisfactorily established."

3. APPEAL TO U.S. COURT OF CUSTOMS AND PATENT APPEALS—MATTER BEFORE COURT—INTERFERENCE—PUBLIC USE—35 U.S.C. 102(b).

"Kravig urges that Henderson acquired a Kravig machine from 3M by a lease dated April 5, 1959 which is prior to the time he executed an oath in his application filed December 28, 1960 swearing that the subject matter had not been in public use more than one year. * * * Of course, the question whether there is a public use bar under 35 U.S.C. 102(b) against Henderson as to the counts in issue is a matter distinct from the present proceedings and is not before us for determination. It is also of interest that, although the facts as to an alleged public use through rental of a Kravig machine have been available to Kravig along with knowledge of the filing date of Henderson for a long time, the record does not reveal that Kravig took any action to have that question determined before the interference was decided."

4. INTERFERENCE—REDUCTION TO PRACTICE—ACTUAL.

"Kravig further argues that Henderson's first model was so crude as not to be the equivalent of the machines disclosed in the parties' specifications and thus cannot be a reduction to practice. It is apparent that the device was crude compared to the structures ultimately developed, but it is also evident that it embodied the invention defined in counts 1 and 2. The invention is a machine for making bows and we think it was reduced to practice when the crude machine embodying the structure of counts 1 and 2 was operated to accomplish that desired result. The record does not indicate that there was any problem as to the environment in which the machine operated; the bow making machine is not a guidance or control component, or an element of another machine of such type that operability must be determined within the operating context of the whole machine. The model did prove out the principle of operation and there is evidence that bows made thereby were used as samples by Henderson. We see no merit in the additional point, urged by Kravig, that there is no showing that the bows produced were stapled together by the machine, since the counts do not specify that the machine include any means for permanently securing the loops together while thereon."

5. SAME—SAME—SAME—COMMERCIALLY SATISFACTORY PERFORMANCE NOT NECESSARY FOR ACTUAL REDUCTION TO PRACTICE.

"The fact that Henderson expended much additional time and effort before he obtained machines operating on the principle proved by his first machine which were commercially satisfactory does not negative the finding of reduction to practice since it is well-established that commercially satisfactory performance is not necessary to an actual reduction to practice. *Tansel* v. *Higonnet*, 42 CCPA 732, 215 F.2d 457, 103 USPQ 58; *Creamer* v. *Kirkwood*, 50 CCPA 715, 305 F.2d 486, 134 USPQ 330. We also agree with the Board that, under the circumstances here, the fact that Henderson did not file his application until more than five years after his activities in connection with the operation and demonstration of the precursor of the model of Exhibits 3A and 3B does not show that those activities fell short of an actual reduction to practice. See *Knowles* v. *Tibbetts*, 52 CCPA 1800, 347 F.2d 591, 146 USPQ 59."

6. APPEAL TO U.S. COURT OF CUSTOMS AND PATENT APPEALS—REMAND—INTERFERENCE.

"Our conclusion that the Board erred in finding the evidence to show that the precursor of the machine of Exhibits 3A and 3B that was reduced to practice included a shaft for receiving and rotatively supporting a supply roll leaves the question of whether the extensive evidence in the record of later activities of Henderson entitled him to an award of priority as to those counts. That determination requires consideration of what the Board designated 'an extremely confusing record' but did not specifically analyze from the standpoint of actual reduction to practice or diligence. Also, it may well require consideration of Kravig's evidence to determine when he entered the field, a determination the Board found unnecessary because of its conclusion Henderson had proved reduction to practice of all counts prior to any date asserted by Kravig. It will, therefore, be necessary to remand the case as to counts 3 and 6."

7. SAME—SAME—REMAND DOES NOT BAR SUSPENSION OF FURTHER PROCEEDINGS TO INSTITUTE PUBLIC USE PROCEEDINGS.

"The decision of the Board is affirmed as to counts 1 and 2 and reversed as to counts 3 and 6. The appeal is remanded to the Board for action consistent with this opinion in connection with the question of priority as to counts 3 and 6. This remand, however, is not to be construed as barring the suspension of further proceedings in this interference for the institution of public use proceedings if steps are taken which the Commissioner regards as rendering such suspension appropriate."

APPEAL from the Patent Office. Interference No. 92,874.

MODIFIED.

Stanley G. De La Hunt and *Harold J. Kinney* and *John H. Lewis, Jr.* for appellants.

John J. Hart for appellee.

Before RICH, *Acting Chief Judge*, and MARTIN, SMITH, and ALMOND, Jr., *Associate Judges* and Judge KIRKPATRICK, *United States Senior Judge for the Eastern District of Pennsylvania*

MARTIN, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Board of Patent Interferences awarding priority as to all of the four counts remaining in Interference No. 92,874 to David J. Henderson, the junior party.

The invention in issue relates to a machine for making decorative bows from a continuous length of ribbon. The machine includes a rotatable loop retaining means capable of retaining in fixed position relative thereto ribbon which is applied to it by a ribbon feed means which operates successively to apply spaced portions of the ribbon against the retaining means. The retaining means is caused to rotate between the successive applications thereto of ribbon portions so as to form a bow having loops radiating in different directions from the center. In Henderson's machine, the retaining means comprises a vertically disposed, rotatable spindle having permanently provided on its upper end a plurality of barbed needles on which the spaced ribbon portions are impaled and from which the formed loops of ribbon must be withdrawn when a bow is completed. In the Kravig machine, the retaining means is a horizontally disposed pin in the general shape of a collar button, which pin is releasably held in the machine during the bow forming operation and then removed as part of the completed bow. Both parties disclose the provision of a shaft for rotatably supporting a supply roll of ribbon.

In issue are counts 1, 2, 3 and 6 of which 1 and 3 are representative:

> 1. In a machine for making decorative bows from a continuous length of ribbon or strip material, rotatable loop retaining means and ribbon feed means, said retaining means being adapted to retain in fixed position relative thereto and rotatively therewith ribbon applied thereagainst, said feed means operating successively to apply portions of ribbon spaced along the continuous length thereof against said retaining means successively to form radiating loops of ribbon.
>
> 3. A machine for making decorative bows from a continuous length of ribbon comprising a shaft for receiving and rotatably supporting a supply roll of ribbon, rotatable loop retaining means and ribbon feed means, said retaining means being adapted to retain in fixed position relative thereto ribbon applied thereagainst; said feed means operating to withdraw a continuous length of ribbon from a supply roll mounted on said shaft and successively to apply portions of ribbon spaced along said continuous length against said retaining means successively to form radiating loops of ribbon, said retaining means being caused to rotate between each application of a ribbon portion thereto, said loops thereby being twisted as they are formed and being disposed on different radii.

Count 2 relates to the same combination as count 1. Count 6, like count 3, calls for a combination additionally including a supporting shaft for the supply roll of ribbon.

The counts correspond to claims 1, 2, 5 and 17 of Patent No. 2,933,223 issued to the senior party Kravig and Johnson (Kravig) April 19, 1960, on application Serial No. 750,396, filed July 23, 1958. Henderson is involved in the interference on the basis of application Serial No. 98,043, filed March 24, 1961, as a division of application Serial No. 78,900, filed December 28, 1960.

[1] Since the effective filing date of Henderson is subsequent to the issue date of the Kravig patent, he has the burden of proving priority beyond a reasonable doubt. *Conner* v. *Joris*, 44 CCPA 772, 241 F.2d 944, 113 USPQ 56; *Paivinen* v. *Sands*, 52 CCPA 906, 339 F.2d 217, 144 USPQ 1.

Both parties took testimony.

The testimony for Henderson relates to activities in connection with bow making machines alleged to have started in about 1954 and extended past the filing date of his application in 1960. Kravig introduced testimony directed to the development of bow making machines starting around 1957. He also took testimony in rebuttal of certain testimony of Henderson.

The Board based its award of priority on the conclusion that Henderson "established with the required weight of evidence" the introduction into the United States of his first machine, which it designated "the precursor to the modified device illustrated in Exhs. 3A and 3B," and the actual reduction of practice thereof in the United States, "at least as early as the spring of 1956." It further held that the structure of that first model "embodies and clearly supports the language of each of the counts setting forth the invention * * *," commenting that the "senior party nowhere in the record controverts this view." In request for a reconsideration before the Board and here, Kravig does question the latter conclusion particularly as to the shaft for receiving and rotatably supporting a supply roll of ribbon in counts 3 and 6. The principal issues hence are whether the Board was correct in finding that Henderson proved beyond a reasonable doubt that he reduced to practice the precursor of the modified device illustrated in Exhibits 3A and 3B and, if so, whether that structure meets the limitations of the counts, particularly counts 3 and 6.

It is shown by the record that Henderson, a citizen of Canada residing in Montreal West, conducted two businesses involving ribbon and bow manufacturing during the period of interest here. One business, called Beacon Ribbon Mills, was located at Valleyfield in Canada and produced ribbon, bows, tapes, cords, etc. The other, in Plattsburgh, New York, was carried out originally under the name of Beacon Ribbon Mills but the name was changed in about 1958 to Aranac Ribbon Mills, Incorporated. The Plattsburgh plant manufactured bows exclusively or substantially so.

Henderson testified that he wanted to make bows automatically and in 1954 conceived of and made a hand-operated model or machine embodying his conception. While the machine was made in Canada, it was brought to the United States by Henderson when he opened his Plattsburgh plant in April of 1955. Henderson testified that the machine was demonstrated there by making bows, and it was modified at times in a manner described by him. The model, as subsequently modified, is purportedly illustrated in Exhibits 3A and 3B, which are recent photographs of an actual structure present during the taking of testimony, at final hearing before the Board, and at oral argument before us.

The record shows further that a series of several more models of ribbon bow making machines were built and tested, but, as noted by the Board, the record is extremely confusing as to details concerning them. It is clear though that three more models were made, sometimes by using parts of a preceding machine and even then modified, but those activities were performed in Canada and the models apparently were never brought into the United States. A fifth model, also made in Canada was brought into the United States in 1958.

Returning then to the first model, Henderson testified, with Exhibits 3A and 3B and the model shown therein before him, as to the structure and operation of the model in such detail as the Board considered sufficient for one skilled in the art to understand and practice the invention embodied therein. Further, he described the modifications that had been made in considerable detail thus giving a picture of the structure as originally built and used.

Henderson testified that the first model was one of the first things he brought to the United States to his plant in Plattsburgh when he opened it around April of 1955 and that he showed that model to Robert Glenn who eventually became his plant manager there. He stated that he made a great many samples of bows there in 1955; not "any production but a great many samples; these samples were shown to my accounts." He testified that the model was first installed in his first quarters in Plattsburgh which he maintained from April to August of 1955 and that, while it was in that first plant, he demonstrated it to Glenn, making bows for him.

Henderson testified on cross-examination that the model satisfied him with the principle of operation for making a bow but stated he "did not consider this a useful commercial device." Among the modifications he attempted was the speeding up of the machine by adding a stapler for stapling the finished bow together.

Glenn testified that he became manager of Henderson's plant in Plattsburgh in the early summer of 1955 after first meeting Henderson in early spring of that year when Henderson was moving into his first Plattsburgh quarters adjacent a parking lot Glenn was then operating. Glenn had been plant manager in Plattsburgh for the Pal Safety Razor Blade Company which sold out in 1953 to American Razor Company which, in turn, ultimately moved out in 1954.

With respect to the model of Exhibits 3A and 3B, Glenn stated he saw it a month or so after he met Henderson in "early Fifty-five, not later than June, Nineteen fifty-five." He testified that Henderson explained how the model worked, demonstrated the use of it and made bows on it. While testifying primarily concerning production of hand tied bows at a later date, in 1957, as their first commercial production, Glenn testified that before that time:

> * * * A. We did not make any for sale. We were experimenting, trying to make bows. During this time we could make bows such as this.
>
> Q. With the equipment shown on Exhibits 3A and 3B? A. But not much faster than you could do it by hand. The idea was still there but not developed far enough to be used in mass production.

Glenn also testified at length concerning the machines made subsequently.

Another corroborating witness for Henderson was Thomas McGrath, employed by Plattsburgh Foundry and Machine Company and in charge of maintenance of equipment rented or loaned by that company. He testified he first met Henderson in the spring of 1956 and fixed that date with reference to his supervising the removal from the building housing Henderson's plant of certain equipment his company had purchased from American Safety Razor Company. On being shown the photographs constituting Exhibits 3A and 3B and the model shown therein, McGrath stated that he saw the machine and saw it operate. He further stated:

> * * * A. This machine here and this view, if you want to call this machine at the time I saw it, I called it a gadget, it was in the office the day I was down there packing up machinery. Mr. Glenn invited me over to their part of the Ribbon Mill which was separate from where we were working and he asked me if I wanted to see something. I went over and Mr. Henderson made a bow on this machine, which amazed me.

McGrath additionally stated that, while the operation of the machine was explained "not too thoroughly" to him, he did understand how it operated because "the machine was a simple operation the way he explained it and I had no trouble following him." On cross-examination, McGrath adhered to his former testimony that he saw the machine or "gadget" in the spring of 1956, stated that "it was a working device, a machine," and further gave a reasonably comprehensive description of the machine and its operation without reference to the exhibits.

The record also shows that McGrath subsequently became a part-time employee of the Plattsburgh plant and contributed to the attainment of a commercial operation with later machines.

The Board acknowledged that there was confusion in portions of the Henderson record, "particularly relating to Henderson's activities in Canada and relating to the preparation and mutilation of the numerous drawings and copies of drawings forming Exhs. 7, 7A, 17, 18, 23 and 35." It also expressed realization of "the frailities of the human mind in the recollection of events that occurred some eight to ten years before the testimony was taken." However, the Board reasoned that, under the circumstances, with the Henderson testimony relating to specific changes made in the series of five different models ranging from the first hand operated device of Exhibits 3A and 3B to the complex automatic device ultimately developed for mass production purposes, some confusion was to be expected. In support of its conclusion the evidence proved that the precursor of Exhibits 3A and 3B was reduced to practice in the United States at least as early as the spring of 1956, the Board stated:

> * * * We have referred in the foregoing to Henderson's testimony relating to the first model (illustrated in Exhs. 3A and 3B) and we note that there is no confusion on his part as to *that* structure or the changes therein. We believe that it would not be unreasonable to expect that he might be confused as to the subsequently developed models. We see no reason in that confusion to doubt the credibility of his testimony as to that first model. Nor do we see wherein any cloud of suspicion is cast over Henderson's entire case, particularly the proven introduction into the United States of the "original" of the model shown in Exhs. 3A and 3B and its operation, by the multiliation of and the confusion relating to drawings illustrating a later developed model or by the absence of any records of Harrington Tool and Die Co. relating to the subsequently developed models. Similarly, we do not regard the credibility of the testimony of either Glenn or McGrath as to that first model (Exh. 3A, 3B) to be suspect. We do not regard it as unusual or particularly suspect that both identified the model and the photographs (Exhs. 3A and 3B) as the structure they first saw in 1955 and 1956, respectively, even though Henderson's testimony, considered as against his interest clearly shows that the original structure was modified after Glenn saw it and possibly after McGrath saw it. We note that such modification resided solely in minor details that are wholly unnecessary to the function and use of the device as set forth in the counts here in issue and are of such a nature as not to be readily discerned or appreciated unless they were particularly directed to a viewer's attention. We believe this to be especially so where, at the time of the viewer's first meeting or impression of the device, he was unacquainted with the problem that it was to solve and was only generally concerned with the structure but was more specifically impressed with the results.

Kravig presents four main points in contending that the Board erred in finding reduction to practice of the precursor of Exhibits 3A and 3B in 1956. Expressed generally, they are (1) that there is not adequate corroboration of the testimony of Henderson as to the structure of the device; (2) that the testimony on which reduction to practice was found is based completely on oral recollection and hence deficient; (3) that the "mutilated" drawings of which the Board said it was "painfully aware" should have been regarded as having "infected or polluted" Henderson's oral case as a whole; and (4) that the "precursor" device was a crude device which could not have been "an equivalent of the machine disclosed in the parties' specifications, or satisfactory in operation, or even complete in form."

Kravig also argues (reference to record page omitted):

> Had the Board considered the case for Henderson as reflected by the documents which are in the record, it would have found that the oral testimony established no more than an abandoned experiment, and that Henderson's uncorroborated oral testimony was unreliable. Had the Board further taken into account the case for Kravig (which is expressly ignored * * *), it properly could have found the most plausible explanation of Henderson's case to be that he was stimulated into action by his contacts in March 1958 with representatives of Kravig's assignee.

To the extent that the Board found the precursor of the structure *illustrated* in Exhibits 3A and 3B was reduced to practice, we do not agree with Kravig's contention that there is not adequate corroboration of the structure of the device. The testimony of Glenn and McGrath is definite as to the elements shown in the exhibits having been used to make bows. The testimony also is convincing that the changes made in the illustrated structure were not such as to cause a different operation even though Henderson himself was the only one who testified as to the precise nature of the changes. As is stated in *Mann* v. *Werner*, 52 CCPA 1578, 347 F.2d 636, 146 USPQ 199:

> * * * This court has rejected the notion that each individual act in the reduction to practice of a count must be proved in detail by an unbroken chain of corroboration. See *Patterson* v. *Hauck*, 52 CCPA 987, 341 F.2d 131, 144 USPQ 481; *Gianladis* v. *Kass*, 51 CCPA 753, 324 F.2d 322, 139 USPQ 300; *Hasselstrom* v. *McKusick*, 51 CCPA 1008, 324 F.2d 1013, 139 USPQ 511. As we said in the latter case, "the purpose of corroborative evidence is to confirm and to strengthen the testimony of the inventor." The proper approach, we believe, involves a reasoned examination, analysis and evaluation of all the pertinent evidence bearing on the question, to the end that a reasoned determination as to the credibility of the inventor's story may be reached.

However, we think this evidence proves reduction to practice only of counts 1 and 2. The "shaft for receiving and rotatably supporting a supply roll of ribbon," recited in counts 3 and 6 is not shown in Exhibits 3A and 3B nor is it included with the model of which they are photographs. It is true, as noted by the Board in its decision on reconsideration, that Henderson in his testimony did describe a separate stand as provided to support such a shaft and in fact marked on Exhibit 3A the location for it next to the base of the photographed model. On the other hand, Henderson does not specifically state that such shaft was used in demonstrating the model to Glenn and McGrath or in making the bows he used as samples for his accounts and neither of the corroborating witnesses even refer to the existence of such a shaft.

The Board's position on this point, stated in its decision on reconsideration is:

> The testimony establishes that the witnesses saw Henderson demonstrate the device by making ribbon bows. It *must* be concluded that there was a supply of ribbon there and there is nothing in this record (Kravig et al. on Henderson's testimony pp. 15, 16 to the contrary) which indicates, or leads us to believe, that the ribbon supply supporting structure described by Henderson was *not* present when they saw the demonstrations. It is not apparent *when* that supporting structure disappeared or *where* it happened.

We cannot agree with that analysis. While it must be concluded that there was a supply of ribbon during the demonstrations, there appears to be no reason that such supply had to be in the form of a roll rotatably supported on a shaft. So far as the testimony is concerned, only one or a very few demonstration bows might have been made at any one time and the source of material could have been a long length of ribbon already removed from its roll or a roll of ribbon merely resting on a table or the floor.

[2] The mere fact that the Board's finding of reduction to practice is based on corroborated oral testimony not supported by a dated exhibit does not warrant reversal of the Board's decision and the decisions cited by Kravig do not so hold. In *Walker* v. *Altorfer*, 27 CCPA 1130, 111 F.2d 164, 45 USPQ 317, appellee's admission that documentary exhibits, "upon which much of the oral proof concerning reduction to practice depends, have been changed or altered" was

To the extent that the Board found the precursor of the structure *illustrated* in Exhibits 3A and 3B was reduced to practice, we do not agree with Kravig's contention that there is not adequate corroboration of the structure of the device. The testimony of Glenn and McGrath is definite as to the elements shown in the exhibits having been used to make bows. The testimony also is convincing that the changes made in the illustrated structure were not such as to cause a different operation even though Henderson himself was the only one who testified as to the precise nature of the changes. As is stated in *Mann* v. *Werner*, 52 CCPA 1578, 347 F.2d 636, 146 USPQ 199:

> * * * This court has rejected the notion that each individual act in the reduction to practice of a count must be proved in detail by an unbroken chain of corroboration. See *Patterson* v. *Hauck*, 52 CCPA 987, 341 F.2d 131, 144 USPQ 481; *Gianladis* v. *Kass*, 51 CCPA 753, 324 F.2d 322, 139 USPQ 300; *Hasselstrom* v. *McKusick*, 51 CCPA 1008, 324 F.2d 1013, 139 USPQ 511. As we said in the latter case, "the purpose of corroborative evidence is to confirm and to strengthen the testimony of the inventor." The proper approach, we believe, involves a reasoned examination, analysis and evaluation of all the pertinent evidence bearing on the question, to the end that a reasoned determination as to the credibility of the inventor's story may be reached.

However, we think this evidence proves reduction to practice only of counts 1 and 2. The "shaft for receiving and rotatably supporting a supply roll of ribbon," recited in counts 3 and 6 is not shown in Exhibits 3A and 3B nor is it included with the model of which they are photographs. It is true, as noted by the Board in its decision on reconsideration, that Henderson in his testimony did describe a separate stand as provided to support such a shaft and in fact marked on Exhibit 3A the location for it next to the base of the photographed model. On the other hand, Henderson does not specifically state that such shaft was used in demonstrating the model to Glenn and McGrath or in making the bows he used as samples for found to be an element of weakness in a case requiring proof beyond a reasonable doubt. By contrast, the dates asserted with respect to the model found reduced to practice here were based on association with events established independently of the "mutilated" drawings. Moreover, evidence of the actual existence of the model (Exhibits 3A and 3B) was produced in the present case and all three witnesses with knowledge thereof fixed a date not later than spring of 1956 with respect to it.[1] While the model had been altered subsequent to that date, the alterations were in the nature of efforts toward improvement and their lack of pertinence to the broad subject matter of the counts was satisfactorily established.

We further see no error in the Board's view that the confusion in the record with respect to some of the activities in Canada including the "mutilated" drawings does not constitute a basis for doubting the credibility of the testimony with respect to the first model or cast suspicion over Henderson's entire case. Exhibits 7, 7A, 17, 18, 23 and 35 have not been given any weight in finding reduction to practice and the earliest date that might be urged for any of them, July 6, 1956, is later than the date found to have been proven for reduction to practice by other independent evidence.

The "mutilations" involve a print of a drawing in which the part of the legend box had been blocked out or cut out and a tracing, introduced as Exhibit 35, with a legend bearing the date of July 6, 1956 in the form of a cut-out attached by tape. Although those matters are not explained, the absence of an explanation is at least partially accounted for by the fact that Henderson's draftsman, Dubois was not available to testify because of his death some time previous to the taking of testimony. The latter tracing was provided by the draftsman's widow from his effects. Further, the witness Weedmark testified that at times legends are cut out of tracings for either of two reasons. One is to save expense by reusing the legend when an older drawing of a structure is replaced by a modified drawing and the other is to avoid revealing information to another concerning a customer when a drawing is sent to an outside shop for reproduction. In the latter case the legend is put back on the tracing when it is received back. Therefore, we do not think that the absence of a clear explanation of the "mutilations" justifies a refusal to believe testimony for Henderson on independent facts found to establish a reduction to practice earlier.

The present situation is clearly distinguishable on the above factual basis from *Globe-Union, Inc.* v. *Chicago Telephone Supply Co.*, 103 F.2d 722, 41 USPQ 366 (7th Cir. 1939) cited by Kravig. There, certain diaries of the appellee, found to be of highly doubtful authenticity by the court, related to the very acts on which the finding below rested. Moreover, the court additionally relied on other suspicious aspects of the appellee's case in reversing the decision below.

We have not overlooked a conflict in testimony betweeen Henderson and one Birkins, a sales employee of Kravig's assignee, 3M,[2]

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[1] In addition, Henderson's witness Weedmark of Harrington Tool and Die Company of Canada stated that Henderson gave him a model on May 17, 1957 and, when asked whether that model resembled what is shown in Exhibits 3A and 3B, testified:

> * * * A. Yes, it did. I cannot say that it is identical but it is substantially the same model. I have been asked this question before; and the one stipulation, the reason that I cannot tell is because I cannot see underneath that table whether that is a rubber drive or a ratchet drive.
>
> Q64. Would you indicate the parts that are in the model and that are shown in this drawing? A. The whole base, such as the letters G, P, Q, the handle L, F, the shuttle K, the prong to hold the ribbon down J, and L, the pin on which the ribbon was impaled; the other spring in here C, which held it down. Basically it is the same piece of equipment.

[2] Minnesota Mining and Manufacturing Company.

about their first meeting. Henderson stated he met Birkins at the Toy Fair in New York early in 1957 while Birkins stated he first met Henderson at the Fair held in March 1958 and produced records to show entertainment of Henderson at that time. Since there apparently were several meetings between Henderson and Birkins and other 3M representatives over a considerable period, we are unable to find anything in the conflicting testimony in this record that is thoroughly convincing either way with respect to the first meeting; neither do we find the conflict to discredit the testimony of Henderson relative to the *first* model or otherwise of any controlling significance, particularly since the date fixed by each for the meeting is subsequent to the acts on which the Board's finding of reduction to practice by Henderson is based.

[3] Kravig urges that Henderson acquired a Kravig machine from 3M by a lease dated April 5, 1959 which is prior to the time he executed an oath in his application filed December 28, 1960 swearing that the subject matter had not been in public use more than one year. He also notes that an affidavit Henderson submitted during the prosecution of his applications states that, prior to July 23, 1958, he had conceived and "had constructed at the plant of his * * * company in Plattsburgh," a machine similar to that disclosed in his application and notes that the evidence does not show that any machine was "constructed" in Plattsburgh by that date. We do not see that these matters are sufficient to discredit the credibility of the testimony of Henderson and his corroborating witnesses regarding the much earlier first model. Of course, the question whether there is a public use bar under 35 U.S.C. 102(b) against Henderson as to the counts in issue is a matter distinct from the present proceedings and is not before us for determination. It is also of interest that, although the facts as to an alleged public use through rental of a Kravig machine have been available to Kravig along with knowledge of the filing date of Henderson for a long time, the record does not reveal that Kravig took any action to have that question determined before the interference was decided.

[4] Kravig further argues that Henderson's first model was so crude as not to be the equivalent of the machines disclosed in the parties' specifications and thus cannot be a reduction to practice. It is apparent that the device was crude compared to the structures ultimately developed, but it is also evident that it embodied the invention defined in counts 1 and 2. The invention is a machine for making bows and we think it was reduced to practice when the crude machine embodying the structure of counts 1 and 2 was operated to accomplish that desired result. The record does not indicate that there was any problem as to the environment in which the machine operated; the bow making machine is not a guidance or control component, or an element of another machine of such type that operability must be determined within the operating context of the whole machine. The model did prove out the principle of operation and there is evidence that bows made thereby were used as samples by Henderson. We see no merit in the additional point, urged by Kravig, that there is no showing that the bows produced were stapled together by the machine, since the counts do not specify that the machine include any means for permanently securing the loops together while thereon.

[5] The fact that Henderson expended much additional time and effort before he obtained machines operating on the principle proved by his first machine which were commercially satisfactory does not negative the finding of reduction to practice since it is well-established that commercially satisfactory performance is not necessary to an actual reduction to practice. *Tansel* v. *Higonnet*, 42 CCA 732, 215 F.2d 457, 103 USPQ 58; *Creamer* v. *Kirkwood*, 50 CCPA 715, 305 F.2d 486, 134 USPQ 330. We also agree with the Board that, under the circumstances here, the fact that Henderson did not file his application until more than five years after his activities in connection with the operation and demonstration of the precursor of the model of Exhibits 3A and 3B does not show that those activities fell short of an actual reduction to practice. See *Knowles* v. *Tibbetts*, 52 CCPA 1800, 347 F.2d 591, 146 USPQ 59.

[6] Our conclusion that the Board erred in finding the evidence to show that the precursor of the machine of Exhibits 3A and 3B that was reduced to practice included a shaft for receiving and rotatively supporting a supply roll leaves the question of whether the extensive evidence in the record of later activities of Henderson entitles him to an award of priority as to those counts. That determination requires consideration of what the Board designated "an extremely confusing record" but did not specifically analyze from the standpoint of actual reduction to practice or diligence. Also, it may well require consideration of Kravig's evidence to determine when he entered the field, a determination the Board found unnecessary because of its conclusion Henderson had proved reduction to practice of all counts prior to any date asserted by Kravig. It will, therefore, be necessary to remand the case as to counts 3 and 6.

[7] The decision of the Board is affirmed as to counts 1 and 2 and reversed as to counts 3 and 6. The appeal is remanded to the Board for action consistent with this opinion in connection with the question of priority as to counts 3 and 6. This remand, however, is not to be construed as barring the suspension of further proceedings in this interference for the institution of public use proceedings if steps are taken which the commissioner regards as rendering such suspension appropriate.

MODIFIED AND REMANDED.

REISSUES

FEBRUARY 28, 1967

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

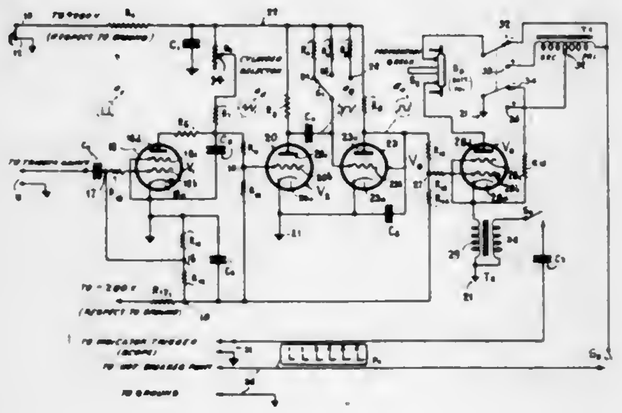
26,163

ENGINE PARAMETER ANALYZER

Benjamin F. W. Heyer, Greenwich, Conn., by The Marquette Corporation of Golden Valley, Minn., a corporation of Delaware, assignee, assignor to Marquette Corporation, a corporation of Delaware

Original No. 2,986,032, dated May 30, 1961, Ser. No. 720,688, Mar. 11, 1958. Application for reissue Aug. 12, 1965, Ser. No. 480,836

18 Claims. (Cl. 73—116)



1. In portable analyzing systems for multi-cylinder spark plug ignition internal combustion engines, a universally applicable method of testing relative performance of each cylinder of an operating engine including the steps of: applying a source of power to the analyzing system; electrically connecting the analyzing system to a common coil-distributor terminal, one spark plug cable and ground; *deriving from the connection to said one spark plug cable a triggering pulse;* setting cylinder disabling action time interval relative to the number of cylinders and the engine testing speed; thereafter running the engine at a predetermined fixed throttle opening; selecting the absolute time interval between the firing of said one spark plug *from which said triggering pulse is derived* and the firing of the spark plug which is to be selectively *disabled, then selectively* disabling electronically one or more at a time, all cylinders of the engine; simultaneously measuring the change, if any, of one or more of the engine parameters as each one or more of said cylinders is disabled; and simultaneously identifying the measurement with said specific cylinder or cylinders so disabled.

26,164

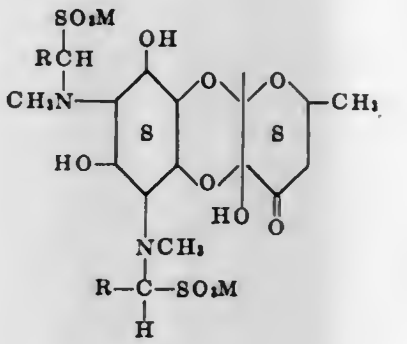
N,N'-BIS(α-SULFOALKYL)-ACTINOSPECTACINS AND PROCESS FOR THEIR PRODUCTION

Herman Hoeksema, Cooper Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Original No. 3,147,277, dated Sept. 1, 1964, Ser. No. 172,099, Feb. 9, 1962. Application for reissue May 7, 1965, Ser. No. 457,905

8 Claims. (Cl. 260—340.3)

1. N,N'-bis(α-sulfo lower alkyl)actinospectacin of formula



(I)

wherein R is *selected from the group consisting of hydrogen and* alkyl of not more than 4 carbon atoms and M is hydrogen.

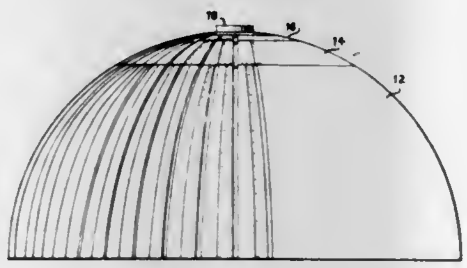
26,165

BUILDING WALL STRUCTURE

Owen M. Stolz, 825 W. Centerville Road, Dayton, Ohio 45459

Original No. 3,221,451, dated Dec. 7, 1965, Ser. No. 108,965, Nov. 2, 1960. Application for reissue Mar. 31, 1966, Ser. No. 541,057

4 Claims. (Cl. 52—80)



1. In a generally spherically shaped wall structure, a plurality of arched [sheet metal] panels *of sheet material* secured together in tiers, adjacent panels in a tier overlapping and adjacent tiers overlapping, the panels of each tier comprising fragments of a generally spherical surface and tapering from a wide base at one margin of the tier to a narrower top at the opposite margin of the tier, the width of the bases of the panels in one tier being substantially an even numbered integral multiple of the width of the tops of the panels in the adjacent tier which is disposed in overlapping relation to such bases, each panel having a central reinforcing groove formed integrally therewith and extending from its base to its top, grooves in the panels in one tier nesting with grooves in the panels of the adjacent tier, the construction and arrangement being such that the portions of overlap between adjacent panels of one tier will be staggered relative to the portions of overlap between adjacent panels of the adjacent tier.

PLANT PATENTS

GRANTED FEBRUARY 28, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,721

ROSE PLANT

Samuel McGredy, Portadown, Northern Ireland

Filed Oct. 22, 1965, Ser. No. 502,785

1 Claim. (Cl. Plt.—27)

A new and distinct variety of rose plant of the floribunda class primarily characterized by: its vigorous upright plant habit; its habit of growth in which the plant retains an average height of about three feet; its continuity of bloom; its habit of bearing medium clusters of long lasting flowers which are particularly resistant to wet weather conditions; its distinctive and attractive color tonality of the flowers corresponding to a pastel coral-salmon and which is much more striking than that found in older varieties; and the strong fragrance of the blooms.

2,722

ROSE PLANT

Walter E. Lammerts, Livermore, Calif., assignor to Amling-Devor Nurseries, Inc., Livermore, Calif., a corporation of California

Filed Oct. 23, 1965, Ser. No. 504,278

1 Claim. (Cl. Plt.—26)

A new and distinct variety of rose plant of the fluoribunda class substantially as herein shown and described primarily characterized by: soft pink carmine rose color of the bloom with little or no magenta tone developing on aging; large clusters of well spaced flowers of medium size produced in greater abundance than either parent; a vigorous, dense, compact, well rounded plant habit; and an unusually rapid succession of blooming periods.

PATENTS

GRANTED FEBRUARY 28, 1967

GENERAL AND MECHANICAL

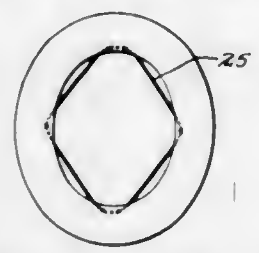
3,305,874

PLASTIC HAT

Englebert J. Peham, St. Paul, Minn., assignor to Peham Plastics Company, St. Paul, Minn., a partnership

Filed Feb. 1, 1965, Ser. No. 429,231

3 Claims. (Cl. 2—183)



1. A molded article comprising:
a hat shaped body of expanded plastic material,
said body including a crown top portion and peripheral encircling crown wall portions,
an endless elastic band,
means of securing said endless elastic band under tension at only the sides, back and front of the hat body near the lower extremity of said crown wall portions, said securing means comprising spaced portions of said band embedded in said body, said spaced portions being short relative to the remaining portions of said band,
the remaining portions of said band being unsecured to said crown wall portions,
whereby the unsecured band portions are under elastic tension with said unsecured band portions extending from one spaced embedded portion to the next spaced embedded portion of the band in a substantially straight line.

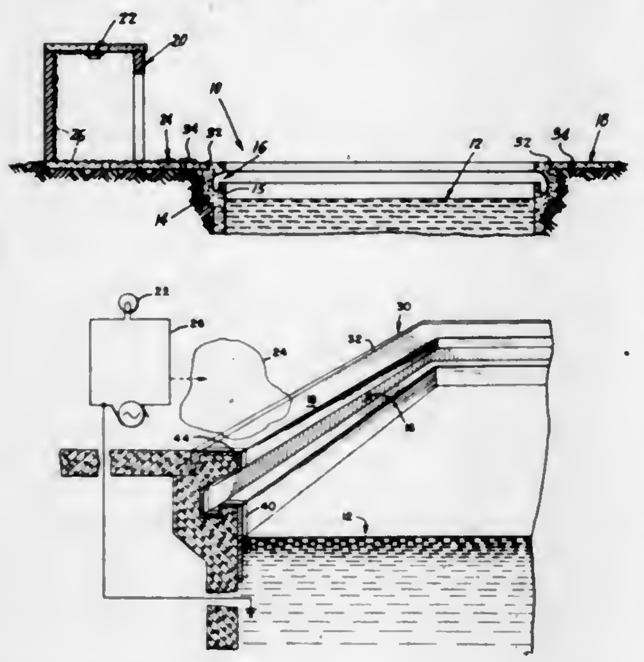
3,305,875

SAFETY DEVICE FOR SWIMMING POOLS OR THE LIKE

Charles F. Hendrick, 806 Jefferson St., Mendota, Ill. 61342

Filed Aug. 11, 1964, Ser. No. 388,829

5 Claims. (Cl. 4—172)



1. In a swimming pool containing a quantity of water and having a peripheral sideboard including portions normally spaced above the water and a deck surrounding the sideboard, the improvement which comprises at least one loop of electrically conductive material carried by the deck in spaced relationship to the sideboard, and at least one grounding element connected to said loop and extending therefrom into electrical contact with the quantity of water within the pool.

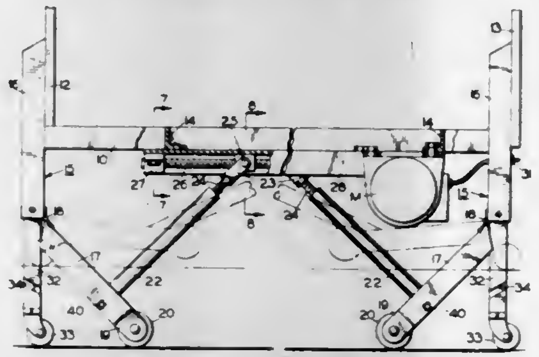
3,305,876

ADJUSTABLE HEIGHT BED

Clyde B. Hutt, 601 E. 22nd, Vancouver, Wash. 98664

Filed June 30, 1966, Ser. No. 561,911

4 Claims. (Cl. 5—11)



1. An adjustable height bed comprising a rectangular frame having four corner leg assemblies, each leg consisting of an upper section rigidly secured to the bed frame, a lower main section in said leg assembly, hinge means connecting said lower main section to said upper section enabling said lower main section to swing in beneath said frame, an extensible supplemental lower leg member slidably mounted in said upper section and straddled by said lower main section when said lower main section is in vertical position, a spring carried in said upper section and in said extensible lower member urging said extensible lower member relatively downwardly with respect to said upper section, a freely swiveling caster on the bottom of said extensible lower member, a ground-engaging wheel carried by said lower main section, cooperating lifting means for said lower main section carried by said extensible lower member and said lower main section so arranged and positioned that when said lower main section is swung into vertical position said lower main section will ride on and be supported by said extensible lower member and said wheel will be raised off the floor, means limiting the sliding of said extensible lower member in said upper section, and means for swinging the lower main sections of the four leg assemblies in unison between vertical position and retracted position extending beneath said frame.

3,305,877

BED OR CHAIR WITH SUPPORTING SURFACES HAVING ANGULAR POSITIONS VARIABLE IN RELATION TO EACH OTHER

Georg Peter Christian Nielsen, Copenhagen, Denmark, assignor to Christensen, Allen & Co., Copenhagen, Denmark, a firm

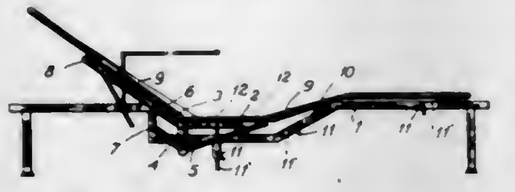
Filed Oct. 7, 1965, Ser. No. 493,771

Claims priority, application Denmark, Oct. 16, 1964, 5,133/64

4 Claims. (Cl. 5—67)

1. An article of furniture comprising a base frame means, a back supporting frame superposed relative to

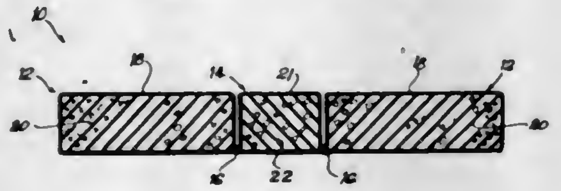
said base frame means, pivot means connecting the back supporting frame at an intermediate position of its length to the base frame means, a horizontal seat frame superposed over said frame means, link means supported from said base frame means and coupling said seat and back supporting frames so that, as the back supporting frame pivots on said base frame means, said seat frame is raised and lowered relative to said base frame while maintaining its horizontal attitude, a downwardly extending arm rigidly on said seat frame, said link means including a link extending parallel to said back supporting frame and having one end pivotally coupled to said arm at a location in vertical alignment with the pivot connection between the seat frame and the back supporting frame, and an opposite end pivotally connected with said base frame means at a location in vertical alignment below said pivot means, to constitute a parallelogram for raising and lowering the seat frame while maintaining the horizontal attitude thereof, and locking means to lock said frames in fixed position relative to said base frame means.



3,305,878

CUSHION CONSTRUCTION

Halcyon W. Hellbaum, 1713 3rd SW.
Ardmore, Okla. 73401
Filed Mar. 2, 1964, Ser. No. 348,585
1 Claim. (Cl. 5—91)



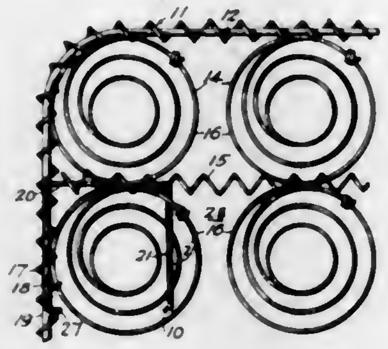
A cushion construction comprising a pair of firm outer sections adapted to essentially retain their shape when an individual sits on the cushion, said outer sections being formed of a material selected from the group consisting of felted cotton, curled hair, plastic and combinations thereof and having an upholstery cover, an intermediate section consisting essentially of a resilient foam material having an upholstery cover and normally defining top and bottom surfaces substantially coextensive with said outer sections, said intermediate section being adapted to offer negligible resistance when an individual sits on the cushion, and means interconnecting said sections whereby they can be folded relative to each other, and wherein said upholstery covers are interconnected by means of web portions, said web portions providing joints permitting folding of said sections, and wherein said web portions are formed by a continuous fabric portion extending across one face of the construction.

3,305,879

TORSION SPRING AND MATTRESS EDGE

C. Leonard Krakauer, Roslyn Heights, N.Y., assignor to Kay Manufacturing Corp., Brooklyn, N.Y., a corporation of New York
Filed Mar. 3, 1965, Ser. No. 436,863
14 Claims. (Cl. 5—260)

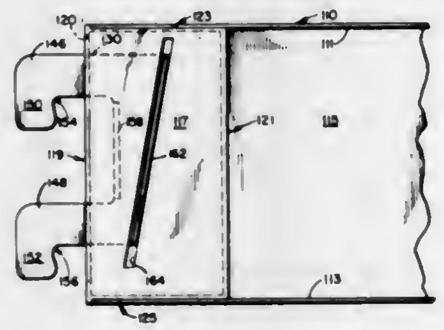
1. A one-piece torsion spring free of coils and comprising a central torsion section having a pair of similar and coextensive torsion bars extending in transverse spaced relation to each other and a bend integrally joining the corresponding ends of said bars, and collapsible and extensible means at the ends of the bars remote from the bend, coplanar with the bars and normally extended for transmitting stresses to said bars to exert torsional stress upon said bars in opposite directions on the collapsing movement of said means, said means being urged by said bars and said bend to extend toward a normal unstressed position.



3,305,880

BEDSTEAD FASTENING

Adelbert P. Cloutier, 22–24 N. Main St.,
Orange, Mass. 01364
Filed Mar. 7, 1966, Ser. No. 532,441
1 Claim. (Cl. 5—298)



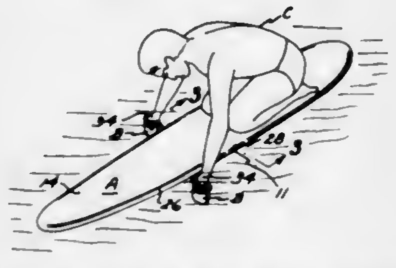
In fastening means for interengaging the adjacent working faces of metal to metal or metal to wood or wood to metal or wood to wood components, the combination of:

- (a) a latching plate;
- (b) a box-like subassembly including an outer wall held in spaced parallel relation to the said one of the components by spaced inboard and outboard end walls and spaced upper and lower walls unitary with and in right-angular relationship to the outer wall with an angularly-inclined slot extending through the outer wall;
- (c) the outboard end wall of said subassembly being slotted;
- (d) said latching plate having a main body and spaced upper and lower hooks unitary therewith and extendable through the slot of the outboard end wall and further having a primary guide extending at right angles from one side of the main body and a secondary guide extending at right angles from the other side of the main body;
- (e) the secondary guide of said latching plate being receivable in the slot of the outer wall of said subassembly as said latching plate is positioned in slidably mounted connection with the said one of the components with the primary guide of said latching plate having a bearing relationship upon the said one of the components;
- (f) spaced locking means on the other of the components and disposed inwardly of the plane of the working face of the latter;
- (g) said locking means being adapted each for interengagement with the hooks of said latching plate as the hooks of said latching plate are extended into mating position relative to the said other of the components;
- (h) the angular disposition of the slot in the outer wall of said subassembly forming a cam surface for the vertical movement of the said one of the components relative to said latching plate between an unlocked position with said latching plate disposed lowermost and a locked position with the said one of the components cammed downwardly relative to said latching plate.

3,305,881

SURFBOARD STRUCTURE

Leonard G. Meyerhofer, 1567 Stoneman Place,
Anaheim, Calif. 92802
Filed Sept. 16, 1965, Ser. No. 487,739
1 Claim. (Cl. 9—310)



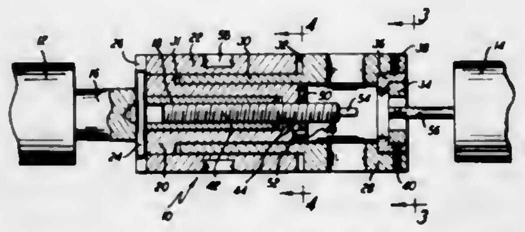
The combination with a surfboard, provided with a core of buoyant material that is encased in a waterproof sheath, of means for manually propelling said surfboard outwardly against incoming breakers, which means includes:

- (a) two laterally spaced pocket-defining means that extend inwardly towards one another in said core from opposite sides of said surfboard, with the outer extremities of said pocket-defining means being sealingly connected to said sheath;
- (b) two paddles that are slidably mounted in said pockets;
- (c) two transverse handles of greater cross section than that of the interior of said pockets in the outer ends of said paddles;
- (d) engageable means in said pockets; and
- (e) means on said handles that engage said engageable means for removably holding said paddles in said pockets when said paddles are not in use.

3,305,882

DESIGNATED LENGTH THREADING TOOL

Raymond Rodler, 165 Glezen Lane,
Wayland, Mass. 01778
Filed Aug. 14, 1964, Ser. No. 389,651
15 Claims. (Cl. 10—89)

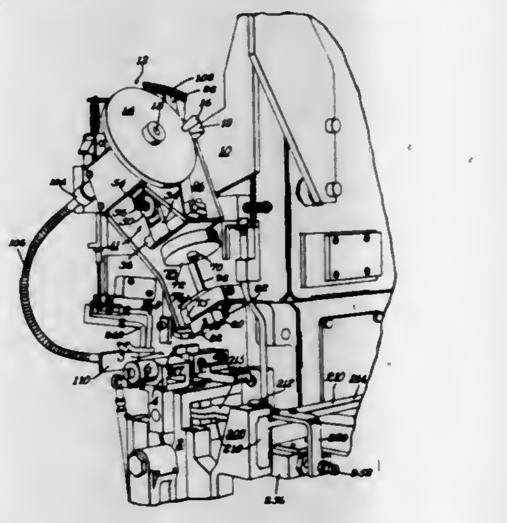


1. A threading tool comprising: a die body; a die head mounted on the body for movement forwardly of the body and for rotation with respect to the body; clutch means on the die body and die head so constructed and arranged as to preclude rotation of the die head with respect to the die body when the die head is in a rearward position juxtaposed to the die body and to permit rotation of the die head with respect to the die body when the die head is in a forward position spaced from the die body; a threading die on the die head located forwardly of the die body; a limit stop comprising a stud mounted in the die body for movement toward and away from the threading die and extending forwardly of the die body in alignment with the threading die; a collar mounted on the stud forwardly of the die body for forward and rearward adjustment of the stud; and means for removably attaching the collar to the front of the die body.

3,305,883

AUTOMATIC EDGE GAUGE CONTROLS FOR STRIP ATTACHING MACHINES

Gerald W. Cleversey, Topsfield, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed Jan. 29, 1964, Ser. No. 341,066
10 Claims. (Cl. 12—20)

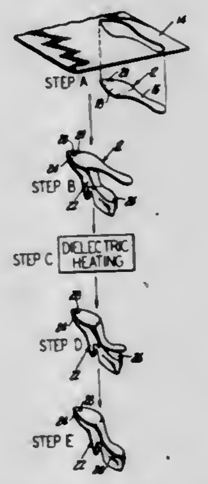


1. In an insole strip attaching machine, means for varying the rate of attachment within an operating cycle, an adjustable edge gauge for variably controlling the position of the edge of an insole during a strip attaching operation, means for automatically varying the position of said gauge during the strip attaching operation, and means responsive to the rate of attachment of the strip to the insole for controlling the operation of said gauge position varying means.

3,305,884

METHOD AND APPARATUS FOR MOLDING INSOLES

Richard J. Sullivan, Manchester, Conn., assignor to Colonial Board Company, Manchester, Conn., a corporation of Connecticut
Filed Sept. 28, 1964, Ser. No. 399,617
13 Claims. (Cl. 12—146)

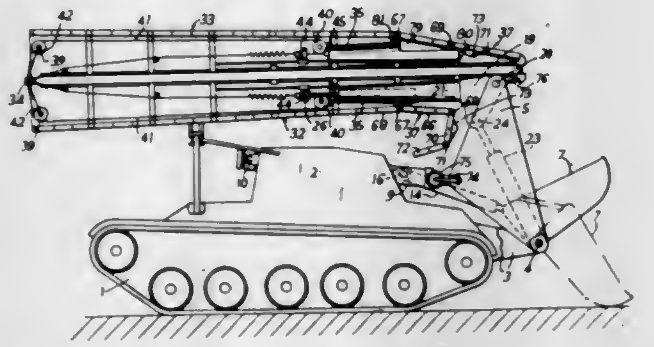


1. A method of producing an insole of perfect last conformity for use in articles of footwear and the like comprising the steps of providing an insole blank having in at least the shank portion thereof a moldable plastic;

dielectrically heating at least the shank portion of said insole to the molding temperature of the plastic; imparting to the heated shank portion of the insole an exaggerated shank configuration of greater curvature than that exhibited by the last to which the insole is to conform; and subsequently molding the heated insole to the last to provide full intimate contact between the insole and the last.

3,305,885
BRIDGE-LAYING VEHICLE

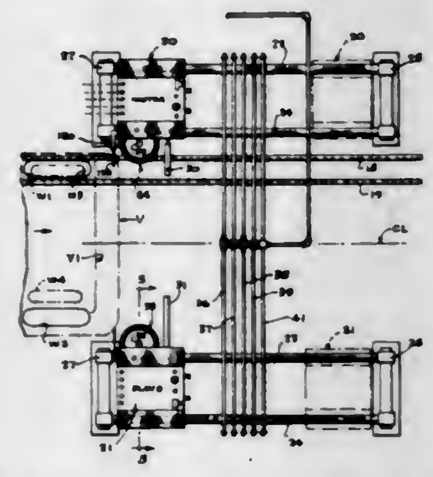
Jean Vaillant and Alexandre Vaugoyeau, both of Saint Marcel, Marseille, France
Filed Sept. 13, 1965, Ser. No. 486,651
Claims priority, application France, Oct. 1, 1962, 19,885, Patent 1,339,046
5 Claims. (Cl. 14—1)



1. A bridge-laying vehicle comprising: (a) a carriage, (b) a coupling device movably mounted on the carriage, (c) a bridge having two parts foldable about a common transverse axis, (d) first co-operating means on said coupling device and on the free end of each part of the bridge for supporting said bridge in liftable and lowerable manner on the carriage, and (e) second means on the coupling device and each part of the bridge for unfolding the bridge into extended position.

3,305,886
WHEEL WASHER

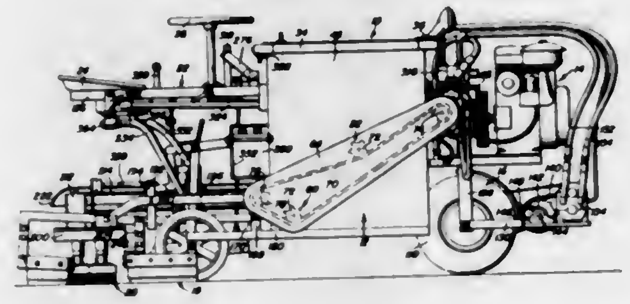
Roy Andrew Fricke, Forest Park, Ill., assignor to A. J. Industries, Inc., Los Angeles, Calif., a corporation of West Virginia
Filed Oct. 20, 1965, Ser. No. 498,926
9 Claims. (Cl. 15—21)



1. In a wheel washing apparatus for washing wheels of vehicles moving through a car wash station, a pair of opposed wheel washing carriages disposed for movement beside a vehicle, means on said carriages for washing the wheels of the vehicle as it moves, means to guide said wheel washing carriages along a path of movement between an initial position and a terminal position, driving means for driving said carriages during a return movement from said terminal position to said initial position, sensing means for sensing a pair of wheels on a vehicle during return movement of said carriages by said driving means, and control means operated by said sensing means for disabling said driving means from driving said carriage toward said initial position and for braking said carriages against continued movement toward said initial station.

3,305,887
COATING DISPENSER AND APPLICATOR

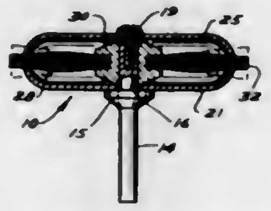
Robert W. Turner, Port Jefferson, Ohio, assignor to Turner Applicator Company, a corporation of Ohio
Filed Nov. 6, 1964, Ser. No. 409,429
10 Claims. (Cl. 15—50)



1. A mobile liquid coating apparatus comprising a wheeled frame having thereon a liquid coating material hopper and a power plant, means connected to said power plant for propelling said frame, an applicator assembly on said frame receiving coating material from said hopper and applying it to a surface to be coated, a brush assembly on said frame for scrubbing and spreading upon said surface the coating material applied thereto by said applicator assembly, means connected to said power plant and said brush assembly for operating the latter, said applicator assembly comprising a valve controlled outlet for said hopper, a squeegee assembly engaging the surface to be coated and enclosing said outlet and operable upon movement of said frame to spread said coating material over said surface, support means carried by said frame and carrying said squeegee assembly, and elevating means connected to said support means and operable to adjustably lift and lower said squeegee assembly.

3,305,888
BRISTLE CUTTING TOOL

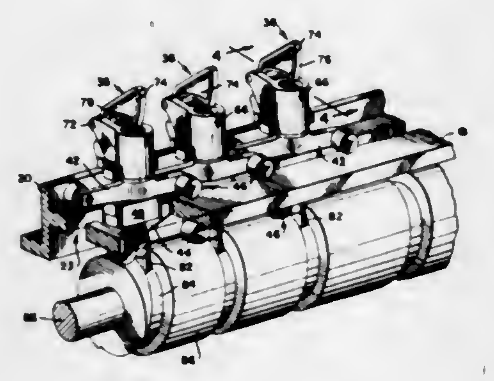
Axel A. Soderberg, 3534 Morgan Ave. N., Minneapolis, Minn. 55412
Filed May 10, 1965, Ser. No. 454,578
1 Claim. (Cl. 15—179)



A cutting tool of the class described having in combination,
a spindle,
an annular shoulder about said spindle,
a portion of said spindle extending above said shoulder,
an axial tap within said extended spindle portion,
a circular brush comprising an apertured hub and radially extending bristles,
a clamping member comprising
a pair of facing dish-shaped members respectively having peripheral portions curved to extend towards one another and having mating peripheral edge portions,
one of said facing members being seated on said spindle supported by said shoulder and having a central aperture to receive said spindle,
the other of said facing members overlying said spindle and having an aperture therein in register with said axial tap,
said brush being disposed on said spindle between said facing members and having its bristles adjacent the outer edge portions thereof clamped between said mating peripheral edge portions of said members,
the axial distance between said facing members with said bristles being disposed between their peripheral edge portions being somewhat greater than the length of said extended portion of said spindle, and
a screw threaded into said axial tap through the other of said facing members causing said facing members to bear against one another and clamp said bristles under tension.

3,305,889
BI-AXIAL STRETCHING MACHINE

Oliver G. Lewis, Westfield, Herbert H. Vickers, Union, and Howard C. North, Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed May 3, 1965, Ser. No. 452,568
10 Claims. (Cl. 18—1)

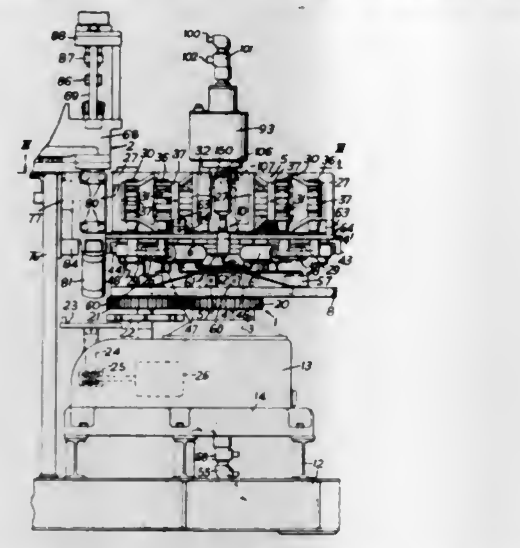


1. In a bi-axial web stretching machine the combination comprising, means for feeding a web of material to and through a stretching zone, said stretching zone being defined by guide means arranged in a diverging relationship relative to the longitudinal axis and direction of travel of said web, and a plurality of clamping means movable along said guide means for gripping the edge of said web and advancing said web through the stretching zone; each of said clamping means including a body portion having a lower projecting extension for engaging said feeding means for advancing said body portion along said guide means in fixed relation thereto, elongated slipper bearing means cooperative with said guide means for preventing rotation of said body portion relative to said guide means, and clamping arm means pivotally mounted upon said body portion for engaging the edge of said web, whereby said clamping arm means may rotate relative to said body portion while passing through said stretching zone to thereby equalize any uneven speed of feed and angle of tension in said web and reduce stress concentrations in said stretching zone.

3,305,890
INJECTION BLOW MOLDING MACHINE

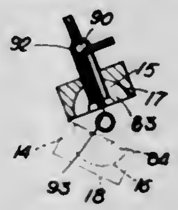
Henry Senior and Frederick A. Howlett, Leicester, England, assignors to Bakelite Xylonite Limited, London, England, a British company
Filed July 25, 1961, Ser. No. 126,592
Claims priority, application Great Britain, July 28, 1960, 26,288/60
12 Claims. (Cl. 18—5)

2. A machine for moulding hollow bodies, comprising a unidirectionally rotatable structure supporting blow-moulding means, a stationary injection die moulding assembly positioned adjacent said structure, and carrier means for transferring a blowing mandrel, carrying a parison, from said injection moulding assembly radially of the axis of rotation of said rotatable structure into the moulding means on said rotatable structure for blowing to shape in, and for travel with, said last mentioned moulding means.



3,305,891
APPARATUS FOR MANUFACTURING HOLLOW ARTICLES FROM A SOFTENED TUBULAR BLANK OF RESINOUS MATERIAL

Kenichi Nozaki, 812 2-chome Yawata-machi, Ichikawa-shi, Chiba-ken, Japan
Filed Mar. 20, 1963, Ser. No. 266,718
Claims priority, application Japan, Mar. 31, 1962, 37/12,983, 37/12,984
5 Claims. (Cl. 18—5)



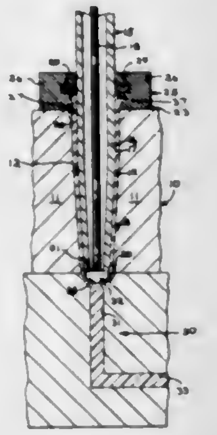
1. An apparatus for manufacturing hollow articles from a softened tubular blank of resinous material comprising a rotary disc, a plurality of split moulds mounted on the periphery of said rotary disc, means to sequentially open and close said split moulds, means to feed said softened tubular blank into an opened blank, means to attract a portion of the wall of a section of said tubular blank which is clamped by and enclosed in the closed mould so as to rupture said wall portion, said means including a pair of inner and outer concentric tubes extending from the outside to the inside of the mold, the inner end of the inner tube projecting beyond the inner end of the outer tube, and means to provide air suction to the outer tube and to introduce compressed air into said tubular blank through said inner tube.

3,305,892
METHOD AND APPARATUS FOR MAKING A BLOWN PLASTIC ARTICLE

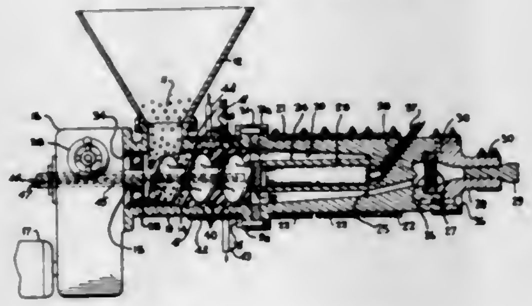
James E. Heider, Toledo, Ohio, assignor to Owens-Illinois Inc., a corporation of Ohio
Filed Jan. 2, 1964, Ser. No. 335,204
3 Claims. (Cl. 18—5)

1. Apparatus for making a parison of plasticized material including in combination, a parison mold enclosing a mold cavity and open at opposite ends thereof, a parison core projecting freely through one end of said parison mold and terminating at a free end adjacent the other end of said parison mold, said parison mold and said parison core defining an annular mold space therebetween, an end mold structure substantially closing said

other open end of said parison mold and having an orifice communicating with said annular mold space through which plasticized material may be injected into said annular mold space, said free end of said parison core having a convex surface and said end mold structure having a concave surface at said orifice confronting said convex surface, one of said surfaces having a recessed portion for accommodating flow of plasticized material from said orifice through said recessed portion to said annular space when said convex and concave surfaces are in contact with each other, said end mold structure being supported and held stationary, said parison core being axially movable to a position wherein said convex surface thereof contacts said concave surface of said end mold structure, there being no complete mold space between said free end of said core and said end mold structure when said convex and concave surfaces are in contact and said end mold structure serving to stabilize said parison core when said surfaces are in contact, and said parison core being movable axially away from said end mold structure to a position wherein said convex and concave surfaces are spaced apart providing an end mold space communicating with said annular mold space in which a closed end for a parison may be molded.

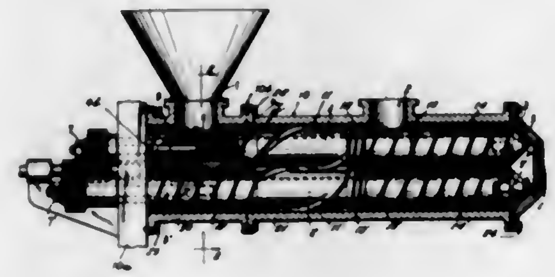


3,305,893
EXTRUDER
James F. Machen, 2495 Robinwood Ave.,
Toledo, Ohio 43620
Filed July 9, 1964, Ser. No. 381,445
3 Claims. (Cl. 18—12)



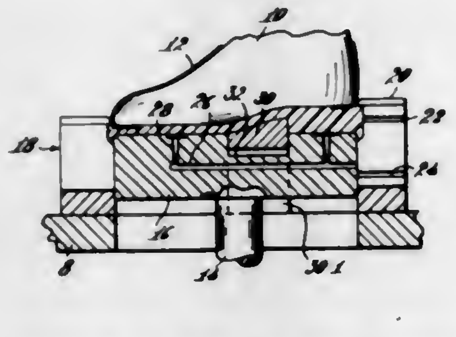
1. In an extruder of the type described:
a cool bore;
mechanical force-feed screw means rotatable in said cool bore;
feed grooves in said cool bore co-acting with said screw means;
cooling means for said bore;
cooling means for said screw;
a separate melting chamber communicating with said cool bore;
heating means for said melting chamber;
means of limiting heat conduction between said melting chamber and said bore;
the entirety of said screw means contained within the length of said cool bore;
a raw material inlet for said bore;
and, an extrudate outlet for said melting chamber.

3,305,894
TREATMENT DEVICE FOR PLIABLE MASSES
Helmut Boden, Waibling, Herbert Ocker, Leonberg, Gerhard Pfaff, Stuttgart-Mohringen, and Wolfgang Worz, Stuttgart-Zuffenhausen, Germany, assignors to Werner & Pfleiderer, Stuttgart-Feuerbach, Germany
Filed Nov. 13, 1964, Ser. No. 410,970
Claims priority, application Germany, Nov. 27, 1963,
W 35,723
12 Claims. (Cl. 18—12)



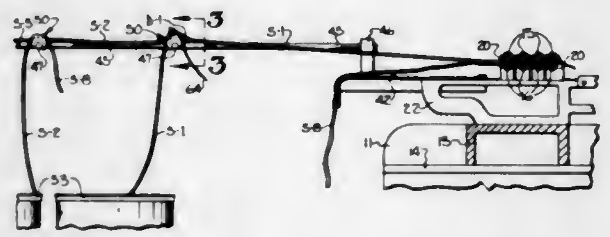
1. A device for continuously feeding and treating a mass in a pliable state by subjecting the mass successively to different treatment operations, said device comprising a rotary worm shaft, said worm shaft including a rotary drive shaft divided into at least two shaft sections, and a plurality of worm sections, at least one worm section being fully seated on one of said shaft sections axially freely slidable thereon but secured against rotation in reference thereto and several worm sections being seated on the other shaft section axially slidable thereon but secured against rotation in reference thereto, and fastening means between the adjacent ends of the shaft sections operable from the outside of said device for releasably securing the two shaft sections to each other and the worm sections thereon in fixed axial positions in reference to each other and the shaft sections whereby the two shaft sections and the worm sections seated thereon are separable by sliding the worm sections along the shaft sections upon releasing said fastening means for the purpose of replacing said one worm section seated on said one shaft section.

3,305,895
INJECTION MOLDING APPARATUS FOR SHOE BOTTOMS
Herbert Ludwig, 112 Demastrasse,
Usen, near Bremen, Germany
Filed Feb 16, 1965, Ser. No. 433,146
16 Claims. (Cl. 18—34)



1. The combination with a mold assembly of the kind wherein a sole plate is movable in a mold cavity to different positions to enable injection of successive layers of the bottom-forming composition; a barrier recessed into the sole plate, said barrier being fixed at a predetermined level, and said sole plate being movable relative thereto so that the barrier effectively excludes bottom-forming composition from the part of the mold cavity within which it is located in the different positions of said sole plate.

3,305,896
CREEL STOP MOTION
James Arthur F. Rayfield, Stanley, and Joe R. Whitehurst, Bessemer City, N.C., assignors to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina
Filed Apr. 27, 1964, Ser. No. 362,797
18 Claims. (Cl. 19—.25)



1. In a drawing frame having sets of drafting rolls, drive means for imparting movement to said rolls, and an elongate creel extending rearwardly of the drafting rolls for directing thereto a plurality of textile slivers from a plurality of sliver supply cans positioned below the creel, said creel including a series of transversely disposed and spaced apart rotatable sliver lifter rolls, drive means for imparting rotation to said lifter rolls from said drafting roll drive means, each of said lifter rolls having a row of spaced collars defining spaced apart sliver guiding slots therebetween for guiding said slivers upwardly from the supply cans and forwardly in spaced apart, side-by-side relationship to the drafting rolls, the combination therewith of sliver actuated stop motion means comprising

(a) a series of detector fingers corresponding to the number of slivers normally fed to the drafting rolls, each of said detector fingers having a free end normally adapted to ride on and be supported by the corresponding sliver,

(b) means carried by said creel for pivotally supporting said detector finger sabove a lifter roll proximally positioned relative to the drafting rolls and between said collars,

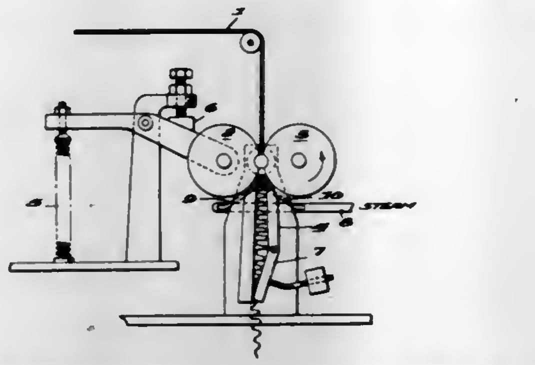
(c) each of said detector fingers having at least one sliver guiding side flange extending downwardly from the free end and toward said sliver guiding slots in said proximal lifter roll,

(d) contact means carried by said proximal lifter roll and between said collars, said contact means being supported in the pivotal path of movement of said detector fingers and being engageable by said sliver guiding side flanges when the detector fingers are not being supported by the slivers, and

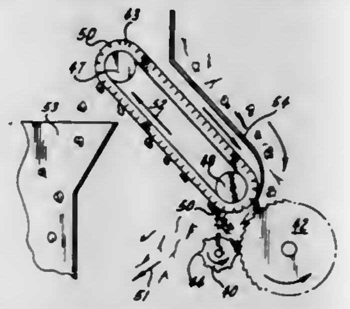
(e) electrical circuit means being operatively associated with said detector fingers and said contact means and being operable in response to engagement of any one of said side flanges of said detector fingers with said contact means for stopping the drawing frame.

3,305,897
CRIMPING PROCESS
Edgar P. H. Meibohm, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Oct. 28, 1964, Ser. No. 407,130
10 Claims. (Cl. 19—66)

1. The process of preparing crimped structures while simultaneously providing the capability of spontaneously and irreversibly extending in length which comprises passing a synthetic linear condensation polyester tow having a birefringence of at least 0.15 and a crystallinity of less than about 35% through a stuffing box crimper while at the same time heat shrinking said synthetic linear condensation polyester tow in said stuffing box crimper with a hot fluid at a temperature in the range of from about 85° C. to about 250° C., the exposure time of said synthetic linear condensation polyester tow to said hot fluid being less than about 2.0 seconds.



3,305,898
COTTON RECLAIMING APPARATUS
William E. Rood, Jr., 1500 S. 7th St.,
Phoenix, Ariz. 85007
Filed Sept. 20, 1965, Ser. No. 488,594
6 Claims. (Cl. 19—203)



3. A cotton reclaiming apparatus comprising in combination

(a) a rotating cotton cleaner saw for carrying cotton and trash substantially downwardly,

(b) a doffer comprising a plurality of radial lugs positioned proximate to the periphery of said saw,

(c) said doffer having an axis of rotation substantially parallel to the axis of rotation of said saw, and

(d) a belt travelling about a pair of pulleys,

(e) said belt defining a plurality of transverse slots which open when said belt passes over a pulley,

(f) said belt and pulleys positioned above said doffer to form a cotton reclaiming zone therebetween,

(g) the line between said pulleys inclined from the vertical away from said saw,

(h) said doffer rotating in the same angular direction as said saw to throw cotton from said saw into said reclaiming zone,

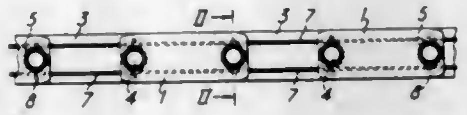
(i) said slots in said belt closing in said reclaiming zone,

(j) whereby cotton thrown from said saw by said doffer is grasped by said slots and carried from said reclaiming zone.

3,305,899
DUMMY BAR FOR CONTINUOUSLY CASTING METALS
Charles W. Saunders, Aspatria, Cumberland, England, assignor to The United Steel Companies Limited, Yorkshire, England, a British company
Filed July 6, 1964, Ser. No. 380,431
Claims priority, application Great Britain, July 10, 1963,
27,346/63
7 Claims. (Cl. 22—57.2)

1. A dummy bar for use in the continuous casting of metal comprising a chill plate and a link chain including pivoted links, at least one resilient rod extending through

the run of the chain, and means restraining the rod against lateral movement only at the pivot points of the



chain so that the rod is free to bend between the pivot points and the rod may assume a regular arc as the chain runs round a curve.

3,305,900

LIQUIDLESS FOUNDRY MOLDING PROCESS

Robert J. Mulligan, Cleveland Heights, and Jerome J. Wendt, West Richfield, Ohio, assignors to Archer-Daniels-Midland Company, Minneapolis, Minn., a corporation of Delaware

No Drawing. Filed Oct. 29, 1964, Ser. No. 407,559

14 Claims. (Cl. 22—192)

14. A liquidless foundry process for improving the surface characteristics of foundry sand structures which comprises contacting the surface of a mold or core with a gaseous suspension of finely divided refractory material wherein said gaseous suspension is a fluidized bed to thereby form a thin surface coating of refractory material on said mold or core wherein said surface is also contacted with thermoplastic resin, said resin being melted sufficiently to firmly bond said refractory material to the surface of said sand structure on cooling and wherein said refractory material has a particle size below 100 mesh.

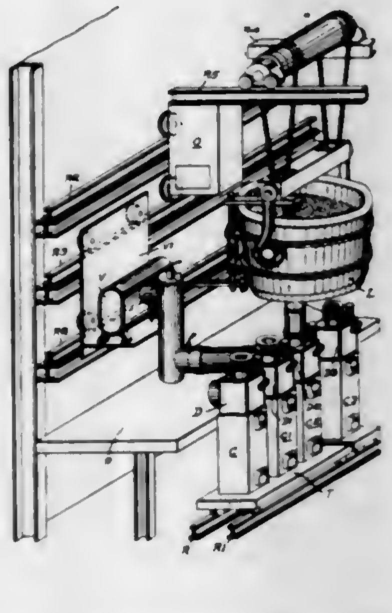
3,305,901

VACUUM CASTING METHOD OF MULTIPLE INGOT CASTING

John B. Gero, Manchester-by-the-Sea, Mass., assignor to Gero Metallurgical Corporation, Boston, Mass., a corporation of Delaware

Filed June 12, 1963, Ser. No. 287,416

2 Claims. (Cl. 22—209)



1. In a method of sequence casting of metal ingots under vacuum in which vacuum pump apparatus is connected through a series of degassing chambers connected in sealed relation to a series of ingot molds in predetermined successive time intervals and portions of molten metal are periodically released from a removable pouring ladle, having a nozzle and an adjustable ladle stopper for opening and closing the nozzle, into a lower stationary pouring ladle which is connected to the degassing chamber, the steps which include applying a vacuum in one of the degassing chambers and its ingot mold, opening the ladle stopper after the movable ladle is positioned over the stationary ladle connected to the degassing chamber, pouring molten metal from the movable ladle into the stationary ladle and through the degassing chamber into the ingot mold until the mold and the stationary ladle are substantially full, closing the ladle stopper, continuing the application of vacuum, continuing the pouring of molten metal from the stationary ladle through the degassing chamber and into the mold to substantially fill the mold and as the pouring from the stationary ladle into the degassing chamber substantially ceases, discontinuing the application of vacuum and venting the degassing chamber to atmosphere, and thereafter sequentially repeating the above steps in connection with another degassing chamber and its ingot mold in timed relation to the temperature of the molten metal adjacent the ladle stopper so that the stopper is again opened to pour molten metal from the movable ladle to another stationary ladle before the molten metal adjacent the stopper has an opportunity to freeze, the time lapsed between each of the sequential openings of the ladle stopper being in the range of 10 to 300 seconds.

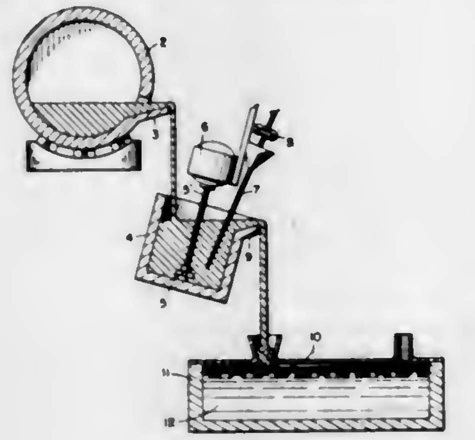
3,305,902

METHOD OF MAKING SMOOTH SURFACE CASTINGS OF FOAM METAL

Johan Augustus Bjorksten, Madison, Wis., assignor to Lor Corporation, Enid, Okla., a corporation of Delaware

Continuation of application Ser. No. 442,222, Feb. 11, 1965, which is a continuation of application Ser. No. 139,022, May 8, 1961. This application Oct. 18, 1965, Ser. No. 502,767

6 Claims. (Cl. 22—215)



1. The process of making an article comprising metal foam having a specific gravity of less than 1 and having completely enclosed cells distributed therethrough of maximum dimension from .002 inch to 1 inch and having a smooth solid non-cellular layer of material on at least one of its surfaces comprising providing a molten foamable mixture of metal and a substance which when heated provides a gas which acts to provide closed cells in said metal, providing a mold having disposed on its bottom portion a liquid layer, introducing said molten mixture while substantially unfoamed into said mold directly on top of the liquid layer, foaming said molten mixture in said mold substantially after the introduction of said molten mixture into said mold and while said mixture is in contact with said liquid, said liquid being one which melts below the molten temperature of the metal to be foamed, has a higher specific gravity than the metal to be foamed, does not react deleteriously with the metal to be foamed, and does not substantially dissolve any portion of the metal to be foamed said liquid layer having an upper surface, said upper surface providing a mold surface against which the lower surface of the foamed metal body is formed, said liquid layer and said foamed material being nonadherent, said liquid layer remaining liquid after said foaming is completed, said foamed body characterized by a smooth solid non-cellular layer of the metal of the foaming mixture being formed in contact with said liquid layer.

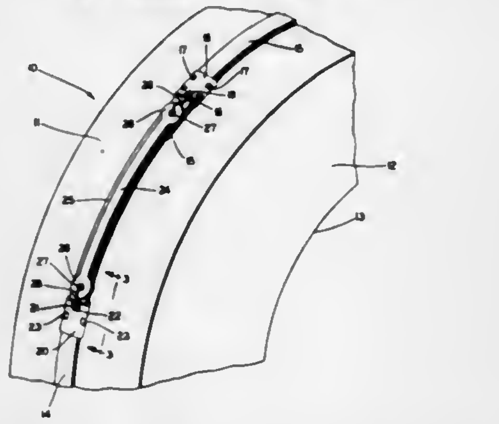
3,305,903

TIRE SAFETY STRAPPING CONSTRUCTION

Thomas D. McMahon, Warren, Ohio, assignor to Sharon Steel Corporation, Sharon, Pa., a corporation of Pennsylvania

Filed Dec. 7, 1965, Ser. No. 512,169

10 Claims. (Cl. 24—1)



1. Tire safety strapping construction including a strap extending completely circumferentially around a portion of the tread area of a tire, means securing the strap tensioned radially compressing the tire tread area portion, a resilient snubber extending circumferentially along a portion of the strap and having ends, and means securing the snubber ends to the strap; whereby, the strap may be cut adjacent the snubber at a location circumferentially between the snubber ends, and the resiliency of the snubber will allow the strap tension to be relieved while preventing the cut ends of the strap from whipping.

3,305,904

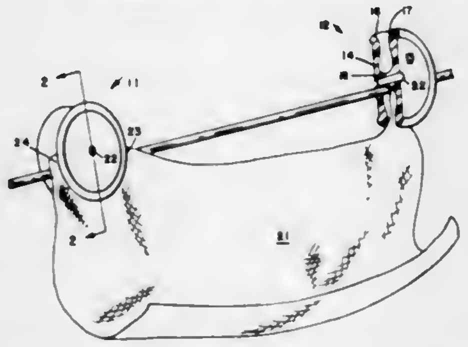
UNIVERSALLY MOUNTABLE CLOTHESLINE FASTENER

Robert T. Duarte, Nashua, N.H.

(Belair Trailer Park, R.F.D. 2, Reeds Ferry, N.H. 03078)

Filed Dec. 18, 1964, Ser. No. 419,441

1 Claim. (Cl. 24—137)



A universally mountable clothesline fastener to be mounted on a clothesline comprised of

(a) two flattened annular disks spaced apart and joined at a central portion of said flattened annular disks to provide a clothesline fastener that may be slipped over a clothesline fitting between said flattened annular disks, and

(b) said central portion having a resilient characteristic to thereby permit said flattened disks to be pressed together at any portion of said periphery which results in said flattened disks separating diametrically opposite the pressed together portion to thereby facilitate the gripping of said clothesline,

(c) said flattened annular disks each having a continuous peripherally located inwardly projecting lip,

(d) said clothesline physically cooperating with said inwardly projecting continuous lip so as to always provide two distinct gripping points on the periphery of each of said flattened disks to thereby always provide a multiple gripping action upon said clothesline and any object to be secured to said clothesline in a completely universal manner so that the clothesline fastener may be utilized without any regard to the manner in which it is handled for use as a fastener.

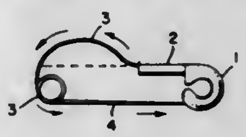
3,305,905

BUTTON PINS

Helen L. Smithson, 1860 W. Grant Road, Tucson, Ariz. 85705

Filed Oct. 30, 1964, Ser. No. 407,724

1 Claim. (Cl. 24—161)



A button pin adapted to be threaded through a fabric to retain a button thereon, said button pin having a wire shank and a guard secured to one end of the shank, the other end of the shank being pointed to facilitate threading through the garment and an associated button, the end portions of the shank being formed from unpliable material and the central portion of the shank being formed from pliable material, the shank having sufficient rigidity so that the end portions and central portion thereof are normally aligned and the central portion of the shank being sufficiently pliable so that it may be looped upon itself after the pointed end has been threaded through the button and back through the fabric to form a closed loop adapted to press against the fabric and to bias the pointed end of the shank against the guard to retain the pointed end therein.

3,305,906

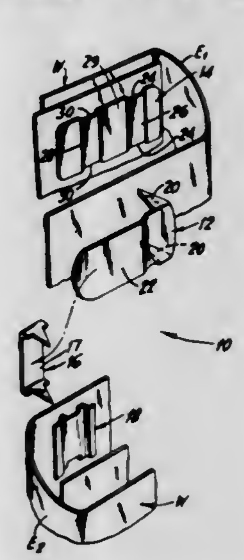
FASTENING DEVICE FOR WEARING APPAREL

Bruno S. Patrick, Port Chester, N.Y.

(828 Pelhamdale Ave., New Rochelle, N.Y. 10802)

Filed Feb. 19, 1965, Ser. No. 434,064

4 Claims. (Cl. 24—227)



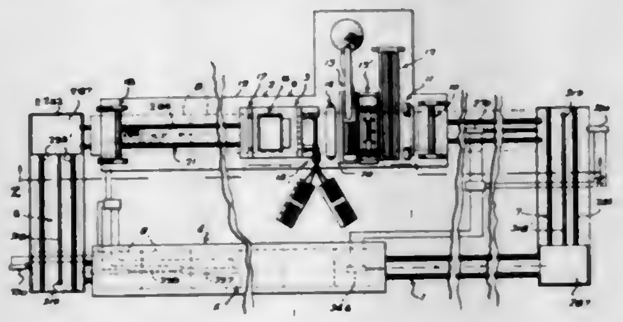
1. A fastening device for attachment to one of two ends of an article, said device being adapted to mate with a loop integral with the second end of the article, said fastening device comprising:

(a) a first, substantially rectangular sheet metal clip member having a first depression formed proximate the first end thereof and a first pair of notches formed in the elongated side edges thereof, the first pair of notches being disposed on either side of said first depression, said clip member having a second depression formed proximate the second end thereof, and a second pair of notches formed in the same elongated side edges of said clip member as said first pair of notches, the second pair of notches being disposed on either side of said second depression whereby said clip member is substantially symmetrical; and

(b) a second, substantially rectangular sheet metal tongue member having a pair of prongs extending perpendicularly from the elongated side edges thereof proximate the first end, said tongue member having and offset portion defining the second end thereof opposite said prongs, said prongs being adapted to pierce the article and be crimped over either one of the pair of notches in said clip member, whereby said offset portion is held parallel to, but slightly spaced from, said clip member in order to releasably accommodate the mating loop therebetween.

3,305,907
MACHINE FOR MAKING PRESTRESSED CONCRETE MEMBERS

Robert S. Baker, Tampa, Fla., assignor, by mesne assignments, to American Concrete Crosstie Corporation, Tampa, Fla., a corporation of Florida
Filed Feb. 11, 1964, Ser. No. 344,095
24 Claims. (Cl. 25—2)

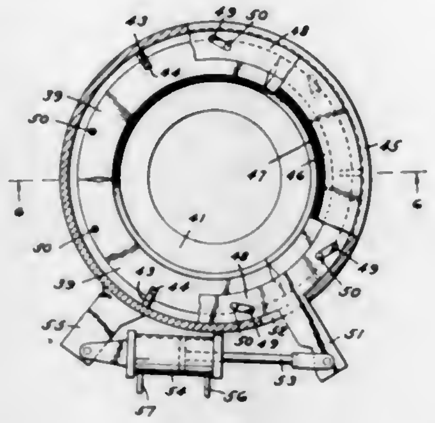


1. Apparatus for making prestressed concrete members comprising, an endless path, a curing tunnel housing a portion of the path, a concrete member forming machine having an entrance end and an exit end adjacent spaced positions along the path removed from the curing tunnel, a plurality of cars mounted for movement along the path, means to move the cars along the path, a plurality of pallets in which concrete members can be formed and cured carried on the cars and the forming machine, the pallets each having means to hold stressing cables under tension, means for transferring pallets singly from cars onto the entrance end of the forming machine, means on the forming machine to move pallets from the entrance end to the exit end, and means to transfer pallets from the exit end of the forming machine onto cars on the path, whereby prestressed concrete members may be formed on pallets on the forming machine, carried through the curing tunnel, and pallets containing cured members transferred back onto the forming machine.

3,305,908
CONCRETE PIPE SEAL GROOVE FORMING MECHANISM

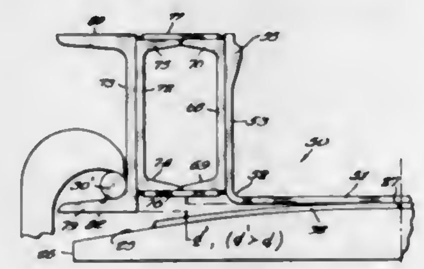
Randell C. Woods, Dearborn, Thomas J. Engle, Rockwood, Daniel J. Conley, Detroit, Ronald P. Kirchner, Dearborn, and Howard T. Rex, Franklin, Mich., assignors to Superior Products Company, Detroit, Mich., a corporation of Michigan
Filed June 17, 1964, Ser. No. 375,819
4 Claims. (Cl. 25—39)

1. A pipe seal groove forming mechanism comprising a pair of support ring plates, a plurality of split-ring groove-forming elements interposed between said support ring plates, and means for slidably actuating said split-ring elements relative to said support ring plates between a groove-forming position and a retracted position, said means including an annular ring adjacent said elements rotatably shiftable relative thereto, and cam means adapted to produce radial movement of said elements responsive to the shifting of said actuating ring, said cam means including inter-engaging pins and slots having relative radial camming components.



3,305,909
ONE-PIECE CASTING FORM

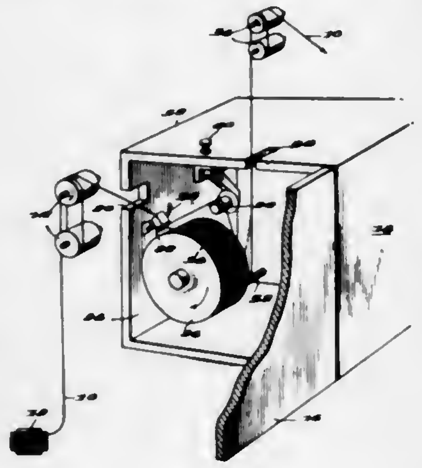
Mark J. Wise, Dayton, and Theodore W. Shoe, Troy, Ohio, assignors to The Flexicore Co., Inc., Dayton, Ohio, a corporation of New York
Filed Jan. 4, 1965, Ser. No. 422,902
2 Claims. (Cl. 25—120)



1. For use on a stripping machine for stripping long U-shaped steel casting forms, said casting forms having key forming portions extending toward each other from opposite sides, said stripping machine having means providing a contour curved plate surface over which the form bottom is arched as seen in transverse section and having pulling means on opposite sides of the contour means for engaging the form sides for pulling the form down to conform to the contour curve, said stripping machine having fixed stops for limiting the downward travel of the form sides during arching of the form bottom, said form sides being reinforced and the casting form having grip portions to be engaged by said pulling means, said contour curve being long enough to accommodate a full width casting form for casting full width slabs, said pulling means being dimensioned to cooperate with opposed grip portions on such full width forms, the spacing across such full width form grip portions being the effective width of a casting form structure, the improvement comprising a sub-standard width casting form having a U shape with a form bottom to be arched and with the U sides being closer than in a full width form to provide a narrower casting, rigid reinforcing means and grip means for each form side, said rigid reinforcing means having one portion along the outside of the form side and having a second portion extending laterally away from the form side but at a level somewhat higher than that of the form bottom, when flat, said grip portion extending from the second portion laterally away from the form side, said reinforcing means being dimensioned to space said grip means to provide the same effective width as in a full width form, said rigid reinforcing means for the sub-standard width form having the second portions thereof overlying unused contour curve portions at a high enough elevation to remain clear of such unused contour plate surfaces during stripping and having all portions, including grip portions, dimensioned to engage said fixed stops of said stripping machine when said sub-standard width form is in arched stripping position to limit the drop of grip portions, the dimensions of portions of said reinforcements and grout keys being determined by the width of the sub-standard casting, said sub-standard width casting form being usable on a stripping machine for full width forms without any adjustments or changes in the machine and without danger of over-stressing the form bottom.

3,305,910
YARN DIVERTING APPARATUS

Herbert Lee Clement, Salisbury, Md., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Mar. 24, 1965, Ser. No. 442,400
5 Claims. (Cl. 28—1)



1. In an apparatus including a driven drum having a foraminous surface around which yarn normally advances between spaced elements, guide means for diverting the yarn from said surface during stringup, said guide means comprising: a fixed support; an arm; means mounting said arm, at a point between its ends, on said support for swinging movement about an axis substantially perpendicular to that of said drum, one of said ends being adapted for engagement with said support; a cylindrical guide projecting from said arm adjacent its other end, said guide being in substantial parallelism with the drum axis when the support is engaged by said one end of the arm; and an actuator associated with said arm for swinging said one end away from the support whereby to tilt said guide downwardly out of parallelism with said drum axis and release the yarn to said surface.

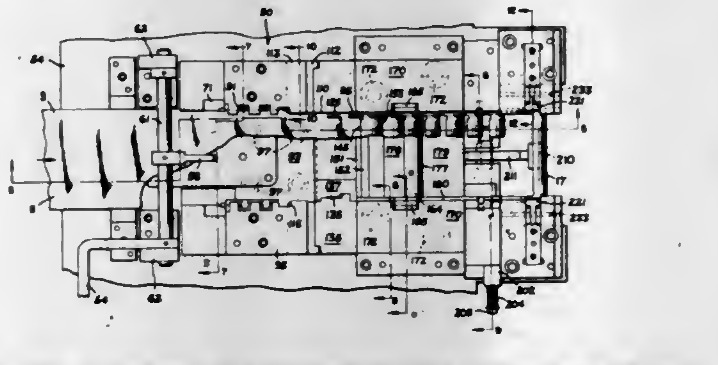
3,305,911
FABRICS

Roy Chapman and John D'Arcy Henry Hall, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Aug. 5, 1963, Ser. No. 299,978
Claims priority, application Great Britain, Aug. 30, 1962, 33,382/62
7 Claims. (Cl. 28—72)

1. A process for making knitted and woven fabrics having an open mesh construction over substantially the entire area of the fabric comprising making the fabric from undrawn synthetic yarn capable of being irreversibly elongated at least 1.75 times its length, said yarn being selected from the group consisting of polyethylene terephthalate and polypropylene; and uniformly drawing the fabric at a temperature above the second order transition temperature in at least one direction uniformly over substantially the whole area of the fabric in the plane of the fabric at least 1.75 times.

3,305,912
CENTRIFUGAL FAN MANUFACTURING

William H. Wentling and William P. Powell, both of Dayton, Ohio, assignors to The Lau Blower Company, Dayton, Ohio, a corporation of Ohio
Original application Aug. 9, 1962, Ser. No. 215,988, now Patent No. 3,253,318, dated May 10, 1966. Divided and this application Sept. 13, 1965, Ser. No. 486,682
6 Claims. (Cl. 29—23.5)



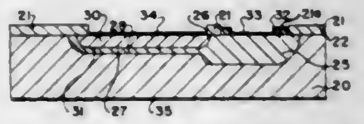
1. Die apparatus for manufacturing individual blower wheel blades from sheet metal stock, comprising upper and lower die shoe means which are movable to and from engagement with each other, means on said shoes for cutting notches in each lateral edge of the stock, guide pins for engaging said notches for controlling the movement of said stock, complementary die means on said shoe means for bending each lateral edge of the stock upwardly to a position substantially perpendicular to the plane of the stock, piercing means on said shoe means for cutting a slot inwardly of each edge of the stock to define the lateral extremities of the blade surfaces except for a connecting portion between the lateral edges and the blade surface, cutter means on said shoe means for severing the metal stock transversely thereacross between the forward portions of two of the slots to define the trailing edge of one blade surface and the leading edge of the adjacent blade surface, deforming means on said shoe means for producing the smoothly curved surface on the blade surface and a slanted shoulder on the connecting portion so that the trailing edge of the blade surface projects above the plane of the metal stock, and punch means on said shoe means for severing the blade in the area of the edges from the metal stock.

3,305,913
METHOD FOR MAKING A SEMICONDUCTOR DEVICE BY DIFFUSING IMPURITIES THROUGH SPACED-APART HOLES IN A NON-CONDUCTING COATING TO FORM AN OVERLAPPED DIFFUSED REGION BY MEANS OF TRANSVERSE DIFFUSION UNDERNEATH THE COATING

Alberto Loro, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Sept. 11, 1964, Ser. No. 395,838
5 Claims. (Cl. 29—25.3)

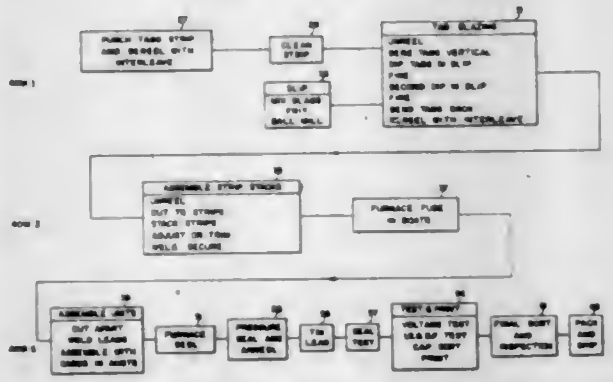
1. In the manufacture of a semiconductor device, the method steps of:

- (a) forming a non-conducting coating on a plane surface of a semiconductor body of one conductivity type;
- (b) opening a first hole through said coating to expose an area of said surface;
- (c) diffusing an impurity into said hole to form a first region of opposite conductivity type to said one conductivity type, with said region extending by transverse diffusion underneath said coating to said surface;
- (d) reforming a non-conducting coating on said surface within said area;
- (e) opening a second hole adjacent to but spaced from said first hole through the original coating to said surface;
- (f) diffusing an impurity into said second hole to form a second region of said opposite conductivity type, said first and second holes being sufficiently close together so that said second region merges with and overlaps said first region, whereby a first P-N junction is defined between said merged regions and the remainder of said body, with said junction extending to said surface underneath said coating about said merged regions, and whereby said second region overlaps said first region at said surface in an area of said first region formed by said transverse diffusion;
- (g) diffusing an impurity into said second hole to form a third region of said one conductivity type, whereby a second P-N junction is formed between said third region and said merged first and second regions, with said second junction extending to said surface underneath said coating about said third region, and whereby said second junction reaches said surface in the area of overlap between said first and second regions;
- (h) opening a third hole through said reformed coating to said surface;
- (i) and applying ohmic contacts to said first and third regions within said third and second holes respectively.



3,305,914
MANUFACTURING PROCESS FOR ELECTRONIC CAPACITORS

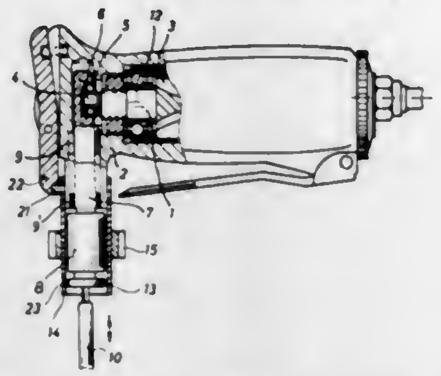
Emil J. Raue, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 28, 1964, Ser. No. 392,732
8 Claims. (Cl. 29—25.42)



1. A process for manufacturing electronic capacitors, the steps of said process comprising forming a plurality of capacitor plate tabs on a strip of conductive material, bending said tabs from the plane of said strip, dipping said tabs in a dielectric glass slip, firing said tabs, redipping said tabs in dielectric glass slip, refiring said tabs, formng a plurality of capacitor core assemblies from at least respective pairs of said tabs, and encapsulating each of said capacitor core assemblies.

3,305,915
FILING MACHINE

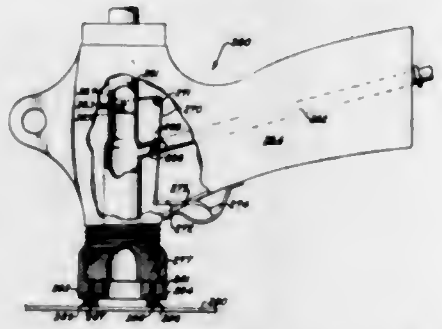
Paul Belzner, Maulbronn, Germany, assignor to Schmid & Wezel, Maulbronn, Baden-Wurttemberg, Germany
Filed June 8, 1966, Ser. No. 556,094
Claims priority, application Germany, Sept. 30, 1965, Sch 37,796
11 Claims. (Cl. 29—76)



1. A filing machine which comprises a housing, a chuck carried by said housing and rotatable relative to said housing about the axis of said chuck, a stem extension which extends axially from said chuck and is axially movably mounted in said housing and axially coupled to said chuck, said stem extension being formed in its periphery with a recess, said machine further comprising a drive eccentric rotatably mounted in said housing on an axis which is at an angle to the axis of said chuck and engaging said recess, whereby a rotation of said eccentric results in an axial reciprocation of said stem extension and chuck.

3,305,916
METHOD AND APPARATUS FOR PRODUCING A DECORATIVE EFFECT ON STAINLESS STEEL AND OTHER SURFACES

Leon L. Duncan, Washington, Mo. 63090
Filed July 2, 1964, Ser. No. 380,001
14 Claims. (Cl. 29—90)

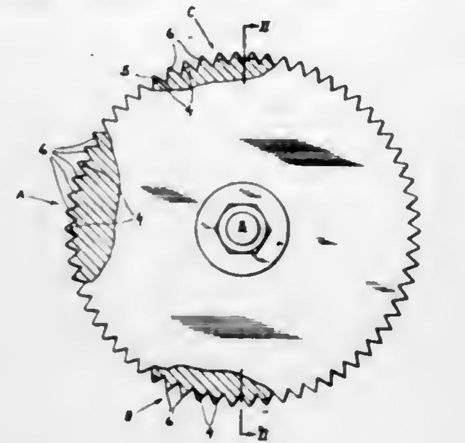


1. A method of producing a peened finish on a predetermined area of a surface which comprises the steps of conducting a stream of fluid at said surface, introducing microscopic substantially spherical glass bodies into said fluid, controlling the cross section of said fluid stream to approximately 0.04–0.4 inch from said surface, said bodies colliding with said surface and producing microscopic indentations thereon in a configuration substantially conforming to the aforesaid controlled cross section of said fluid stream and permitting said bodies to escape substantially laterally of said fluid stream.

3,305,917
CUTTING BLADE

Günther Grassmann, Eddesse uber Peine, Germany
Filed May 28, 1964, Ser. No. 370,973
Claims priority, application Germany, May 28, 1963, G 37,835
5 Claims. (Cl. 29—103)

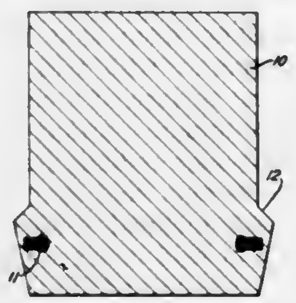
1. A cutter blade for the milling of hot ingots, said blade having a body integrally provided with a succession of sawteeth, certain of said sawteeth having cutting edges split by wedge-shaped notches into oppositely inclined positions spread out sideways beyond the lateral



surfaces of said body, said portions having cutting edges aligned in a direction perpendicular to said lateral surfaces with a combined length of said cutting edges substantially equal to the thickness of said body.

3,305,918
METHOD OF PRODUCING COMPOSITE CAST-FORGED ALUMINUM PISTON WITH BONDED FERROUS RING CARRIER

Earl W. Christen, Toledo, Ohio, James F. Seeley, Royal Oak, Mich., and Gerald V. Kingsley, deceased, late of Detroit, Mich., by Mildred W. Kingsley, administratrix, Detroit, Mich., assignors, by mesne assignments, to Universal American Corporation, New York, N.Y., a corporation of Delaware
Original application Mar. 19, 1963, Ser. No. 266,458, now Patent No. 3,183,796, dated May 18, 1965. Divided and this application Aug. 4, 1964, Ser. No. 393,467
2 Claims. (Cl. 29—156.5)



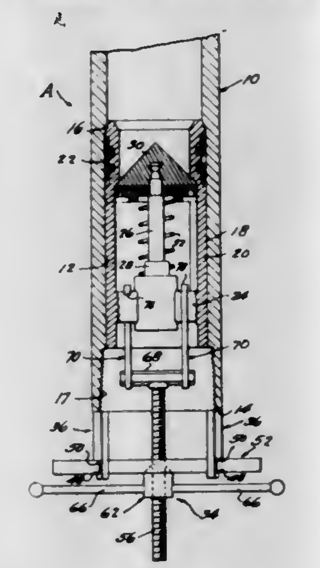
1. The method of producing a composite cast-forged aluminum piston which comprises:

- (A) placing a suitably-prepared ring band in a mold in such a position that it will be located near the periphery of the piston head,
- (B) casting aluminum about the band so as to form a blank comprising a solid aluminum cylinder surrounding and metallurgically bonded to the ring band, the portion of the blank which contains the band being the head end, and the opposite end being the skirt end,
- (C) machining the cast blank to expose the outer surface of the ring band and to provide a blank of the desired length,
- (D) placing the machined blank in a die with the head end down, after lubricating the upper portion of the die cavity,
- (E) engaging the skirt end of the blank with a punch to form the inside of the piston and to produce a forged substructure including the piston skirt, pin bosses, boss supporting parts, and a substratum forming the lower part of the piston head,
- (F) limiting the travel of the punch to such an extent that cast structure is preserved in the top of the piston head and in the area surrounding the ring band.

2. A method as specified in claim 1 in which the ring band is formed of ferrous material.

3,305,919
PULLING TOOL

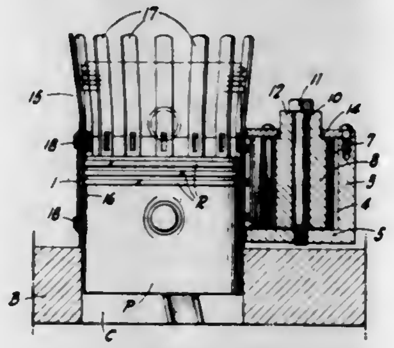
Leslie C. Pierce, 2816 NW. 58th St., Oklahoma City, Okla. 73112
Filed Apr. 23, 1965, Ser. No. 450,296
7 Claims. (Cl. 29—213)



5. A pulling tool comprising a transverse pressure bar having slidably adjustable engagers on its opposite ends and extending laterally therefrom, said pressure bar being formed with a central smooth opening, the side of the pressure bar remote from the engagers being formed with an enlarged diameter recess aligned with said opening, a screw extending freely through the opening of the pressure bar, a nut threaded on the screw and rotatably engaged in said recess, the end of the screw remote from said nut carrying a rotatable cross bar, hooks slidably engaged on opposite ends of the cross bar, and means for rotating the nut.

3,305,920
PISTON RING COMPRESSOR

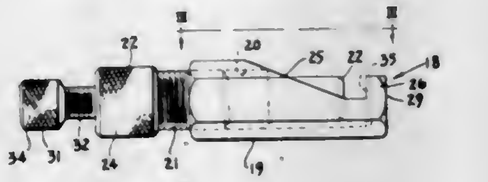
James P. Massey, 2620 Jasmine Ave., Stockton, Calif. 95207
Filed Feb. 3, 1965, Ser. No. 429,994
2 Claims. (Cl. 29—222)



1. A piston ring compressor comprising a flexible band having separated ends, the band being adapted to surround a piston and having piston ring engaging fingers thereon, a casing disposed exteriorly of the band and to one side of which the band at one end is secured, the casing being formed with a socket deeper than and alined with the band and having a full-depth slot to one side of and immediately adjacent the secured end of the band, a spool in the socket parallel to the band, the other end of the band extending through the slot and into the socket and being secured to the spool for wrapping of the adjacent portion of the band thereabout,

means turnably mounting the spool in the socket, means to rotate the spool from exteriorly of the casing, and means provided with the spool mounting means to clamp the spool against rotation.

3,305,921
TOOL
Loyal P. Morse, 315 Eagle St., Medina, N.Y. 14103
Filed June 23, 1965, Ser. No. 466,302
8 Claims. (Cl. 29—229)



5. A tool for pressing a collar onto a snap ring mounted in a groove on a shaft comprising a body member having a tubular tapped portion and a cut-away portion adjacent thereto, a seat extending from said body portion remote from said tubular tapped portion and in substantial alignment therewith, said cutaway portion permitting said seat to be advanced radially onto a shaft for engaging the portion of a collar facing away from a snap ring, a snap ring engaging member including a tubular end portion of slightly larger diameter than said shaft for guiding said snap ring engaging member axially on said shaft, threads on said snap ring engaging portion for mating engagement with said tapped portion of said body member, first means at one end of said snap ring engaging member for engaging said snap ring, and second means on the other end of said snap ring engaging member for effecting the turning thereof to thereby cause said first means to engage the side of said snap ring remote from said collar while said seat engages the portion of said collar remote from said snap ring to thereby pull said collar into spring-locked engagement on said snap ring.

3,305,922
METHOD FOR EXPLOSIVE WELDING AND EXPLOSIVE WELDED PRODUCTS
Cornelis A. Verbraak, Delft, Petrus J. M. Boes, The Hague, Ervin G. Chirer, Delft, and Leo Visser and Arie Verkaik, Rotterdam, Netherlands, assignors to Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer, The Hague, Netherlands
No Drawing. Filed Mar. 28, 1963, Ser. No. 268,577
Claims priority, application Netherlands, Apr. 10, 1962, 277,049
17 Claims. (Cl. 29—492)

1. A method for the explosive welding of metal work pieces comprising the steps of:

arranging metal work pieces so as to have opposing surfaces at which a welded joint is to be formed;

applying a layer of explosive to one of said work pieces;

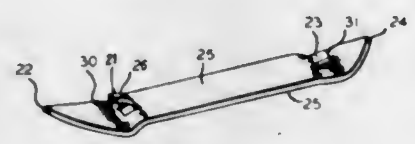
applying at least one substantially continuous layer of at least one intermediate metal to at least one of the surfaces at which the joint is to be formed, the melting point of the intermediate metal being lower than the melting point of at least one of the metal work pieces; and

initiating said explosive so that detonation is propagated through said work piece having said explosive applied thereto so as to form a welded joint between said metal work pieces in the form of a continuous coherent ductile zone of mixed crystals with the layer of intermediate metal being of such thickness that after the explosive welding the intermediate metal atoms are quantitatively present only in this ductile zone.

3,305,923
METHODS FOR BONDING DISSIMILAR MATERIALS
Frantisek Zimmer, Brussels, Belgium, assignor to Bureau d'Etudes Industrielles Fernand Courtoy, Brussels, Belgium, a Belgian limited company
Filed June 9, 1964, Ser. No. 373,638
10 Claims. (Cl. 29—528)

1. A method of producing a metallic transition piece for bonding two materials having substantially different coefficients of expansion; comprising, continuously melting a body of at least two metals having coefficients of expansion substantially different from one another and substantially the same as respective ones of said materials, and cooling the melted body of metals to form an ingot of continuously varying content of said metals whose coefficient of expansion varies continuously from the coefficient of expansion of one of said materials at one end to the coefficient of expansion of the other of said materials at the other end and as a smooth S-shaped function.

3,305,924
CAN PIERCING DEVICE
Frank S. Caravella, 4321 N. 13th St., Milwaukee, Wis. 53209
Filed Nov. 5, 1964, Ser. No. 409,164
1 Claim. (Cl. 30—16)



A can piercing device to be used in connection with a can having a soft top comprising: at least one piercing blade having a point at an extremity thereof, a body portion extending from said piercing blade, and at least one tongue portion extending from said body portion and being disposed to cooperate with said point by gripping the bead and peripheral surface of a can while said point pierces said can, said tongue portion extending toward said pointed tip and having a radially formed portion with a concave surface at its end, said tongue portion having bevelled sides that are inclined inwardly toward each other and terminating at said concave surface, said radially formed portion being curved to contact the circular bead at the top of a can and said concave surface being curved to contact the outer peripheral surface of said can immediately below the bead of said can, whereby angular movement of the piercing blade is prevented and when said point of said piercing blade is brought downward to pierce said can, it has flat contact with said can and a smooth edge on both sides of the pierced opening is assured.

3,305,925
TANGENTIAL TRIMMER
William J. Middleton, Jr., Orlando, Fla. (1664 N. Taylor Drive, Dover, Del. 19901)
Filed July 6, 1964, Ser. No. 380,235
8 Claims. (Cl. 30—289)

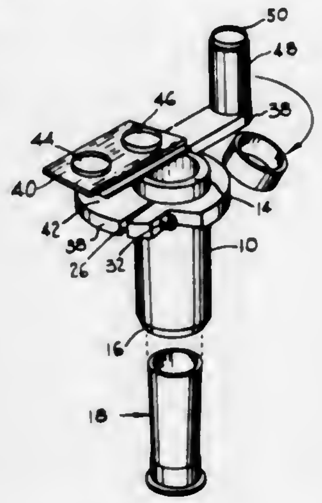
1. A tangential trimmer for trimming the open end of a shotgun shell comprising, in combination:

(a) a cylindrical sleeve having a predetermined length and diameter for holding said shell to be trimmed in such a position that a portion of said shell protrudes a predetermined distance beyond one of the ends of said sleeve;

(b) a circular guide ring connected to said one end of said sleeve and extending substantially perpendicular to the axis of said sleeve, said guide ring being adapted to rotate about the axis of said sleeve, with the axis of said guide ring being eccentrically positioned with respect to the center of said guide ring;

(c) an elongated cross-link having one of its ends pivotally connected to said guide ring, said cross-link being adapted to pivot about an axis which is parallel to the axis of said sleeve but spaced from both the axis and the center of said guide ring;

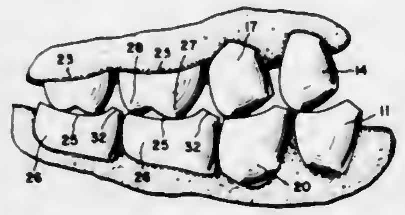
(d) a rectangular razor blade having at least one straight edge;



(e) a clamp member connected to said cross-link for rigidly holding said blade between the ends of said cross-link so that said straight edge faces inwardly toward the axis of said sleeve; and

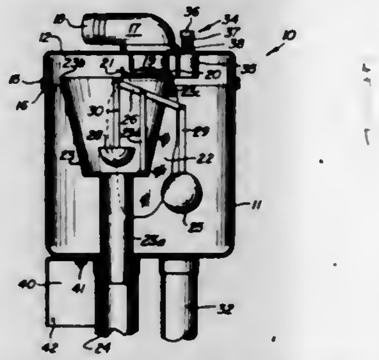
(f) a crank pivotally connected to the other end of said cross-link so that when said crank is rotated, said cross-link will pivot until said straight edge tangentially abuts said protruding portion of said shell, whereupon said guide ring rotates thereby causing said straight edge to cut said shell along a circular arc at the tangential points of contact of said straight edge with said shell.

3,305,926
ARTIFICIAL DENTURES
Albert Gerber, 11 Plattenstrasse, Zurich, Switzerland
Filed Nov. 4, 1963, Ser. No. 321,118
Claims priority, application Switzerland, Nov. 9, 1962, 13,155/62
2 Claims. (Cl. 32—2)



1. A set of dentures, including: first upper and lower premolar teeth, said upper premolar tooth having a chewing groove concave in transverse and longitudinal section, said lower premolar tooth having a cooperating cusp convex in transverse and longitudinal section, said cusp being more sharply curved over its surface that cooperates with the groove than said groove, and the deepest point of said groove in transverse section being displaced towards the lingual side of the tooth; second upper and lower premolar teeth, said lower premolar tooth having a chewing groove concave in transverse and longitudinal section, said upper premolar tooth having a cooperating cusp convex in transverse and longitudinal section, said cusp being more sharply curved over its surface that cooperates with the groove than said groove, and the deepest point of said groove in transverse section being displaced towards the lingual side of the tooth; first and second upper and lower molars, said upper molars each having at least two cusps, which cusps are spaced transversely of the respective tooth and are convex in transverse and longitudinal section, said lower molars each having a chewing groove cooperating with the said two cusps of the upper tooth which is concave in transverse and longitudinal section, said cusps being more sharply curved over their surfaces that cooperate with the respective grooves than the groove, and the deepest point of said grooves in transverse section being displaced towards the lingual side of the teeth.

3,305,927
CATCH RECEPTACLE FOR EVACUATIVE SUCTION APPARATUS
Joseph K. Mitchell, Sandy, Utah, assignor to Vacudent Manufacturing Company, Salt Lake City, Utah, a corporation of Utah
Filed Oct. 2, 1964, Ser. No. 401,138
3 Claims. (Cl. 32—33)



1. A catch receptacle for use in evacuative suction apparatus comprising

a housing;

an air inlet to said housing;

a drain from said housing;

an evacuative air flow conduit extending upwardly into the housing;

a baffle surrounding the terminal end of said evacuative air flow conduit in the housing and being flared upwardly and outwardly therefrom;

a valve positioned within said baffle;

a float in said housing and outside said baffle;

means interconnecting said float, and said valve, whereby a predetermined accumulation of liquid in said housing raises said float to move the valve to a position closing the terminal end of said evacuative air flow conduit in the housing;

means for moving said valve from its position closing the conduit to an open position in opposition to suction in the conduit acting on the said valve, when liquid in the housing is below a predetermined level; and

means closing said drain from the housing when a vacuum exists in said housing, but movable to an open position in the absence of such a vacuum.

3,305,928
DENTAL MATRIX BAND
Benjamin F. Toffiemire, Lafayette, Calif. (41301 Crest Drive, Hemet, Calif. 92343)
Original applications Dec. 16, 1963, Ser. No. 330,756, now Patent No. 3,237,307, dated Mar. 1, 1966, and Oct. 26, 1964, Ser. No. 406,371. Divided and this application Nov. 20, 1964, Ser. No. 412,817
1 Claim. (Cl. 32—63)

A dental matrix band comprising:

(a) a strip of pliable material having an arcuate central portion and a pair of arms extending from the ends of the arcuate central portion, each arm defining a terminal tip at its outer end;

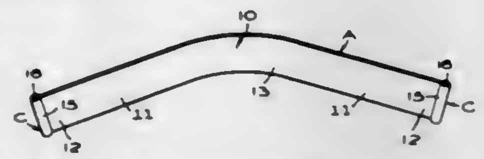
(b) the strip having inner and outer faces;

(c) a pair of traction instrument-engaging abutments provided on the terminal tips of the arms to extend at substantially right angles relative to the lengths of their respective arms;

(d) the abutments projecting laterally beyond at least one face of the strip, and being reinforced so that they will not be sheared off when traction force is exerted thereon;

(e) the terminal tip and abutment on one arm being independent and unsecured to the terminal tip and abutment of the other arm, whereby the arms may be selectively moved into parallel contacting relation with one another or the arms freely separated relative to each other;

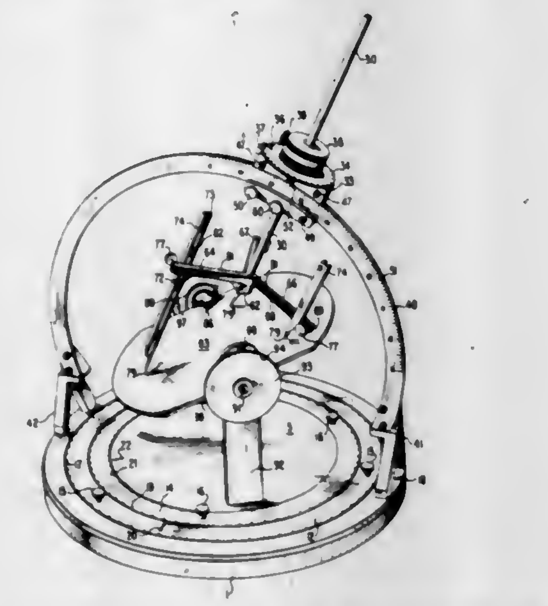
(f) the abutments being defined by independent tubular ends on the tips of the strip that surround and embrace separate rods, the tubes being fixed to their respective rods.



3,305,929
DIP MEASURING INSTRUMENT

Lauren G. Kilmer, Tulsa, Okla., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

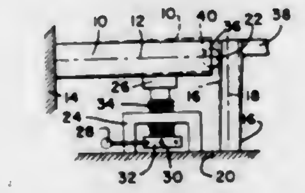
Filed May 8, 1964, Ser. No. 365,875
11 Claims. (Cl. 33—1)



1. A measuring instrument for determining and producing a visual representation of the true dip and direction of dip of a subsurface stratum encountered by a borehole from information derived from a logging tool having at least three measuring devices angularly spaced about the axis of said tool, which information includes the depth at which each of said devices encountered said stratum, the displacement of said devices from the axis of said tool, the deviation of the tool axis from vertical, the direction of said deviation with respect to a reference direction, and the angular position of said tool with respect to a reference direction, said instrument comprising a mounting frame having a base and a parti-circular track mounted on said base; read-in apparatus comprising a carriage adjustably mounted on said track for displacement from a zero position corresponding to the deviation of said tool axis from vertical, a shaft rotatably mounted on said carriage and having a free end dependent therefrom in a vertical plane adapted for angular displacement relative to said vertical plane corresponding to said angular position of said tool, means mounted on said free end of said shaft for movement therewith to the said angular position of said tool with respect to a reference direction including a pointer for each said measuring device, each said pointer being independently movable laterally and longitudinally for displacement with respect to said shaft to a position corresponding to the lateral and longitudinal position of a respective one of said devices where it encountered said stratum; and read-out apparatus comprising a flat plate mounted on said base beneath said free end of the shaft for rotation about a vertical axis in said vertical plane and about a horizontal axis parallel to the flat upper surface of said plate for displacement into the plane of said pointers to cause said pointers all to rest against said plate, means for indicating the angle between the plane of said upper surface of said plate and the horizontal as an indication of the true dip of the stratum, and means for indicating the direction of the downward slope of said plate comprising two circular rings, one of said rings including means for reading-in said direction of the well deviation with respect to a reference direction and the other of said rings including means for reading-out the direction of the downward slope of said flat plate with respect to the reference direction against an additional reference on said one of said rings.

3,305,930
POSITIONING APPARATUS

John A. Cupler II, Cupler Drive, La Vale, Md. 21502
Filed May 12, 1964, Ser. No. 366,714
20 Claims. (Cl. 33—147)



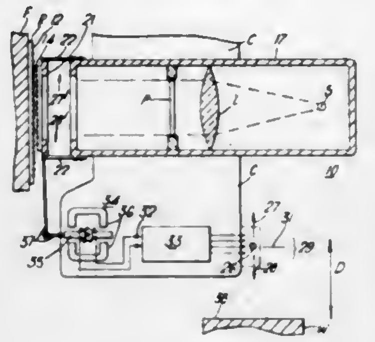
1. Positioning apparatus comprising support means, first and second resilient members having substantially perpendicular intersecting longitudinal axes, each having an end fixed to said support means and each having a free end, said free ends providing relatively proximate portions, spacing means interposed between the proximate portions of said members and applying stress to said members within their elastic limits under all conditions of operation, and adjustable force applying means engaging said first member to impart movement thereto transversely of its axis and produce transverse positioning motion of said second member through said spacing means.

3,305,931
MEASURING APPARATUS

Andrew Guy Kerr, Edinburgh, Scotland, assignor to Ferranti, Limited, Hollinwood, Lancashire, England, a company of Great Britain and Northern Ireland

Filed May 7, 1965, Ser. No. 453,935
Claims priority, application Great Britain, May 8, 1964, 19,189/64
9 Claims. (Cl. 33—172)

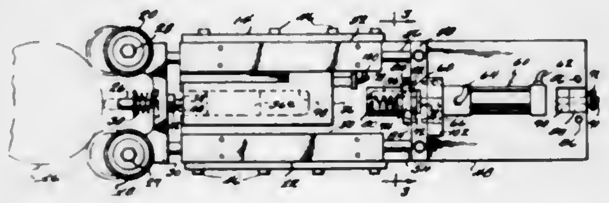
1. Measuring apparatus to respond to the movement of a probe in a given direction with respect to a reference structure including a reference optical grating secured and fixed to said structure and extending in said direction, a carriage movable in said direction with respect to said structure and said reference optical grating, a resiliently mounted probe supported by the carriage, said probe having a tip movable within a restricted range of resiliently-resisted movement in said direction with respect to the carriage from a normal position of the tip, an index optical grating supported by the carriage, the gratings being ruled and combined to set up an optical pattern movable with respect to the carriage as the carriage moves with respect to the structure, photoelectric transducers for responding to such movement of the pattern, display means connected to the transducers for deriving from their responses the required measurement, and connection means between the probe and the index grating to compensate for movement of the probe tip in said restricted range from the normal position by a fully compensatory movement of the same extent and sense of the index grating with respect to the carriage, preventing the display means from responding to those movements of the carriage which result in said restricted movements of the probe tip.



3,305,932
INSPECTION EQUIPMENT HOLDER AND POSITIONING APPARATUS

Charles W. Iselin, Elmira, N.Y., assignor, by mesne assignments, to Rexall Drug and Chemical Company, Los Angeles, Calif., a corporation of Delaware

Filed June 26, 1964, Ser. No. 378,402
3 Claims. (Cl. 33—178)



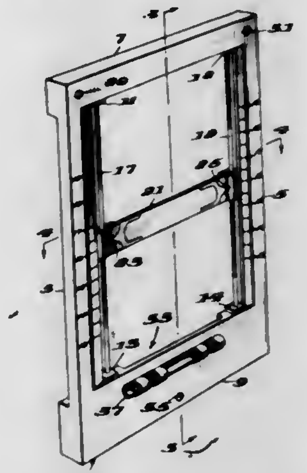
1. Apparatus for holding equipment used to sense a desired characteristic of a rotatable object, comprising:
- a pair of freely rotatable wheels,
- first yoke means for mounting said wheels spacedly to position said object,
- second yoke means,
- a pair of parallel rods transversely spaced and interconnecting said first and second yoke means,
- stationary means forming a support for at least part of said equipment and having means in which said rods are slidable,
- motor means secured to said stationary means, and
- single spring means coupling said motor means to said second yoke means in such a way as to cause said wheels to move in unison forwardly toward said object with the force of the spring means and rearwardly therefrom without that force when the motor means forces forward and rearward movement thereof.

3,305,933
NECKTIE MARKING DEVICE

Herbert L. Munday, Jr., 319 E. Monroe Ave., Alexandria, Va. 22301
Filed Aug. 10, 1964, Ser. No. 388,394
1 Claim. (Cl. 33—189)

A necktie marking device for marking neckties at a measured point to enable the wearer to form a knot in a position such that the necktie ends hang in evenly matched relationship comprising
- a frame having
  - a pair of spaced parallel sides with indicia thereon corresponding to a range of neck sizes,
  - a bottom member joining said parallel sides,
    - said bottom member having a slot therein to accommodate a necktie passing therethrough,
    - a hole in said bottom member communicating with said slot, and
  - a slidable member mounted on said frame to move parallel to said sides and cooperating with said indicia to indicate predetermined neck sizes,

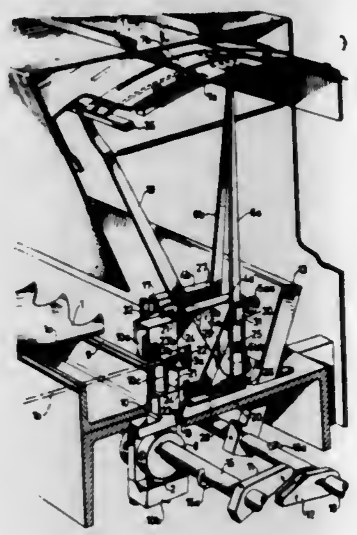
whereby a necktie may be positioned over said slidable member and adjusted to a predetermined neck size to extend through said slot to permit marking of the necktie through the hole to indicate a desired starting position for the forming of a knot.



3,305,934
MEASURING DEVICE FOR SAW TEETH

Tord Eric Pettersson, Solna, Sweden, assignor to Berthen AG, Basel, Switzerland, a joint-stock company of Switzerland

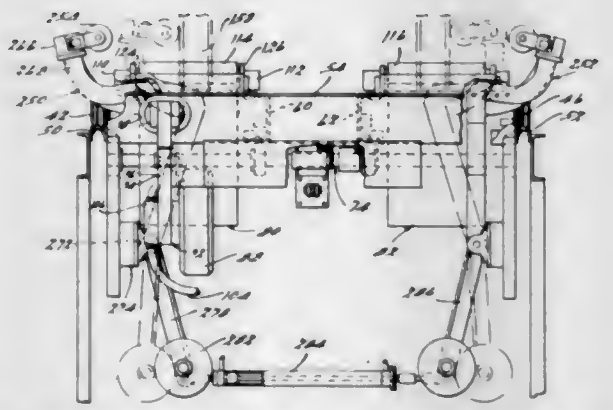
Filed Nov. 16, 1964, Ser. No. 411,464
Claims priority, application Sweden, Nov. 22, 1963, 12,931/63
10 Claims. (Cl. 33—202)



1. A measuring device for saw-blades for gauging the distance that the side edge of a tooth point projects beyond the side of the saw-blade, comprising support means for the saw-blade forming a geometrical measuring plane, movable clamping means adapted to clamp the saw-blade in a fixed position on said support means, measuring means mounted on said support means comprising a pair of movable opposed sensing members adapted to be moved into and out of engagement with opposite sides of a saw-blade tooth to sense the location of said saw-blade tooth, scale means mounted on said support means and movable with said clamping means to position

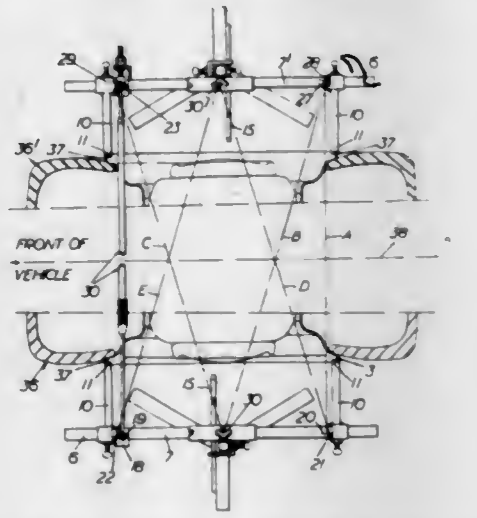
said scale means in accordance with the thickness of the saw-blade and indicating means connected to said sensing means and movable relative to said scale means to indicate the above-mentioned distance.

3,305,935
VEHICLE TEST SYSTEM
Mark J. Cady, Detroit, and Dag J. Eidnes, Livonia, Mich., assignors to Lynch Corporation, Detroit, Mich., a corporation of Indiana
Filed Sept. 29, 1964, Ser. No. 400,020
20 Claims. (Cl. 33—203.13)



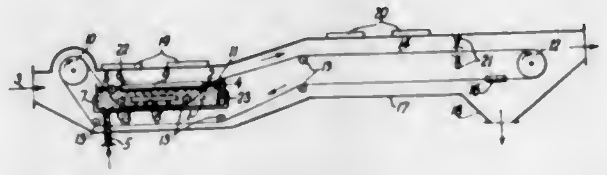
15. In an apparatus for measuring the toe-in of a vehicle having steerable wheel assemblies, the combination of first sensing means effective when brought into engaging relationship with a surface of one of the wheel assemblies for sensing the angular relationship between the associated wheel assembly and a reference, second sensing means effective when brought into engaging relationship with a surface of the other one of the wheel assemblies for sensing the angular relationship between the associated wheel assembly and a reference, and actuating means for concurrently bringing said first and second sensing means into engaging relationship with the associated wheel assemblies comprising pivot arm means individual to and supporting each of said sensing means and pivotable about horizontal axes which are generally parallel with one another and with the longitudinal axis of the vehicle, and power-exerting means for pivoting said pivot arm means to bring said sensing means into engaging relationship with the respective wheel assemblies.

3,305,936
APPARATUS FOR CHECKING THE TRACKING OF THE FRONT WHEELS OF A MOTOR VEHICLE
John W. Dent, Sheffield, England, assignor to The Dentline Manufacturing Co. Limited
Filed Mar. 18, 1965, Ser. No. 440,860
9 Claims. (Cl. 33—203.17)



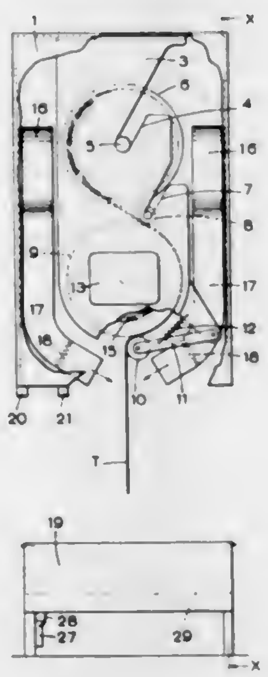
1. A tool for checking the tracking of the front wheels of a motor vehicle comprising a pair of assemblies each having an individual base, a vertical post vertically adjustable on each base, upper and lower parallel horizontal beams carried by each post, and arms of equal length extending laterally from and adjustable one along each end of each lower beam, the upper beams being spaced from the lower beams to an extent enabling direct measurements between the upper beams to be made over the hood of a vehicle when the lower beams are brought to the height of the centres of the front wheels of the vehicle, with the free ends of the arms set against opposite sides of the respective front wheel rims.

3,305,937
METHOD AND APPARATUS FOR DRYING SUSPENSIONS
Karel Gutwirth, 116 Strossova, and Jan Kaspar, 1332 U kostelicka, both of Pardubice, Czechoslovakia
Filed Nov. 19, 1964, Ser. No. 412,564
Claims priority, application Czechoslovakia, Dec. 12, 1963, 6,848/63
20 Claims. (Cl. 34—17)



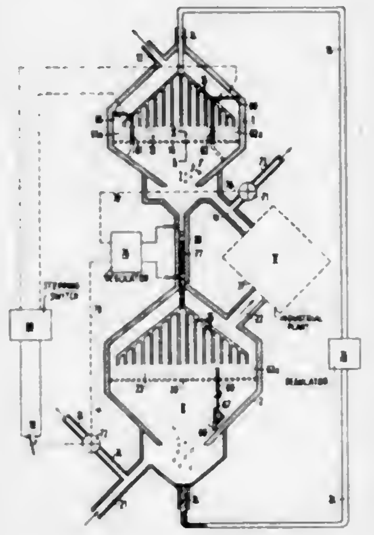
1. A method of drying finely divided particles of film-forming material suspended in a liquid comprising the steps of maintaining a bath of the liquid in which said particles to be dried are suspended; heating at least the surface of said bath so as to form a film from said particles on said surface; withdrawing the film from the surface of said bath; and heating said film after withdrawal to completely dry the material forming the film.

3,305,938
HAND-DRYING APPARATUS
Arthur Goldstein, 375 Milton Road, Cambridge, England
Filed Dec. 9, 1964, Ser. No. 417,085
Claims priority, application Great Britain, May 13, 1964, 19,935/64; Oct. 5, 1964, 40,559/64; Nov. 9, 1964, 45,549/64
11 Claims. (Cl. 34—44)



1. A hand drying apparatus comprising a cabinet in which towelling can be stored, said cabinet having an opening through which a length of towelling can hang; a blower operable to produce a stream of air; a duct through which said stream of air can pass, said duct having a discharge opening arranged so that the stream of air will pass therethrough and flow adjacent said hanging length of towelling; electrical heating means arranged within said duct so as to heat said stream of air before it discharges from said opening in said duct; and a control device automatically operable by withdrawal of said length of towelling from said cabinet to set said blower and said heating means in operation for a predetermined time interval.

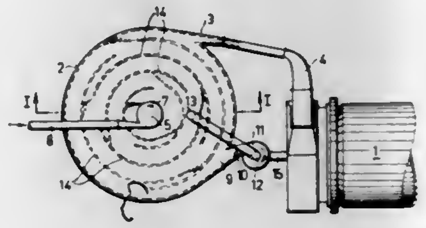
3,305,939
APPARATUS FOR CONTACTING GAS WITH PARTICLE MATERIAL IN COUNTERFLOW
Hans Sonnenschein and Karl-Heinz Schnug, both of Mulheim (Ruhr), Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Erlangen, Germany, a corporation of Germany
Filed Mar. 30, 1964, Ser. No. 355,885
Claims priority, application Germany, Mar. 30, 1963, S 84,482; Jan. 14, 1964, S 89,051
18 Claims. (Cl. 34—54)



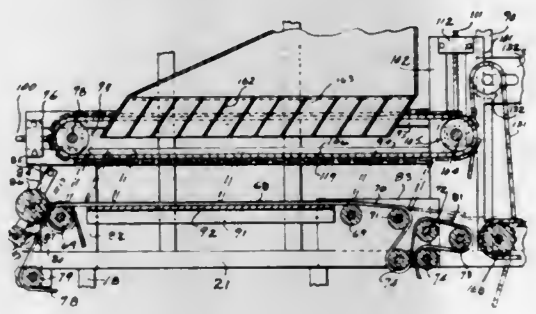
1. Apparatus for passing gaseous medium through a particle mass, comprising gas flow means and particle duct means having a counterflow path in common in which path the gas flow has an upward and the particle travel a downward direction, a fixed structure extending through said counterflow path transversely of said direction, said structure being adapted to support a layer of said particle material, said structure having upwardly extending wall portions which form mutually adjacent interstitial particle chambers and gas chambers, said particle chambers having means for being upwardly open to receive particles and having respective outlets near the chamber bottom, said gas chambers being substantially closed to ingress of particle mass from above and being permeable to gas at the top and bottom, said gas-permeable bottom being adjacent and below one of said outlets and adapted to be normally covered in said gas chamber by a reposing wedge of particle material drained from said outlet, whereby the flow of particle mass from said wedges through said structure is controllable by variation of the gas flow.

3,305,940
HEAT EXCHANGE BETWEEN GRANULAR MATERIAL AND GAS
Walter Isler, Tannengut 6, Aarau, Switzerland
Filed Sept. 14, 1964, Ser. No. 396,159
Claims priority, application Switzerland, Oct. 14, 1963, 12,560/63; July 11, 1964, 9,114/64
7 Claims. (Cl. 34—57)

1. A heat exchanger for the heat exchange between a granular material and a gas comprising at least one substantially cylindrical container; at least one admission duct for said gas opening into said container at its outer periphery so as to introduce the gas into said container with rotary motion about the cylinder axis; a gas discharge duct issuing from the center of said container; means for circulating said gas from said gas admission duct through said container to said gas discharge duct; a feed device for the granular material to be brought into heat exchange with the gas, arranged radially inward of said gas admission duct so as to admix said material with the gas before the latter is discharged through the gas discharge duct; circumferentially extending guide segments arranged within said container between the material feed device and the outer periphery of the container so as to intercept at least part of the outwardly traveling granular material and lead it into part of the flowing gas situated radially further out; and means for collecting the granular material which is centrifuged toward the outer periphery of the container by the rotary motion of the gas.



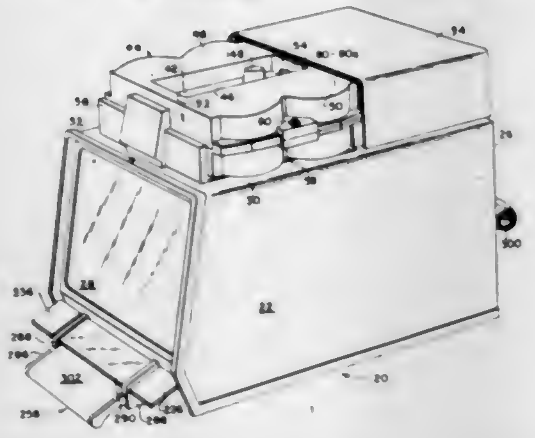
3,305,941
COOLING AND DRYING DEVICE
Allen H. Lloyd, Terrace Park, Ohio, assignor to Tech-Art, Inc., Milford, Ohio, a corporation of Ohio
Filed Feb. 20, 1964, Ser. No. 346,223
9 Claims. (Cl. 34—105)



1. In a device of the class described for cooling and drying relatively flat folded cartons comprising a housing, a receiving station at one end of said housing and a discharge end at the other end of the housing, said receiving station of the housing receiving said folded cartons in a stream and in a relatively horizontal position, means at said receiving station for separating said cartons one from the other and including power operated means for discharging said cartons one at a time from said receiving station in a substantially vertical position, conveyor means for holding said cartons in substantially the vertical position thereof as effected by the receiving station discharge means and conveying said cartons through the housing to the discharge end thereof, means including air above said conveyor means for slightly separating the folded portion of the carton and directing cooling and drying air along the inside and outside of the folded carton, and said carton conveyor means including brush bristles in the plane of the line of movement of the conveyor means for help in holding the upper ends of said cartons in their relative upright position.

3,305,942
PROJECTION SYSTEM, ESPECIALLY FOR TEACHING MACHINES

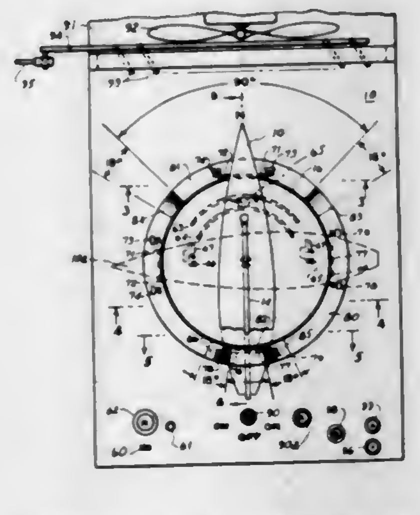
Gifford M. Mast, Davenport, Wesley A. Taylor, Bettendorf, and Wright K. Gannett, Davenport, Iowa, assignors to Mast Development Co., Davenport, Iowa
Filed May 23, 1963, Ser. No. 282,750
31 Claims. (Cl. 35—9)



1. Projection apparatus, comprising: a casing including a viewing screen receivable of light from within the casing and viewable from outside said casing; film-handling and projection means on the casing for projecting film frames to the interior face of the screen and including film-transport mechanism for advancing film frame-by-frame; a support exteriorly of the casing and adjacent to the screen; a driven element carried by and within the casing in spaced relation to the support; guide means in the casing leading from the interior of said casing to said support; a supply spindle within the casing for carrying a roll of strip-like supplementary material leading from the roll through the guide means, about the support and back through the guide means to and in engagement with the driven element; drive means carried by the casing for driving the film-transport mechanism and said driven element to advance the film and said material; and control means connected to and for selectively starting and stopping said drive means.

3,305,943
SAILING SIMULATOR

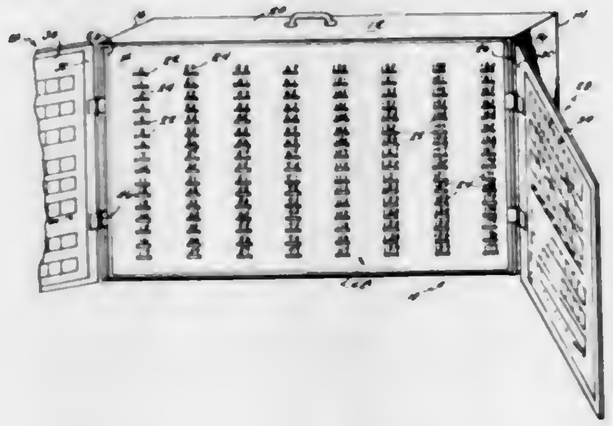
Peter Hansen, 2436 Stuart St., Brooklyn, N.Y. 11229
Filed Jan. 8, 1965, Ser. No. 424,267
5 Claims. (Cl. 35—11)



1. A device for instructing in the art of sailing a boat, comprising, in combination, a model boat, brackets secured to the underside of the said boat at the forward and after section thereof, a rotatable shaft fixedly secured to both of said brackets and extending longitudinally of the underside of said model boat, whereby said boat will be rotated by the rotation of said shaft and about the axis thereof, said shaft rotatably secured to a rotary table, said table being supported by and affixed to the uppermost portion of a second shaft extending vertically thereto, and motor means to rotate said second shaft whereby the rotation of said second shaft will cause the rotation of said rotary table and the rotation of said boat about the vertical axis of the latter; the ends of said first shaft extending beyond the outer edges of said rotary table, cam follower means attached at both ends of said first shaft so as to be engageable with a cam ring affixed to the upper surface of a non-moveable table, said non-moveable table being positioned below the underside of said rotary table and said cam ring having highs and lows whereby the boat will be caused to rotate about its longitudinal axis upon rotation of said boat about its vertical axis.

3,305,944
COMPUTER MODEL TEACHING AID

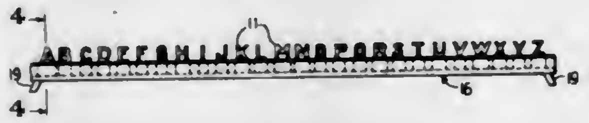
James S. Albus, Glen Dale, Md., assignor of forty per cent to Robert M. Porter, Oxon Hill, Md.
Filed Oct. 14, 1964, Ser. No. 403,697
3 Claims. (Cl. 35—30)



1. A pedagogical device for teaching operating computer principles comprising a simulated memory unit consisting essentially of a housing member provided with a plurality of apertures to removably store simulated computer instruction means, said simulated computer instruction means comprising a member provided with at least one indicia face and simulated computer computing unit comprising a housing closure member provided with removably attached indicia face adaptable to removably receive indicia corresponding to operated computer instructions.

3,305,945
EDUCATIONAL TOY

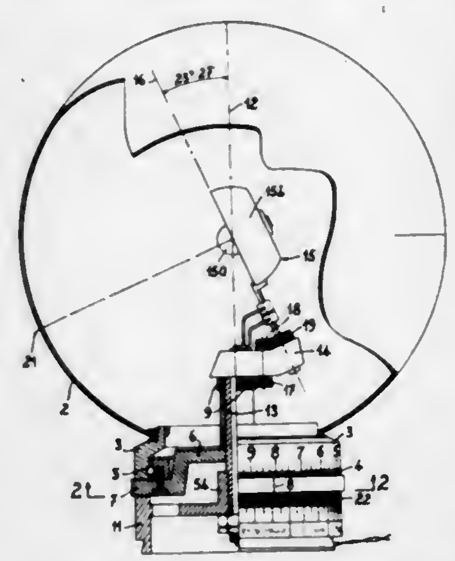
John W. Crawford and Frances Crawford, both of 1123 8th St. NE., Canton, Ohio 44704
Filed July 30, 1964, Ser. No. 386,159
5 Claims. (Cl. 35—35)



1. An educational toy of the character described, comprising a plurality of blocks, each one of which has a single letter of the alphabet projecting vertically upward therefrom; and a rack adapted to receive the said blocks; and a plurality of equally spaced and parallel pins projecting vertically upward from the bottom of the said rack; and each one of the said pins having an upper end with a vertical contour of a different configuration from that of the other pins; and each one of the said blocks having a vertically disposed recess in the bottom thereof, each recess having a vertical contour which matches the contour of only one pin, the said recess is adapted to receive a given pin in order that the blocks may be placed only in a predetermined order so that the vertically projecting letters are in the correct linear position when all of the blocks have been placed within the said rack.

3,305,946
APPARATUS SIMULATING THE ILLUMINATION OF EARTH BY THE SUN AT ANY TIME AND DATE

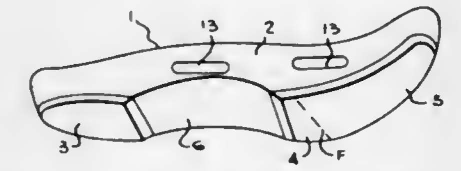
Tristan du Gardin, 42 Rue Massena, Lyons, France
Filed Dec. 1, 1965, Ser. No. 510,745
Claims priority, application France, Dec. 2, 1964, 45,370, Patent 1,425,541
5 Claims. (Cl. 35—46)



1. An apparatus simulating the varying illumination of Earth by the Sun, comprising a pedestal provided with a calendar scale extending over 360° round a vertical axis, a first annulus coaxial with the calendar scale and revolvable round said vertical axis and provided with a reference mark cooperating with the calendar scale, a terrestrial globe the polar axis of which coincides with said vertical axis, a second annulus coaxially rigid with the lower end of the globe adapted to revolve with the globe over the first annulus and provided with a coaxial hour scale cooperating with the reference mark on the latter, a reflector the axis of which extends through the center of the globe perpendicular to the ecliptic plane forming an angle of 23°27' with the equatorial plane of the globe, a punctual source of light rigid with the reflector to cooperate therewith and located at the center of the globe and means controlled by the rotation of the first annulus and controlling a rotation with a speed relationship of 1/1 of the reflector with reference to that of said first annulus round an axis lying in said ecliptic plane.

3,305,947
FOOTWEAR WITH HEAVY SOLE PARTS

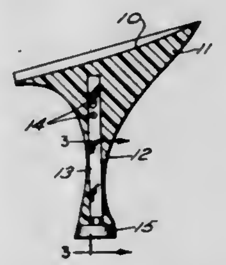
Anne Sofie Julie Kalsoy, Bredzade 12, Copenhagen, Denmark
Filed Oct. 4, 1963, Ser. No. 314,034
Claims priority, application Switzerland, Oct. 6, 1962, 11,759/62
5 Claims. (Cl. 36—2.5)



1. A footwear having a sole structure comprising a member having a bottom surface and a foot supporting top surface, said top surface having forwardly disposed little toe and big toe supporting surface portions, a rearwardly disposed heel supporting surface portion, and intermediately disposed ball and arch supporting surface portions, said bottom surface having an upwardly and forwardly curved surface portion extending toward the big toe supporting portion of said member, said curved surface portion emanating from a rectilinear line lying at an angle in the range of 70° to 90° to a rectilinear line intersecting the forwardmost point of the big toe supporting portion of said member and a rear point of the heel supporting portion of said member, and passing through a point on the little toe supporting portion of said member, the radius of curvature of said curved surface portion increasing in a direction from the big toe supporting portion to the little toe supporting portion of said member to provide a substantially conically shaped curved surface portion, and the thickness of the ball supporting portion of said member being greater than the thickness of the heel supporting portion of said member.

3,305,948
REINFORCED MOLDED HEEL CONSTRUCTION

Fernando M. Ronci, 584 Pleasant Valley Parkway, Providence, R.I. 02908
Filed Oct. 23, 1965, Ser. No. 503,873
6 Claims. (Cl. 36—34)



1. A reinforced high heel comprising a molded heel having a broad top heel seat portion tapering sharply inwardly to a narrow shank extending to the bottom of said heel, a thin, flat, hardened steel strip having a uniform thickness throughout its entire length with its upper end molded into said top portion and extending downwardly through the heel to form a thin flat shank for said heel, and a tap mounted on the bottom of said heel, said tap having spaced pins, said heel being provided at the bottom end with spaced openings cooperating with the bottom end of said flat strip for frictionally receiving said pins.

3,305,949
SNOW REMOVAL APPARATUS

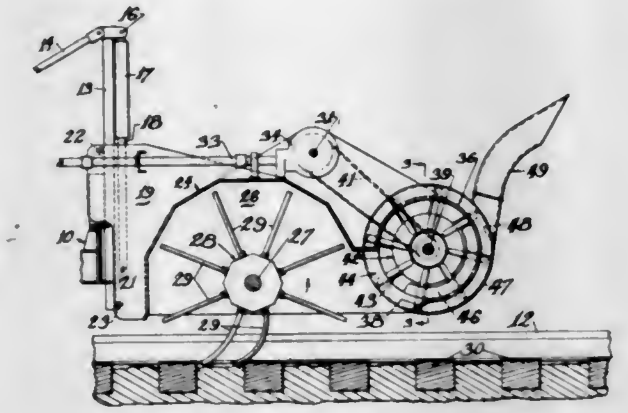
John D. Holley, Montgomery, Ala., assignor to Kershaw Manufacturing Company, Inc., a corporation of Alabama
Filed Apr. 22, 1964, Ser. No. 361,841
6 Claims. (Cl. 37—24)

1. Snow removal apparatus comprising:
(a) an elongated housing supported for movement above the surface from which snow is to be removed,
(b) there being a longitudinally extending opening in said elongated housing extending transversely of the direction of movement of said elongated housing disposed to receive snow,
(c) sweeper means mounted in position to transfer snow from said surface from which snow is to be removed through said longitudinally extending opening into said elongated housing,
(d) a snow discharge housing connected to said elongated housing and having a discharge chute at one side thereof,
(e) a rotary impeller mounted for rotation within said discharge housing and extending transversely of said elongated housing,

(f) there being a laterally disposed inlet opening in said discharge housing in communication with said elongated housing,

(g) conveyor means within said elongated housing to transfer snow longitudinally thereof toward said inlet opening in the discharge housing, and

(h) a baffle member extending generally parallel to the direction of movement of said elongated housing and cooperating with a central portion of said impeller to close off an arcuate portion of said inlet opening at the lower upgoing side of said impeller an angular distance in advance of said discharge chute relative to the direction of rotation of said impeller preventing the entrance of snow from said conveyor means into said discharge housing at said lower upgoing side of the impeller so that snow engaged by the impeller travels an angular distance prior to entering said discharge chute.

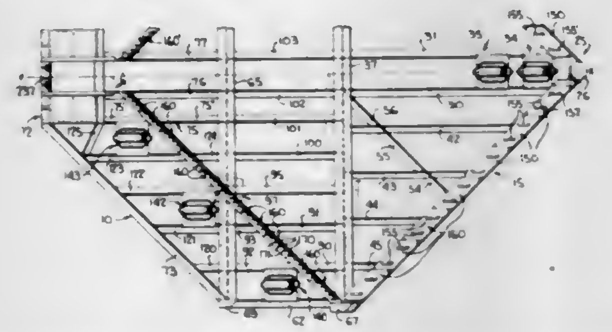


3,305,950

UNDERWATER MINING

Ira L. Hirshman, Newport News, Archer L. Jones, Hampton, and Luther E. Spencer, Newport News, Va., assignors to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia

Filed Apr. 14, 1964, Ser. No. 359,742
18 Claims. (Cl. 37—58)



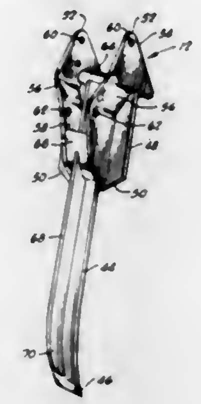
1. Collecting means comprising a body means, support means operatively connected with said body means for supporting said body means for movement along a supporting surface, said body means including a forward portion and a rearward portion, first separating means mounted at the forward portion of said body means and comprising a plurality of spaced members, second separating means disposed rearwardly of said first separating means and comprising a plurality of spaced members, the spacing of the members of the first separating means serving to eliminate solid bodies which are too large and the spacing of the members of the second separating means being spaced so as to eliminate solid bodies which are too small, whereby the collecting means serves to collect only solid bodies within a certain size range, said body means including a portion for receiving all of the collected solid bodies within said size range from where the solid bodies are removed from the collecting means.

3,305,951

DITCHING TOOL

Paul H. Nunn, 1111 N. Anita, Oklahoma City, Okla. 73127

Filed May 21, 1964, Ser. No. 369,179
8 Claims. (Cl. 37—98)



3. A ditching tool comprising:

an elongated blade member;

elongated reinforcing means extending along one surface of said blade member for a major portion of the length of said blade member;

a backplate having a width greater than said blade member secured on one end portion of said blade member and projecting from opposite sides of said blade member, said backplate being disposed on the surface of said blade member opposite said elongated reinforcing means; and

a pair of spaced flange members secured to said backplate, said flange members having:

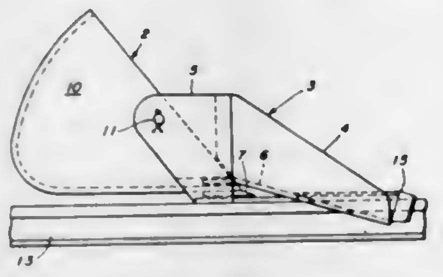
- a first pair of aligned apertures extending therethrough, and
- a second pair of aligned apertures extending therethrough and spaced from said first pair of aligned apertures.

3,305,952

RAILROAD BED CLEANING EQUIPMENT

Donald G. Dressler, Kansas City, Mo., assignor to United States Steel Corporation, a corporation of Delaware

Filed Apr. 28, 1964, Ser. No. 363,089
1 Claim. (Cl. 37—104)



A railroad bed scraping snout removably attached to a scoop of a mobile earth loader and the like, said snout comprising

(a) a transverse base plate adapted to span the rails and adjacent right-of-way;

(b) a leading edge on said base plate adapted to scrape the bed;

(c) recesses in said base plate extending inwardly from said leading edge, said recesses being of sufficient breadth to accommodate rails and of sufficient depth to permit said leading edge to be positioned below the level of the rail head;

(d) cover plates with triangularly shaped sides for said recesses;

(e) vertical side plates extending upwardly from each of the side edges of said base plate;

(f) mounting plates permanently attached to each side of each of said side plates providing separations between said mounting plates to accommodate portions of the side plates of said scoop; and

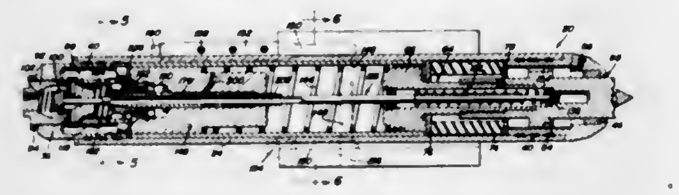
(g) a transverse flange plate extending below and rearwardly from said base plate to form a U-shaped transverse cavity to accommodate the lower lip of said scoop.

3,305,953

PNEUMATIC TOOTH FOR EARTH EXCAVATOR

Oswald Von Mehren, Lorain, Ohio (P.O. Box 83, Sylvania, Ohio 43560), and Arthur Orloff, 69 State St., Nunda, N.Y. 14517

Filed Aug. 15, 1963, Ser. No. 302,318
7 Claims. (Cl. 37—142)



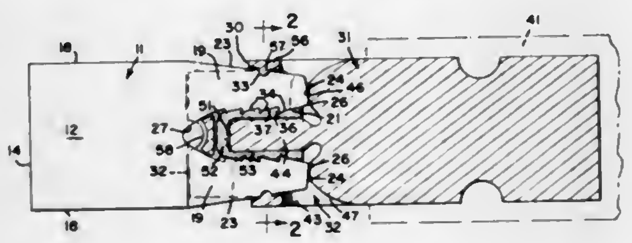
7. In a pneumatic tool, an elongated hollow body, a tooth assembly slidably mounted within the forward end portion of the body and axially extensible and retractible relative thereto, an impact receiving surface on the inner end of said tooth assembly, plunger means slidable within said body and selectively engageable with said impact receiving surface, an expansion chamber rearward of said plunger means, means for conveying compressed air into said expansion chamber, supply valve means for selectively allowing passage of the compressed air into the expansion chamber, means operatively connecting the tooth assembly with the supply valve means for controlling the opening and closing of said supply valve means on movement of the tooth assembly beyond predetermined points, and control valve means operative in response to a forward movement of said plunger means for sealing said expansion chamber and trapping compressed air therein for a subsequent expansion thereof and a corresponding forward driving of said plunger means.

3,305,954

NOTCHED TOOTH AND RETAINER

William M. Troeppl, Santa Clara, and John G. Benetti, Cupertino, Calif., assignors, by mesne assignments, of one-half to Gerald A. Petersen, Sunnyvale, Calif., and one-half to Anita E. Petersen, Saratoga, Calif.

Filed Oct. 22, 1965, Ser. No. 501,492
9 Claims. (Cl. 37—142)



1. In earth digging equipment, a tooth formed of hard material having a distal portion formed with a cutting edge and a proximal portion having top and bottom faces formed with a longitudinal slot extending forwardly from the proximal end of said tooth to divide said proximal portion into two prongs, said slot formed with substantially parallel, inward facing side walls;

- a tooth holder formed with a pair of recesses to receive said prongs, said holder having a web separating said recesses and dimensioned substantially to fill said slot;

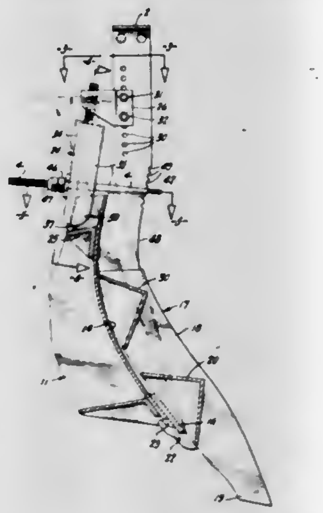
and retaining means for retaining said tooth in said holder against unintentional dislodgement, said tooth formed with at least one notch, said holder formed with at least one protuberance fitting in said notch in assembled position of said tooth and holder, said tooth and protuberance being resiliently movable relative to each other to force said protuberance and notch out of engagement to permit intentional extraction of said tooth from said holder.

3,305,955

EARTH WORKING ATTACHMENT TOOL AND FASTENER STRUCTURE THEREFOR

Cecil A. Robinson, R.R. 3, Sullivan, Ill. 61951, and Lloyd Younger, Jr., R.R. 2, Bethany, Ill. 61914

Filed Mar. 8, 1965, Ser. No. 437,914
12 Claims. (Cl. 37—145)



2. The combination with an earth working blade of an attachment tool equipped with an anchor structure engaging the lower edge portion of said blade and thereby limiting upward displacement of said tool with respect thereto, a first buttress element on said blade, a second buttress element on said tool and being spaced upwardly with respect to said first buttress element, a strut interposed between said buttress elements, and a tension member connected between said strut and tool and maintaining said strut under stress between said buttress elements and thereby maintaining said anchor structure in engagement with the lower edge of said blade, whereby said blade and tool are effectively integrated by application of a tensile force to one and compressional force to the other.

3,305,956

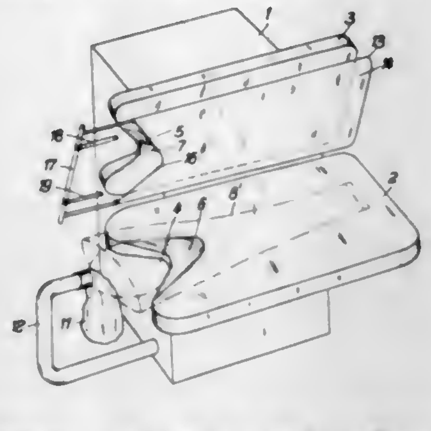
PRESSING MACHINE

Gottfried Fleischer, Ludwigstrasse 25, Furth, Bavaria, Germany

Filed Aug. 4, 1964, Ser. No. 387,329
Claims priority, application Germany, Aug. 5, 1963, F 40,413
3 Claims. (Cl. 38—16)

1. Pressing machine for trousers comprising a supporting frame, a stationary buck mounted on said supporting frame and a head associated with said buck and pivotally supported on said frame, said head having a raised inoperative position and a closed operative position where it is positioned on said buck, each, said buck and said head, defining a housing, means for supplying steam to said housings, a steam suction conduit connected to the housing of said buck operative to withdraw steam therefrom after a pressing operation, each, said buck and said head, having a transverse end, a cut out portion extending inwardly from each said transverse end and a generally conically shaped recessed portion adapted to accommodate the center part, particularly the crotch of trousers, said cutout portions extending respectively through said buck and said head and merging into said conical recessed portions,

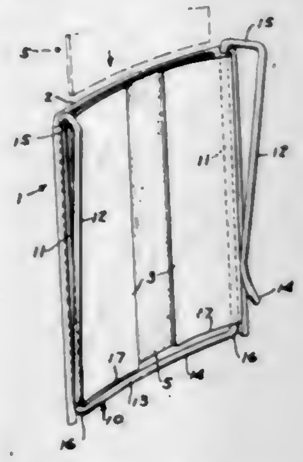
and said recessed portions extending inwardly from the cut-out portions generally longitudinally in the mating surfaces of said buck and said head, and a pressing cloth frame including a cloth having a cut-out portion corresponding generally in location and configuration to said cut-out portions and being disposed intermediate said buck and said head and being pivotally supported on said frame.



3,305,957
LABEL HOLDER

John C. Sobesky, Farmington, Mich., assignor to Office Products, Inc., Detroit, Mich., a corporation of Michigan

Filed Oct. 21, 1964, Ser. No. 405,490
6 Claims. (Cl. 40—11)



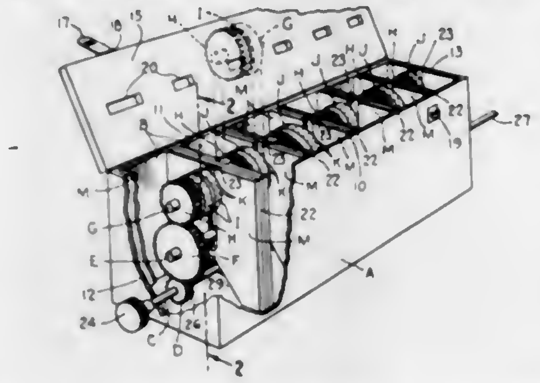
1. A label holder comprising a transparent front portion, flange means extending inwardly from opposite side edges of said body, said flange means overlying the rear face of said front portion so as to hold a label therebetween, said flange means being shorter than said front portion at the one end thereof, outwardly opening grooves in said opposite side edges, said grooves being defined by a pair of lips, said lips having longitudinal nubs thereon, said grooves having an access opening narrower than said grooves, and retaining means anchored in said grooves for removably attaching said label holder to a book binding or the like, said retaining means including a U shaped member having return bent legs, the legs of said U being disposed in said grooves and the bight of said U shaped member being adjacent and below said flange means and serving as a stop for said label.

3,305,958
PRODUCTION CONTROL DEVICE

Nathan A. Price, Jr., Greenville, S.C., assignor to Henderson, Lindsay & Michaels, Inc., Greenville, S.C., a corporation of South Carolina

Filed Apr. 29, 1965, Ser. No. 451,913
4 Claims. (Cl. 40—68)

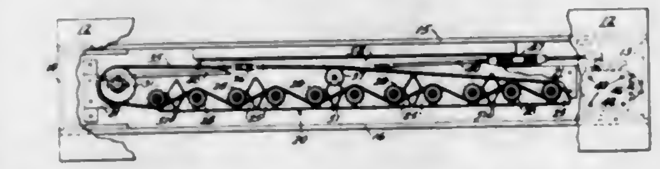
1. A production programming device including, an elongated container, a plurality of transverse partitions in said container dividing the container into a series of compartments, a first longitudinal shaft carried for rotation in said container extending across the container through the compartments, a first gear carried by said first shaft in each compartment, a second shaft carried for rotation in each compartment, a second intermediate gear carried by each second shaft driven by a respective first gear, a third shaft carried in each compartment, a third gear carried on each third shaft driven by a respective intermediate gear, a drum carried by each third shaft, the sum of the diameter of the second and third gears of each compartment being equal, the diameter of the drums being equal to the diameter of the corresponding third gear in each compartment, indicia carried by at least one of said drums calibrating same in units of time, indicia carried by the other of said drums calibrating same in units of production events, said gears being sized to correspond to the indicia, the diameter of the drums which have indicia thereon representing units of production events being different, a viewing means adjacent said drums, and guide means positioning said respective second and third shafts and gears and drums carried thereby within the container for removal therefrom by lifting same from said guide means.



3,305,959
ACCORDIAN-PLAITED, DUAL-MESSAGE SIGN

Alois F. Schoenung, Hinsdale, Ill., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Jan. 18, 1965, Ser. No. 426,251
5 Claims. (Cl. 40—78)



1. A dual message sign comprising an accordian plaited surface having parts of a first complete message contained on the alternate flutes formed between the successive ridges of the surface and parts of a second complete message contained on the flutes which are intermediate to the flutes containing the first message, and means for simultaneously moving each of said successive ridges in opposite directions until adjacent ridges contact each other in order to exhibit the first message as the face of the display sign and then for reversing said movement until adjacent ridges again contact each other in order to exhibit the second message as the face of the display sign, intermittently.

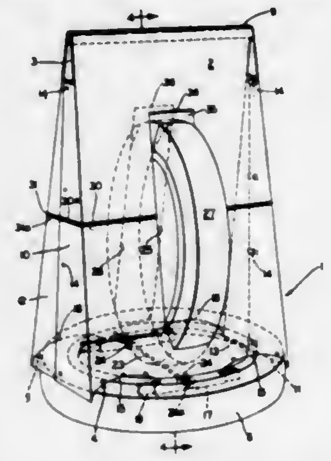
3,305,960
SIGN CONSTRUCTION

Guy L. Huey and Elliott J. Kies, Massillon, Ohio, assignors to The Massillon-Cleveland-Akron Sign Company, Massillon, Ohio, a corporation of Ohio

Filed June 18, 1964, Ser. No. 376,153
2 Claims. (Cl. 40—125)

1. A sign construction for mounting on the side of a first automobile tire and for mounting a second tire for display, including a pair of sign panels, each panel having upper and lower ends and opposite edges, each of

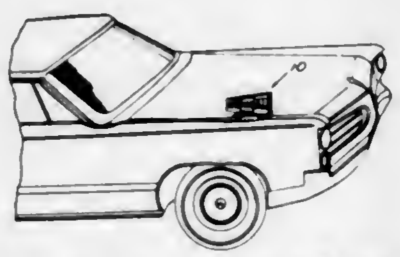
said sign panels being of greater height than the diameter of the second tire, the lower end of each panel having a convex arcuate portion adjacent one of the edges, the arcuate portions of each lower end forming a central depending portion extending into the center of a first automobile tire, means for securing the central depending portions of each lower end to said first tire, the sign panels having aligned upright elongated apertures for holding a second tire within and between the panels, said apertures being substantially as long as the second tire, each panel having inturned reinforcing flap portions on opposite edges, and each panel having a second pair of inturned reinforcing flap portions on opposite sides of the apertures, there being a transversely disposed fold midway between the upper and lower ends of each panel and extending through each of the reinforcing flaps thereon for shipping the sign in a compact manner, and means securing each reinforcing flap to the corresponding flap portion of the other panel, whereby the flap portions reinforce the unfolded panels in the installed position, maintaining the panels rigid and preventing their collapsing when supporting a second tire for display.



3,305,961
PORTABLE ILLUMINATED SIGNAL FLAG

Amleto P. Lanzon and Leo F. Lanzon, both of 401 W. 8 Mile Road, Detroit, Mich. 48203

Filed Mar. 23, 1966, Ser. No. 536,682
4 Claims. (Cl. 40—129)

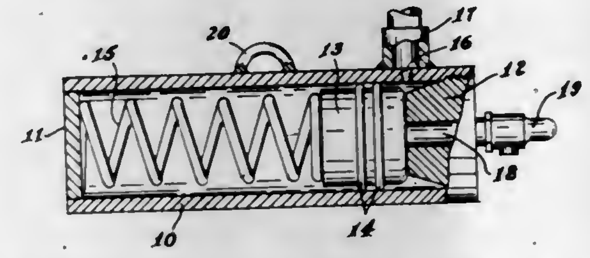


1. A portable illuminated signal flag for motor vehicles comprising a housing, illuminating means attached to the housing, and means for mounting said housing onto the motor vehicle, said housing comprising a body portion and an end cover assembly, said body portion including an end wall, a top wall, a bottom wall, and a pair of side panels with at least one of said side panels being an indicia carrying translucent panel, said end cover assembly being attached to said body portion on the end of said body portion opposite from said end wall, said end wall and said end cover assembly being substantially vertical when said signal flag is in a position of use on said motor vehicle, said end cover assembly having a longitudinal dimension substantially greater than said end wall longitudinal dimension, said mounting means including a mounting bracket attached to said bottom wall of said body portion at spaced apart locations and magnetic means attached to said mounting bracket for detachably securing said housing to a motor vehicle, said mounting means including means to space said housing from said mounting bracket whereby said end wall and said end cover assembly are maintained in said vertical position on said motor vehicle giving a flag-like appearance to said housing.

3,305,962
APPARATUS FOR DIRECTING MARINE ANIMALS

Albert A. Abrahamsen, 1399 Fort Bellingham Road, and Richard W. Simmons, 109 E. Illinois St., both of Bellingham, Wash. 98225

Original application May 14, 1963, Ser. No. 280,326, now Patent No. 3,229,404, dated Jan. 18, 1966. Divided and this application Sept. 2, 1965, Ser. No. 495,745
8 Claims. (Cl. 43—17.1)

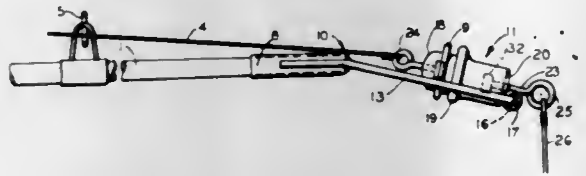


1. A device for directing marine animals, which comprises an enclosed shell, means to suspend said shell in water at a predetermined depth, a resilient body within said shell, a movable piston in said shell positioned at one end of said shell in abutting relation to said resilient body, means to inject into said shell a fluid at a predetermined pressure suitable to move the piston against the bias of the resilient body, means to intermittently discharge the fluid from said shell at a predetermined pressure to thereby permit the resilient body to drive the piston with sufficient force to generate sound waves in the water upon impact of the piston with said one end of said shell.

3,305,963
FISHING ROD CASTING DEVICE

Salvador A. Minera, 1921 Taraval St., San Francisco, Calif. 94116

Filed Apr. 20, 1965, Ser. No. 449,428
7 Claims. (Cl. 43—24)



1. A fishing device for use in casting a fishing line from a rod having a handle at one end and a reel adjacent thereto for a fishing line and a tip at its opposite end, comprising:

(a) an inertia member adapted to be secured to the outer end of such line;

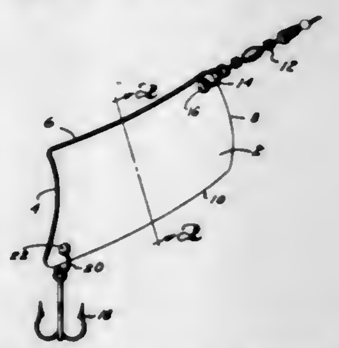
(b) a propelling member having an inner end including rod-securing means for securing said inner end to the tip of such rod, and an outer end opposite to and spaced from said inner end;

(c) supporting means on said propelling member for releasably supporting said inertia member thereon in a position between said inner end and said outer end of said propelling member, said supporting means including an element extending across the surface of said inertia member that is remote from said inner end for holding said inertia member against separation from said propelling member under the influence of centrifugal force during swinging of said tip of said rod in a casting movement when said rod securing means is secured to said tip;

(d) said supporting means and said propelling member and said inertia member being free from obstruction to movement of said inertia member out of engagement with said supporting means under the influence of inertia developed in said swinging of said tip for free casting of said inertia means under the influence of centrifugal force at the end of said swinging, when said rod securing means is secured to said tip and said inertia member is in said position on said propelling member during said swinging of said tip;

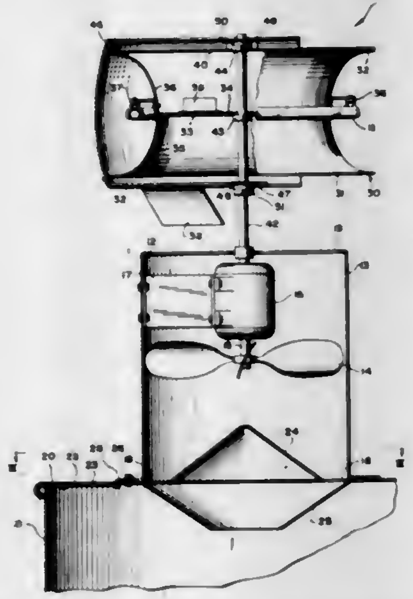
(e) means on said propelling member supporting said element for rotation to facilitate movement of said inertia member to a position free from said propelling member for said casting thereof.

3,305,964
THERMALLY-RESPONSIVE FISHING LURE
Emil S. Wieszeck, Box 175, Salem, N.H. 03079
Filed July 10, 1963, Ser. No. 295,284
5 Claims. (Cl. 43—42.03)



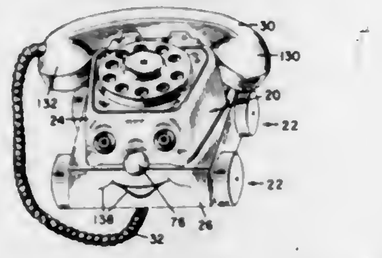
2. In a fish lure, an elongated, slightly dished bimetallic body having a fish hook attached to one end thereof and a fishing line attached to the other end thereof, said body including at least two discrete layers of metal, each of said layers having a thickness of a fraction of an inch with the metals in the two layers being different and having substantially different coefficients of thermal expansion, said dished body being adapted to reverse its concavity due to the stresses caused by the differences in linear dimension changes in the body due to a substantial temperature change as the lure moves in a body of water from an area of one temperature to a different area in which the temperature is substantially different.

3,305,965
SUCTION TYPE BLACK LIGHT INSECT TRAP
Dudley E. Cornell III, 221 San Pedro NE., Albuquerque, N. Mex. 87108
Filed May 4, 1965, Ser. No. 453,165
6 Claims. (Cl. 43—139)



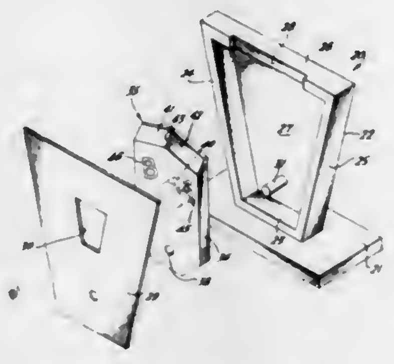
1. In an insect trap, a circular fluorescent ultraviolet lamp for attracting insects thereto, insect-receiving means adjacent said lamp, means for directing insects attracted to said lamp into said insect-receiving means, means supporting said lamp in a generally horizontal plane about a generally vertical axis, and reflector means defining an annular reflecting surface of generally parabolic cross-sectional shape extending from a point inwardly from said lamp above and below the horizontal plane of said lamp to concentrate light therefrom to project horizontally.

3,305,966
WHEELED TOY TELEPHONE
Ernest L. Thornell, East Aurora, N.Y., assignor to Fisher-Price Toys, Inc., East Aurora, N.Y., a corporation of New York
Filed Mar. 6, 1962, Ser. No. 177,843
10 Claims. (Cl. 46—33)



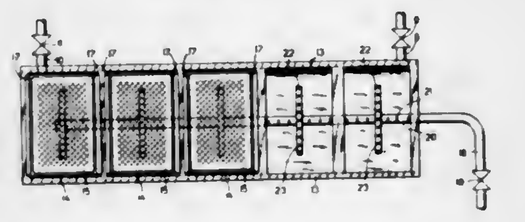
6. In a toy telephone having a base simulating a table telephone base, a simulated hand set adapted to be cradled on said base, and a flexible, simulated telephone cord connecting said hand set to said base, the improvement comprising: wheel means on said base supporting said telephone for trundling over a supporting surface, said wheel means being oriented for normally forward movement of said telephone; connection of one end of said cord to said base adjacent the normally forward-moving side thereof; connection of the other end of said cord to said hand set adjacent one end thereof; said hand set being configured so that it can be gripped by a child as a pulling handle; and said cord being of such size and strength that pulling by a child on said hand set is conveniently transmitted to said telephone by said cord for trundling said telephone about.

3,305,967
MAGNETIC TOY, TRICK, GAME AND EDUCATIONAL DEVICE
Joseph A. Weisbecker, 1220 Wayne Ave., Erlton, Cherry Hill, N.J. 08034
Filed Aug. 28, 1964, Ser. No. 392,707
8 Claims. (Cl. 46—238)



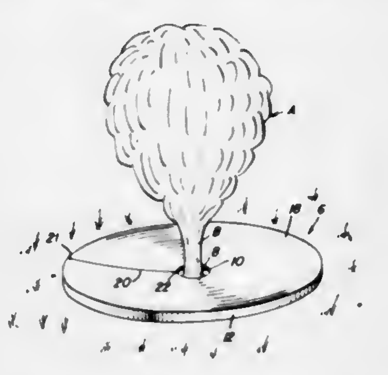
1. A device of the class described comprising a support, an indicator mounted on said support for movement along a first path in opposite directions between a plurality of stable positions, first magnetic means carried by said indicator for movement with said indicator between said plurality of positions, and an actuator engageable with said support for movement relative thereto along a second path in a direction transversely across said first path, and second magnetic means carried by said actuator for movement therewith transversely across said path and offset from said first magnetic means to magnetically effect movement of said indicator between said positions.

3,305,968
APPARATUS AND METHOD FOR THE SOILLESS CULTIVATION OF SEEDLINGS AND PLANTS
Miroslav Dosedla, Decin, Ivo Pavlica, Prague, and Otta Kokrhoun, Decin, Czechoslovakia, assignors to Roudnické Strojírny a Slévárny, narodní podnik, Roudnice nad Labem, Czechoslovakia
Filed Jan. 18, 1965, Ser. No. 426,198
Claims priority, application Czechoslovakia, Jan. 29, 1964, 513/64
7 Claims. (Cl. 47—1.2)



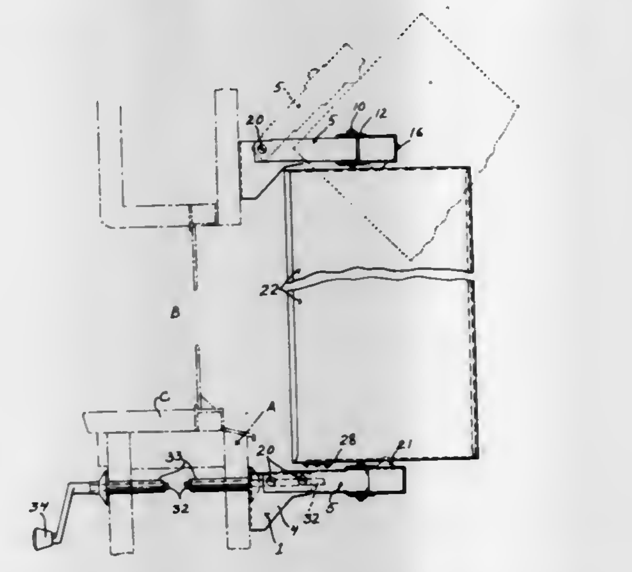
1. An apparatus for the soilless cultivation of seedlings and plants, comprising, in combination, a container having an upper edge; means for supplying a liquid growth promoting medium to the container and for withdrawing it thereform; a plurality of individual supporting members removably mounted inside said container below its upper edge and each formed with a series of openings therethrough; a plurality of individual shape-retaining pads each adapted to receive the seed of a plant to be grown and each having an upper and a lower face and consisting essentially of vertically oriented layers of a resilient, liquid-absorbing material, said pads each having a cross-sectional area larger than the respective openings and each being located on and supported by the upper face of said supporting member covering at least one of the openings therethrough; and means for maintaining the upper level of said liquid medium at a height below the upper edge of said container and between the upper and lower face of said pads.

3,305,969
TREE OR PLANT PROTECTOR COLLAR
Merle E. Mattson, Box 275, Tioga, N. Dak. 58852
Filed Jan. 19, 1965, Ser. No. 426,641
3 Claims. (Cl. 47—25)



1. For use in promoting the growth of a tree or a plant, a pad-like guard comprising a collar provided at its center with an opening of a predetermined size and shape and designed and adapted to encircle the tree's trunk with its marginal edge spaced radially from the encompassed surfaces of said trunk, said collar being of a size in plan that a significant area of the earth surrounding the trunk can be covered in a manner to smother and prevent the growth of vegetation, such as weeds or grass within the bounds of the surface covered, said collar having a normally closed radial slit opening at an outer end through the outer perihperal edge and opening at its inner end through the peripheral edge of said centered opening, the underneath side of said collar being made of compressibly resilient porous material permitting the distribution of water capable of keeping the covered surface moist, the overall top side of said collar being coated with a thin plastic film of a predetermined color, said film being impervious to the passage of moisture, and, in addition, being possessed of minimal light reflecting properties capable of minimizing glare from sunlight and natural light particularly on hot sunny days, the entire top side of said collar being dished inwardly and downwardly and accordingly being concave whereby to trap and pool water which can then be fed to said trunk by way of said centered opening.

3,305,970
EXTERNAL LOUVER CONSTRUCTION FOR WINDOWS
Arthur Shapiro, Altadena, Calif., assignor to Diversified Manufacturing, Incorporated, Santa Ana, Calif., a corporation of California
Continuation of application Ser. No. 136,103, Sept. 5, 1961. This application July 23, 1964, Ser. No. 384,736
1 Claim. (Cl. 49—75)



An exterior louver construction for windows comprising:

(a) an upper and lower set of mounting brackets disposed respectively above and below said window;

(b) an upper beam carried by said upper set of brackets and a lower beam carried by said lower set of brackets;

(c) said beams being substantially parallel and each being of channel shaped cross section with their web portion being outermost and having resilient side flanges extending toward said brackets;

(d) each side flange having an inturned edge portion;

(e) each bracket having an extension projecting into the channel of its associated beam and each extension having a head within said beam and a reduced neck portion between said inturned edge portions;

(f) relatively movable clamp means on each bracket engaging the outer faces of said side flanges and releasable means holding said clamp means and thereby said inturned edge portions against outward movement away from each other;

(g) vertical substantially rigid louvers extending between said beams and being pivotally secured thereto on parallel vertical axes;

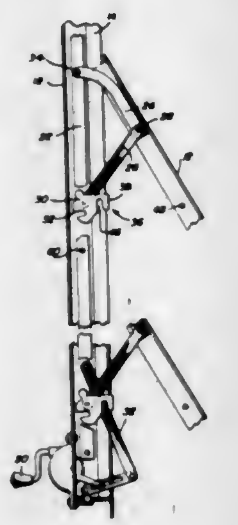
(h) and means for simultaneously pivoting said louvers about said axes;

(i) each of said upper mounting brackets comprising an outer portion carrying said extension and an inner portion, said portions being pivotally joined about a horizontal axis parallel to said upper beam;

(j) each of said lower brackets comprising an outer portion carrying said extension and an inner portion, said portions being releasably secured together whereby they may be released and said outer portions of said lower brackets, said upper and lower beams, said louvers and said outer portions of said upper brackets swung outwardly from said window, about said horizontal axis, as a unit.

3,305,971
LOCK FOR AWNING-TYPE WINDOWS

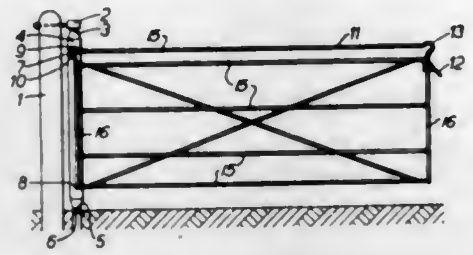
Selig Golen, Miami, Fla., assignor to Yale Ogron Mfg. Co., Inc., a corporation of Florida
Filed Nov. 3, 1965, Ser. No. 506,251
5 Claims. (Cl. 49—81)



1. In a multi-vent window construction having a main frame, a plurality of vent frames mounted for movement inwardly and outwardly of the main frame, vertically movable slide bars mounted on the main frame, operating arms pivotally connecting the slide bars to the vent frames adjacent upper ends of the vent frames, pivot pins fixedly mounted on the main frame, supporting links mounted on the pivot pins and pivotally connected to the vent frames adjacent the upper ends, an operating mechanism mounted on the main frame and connected to the slide bars for displacing the vent frames between open and closed positions relative to the main frame, and lock means for independently holding each of the vent frames in a closed position, each of the lock means including, a lock plate pivotally mounted on said pivot pin and having an actuating notch below said pivot pin and an elongated locking notch spaced outwardly of said pivot pin, a cam surface on the lock plate, an actuating pin mounted on the slide bars of engagement with the cam surface prior to entry into said actuating notch to displace the lock plate to a receiving position, a lock pin mounted on the vent frame closer to the upper end thereof than to the lower end for reception in said locking notch of the lock plate as the vent frame approaches the closed position, said locking notch being elongated along a longitudinal notch axis and receiving the locking pin when the lock plate is being displaced by the actuating pin from said receiving position toward a locking position, said lock plate when disengaged from the actuating and locking pins assuming a positon in the path of movement of the locking pin with said notch axis substantially parallel to the main frame, the locking notch in the locking position of the lock plate confining the locking pin against lateral movement thereof in opposite directions.

3,305,972
GATES

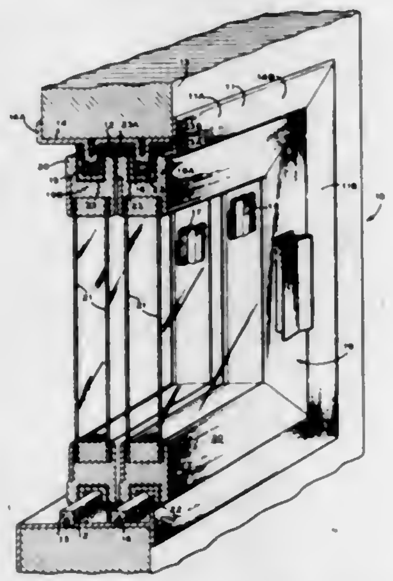
William J. Hosking, Ferryside Cottage, Truro, Cornwall, England
Filed Aug. 10, 1964, Ser. No. 388,547
5 Claims. (Cl. 49—192)



2. A gate comprising a gate post mounted for rotation about a substantially vertical axis, a gate structure, means freely pivotally supporting one upper corner region of said gate structure on the upper end of said post for rocking about a generally horizontal axis, stop means on the lower end of said post abutted by the corner region of said pivoted gate structure immediately below said one upper corner region whereby said gate structure extends substantially horizontally from said post, said gate structure comprising an upper horizontal bar connected at opposite ends to the tops of vertical end bars, with the connection at the pivoted end of the gate comprising an inwardly open offset arcuate integral loop, and a slide pivot roller on said post within said loop, said stop means being a pin on the post engaging the lower end of the adjacent vertical gate structure bar.

3,305,973
SLIDING DOOR CONSTRUCTION AND SEAL THEREFOR

Samuel Bohn, 285 Aycrigg Ave., Passaic, N.J. 07056
Filed Oct. 21, 1964, Ser. No. 405,344
4 Claims. (Cl. 49—438)



1. A closure assembly for a cabinet construction comprising:

(a) a frame for outlining an access opening to a cabinet,

(b) said frame including rectangularly disposed opposed end jamb members and opposed side members,

(c) each of said side members having a guide rail extending longitudinally and substantially co-extensive therealong, and

(d) each of said end jamb members having a jamb rail,

(e) said opposed guide rails and opposed jamb rails being co-planarly disposed,

(f) a closure for said opening slidably disposed along said guide rails,

(g) said closure including a closure frame comprising rectangularly disposed side and end portions, each of said side portions being formed with a groove for loosely receiving said guide rails whereby said rail and complementary groove allows for limited movement of said closure relative to said frame sufficient to effect disengagement of the closure therefrom,

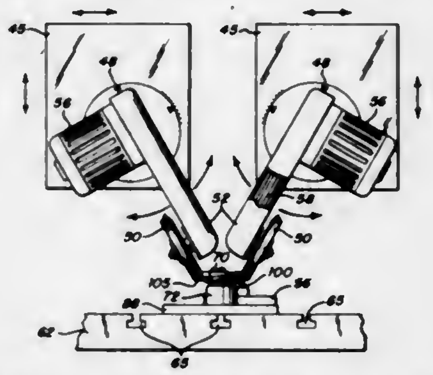
(h) and means defining a flexible seal disposed adjacent said grooves, said seals extending outwardly of said closure for straddling said guide rails to define a sliding fluid tight seal therewith,

(i) said seal comprising a U shaped member having opposed leg portions extending to either side of said groove and projecting beyond the edge of said closure,

(j) the ends of said leg portions being disposed in sliding engagement with the side member of said frame and defining the bearing edge for said closure sliding between the opposed side members whereby said seal is sufficiently flexible to permit limited displacement of said closure relative to said frame and whereby said seal defines the bearing for said closure between the opposed side members of said frame and functions to center the closure between said side members.

3,305,974
GRINDING MACHINE

John C. Wilson, Springfield, Ohio, assignor to The Thompson Grinder Company, Springfield, Ohio, a corporation of Ohio
Filed Oct. 1, 1964, Ser. No. 400,683
5 Claims. (Cl. 51—5)



1. A grinding machine adaptable for grinding simultaneously both sides of a way, said machine comprising, a base, a work table mounted for reciprocating movement in relation to said base, a pair of power driven grinding wheels adjustably supported above said table, each of said grinding wheels having two corresponding grinding surfaces, means connected to each said wheel forming an axis of rotation which is angularly adjustable in relation to said table, a dressing roll having an axis of rotation perpendicular to said table and mounted for reciprocating movement with said table for dressing one of said corresponding grinding surfaces on each of said wheels, and a second dressing tool mounted for traversing movement in relation to said table and adapted to dress the second of said corresponding grinding surfaces on each of said wheels.

3,305,975
APPARATUS FOR FORMING THE BRISTLES OF A BRUSH

Eberhard Maier, North Arlington, N.J., assignor to Gibson-Thomsen Co., Inc., Kearney, N.J., a corporation of New Jersey
Filed Oct. 18, 1963, Ser. No. 317,382
10 Claims. (Cl. 51—124)

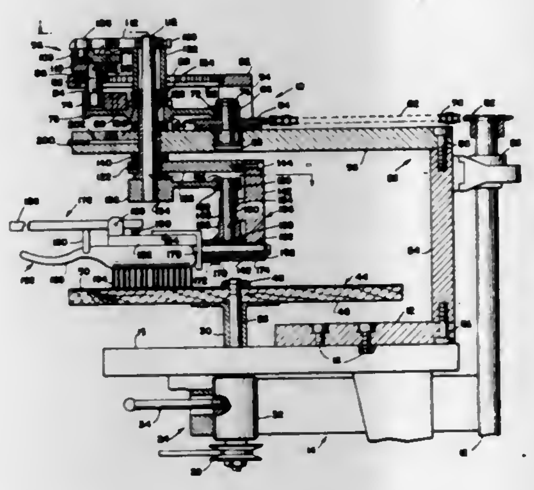
1. Apparatus for forming the bristles of a brush comprising, in combination:

means for oscillating a brush about one of a plurality of axes angularly disposed relative to one another;

rotatable support means continuously rotatable about another of said plurality of axes for intermittently rotatably moving said oscillating means thereabout;

said oscillating means being relatively rotatably positioned with respect to said continuously rotatable support means;

cam means for causing the intermittent rotational movements of said oscillating means about said one axis as said support continuously rotatably moves about said other axis;

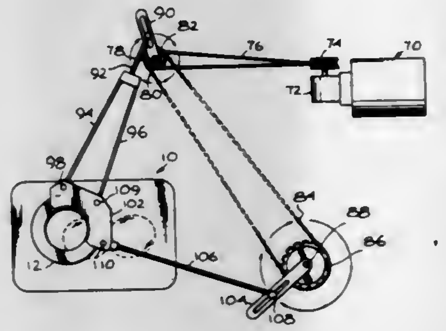


means for driving and causing the operation of said cam means; and

abrasive means disposed for rotational movement about said other axis at a rotational velocity different than that of said intermittently rotatably movable oscillating means and said continuously rotatable support means for rounding the ends of the bristles of a brush so as to be completely smooth and comfortable, thereby eliminating any roughness or irritation to the person of a user during use.

3,305,976
LAPPING METHOD AND APPARATUS

Wallace W. Koskie, Minneapolis, Minn., assignor to Data Products Corporation, St. Paul, Minn., a corporation of Delaware
Filed May 7, 1964, Ser. No. 365,606
8 Claims. (Cl. 51—151)



1. Apparatus for reshaping a surface on a mechanical member so as to give the surface a precise curvature, said apparatus comprising:

a substantially flat horizontally oriented plate;

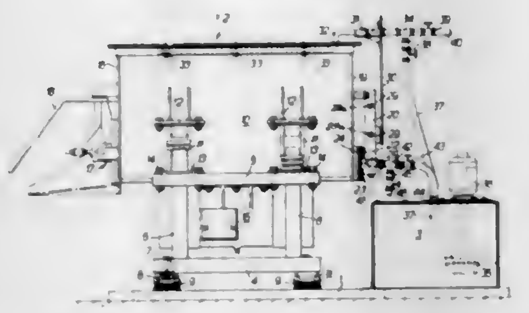
said member supported on said plate with said surface in engagement therewith;

means for distorting said plate to said precise curvature; and

means for moving said member in a substantially random manner over said plate.

3,305,977
VIBRATORY BARREL FINISHING MACHINES

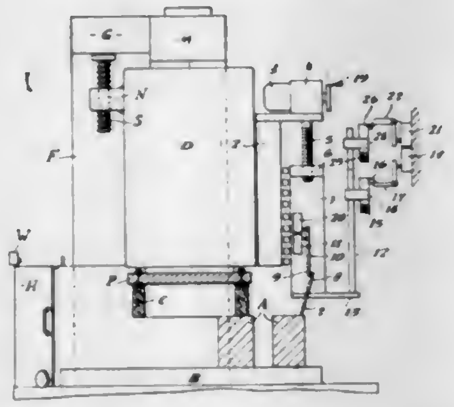
Charles James Albert Kellard, Rabley Heath, Welwyn, England, assignor to Almco Supersheen Division of Great Britain Limited, Hitchin, England, a British company
Filed May 27, 1964, Ser. No. 370,464
Claims priority, application Great Britain, May 27, 1963, 21,094/63
4 Claims. (Cl. 51—163)



4. In a vibratory barrel finishing machine having a finishing barrel and means for supplying finishing compound to the barrel, and for withdrawing it therefrom, the provision of an upwardly extending external stack pipe communicating at its upper end with the atmosphere and at its lower end with the interior of the bottom of the barrel, a plurality of vertically spaced discharge outlets formed in said stack pipe for discharging compound from the barrel through a selected one of said outlets, and openable closure means for closing each outlet below said selected outlet.

3,305,978
SURFACE GRINDING MACHINES

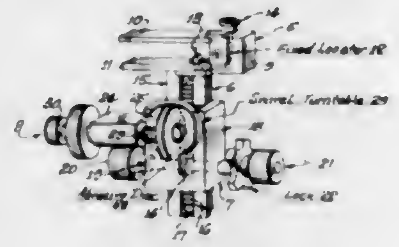
Thomas Harold Lumsden, Gateshead, England, assignor to Lumsden Machine Company Limited, Gateshead, England, a company of Great Britain and Northern Ireland
Filed Apr. 24, 1964, Ser. No. 362,311
Claims priority, application Great Britain, Apr. 26, 1963, 16,525/63
15 Claims. (Cl. 51—165)



1. In a surface grinding machine comprising a work table, a fixed column, a wheelhead mounted in said column and displaceable towards and away from said work table, a motor, feed means associated with said motor for displacing said wheelhead, and a grinding wheel mounted in said wheelhead, the combination of means for automatically terminating the feed displacement of said wheelhead towards said work table, with regard to the progress of wear of the working surface of said grinding wheel, when said working surface is at a predetermined distance from the work table, said means comprising a slideway fixed to the wheelhead, a slide displaceable in said slideway in the direction of movement of the wheelhead, a probe pivotally mounted on said slide and projecting towards the work table, a magnifying lever engaged with said probe and displaceable when the probe engages a workpiece, a control switch actuable by said magnifying lever, means for displacing said slide with respect to the slideway, an auxiliary motor operable by said control switch when actuated to move said displacing means to displace said slide away from said work table, a feed stop switch in circuit with said motor, and a trip cam carried by said slide to be displaceable therewith, said trip cam serving to actuate said feed stop switch.

3,305,979
ELECTRODE DRESSING TOOL

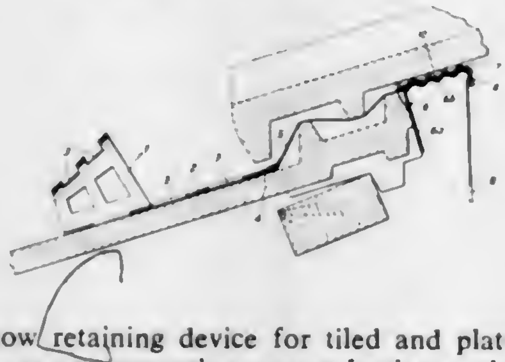
Louis F. Scherer and Donald A. Nye, both of Pomona, Calif., assignors to General Dynamics Corporation, Pomona, Calif., a corporation of Delaware
Filed June 18, 1964, Ser. No. 376,004
18 Claims. (Cl. 51—241)



1. A tool for reshaping or dressing the surfaces of at least one element comprising: a mounting assembly including a bracket-like means for securing said tool adjacent an associated element to be reshaped or dressed, said bracket-like means of said mounting assembly including a resiliently biased pin means and a release mechanism for said pin means, a slide assembly, a carriage assembly, and a disc assembly, said slide assembly being operatively attached to said mounting assembly, said carriage assembly being movably mounted on said slide assembly, and said disc assembly being rotatably mounted on said carriage assembly through a turntable-like means, whereby said disc assembly may be positioned vertically or horizontally with respect to an associated element to be reshaped or dressed.

3,305,980
SNOW RETAINING DEVICE FOR TILED AND PLATED ROOFS

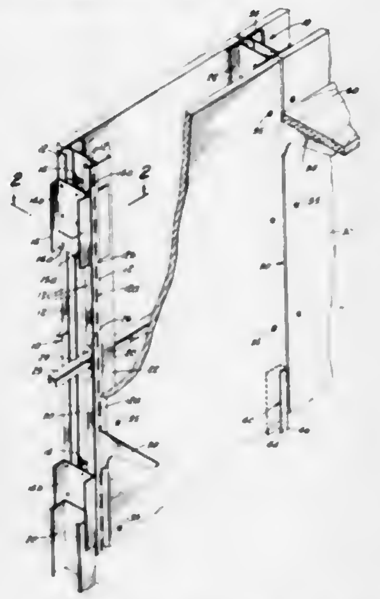
Hans Locher, Gerberei, Wasen im Emmental, Bern, Switzerland
Filed Nov. 25, 1964, Ser. No. 413,895
Claims priority, application Switzerland, Dec. 5, 1963, 14,923/63
6 Claims. (Cl. 52—24)



1. A snow retaining device for tiled and plated roofs comprising snow supporting means having a rigid body portion and a rigid member extending outwardly therefrom forming an elevation, means for holding the device at a roof including clamping means, and a supple band connected to said snow supporting means and to said holding means, said band being clamped by said clamping means to permit displacement of said holding means lengthwise of said band, said snow supporting means being in spaced relation to said holding means whereby the shape of roofing material covering a roof is readily accommodated.

3,305,981
METAL INTERNAL-WALL STRUCTURE FOR SHELF SUPPORTING BRACKETS AND WALLBOARD

Ariel C. Biggs, Whittier, and Morley R. Turner, Newport Beach, Calif., assignors to Angeles Metal Trim Company, Los Angeles, Calif., a corporation of California
Filed Apr. 21, 1964, Ser. No. 361,457
18 Claims. (Cl. 52—36)



1. A wall stud assembly including an upstanding elongated channel iron support providing opposite flanges and a connecting web between said flanges;

vertically spaced stud-retaining clips secured to said support, each clip having flat opposed substantially parallel flanges and a web connecting such flanges, said clips having their webs rigidly secured transversely to the opposite flanges of said support with said flat flanges longitudinally paralleling said support;

such clip flanges on each support flange being aligned in vertical positions;

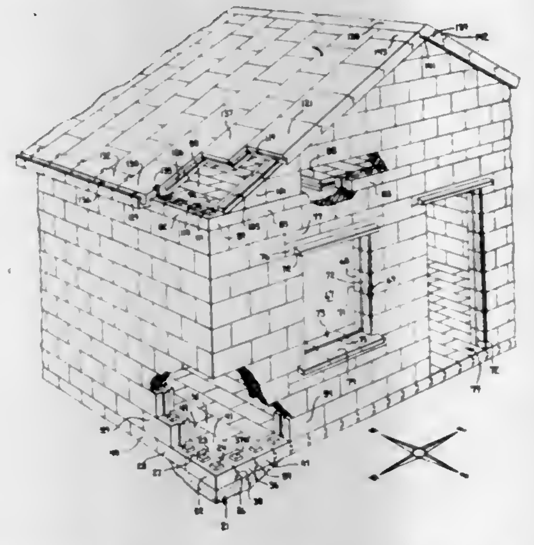
spacing means rigidly secured between opposed clips at the opposed sides of said clips and stabilizing the assembly;

and elongated substantially rectangular upstanding flanged metal studs mounted between the flanges of said clips with the flanges of the studs in frictional engagement between the flanges of the respective clips, the widths of the flanges of the clips and of the studs being approximately co-extensive.

3,305,982
INTERLOCKING BLOCK BUILDING CONSTRUCTION

Oscar Murphy Steele, Versailles, Ind., assignor of one-half to Ralph B. Gookins, Napoleon, Ind.
Filed Nov. 13, 1963, Ser. No. 323,440
2 Claims. (Cl. 52—90)

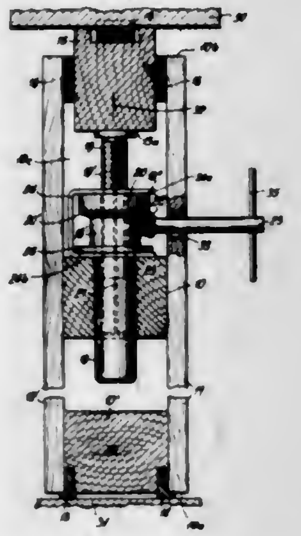
1. A building comprising: a foundation having front and rear end walls and left and right-hand side walls; a first course of floor side blocks on one of said side walls, said course including blocks each having a vertical dovetail groove in one end and a vertical dovetail flange in the other end and a horizontal dovetail flange in one side and projections in the upper surface thereof, with the dovetail flanges in the ends thereof interlocking with the dovetail grooves in the ends of adjacent blocks; a plurality of superimposed courses of side wall forming blocks disposed on said floor side blocks, each of said side wall forming blocks having recesses in the underside thereof receiving the projections of the upper surfaces of the next lower course of blocks and each of said side wall forming blocks having projections on the upper surfaces thereof to project into recesses of blocks in the next higher course of blocks, and each of said side wall forming blocks having a vertical dovetail flange in one end thereof and a vertical dovetail groove in the other end thereof, with each block in a course having the dovetail flange thereof received by the dovetail grooves of an adjacent block in the course; and a course of ceiling side forming blocks received on the upper course of side wall forming blocks, said ceiling side forming blocks having recesses in the underside thereof to receive the projections on the upper surfaces of the upper course of side wall forming blocks, and said ceiling side forming blocks having one end with a vertical dovetail flange in said one end of said ceiling forming blocks and another end with a vertical dovetail groove in said another end of said ceiling forming blocks, with the dovetail groove of one block in the course receiving the dovetail flange of an adjacent block in the course, each of said ceiling side forming blocks having an inside face and a horizontal dovetail flange on the inside face of said ceiling side forming blocks; and a floor comprising a plurality of courses of floor forming blocks in side-by-side relationship, said floor forming blocks having a horizontal dovetail groove in one side thereof and a horizontal dovetail flange in the opposite side thereof and a horizontal straight groove in one end thereof and a horizontal straight flange in the other end thereof, the adjacent blocks in a course having the straight flange of one received in the straight groove of the other and with adjacent courses of blocks having dovetail flanges of one course received in the dovetail grooves of the next adjacent course, said floor including floor end forming blocks having projections on the upper surfaces thereof with said floor end forming blocks being mounted on an end wall of said foundation, said floor end forming blocks having a straight horizontal flange in one end thereof to enter a straight horizontal groove in the next adjacent floor forming block, whereby said floor forming blocks are interlocked with each other and with the floor side and end forming blocks to provide a self sustaining floor requiring no intermediate supports between the side and end walls of said foundation; and a ceiling having a plurality of blocks with a horizontal dovetail flange in one side thereof and a horizontal dovetail groove in the other side thereof and a straight flange in one end thereof and a straight groove in the other end thereof, the blocks being arranged in courses with the blocks in one course being interlocked with each other by means of the interengagement of the straight flanges and grooves of adjacent blocks in the course, and successive ceiling courses being laid horizontally in side-by-side relationship, with the horizontal dovetail flanges of one course engaging the horizontal dovetail grooves of the next adjacent course of blocks, and the course of ceiling blocks adjacent said ceiling side forming blocks having the dovetail grooves thereof received on the dovetail flanges of



the ceiling side forming blocks; ceiling end forming blocks disposed on one of said end walls of said building and having a vertical dovetail flange in one end and a vertical dovetail groove in the other end and projections in the upper surface thereof and a straight horizontal flange in the inside face thereof, said ceiling end forming blocks having the straight horizontal flange thereof projecting into and supporting the straight horizontal groove of the next adjacent ceiling forming block, whereby said ceiling is supported by said side and end walls without intermediate supports; and a roof comprising roof side forming blocks disposed on said ceiling side forming blocks, said roof side forming blocks having recesses in the underside thereof to receive projections of said ceiling side forming blocks and having a channel in an outer marginal portion thereof and having a vertical dovetail groove in one end thereof and a vertical dovetail flange in the other end thereof whereby adjacent roof side forming blocks are interlocked with each other, every second successive one of said roof side forming blocks having a dovetail groove in one side thereof in a sloping portion thereof and a dovetail flange in the other side of a sloping portion thereof and a straight flange in an upper end of said sloping portion thereof, and a plurality of roof forming blocks mounted in courses beginning with each of said roof side forming blocks, each block of a course of said roof forming blocks having a dovetail flange in one side thereof and a dovetail groove in the other side thereof and a straight flange in one end thereof and a straight groove in the other end thereof, the straight groove being in the lower end thereof and received on the straight flange of the next lower roof forming block, the dovetail flange and grooves of each course of said roof forming blocks being interengaged and interlocked with the dovetail flanges and grooves of blocks of the next adjacent courses of roof forming blocks.

3,305,983
ROOM DIVIDER

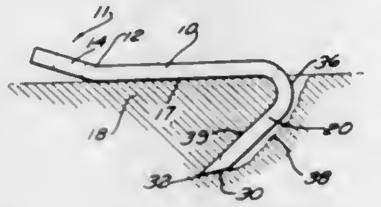
Johann A. Bus, Ebhausen, Wurttemberg, Germany, assignor to Christian Holzapfel KG., Ebhausen, Wurttemberg, Germany
Filed June 4, 1963, Ser. No. 285,408
Claims priority, application Germany, June 16, 1962, H 41,757
8 Claims. (Cl. 52—127)



5. In a building construction, in combination, a first wall and a spaced second wall; and a partition including a flat frame having two spaced end faces each adjacent to one of said walls, said frame including a main support and a pair of spaced parallel panels extending between said end faces and secured to the opposite sides of said support so as to define with said support an internal compartment which is open along one of said end faces, one of said panels having an opening which communicates with said compartment, a retaining head reciprocably received in said compartment so as to be movable in a direction beyond said one end face, and tensioning means for moving said retaining head in said direction so that the head may engage one of said walls and that the other end face of said frame is pressed against the other wall to fix the partition between said walls, said tensioning means comprising a sleeve mounted in said support and having an axis parallel with the direction of movement of said retaining head, an externally threaded spindle axially movably received in said sleeve and having an end portion extending beyond one end of said sleeve and engaging said retaining head, guide means for holding the spindle against rotation with respect to said sleeve, a spindle nut meshing with said spindle and rotatably mounted in said compartment adjacent said one end of said sleeve, U-shaped bracket means having a first bifurcated leg straddling said sleeve and a second bifurcated leg straddling said spindle adjacent to said nut for holding said spindle nut against axial movement with respect to said sleeve, and actuating means for rotating said nut and for thereby moving said spindle axially of said sleeve whereby the spindle may advance the retaining head beyond said one end face, said actuating means comprising a rotary tool extendable through said opening into said compartment and into motion transmitting engagement with said nut.

3,305,984
ICE ANCHOR

Michael W. Borcuk, 19 Detroit Ave., Providence, R.I. 02907
Filed Nov. 19, 1963, Ser. No. 324,611
1 Claim. (Cl. 52—155)

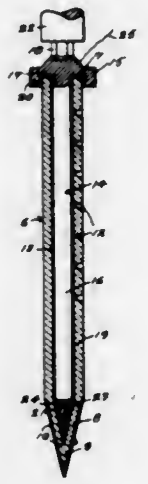


An ice anchor comprising a flat shank of substantial width with respect to its thickness having adjacent the front end a portion provided with means to attach a tether thereto, said shank at its rear end being arched to provide a toothed portion generally in a plane extending at an acute angle to the shank leaving said acute angle void and with the outer edges of said toothed portion being substantially a prolongation of the outer edges of the shank, said toothed portion formed into teeth at its end distant from the shank, said teeth being in substantially a single plane on their front face and beveled on their rear face to break the ice away adjacent their rear face while leaving the ice unshattered and in a single plane as the teeth enter the ice to be engaged by the front face of the toothed portion, said arched portion presenting a smooth surface for engagement to force the toothed portion into the ice, said tether attaching portion being bent from said flat shank in the opposite direction from said toothed portion for the accommodation of a tether.

3,305,985
FENCE POST WITH DRIVING AND ANCHORING MEANS

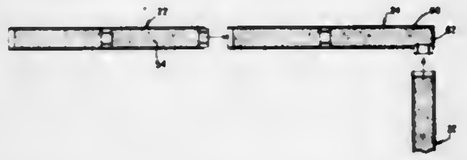
Hollie T. Dean, 107 N. Artizan St., Williamsport, Md. 21975
Filed July 20, 1965, Ser. No. 473,388
3 Claims. (Cl. 52—155)

1. A fence post with driving and anchoring means comprising a hollow elongaged metal fence post member having a tapered lower end terminating in a solid point and a bore extending from said tapered lower end and opening through an upper end of the post; an impact receiving post driving member having a stem fitting detachably in said bore and extending downwardly therethrough to said tapered lower end of the post, a head formed on an upper end of the stem and bearing on the upper end of said post, an anvil portion forming an upwardly projecting extension of said head and adapted to receive impact strokes of a driving implement for driving the tapered lower end of the post into the ground, said post driving member being formed of electrical conducting material, means electrically insulating the driving member from the fence post, said tapered lower end of the post having a blind cavity, a shaped explosive charge contained in said cavity and disposed in electrical contact with said stem and confined in the cavity by the stem, and said driving member forming an electrical conductor for conveying an electrical current from the head thereof through the stem for detonating the explosive charge to rupture and expand said tapered post end for anchoring the post in the earth.



3,305,986
INSULATED ENCLOSURES AND PANELS THEREFOR

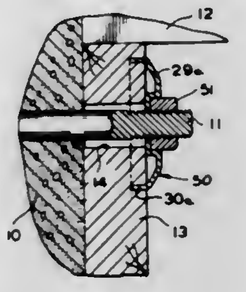
Howard G. Mathews, Levittown, N.J., assignor to Foam Products Corporation, Thomasville, Ga., a corporation of Georgia
Filed Aug. 7, 1962, Ser. No. 215,366
14 Claims. (Cl. 52—270)



9. A laminate panel comprising a core of low thermal conductivity, an inner cover and an outer cover secured to said core, and reinforcing frame means between said covers, said reinforcing frame means including a longitudinal frame member positioned at one edge of said panel and extending outwardly a slight distance beyond said covers in the region of said one edge, said frame member including metal elements joined at spaced intervals by insulating spacer elements, and insulating means covering the outermost ends of said metal elements, said covers at the opposite edge of said panel extending beyond said core a distance corresponding to the projection of said frame member whereby integral joints are formed adapted to be engaged by complementary joints of adjacent panels.

3,305,987
JOIST-SUPPORTING STRUCTURE AND METHOD

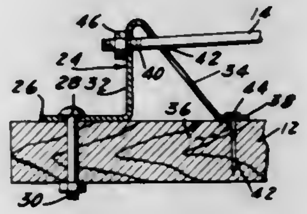
Floyd E. Weaver, 112 Dover Drive, Newport Beach, Calif. 92660
Filed Sept. 21, 1961, Ser. No. 140,185
23 Claims. (Cl. 52—283)



1. A joist-supporting structure; which comprises a plurality of stud bolts anchored in a wall element; a wooden ledger having apertures corresponding in location to said stud bolts and mounted over said stud bolts so that the latter are inserted into said apertures, said apertures being substantially larger in diameter than said stud bolts; and a plurality of nut devices mounted one on each of said stud bolts, said nut devices each comprising an internally-threaded body threaded onto a stud bolt, said body having a load-bearing portion adapted to bear against a side wall of a circular groove or recess formed in said ledger concentrically with said stud bolt, and means on said load-bearing portion to form said groove or recess in said ledger in response to rotation of said load-bearing portion resulting from threading of said body onto said stud bolt.

3,305,988
TRUSS ANCHORAGE

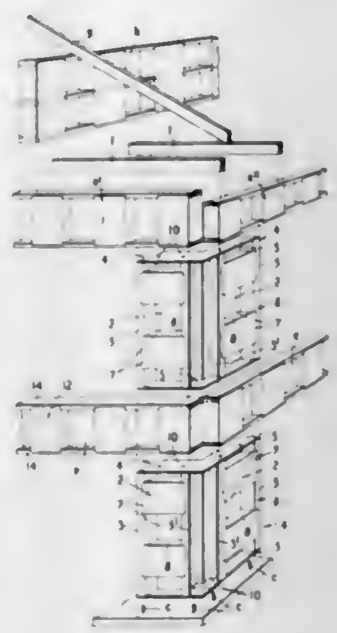
Paul M. Halopoff, Los Angeles, Calif., assignor to Hally Stamping & Mfg. Co., Los Angeles, Calif., a corporation of California
Filed Jan. 15, 1965, Ser. No. 425,900
4 Claims. (Cl. 52—291)



1. A truss anchorage for securing one end of a truss brace to a member to be reinforced, comprising a truss anchor bracket including a mounting flange, a first leg joined at one end to and extending from said flange in a direction transverse to the plane of said flange, a second leg joined at one end to the opposite end of said first leg and extending back toward said plane in diverging relation to said first leg, means for securing said flange to said member, at least one prong comprising a longitudinal extension of the opposite end of said second leg and adapted to be driven into said member, a second flange on said second leg having an end attached to the second leg at a location adjacent said prong, said second flange being disposed in a plane transverse to the direction of extension of said prong and adapted to engage said member for limiting penetration of said prong into said member and providing a footing reacting against stress applied longitudinally of said second leg, and means on said legs adjacent the junction of said legs for operative engagement with said truss brace.

3,305,989
MULTI-STOREY BUILDING FRAMEWORK

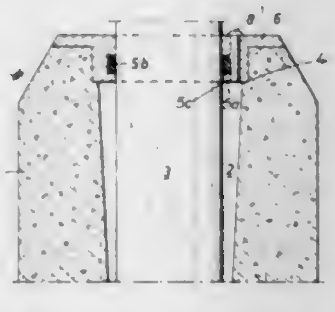
Kenneth Eli Scott, Ludlow, England, assignor to Geoffrey Benjamin Hern, Leominster, England
Filed Feb. 18, 1964, Ser. No. 345,690
Claims priority, application Great Britain, Feb. 19, 1963, 6,547/63
11 Claims. (Cl. 52—295)



1. A multi-storey building framework composed of a plurality of vertical pillar units and horizontal cross-members assembled to form a series of rectangles extending throughout the structure in both vertical and horizontal planes, a pillar unit at each corner defining the height of each storey and the horizontal cross-members extending between adjacent pillar units and resting on the top thereof, said cross-members of each lower storey supporting in turn the corner pillar units of the next higher storey which are in vertical alignment with the corresponding corner pillar units of said lower storey, each horizontal cross-member comprising a pair of spaced-apart upper and lower wood chord members and an intermediate continuous corrugated web part having a turreted form in longitudinal cross-section defining longitudinal side face portions and intermediate transverse wall portions, and said web part having notches in upper and lower edges of the intermediate transverse wall portions in which fit the upper and lower chord members.

3,305,990
MOUNTING UPRIGHT POSTS IN BASE BLOCKS OF CONCRETE

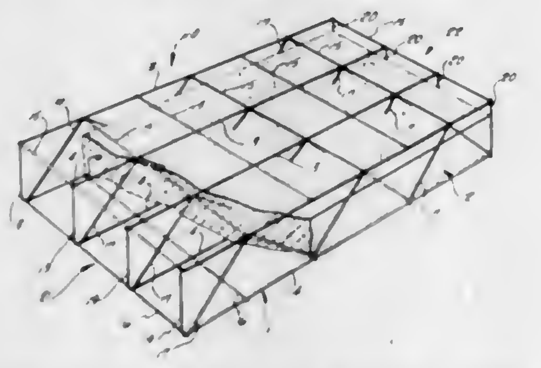
Fritz Arne Halvard Hägeby, Helgevarma, Sweden
Filed Apr. 20, 1964, Ser. No. 360,935
Claims priority, application Sweden, Apr. 26, 1963, 4,589/63
1 Claim. (Cl. 52—298)



A post mounting structure comprising a base element, a post mounted in upright position in said base element, said base element having an annular upper end face and a substantially vertical central bore accommodating said post, and having an annular recess at its upper face around said bore, said post being held in a substantially fixed position in said base element by a clamping device comprising an annular fastening element of a deformable material formed with a central bore snugly enclosing said post, said fastening element having at its upper end an annular flange portion covering said upper end face of said base element, and comprises, below said flange portion, a hollow cylindrical body portion the exterior part of which is snugly fitted into said annular recess in said base element, and the interior part of which extends from said recess inwardly into engagement with said post, and a plurality of pins forced vertically through said inwardly extending part of said cylindrical body portion and extending through the entire vertical length of said inwardly extending part.

3,305,991
REINFORCED MODULAR FOAM PANELS

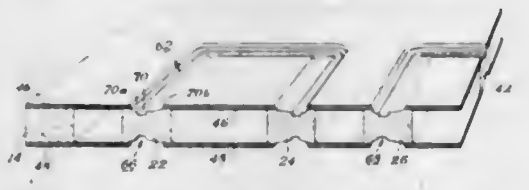
Victor P. Weismann, 430 Prospect Circle, South Pasadena, Calif. 91030
Filed Dec. 14, 1964, Ser. No. 419,286
5 Claims. (Cl. 52—309)



3. A prefabricated modular building panel as an article of manufacture comprising a plurality of slender elongated members rigidly secured together to define a three-dimensional rectilinear lattice having sides, ends, a pair of spaced apart major lateral surfaces and a plurality of strut members traversing the interior of the lattice and interconnecting the lattice lateral surfaces, and a unitary mass of rigid unicellular plastic foam material having a density of about 1.20 pounds per cubic foot or less disposed in the lattice and embedding and being bonded to the strut members and imparting lateral support thereto, the lattice lateral surfaces being external of and spaced from the mass of foam material, the foam material extending to the ends and sides of the lattice but not embedding the members at the sides of the lattice so that the panel is securable to a similar panel abutted thereagainst by interconnection of the members defining the abutting sides of the panels.

3,305,992
HOLLOW CORE DOOR CONSTRUCTION

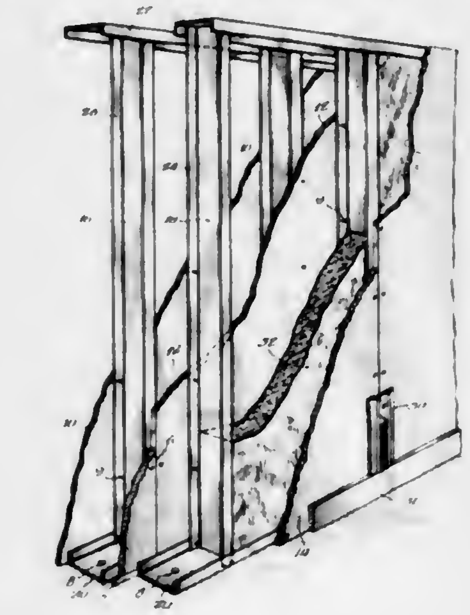
Blaine G. Steed, Oklahoma City, Okla., assignor to Steed Engineering Incorporated, Oklahoma City, Olka., a corporation of Oklahoma
Filed June 8, 1964, Ser. No. 373,306
6 Claims. (Cl. 52—314)



1. A hollow core panel having an engraved design on the face thereof formed by grooves comprising:
a frame formed of strips defining the periphery of the panel and strips within the periphery generally outlining the engraved design,
a sheet of material bonded to each of the strips and covering the frame to form the face of the panel, and
grooves cut in the face of the panel through the sheet of material into the strips generally outlining the engraved design to form the engraved design, the sheet of material being bonded to the strips along both edges of the sheet formed by the grooves.

3,305,993
SOUND CONTROL WALL CONSTRUCTION

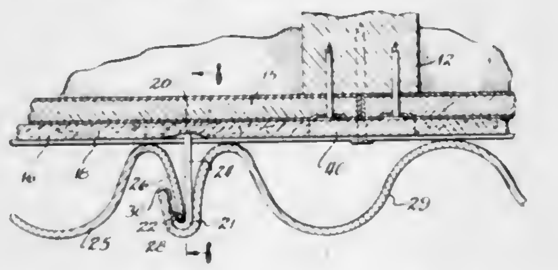
Nels Nelsson, Des Plaines, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois
Filed June 10, 1964, Ser. No. 373,941
3 Claims. (Cl. 52—481)



1. A sound control partition comprising, in combination, first and second parallel rows of studs, the studs of said first row being intermediate the studs of said second row, said rows being offset by a distance equal to the thickness of a septum member, a rigid planar septum member between said rows of studs. securing means attaching said septum member to the studs in each of the two rows, said securing means attaching said septum to a stud in said first row being laterally spaced from said securing means attaching said septum member to a stud in said second row, and first and second outer surface defining layers attached to said first and second rows of studs respectively and parallel to said septum member.

3,305,994
FASTENER FOR WALL PANELS

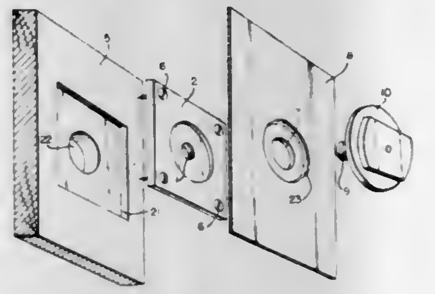
John Arthur Amrhein and Thomas James Weiler, Whitefish Bay, Wis., assignors to Inland Steel Products Company, Milwaukee, Wis., a corporation of Delaware
Filed Apr. 20, 1964, Ser. No. 360,991
8 Claims. (Cl. 52—489)



4. A joint for a rigid sheet covering placed over a building structure comprising:
a girt member,
a first panel, in front of the girt member, of thin sheet material having an upright flange portion at a longitudinal edge said girt member being normal to the direction of the flange,
a metal clip having an elongated center portion located behind the girt member, arms integral with the center portion and extending outwardly beyond ends of the center portion in an upwardly inclined direction oblique to a line through the ends of the center portion, U-shaped hooked end portions at the end and to the side of the arms and integral therewith, and sharp prong means on an outerside of the U-shaped hooked end portions, said U-shaped hooked end portions being hooked in tension over the flange portion of said first panel and in contact with the flange edge, and
a second thin panel, in front of the girt member, of sheet material having a longitudinally upright trough near one longitudinal edge with said trough positioned to cover the flange portion on the first panel, said trough being wide and deep enough to receive the U-shaped end portion of the clip positioned laterally therein in a tight friction fit with said prong means digging into an inner wall surface of the trough to resist withdrawal of the trough from the clip and to maintain the trough in position covering the flange of the first panel.

3,305,995
METHOD OF MOUNTING METAL SHEETS

Edward Armstrong, Durham, and Robert Glover Jackson, Hornchurch, Essex, England, assignors to Conch International Methane Limited, Nassau, Bahamas, a Bahamian company
Filed Nov. 20, 1964, Ser. No. 412,806
Claims priority, application Great Britain, Dec. 3, 1963, 47,748/63
12 Claims. (Cl. 52—512)



5. A supporting structure,
(a) a metal sheet to be mounted on said supporting structure, said sheet having an aperture therein,
(b) a supporting plate rigidly fastened to said supporting structure and providing a supporting surface for said sheet,
(c) a recess in the surface of said supporting plate,
(d) screw thread means fastener to said supporting plate on the opposite side from said surface and in the center of said recess,
(e) a bolt passing through the aperture in said sheet, the size of the aperture being greater than the cross-sectional area of the shank of the bolt,
(f) pressure means carried by said bolt and distorting a portion of said sheet around said aperture into said recess in the surface of said supporting plate when the bolt is tightened to prevent any further lateral shifting of the sheet.

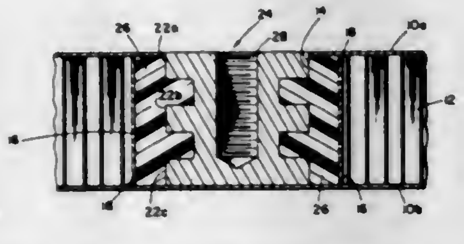
3,305,996
PANEL FASTENER

Joseph Shapiro, Pomona, Calif., assignor to North American Aviation, Inc.
Filed May 4, 1964, Ser. No. 364,419
9 Claims. (Cl. 52—617)

1. In combination with a fastener installation for a panel having a low-density honeycomb core secured to and between a pair of skin sheets, an aperture in one of the sheets, and an enlarged right-cylindrical recess in the

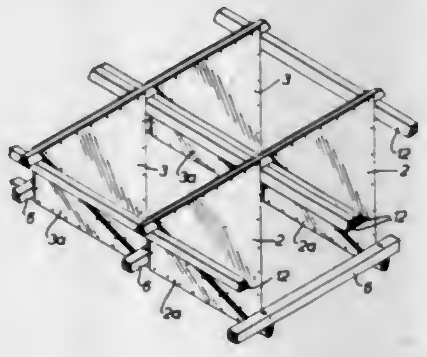
core, said enlarged recess having a diameter larger than the diameter of said aperture, and being bounded by ruptured cells, the improvement comprising:

means, comprising a substantially right-cylindrical, barrier sleeve of strip-like resilient material positioned in, and lining the enlarged core recess defined by said ruptured cells and having a width substantially equal to the distance between mutually facing surfaces of the skin sheets, said resilient sleeve being radially contractable to be inserted through said aperture, and being radially expansible to line the recess, for forming a predetermined-volume substantially right-cylindrical cavity for minimizing the entry of a hardenable substantially-liquid anchoring material into said ruptured cells—whereby only a given weight and volume of said anchoring material is used, and said anchoring material is confined within the bounds of said barrier to minimize undesired shifting of the center of gravity of said panel.



3,305,997
SPACE STRUCTURES FOR BUILDING PURPOSES

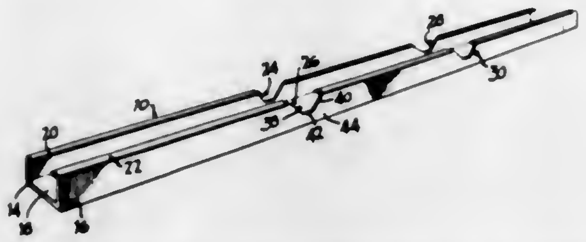
Bernard Thomas Keay, Plot 5, Clarksfield, Lyth Hill Road, Shrewsbury, England, and Lionel Geoffrey Booth, 35 Eccleston Square, London, England
Filed June 11, 1963, Ser. No. 287,007
Claims priority, application Great Britain, June 12, 1962, 22,575/62; Dec. 21, 1962, 48,462/62
4 Claims. (Cl. 52—648)



1. A space structure for building purposes wherein there is a plurality of prefabricated units each comprising at least one longitudinal rib portion and successive pairs of triangular wall portions joining said rib portion along one margin and extending laterally from said one rib portion, the wall portions of said successive pairs lying in two divergent planes; wherein a first series of said units is disposed with their said one rib portions in substantially parallel relation substantially in one layer at one side of said structure and their said wall portions extending depthwise of said structure; a second series of said units is disposed with their said one rib portions located in substantially parallel relation normally to the rib portions of said first series of units and substantially in another layer at the opposite side of said structure, said wall portions of the units of said second series also extending depthwise of said structure; and wherein each said pair of triangular wall portions of each unit of said first series of units is connected with a pair of said wall portions of a unit of said second series of units thereby to form a tetrahedral cell.

3,305,998
WINDOW FRAME CONSTRUCTION HAVING A FOLDED MITERED CORNER

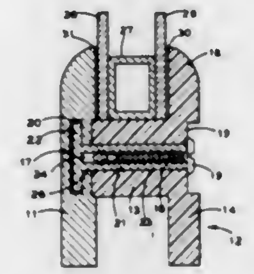
Robert J. Deisenroth, Elkhart, Ind., assignor to Excel Corporation, Elkhart, Ind., a corporation of Indiana
Filed July 17, 1964, Ser. No. 383,337
6 Claims. (Cl. 52—656)



1. In a window frame constructed of a channel member having a pair of side walls interconnected by a web, a corner construction comprising two frame members joined by a corner portion with the channel web forming the outer corner surface and the channel side walls extending inwardly therefrom towards the center of the frame, each corner portion of the channel side walls having a slit therein extending from the inner edge thereof towards the web and terminating at a point short of the web, the channel side wall material between the termination of the slits and the web being folded inwardly of the channel.

3,305,999
FRAME CONSTRUCTION

Samuel Bohn, 285 Aycrigg Ave., Passaic, N.J. 07055
Filed Apr. 16, 1965, Ser. No. 448,647
4 Claims. (Cl. 52—732)



1. A frame construction for holding glass sheets, said frame construction comprising

an elongated glazing trim having a glass engaging face and

an elongated T-shaped trim having a glass engaging face;

said T-shaped trim comprising

a unitary horizontal portion terminating in a vertical end face and a vertical portion extending at right angles to said horizontal portion;

said horizontal portion having a series of horizontally bored holes extending completely therethrough;

said glazing trim being provided with an internal elongated slot formed therein inwardly of said glass engaging face;

a plurality of connecting means securing said glazing trim and T-shaped trim so that said vertical end face of said horizontal portion is in tight abutment against said glazing trim;

each of said connecting means comprising an elongated shank having a flanged head portion;

said flanged head portion being received in said elongated slot so that the shank extends through one of said holes in said horizontal portion;

and a fastener received in said shank and firmly securing said glazing trim to said T-shaped trim for holding a pair of glass sheets together with a spacer member therebetween.

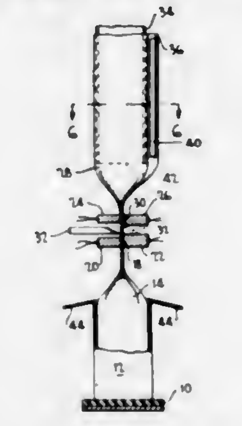
3,306,000
CONSTRUCTION METHOD

Marion D. Barnes, Washington, D.C., assignor, by mesne assignments, to Research Corporation, New York, N.Y., a non-profit corporation of New York
No Drawing. Filed Jan. 2, 1963, Ser. No. 248,902
6 Claims. (Cl. 52—747)

1. The method of erecting a structure with building units which comprises stacking the units to form the desired structure without the use of any bonding medium on the contacting surfaces of the stacked units and then coating at least one of the exposed external surfaces of the resulting structure at least about the periphery of said units by applying thereto a composition consisting essentially of glass fibers uniformly dispersed in molten and plasticized sulphur and allowing said molten sulphur composition to solidify, said coating serving as the sole essential means for bonding the units together, said sulphur being present in said composition in an amount at least 50% by weight of said composition, said sulphur being plasticized with a polysulphide plasticizer present in an amount from about 1% to about 30% by weight of said composition and said glass fiber having a length of about 0.25–0.5 inch and present in an amount at least 1% by weight of said composition.

3,306,001
METHOD FOR PRODUCING A HERMETICALLY SEALED PACKAGE

William S. Peppler, Chappaqua, N.Y., assignor to Diamond International Corporation, a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,689
3 Claims. (Cl. 53—27)



1. The method of continuously producing packages having a rigid outer container having a minimum volume in relation to the amount of material contained in a hermetically sealed bag, comprising the steps of:

continuously forming an endless, heat-sealable film into a tubular sleeve on a rigid mandrel and heat sealing the leading end of said sleeve;

continuously orienting upwardly opening, rigid cartons beneath said leading end of said sleeve and in coaxial alignment therewith;

maintaining the cross section of said sleeve equal to the interior of the rigid container;

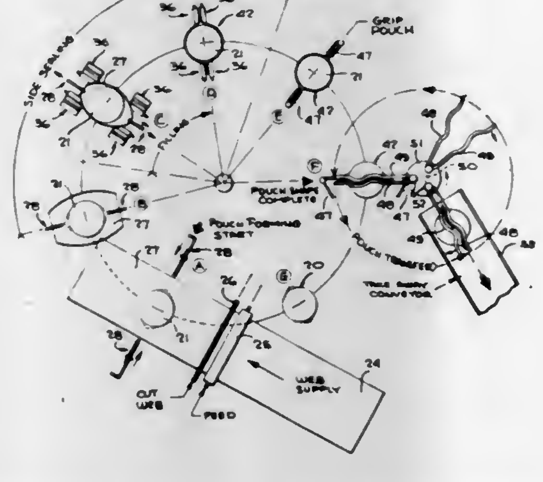
filling the sleeve with a charge of fluent material while continuing to maintain the sleeve cross section uniform and conforming to the interior cross section of said rigid carton;

introducing said sleeve with the charge contained therein into the rigid container and withdrawing the rigid mandrel progressively so that the charge of material and sealed leading end of the sleeve substantially fill the rigid container; and

sealing the trailing end of the sleeve below the rigid mandrel thus forming a hermetically sealed bag in the rigid container while forming the sealed leading end of the next successive bag formed from the flexible sleeve and to be disposed in the next oriented rigid container.

3,306,002
BAG FORMING AND FILLING APPARATUS AND METHOD

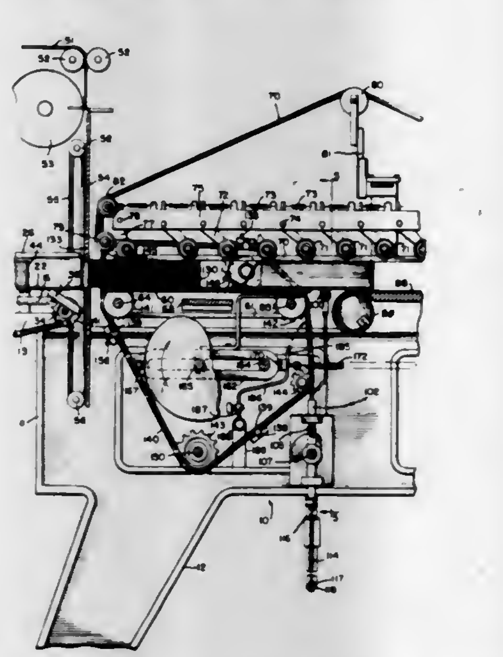
Clarence W. Vogt, Box 232, Westport, Conn. 06880
Filed Dec. 10, 1962, Ser. No. 243,452
17 Claims. (Cl. 53—29)



1. A method of forming a filled pouch comprising the steps of providing a bag blank, clamping a bag bottom forming portion of the bag blank against a lower end of a measuring tube to seal the measuring tube, shaping the bag blank around the measuring tube and sealing side edges of the bag blank together to form an open ended bag, filling the measuring tube with a fill and with the fill seating against the bottom of the bag, simultaneously removing the fill and the bag from the measuring tube with the fill remaining seated on said bag bottom, and then sealing the bag open end.

3,306,003
PACKAGE WRAPPING MACHINE

William E. Sundy, New Cumberland, and Daniel H. Hickok, Linglestown, Pa., assignors to The W. O. Hickok Manufacturing Company, Harrisburg, Pa., a corporation of Pennsylvania
Filed Apr. 3, 1963, Ser. No. 270,391
9 Claims. (Cl. 53—228)

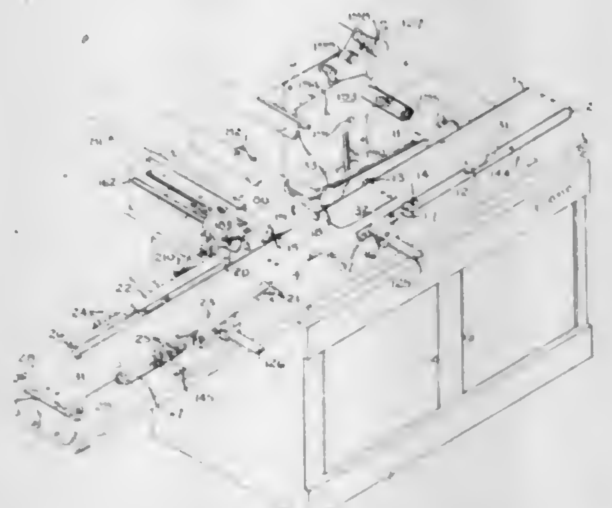


1. In an apparatus for wrapping an article, means for supporting a wrapping sheet in a vertical plane, first and second horizontal conveyors for conveying an article at such a level that the article placed on said first conveyor moves through said vertical plane intermediate the length of the sheet whereby the sheet is looped around the leading end of the article as the latter moves from said first

to said second conveyor, means above said second conveyor for holding against the top of the article the portion of the sheet between said loop and the extremity of the said portion of the sheet, at least one extremity of the said sheet extending beyond the following end of the article, a third conveyor aligned with said second conveyor and having an inlet end spaced from the outlet end of said second conveyor, said second conveyor moving the article to said third conveyor to be advanced horizontally thereby, and means between said second and third conveyors as the following end of the article moves therebetween for folding the extremities of the sheet into overlapping relationship and for sealing them to each other.

3,306,004
PACKAGING MACHINE

Robert K. Galloway, Hoopeston, Ill., assignor to American Can Company, New York, N.Y., a corporation of New Jersey
Filed Nov. 5, 1964, Ser. No. 409,086
9 Claims. (Cl. 53—284)

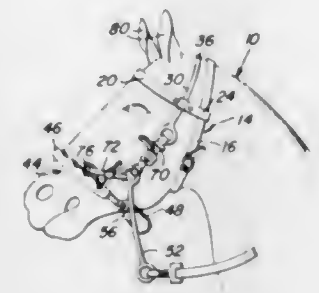


1. In a machine for erecting, filling and closing paperboard cartons, means for receiving, supporting, and transferring squared tubular carton shell supplied from a feeding device while said shells are filled and closed, which comprises (a) first and second adjacent parallel reciprocal rail assemblies adapted to support said shells with the axis passing through the open ends thereof positioned transversely of said rail assemblies, (b) means for oppositely reciprocating said rail assemblies lengthwise, (c) means attached to each of said rail assemblies for intermittently moving cartons on the forward strokes of the reciprocation along a unidirectional linear path parallel to said rail assemblies, (d) means adjacent said path for filling said cartons, and (e) means acting on said cartons to close the ends thereof as said cartons are moved along said path.

3,306,005
HACKAMORE BRIDLE

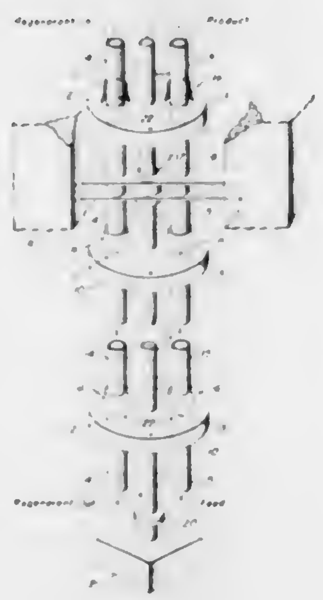
Noble G. Stafford, Lamesa, Tex., assignor to Max L. Meyers, Lamesa, Tex.
Filed Oct. 13, 1965, Ser. No. 495,392
9 Claims. (Cl. 54—6)

1. A hackamore bridle comprising an upstanding combined throat latch and head loop, a rearwardly opening brow band secured at its opposite end portions to opposite sides of said throat latch and head loop below its upper end, an inverted generally U-shaped crown piece including a pair of depending opposite side leg portions interconnected at their upper ends by means of a curved transverse bight portion adapted to pass over the top of the head of a horse behind his ears, the lower ends of said leg portions being slidably guidingly restrained and engaged with the opposite end portions of said brow band for longitudinal reciprocation relative thereto, an at least substantially rigid closed combined nose band and curb loop, a pair of upstanding opposite side levers pivotally connected intermediate their upper and lower end portions to the opposite sides of said nose band and curb loop intermediate its front and rear end portions for rotation about axes extending transversely of said levers and between said opposite sides, the lower ends of said levers including means adapted to have rein ends secured thereto, and elongated tension transmitting means connecting the upper ends of said levers and the corresponding lower ends of said leg portions whereby tension on the reins applies downward pressure on the crown piece without pressure being applied to the chin area of the animal.



3,306,006
SEPARATION OF GAS MIXTURES UTILIZING PLURAL SORBENT ZONES IN SERIES AND PARALLEL

Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed Mar. 23, 1964, Ser. No. 354,020
12 Claims. (Cl. 55—25)



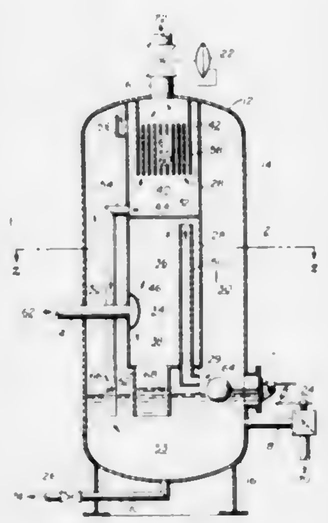
1. A process for separating a mixture of gases at least one of which is selectively sorbed by contact with a sorbent and at least one other gas is relatively less sorbed by the sorbent which comprises:

(1) introducing a feed stream of said mixture into the first of a series of n discrete sorption zones each containing said sorbent;
(2) passing the effluent from each sorption zone into the next succeeding sorption zone and withdrawing from the nth zone of said series a raffinate stream of reduced selectively sorbed gas content;

(3) maintaining under lower pressure than the sorption zones a series of n discrete depressurization zones parallel to and separate from said series of sorption zones, each depressurization zone being a counterpart of a corresponding one of said sorption zones and containing said sorbent having sorbed therein the selectively sorbed gas and minor amounts of less sorbed gas;
(4) disengaging less sorbed gas from the sorbent in said depressurization zones and withdrawing less sorbed gas therefrom;
(5) introducing a gaseous desorbent stream into the nth of a series of n discrete desorption zones parallel to and separate from said series of sorption zones and depressurization zones, each desorption zone being a counterpart of a corresponding one of said depressurization zones and containing said sorbent having sorbed therein the selectively sorbed gas;
(6) passing the effluent from each desorption zone into the next preceding desorption zone in counterflow relationship to said feed stream and withdrawing from the first of said series of desorption zones a sorbate stream comprising desorbent and selectively sorbed gas; and
(7) periodically and simultaneously interchanging in a rotating sequence the respective counterpart sorption, depressurization and desorption zones whereby each discrete mass of sorbent is repetitively subjected to sorption, depressurization and desorption conditions in that order.

3,306,007
APPARATUS FOR SEPARATING OIL AND GAS FLUID STREAMS

Clarence O. Glasgow, 2620 S. Yorktown, Tulsa, Okla. 74114
Filed Feb. 19, 1964, Ser. No. 346,032
9 Claims. (Cl. 55—169)

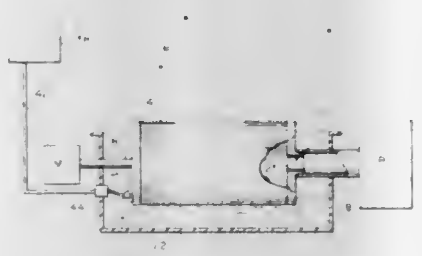


1. An oil-gas separator for oil and gas well fluid comprising the combination of;

a pressure chamber;
means to maintain a constant oil-gas interface in the lower portion of said chamber;
a first substantially enclosed inner chamber within said pressure chamber positioned above said oil-gas interface to form an annulus;
oil draw-off means extending from said first inner chamber to beneath said oil-gas interface to maintain an oil seal upon said draw-off means;
well fluid inlet conductor means penetrating across said annulus into said inner chamber, to release said oil and gas well fluids internal of said first inner chamber;
separate gas draw-off means within said first inner chamber to discharge gas from said first inner chamber above said well fluid inlet conductor means into said annulus at a point below said well fluid inlet conductor means, yet above said oil-gas interface;
gas outlet conductor means above said first inner chamber to withdraw said gas from said annulus;
an oil storage portion beneath said oil-gas interface; and
oil outlet conductor means to withdraw said oil from said oil storage portion.

3,306,008
CONTINUOUS HIGH EXPANSION FOAM GENERATOR WITH CONTROLLED EXPANSION RATES

Leslie Silverman, Dover, Mass., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 10, 1964, Ser. No. 388,736
4 Claims. (Cl. 55—178)

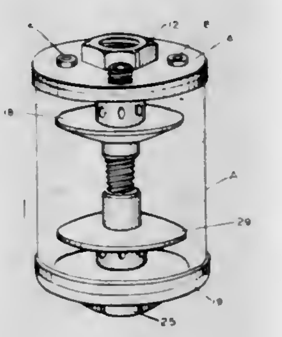


1. High expansion foam generating apparatus comprising:

(a) means for producing the foam consisting of a hollow cylindrical member having a screen surface;
(b) a container for said member;
(c) means mounting said member for rotation at least partially within said container, said container having sufficient foaming liquid to cover a portion of said screen surface which is thus continuously wetted by the liquid in said container during rotation; and
(d) means for pumping gas under sufficiently high pressure directly into said member, said gas escaping outwardly through said screen surface, to cause said liquid to form foam of about 900 to 1 expansion ratio.

3,306,009
COMPENSATORS FOR PNEUMATIC-HYDRAULIC SYSTEMS

Lee H. Cruse, 3545 Mentor St., Springfield, Mo. 65804
Filed May 13, 1964, Ser. No. 367,146
5 Claims. (Cl. 55—201)



1. A device for use with pneumatic-hydraulic systems in which a body of hydraulic liquid and a body of pneumatic fluid are in mechanically interactive contact, said device comprising a chamber of circular cross-sectional

shape in which the hydraulic liquid and pneumatic fluid are in contact across an interface, a first conduit extending axially into the upper portion of said chamber and having orifice means opening into said chamber, a second conduit extending axially into the lower portion of the chamber and having orifice means opening into said chamber, a first concave baffle-member disposed in the upper portion of the chamber below the orifice means of the first conduit and having its concaved surface presented toward the orifice means of the first conduit, and a second concave baffle-member disposed in the lower portion of the chamber above the orifice means of the second conduit and having its concaved surface presented toward the orifice means of the second conduit, said orifice means of the first conduit being presented obliquely with respect to the axis of the first conduit and being oriented so that fluid issuing therefrom is directed toward the concaved surface of the first concave baffle-member, said orifice means of the second conduit being presented obliquely with respect to the axis of the second conduit and being oriented so that fluid issuing therefrom is directed toward the concaved surface of the second concave baffle-member.

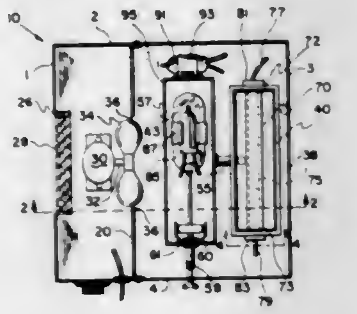
3,306,010

ELECTRIC HUMIDIFIER UNIT AND METHOD AND MEANS OF ILLUMINATION OF THE UNIT

Donald G. Garofalow, 552 Spring St., Teaneck, N.J. 07666, and Edward P. Schlosser, 178 Main St., Ridgefield Park, N.J. 07660

Filed June 5, 1964, Ser. No. 373,015.

9 Claims. (Cl. 55—263)



7. In a humidifier unit of a type including a housing having an air inlet opening and an air outlet opening therein, means for circulating air through the housing from the air inlet opening and out the air outlet opening, humidifier pan having an open top and mounted within said housing, said humidifier pan carrying a supply of water for vaporization, the improvement comprising a glass tubular member positioned longitudinally in said humidifier pan and having opposite open ends extending through end portions of the humidifier pan, said tubular member being immersed in the water supply carried by said humidifier pan, an infra-red lamp positioned in said tubular member, means for effecting energization of said infra-red lamp to vaporize the water, and the water vapor being emitted through the open top of the humidifier pan and illuminated by the infra-red lamp adjacent an upper portion of said air outlet opening.

3,306,011

AIR FILTER FOR INFLATABLE TIRES

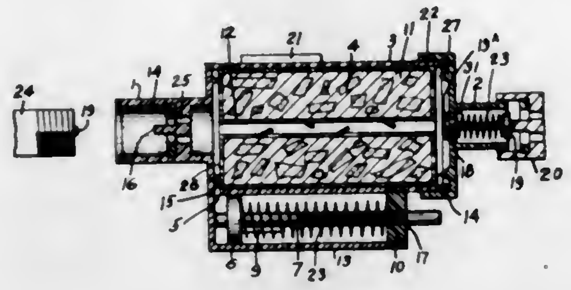
Harry Dvorkin, Inglewood, Calif.

(6243 Morse Ave., North Hollywood, Calif. 91601)

Filed May 28, 1964, Ser. No. 370,817

5 Claims. (Cl. 55—275)

1. A device for purifying air supplied to the valve stem of a tire consisting of a housing, a moisture absorbent in said housing, an air pressure gauge affixed to said housing and having a port in communication with the interior of said housing, a fitting at one end of said housing adapted to be fitted to said valve stem, a second fitting containing a valve means at the opposite end of said housing, said second fitting being adapted to receive a connecting means from a source of pressurized air, and means transmitting air pressure from said tire to said air pressure gauge.



3,306,012

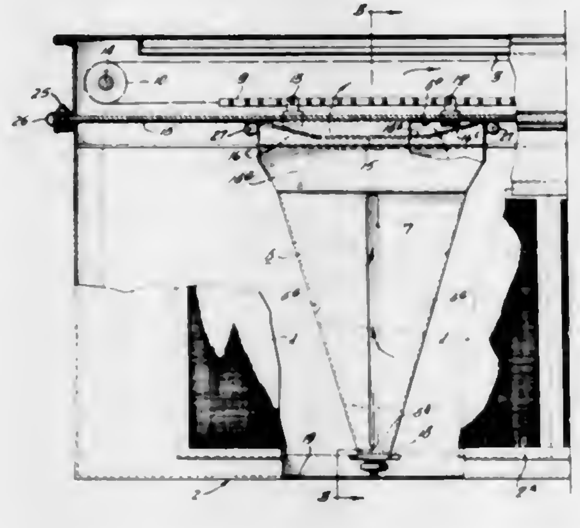
CLEANING DEVICE FOR FRAME-MOUNTED NET FILTERS

Sven Wallin, Taby, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Stockholm, Sweden

Filed Mar. 30, 1966, Ser. No. 544,650

Claims priority, application Sweden, July 12, 1963, 7,762/63

5 Claims. (Cl. 55—294)



1. In a filter cleaning device comprising a net filter, a frame having support means to receive at least one net filter therein, a hollow suction head mounted adjacent said support means, said suction head having an extended suction slot therein facing and transverse to the support means, suction means connected to said suction head to draw suction through said suction slot and said filter, and drive means connected to said suction head to reciprocate said head relative to said filter-receiving support means; the improvement wherein said suction means includes a suction box coextensive with said support means and mounted adjacent said suction head, said box having a longitudinally extending opening, a displaceable sealing strip secured to said box at its opposite ends and covering said opening throughout its length, said head having an offset portion disposed intermediate said opening and said strip to locally disengage said strip from said opening, a connecting slot in said offset portion mating with said opening to afford free communication between said suction box and the interior of said head, said portion sliding longitudinally of said opening upon reciprocation of said head, and means carried by said head at the opposite ends of said offset portion operable to press said strip against said opening to prevent leakage through said opening adjacent said portion.

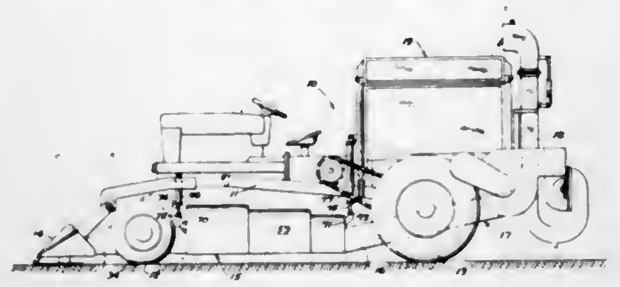
3,306,013

PICKING UNIT FOR POD HARVESTER

Ray Whitman, Patterson, Calif., assignor to Virginia Gray, Cunningham, Kans.

Filed Oct. 14, 1964, Ser. No. 403,711

27 Claims. (Cl. 56—19)



1. A picking unit for a harvester for beans and the like, including in combination

a scow having a lower edge extending axially up from which extends a vertical side wall providing stepped horizontal edges having a highest edge level over a front portion, a lowest edge level at a rear portion, and an intermediate edge level at an intermediate portion,

a conveyor moving on said scow and spaced from said edge, and a reel assembly at the opposite side of said edge from said conveyor and comprising an upper forward reel paralleling said front portion, a lower rear reel, paralleling said rear portion, and an intermediate reel paralleling said intermediate portion, each said reel having a plurality of picking tines that come closely adjacent the edge it parallels.

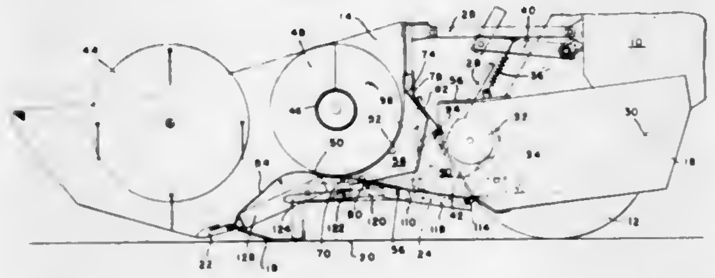
3,306,014

COMBINATION HEADER AND CROP CONDITIONING UNIT THEREFOR

Lawrence M. Halls and Horace G. McCarty, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware

Filed July 21, 1964, Ser. No. 384,075

15 Claims. (Cl. 56—23)



1. A header having a frame arranged to be connected to the forward end of a tractor for support and propulsion thereby and comprising a sickle bar assembly adjacent the forward lower portion of said header, an arcuate support extending transversely between the sides of said frame, an auger rotatable across said support and having oppositely spiralled flights to engage cut crop material received from said sickle bar assembly and consolidate the same toward the center of said support, an exit opening substantially narrower than said auger formed centrally of said support to discharge said consolidated material continuously from said auger, and means supporting said header for vertical movement relative to the tractor to permit the same to adapt to contour irregularities of a field being harvested, in combination with a crop-conditioner unit mounted between said header and the forward end of said tractor and having an entrance in register with said exit means of said header and including a plurality of conditioning rollers rotatably supported for cooperation with each other, said conditioner unit also having an exit rearward of said rollers, support means for said crop-conditioner unit arranged to be connected to the forward end of said tractor and connected to said crop-conditioner unit for support thereof by said forward end of said tractor generally independently of said header and arranged to permit limited vertical floating movement of said conditioner unit, and chute means extending between said exit opening of said auger and the entrance of said crop-conditioner unit, said chute means including top, bottom and side means enclosing the transfer of said consolidated material from said header to said conditioner unit and said means having portions respectively carried by said header and conditioner unit and movably interengaging each other to permit relative vertical movement between said header and conditioner unit without disrupting the enclosing function of said chute means relative to such transfer of said material.

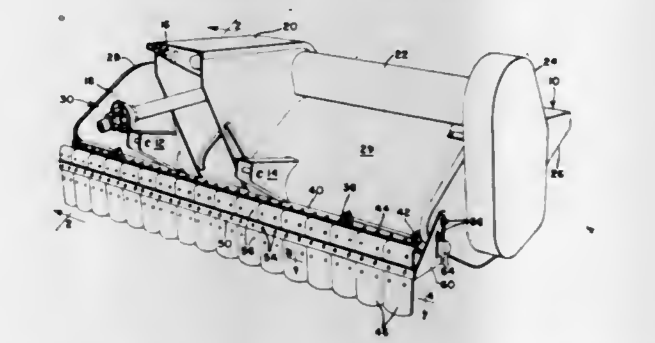
3,306,015

SAFETY CURTAIN FOR FARM IMPLEMENTS

Glenn L. Myers, Ottumwa, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware

Filed Aug. 4, 1964, Ser. No. 387,396

8 Claims. (Cl. 56—24)



1. In a machine of the class described having a horizontal rotor transverse to the direction of machine travel and including a plurality of radial knives travelling forward at the bottom of their arcs and partially enclosed from above in a hood open at its bottom, a safety curtain comprising a horizontal bar affixed at each end to a bracket mounted in a vertically adjustable position on the hood, and a plurality of depending resilient flaps having their upper ends affixed to and sealed against the horizontal front edge portion of said hood across its width, each flap also being affixed between its ends to said horizontal bar in a vertically adjustable manner.

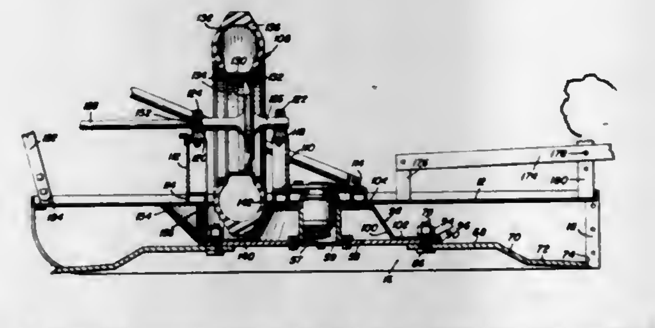
3,306,016

TIRE DRIVEN ROTARY CUTTER

Bynum E. Murphy, Minden, La., assignor to Anderson-Dunham, Inc., doing business as Dunham Manufacturing Company, Minden, La., a corporation of Louisiana

Filed Jan. 30, 1964, Ser. No. 341,187

19 Claims. (Cl. 56—25.4)



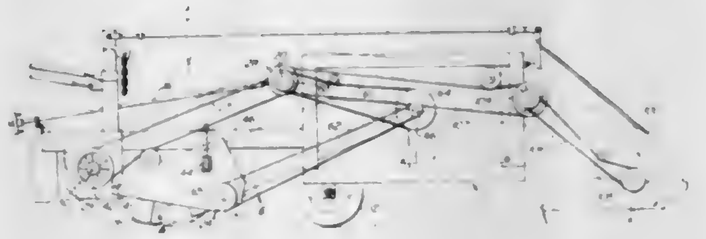
1. A rotary cutter comprising a mobile frame including a deck, shaft means depending from said deck, blade means rotatably supported from said shaft means, and drive means engaged with said blade means in spaced relation to said shaft means for rotating the blade means about the longitudinal axis of the shaft means, said shaft means including a shaft fixedly attached to said deck

generally in the central area thereof, said deck including at least a partial depending flange disposed peripherally of said blade means, said blade means including a plate having a central hub affixed thereto, said hub being telescoped over the lower portion of said shaft, thrust bearing means interposed between said shaft and hub, and means on the lower end of the shaft removably securing the bearing means to the shaft thereby enabling removal of said blade means.

3,306,017

APPARATUS FOR TOPPING SUGAR BEETS AND SAVING THE SEVERED TOPS

Novell E. Wells, 927 Ranch Road, Boise, Idaho 83702
Filed June 26, 1964, Ser. No. 378,342
13 Claims. (Cl. 56—121.45)



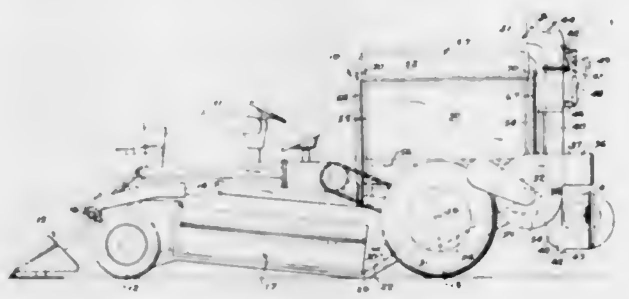
1. An apparatus for topping beets and collecting the severed tops comprising:
- a mobile frame for travel in a foward direction along a row of beets to be topped,
- a cutter disc positioned on said frame for topping beets in said row said cutter disc being rotatable about a generally upright and forwardly inclined axis,
- cutter drive means on said frame for rotating said cutter disc,
- stationary deflector means extending across the upper surface of said cutter disc and positioned for guiding said tops rearwardly over and from the upper surface of said cutter disc,
- top pickup means rotatably carried by said frame rearwardly of said cutter disc and arranged in the path of severed tops thrown rearwardly by said disc, said pickup means being rotatable about a horizontal axis extending transversely of said frame rearwardly of said disc and being rotatable in a direction for lifting and transferring tops from said cutter disc rearwardly in a continuous flow above the ground surface,
- and conveyor means rearwardly adjacent said pickup means for receiving and conveying rearwardly on said frame tops from said pickup means.

3,306,018

HARVESTER FOR POD TYPE CROPS

Ray Whitman, Patterson, Calif., assignor to Virginia Gray, Cunningham, Kans.
Filed Aug. 31, 1964, Ser. No. 393,277
18 Claims. (Cl. 56—126)

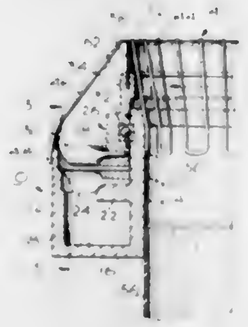
8. A harvester for pod type crops, comprising
- a self-propelled vehicle with front and rear wheels and a main frame,
- pod picking means secured to said main frame,
- first mechanical conveyor means extending along the fore-and-aft center line of said vehicle and supported by said main frame adjacent said pod picking means for receiving picked pods, along with some leaves and stems and other light trash, said first mechanical conveying means having a low portion closely adjacent ground level where some clods and rocks tend to be picked up, and also having a rear upwardly inclined portion to the rear of said picking means having a raised rear and,
- second mechanical conveyor means supported by said main frame in line with and to the rear of said first mechanical conveyor means with its forward end spaced, by a gap, below the rear end of said first mechanical conveyor means, said second mechanical conveyor means being rearwardly and upwardly inclined toward a rear end,
- housing means suppored by said main frame and covering said rear inclined portion of said first mechanical conveyor means and said second mechanical conveyor means and having narrow air inlets at said rear inclined portion, at the gap between said first and second mechanical conveyor means and at the rear end of said second mechanical conveyor means, and
- suction-inducing fan means supported by said main frame and having conduit means connecting it to said housing means and having outlet means, for pulling air in through said air inlets and through said conduit means and exhausting it through said outlet means, the air entering said inlet means meeting and causing turbulence, the suction flow carrying off leaves, stems, and other light trash while leaving the heavier and more dense pods, while said rocks and clods fall down through said gap.



3,306,019

DEVICE FOR PICKING STEM-SUPPORTED ARTICLES

William MacCurdy, Menlo Park, Calif., assignor to Stanford Research Institute, Menlo Park, Calif., a corporation of California
Filed Mar. 27, 1964, Ser. No. 355,279
10 Claims. (Cl. 56—332)

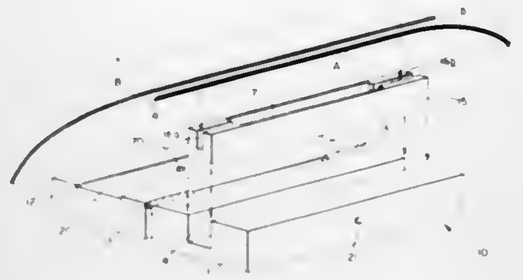


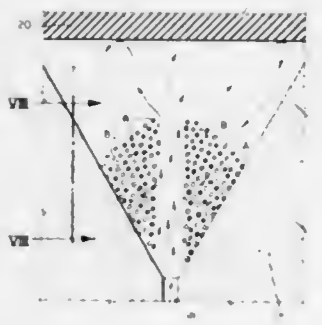
1. In a picking device for stemmed growing edibles, an annular housing defining an opening to receive and pass therethrough an edible, passage means communicating with the housing to accommodate transport of the edible, an annular cutting element journally carried by and within the housing opening and adjacent one end thereof, a plurality of spaced wire fingers peripherally surrounding said opening and mounted on said annular housing over said cutting element, power means supported on said housing for rotating said cutting element, said cutting element being operative to cut the stem of an edible upon the insertion of the edible into the housing opening with its stem adjacent said cutting element.

3,306,020

METHOD AND APPARATUS FOR SPLICING YARN

Nathan Rosenstein, West Hartford, Conn., assignor to Spunize Company of America, Inc., Unionville, Conn., a corporation of Connecticut
Filed July 5, 1966, Ser. No. 562,623
12 Claims. (Cl. 57—22)





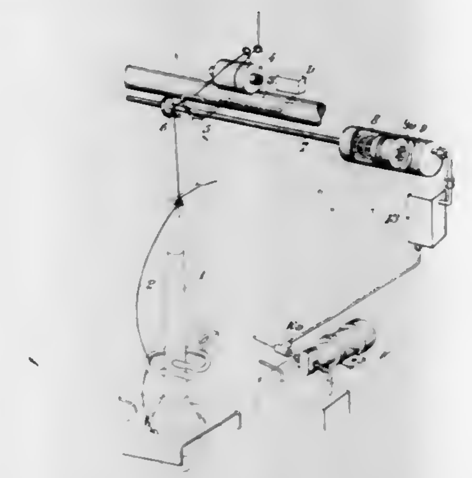
4. Apparatus for air splicing together two multi-filament yarns comprising; a splicing box having extending axially therethrough a passage open at both ends, opposite end portions of said passage having a narrow notch for receiving the yarns to be spliced in superposed overlapping relation, the intermediate portion of said passage being of enlarged cross section forming a splicing chamber; an input connection for compressed air; a laterally-narrow axially-disposed slot extending from said compressed-air input connection to said splicing chamber for injecting a narrow wedge of compressed air through said superposed yarns to spread apart the filaments thereof at said injection point, said compressed air then exhausting through said chamber in opposite axial directions.

3,306,021

SPINNING MACHINES, AND IN PARTICULAR TO TWISTING FRAMES

Jacques Dürler, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S.A., Geneva, Switzerland
Filed Jan. 26, 1966, Ser. No. 523,058
Claims priority, application Luxembourg, Feb. 8, 1965, 47,930/65
2 Claims. (Cl. 57—83)

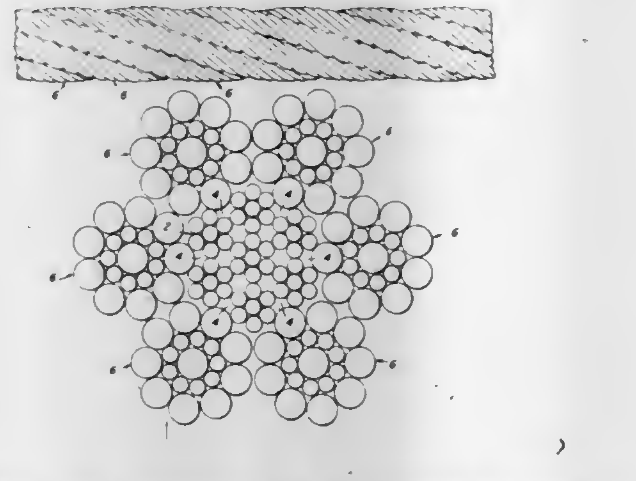
1. In a spinning machine, the combination of a spindle,
- means for feeding thread to said spindle, said thread feeding means being capable of occupying either of two positions, to wit an operative one and an inoperative one,
- a movable control member operatively connected with said thread feeding means, said control member being constantly urged toward a disconnecting position where it makes said thread feeding means inoperative, said control member being arranged to be held by the thread on its way to said spindle in a connecting position where it holds said thread feeding means in operative position as long as the thread is being supplied by said feeding means to said spindle,
- a retractable locking finger for maintaining said control member in said connecting position,
- a continuous flow hydraulic pump adapted to be started when said spinning machine is started and to be stopped when said spinning machine is stopped,
- a single acting hydraulic receiver including a variable volume chamber and a movable part responsive to the variations of volume of said chamber and operatively connected with said finger for retracting it from engagement with said control member in response to increase of the volume of said chamber and bring said finger into engagement with said control member in response to a reduction of the volume of said chamber,
- resilient means for constantly tending to reduce the volume of said chamber and to urge said finger toward engagement with said control member,
- and conduit means for connecting said pump with said receiver variable volume chamber, said conduit means including, in shunt with each other, a restricted cross section passage and a check valve opening in the direction of flow of the liquid therethrough from said receiver toward said pump.



3,306,022

WIRE ROPE

Roger W. Stevens, Woodbury, Conn., assignor to United States Steel Corporation, a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 452,174
6 Claims. (Cl. 57—148)



1. A wire rope comprising an independent wire rope core including outer strands with valleys therebetween, and a plurality of strands surrounding said core with one strand being received in each of the valleys of the independent wire rope core, each of said plurality of strands including outer wires, the lay of the plurality of strands around the independent wire rope core matching the lay of the outer strands in the independent wire rope core, the lay of the outer wires in each of the plurality of strands being a maximum of approximately six times the diameter of the strand.

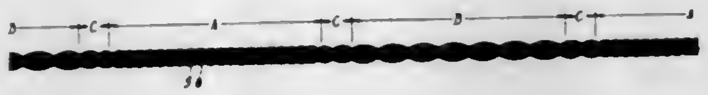
3,306,023
PROCESS FOR FORMING TWISTED FIBRE ASSEMBLIES

David E. Henshaw, Belmont, Geelong, Victoria, and Gordon W. Walls, Highton, Geelong, Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organization, Victoria, Australia, a body corporate

Filed Feb. 9, 1966, Ser. No. 526,128

Claims priority, application Australia, Feb. 9, 1965, 54,921/65

5 Claims. (Cl. 57—156)



1. A process for forming a twisted thread from at least two strands, comprising the steps of:
   (a) separately twisting the strands so that they each have repeated along their lengths alternating zones of opposite twist separated by twist change-over regions at which there is no twist,
   (b) converging the strands so that they twist around one another to form a stable thread, and
   (c) inserting unidirectional twist into said stable thread.

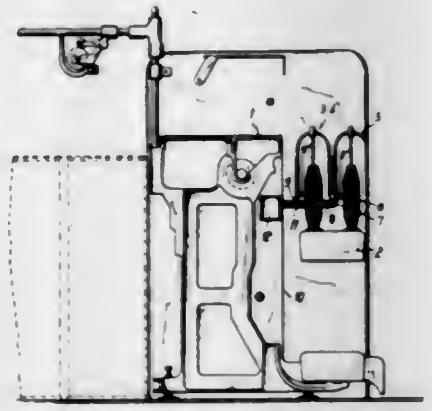
3,306,024
BROKEN ROVING COLLECTORS FOR FLYER SPINNING FRAMES

Ernst Breuning, Gerlingen, near Feuerbach, Stuttgart, Germany

Filed June 10, 1964, Ser. No. 374,199

Claims priority, application Germany, June 11, 1963, B 72,237

8 Claims. (Cl. 57—34.5)



1. Apparatus for removing broken rovings in flyer spinning machines of the type including at least one row of spindles having juxtaposed flyer frames each having a pair of depending legs the lower rotating ends of which define a predetermined circular rotation zone, said apparatus comprising a plurality of stationary suctional exhaustion tubes, each of said tubes arranged below the lower ends of said legs and extending to a point close to the peripheral region of one of said zones, said tubes being provided with at least one suction opening on the side facing the ends of the respective frames whereby to exhaust and remove broken rovings occurring within the confines of said frames.

3,306,025
SELF-WINDING WATCH MOVEMENT

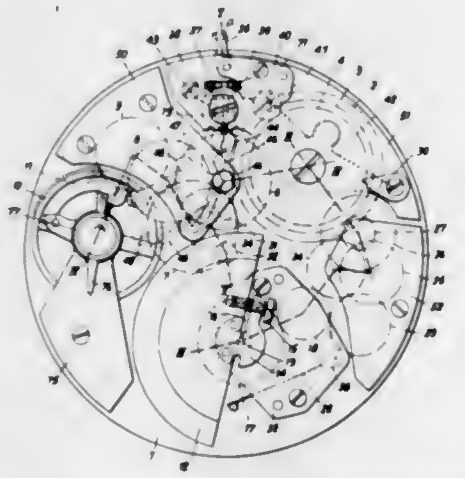
Hans Kocher, Buren an der Aare, Bern, Switzerland, assignor to Buren Watch Company S.A., Bern, Switzerland, a company limited by shares of Switzerland

Filed Oct. 19, 1962, Ser. No. 231,671

Claims priority, application Switzerland, Nov. 7, 1961, 12,907/61

4 Claims. (Cl. 58—82)

1. In a self-winding watch movement in combination, a movement frame, power means entirely enclosed within said movement frame and comprising a first element constituted by a spring motor including a barrel and a second element constituted by a displaceable winding weight arranged for moving relative to said frame under the action of acceleration imparted to said frame and adapted for winding up said spring motor, a self-winding train operatively connecting said winding weight to said spring motor for transmitting the rotary driving torque of the winding weight to the spring motor so as to wind up the same and said train comprising gears superimposed on a part of said power means, a time train driven by the barrel of said spring motor and comprising gears superimposed on a part of said power means, each said gear of said trains having at least a part superimposed on one of said elements of the power means being located, in plan view, entirely outside the periphery of the other element of said power means, said barrel having a toothing, said time train comprising a great wheel pinion in engagement with said toothing and an eccentric center wheel being coaxial with said eccentric center wheel pinion and offset from the center of the movement frame, said eccentric center wheel having a radius smaller than the distance between the eccentric center wheel axis and the axis of the movement frame, and said winding weight having a radius greater than the distance between the axis of rotation of the winding weight and the axis of the movement frame.



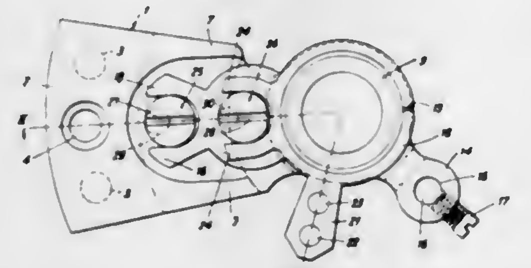
3,306,026
REGULATING DEVICE FOR A WATCH MOVEMENT

Hans Kocher, Buren an der Aare, Switzerland, assignor to Büren Watch Company S.A., Buren an der Aare, Switzerland, a company limited by shares

Filed Aug. 9, 1963, Ser. No. 301,024

Claims priority, application Switzerland, Aug. 14, 1962, 9,741/62

2 Claims. (Cl. 58—109)



1. A regulating device for a watch movement comprising a balance cock having a boss formed on its upper face and an opening coaxial to said boss, an end piece fitted in said opening and having a conical bearing surface extending radially beyond said boss, a stud holder mounted for pivotal movement about said boss, a regulator placed on said stud holder in contact therewith and mounted for pivotal movement about said end piece, both said stud holder and regulator having each a radially slotted annular portion frictionally engaging said boss and said end piece bearing surface, respectively, a first driving means mounted on the stud holder for displacing the regulator relatively to the stud holder and a second driving means mounted on the cock for displacing the stud holder with respect to the cock, said stud holder and said regulator thereby forming driven elements, each of said driving means being formed of a circular piece having a cylindrical tenon frictionally engaged in a corresponding opening of the stud holder and the cock, respectively, said circular piece being eccentric to said tenon and said stud holder and regulator each having a pair of resilient arms, whereby each of said circular pieces is frictionally engaged between the resilient arms of the driven element associated to it and is embraced thereby, in which the regulator and the stud holder extend in a recessed portion of the balance cock, said recessed portion being bordered by a pair of flanges extending along both sides of said stud holder and regulator and forming abutments limiting lateral displacements of said stud holder and of said regulator.

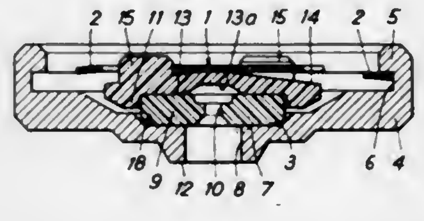
3,306,027
SHOCK-ABSORBING BEARING FOR TIMEPIECE

Jean-Claude Schneider, La Chaux-de-Fonds, Switzerland, assignor to Fabrique d'horlogerie Chs. Tissot et fils S.A., Neuchatel, Switzerland, a Swiss company

Filed Nov. 1, 1965, Ser. No. 505,865

Claims priority, application Switzerland, Nov. 5, 1964, 14,334/64

8 Claims. (Cl. 58—140)



1. A shock absorbing bearing for a timepiece comprising a bearing body containing a cavity, movable pivot supporting means received in said cavity, and a resilient member resiliently holding said means in said cavity, said movable means having a rear surface and containing a recess extending close to said rear surface leaving a thin wall portion between said rear surface and the bottom of said recess, said resilient member comprising a relatively rigid central portion abutting said rear surface at said thin wall portion and a plurality of resilient arms extending from said central portion having end portions connected to said bearing body.

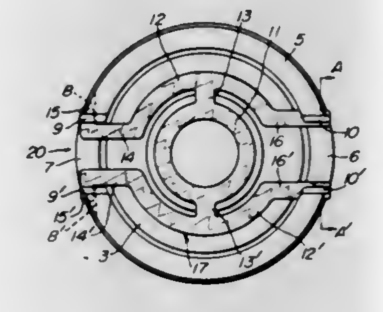
3,306,028
SHOCK-PROOF DEVICE FOR WATCHES

Choken Suzuki, Tokyo, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan, a corporation of Japan

Filed Jan. 4, 1966, Ser. No. 518,723

1 Claim. (Cl. 58—140)

A shock-proof device for use in watches comprising a base frame having a circular peripheral wall, a hole jewel securely held by a spiral spring centrally thereof, said spring being mounted within said frame, an inner frame resting on the peripheral portion of said spiral spring within said base frame, a cap jewel inserted in said inner frame centrally thereof in such manner that the under surface of said cap jewel is spaced from the upper surface of said hole jewel, and a cap jewel spring disposed on said cap jewel for resiliently pressing said cap jewel, characterized in that said base frame is provided with a dovetail groove defined by a vertical slot extending radially of said frame and side slots, and also provided a dovetailed slot disposed on said base frame in line with and on the side opposite to said vertical slot; and that said cap jewel spring comprises a central circular ring portion for resiliently pressing said cap jewel, semi-circular portions having a symmetrical concentric shape relative to said ring portion, portions connecting said ring portion to said semi-circular portions, legs extending from one end of each of said semicircular portions in substantially parallel relation relative to each other, L-shaped ends provided for said legs and extending in opposite directions relative to each other so that said L-shaped ends are inserted in said side slots, said side slots being provided with space therein for permitting rotation of the L-shaped ends, other legs extending from the opposite ends of each of said semi-circular portions in such fashion that said legs are parallel to each other, and the end portions of said legs are insertable into the groove disposed on said opposite side of said base frame.

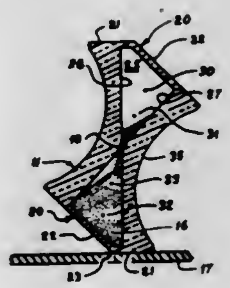


3,306,029
INVERTIBLE TIMERS

Jon L. Liljequist, 507 W. Algonquin Road, Arlington Heights, Ill. 60005

Filed Aug. 6, 1965, Ser. No. 477,828

7 Claims. (Cl. 58—144)

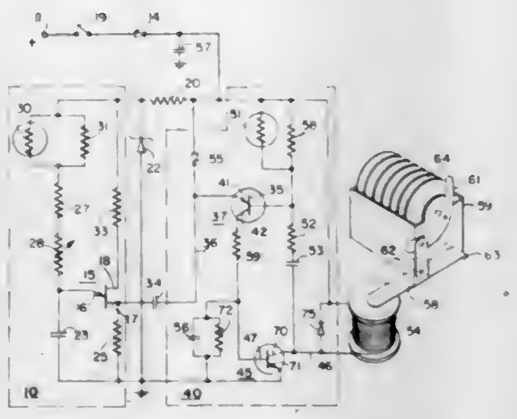


1. A timer, comprising; a main body having an enclosed and elongate internal void defined at each end thereof by a pair of spaced apart wall areas; mass means having a center of gravity movably contained in said void for movement between said spaced apart wall areas under the influence of gravity; means between said end wall areas for retarding the free movement of said mass means between said spaced apart wall areas, thereby providing a metered movement of said mass means; and limited stability support means for supporting the lowermost portions of said main body in a stable position both with said elongate internal void tilted at an angle from the vertical and with said center of gravity located above and to the side of its lowermost position, said support means being of limited dimensions in the horizontal direction of movement of said mass means so as to lose its stable support of the timer as said center of gravity approaches its lowermost position thereby causing said timer to tilt and thus indicate the passage of some predetermined period of time.

3,306,030

ELECTRONIC TIME REGISTERING DEVICE

Daryl D. Wiley, Elmhurst, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Nov. 25, 1964, Ser. No. 413,889
3 Claims. (Cl. 58—145)



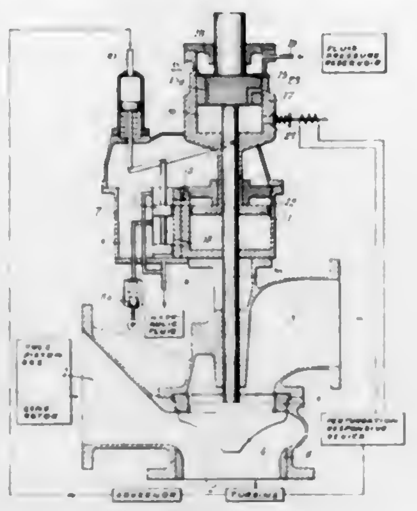
1. An electronic elapsed time meter for registering the hours of operation of a device, including in combination, a relaxation oscillator having a unijunction transistor, means including a zener diode coupled to said transistor to apply a regulated voltage thereto, said oscillator including time base means for periodically turning on said unijunction transistor including a capacitor, a variable resistor and a thermistor, said thermistor acting to compensate for thermal variation of said capacitor, a transistor control amplifier having first and second stages and input and output circuits, means coupling said oscillator to said input circuit of said amplifier, said control amplifier including capacitor means coupling said second stage of said amplifier to said first stage thereof to provide positive feedback, said control amplifier being rendered conducting by periodic pulses applied thereto by said unijunction transistor, and counter means including an actuating electric solenoid coupled to said output circuit of said amplifier, said counter means including counter wheels actuated by excitation of said solenoid during said periodic conduction of said control amplifier to register the number of periods of conduction of said relaxation oscillator.

3,306,031

VALVE CONTROL DEVICES, IN PARTICULAR FOR GAS TURBINE POWER PLANTS

Auguste Moiroux, Lyons, and Edmond Salel, Meyzieux, France, assignors to Societe d'Etudes et de Participations, Eau, Gaz, Electricite, Energie, S.A., Geneva (Switzerland)
Filed June 4, 1964, Ser. No. 372,622
Claims priority, application France, July 3, 1963, 940,267
4 Claims. (Cl. 60—13)

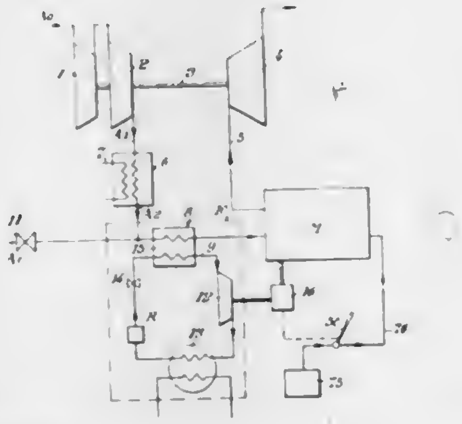
1. A power plant comprising at least one free piston gas generator producing gases under pressure, a gas driven turbine, conduit means for said gases under pressure connecting said free piston gas generator to said turbine, on the one hand, and to the atmosphere, on the other hand, valve means within said conduit to control the flow of gases respectively delivered to said turbine and to the atmosphere, first and second actuating parts for said valve means, said valve means being connected directly with said second actuating part, regulating means responsive to the speed of said turbine operative on said first actuating part, means independent of the turbine speed for subjecting said second actuating part to a difference of forces for holding said first and second actuating parts in a fixed relationship to each other, and control means, responsive to an exceptional perturbation affecting the turbine, to temporarily set out of operation the greater of said forces, the smaller of said forces then uncoupling said first and second actuating parts and driving said second actuating part together with said valve means to the position where the latter cuts off temporarily the supply of gases to said turbine, thereby giving said regulating means sufficient time to overcome said exceptional perturbation.



3,306,032

SUPERCHARGED DIESEL ENGINE

Pierre Philippe Chaffiotte, Cormeilles-en-Parisis, France, assignor to Societe d'Exploitation des Materiels Hispano-Suiza, Bois Colombes (Seine), France, a society of France
Filed Mar. 10, 1965, Ser. No. 438,477
Claims priority, application France, Mar. 16, 1964, 967,566
8 Claims. (Cl. 60—13)

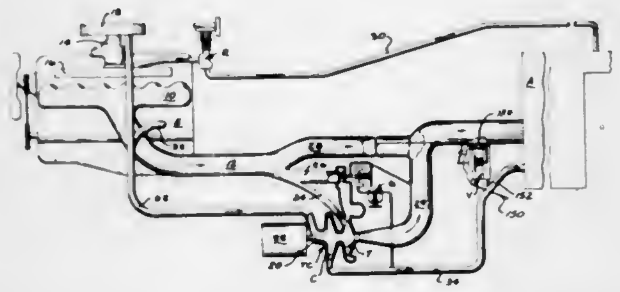


1. In combination,
an internal combustion engine having an air intake,
means for feeding air to said internal combustion engine air intake including,
a supercharging compressor having its input open to the atmosphere,
a first heat exchanger including an air circuit having its input connected to the output of said supercharging compressor and a cooling fluid closed circuit mounted for heat interchange with said air circuit,
a refrigerator including a refrigerant fluid circuit comprising in series a refrigerant fluid compressor, a condenser, an expansion valve and an evaporator,
a second heat exchanger including an air circuit having its input connected to the air output of said first heat exchanger, said second heat exchanger air circuit being mounted for heat interchange with the portion of said refrigerant fluid circuit between said expansion valve and the input of said refrigerant fluid compressor,
the output of said second heat exchanger air circuit being connected with the air intake of said internal combustion engine, and
means for transmitting motive power from said internal combustion engine to said refrigerant fluid compressor, said motive power transmitting means comprising a torque variator.

3,306,033

APPARATUS FOR REDUCING AIR POLLUTANTS EMITTED FROM INTERNAL COMBUSTION ENGINES

George W. Cornelius, 279 W. 7th St., San Pedro, Calif. 90731
Filed Sept. 14, 1964, Ser. No. 396,068
15 Claims. (Cl. 60—30)

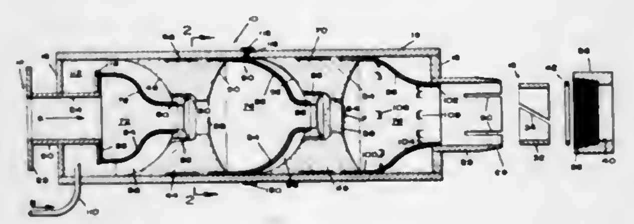


1. Apparatus for use with an internal combustion engine, comprising:
first and second exhaust gas supply lines that receive gases from said engine;
a turbo-compressor unit, the turbine of which is driven by exhaust gases from said supply lines;
valve means controlling flow through said second supply line;
and control means responsive to the compressor outlet pressure of the turbo-compressor unit for said valve means maintaining said valve means closed during reduced throttle conditions of said engine, said valve means being opened by said control means during advanced throttle conditions of said engine.

3,306,034

METHOD AND DEVICE FOR EXHAUST GAS PURIFICATION

Clarence Boyd, 5325 Belt Road NW., Washington, D.C. 20015
Filed May 17, 1965, Ser. No. 456,459
31 Claims. (Cl. 60—30)

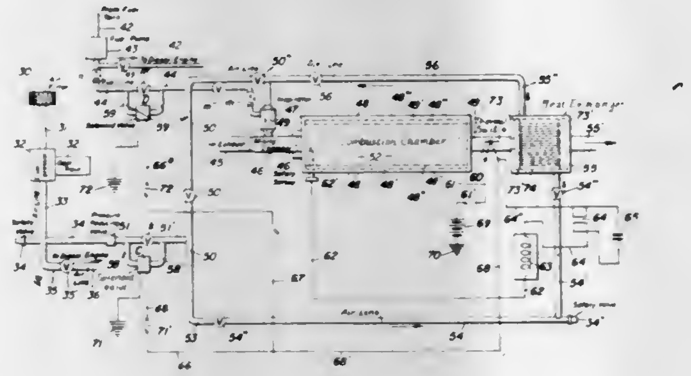


1. A method of exhaust gas purification comprising the steps of:
introducing the exhaust gas to be purified into a first confined area;
passing said exhaust gases from said first confined area into a first expansion chamber having a diameter in excess of said first confined area;
permitting said exhaust gases to expand in said first expansion chamber;
flowing said exhaust gases from said expansion chamber to at least one mixing zone having a restricted diameter less than that of said expansion chamber;
communicating said mixing zone with the atmosphere to obtain an air supply;
flowing said exhaust gases through said mixing zone at increased velocity, thereby creating a reduced pressure which draws air from the atmosphere into said mixing zone;
permitting said exhaust gases and said air to mix and combine in said mixing zone to thereby cause spontaneous combustion which creates a fireball in said mixing zone;
flowing said exhaust gases from the fireball in said mixing zone into a second expansion chamber having a diameter in excess of that of said mixing zone;
permitting said exhaust gases to expand in said second expansion chamber;
returning at least a portion of said expanded gases in said second expansion chamber into contact with said fireball for a secondary combustion effect; and
exciting said exhaust gases from said second expansion chamber into a second confined area having a diameter smaller than that of said second expansion chamber.

3,306,035

APPARATUS FOR TREATMENT OF EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

Jacque C. Morrell, 8 Oxford St., Chevy Chase, Md. 20015
Filed Feb. 11, 1966, Ser. No. 526,810
11 Claims. (Cl. 60—30)



1. In combination with an internal combustion engine having a conduit for conveying exhaust gases from the engine to an exhaust purifier, the improvement which comprises a combustion chamber through which the exhaust gases are passed, means to supply a forced flow of air and separate means consisting of an inspirator energized by said forced flow of air to supply a controlled flow of fuel to the said combustion chamber, a spark plug located within the combustion chamber to ignite the combustible materials entering the said chamber and means for discharging the purified exhaust gases into the atmosphere.

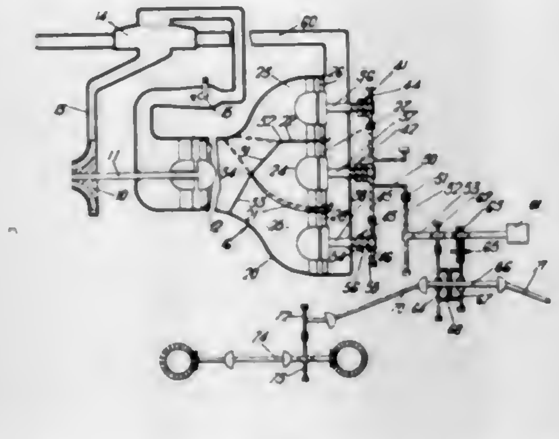
3,306,036

POWER PLANT

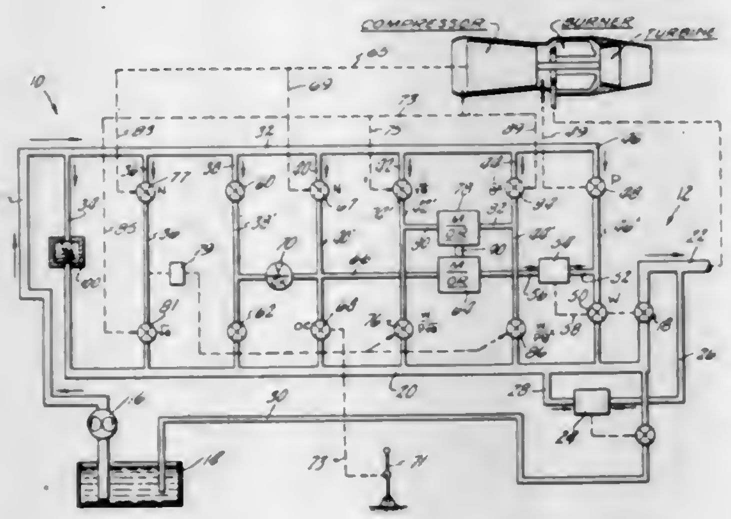
Anthony Wooler, Derby, England, assignor to Rolls-Royce Limited, Derby, England, a British company
Filed Mar. 22, 1965, Ser. No. 441,511
Claims priority, application Great Britain, Apr. 13, 1964, 15,257/64
5 Claims. (Cl. 60—39.16)

1. Power plant comprising a plurality of turbine driven drive input shafts, a common output shaft, a plurality of input gears and a plurality of one-way clutch devices connected between respective said input shafts and respective said input gears, an output gear mounted on the output shaft and connecting with each respective input gear in a different respective gear ratio, a plurality of power

turbines each of which is drivingly connected to a respective said input shaft, a gas generator, ducting connected to the gas generator to receive gas therefrom, valve means having different respective positions in said ducting for directing gas from the gas generator through different respective power turbines and means for moving said valve means between said different respective positions to effect changes in the respective gear ratio in which power is transmitted to the output shaft.



3,306,037
HYDRAULIC FUEL CONTROL
William E. Fortmann, Simsbury, Conn., Charles F. Stearns, East Longmeadow, Mass., and James S. Sims, Jr., Simsbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 2, 1965, Ser. No. 445,061
11 Claims. (Cl. 60—39.28)

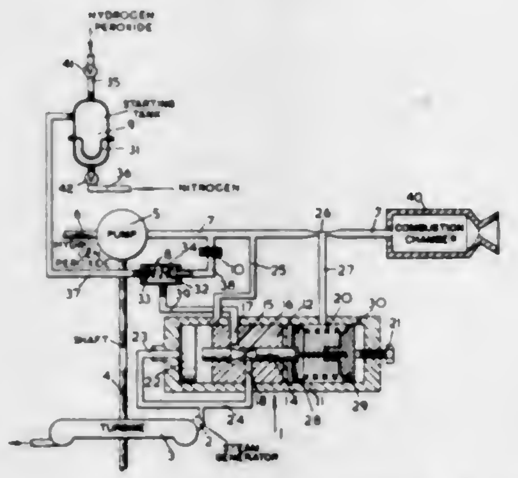


1. For a turbine type power plant having a compressor and a turbine driving the compressor, a fuel control having a hydraulic computing system comprising a plurality of parallelly disposed fluid passages all of which communicate with a common inlet passage and a common outlet passage connected to said power plant, a fuel metering valve in said common outlet passage for regulating the fluid passing therethrough, spaced valve means serially disposed in one of said parallel disposed passages establishing a hydraulic pressure indicative of a desired *W/P* surge schedule, where

W=fuel flow in pounds per hour, and
P=compressor discharge pressure,

spaced valve means serially disposed in another of said parallel disposed passages establishing a desired *W/P* overtemperature schedule, spaced valve means serially disposed in another of said parallel disposed passages establishing an actual *W/P* value, and control means for comparing said actual *W/P* value with said *W/P* surge schedule or said *W/P* overtemperature schedule for controlling said fuel metering valve.

3,306,038
ROCKET ENGINE OXIDANT FEED SYSTEM
Victor Nigel Ferriman, Coventry, England, assignor to Bristol Siddeley Engines Limited, Bristol, England
Filed Aug. 14, 1964, Ser. No. 389,694
Claims priority, application Great Britain, Aug. 16, 1963, 32,478/63
5 Claims. (Cl. 60—39.29)

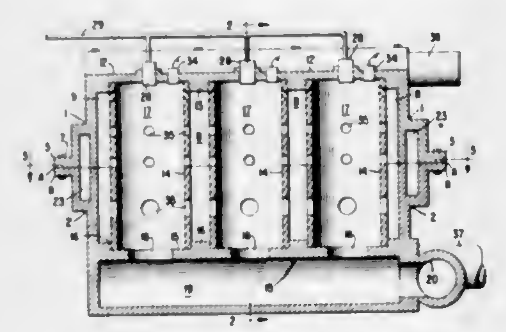


1. A system for supplying an oxidant to a combustion chamber of a rocket engine, the system including a main supply line leading to said combustion engine, flow sensing means in said main supply line, a pump for supplying oxidant to said main supply line, a turbine for driving said pump, a generator for supplying to said turbine working fluid derived from said oxidant, a metering valve by which oxidant is supplied to said generator, a pressurised starting tank for supplying oxidant to said generator via said metering valve and a further valve for stopping the supply of oxidant by said starting tank and effecting supply from said main line when said turbine has reached its operational speed, said metering valve including a valve member, movable to vary the flow area of a passage for oxidant through said metering valve in response to said flow sensing means, and means operable to limit the permitted movement of said valve member in the direction of increasing flow area of said passage, said latter means being operable in response to difference between pressure at a position between said valve member and said turbine, and in said main supply line.

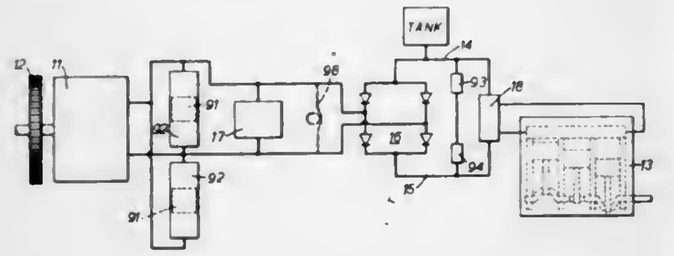
3,306,039
HEAT REGENERATION SYSTEM FOR GAS TURBINES
Adolphe C. Peterson, 4623 Bruce Ave. S., Minneapolis, Edina, Minn. 55424
Filed Aug. 2, 1965, Ser. No. 482,017
10 Claims. (Cl. 60—39.51)

1. In a pressurized gas forming means for gas turbines: a containing casing structure formed chiefly of two casing header structures, these structures being spaced apart and parallel each to the other and forming with enclosing side walls an interior space intermediately of said casing header structures; an apertured combustion chamber wall to laterally surround within it a combustion chamber, said combustion chamber wall being substantially as long as the distance between said casing header structures and mounted by one end of said combustion chamber wall in the one casing header structure and by the other end in the other casing header structure, the apertures in the combustion chamber wall providing for flow of pressurized air into the combustion chamber from said interior space;

heat transfer matrix means at one side of said combustion chamber wall and heat transfer matrix means at the other side of said combustion chamber wall, each said heat transfer matrix means extending in said interior space from one said casing header structure to the other to permit sustained flow of exhaust gas therethrough from an exhaust gas conduit connected to a turbine gas conduit means and flow to exhaust discharge means; a compressed air conduit means forming connection for compressed air flow from an air compressing means and to air reception chambers one at the outwardly exterior side of one said heat transfer matrix means and the other at the outwardly exterior side of the other said heat transfer matrix means, the arrangement being such that pressurized air from each said air reception chamber flows therefrom transversely of the adjacent heat transfer matrix means and to space exteriorly of said combustion chamber wall and through said apertures to the combustion space interiorly of said combustion chamber wall; the one said casing header structure having therein fuel injection means for flow of fuel to said combustion space and the other casing header structure having an aperture between said combustion space and a pressurized gas conduit connected to a turbine gas intake; means delivering fuel to said fuel injection means and means for ignition in said combustion space.

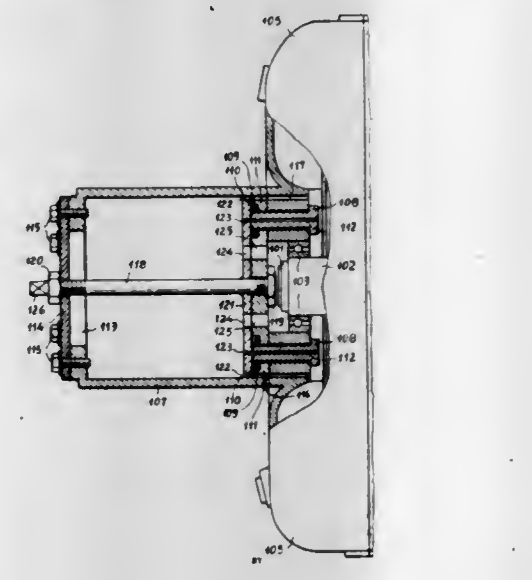


3,306,040
HYDRAULIC TRANSMISSION
Frederick Arthur Summerlin, 58 Townsend Lane, Harpenden, Hertfordshire, England
Filed June 7, 1965, Ser. No. 462,016
Claims priority, application Great Britain, June 8, 1964, 23,669/64; Jan. 11, 1965, 1,200/65
12 Claims. (Cl. 60—51)



1. In a power transmission mechanism including a positive displacement hydraulic pump means having at least two pumping sides operated out of phase by an engine and connected separately by respective fluid lines to a hydraulic motor for driving a load means responsive to the speeds of the pump and motor, the improvement comprising means for determining the speeds during the pump operation at which fluid pressure is transmitted from said pump to said motor, said means including a passage shunting said fluid lines between the pump and the motor and a displaceable member reciprocable longitudinally along said passage in response to the difference in pressure between said fluid lines whereby to accommodate the flow of fluid and thus prevent the transmittal of the same to said motor at relatively low speeds.

3,306,041
HYDRAULIC COUPLING WITH AUTOMATIC PROGRESSIVE AND ADJUSTABLE HYDRAULIC ENGAGEMENT OF THE IMPELLER AND TURBINE MEMBERS, PARTICULARLY FOR TEXTILE MACHINERY AND THE LIKE
Sergio Verzolla, Via Marasini 29, Milan, Italy
Filed June 18, 1965, Ser. No. 465,000
3 Claims. (Cl. 60—54)

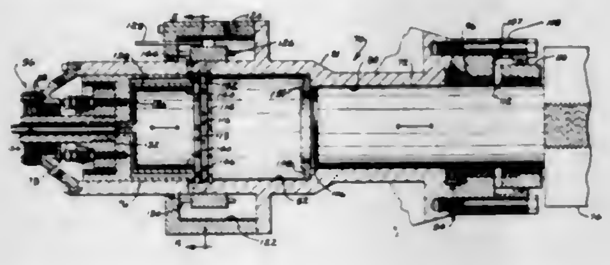


1. A hydraulic coupling comprising at least an impeller member having an axis of rotation and connected to a driving shaft, at least a turbine member connected to a driven shaft and defining a space therebetween, a hydraulic fluid in said space; fixed on the outside of said turbine member: a hollow body defining a chamber containing a portion of said hydraulic fluid and having calibrated communication means connecting the said chamber of said hollow body with said space, said chamber being coaxial with said axis and having a radial extension less than the radial extension of said impeller and said turbine members, said hollow body having a peripheral wall with an inner surface defining said chamber of the hollow body, said surface having a conical extension diverging towards said turbine member to allow during rotation the centrifugal force to expel said hydraulic fluid from said chamber towards said space, said calibrated communication means including at least one hole in said turbine member flush with said surface.

3,306,042
FLUID TRANSMISSION FOR DRIVE AND DRIVEN MEMBERS
William R. Crooks, Mount Vernon, Ohio, assignor to The Cooper-Bessemer Corporation, Mount Vernon, Ohio, a corporation of Ohio
Filed Nov. 21, 1963, Ser. No. 326,326
8 Claims. (Cl. 60—54.5)

1. A hydraulic power transmission for connecting a lineally reciprocating driving member to a reciprocable driven member, said transmission comprising:
- a hollow casing,
- a lineally reciprocable power input plunger in said casing,
- a lineally reciprocable power output piston in said casing and hydraulically opposed to said power input plunger, said output piston having a projecting annulus extending toward said input plunger,

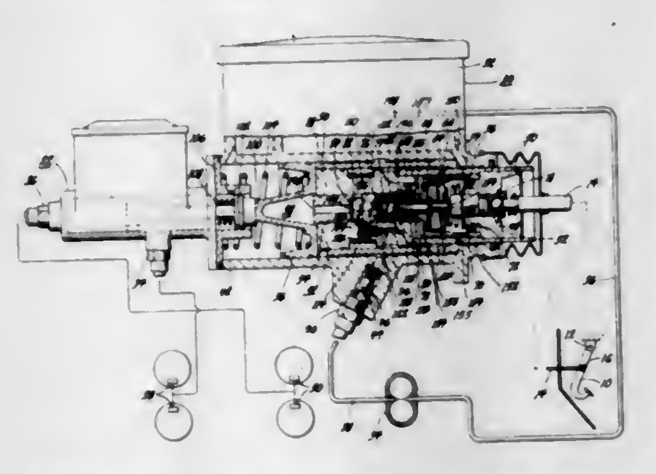
means directly connecting said power input plunger to said driving member and reciprocable therewith through a driving stroke of fixed length,
means directly connecting said power output piston to said reciprocable driven member,
said input plunger and said output piston each having a pressure face spaced from the other and of different areas to produce a different stroke length, velocity, and power output of said output piston relative to the stroke length, velocity, and power input of said input plunger,



and means forming an annular recess in said casing near the end of the stroke of said output piston toward said input plunger, said recess cooperating with said annulus to function as a dashpot to cushion the stroke of said output piston if it exceeds its intended position toward said input plunger.

3,306,043
LOW TRAVEL HYDRAULIC BOOSTER WITH IN-LINE LIFTER

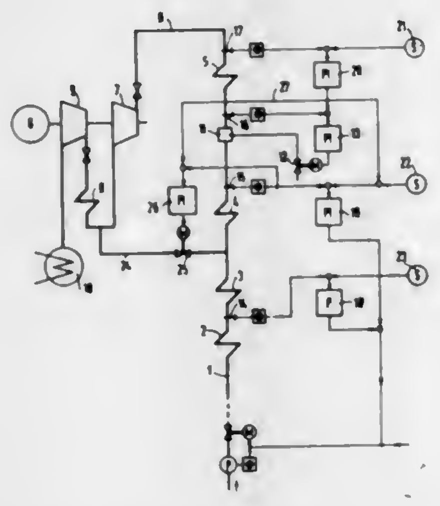
George E. Kellogg, Miamisburg, and Gerald A. Harness, Kettering, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 1, 1965, Ser. No. 444,708
10 Claims. (Cl. 60—54.5)



1. Brake booster mechanism comprising: a fluid pressure source; a master cylinder adapted to transmit a force for actuation of vehicle brakes; a booster body including a reservoir for use by said master cylinder and being in fluid communication with said fluid pressure source; piston means engaging said master cylinder and being slidably disposed for translational movement in said booster body in response to pressure from said fluid pressure source; valve means slidably carried by said booster body and being responsive to a force from a brake pedal to selectively route pressure from said fluid pressure source to said piston means; and lifter means responsive to a loss of pressure from said fluid pressure source for trapping fluid between a movable slide in said booster body and said valve means during conditions of low pressure in said fluid pressure source thereby providing a movement of the brake pedal to a higher position than normal and providing a direct force transmitting means from the brake pedal to said master cylinder for brake actuation.

3,306,044
REGULATING SYSTEM FOR REDUCING THE EFFECT OF HEAT FLUCTUATIONS ON FORCED-FLOW STEAM BOILERS IN POWER PLANTS

Rupprecht Michel and Herbert Zwetz, both of Erlangen, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a German corporation
Filed Mar. 12, 1965, Ser. No. 439,380
Claims priority, application Germany, Mar. 14, 1964, S 90,024
7 Claims. (Cl. 60—107)



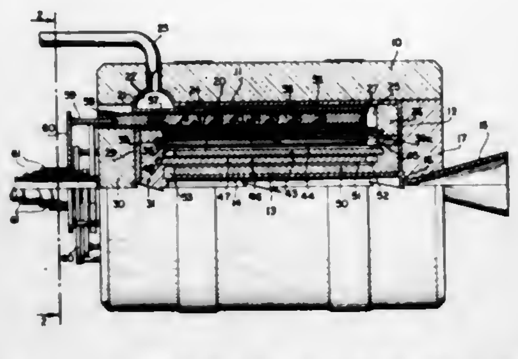
1. In a power plant comprising a forced-flow steam generator having a superheater portion, a high-pressure load connected to said superheater portion to receive fresh steam therefrom, and an intermediate superheater having an input connected to said high-pressure load to receive partly utilized steam therefrom, the combination of a system for regulating the steam generator to compensate for changes in heat supply, comprising a steam branch line additionally connecting the input of said intermediate superheater with a tap point of said superheater portion, said line having control means for varying the supply of steam from said tap point to said intermediate superheater, controllable water injector means disposed in said superheater portion, temperature sensor means in said superheater portion for providing signals substantially indicative of the fresh steam temperature, and regulator means comprising said sensor means to be controlled by said signals and connected to said injector means and said control means for controlling both to maintain the fresh steam temperature substantially constant while varying the power furnished to said high-pressure load.

3,306,045
RADIOISOTOPE ROCKET

William H. Buford, Jr., Granada Hills, and Arthur N. Thomas, Jr., Northridge, Calif., assignors to The Marquardt Corporation, Van Nuys, Calif., a corporation of California
Filed Dec. 19, 1963, Ser. No. 331,877
10 Claims. (Cl. 60—203)

1. A radioisotope rocket comprising:
a casing constituted of insulating material;
a fuel element located within said casing to provide a source of gamma radiation;
a plurality of heating elements located within said casing for receiving radiation from said fuel element in order to maintain said heating elements at an elevated temperature higher than the temperature of said fuel element;
said fuel element and heating elements being spaced apart to form a flow path over said fuel and heating elements for a working fluid;

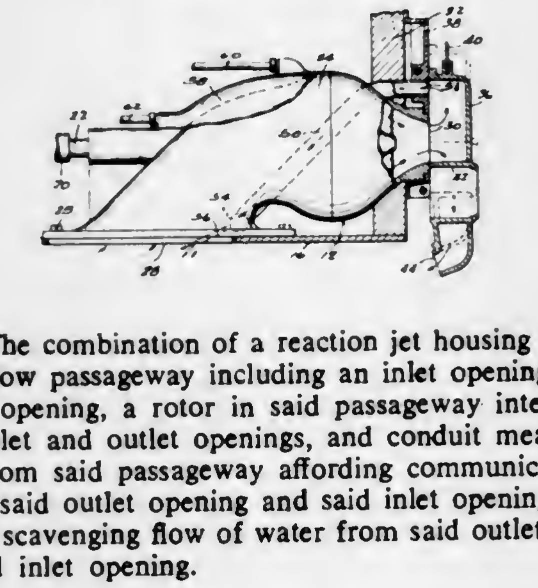
means for introducing said working fluid to the inlet of said flow path; and



nozzle means at the exit of said flow path for discharging high temperature working fluid to produce thrust.

3,306,046
REACTION JET MARINE ENGINE

Robert L. Trapp, Milwaukee, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware
Filed Mar. 19, 1965, Ser. No. 441,150
13 Claims. (Cl. 60—222)

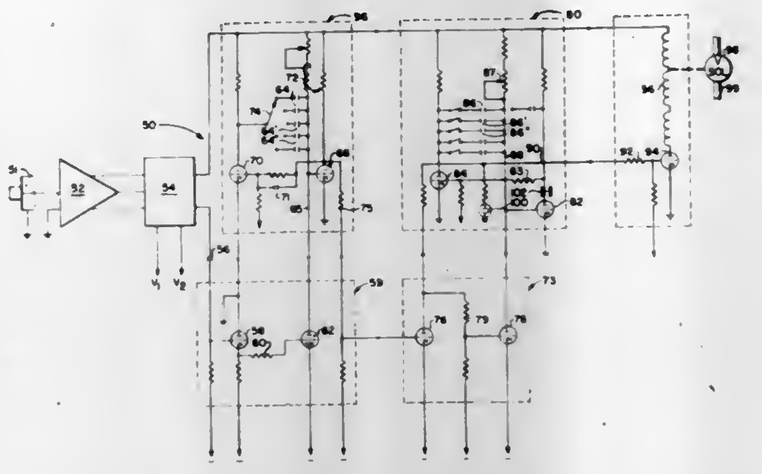


1. The combination of a reaction jet housing having a waterflow passageway including an inlet opening and an outlet opening, a rotor in said passageway intermediate said inlet and outlet openings, and conduit means separate from said passageway affording communicating between said outlet opening and said inlet opening to provide a scavenging flow of water from said outlet opening to said inlet opening.

3,306,047
CUTOFF CONTROL FOR TEST ROCKET MOTOR

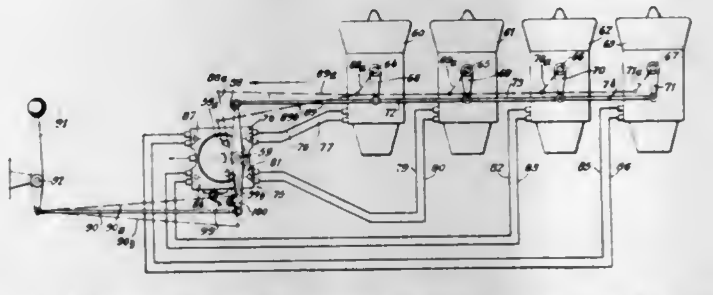
Herbert B. Ellis, Flintridge, Pasadena, Richard G. Peoples, Covina, Herman C. Krieg, La Puente, Rollo S. Pickford, Sierra Madre, Stanley W. Baker, West Covina, and John E. Tahl, Sierra Madre, Calif., assignors to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio
Original application June 19, 1961, Ser. No. 117,929, now Patent No. 3,261,163, dated July 19, 1966. Divided and this application Sept. 28, 1965, Ser. No. 510,128
4 Claims. (Cl. 60—223)

1. A device for actuating a motor cutoff control when combustion chamber instability occurs comprising a transducer adapted to be connected to the combustion chamber of a rocket motor, an amplifier connected to the transducer for amplifying the signals reflecting the pressure fluctuations in the combustion chamber of the motor, a voltage comparator connected to said amplifier in such a way that the voltage comparator emits a pulse whenever the amplitude of the signals from the transducer exceeds a predetermined level, a first multi-vibrator, means connected between said first multi-vibrator and said voltage comparator and causing a predetermined response in said first multi-vibrator only when the frequency of pulses from said voltage comparator exceeds a predetermined level, a second multi-vibrator, means connecting said second multi-vibrator with said first multi-vibrator and causing a response in said second multi-vibrator only when the said predetermined response in said first multi-vibrator persists for a predetermined period of time, and a motor controlling device connected to said second multi-vibrator and operating when said response occurs in said second multi-vibrator.



3,306,048
GROUP THRUST COMPENSATOR

Stafford Malcolm Ellis, % Elliott Brothers (London) Limited, Century Works, Lewisham, London, England
Filed May 1, 1964, Ser. No. 364,087
Claims priority, application Great Britain, May 1, 1963, 17,256/63
13 Claims. (Cl. 60—243)



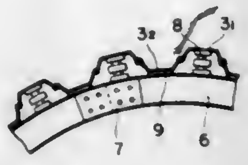
1. A group thrust compensator for correcting for disturbance of the thrust of a group of thrust producing engines caused by malfunction of a said engine, including at least one fluid pressure responsive device, at least one movable member in each said device, means for balancing on opposite sides of at least one part of each said member fluid pressure derived from each engine corresponding to the thrust thereof when in normal operation against the fluid pressure derived from another said engine so that upon unbalance in said pressures occurring movement of at least one member takes place, and means associated with the last said member and responsive to said movement thereof arranged so that a reduction in the thrust of one of said engines opens the throttles of all of said engines.

3,306,049
EXCAVATING METHOD USING PRESTRESSED LOOP GIRDERS

Sanji Tachi, 1 2-chome, Akabanedai, Tokyo, Japan, and Yoshihiro Kuzusaka, Tokyo, Japan; said Kuzusaka assignor to said Tachi
Filed Feb. 4, 1964, Ser. No. 342,497
Claims priority, application Japan, Feb. 4, 1963, 38/5,304
2 Claims. (Cl. 61—41)

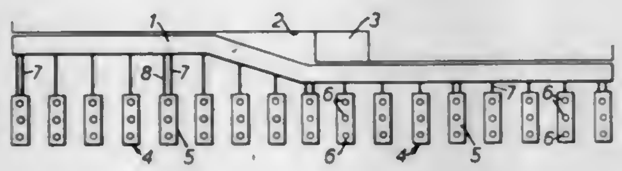
1. A method of excavating for foundation piers and the like, comprising the steps of driving sheet steel piles, having offset inner and outer walls, to the required depth around the periphery of the excavation, with the piles

having their longitudinal edges interconnected; excavating material within the pile enclosure to a predetermined depth; placing a loop girder at substantially such depth in engagement with the radially inner walls of the piles; placing jacks between the outer wall of each pile and the outer surface of the loop girder; extending the jacks to stress the loop girder uniformly along its length, with the stresses being directed primarily radially of the loop girder and in such a manner that substantially no bending stresses are exerted on the loop girder; and repeating the foregoing steps until the required depth of the excavation is attained.



3,306,050
MINE ROOF SUPPORT

Thomas Desmond Hudson Andrews, Cheltenham, and John Kammerer Harding, Charlton Kings, Cheltenham, England, assignors to Dowty Technical Developments Limited, a British company
Filed Apr. 3, 1964, Ser. No. 357,241
Claims priority, application Great Britain, Apr. 4, 1963, 13,356/63
14 Claims. (Cl. 61—45)

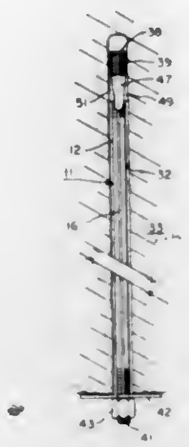


1. Roof support apparatus including a series of advanceable roof supports, each roof support including at least one fluid-pressure-operated prop device operable to set the support against a roof, a fluid-pressure-operated jack device operable to cause relative movement between the support and an anchorage, a valve assembly operable to control the operation of the prop and the jack, and a fluid-carrying pilot line connected to the valve assembly of each support in turn and to a source of fluid under pressure operable to vary the fluid pressure in the pilot line in a predetermined manner, the valve assembly of the first support in the series including means operable by the pressurisation of the pilot line to one value to cause the operation of one of the devices of the support and being operable by a predetermined change in pressure in the pilot line from said one value to cause the valve assembly of the first support to open the pilot line to the valve assembly of the next support in the series, and so on throughout the series.

3,306,051
ROCK BOLT

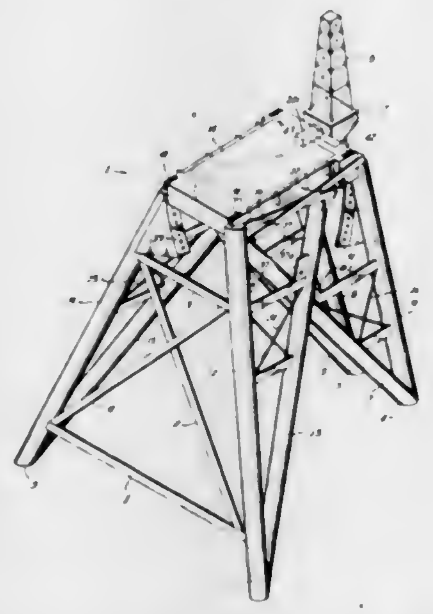
George H. Howlett, Oakland, Calif., assignor to Howlett Machine Works, a corporation of California
Filed Feb. 10, 1964, Ser. No. 343,741
6 Claims. (Cl. 61—45)

1. A reinforcing rock bolt comprising, an elongated generally cylindrical member having threaded portions at its opposite ends and a continuous peripheral groove extending over the length of said member and said threaded end portions, and an elongated strip of material secured to said member subjacent the periphery thereof and said threaded end portions and enclosing the outer portion of said groove to define with the walls of said groove a longitudinally extending passageway over the length of said member.



3,306,052
FLOATABLE STRUCTURE AND METHOD OF OPERATING SAME

Masasuke Kawasaki, Slidell, La., assignor, by mesne assigments, to Directo Corporation, Slidell, La., a corporation of Texas
Filed Aug. 26, 1963, Ser. No. 304,590
15 Claims. (Cl. 61—46.5)



1. A platform structure for offshore location comprising,

a platform,

a plurality of V-shaped legs,

each leg including two tubular sections jointed together at one end and secured together at its other end by an arm to form the V-shaped legs,

each of said legs being pivotally secured to said platform at the arm end of one of said tubular sections,

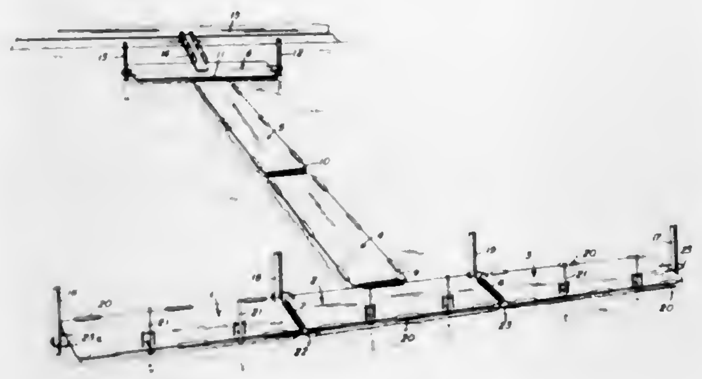
each of said tubular sections being compartmented to receive ballast,

a bolting plate secured to the arm end of the tubular section of each leg opposite the tubular section which is pivotally secured to said platform for securing said leg to said platform, and

means for ballasting and deballasting the compartments in said tubular sections to pivot said legs with respect to said platform.

3,306,053
MARINE FACILITIES

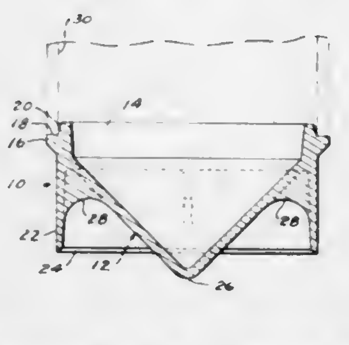
Samuel King Fulton, 1756 SE. 9th St., Fort Lauderdale, Fla. 33316
Original application Jan. 12, 1961, Ser. No. 82,298. Divided and this application Sept. 17, 1964, Ser. No. 403,680
2 Claims. (Cl. 61—48)



1. A boat fender for an edge of a dock consisting of an inflated elongated tubular member of a single integral sheet of resilient material having a shape in cross-section compounded of approximately 270° of a circle completed by planar members of said material forming walls extending generally toward the center of said circle and meeting at an angle with respect to each other, a metal plate disposed entirely within each of said planar members, said metal plates serving as mounting plates for securing said fender to a dock.

3,306,054
SKIRT TYPE PILE DRIVING POINT

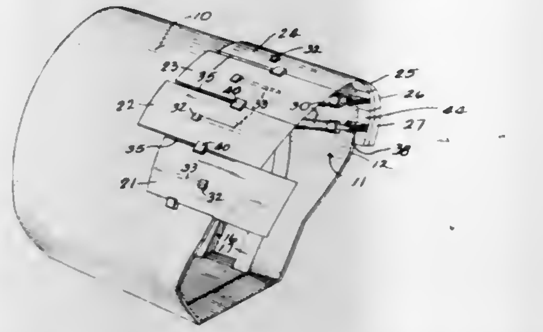
John J. Dougherty, Cedar Grove, N.J. (262 Rutherford Blvd., Clifton, N.J. 07014)
Filed Aug. 24, 1964, Ser. No. 391,677
2 Claims. (Cl. 61—53)



1. A pile driving point for vertical downward penetration by successive power hammer blows, said point having a body circular in plan with a lower depending portion shaped as a hollow inverted circumferential cone and with an upper integral portion in the form of an annular collar, and a skirt depending from the junction of the collar and lower hollow cone, the extremity of the lower hollow cone extending below the lower edge of the skirt and having a blunt point, the lower edge of the skirt being sharpened, and an annular flange on the outer surface of the lower half of the collar, said flange having a level top surface forming a shoulder for seating the bottom end of a pipe, the upper outer surface of the collar above the shoulder being tapered, a series of spaced fins cast to the outer circumferential face of the skirt and flange, the fins extending from a point above the lowermost edge of the skirt to a point level with the shoulder, said fins being substantially triangular in shape with the apex thereof blunted, the lower side constituting the cutting edge.

3,306,055
TUNNELING MACHINE WITH POWER OPERATED POLING PLATES

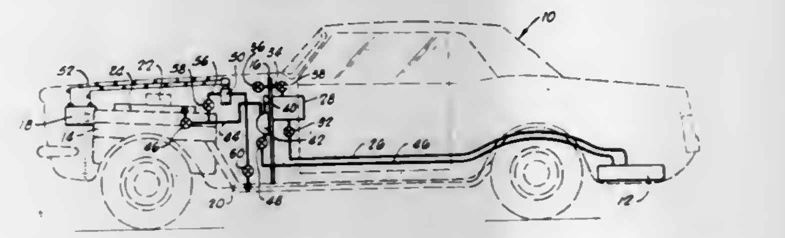
John R. Tabor, 3400 Spruce St., Racine, Wis. 53403
Filed June 10, 1964, Ser. No. 374,004
9 Claims. (Cl. 61—85)



1. A tunneling shield having a hood, a series of laterally adjacent poling plates about the hood, power means for individually moving said plates with respect to the hood each of said plates having first guide means at its lateral edges and second guide means along its longitudinal center line for guiding it in its movement with respect to the hood, the facing lateral edges of said poling plates being relieved to form longitudinally extending slots between adjacent plates, said first guide means comprising lugs on said shield projecting into said slots, said shield having longitudinally extending slots aligned on the longitudinal center line of said poling plates, said second guide means comprising lugs on said plates projecting into said slots.

3,306,056
AIR CONDITIONING AND REFRIGERATION SYSTEMS FOR USE IN AUTOMOBILES

Mildred M. Kennedy, 1706 Clark, Parsons, Kans. 67357
Filed Aug. 9, 1965, Ser. No. 478,332
13 Claims. (Cl. 62—7)



1. A refrigeration and air conditioning apparatus for use on a gasoline powered vehicle having a gasoline storage tank thereon comprising:

a heat exchange tubing coil;

a gasoline inlet conduit extending into the heat exchange coil from one end thereof with the gasoline inlet conduit being adapted for connection at its end outside the heat exchange coil to the gasoline storage tank of the automobile;

an air induction line open to the atmosphere at one of its ends and having its other end extended into the heat exchange coil and terminating in spaced relation to the end of the gasoline inlet conduit inside the heat exchange coil;

a source of vacuum;

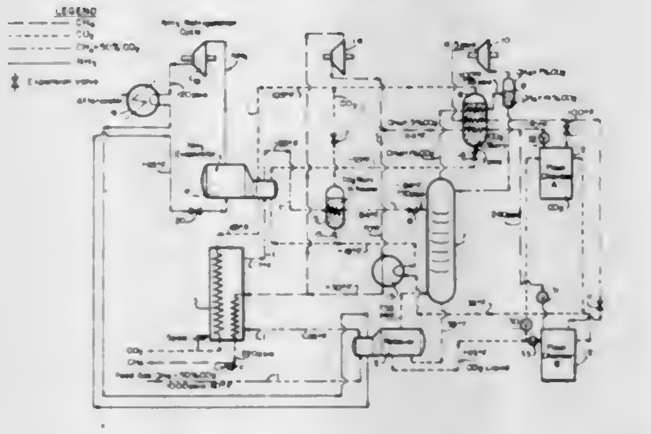
vacuum conduit means connecting said source of vacuum to the heat exchange coil for reducing the pressure within the coil over a major portion of the length of the coil;

a trap in said vacuum conduit means between the source of vacuum and the heat exchange coil for trapping liquid gasoline pulled from the heat exchange coil through the vacuum conduit means toward the source of vacuum; and

a gasoline return line connected between the trap and the gasoline storage tank on the automobile.

3,306,057
PROCESS FOR THE COLD SEPARATION OF GASEOUS MIXTURES WITH SOLID-LIQUID SLURRY HEAT EXCHANGE

Alexander Harmens, Purley, Surrey, England, assignor to Conch International Methane Limited, Nassau, Bahamas, a Bahamian company
Filed Aug. 26, 1964, Ser. No. 392,123
Claims priority, application Great Britain, Nov. 4, 1963, 43,416/63
10 Claims. (Cl. 62—12)

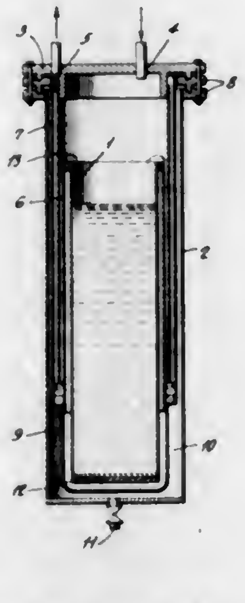


1. A method of purifying by refrigeration a gas mixture containing a substantial amount of a relatively high freezing point component comprising the steps of:
- (a) cooling the compressed gas stream in a system which includes a first heat absorber charged with cold product high freezing point component and condensing said stream to a liquid;
- (b) fractionating said liquid in a fractionator reboiler to yield liquid high freezing point component and a gas contaminated with high freezing point component;
- (c) partially condensing the contaminated gas in a second heat absorber charged with cold product high freezing point component recompressing, chilling and expanding the gaseous fraction to freeze out contaminating high freezing point component as a solid; and
- (d) combining this solid high freezing point component with liquid bottom component from the fractionator reboiler and using the combined medium as coolant in the aforesaid heat absorbers.

3,306,058
CRYOSTAT

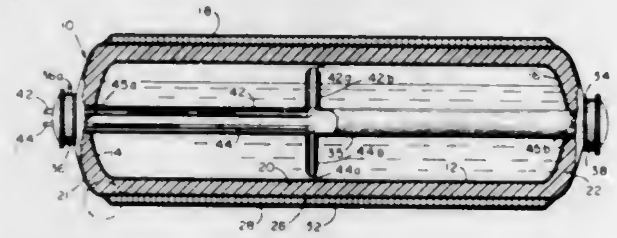
Victor Efimovich Keilin, Ulitsa Vasilisy Kozhinoi 8—1, Apt. 18, Moscow, U.S.S.R.
Filed Oct. 23, 1964, Ser. No. 405,948
2 Claims. (Cl. 62—45)

1. A cryostat comprising an external case having sidewalls and a bottom wall and open at the top, a working chamber having sidewalls and a bottom wall and open at the top for receiving a specimen, said chamber being disposed in said case in spaced relation to the side and bottom walls of said case and with the upper edge of the sidewalls of said chamber disposed below the upper edge of the sidewalls of said case, vacuum insulating means for said chamber comprising a partition surrounding the sidewalls of said chamber in spaced relation thereto and disposed in the space between said chamber and said case, the upper edge of said partition being secured in vacuum tight relation to the upper edge of the sidewalls of said chamber, said partition terminating in a lower edge disposed upwardly from the lower end of said chamber, a second concentric partition disposed outwardly of said first partition in spaced relation thereto and spaced inwardly from the sidewalls of said case, the lower edge of said second partition being secured in vacuum tight relation to the lower edge of said first partition, the upper edge of said second partition terminating adjacent the upper edge of the sidewalls of said case, and a heat shield surounding the sidewalls and bottom wall of said chamber below said partitions and spaced from said chamber and said case, a removable lid closing the upper end of said case, means providing a vacuum tight connection between said lid, the upper edge of said second partition and the upper edge of the side walls of said case, a fitting on said lid for admitting a liquid refrigerant into said chamber, a vent fitting on said lid for venting refrigerant vapors, and a vacuum fitting on said case communicating with the space between said case and said chamber to facilitate evacuation of said last named space.



3,306,059
CRYOGENIC STORAGE APPARATUS

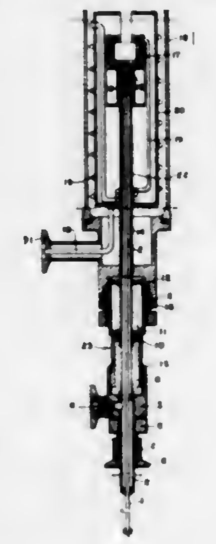
Philip D. Stelts, Center Valley, Richard G. Clark, Emmaus, and Edmund M. Flounders, Pottstown, Pa., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed June 15, 1965, Ser. No. 464,252
2 Claims. (Cl. 62—45)



1. Lightweight cryogenic liquid storage apparatus comprising:
- (a) a generally cylindrical vessel of lightweight metal containing liquefied gas at cryogenic pressure and temperature conditions and sealed at both ends;
- (b) jacket means surrounding said vessel forming a vacuum space between said vessel and said jacket means, said jacket means including a honeycomb wall portion of lightweight metal construction;
- (c) insulating material disposed in the space between said vessel and said jacket means;
- (d) tubular means extending axially through said vessel for supporting the latter at the ends thereof, said tubular means having openings communicating with said space to permit the evacuation thereof;
- (e) pipe means extending into said vessel by way of said tubular means for permitting liquid flow into and out of said vessel and the venting of vapors within said vessel; and
- (f) cap means to close off the ends of said tubular means extending out of said vessel and to attach said tubular means to said jacket means.

3,306,060
SIPHON

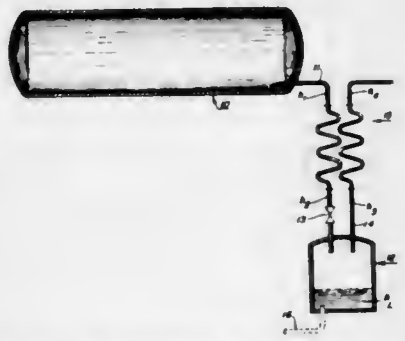
Gustav Klipping, Berlin-Zehlendorf, Germany, assignor to Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V., Gottingen, Germany
Filed May 14, 1965, Ser. No. 455,687
Claims priority, application Germany, May 14, 1964, M 60,998
6 Claims. (Cl. 62—55)



1. A vacuum jacket siphon for transferring low-boiling-point liquids from a supply reservoir to a working container, said siphon comprising, in combination:
- means forming a siphon housing, including means for coupling the housing to such supply reservoir;
- riser tube means extending from said housing beyond both ends of the coupling means, one end of the riser tube means being insertable into such supply reservoir to receive the contents thereof while the other free end extends outside of the neck of the supply reservoir;
- valve means on the free end of said riser tube means for regulating the flow of said contents therethrough;
- valve control means fastened to said valve means and extending along the free end of the riser tube means into the housing; and
- guide means in said housing for actuating said control means to control the valve means.

3,306,061
BLOWDOWN OF CRYOGENIC LIQUID SUPPLY VESSEL

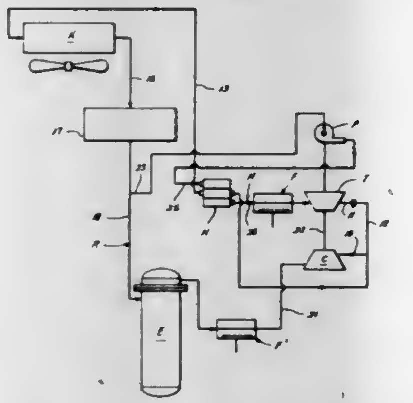
Lynn E. Scott, Westfield, and Joseph Kleinhaut, Livingston, N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 23, 1965, Ser. No. 481,860
2 Claims. (Cl. 62—55)



1. A method of increasing the liquid yield obtained in the fluid discharged from a vessel containing a cryogenic fluid at an elevated pressure comprising, discharging fluid from the vessel, throttling said discharged fluid to produce liquid and vapor, accumulating the liquid and the vapor in a second vessel at a pressure substantially below said elevated pressure, venting only the vapor from said second vessel, and cooling said discharged fluid before throttling with said vented vapor.

3,306,062
REFRIGERATION SYSTEM

William M. Reid, 4747 W. Alabama, Houston, Tex. 77027
Filed Aug. 18, 1965, Ser. No. 480,639
5 Claims. (Cl. 62—88)



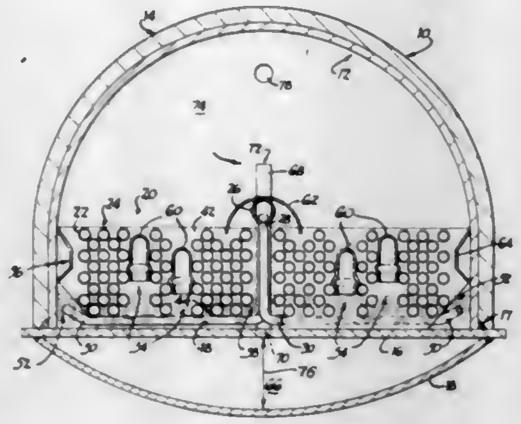
1. A method of operating a refrigerating system having compressor, condenser, and evaporator stages and wherein a compressor for the compressing stage is operably connected to an expansion engine, the improvement residing in the steps of:
- (a) circulating a refrigerant in the refrigeration system;
- (b) diverting a portion of the liquid refrigerant from the condenser stage of the refrigeration system;
- (c) elevating the pressure of such diverted portion of liquid refrigerant;
- (d) thereafter heating such diverted portion of the liquid refrigerant; and
- (e) expanding such heated liquid portion in the expansion engine of the refrigerating system for driving same to operate the compressor for compressing the refrigerant in said refrigeration system.

3,306,063
METHOD OF EVAPORATING LIQUID REFRIGERANT IN A SEMI-FLOODED TYPE EVAPORATOR

Peter A. Weller, Farmington, Mich., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Original application Oct. 3, 1962, Ser. No. 228,055, now Patent No. 3,240,265, dated Mar. 15, 1966. Divided and this application June 1, 1965, Ser. No. 478,500
4 Claims. (Cl. 62—114)

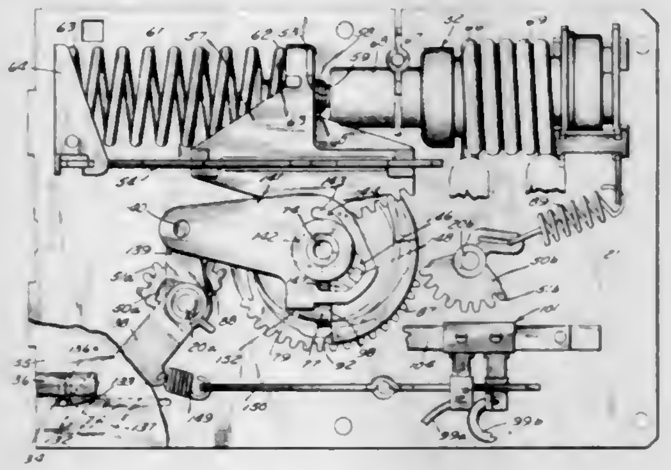
1. A method of evaporating liquid refrigerant in a refrigeration evaporator system of the semi-flooded type in which the evaporator includes an elongated hollow shell having therein an axially extending tube bundle partially submerged in a pool of liquid refrigerant and wherein the boiling action of the refrigerant splashes liquid from a lower level over the upper tubes characterized in the steps of forming the liquid refrigerant into at least one horizontally disposed pool of uniform depth, moving the refrigerant from a point of higher pressure than the pressure in the evaporator into said pool in a plurality of streams flowing parallel to the bottom thereof and directed in a horizontal fan pattern which produces a swirling motion in the pool about a horizontal circle and uniformly distributes the incoming refrigerant

throughout the pool, thereby resulting in flash vaporization of a portion of the incoming refrigerant due to the pressure differential whereby, as a result of the uniform distribution of the incoming refrigerant, the flash vaporization occurs uniformly throughout the pool, and heat exchanging the liquid refrigerant with warmer fluid passing through the tube bundle.



3,306,064
SWITCH ACTUATOR ASSEMBLY FOR AN ICE MAKER

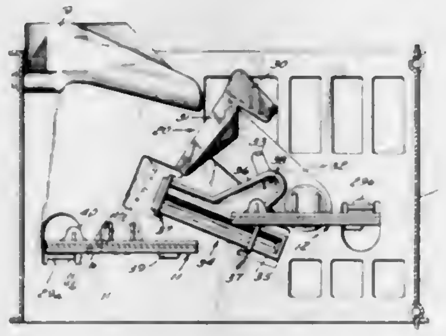
Nick Poolos, Chicago, Ill., assignor to The Dole Valve Company, Morton Grove, Ill., a corporation of Illinois
Filed Mar. 29, 1965, Ser. No. 443,215
11 Claims. (Cl. 62—137)



1. Apparatus for making ice comprising,
a frame,
an ice tray adapted to eject ice therefrom upon rotation thereof,
mounting means for rotatably mounting said tray on said frame, and
means for imparting rotatable movement to said ice tray for ejecting ice therefrom and comprising,
    power means mounted on said frame and having a rectilinearly reciprocable power member,
    first and second rotatable members mounted on said frame for relative rotation therebetween, linking means operatively interconnecting said power member and said first rotatable member for effecting oscillatory rotatable movement to said first rotatable member upon rectilinear reciprocable movement of said power member,
    cooperating means on said first and said second rotatable members including a shoulder surface and a spring biased radially rectilinearly movable pawl engageable with said shoulder surface to effect intermittent rotation of said second rotatable member in one direction of rotation upon oscillatory rotatable movement of said first rotatable member, and
driving means operatively interconnecting said second rotatable member and said ice tray to rotate said ice tray in response to rotation of said second rotatable member.

3,306,065
AUTOMATIC ICE CUBE MAKER WITH WATER FILL DEFLECTION MECHANISM

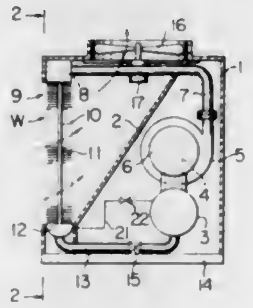
William L. Fox, Niles, Ill., assignor to The Dole Valve Company, Morton Grove, Ill., a corporation of Illinois
Filed July 2, 1965, Ser. No. 469,288
8 Claims. (Cl. 62—177)



1. In an ice making apparatus, a support, first and second ice trays mounted for rotatable movement on said support and within a freezing compartment, wherein the trays are alternately filled with water and ejection of ice blocks from said trays is effected by alternately rotating said trays through a predetermined arc, means for alternately rotating said trays, a fixed water source for discharging a stream of water, the improvement for alternately filling said trays with water, said improvement comprising:
a deflector pivotally mounted on said support in the path of the stream of water to direct water to said first and second trays; and
driving means mounted for rectilinear motion on said support and operatively associated with said deflector to alternately pivot the deflector to direct water to said first and second trays in response to the alternate rotational movement of said trays.

3,306,066
AIR-COOLED TURBOREFRIGERATOR

Shuichi Takada, Yokohama-shi, and Shinji Yosomiya, Kawasaki-shi, Japan, assignors to Kabushiki Kaisha Ebara Seisakusho (Ebara Manufacturing Co., Ltd.), Tokyo, Japan, a corporation of Japan
Filed Sept. 11, 1964, Ser. No. 395,855
Claims priority, application Japan, Sept. 19, 1963, 38/50,210, 38/50,211
3 Claims. (Cl. 62—183)

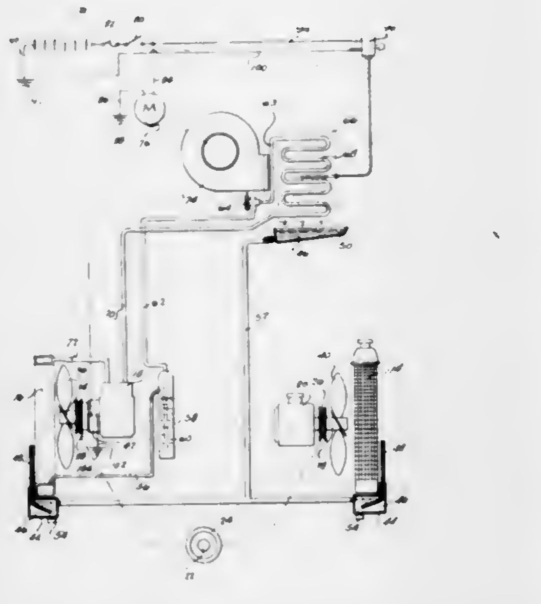


1. An air-cooled turbo-refrigerator comprising
a housing having at least one air-intake opening,

a fan assembly for drawing air through said opening into said housing,
at least one condenser disposed in said opening and to be cooled by flow of air from said opening to said fan,
an evaporator operatively connected with said condenser for receiving refrigerant therefrom, to perform heat exchange between said refrigerant and fluid to be cooled,
a compressor operatively connected to said evaporator for compressing and directing refrigerant gas from said evaporator toward said condenser,
a drive means for operation of said compressor,
a separator plate disposed in said housing and separating said condenser,
said condenser having a flat shaped configuration comprising a header connected to the discharge side of said compressor,
a refrigerant pipe disposed downwardly from said header and having a plurality of fins attached thereto,
a reservoir disposed at the lower end of said refrigerant pipe and collecting the refrigerant from said pipe,
said reservoir being adapted at the lower end of said refrigerator pipe to receive said refrigerant by gravity,
said reservoir being connected to said evaporator,
means providing differential pressure between said reservoir and said evaporator,
said means providing differential pressure between said reservoir and said evaporator comprising a pipe means connecting a portion of said reservoir with a portion of said evaporator at a lower pressure, and
a throttle valve being disposed in said pipe means intermediate the ends thereof.

3,306,067
AUTOMOTIVE VEHICLE AIR CONDITIONING SYSTEM

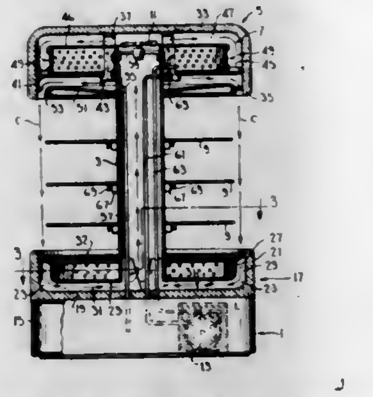
Paul E. Anglin, 3333 E. Kiest Blvd., Dallas, Tex. 75203
Filed Dec. 21, 1965, Ser. No. 515,332
8 Claims. (Cl. 62—243)



1. In an automotive vehicle including a compartment to be cooled and an engine for propelling the vehicle, a radiator for cooling engine coolant heated by said engine, and an air conditioning system for providing cool air in said compartment, said air conditioning system including a refrigerant condenser in substantially side by side, juxtaposition to said radiator.

3,306,068
REFRIGERATED OPEN FRONT MERCHANDISER

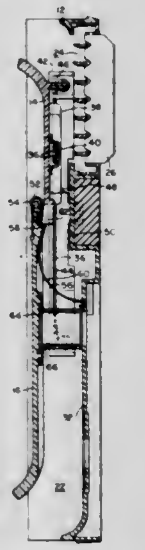
David F. Allgeyer and Lester F. Reifeiss, Conway, Ark., assignors to Universal Match Corporation, St. Louis, Mo., a corporation of Delaware
Filed Dec. 2, 1965, Ser. No. 511,068
21 Claims. (Cl. 62—256)



1. A merchandiser for merchandise requiring refrigeration comprising a base, a tubular column extending upward from the base, a hood at the top of the column, an evaporator coil in the hood in surrounding relation to the column adjacent its upper end, shelves mounted between the base and the hood, the column being adapted for entry of air at its lower end and exit of air from its upper end into the hood, air exiting from the column being adapted to flow through the coil, thence downward, and ultimately back into the lower end of the column.

3,306,069
AIR CONDITIONER

Evert S. Wegman, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 8, 1966, Ser. No. 525,911
8 Claims. (Cl. 62—262)



1. A room air conditioner front assembly comprising:
a frame including a pair of oppositely disposed vertical side members;
a lower panel hingedly supported from said side members for forwardly swinging movement about a horizontal axis through the upper portion of said panel;
an upper panel mounted for parallel, translational movement in a vertical direction from an upper position covering a conditioned air outlet, to a lower position exposing said outlet, the path of movement to a lower position being behind the upper portion of said lower panel;
means for mounting said upper panel from said side members for said movement including;
a pair of guide posts on the rear surface of, and adjacent each end of, said upper panel;
a pair of taut cables,

each cable having one end attached to said side member at an upper level and the opposite end attached to the opposite member at a lower level,

each cable extending around one guide post at one end of said upper panel, and around the diagonally opposite guide post at the other end of said upper panel so that,

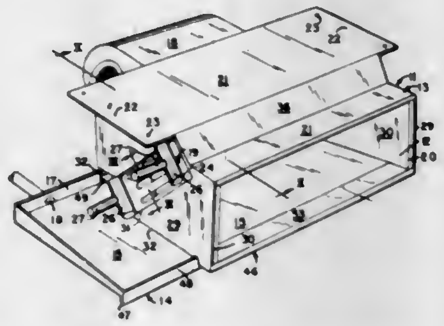
said cables are disposed in generally mirror image relation as viewed in front elevation to form a generally H-shape with the stem of said H-shape comprising the bight portions of said cables extending between the opposite ends of said upper panel and in crossing relation to each other behind said panel.

3,306,070
AIR CONDITIONING UNIT

Carl C. Herb, Cazenovia, and David F. Bryans, Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Oct. 24, 1965, Ser. No. 504,934

7 Claims. (Cl. 62—285)



1. An air conditioning unit comprising a casing including a body having opposed walls, means including a drain pan for receiving moisture from portions of the unit and cooperating with said walls to provide a passage adapted to pass air through the casing, said drain pan forming a bottom surface of said passage, assembly means detachably mounting said drain pan on said body, a coil in said passage adapted to cool the air passing through said passage, and mounting means mounting said coil operatively positioned in said passage, said mounting means including a support extending between the opposed walls in substantial abutting engagement with the coil, and first means on said coil adapted to cooperate with means similar to the first means on said opposed walls to prevent substantial escape of air between the coil and the opposed walls.

3,306,071
COOLING COIL WITH CONDENSATE DIRECTOR

Earl F. Holyfield, 600 NE. 19th St., Oklahoma, City, Okla. 73105

Filed Aug. 26, 1965, Ser. No. 482,865

6 Claims. (Cl. 62—290)

1. A cooling coil for an air conditioning system comprising:

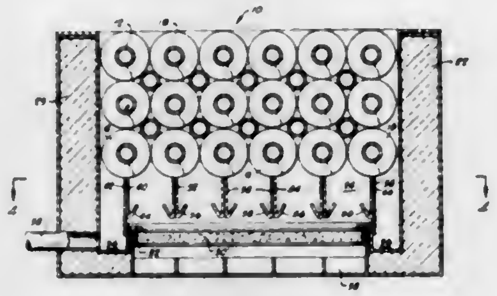
a housing having vertically disposed insulated walls defining a flow passageway, said walls having the lower interior ends arranged to form a continuous, open-topped conduit encompassing said flow passageway;

an anfractuous conduit located in said flow passageway relatively above said open-topped conduit, said anfractuous conduit having an inlet and outlet, a plurality of vertically and horizontally spaced elongated portions disposed in a substantially horizontal position, and a plurality of reverse bend portions connecting said elongated portions;

radiating means connected with and helically wound on the elongated portions of alternating rows of said anfractuous conduit and disposed in a generally vertical position;

a plurality of elongated duct members having an upstanding portion engaging the lower portion of said radiating means on the lowermost row of said anfractuous conduit and having a trough portion on the lower end of said upstanding portion, said duct members having the ends thereof disposed above the open top of said open-topped conduit whereby condensate collected in said trough portion gravitates into said open-topped conduit; and,

a drain conduit having one end in communication with said open-topped conduit for permitting condensate to drain from said open-topped conduit.

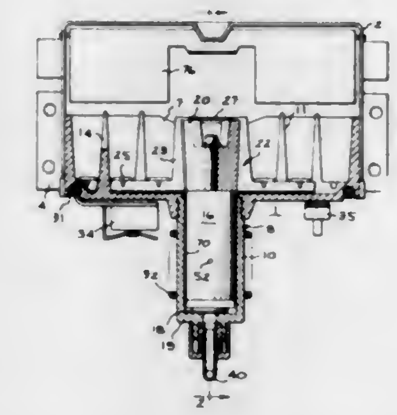


3,306,072
HYDRAULIC ICE MAKER

John A. Dahlgren and Dwight W. Jacobus, Louisville, Ky., assignors to General Electric Company, a corporation of New York

Filed Aug. 26, 1966, Ser. No. 575,361

3 Claims. (Cl. 62—351)



1. An automatic ice maker comprising:

a refrigerated mold including an ice cavity and a cylinder having an upper portion spaced from said cavity by a wall,

said wall having an opening therein connecting said cavity and cylinder,

a piston in said cylinder movable from a normal position adjacent but spaced from the lower end of said cylinder to a raised position,

water supply means for introducing a measured volume of water under pressure into the bottom of said cylinder below said piston,

means operable upon movement of said piston to its raised position by the presence of said volume of water for ejecting an ice piece from said cavity,

means including a passage in said piston for conducting water from said cylinder into said opening, said passage having its inlet end in the lower end of said piston,

water in said passage and between said cylinder and piston surfaces being frozen during formation of an ice piece in said cavity,

heating means for thawing the ice bond between said cylinder and piston surfaces to permit the pressure of said water to move said piston to its raised position to eject said ice piece and thereafter to melt the ice in said passage for the flow of water from said cylinder into said ice cavity through said opening and to relieve the water pressure on said piston,

means for returning said piston to its normal position,

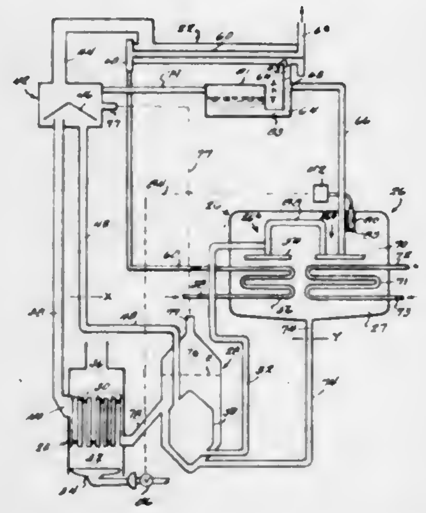
and means within the inlet end of said passage for preventing air liberated from the low pressure water remaining in the space in said cylinder below said piston following return of said piston to its normal position from entering said passage.

3,306,073
SHORT CYCLE PREVENTION IN REFRIGERATION SYSTEM

William E. Stephan, Evansville, Ind., assignor to Arkla Industries Inc., Evansville, Ind., a corporation of Delaware

Filed Nov. 26, 1965, Ser. No. 509,990

4 Claims. (Cl. 62—476)



1. In an absorption refrigeration apparatus including a generator, a condenser, an evaporator, and an absorber interconnected to form a system for circulation of a refrigerant through said parts including a circuit for absorption liquid between said generator and absorber, the improvement which comprises means connected to said apparatus for preventing a rapid drop in the temperature in said evaporator during start-up of said apparatus, said means including conduit means for delivery of absorption liquid from said absorption liquid circuit to said evaporator for a short period of time after start-up whereby the higher boiling point of the absorbent liquid in said evaporator prevents a rapid drop in the evaporator temperature upon start-up.

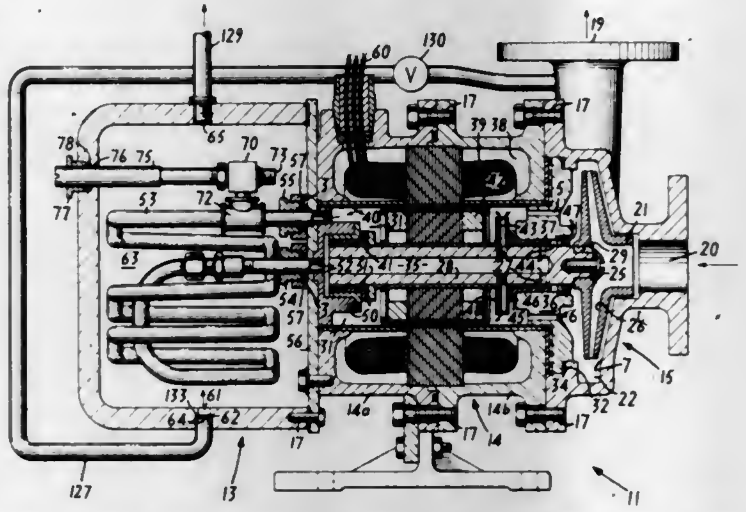
3,306,074
SELF-COOLING CANNED PUMP AND REFRIGERATION SYSTEM CONTAINING THE SAME

Charles A. Wilson, Lincoln, R.I., assignor to Pall Corporation, Glen Cove, N.Y., a corporation of New York

Filed Mar. 1, 1965, Ser. No. 435,794

9 Claims. (Cl. 62—505)

1. A motor pump for the pumping of compressed vapor refrigerants, comprising a housing defining an impeller chamber, a motor chamber and a heat exchanger; an impeller in the impeller chamber, and a motor in the motor chamber; an inlet and an outlet in the impeller chamber for circulation of fluid to be pumped therethrough, and an inlet and outlet in the motor chamber for circulation of pumped fluid therethrough for lubricating and cooling; a pressure relief connection between a high pressure portion of the impeller chamber and the motor chamber to relieve any increase in fluid volume in the motor chamber due to heat from the motor; a heat exchanging separator member in the heat exchanger separating the heat exchanger into two compartments, one compartment being in fluid flow connection with the inlet and outlet of the motor chamber so as to form a fluid flow circuit with the motor chamber, and the other compartment of the heat exchanger being in fluid flow connection with a high pressure portion of the impeller chamber, for heat exchange between pumped fluid passing through the impeller chamber and pumped fluid circulating in the motor chamber.

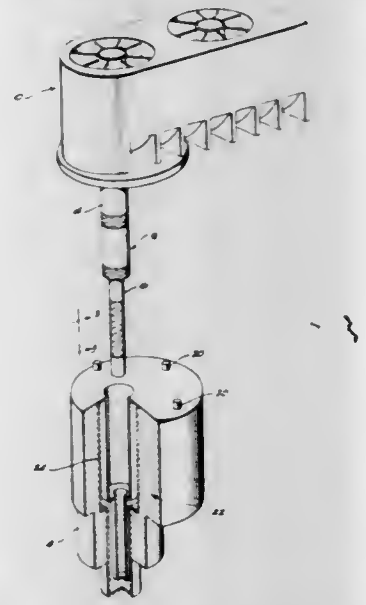


3,306,075
THERMAL COUPLING STRUCTURE FOR CRYOGENIC REFRIGERATION

Kenneth W. Cowans, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Oct. 4, 1965, Ser. No. 492,801

11 Claims. (Cl. 62—514)



1. In a coupling arrangement providing thermal transfer between a container for and a cryogenic refrigerator,

a cold finger associated with the refrigerator and having an annular surface thereon,

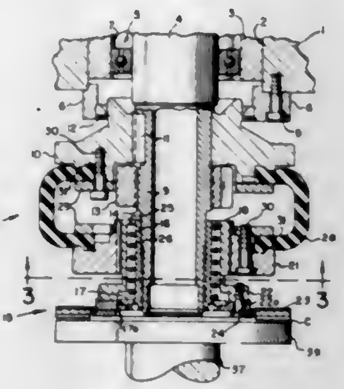
said container having a surface defining a central cavity to telescopically receive the cold finger,

and flexible thermally conductive means on one of the surfaces adapted for flexible pressure engagement with the other surface to provide a thermal transfer path between the surfaces,

said flexible means being in area engagement with the respective surfaces to provide efficient thermal transfer paths therebetween.

3,306,076
AXIALLY ADJUSTABLE COUPLING

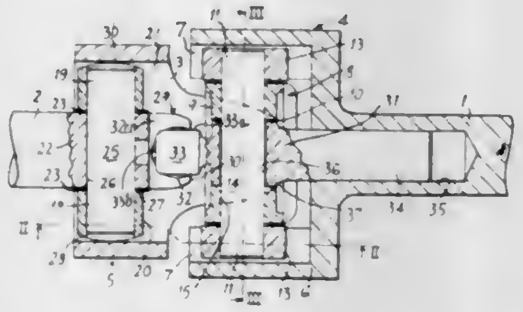
Robert W. Cashman and Anthony Wasco, Jr., Saginaw, Mich., assignors to Saginaw Machine and Tool Company, Saginaw, Mich., a corporation of Michigan
Filed Sept. 15, 1964, Ser. No. 396,548
12 Claims. (Cl. 64—11)



1. An axially adjustable coupling for a rotatable member comprising a driven member having means for connecting it to said rotatable member; axially extensible and contractile torque transmitting means connected to said driven member for transmitting rotation thereto; driving means; means mounting said driving means for rotation and axial movement relative to said driven member; and axially adjustable coupling means secured to said driving means and said torque transmitting means for rotating the latter.

3,306,077
UNIVERSAL JOINTS

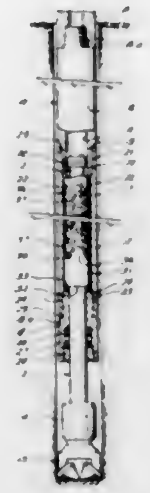
Sanzio Pio Vincenzo Piatti, 14 Carso Porta Nuova, Milan, Italy
Filed Feb. 19, 1965, Ser. No. 433,901
Claims priority, application Italy, Mar. 10, 1964, 5,788/64
9 Claims. (Cl. 64—21)



1. In a universal joint of the double Cardan type wherein a first Cardan joint couples an input member to a central coupling element and the second Cardan joint couples an output member to said central coupling element, and wherein at least one of the Cardan joints includes a cross member coupling the associated one of said input and output members to the central coupling element, said cross having an opening in the centre thereof and two pairs of trunnions perpendicular to one another and pivoted respectively to a fork at the adjacent end of said associated member and said central coupling element, and said input and output members are also coupled together by a ball and socket joint between the ends of axial extensions from the adjacent ends of the input and output members, the improvement consisting in that the axial extension disposed within said fork is supported, intermediate its ends, in said opening in said cross by means which allows the cross to rock relative to said extension about the axis of the trunnions which are pivoted to said fork.

3,306,078
ROTARY DRILL SHOCK ABSORBER

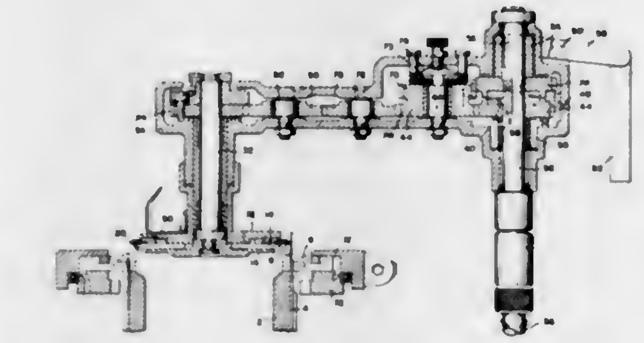
James D. Hughes, 4714 Spellman, Houston, Tex. 77035
Filed Feb. 19, 1965, Ser. No. 434,050
8 Claims. (Cl. 64—27)



1. A rotary drilling shock absorber, comprising, an outer tubular member having an axial bore and connectible at one end to one section of rotary drilling string, an inner tubular member having an axial bore connectible at one end to another section of said rotary drilling string and inserted into the bore of said outer member to define an annular space therebetween, opposed annular shoulders on the respective members at opposite ends of said annular space, each of said shoulders carrying a continuous series of oppositely facing circumferentially spaced clutch teeth, a plurality of force transfer rings stacked in the annular space concentrically between the members, the opposite ends of each of said transfer rings carrying a continuous series of oppositely facing clutch teeth of complementary shape and spacing to those carried by said shoulders and by each of the other transfer rings, alternate ones of said rings being constructed of metal and the intervening rings of deformable resilient non-metallic material, and all of said clutch teeth being of a symmetrical generally V-shape.

3,306,079
KNITTING MACHINES

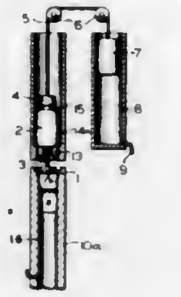
John A. Currier, Gilford, N.H., assignor to Scott & Williams, Incorporated, Laconia, N.H., a corporation of Massachusetts
Filed Sept. 9, 1963, Ser. No. 307,561
20 Claims. (Cl. 66—134)



1. A knitting machine comprising a pair of coaxial rotary beds at least one of which carries independent needles while the other carries elements adapted to cooperate with the needles for the formation of knitted fabric, and driving means connecting said beds and arranged to provide selectively a pair of continuous definite but different drive ratios between said beds.

3,306,080
DEVICE FOR REMOVING AND INVERTING HOSE-LIKE KNITTED GOODS ON CIRCULAR KNITTING MACHINES

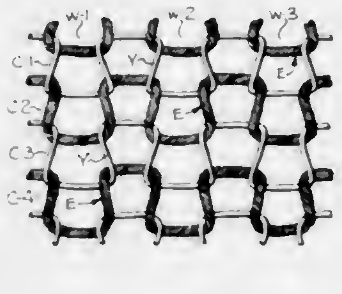
Kurt Rössler, Talweg 3, Sonthofen, Allgau, Germany
Filed Oct. 22, 1964, Ser. No. 405,893
Claims priority, application Germany, Oct. 22, 1963, R 36,384; Apr. 22, 1964, R 37,749
2 Claims. (Cl. 66—149)



1. In a circular knitting machine for producing hosiery and other tubular knitted articles, a device for removing and inverting said tubular knitted articles comprising a vertical tube arranged in axial alignment with the knitting cylinder of said knitting machine, a releasable gripping means for gripping both sides of the starting end edge of the knitted article, means for moving said gripping means with said article during the knitting operation upwardly into said tube until the knitted article is completed, release means causing said article to be released from said gripping means for removal of said article and a compressed air current for removing said article from said knitting machine.

3,306,081
SUPPORT STOCKING

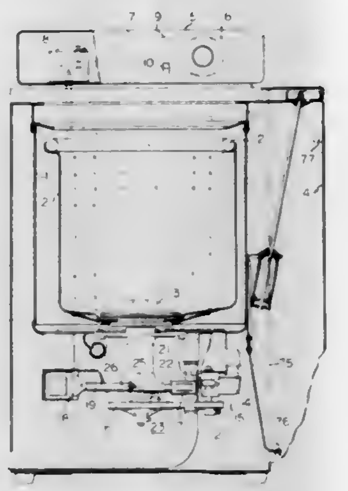
Charlie A. Miles and Marvin H. Comer, Burlington N.C., assignors to Alamance Industries, Inc., Burlington, N.C., a corporation of North Carolina
Filed July 15, 1963, Ser. No. 294,874
10 Claims. (Cl. 66—178)



10. A knitted sheer stocking whose leg portion comprises alternating courses of helically wrapped spandex yarn and nylon yarn; said wrapped spandex yarn having a spandex core within the range of about 40 to 140 denier, a first wrapping of multifilament nylon yarn helically wrapped in one direction about said core; said first wrapping yarn being within the range of about 15 to 30 denier; the range of wraps per inch of said first wrapping being in excess of 100; a second wrapping of multifilament nylon yarn helically wrapped about said first wrapping in the opposite direction thereto; said second wrapping yarn being within the range of about 15 to 30 denier; said second wrapping being wrapped with a lesser number of wraps per inch than said first wrapping; said first-mentioned nylon yarn having a total denier not in excess of about 30; said stocking having an average stretched stitch density in the leg portion of at least 1000 stitches per square inch.

3,306,082
WASHING MACHINES

Eiichi Hasegawa and Ryoichiro Oshima, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Dec. 14, 1964, Ser. No. 417,966
20 Claims. (Cl. 68—12)



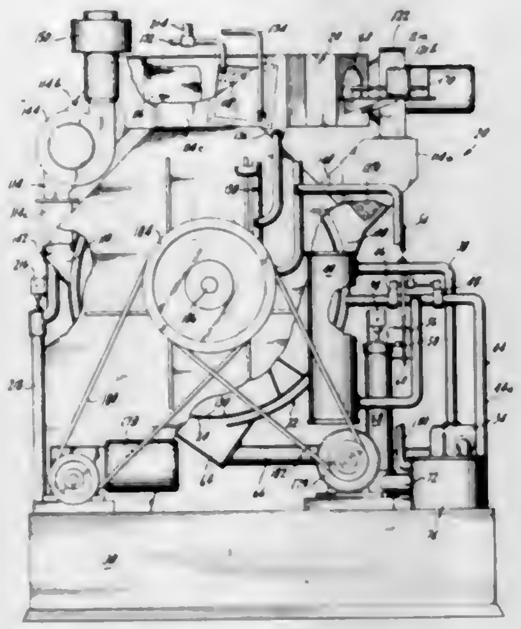
1. A washing machine comprising a water tank arranged in a framework, a basket vertically disposed in said water tank and rotatable therein, said basket being of substantially ellipsoidal cylinder configuration, an impeller disposed at the bottom center of said basket, a hollow shaft depending from the center of bottom wall of said basket, a rotating shaft of high speed rotation passing through said hollow shaft, the upper end of said rotating shaft being fixed to said impeller, means for connecting and disconnecting said hollow shaft to and from said rotating shaft, means for applying and releasing a braking force to and from said hollow shaft, and means for supporting said water tank resiliently in said framework and for converting at least a portion of the vibration energy of said water tank into frictional heat.

3,306,083
AUTOMATIC DRY-CLEANING MACHINE

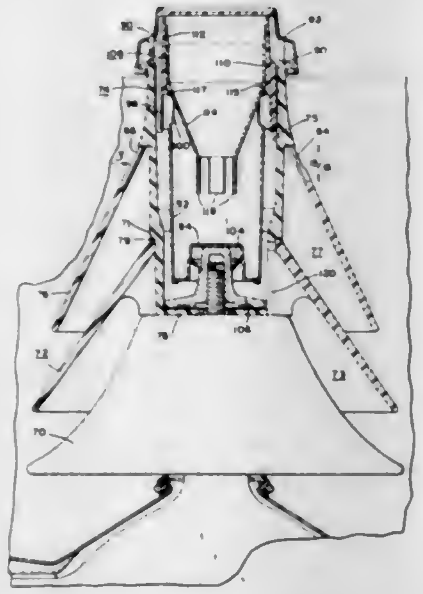
Frank C. Lornitzo, Cape Elizabeth, Maine, assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 16, 1965, Ser. No. 448,738
3 Claims. (Cl. 68—12)

1. A dry-cleaning machine including a dry-cleaning drum for dry-cleaning clothes therein in association with cleaning fluid, a control means for said dry-cleaning machine effective to operate said machine in accordance with a machine cycle having a predetermined sequence of operations, a cleaning fluid supply means operatively connected to a source of cleaning fluid and to said dry-cleaning drum for conducting cleaning fluid into and out of said dry-cleaning drum during a cleaning period of said machine cycle, and a cleaning fluid recovery means operatively connected to and operated by said control means after said cleaning period to remove any residual cleaning fluid from said dry-cleaning drum, said cleaning fluid recovery means comprising means defining a closed path having communication with said drum, a first blower means located in said closed path and operatively connected to and operated by said control means to drive heated air through said dry-cleaning drum to cause flashing of cleaning fluid into vapor therein and to carry said vapor from said dry-cleaning drum, a second blower means located in said closed path and operatively connected to and operated by said control means to exhaust said drum and said closed path to atmosphere, and temperature sensing means located in said closed path and

operatively connected to and operated by said control means and effective in response to an elevated temperature in said heated air exiting from said drum and indicative of minimal cleaning fluid flashing in said drum to cause the operation of said second blower means simultaneously with operation of said first blower means.

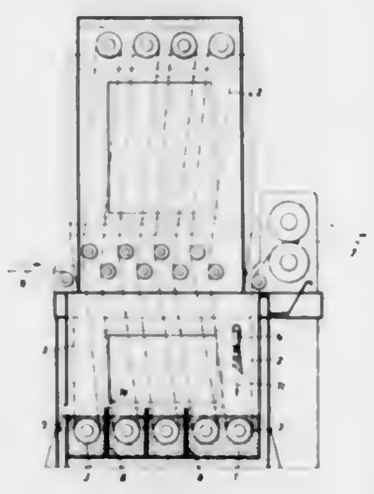


3,306,084
AGITATOR AND WASHING AGENT DISPENSER
Norman J. Bullock, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 15, 1964, Ser. No. 396,632
7 Claims. (Cl. 68—17)



7. For use in a vertically reciprocable device, a dispensing cup for bleach or the like comprising means forming a cup having imperforate top and bottom portions and a dispensing port in an intermediate portion thereof, said cup forming means having a skirt portion extending downwardly from said top portion outboard of said port for diverting bleach dispensed through said port toward said bottom portion, and means having an upper portion in said top portion of said cup for receiving said bleach or the like and an imperforate tapered portion extending downwardly into said cup from a level above said port to a level below said port for diverting said bleach or the like from said port during the filling of said cup.

3,306,085
FULL-WIDTH WASHING MACHINES
Hermann Verboom, Kempen, Germany, assignor to Eduard Kuesters, Krefeld, Germany
Filed June 26, 1964, Ser. No. 378,375
Claims priority, application Germany, June 29, 1963, K 50,091
1 Claim. (Cl. 68—181)

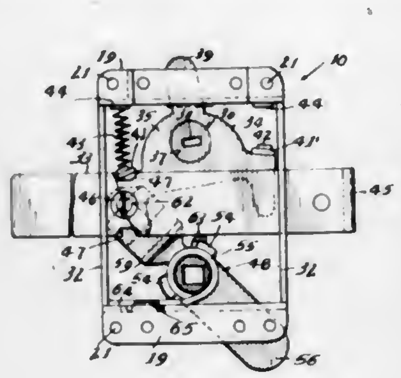


Full-width washing machine for webs of material comprising a tank, transverse vertical partitions extending partially across the width of the tank at the bottom thereof, each partition having its one end abutting one wall of the tank and its other end spaced at a predetermined distance from the opposite wall of the tank, each partition abutting the wall opposite the wall which the adjacent partition abuts, a vertical slidable panel element mounted adjacent to that end of each transverse partition spaced apart from the wall of the tank, said panel element of a width equal to the distance between the end of the partition and the wall of the tank, the height of each panel element being less than the height of the adjacent transverse partition, means for moving said panel elements vertically between a position in which the lower edge of each element is level with the lower edge of the adjacent transverse partition and a position in which the upper edge of the element is level with the upper edge of said transverse partition, means for moving the web to be washed through the tank from the entrance side to an exit side thereof along a path extending vertically into and out from chambers formed in the tank by the transverse partitions and slidable panel elements, an inlet for washing liquid adjacent the exit side of the tank and an outlet for said washing liquid adjacent the entrance side of the tank, said outlet being at a lower level than the upper edge of the transverse partitions.

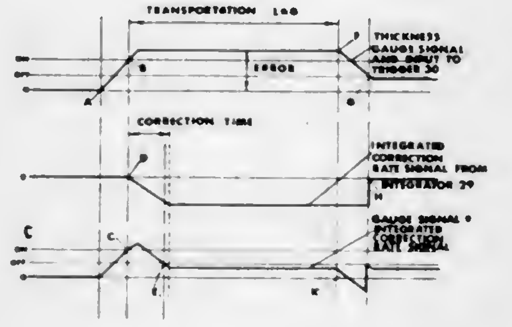
3,306,086
GARAGE DOOR LOCKS
Charles G. Hallgren, Rockford, Ill., assignor to National Lock Co., Rockford, Ill., a corporation of Delaware
Filed Aug. 24, 1964, Ser. No. 391,718
12 Claims. (Cl. 70—100)

1. A garage door lock assembly adapted to be mounted on the interior surface of a garage door, comprising a housing secured to the interior of the door, a handle secured to the exterior of the door, a spindle extending rearwardly from the handle through the door and through the housing, a bolt extending horizontally through the housing and reciprocable between locked and unlocked positions,

a crank pivotally mounted in said housing and connected to said bolt, said crank having a central embossment receiving said spindle and spaced laterally projecting arms adjacent said embossment, a coil spring positioned within said lateral arms and encompassing said spindle with one end bearing against the housing and the opposite end hooked over one of the two arms to yieldably urge the crank to rotate in one direction, a catch pivotally mounted in said housing above said bolt, a laterally projecting arm on said catch yieldably biased into engagement with an edge of said bolt, said bolt having a notch in its edge receiving said laterally projecting arm which the bolt is in locked position, said spring yieldably biasing the crank to rotate and shift the bolt to unlocked position, and means actuating said catch to release said bolt.



3,306,087
AUTOMATIC GAUGE CONTROL SYSTEMS
Brian Wilfred Barringer, East Twickenham, Middlesex, England, assignor, by mesne assignments, to The Rank Organisation Ltd., London, England, a British company
Filed Mar. 19, 1964, Ser. No. 353,218
Claims priority, application Great Britain, Mar. 21, 1963, 11,353/63
8 Claims. (Cl. 72—9)



1. An automatic thickness control system for a material processing mechanism comprising:

(a) gauge means for monitoring the thickness of the material issuing and spaced apart from, the mechanism and producing a signal representative of the deviation of this thickness from a pre-set value,

(b) control means connectible to actuator means for actuating the processing mechanism to correct the thickness of the material to the pre-set value, in a single continuous operation,

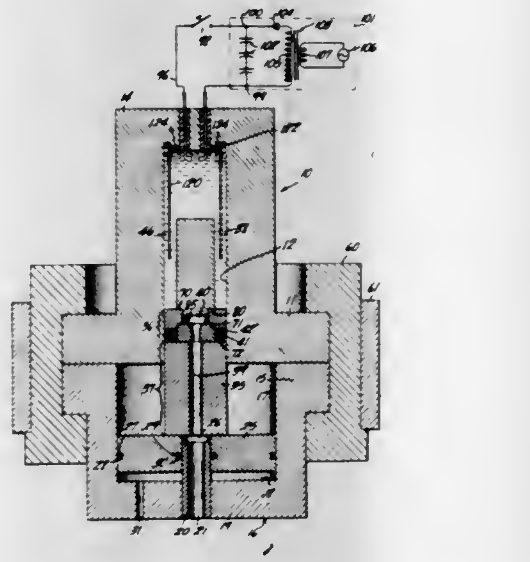
(c) a correction responsive device arranged to cooperate with the processing mechanism and producing a signal representative solely of the total quantity of correction applied; the control means having an input connected to the gauge means and the correction responsive device so as to be responsive to the deviation between the output signals thereof and to cease operation of the control means when this deviation becomes reduced to substantially zero, together with

(d) trigger means connected between the gauge means and the control means and effective after cessation of a correcting operation, to prevent further operation of the control means until the material of corrected thickness has reached the gauge means, thereafter to permit further correction.

3,306,088
METHOD OF MAKING AN ALUMINUM CLAD STEEL WIRE
Orville E. Adler, Niles, Mich., assignor to National-Standard Company, a corporation of Delaware
No Drawing. Application Feb. 14, 1963, Ser. No. 258,635, which is a continuation of application Ser. No. 19,488, Apr. 14, 1960. Divided and this application Oct. 7, 1965, Ser. No. 493,891
8 Claims. (Cl. 72—47)

1. A method of making an aluminum clad ferrous metal wire comprising: plating the ferrous metal wire with a metal selected from the group consisting of copper and nickel; heating a slug of aluminum to a temperature of about 1000° F.; and extruding the heated aluminum onto said plated wire at a pressure of at least about 50,000 p.s.i. on the slug while the wire is moved endwise at a uniform speed.

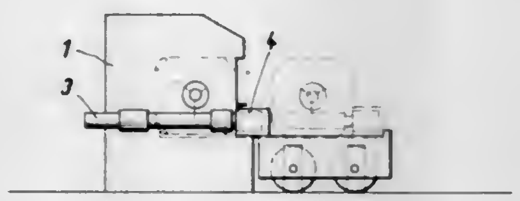
3,306,089
CONTROL OF STRESSES DURING SHOCK-AIDED HYDROSTATIC EXTRUSION
Jacob Brayman, Staten Island, N.Y., assignor to Barogenics, Inc., New York, N.Y., a corporation of New York
Filed Feb. 24, 1964, Ser. No. 346,980
4 Claims. (Cl. 72—56)



1. Apparatus for extruding an object comprising, means defining a container for said object which includes closed walls and a top die means at one end of said container means, means to subject said object to a pressure sufficient to produce extrusion thereof from said container means through said die means once said extrusion has been initiated, a shock pressure generator responsive to actuation thereof to subject said object to a shock-wave of pressure supplementing said first named pressure and acting in conjunction therewith to initiate said extrusion of said object, and means including a member positioned between said closed walls of said container means and said generator and deflectable by the shock-wave of pressure for absorbing at least a portion of the energy of said shock-wave of pressure and reducing the amount of energy acting on the walls of said container means.

3,306,090
EXCHANGE COUPLING APPARATUS FOR ROLLING MILLS, PARTICULARLY FOR ROLLING FRAMES FOR UNIVERSAL OR TUBE REDUCING MILLS

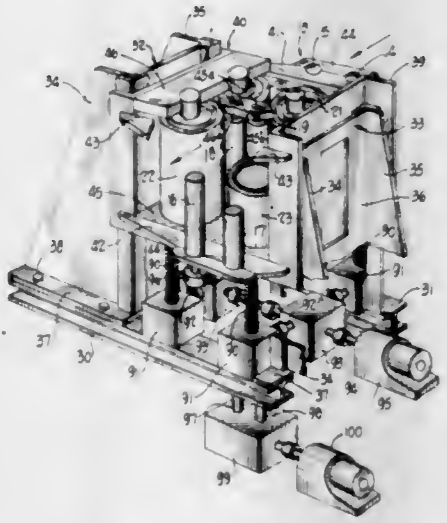
Walter vom Dorp, Rheydt, and Hans Meurer, Neuss (Rhine), Germany, assignors to Mannesmann-Meer Aktiengesellschaft, a corporation of Germany
Filed May 14, 1964, Ser. No. 367,421
Claims priority, application Germany, May 15, 1963, M 56,817
5 Claims. (Cl. 72—239)



1. Exchange coupling apparatus, for use in connection with rolling frames in reducing rolling mills including a roll train having a bed, said apparatus being adapted to hold the rolling frames transverse to the rolling direction in their working position on the bed, and during the exchange to shift the frames laterally horizontally to and from their working position and comprising, in combination, a shiftable beam, two moving cylinders connected with relation to the bed, one near the entry side and the other near the exit side of the roll train and being movably and releasably connected to said beam, said beam being adapted to be coupled to the rolling frames and sliding on the bed during the exchange move of the frames to and from the working position.

3,306,091
ROLLING MILL

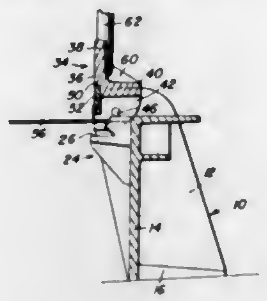
Max H. Bursk, Fribourg, Switzerland, assignor to Lee Wilson Engineering, S.A., Fribourg, Switzerland
Filed Jan. 16, 1964, Ser. No. 338,059
Claims priority, application Switzerland, Feb. 28, 1963, 2,584/63
14 Claims. (Cl. 72—240)



1. In a rolling mill, a rotatably supported flexible work roll, a rotatably supported back-up roll disposed with its axis parallel to the axis of said work roll, said back-up roll including a flexible rotatable roll sleeve the outer surface of which is in engagement with said work roll and adjustable means for selectively supporting portions of said roll sleeve against flexing while permitting flexing of other portions of said roll sleeve.

3,306,092
SHEET METAL BENDER

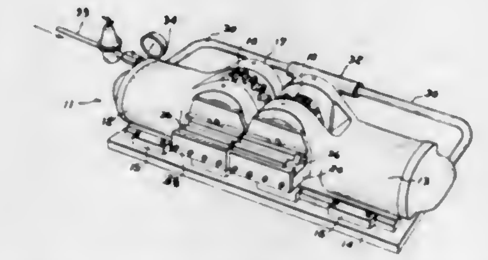
Milton De Witt Korte, West Des Moines, Iowa, assignor of fifty percent to Leelan C. Jewell, Lake Worth, Fla.
Filed Aug. 26, 1964, Ser. No. 392,161
7 Claims. (Cl. 72—387)



1. A sheet metal bending device comprising a support including a generally horizontal bar, a plurality of spaced anvils on said bar, each anvil including a protruding ledge for receiving a workpiece and a bed underlying the ledge for receiving the workpiece therefrom, and a bender pivotally mounted on the support and cooperable successively with the ledges and the beds for edging the workpiece.

3,306,093
TUBE BENDING MACHINE

Frank Sassak, 1033 Vermont Ave., Dearborn, Mich. 48216
Filed Mar. 9, 1964, Ser. No. 350,355
2 Claims. (Cl. 72—389)

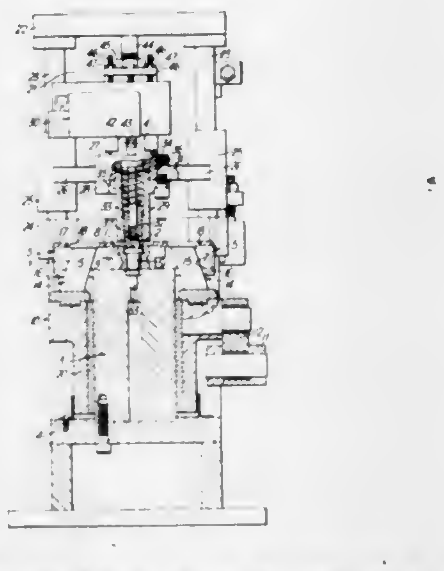


1. In a tube bending machine characterized by an upper vertically reciprocable arcuate die and a pair of lower die blocks rotatably and adjustably secured to the bed of the machine beneath the upper die, the improved means for rotatably mounting and resisting rotary movement of each of said lower die blocks which comprises:

a housing adjustably secured to the bed of the machine, the inner end of said housing being positioned beneath and substantially, in line with the upper reciprocable die;
said housing having a cylindrical portion formed in its outer end having a piston mounted for reciprocating movement therein;
said housing further having a rotary shaft transversely journaled at the inner end thereof;
said shaft having both a lower die block and a pinion gear fixedly mounted thereto;
a rack gear in mesh with said pinion gear and slidably mounted in said housing and secured at one end to said piston for reciprocating movement therewith;
resisting means connected with said cylinder for providing a substantially constant and uniform resistance to outward movement of said piston in said cylinder;
said die blocks adapted to support a tube to be bent in an initially horizontal position, the downward stroke of said upper die engaging the tube to be bent, continued downward movement of the upper die causing said lower die blocks and pinion gears to rotate with said transverse shaft, the rotation of said pinion gear causing outward stroking of said rack gear and piston, said outward stroking being accomplished against the continued force of said resisting means.

3,306,094
METHOD OF AND MEANS FOR CALIBRATING THERMO-RESPONSIVE POWER DEVICES

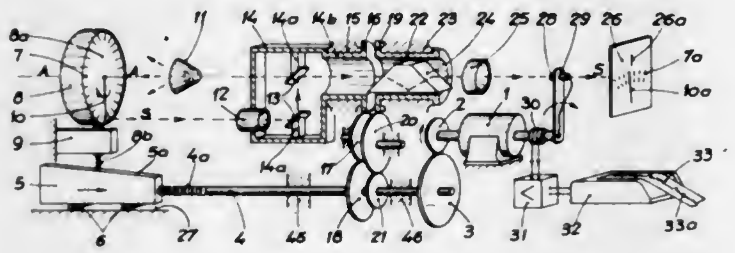
Sidney Henry Blazey, Kensworth, near Dunstable, England, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 29, 1964, Ser. No. 399,984
Claims priority, application Great Britain, Oct. 3, 1963, 38,933/63
6 Claims. (Cl. 73—1)



1. A method of calibrating a thermo-responsive power device in which a pin slidably mounted in a wall of a substantially cylindrical closed container is adapted to be moved axially relative to the container by a change in the volume of a body of thermo-responsive material sealed within the container, in response to temperature changes, comprising bringing the device and said material therein to a predetermined temperature and reducing the volume of the container by applying pressure thereto so as to reduce the circumferential length of an annular area of the container, without changing the cross-sectional shape of the container in the area, until said pin extends a predetermined distance from the container.

3,306,095
APPARATUS FOR ASCERTAINING THE ERRORS OF INDICATOR MEASURING DEVICES

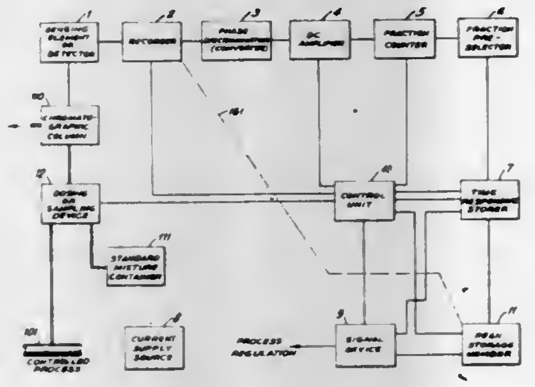
Hans Meyer, Le Bugnon 24, Renens, Vaud, Switzerland
Filed Oct. 12, 1964, Ser. No. 403,092
Claims priority, application Switzerland, Oct. 21, 1963, 12,925/63
10 Claims. (Cl. 73—1)



1. An apparatus for ascertaining the errors of indicator measuring devices which have pointers rotatable about transverse axes, which has an adjusting member adapted to adjust the pointers according to a known measurement value, comprising an optical objective, locating means for locating the indicator measuring device with its pointer aligned with the objective, drive means operatively connected with the adjusting member for rotating the objective about the transverse axis of the pointer corresponding to the known measurement value applied by the adjusting member, optical deflection means carried for rotation with the objective for guiding light rays from the pointer and objective into said axis, further optical deflection means for cancelling movement of said light rays corresponding to the rotation of the objective, and reading means for visibly presenting from said light rays an image of the pointer.

3,306,096
METHOD FOR AUTOMATIC SIGNALLING AND MONITORING OF SUPERVISED AND EVALUATED CHEMICAL ANALYSES

Karel Hána, Brno, and Karel Pietsch and Roman Cermak, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie ved, Prague, Czechoslovakia, a corporation of Czechoslovakia
Filed Oct. 11, 1965, Ser. No. 494,780
3 Claims. (Cl. 73—23.1)



1. Method of regulating a chemical production process by automatic periodical withdrawal of operational samples, and by measuring two physical values of the result of the automatically accomplished analysis of the samples, which results in a curve having the character of a chromatogram or spectrogram, said method comprising the steps of

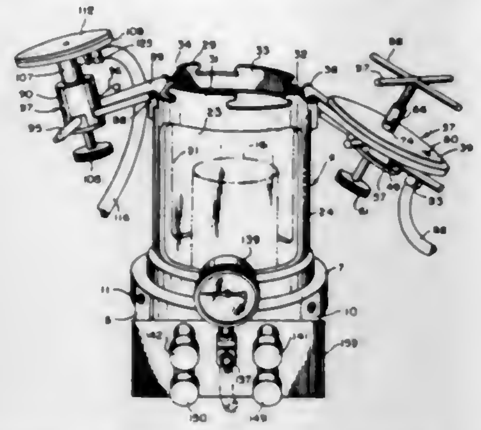
(a) automatically withdrawing a standard sample in a preadjusted time and recording both the time interval between the start of the analysis and the moment a peaks appears in said curve as well as the value of such peak for predetermined fractions,
(b) automatically withdrawing an operational sample, analyzing the same in the same manner as the standard sample, and comparing the timely occurrence and the value of the peak in the measuring curve of the selected component with the previously recorded equivalent values of the standard sample,
(c) and using deviations in periodically repeated analyses of the operational samples of the values of the peaks to cause transmission of regulation commands, and further using deviations in the time of occurrence of the peaks to cause extinction of all recorded data in the timely occurrences and of the values of the peaks of selected components, automatically withdrawing the standard sample, and recording of the new values of the analysis of a standard sample in the respective storage members.

3,306,097
APPARATUS FOR TESTING CANS

Leniford A. Wimmer, Chicago, Ill., assignor to Sherwin-Williams, a corporation of Ohio
Filed May 24, 1965, Ser. No. 458,034
14 Claims. (Cl. 73—49.2)

1. A testing device for containers comprising:
(a) a base for supporting a container;
(b) a fluid tight receptacle surrounding the container and mounted to the base, the end of the receptacle farthest from the base being open;
(c) means disposed on the open end of the receptacle for sealing it;

(d) means disposed on the open end of the receptacle for sealing an open end of a container placed therein; and

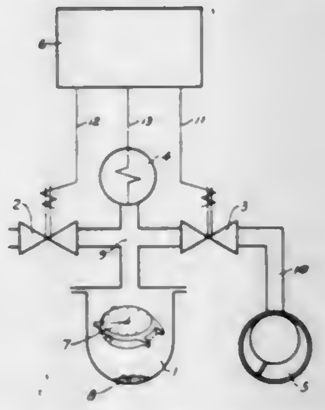


(e) means coacting with the receptacle for applying differential fluid pressure between the interior of a container therein, and this interior of the receptacle.

3,306,098
PROCESS FOR MASS TESTING OF SMALL, CLOSED, GAS FILLED CONTAINERS

Thaddäus Kraus, Vaduz, Principality of Liechtenstein, assignor, by mesne assignments, to Bendix Balzers Vacuum, Inc., Rochester, N.Y., a corporation of Delaware

Filed June 4, 1964, Ser. No. 372,499
1 Claim. (Cl. 73—49.3)



A process for testing a closed gas-filled container for leak tightness comprising the steps of:

placing the container in a chamber, establishing a predetermined starting pressure in said chamber;

pumping gas from said chamber for a predetermined first time duration;

waiting a predetermined second time duration after cessation of first time duration; and

determining if the absolute pressure in said chamber exceeds a predetermined value at the end of said second time duration.

3,306,099
OPTICAL ANGULAR POSITION TRANSDUCER

John P. Kearns, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Sept. 30, 1963, Ser. No. 312,810
5 Claims. (Cl. 73—67.2)

1. In combination with a flutter simulator, and a simulated airfoil, an optical angular position transducer for sensing angular displacement of the simulated airfoil and providing an output signal corresponding thereto, including

a support bracket,

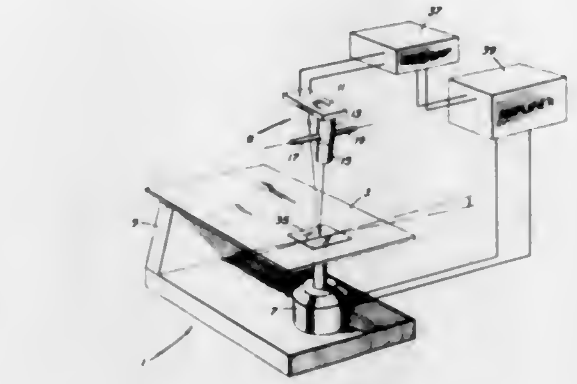
a lens barrel support pivotably secured to said support bracket so as to be able to rotate about an axis transverse to the longitudinal axis of said barrel support,

a lens barrel partially disposed within said lens barrel support and axially shiftable therein,

a light source partially disposed within the lens barrel support,

a lens disposed within said lens barrel and secured thereto so as to be axially shiftable therewith for focusing light from said light source,

a plate secured to the aft end of said lens barrel support,



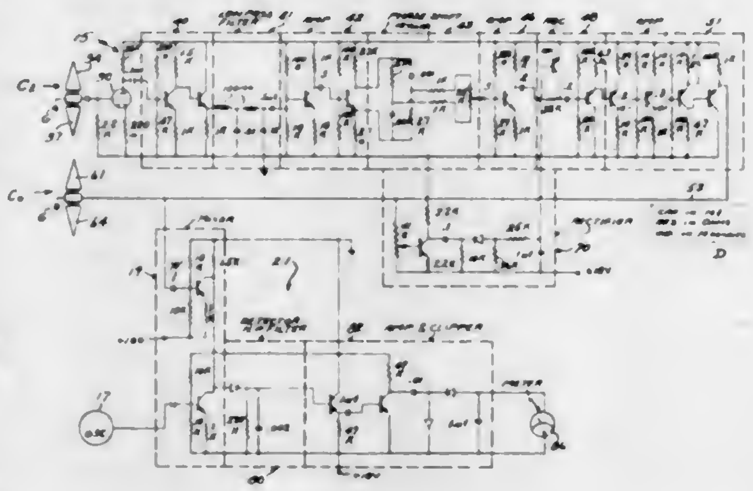
a pair of differentially wired photocells secured to the same surface of said plate as said lens barrel support and at the opposite end portion therefrom, said photocells being mounted contiguous with each other so that their line of separation is orthogonal to the plane defined by the longitudinal and pivotal axes of said lens barrel support, and

reflecting means secured to and adjacent the surface of the simulated airfoil whose angular displacement it is desired to measure, for reflecting light emanating from said light source and incident on said reflecting means, directly onto said photocells.

3,306,100
ULTRASONIC BOLT TENSION TESTER

John W. Wilhelm, Lyndhurst, and Waldo H. Kliever, Cleveland, Ohio, assignors to Skidmore-Wilhelm Manufacturing Co., South Euclid, Ohio, a corporation of Ohio

Filed Feb. 25, 1964, Ser. No. 347,170
4 Claims. (Cl. 73—67.2)

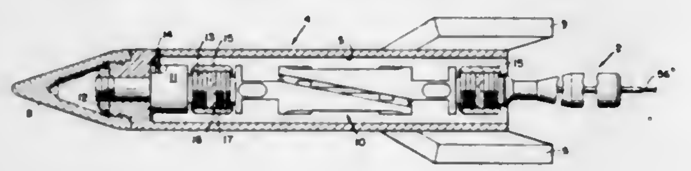


1. A test instrument for determining tension in a bolt or like element comprising, circuit means including mechanical-electrical transducer means operatively connected with one end of said bolt for causing resonant vibrations of the bolt and for generating a first electrical signal having frequency characteristics corresponding to said resonant vibrations and representative of the length of the bolt in a nonstressed condition, said circuit means being operable upon the elongation of said bolt to provide a second electrical signal having frequency characteristics corresponding to resonant vibrations of said bolt at its new length, means for providing an electrical reference signal which has identical frequency characteristics to the first electrical signal, said circuit means including filter means operable to cancel signal components from said first electrical signal which have frequency characteristics that are dissimilar to the frequency characteristics of said bolt, and means for mixing said second electrical signal and said reference signal whereby to provide a resultant signal corresponding to the elongation of said bolt.

3,306,101
COMPOSITE FORCE MEASURING ASSEMBLY

Oscar C. Holderer, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 2, 1964, Ser. No. 415,545
5 Claims. (Cl. 73—147)



1. A composite, force-measuring assembly comprising, in combination:

(a) a wind tunnel support sting;

(b) first connecting means on the forward end of said support sting;

(c) a wind tunnel model adapted to be supported from the forward end of said support sting, said model including an elongated body having a removable nose portion on the forward end thereof and having a hollowed portion opening to the opposite, rearward end thereof;

(d) second connecting means within the forward end of said hollowed portion of the model;

(e) a separable, force-measuring device adapted to be disposed within said hollowed portion of the model body;

(f) third connecting means provided on one end of said force-measuring device;

(g) fourth connecting means provided on the opposite end of said force-measuring device;

(h) said first and second connecting means being adapted for interconnection with either of said third and fourth connecting means so as to allow interchangeability of different, force-measuring devices and models with respect to said support sting;

(i) said separable, force-measuring device being defined by a drag balance for measuring drag forces developed on the external surface of said model, said balance comprising,

(1) an elongated body member having a longitudinal, axially extending slot formed in the midportion thereof,

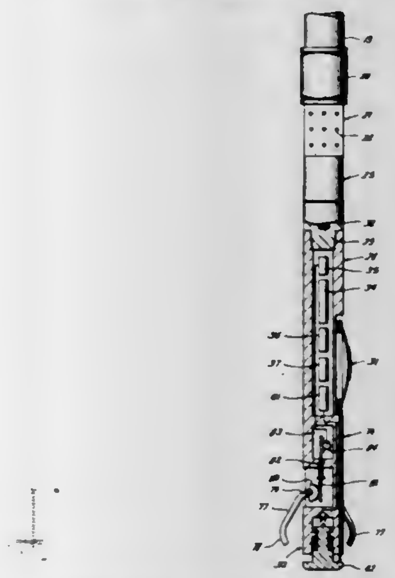
(2) an H-shaped drag link disposed in said slot, said link including a pair of spaced-apart, parallel, upright legs and a horizontally disposed, center beam connected at its opposite ends to the respective midportion of said upright legs, said beam being readily influenced by bending force imposed thereon, the opposite ends of each of the upright legs being rigidly secured to the elongated body member at the opposite ends of said slot, and

(3) strain gages secured on opposite sides of said center beam and in close proximity to said upright legs whereby a force applied in the approximate direction axially of the center beam, subjecting said beam to bending stresses, may be measured.

3,306,102
FORMATION EVALUATION METHOD AND APPARATUS

Maurice P. Lebourg, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas

Filed Dec. 4, 1963, Ser. No. 327,947
34 Claims. (Cl. 73—155)



17. A method for completing wells comprising the steps of: passing into an open well bore on a drill string a first tool including a first radioactivity logging device and a tester with a packer means and a selectively-operable valve; logging with said first radioactivity logging device the earth formations traversed by the well bore to obtain a first log; testing at least some of the earth formations logged with the logging device by isolating a section of the well bore with the packer means and flowing fluids into the drill string by operating the tester valve; and subsequently, after casing of the well bore, passing a second tool into the cased well bore including a perforating means and a second radioactivity logging device; logging with said second radioactivity device the earth formations traversed by the casing to obtain a second log; and then positioning said perforating means adjacent such earth formations to be completed as determined by correlation of said first and second logs to one another; and thereafter operating said perforating apparatus.

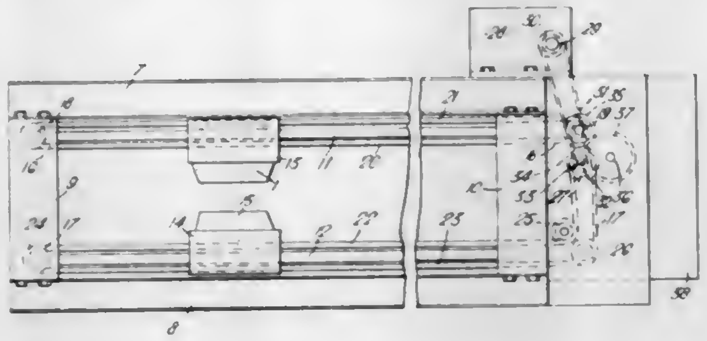
3,306,103
ERROR COMPENSATION FOR MEASURING GAUGES

Timothy J. A. Davis, Southend-on-Sea, Essex, England, assignor to E. K. Cole, Limited, Southend-on-Sea, England

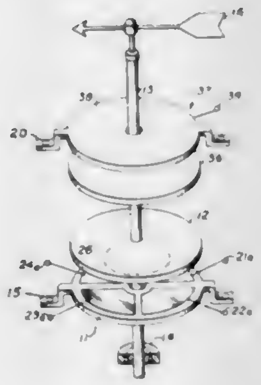
Filed July 7, 1964, Ser. No. 380,766
Claims priority, application Great Britain, July 11, 1963, 27,476/63
4 Claims. (Cl. 73—159)

1. Apparatus for measuring the characteristic of a material in sheet form, which apparatus comprises a transducer, traverse mechanism for effecting the traverse of said transducer across the material, an output circuit for the transducer, a variable impedance for controlling the signal level in the circuit, a device having preadjustable means, a mechanical coupling between the preadjustable means and said impedance to vary the value thereof, means for setting said preadjustable means in accordance

with mechanical imperfections in said traverse mechanism such as would affect the spatial relationship bteween the transducer and the material to introduce inaccuracies in the measurement, means for driving the device in synchronism with said mechanism to effect said variation and means for using said variation to correct or reduce in said output circuit the effect of said mechanical imperfections.



3,306,104
DIRECTION SENSOR
John W. Corcoran, Redwood City, Calif., assignor to Beckman & Whitley, Inc., San Carlos, Calif., a corporation of Delaware
Filed May 18, 1964, Ser. No. 368,147
2 Claims. (Cl. 73—188)



1. In a device for transducing angular shaft position to an electrical signal the combination comprising;

a first capacitor plate including four electrically separate conducting segments having the shape of quadrants of an annulus and disposed in a circular pattern;

means imposing an A.C. electrical signal on the conducting segments such that the phase of the signal progresses 90° per segment around the circular pattern;

a second capacitor plate disposed on the shaft in coaxial facing relation to said first plate and angularly movable relative thereto, said second plate having the geometric form described by

$$R^2=r_0^2+r_1^2 \sin \theta$$

where R is the radius of said second plate at angle θ, r_0 is the minimum radius of the conducting segments of said first plate, and r_1 is a constant determined by the maximum diameter of said second plate;

a third capacitor plate mounted on the shaft in spaced facing relation to said second capacitor plate and electrically connected thereto;

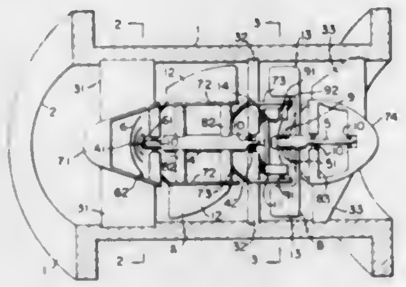
a fourth capacitor plate in spaced facing relation to said third capacitor plate and fixedly secured relative thereto; and

an output terminal electrically connected to said fourth capacitor plate.

3,306,105
TURBINE TYPE MASS-FLOW METER
Tatsuya Ichihara, Tokyo, and Ichiro Ido, Yokohama, Japan, assignors to Honeywell Inc., a corporation of Delaware
Filed Sept. 29, 1964, Ser. No. 400,110
Claims priority, application Japan, Oct. 7, 1963, 38/53,660
1 Claim. (Cl. 73—231)

A mass-flow meter comprising

a housing defining a path along which a fluid is adapted to flow,



a first, spiral blade turbine mounted in said path for rotation by fluid flowing therealong,

spring means biasing said first turbine for rotation in a direction opposite to that imparted by said flowing fluid,

a second, straight blade turbine mounted in said path downstream of said first turbine for free rotation by said flowing fluid,

a radiant ray source mounted for rotation along with said second turbine,

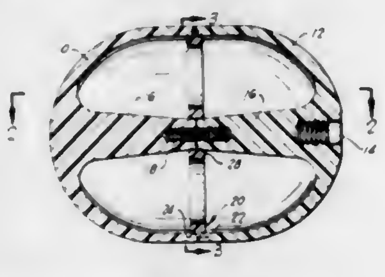
a first, point-type radiant ray detector positioned in stationary relationship with respect to said housing and detecting each rotation of said source and said second turbine to produce a first signal upon each rotation of said second turbine,

a second, annular radiant ray detector positioned in stationary relationship with respect to said housing,

an annular shield mounted for rotation with said first turbine and interposed between said source and said second detector,

a slit in said shield to cause said second detector to detect a radiant ray from said source, and to produce a second signal, upon registration between said slit and said source for each rotation of said second turbine, and means to measure the length of the time period between the production of said first and second signals as a measure of the mass flow rate of said fluid.

3,306,106
HIGH PRESSURE LIGHT WEIGHT FLOAT
Clarence O. Glasgow, 2627 S. Yorktown, Tulsa, Okla. 74114
Filed June 4, 1964, Ser. No. 372,454
5 Claims. (Cl. 73—322.5)



1. A float device comprising:

two mating plastic float halves of generally hemispherical shape;

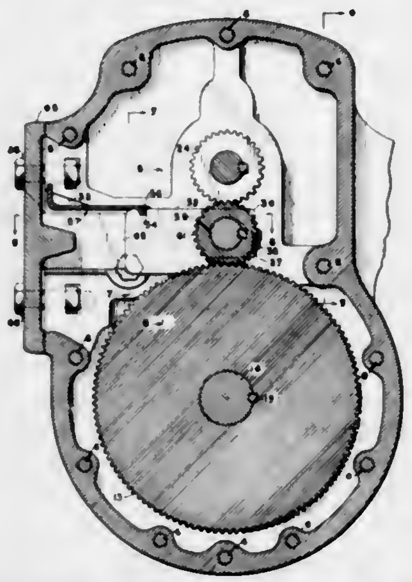
a columnar portion extending along the axis of each of said generally hemispherically shaped float halves and secured at one of its ends to the respective float half, said columnar portions each being substantially

conterminous with the respective float half to which it is secured;

a threaded stud threaded into the adjacent ends of said columnar portions for securing said columnar portions in end-to-end abutting contact to join said float halves and form a generally spherically shaped float; and

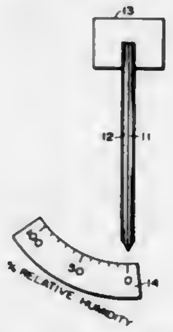
means reinforcing said spherically shaped float against collapse by external superatmospheric pressure.

3,306,107
TRANSMISSIONS
Elmer C. Freber, St. Louis, Mo., assignor to Marquette Tool and Die Company, St. Louis Mo., a corporation of Missouri
Filed Apr. 22, 1964, Ser. No. 361,705
12 Claims. (Cl. 74—325)



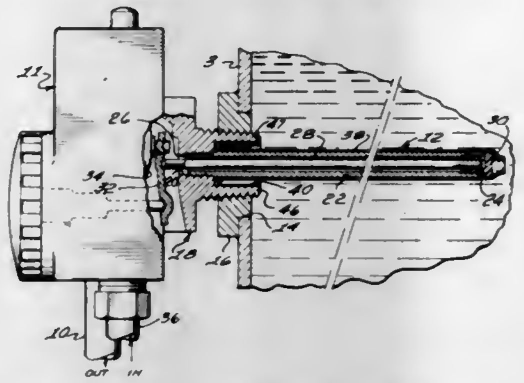
1. A transmission comprising an outer housing, a first shaft rotatably mounted within the housing, a first gear rotatably mounted within the housing for rotation with said first shaft, a second shaft rotatably mounted within the housing, a second gear rotatably mounted within the housing for rotation with said second shaft, said housing having an aperture and slide-ways extending inwardly from the aperture, support elements slidably disposed on the slide-ways, connecting gear means rotatably carried by the support elements and interposed between said first and second gear means for transmitting power therebetween, and means for removably securing the slide elements in a preselected fixed position on the slide-ways.

3,306,108
HUMIDITY SENSING ELEMENT
Roy V. Harrington, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Jan. 11, 1965, Ser. No. 424,497
5 Claims. (Cl. 73—337)



4. A humidity measuring instrument containing, as the active humidity-sensing element, a bi-laminar glass structure wherein one lamina is of porous glass and the other of non-porous glass.

3,306,109
INSULATOR INSERT FOR THERMAL SENSING DEVICE
Michael J. Caparone, Arcadia, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed July 11, 1963, Ser. No. 294,350
6 Claims. (Cl. 73—362.3)



1. In combination, a thermostat and a mounting assembly for a water heater having a mounting aperture,

said mounting assembly comprising a metallic shank adapted to be rigidly fastened to the water heater,

a center bore opening into a cylindrical cavity at one end of said shank,

said thermostat being formed of metal dissimilar to said metallic shank and comprising a rod disposed within a hollow tube and spaced from the inner wall thereof,

said hollow tube having a closed end adapted to project into the water heater and an open end secured within said center bore,

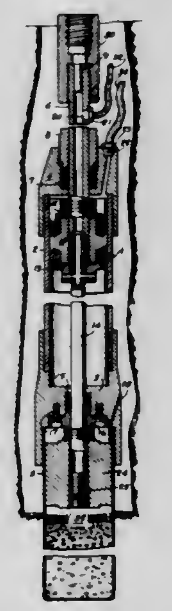
an insulating sleeve covering said tube between said cavity and said closed end of the tube,

the improvement comprising an insert having a tubular body with lip means at one end and flange means at the opposite end,

said lip means abutting the shank surface adjacent to said cavity to position said body within said cavity, and

said flange means being engaged by said insulating sleeve to retain said insert within said cavity.

3,306,110
HYDRAULIC PISTON SOIL SAMPLER
Wilbert E. Woods, Harvey, Ill., assignor to the United States of America as represented by the Secretary of the Army
Filed Mar. 20, 1964, Ser. No. 353,638
5 Claims. (Cl. 73—421)



5. A soil sampler comprising:

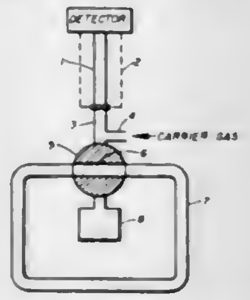
(a) a hydraulic piston and cylinder actuator, the piston of which is maintained in a relatively fixed position, and the cylinder of which is movable with respect to the piston, said cylinder including an inlet for supplying hydraulic fluid to the upper portion thereof;

(b) a hydraulic piston within said cylinder, said piston having means for passing hydraulic fluid through said piston thereby creating pressure in the lower portion of said cylinder; and

(c) sampling means attached to said cylinder and actuated by the hydraulic fluid pressure against lower portion of said cylinder thereby forcing said sampling means in a downward direction to place said sampling means in sample receiving condition, said sampling means actuated by supplying hydraulic fluid through said inlet in said cylinder to the top surface of said piston thereby forcing said sampling means in sample ejecting condition.

3,306,111
CHROMATOGRAPH SAMPLE SYSTEM

Charles R. Ferrin, Tulsa Okla., assignor, by mesne assignments, to Combustion Engineering, Inc., a corporation of Delaware
Filed Dec. 7, 1964, Ser. No. 416,230
7 Claims. (Cl. 73—422)

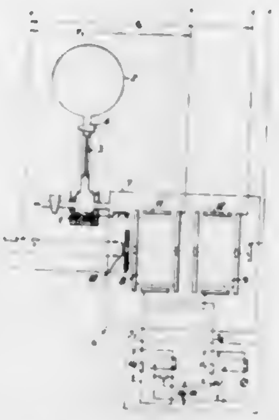


7. An entrance system for a chromatograph, including,
a chromatographic column,
a valve element arranged to connect a passage in the element with the column,
means for placing a sample to be analyzed by the column within the valve element passage,
a source of carrier gas connected between the valve element passage and the column with an arrangement which causes the sample within the passage to be ejected along the axis of the stream of carrier gas flowing into the column,
a source of fluid pressure higher than the pressure of the source of carrier gas,
and means for placing the valve passage into simultaneous communication between the source of high pressure and the column,
whereby the sample is injected into the carrier gas and enters the column as a body with sharply defined boundaries.

3,306,112
METHOD FOR DETERMINING THE SPECIFIC SURFACE OF NON-UNIFORMLY SHAPED SUBSTANCE BY MEASURING THE ADSORPTION OF NOBLE GASES OR INERT GASES AT THE SPECIMEN TO BE INVESTIGATED

Ludolf H. F. Jenckel, Muhlenthal, Germany, assignor to Atlas Mess- und Analysentechnik G.m.b.H., Bremen, Germany, a corporation of Germany
Filed Nov. 24, 1964, Ser. No. 413,430
Claims priority, application Germany, Dec. 3, 1963, A 44,697
4 Claims. (Cl. 73—432)

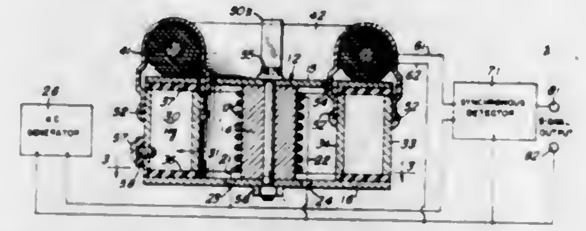
1. A method for determining the specific surface of a non-uniformly shaped substance such as charcoal, by measuring the adsorption of noble gases or inert gases at a specimen to be investigated,
said method comprising feeding a known gas mixture from a gas supply container through an inlet in the form of a flow throttle into a single measuring vessel containing the specimen, said mixture comprising a measuring gas component which is adsorbed by the specimen and a comparison gas component which is substantially not adsorbed by the specimen,
and measuring the partial pressures of the two gas components in the measuring vessel for deriving the adsorption isotherms which determine the BET line,



said partial pressures being measured in a double ion source by subjecting the gas mixture to ionization in a first ionization chamber with one electron energy, which is sufficient for ionization of the measuring gas but is not sufficient for ionization of the comparison gas, and subjecting the gas mixture to ionization in a second ionization chamber with an electron energy which is sufficient for ionization both of the measuring gas and of the comparison gas.

3,306,113
TRANSDUCER PROVIDING ALTERNATING-CURRENT OUTPUT IN RESPONSE TO ROTATION OF TRANSDUCER BODY RELATIVE TO INERTIAL CONDUCTIVE FLUID CONTAINED THEREIN

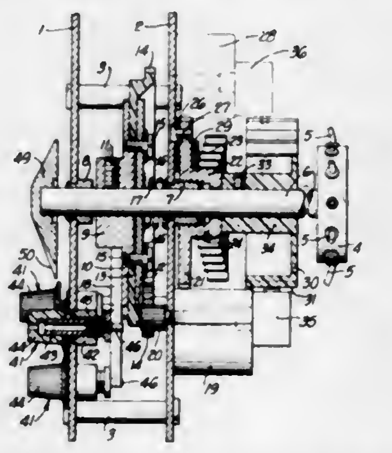
Thomas E. Tuccinardi, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 3, 1963, Ser. No. 313,713
6 Claims. (Cl. 73—505)



1. A rotation sensor comprising:
(a) a cylindrical iron core;
(b) a coil surrounding said core;
(c) means for applying alternating current to said coil;
(d) first and second circular end plates fastened to the ends of said core, the diameters of said end plates being substantially larger than the diameter of said core, said end plates being mutually parallel to each other and mutually perpendicular to the axis of said core;
(e) an annular liquid-tight channel positioned between said end plates and coaxial with said core;
(f) an electrically conductive fluid substantially filling said channel; and
(g) first and second electrodes for sensing the development of an alternating radial potential gradient in said fluid, said electrodes being mounted in contact with said fluid and radially spaced from each other;
(h) whereby application of rotational acceleration to said sensor about the axis of said core results in motion of said end plates relative to said fluid, the magnetic lines of force extending between said end plates cutting the conductor represented by said fluid and giving rise to a radial alternating electrical potential gradient in said fluid so that the alternating potential appearing at said electrodes is indicative of the application of rotational acceleration to said sensor.

3,306,114
SEQUENTIAL TIMING DEVICE

Edwin James Hunter, Riverside, Calif., assignor to Moist O'Matic Inc., Riverside, Calif., a corporation of Minnesota
Filed Dec. 4, 1964, Ser. No. 416,050
13 Claims. (Cl. 74—3.52)

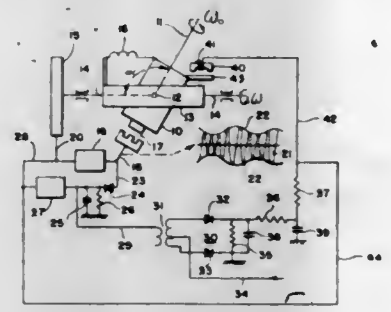


1. A device for sequentially timing a multiple position control unit having a shaft member adapted to set said unit to any one of a plurality of positions and adapted to maintain said shaft member therein for pre-selected lengths of time comprising:
(A) means including an indexing motor for rotating said shaft member,
(B) abutting means secured to said shaft member and carried thereby, said abutting means including an axially extending face portion,
(C) a plurality of stationary means each including an axially extending face portion positioned in the path of circular travel of said abutting means for entirely stopping the rotation of said shaft member by engagement of said face portion of said abutting means with said face portion of said stationary means, said stationary means being axially adjustable to project into said path in a variable extent for determining said pre-selected lengths of time,
(D) timing means including a timing motor for displacing said shaft member solely in an axial direction after said interruption has occurred to slide said abutting means out of engagement with said stationary means in a direction normal to said path of circular travel, and
(E) means for returning said shaft member to its axial position assumed prior to its displacement, said last-named means operable after the disengagement of said abutting means with said stationary means and after the resumption of the rotation of said shaft member.

3,306,115
STABILIZING SYSTEM FOR A GYROSCOPE

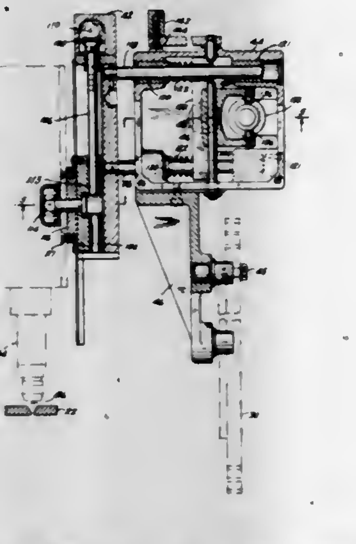
Carl-Erik Granqvist, Lidingo, Sweden, assignor to Aga Aktiebolag, a corporation of Sweden
Filed Nov. 5, 1962, Ser. No. 235,563
Claims priority, application Sweden, Dec. 28, 1961, 13,040/61
5 Claims. (Cl. 74—5)

1. In a system for stabilizing a gyroscope particularly used in inertial navigation and having two gimbals suspending a gyroscope rotor therein, the combination of a spring interconnecting the two gimbals to produce a torque therebetween thereby counteracting precession movement of one of the gimbals, sensing means for indicating relative displacement between the gimbals and for generating a signal indicative of said displacement, a torque motor responsive to said signal and connected to apply a corrective torque to the other gimbal whereby a precession movement is produced on said one gimbal, circuit means for separating the signal due to nutation from the signal representing precession, means for comparing electrically the frequency of the signal due to nutation and a reference frequency and for producing a difference signal, and an electrical spring responsive to said difference signal and connected to apply a torque to said one gimbal in a direction to compensate for variation in the relation between the spring factor of said spring and the moment of inertia of the gyroscope rotor which produces said nutation.



3,306,116
WELDING TORCH OSCILLATOR UNIT

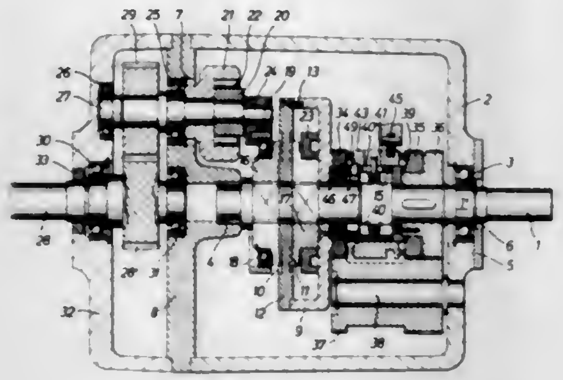
John W. Ross, Toronto, Ontario, Canada, Alfred W. Marner, Jr., Linden, N.J., and Barry C. Millar, Toronto, Ontario, Canada, assignors to Union Carbide Canada Limited, Toronto, Ontario, Canada, a corporation of Canada
Original application Apr. 8, 1961, Ser. No. 103,771, now Patent No. 3,179,781, dated Apr. 20, 1965. Divided and this application Mar. 17, 1965, Ser. No. 440,645
5 Claims. (Cl. 74—55)



1. Welding torch oscillator unit comprising a casing having slide bearings in opposite walls thereof, a torch supporting frame outside of said casing, a thrust rod rigidly connected to said frame and slidably mounted in said bearings, a motor secured to said casing, a cam drive shaft journaled in said casing and driven by said motor, and mechanism inside said casing and actuated by rotation of said shaft for reciprocating said thrust rod in said slide bearings, said mechanism including a cam on said shaft and driven thereby, said cam having a shape such that the entire longitudinal axis of said torch oscillates across a welding path but dwells at a selected angle of cam revolution at either side thereof.

3,306,117
CONTROL MECHANISM FOR INFINITELY VARIABLE GEARING

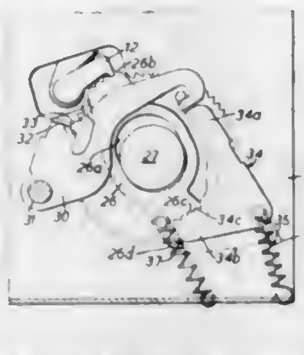
Franz Riedl, Boos, near Memmingen, Germany
Filed Feb. 3, 1965, Ser. No. 430,019
Claims priority, application Germany, Feb. 7, 1964, R 37,157
3 Claims. (Cl. 74—117)



1. In an infinitely variable gearing having a housing, a drive shaft and a driven shaft rotatably mounted in said housing, means operatively connecting said drive shaft and said driven shaft including clutch means having oscillatable members for driving said driven shaft at different speeds, a disk mounted on said drive shaft so as to be rotatable relative thereto and having plane self-locking worm threads on both sides thereof, a circular plate on each side of said disk and in threaded engagement with said worm threads and mounted on said drive shaft so as to be rotatable with but slidable in a vertical direction relative to said drive shaft and in opposite directions to each other, the first of said plates adapted to be moved in response to rotation of said disk from a neutral position in which said first plate is disposed substantially coaxial with said drive shaft and free of torque transmitting connection with said oscillatable members to different positions eccentric to said drive shaft, means operative in response to the assumption by said first plate of said different positions to establish a torque-transmitting connection between said first plate and said oscillatable members, the speed of said driven shaft being adapted to be increased in accordance with the increase in eccentricity of said first plate relative to said drive shaft in response to rotation of said disk, the second plate serving as a counterweight to counter-balance the eccentricity of said first plate, and means for varying the speed of said disk relative to the speed of said shaft having equal pitch diameters but different numbers of teeth, a pinion rotatably mounted on said housing and in mesh with said three gear wheels, two of said gear wheels being rotatable relative to said drive shaft and the third gear wheel being secured to said drive shaft, a bushing on and rotatable relative to said drive shaft and secured to said disk, a coupling sleeve axially slidable on said bushing intermediate said first two gear wheels but nonrotatable relative to said bushing and having radial clutch teeth on both end surfaces thereof, said first two gear wheels each having radial clutch teeth on one side facing said clutch teeth on one end surface of said coupling sleeve, said coupling sleeve when shifted toward one slide or the other being adapted alternately to interengage with said clutch teeth on one of said first two gear wheels or the other, means for shifting said coupling sleeve, grip rollers interposed between and normally connecting said bushing to said drive shaft and means for automatically releasing said grip rollers so as to permit said bushing to rotate relative to said drive shaft when said coupling sleeve is shifted toward one of said first two gears.

3,306,118
PROCESS TIMERS

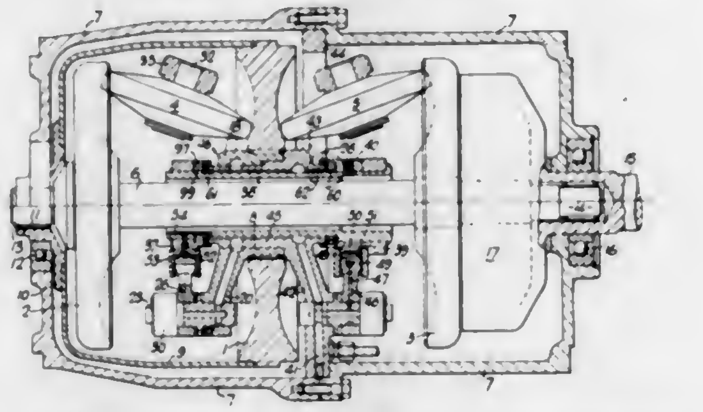
Roger John Cartier, Vimercate, Milan, Italy, assignor to Controls Company of America, Melrose Park, Ill., a corporation of Delaware
Filed Aug. 26, 1964, Ser. No. 392,196
Claims priority, application Great Britain, Sept. 7, 1963, 35,418/63
10 Claims. (Cl. 74—150)



1. In a timing mechanism having control cams mounted for step-by-step advancement by means of a reciprocating pawl engaging a ratchet wheel rotatable with the cams, the improvement which comprises
a masking device,
trip means actuated by one of the control cams for selectively moving said masking device into a position in which it holds the pawl from engagement with the wheel, and
means on the masking device engaged by the pawl to permit the pawl to move the masking device out of its masking position.

3,306,119
CONTINUOUSLY VARIABLE RATIO TRANSMISSION UNITS

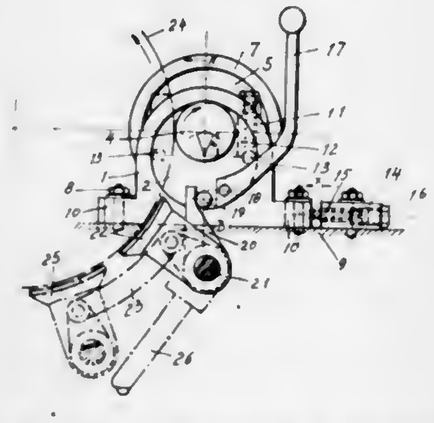
Forbes George de Brie Perry, East Grinstead, Michael Alexander Plint, Wargrave, Thomas George Fellows, London, and John Noel Armstrong, Caterham, England, assignors to National Research Development Corporation, London, England, a British corporation
Filed Dec. 14, 1964, Ser. No. 418,209
Claims priority, application Great Britain, Jan. 1, 1964, 7/64
18 Claims. (Cl. 74—200)



1. A variable ratio transmission unit having a plurality of tiltable rollers in rolling engagement with and drivably interconnecting facing toroidal surfaces of coaxial input and output discs respectively, the rollers being mounted with freedom of motion of a first character causing the diameters of the discs with which the rollers make driving contact to be varied so as to vary transmission ratio of the transmission unit and with freedom of motion also, of a second character whereby rollers are induced to undergo motions of the first character, mounting means for the rollers comprising means for controlling in unison motions of the rollers of the second character to initiate a ratio change on the part of the transmission unit but permitting differential relative motion of the second character as between one roller and another for load equalisation between the rollers charasterised by fluid-filled dash pot damping means for damping selectively only the said differential relative motions while leaving free from damping such unison motions on the part of the rollers which are simultaneously the same in sense and degree.

3,306,120
DRIVING UNIT FOR A FRICTION GEAR AND BELT DRIVE

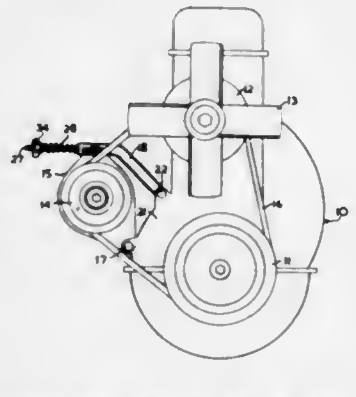
Walter Kratzsch, Sr., Wassertorstrasse 36, Isny, Wurttemberg, Germany
Filed Apr. 3, 1964, Ser. No. 357,058
Claims priority, application Germany, Apr. 18, 1963, K 49,504
16 Claims. (Cl. 74—207)



1. A driving unit for producing a proportional application pressure, comprising a base, a housing for the unit, means for slidably displacing said housing on said base a cylindrical body rotatably mounted in said housing, flange means for securing said cylindrical body to an electric motor, driving component means including a shaft mounted for rotation lengthwise of said body, said shaft being offset from said body's axis, a driving member mounted on one end of said shaft, an adjusting lever means mounted on said cylindrical body for rotating said cylindrical body in a plane perpendicular to said shaft's axis.

3,306,121
FAN BELT ADJUSTER

William Joseph Jenkins, 962 Pacific Highway, Roseville, New South Wales, Australia
Filed Oct. 20, 1964, Ser. No. 405,047
4 Claims. (Cl. 74—242.15)



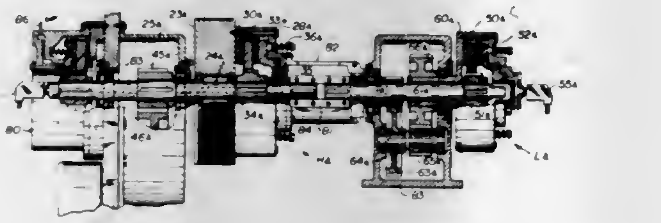
1. A belt tensioning device for a belt passing over a sheave mounted on a first support and over a pulley mounted on a second support turnable about a pivot axis parallel to the axes of said sheave and pulley, comprising, in combination, an elongated bracket; means for securing said bracket at one end to such first support; first abutment means at the other end of said bracket; a rod-shaped adjusting member secured at one end both to the turnable second support at a point spaced from the pivot axis thereof and also to said elongated bracket so as to be movable in longitudinal direction of the latter; adjustable second abutment means mounted at the other end of said rod-shaped adjusting member adjustable in longitudinal direction thereof; and compression-spring means mounted on said rod-shaped adjusting member surrounding the same and abutting with one end against said first abutment means on said elongated bracket and with the other end against the second abutment means on said rod-shaped adjusting member so as to permanently tend to move said rod-shaped adjusting member together with the second support in a direction away from said one end of said elongated bracket.

ERRATUM

For Class 74—325 see:
Patent No. 3,306,107

3,306,122
PRESS

Roy F. Dehn, Wickliffe, Ohio, assignor to The Cleveland Crane & Engineering Company, Wickliffe, Ohio, a corporation of Ohio
Filed Apr. 28, 1964, Ser. No. 363,163
6 Claims. (Cl. 74—364)



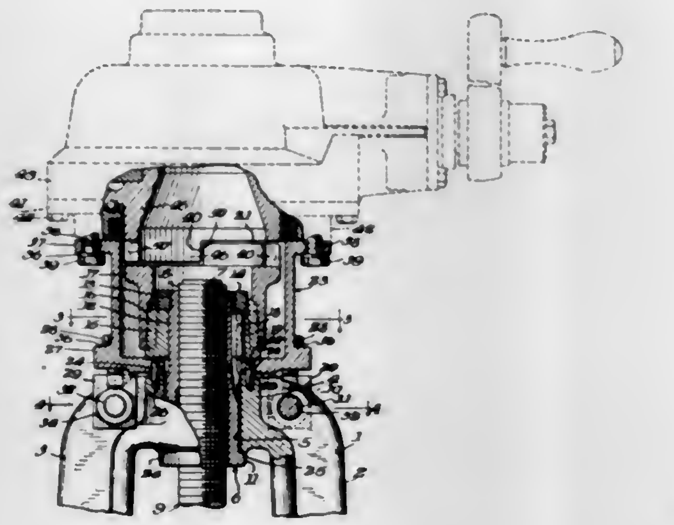
1. In a power-operated apparatus having a motor-driven flywheel and a crankshaft, a high speed clutch mounted coaxial with said flywheel at one side thereof and having driving and driven structures operatively connected to the flywheel and to the crankshaft, respectively, speed reduction means operatively connected to the flywheel, a low speed clutch mounted coaxial with said flywheel at the other side thereof and having driving and driven structures operatively connected to said reducing gearing and to said crankshaft, respectively, and means for substantially simultaneously disengaging said high speed clutch and engaging said low speed clutch.

3,306,123
YOKE ADAPTOR FOR GEAR OR MOTOR OPERATOR

Carl L. Norbut and Robert A. Kautz, Chicago, Ill., assignors to Crane Co., Chicago, Ill., a corporation of Illinois
Filed June 18, 1965, Ser. No. 465,028
10 Claims. (Cl. 74—424.8)

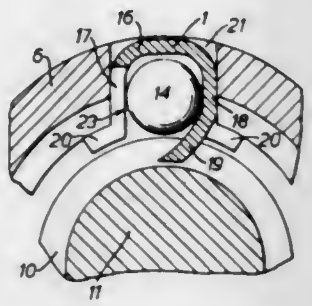
1. Adaptor connection means to a gear operator for a valve having an integral yoke and a non-rotatable rising stem comprising a rotatable yoke sleeve cooperating with the said stem, a yoke sleeve adaptor member mounted over the stem on the said yoke sleeve and revolvable about the stem central axis, the said valve yoke comprising a pair of ribbed depending yoke arms joined by a hollow yoke hub portion at the upper end thereof to enclose at least an outer peripheral portion of said yoke sleeve member, a driven adaptor received in nonrotatable relation on said yoke sleeve adaptor, a drive sleeve rotatably mounted above said yoke member having a lower cltuch portion engageable by a clutch portion on said yoke sleeve adaptor member, means for rotating said drive sleeve comprising a driven gear mounted on the said drive sleeve and rotatable therewith, a yoke

adaptor for support of the gear operator thereon, the said yoke adaptor being mounted on the hub portion of said valve yoke member and enclosing said yoke sleeve adaptor member and said driven adaptor, said yoke adaptor having removable coupling means comprising a plurality of depending bolt studs with eyelet members at end portions thereof for effecting attachment of said yoke adaptor to the said valve yoke substantially at the juncture of the hub portion with said ribbed yoke arms, said coupling means including a pair of transversely extending bolt studs engaging said eyelet members and projecting through the ribs of said yoke arms whereby to effect attachment of the said yoke adaptor to the said valve yoke.



3,306,124
SCREW AND NUT DEVICES

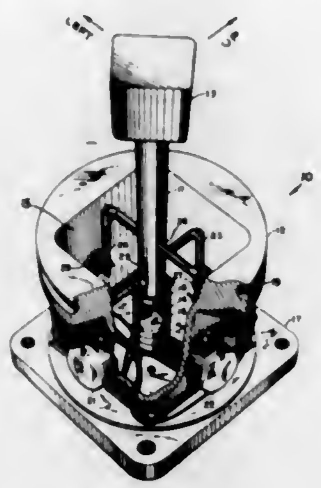
Frederick J. Adams, Houghton Regis, near Dunstable, England, assignor to Cam Gears Limited
Filed Feb. 6, 1964, Ser. No. 342,962
Claims priority, application Great Britain, Feb. 18, 1963, 6,517/63
2 Claims. (Cl. 74—459)



1. A screw and nut device comprising a screw member and a nut member in rotatable relation to each other about a longitudinal axis; said members being substantially concentrically spaced from each other and defining therebetween a helical track; spherical balls positioned between said track; and means for transferring said balls from one position along said track to another position along said track in a path parallel to said longitudinal axis; wherein said means includes a path; said path being defined by an insert member having scooped ball guide means for providing terminations from said helical track at each of said positions and for guiding said balls into said path; wherein said member extends through a wall of said nut and is held against radial movement by means of internal flanges which extend in a circumferential direction inside a bore in said nut.

3,306,125
CONTROL SELECTOR

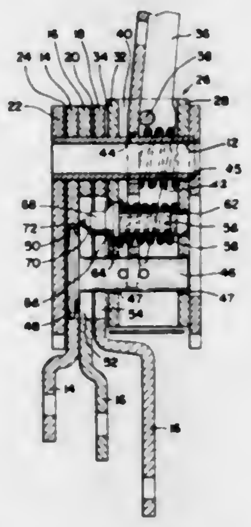
William O. Purcell, Orlando, and George Lamar Harmon, Winter Park, Fla., assignors to Martin-Marietta Corporation, Middle River, Md., a corporation of Maryland
Filed May 2, 1963, Ser. No. 277,621
8 Claims. (Cl. 74—471)



1. A control selector utilizing a control stick in which no fixed fulcrum is employed for its mounting, said control stick being adapted to be grasped by an operator and manipulated to various positions away from a zero deflection position, means for supporting said stick, including resilient means to which said stick is firmly attached, said resilient means forming the support for said stick and tending to hold said stick in said zero deflection position, a pair of position transducers, means forming an operative connection between said transducers and said stick so that said transducers will be deflected by such movements of said stick, one of said position transducers being mounted so as to primarily sense stick movements in a first direction, and the other transducer being mounted so as to primarily sense stick movements orthogonal to said first direction, said resilient means positively centering said stick so that said position transducers will be in the electrically neutral position at all times when the operator is not manipulating said stick.

3,306,126
GEAR SHIFT MECHANISM

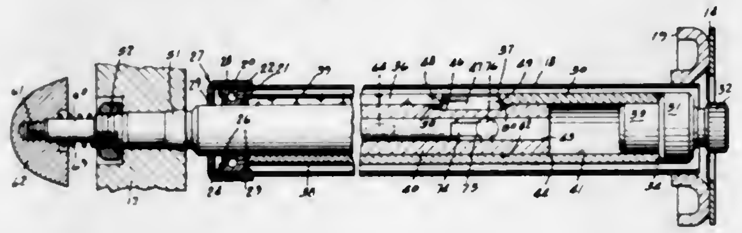
James Francis Hobbins, Philadelphia, Pa., assignor to Hurst-Campbell, Inc., Glenside, Pa., a corporation of Pennsylvania
Filed May 11, 1965, Ser. No. 456,042
4 Claims. (Cl. 74—473)



1. In combination, a frame have spaced axially aligned first and second openings,
a member having a first end portion movably engaging said first opening and having a second end portion, said second end portion comprising:
a large portion located inwardly of the extreme end of the member and snugly engaging said second opening, a small portion outwardly of said large position and a spring co-axial with and normally biasing said member in a direction to keep said large portion in said opening to maintain said member in a first position in which it is substantially co-axial with said openings,
said spring being compressible to permit movement of said large portion inwardly out of said second opening and the movement of said small portion inwardly into said second opening whereby said member may be moved into a second position in which its axis is at an angle to the axis of said openings.

3,306,127
EXTENDIBLE STEERING CONTROL

Francis C. Rieger, Bronson, Mich., assignor to Kingston Products Corporation, Kokomo, Ind., a corporation of Indiana
Filed Jan. 4, 1965, Ser. No. 423,278
7 Claims. (Cl. 74—493)

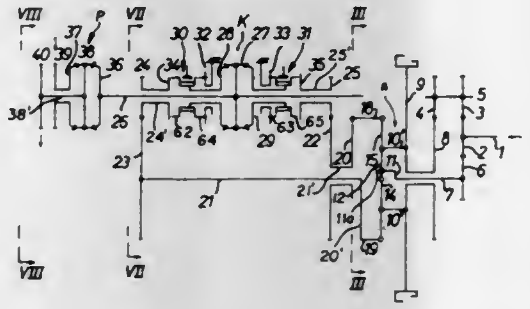


7. An extendible steering control comprising
a first shaft member for connection to a steering linkage of a dirigible vehicle
and having a hollow bore formed therein
and an elongated slot extending longitudinally in the wall thereof,
a second shaft member telescopically received in said hollow bore of said first shaft member
and having a driving key projecting radially therefrom for rotatably drivingly engaging said first shaft member in axially adjustable positions in said slot,
an actuator rod received in said second shaft member,
pin and recess means between said first and second shaft members and actuated by said actuator rod to afford selective variation in the length of the steering column
and means for operating said actuator rod,
thereby to selectively vary the length of the steering control.

3,306,128
COMPOUND GEAR TRAIN UNIT WITH SLIP-FREE AND THRUST-FREE COUPLING MEANS

Konrad Zuse, Im Haselgrund 21, Hunfeld, Rhon, Germany
Filed Mar. 8, 1963, Ser. No. 263,864
Claims priority, application Germany, Mar. 13, 1962, Z 9,291
7 Claims. (Cl. 74—679)

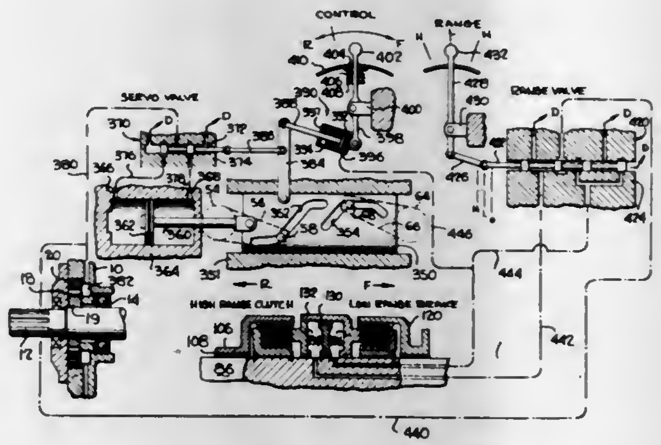
1. Slip-free and thrust-free coupling mechanism for a compound gear train comprising:
an input drive unit including:
input drive means (**1**, **2**) adapted to be rotated at a constant angular velocity,
crank shaft means (**6**, **7**, **11**, **11***a*) connected to said input drive means for receiving rotational forces therefrom,
coupling disc (**3**, **4**, **5**, **8**, **9**) means also being connected to said input drive means for receiving rotational forces therefrom,
lever means (**10**, **12**, **15**, **17**, **19**, **20′**; **10′**, **13**, **14**, **16**, **18**, **20**) pivotably mounted upon said coupling disc means at predetermined angular intervals,
said crank shaft means connected to said lever means to impart rotational movement to said lever means,
output drive means including output gears (**22**, **23**) connected to said lever means to receive rotational movements therefrom in phase offset relationship related to said predetermined angular intervals,
coupling units (K) for translating the phase offset movement of the output gears of the drive input unit into a uniform resultant movement, each coupling unit including:
a driven output shaft (**26**),



input gear means (**24**, **24′**; **25**, **25′**) freely mounted upon said driven shaft and connected to said output gears,
integrator means drivingly connected to said output shaft to actuate the same, said integrator means superimposing the phase offset movements of said input gear means into a uniform movement of said output shaft,
clutching means (**30**, **60**, **62**, **64**; **31**, **61**, **63**, **65**) on said driven shaft movable to an operative position for connecting said input gear means to said integrator means,
detenting means (**32**, **33**) on said driven shaft for normally disabling said clutching means, and
shifting means (**60**, **66**, **68**, **70**, **79**, **80**, **82**, **85**, **86**; **61**, **69**, **71**, **73 78**, **81**, **85**, **86**) controlled by said coupling disc means for shifting said clutching means between its disabled position and its operative position.

3,306,129
EXTENDED RANGE HYDRAULIC TRANSMISSION

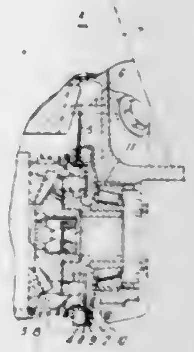
George M. De Lalio, Capel Drive, R.D. 6, Huntington, N.Y. 11743
Filed Apr. 12, 1965, Ser. No. 449,679
24 Claims. (Cl. 74—687)



1. An extended range hydraulic transmission comprising input means, hydraulic transmission means including a pair of separate hydraulic elements, means providing hydraulic

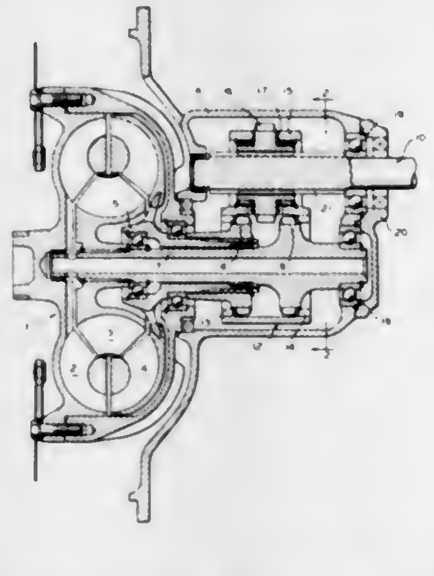
communication between said elements, one of said hydraulic elements being permanently drivingly connected with said input means, output planetary gearing including a plurality of members, the other of said hydraulic elements being permanently drivingly connected with one of the members of said output planetary gearing, output means, another member of said output planetary gearing being permanently drivingly connected with said output means, means providing a driving connection between said input means and a third member of said output planetary gearing, said last-mentioned driving connection including selectively engageable and disengageable means for connecting or disconnecting said third member from said input means, fixed means, selectively engageable means for connecting or disconnecting said third member with said fixed means for holding said third member against movement, said hydraulic elements each including drum means having a plurality of pistons reciprocably mounted therewithin, swash plate means for controlling the stroke of said pistons, and a control system operatively connected with each of said selectively engageable and disengageable means for operating said selectively engageable and disengageable means, said control system also being operatively connected with said swash plate means for controlling the movement thereof, said control system including compensating means which operates the swash plate means to adjust the drive ratio through said hydraulic elements in a direction opposite to the drive ratio change effected by said selectively engageable and disengageable means in such a manner as to maintain a constant over-all drive ratio.

3,306,130
DIFFERENTIAL GEAR WITH LOCKING MEANS
**Willi Ernst Salzmann, 111 Bielstrasse,
Solothurn, Switzerland
Filed Nov. 30, 1964, Ser. No. 414,916
Claims priority, application Switzerland, Dec. 2, 1963,
14,858/63
6 Claims. (Cl. 74—710.5)**



1. The combination comprising, in an axle housing, a differential gear and locking means for selectively locking said differential gear, said differential gear including a rotary gear case, two bevel gear wheels mounted for rotation in said gear case, a plurality of bevel pinions mounted for rotation in said gear case and each meshing with both of said bevel gear wheels, and two co-linear half-shafts extending from said gear case and secured one to each of said bevel gear wheels, said gear case having in one side a plurality of bores disposed parallel to and on a pitch circle concentric with one of said half-shafts, and one of said bevel gear wheels having a plurality of V-shaped openings provided in said bevel gear wheel, said locking means comprising an operating device, a coupling ring, a thrust ring, a plurality of axially-movable coupling pins disposed one in each of said bores and each having a V-shaped end and being secured to said coupling ring, said coupling ring being rotatable in said thrust ring, and means for selectively moving the V-shaped ends of said coupling pins in unison into said V-shaped openings provided in said bevel gear wheel for locking said differential gear, said means for moving said coupling pins comprising a pair of axial face cam rings arranged between said thrust ring and said axle case and concentric with one of said half-shafts, one of said axial face cam rings being torsionally secured to said axle housing and the other of said axial face cam rings being arranged for limited rotation by means of said operating device.

3,306,131
REVERSIBLE TORQUE CONVERTER
**Ernest E. Eaton, Sun City, Ariz., and Barry L. Frost, Jackson, Mich., assignors to Clark Equipment Company, a corporation of Michigan
Filed Dec. 28, 1964, Ser. No. 421,312
7 Claims. (Cl. 74—718)**



1. In a reversible torque converter, an impeller member, a first shaft and a second shaft, a turbine member and a stator member having driving connection to said first and said second shafts respectively, a first gear fixed on said first shaft, a second gear fixed on said second shaft, an output shaft, a third gear splined on said output shaft and adjustable therealong, and means for adjusting said third gear along said output shaft and into engagement with either of said first and second gears selectively and locking the other of said first and second gears against rotation.

3,306,132
DRIVE UNIT
**Marion H. Davis, Hagerstown, Ind., assignor to V-Plex Clutch Corp., Hagerstown, Ind., a corporation of Delaware
Filed June 1, 1964, Ser. No. 371,699
14 Claims. (Cl. 74—721)**

3. A drive unit comprising:

a power input shaft mounted for rotation in said base frame, said input shaft being supported to limit axial motion thereof in said base frame;

first and second drive members mounted on said input shaft, said drive members having drive transmitting surface thereon tapering toward a point on the input shaft axis, the point for each of said surfaces being outside of the space between said drive members;

a first support frame disposed at one side of said input shaft and a second support frame disposed at the opposite side of said input shaft, the first support frame supporting a first output shaft, and said second support frame supporting a second output shaft;

a first connecter means movably connecting said first support frame to said base frame;

a second connector means movably connecting said second support frame to said base frame;

a first axle supported for rotation in said base frame;

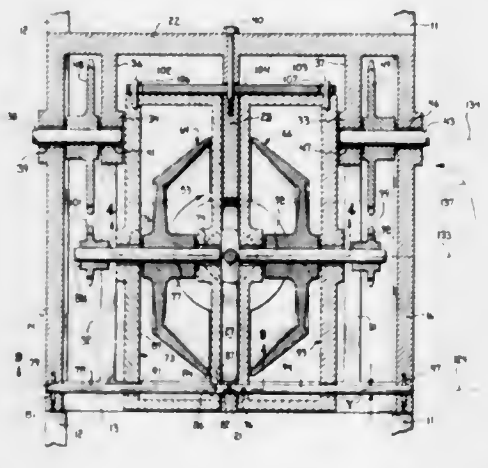
first positive drive transmitting means connecting said axle to said first output shaft;

a second axle mounted for rotation in said base frame;

second positive drive transmitting means connecting said second axle to said second output shaft;

a first driven member secured to said first output shaft and having an inner drive transmitting surface facing the drive transmitting surfaces of said drive members;

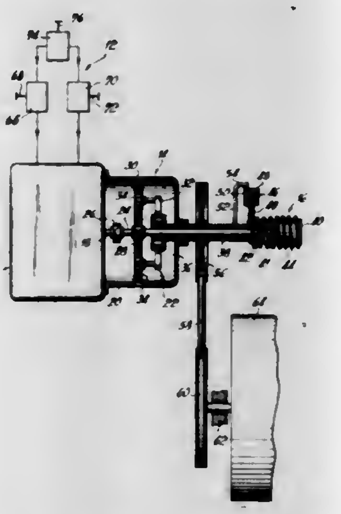
a second driven member secured to said second output and having an inner drive transmitting surface facing the drive transmitting surfaces of said first and second drive members, the inner surfaces of said first and second driven members tapering toward points outside of the space between said first and second driven members, the drive transmitting surfaces of said driven members being normally held in neutral positions closely spaced to the drive transmitting surfaces of said drive members to normally avoid power transmission from said drive members to said driven members;



a clutch control member movably mounted to said base frame, said clutch lever being connected to said support frames and operable when moved on said base frame to move said first and second support frames in opposite directions for engagement of the drive transmitting surface of one of said driven members with the drive transmitting surface of said first drive member and for engaging the drive transmitting surface of said other driven member with the drive transmitting surface of said second drive member to effect power transmission from said input shaft to both of said first and second axles in the same direction;

the said drive transmitting surfaces of said first and second drive members having apex angles slightly greater than apex angles of said drive transmitting surfaces of said first and second driven members to establish a theoretical minimal area of contact therebetween upon engagement thereof, said connecting means being resiliently deflectable to permit movement of the contact areas along said drive transmitting surfaces toward and away from the input shaft axis to change the ratios of output shaft speeds to input shaft speeds.

3,306,133
DRIVE UNIT FOR AN AUTOMATIC WASHING MACHINE
**Hans Rhein, Josef Keller, and Kurt Schuller, Schweinfurt am Main, Germany, assignors to Fichtel & Sachs A.G., Schweinfurt am Main, Germany, a corporation of Germany
Filed July 14, 1964, Ser. No. 382,584
Claims priority, application Germany, July 19, 1963,
F 40,279
8 Claims. (Cl. 74—752)**



1. A drive unit for a washing machine and the like, comprising, in combination:

(a) a dual speed motor having a rotatable drive member and adapted selectively to rotate said drive member at a lower speed and a higher speed;

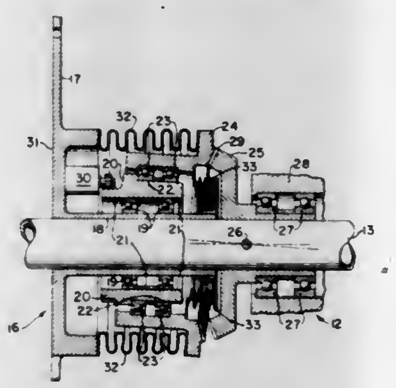
(b) switchgear connected to said motor for controlling the speed of said drive member;

(c) a dual speed transmission having an input member connected to said drive member for transmission of torque from said motor to said transmission and a rotatable output member, and changeable between a lower and a higher transmission ratio from said input member to said output member;

(d) centrifugal transmission control means responsive to rotation of said drive member at said higher speed for causing said transmission to change from said lower to said higher transmission ratio; and

(e) locking means responsive to torque transmitted from said motor to said transmission at both speeds of said motor for preventing changing of said transmission from said higher to said lower transmission ratio.

3,306,134
WABBLE GEAR DRIVE MECHANISM
**Francis J. Winiarski, Los Angeles, Calif., assignor to TRW Inc., a corporation of Ohio
Filed Apr. 24, 1964, Ser. No. 362,278
6 Claims. (Cl. 74—800)**



4. In combination, an output shaft,

a walled structure defining a passageway for the output shaft, an output gear concentrically mounted and aligned in a driving relationship with said output shaft, a bearing carriage,

a first bearing mounted on said walled structure concentrically with said output shaft for supporting the bearing carriage, a second bearing,

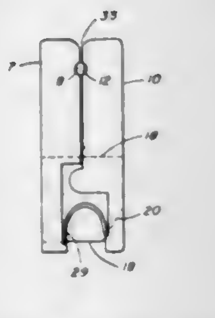
said bearing carriage having an external surface for supporting the second bearing, said external surface defining a cylinder having an axis that is offset a given angle with respect to the axis of said output shaft,

a driving gear mounted on said second bearing and engaging said output gear at a single point due to said offset angle,

a power source for driving said bearing carriage, and a rotational restraining device connecting said driving gear whereby rotation of said bearing carriage about said output shaft causes said driving gear to nutate about the circumference of said output gear and depending on the gear teeth relationship cause a rotary motion of said output gear, said rotational restraining device comprising a first and second bellows, said first bellows anchored at one end to said driving gear and at the other end to an extension of said walled structure, covering said power source, said second bellows anchored at one end to said driving gear and at the other end to an extension of said walled structure enclosing said first and second bearings whereby said drive mechanism from the power source to the driving gear is hermetically sealed.

3,306,135
DRILL-CHIP GUARD

Sterling C. Denton, 655 Black Oak Ridge Road,
Wayne, N.J. 07470
Filed Aug. 8, 1963, Ser. No. 300,836
2 Claims. (Cl. 77—55)

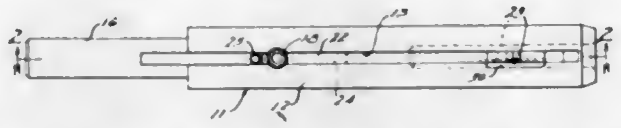


1. A chip guard comprising two elongate coplanar and coacting protective blades having in part straight, contacting inner edges when in closed position, and having opposed notches so formed that a work piece therein may be peripherally surrounded by the blades, plates on the proximal portions of both faces of the two blades, both plates fixedly secured to one and the same blade, the other blade pivotally connected to the plates intermediate its ends, and a flat, bowed, compressed spring between the blades exerting pressure to close them at their distal ends, said proximal portions of said blades being spaced a distance sufficient to allow said distal ends to separate an amount at least equal to the maximum distance between said notches when in said closed position.

3,306,136
DEBURRING TOOL

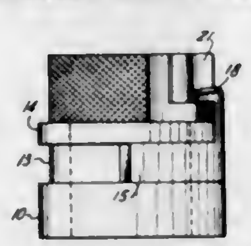
John E. Gustkey, Detroit, Mich., assignor to
Cogsdill Tool Products, Inc.
Filed July 21, 1965, Ser. No. 473,640
11 Claims. (Cl. 77—58)

1. In a deburring tool having a cylindrical body with a diametrically disposed slot, a cutting tool in said slot having a cutting end and a spring extension, raised means within said slot at one end thereof, and a screw on the diameter of the body in the area of the slot above said means for engaging the spring end and securing it in fixed relation within the slot on said means.



3,306,137
CLIP BUSHING

Joseph J. Mele, 2578 Sawmill Road,
North Bellmore, N.Y. 11710
Filed Feb. 14, 1964, Ser. No. 345,027
7 Claims. (Cl. 77—62)



1. A liner bushing comprising, in combination:

(a) a body having a passage therethrough adapted to receive a slip bushing;

(b) a clip removably engaged with said body;

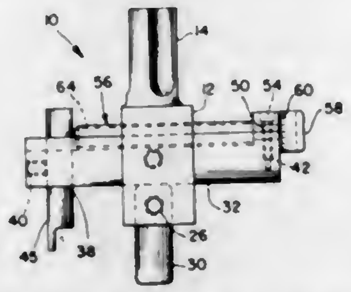
(c) stop means depending from said clip;

(d) said stop means being contactable with said slip bushing to oppose rotation thereof;

(e) said stop means being wedgeably engageable with the external periphery of said slip bushing.

3,306,138
HOLE CUTTER

Harold L. Deming, 119 E. Barnes Ave.,
Lansing, Mich. 48910
Filed July 6, 1964, Ser. No. 380,300
8 Claims. (Cl. 77—77)

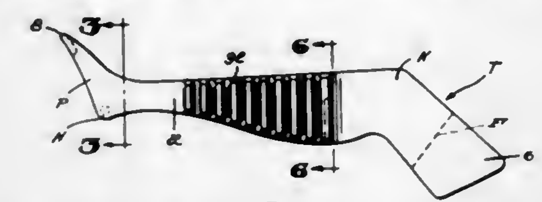


1. A hole cutter comprising: a body including a shank; a centering pin carried by said body; an aperture formed in said body; a carriage slidably mounted in said aperture; a screw having threaded engagement with said body aperture and cradled in said carriage; and a cutting tool carried by said carriage; a portion of said screw being engaged by said carriage preventing movement of said screw relative to said carriage other than rotative whereby rotation of said screw moves said carriage relative to said body to position said cutting tool for making various sized holes.

3,306,139
TWEEZER CONSTRUCTION

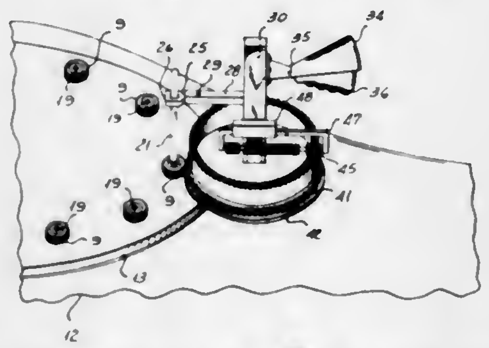
Robert W. Brackett, Rte. 4, Northwood, N.H. 03102
Filed Sept. 13, 1965, Ser. No. 486,974
6 Claims. (Cl. 81—43)

1. An improved tweezer construction comprising a pair of resiliently connected nipper elements including spaced apart engaging jaws, the ends of the engaging jaws being laterally offset with respect to the general longitudinal axis of the connected nipper elements stop means located along inner surfaces of the nipper elements for selectively guiding the engaging jaws into a nipping position, and cam means for producing twisting forces as the offset ends of the gripping jaws move into a fully closed position.



3,306,140
GEAR OPERATED WRENCH

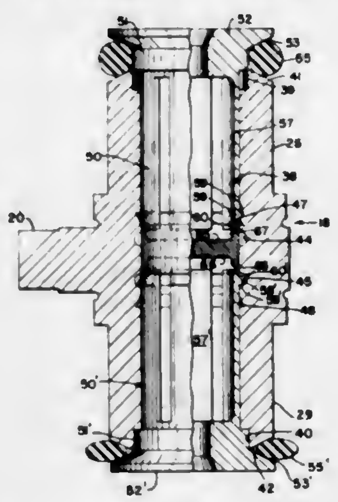
James M. Smiley, Wayne, N.J.
(818 Ramapo Ave., Pompton Lakes, N.J. 07442)
Filed Oct. 11, 1965, Ser. No. 494,749
7 Claims. (Cl. 81—56)



1. Means for rotating a movable member relative to a stationary member, comprising a housing, a gear rotatably mounted on said housing and adapted to mesh with teeth on the movable member for rotating the latter, ratchet mechanism carried by said housing and connected to said gear for rotating said gear, manually operated means carried by said housing and connected to said ratchet mechanism for operating the latter upon squeezing of said means by an operator to render said mechanism effective, and stabilizing means carried by said housing and adapted to engage said members whereby to maintain said gear in operative position during said squeezing.

3,306.141
LOCKING MEANS FOR A TOOL ATTACHMENT

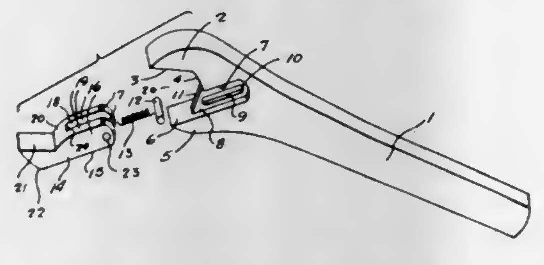
Emery L. Hall, Hinsdale, and John A. Blachowski, Park Ridge, Ill., assignors to Skil Corporation, Chicago, Ill., a corporation of Delaware
Filed Nov. 22, 1965, Ser. No. 509,092
10 Claims. (Cl. 81—177)



1. Means for locking a member in a complementary shaped socket, which member has a central, longitudinally extending axis and a concentric through bore, said means comprising, an insert slidably mounted in said bore, which insert has a head at one of its ends disposed exteriorly of said member adjacent one end of the latter, said head cooperating with said one end of said member to define a variable, continuous groove disposed in a plane perpendicular to said axis, a substantially continuous element in said groove, which continuous element is adapted to be deformed radially outwardly upon being squeezed between said head and said one end of said member by relative sliding movement between the latter and said insert, means including cooperating formations on said member and said insert for releasably locking the latter in an axial position relative to the former such that said continuous element is squeezed, and means for unlocking said insert including at least one other insert also slidably mounted in said bore.

3,306,142
OPEN END SLIDEABLE JAW WRENCH

Bernard L. Buteau, Scotia, N.Y.
(5209 Wyoming Road, Glen Echo Heights, Md. 20016)
Filed Sept. 3, 1965, Ser. No. 484,943
4 Claims. (Cl. 81—179)

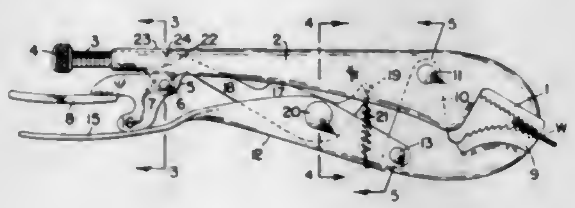


1. An open end slideable jaw wrench comprising a handle, a head at one end of said handle having an open end recess defined by a pair of fixed flat jaw faces extending on an acute angle relative to one another and connected by end faces, said head having a slot opening into said end recess and having flat top and bottom faces parallel to one of said jaw faces with said slot bottom face being a continuation of said one of said jaw faces, a rib integral with said head extending longitudinally of said slot normal to said slot top and bottom faces and having a slot parallel to said first mentioned slot top and bottom faces, said rib having an end providing one of said recess end faces, a coil spring positioned in said slot, a slideable jaw having a flat bottom and a flat top end portion slideably mounted between said first mentioned slot top and bottom faces, said slideable jaw bottom also being slideably positioned on said one of said jaw faces, said slideable jaw having an open end slot in one end portion of said slideable jaw with said rib positioned in said slideable jaw slot and a flat jaw face at its opposite end portion extending parallel to the other of said pair of fixed flat jaw faces and a pin extending through said slideable jaw one end portion and said rib slot with said coil spring bearing against said pin and also against said rib adjacent said rib end tending to retain said slideable jaw within said recess.

3,306,143
VISE GRIP PLIERS HAVING TOGGLE RELEASE MEANS

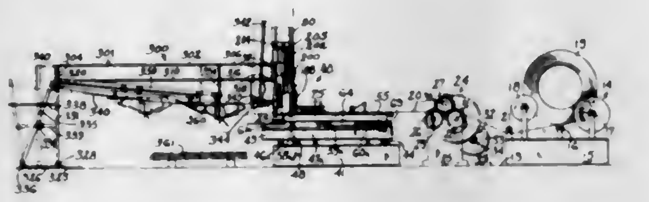
Charles H. Ortman, Chardon, Ohio, assignor of one-third to Ira J. Warner, Cleveland, Ohio
Filed June 18, 1965, Ser. No. 464,908
1 Claim. (Cl. 81—368)

In pliers of the vise grip type comprising a channeled handle having a relatively fixed jaw, a movable jaw pivotally supported on said handle and cooperating with the fixed jaw for gripping a piece therebetween, a movable handle pivotally connected at its forward end to said pivoted jaw and rearwardly of the center defining the pivotal axis thereof, said last named handle terminating in a rearwardly disposed cam engaging flat portion, a lever having a rearwardly extending relatively long arm and a substantially forwardly extending relatively short arm, said lever being pivotally supported on said movable handle, the free end of said longer arm disposed within and slidable along the channel of the first handle, tension means connecting said movable handle with said lever short arm whereby to normally urge the free end of the longer arm toward the base of the channeled handle, an adjustable stop for limiting the extent of movement of the rearwardly extending end of the lever along the channel and providing an abutment against which the said lever end is engaged when gripping a piece in the jaws, compressible means between the stop and said rear end of the longer arm of the lever; said stop being adjustable to effect an initial clamping grip on the piece preliminary to the application of a multiplied gripping force on the piece as the result of a closing movement of the handles sufficient to shift the center defining the pivotal axis of the lever with the movable handle, past an imaginary straight line intersecting the rear end portion of the longer arm in the channel and the center defining the pivotal axis of the movable jaw in the movable handle, said tension means exerting its force substantially entirely upon the lever, while leaving the movable jaw substantially free of the influence of said tension means for freedom of movement in either direction about its pivotal axis while receiving a piece between the jaws, and means pivotally carried by the fixed handle and having a cam surface engageable with the flat portion of the movable handle for releasing the multiplied pressure on the piece through the jaws.



3,306,144
APPARATUS FOR CUTTING CROSS-STRANDED MESH MATERIAL

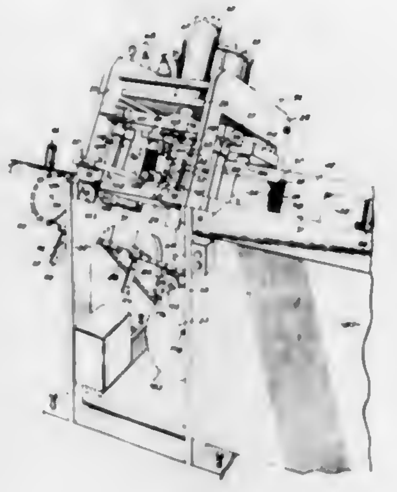
Alfred Alling Nordgren, New Britain, Conn., assignor to The Leonard Concrete Pipe Company, Inc., Hamden, Conn., a corporation of Connecticut
Filed Dec. 23, 1964, Ser. No. 420,653
17 Claims. (Cl. 83—80)



1. Apparatus for cutting pieces of cross-stranded wire mesh material from a length of said material, comprising a table over which said material is fed, means for cutting said material mounted on said table, means supported by said table for holding said material on said table, means for moving said table in the same direction that the material is fed over said table, means for permitting said cutting means to substantially cut said material when said table is moving, said wheel means for counting said cross strands, the position of said wheel means on said cross strands of said material initiating the clamping of said material on said table.

3,306,145
APPARATUS FOR CONFIGURATING PAPER BLANKS

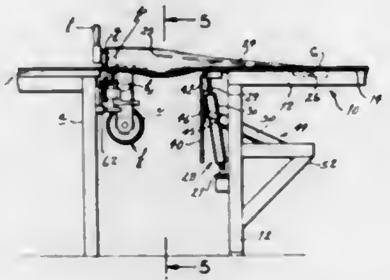
Carl L. Edwards, Reading, Ohio, assignor to Multi-Colortype Co., Cincinnati, Ohio, a corporation of Ohio
Filed Sept. 8, 1964, Ser. No. 394,921
8 Claims. (Cl. 83—157)



1. Apparatus for cutting a configuration in at least one surface of a stack of sheets comprising,
- a table for supporting a stack of sheets,
- means including five clamping elements mounted on said table for clamping said stack on its six surfaces,
- a conveyor for moving stacks into said clamping means,
- a cutting die movably mounted above said stack,
- means for moving said die through said stack to cut a configuration in at least one surface.

3,306,146
SUPPORT TABLE APPARATUS FOR FEEDING SHEET METAL TO A TRAVERSING SHEAR

Walter A. Ried, St. Louis, and Joseph J. Schrader, Jr., Florissant, Mo., assignors to Engel Equipment, Inc., St. Louis, Mo., a corporation of Missouri
Filed Dec. 2, 1964, Ser. No. 415,434
11 Claims. (Cl. 83—176)

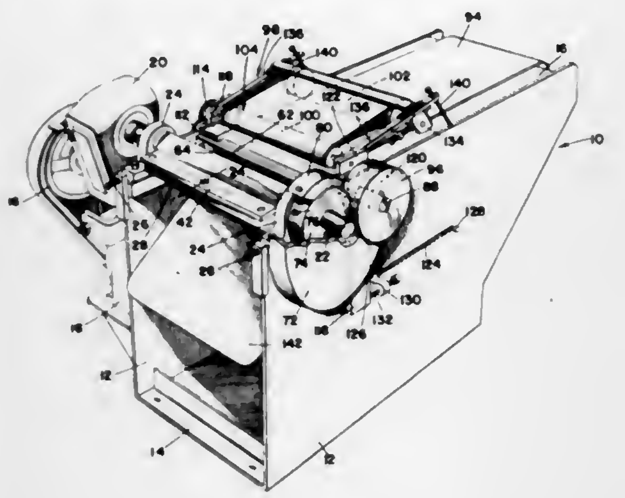


1. For use with a shear table of the type having a powered cutter which progressively traverses sheet material fed across an edge of such shear table, support table apparatus comprising
- fixed means to support sheet material in a substantially horizontal plane spaced apart from the shear table, whereby to provide a gap therebetween for travel of the cutter therethrough, and
- upwardly-liftable means projectable above the level of said support means and located in the path in which such material is fed and adjacent to the side thereof at which the cutter begins its travel, for raising the cut portion of the sheet material spanning the gap,

whereby to incline the cut portion of the sheet width upwardly and thus permit the cutter to progress unimpeded across the entire sheet width.

3,306,147
RUBBER SLAB CUTTER

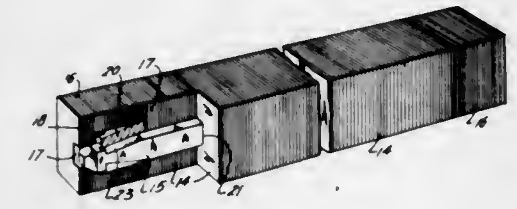
George F. Goodman, Jr., 1060 Allengrove St., Philadelphia, Pa. 19124
Filed Apr. 19, 1965, Ser. No. 448,996
11 Claims. (Cl. 83—226)



1. A rubber slab cutter comprising a frame, a slab conveyor mounted thereon, a first stationary blade mounted on said frame at the discharge end of said frame and including a vertical face terminating in an upper horizontal cutting edge, a second substantially rectangular blade having a vertical face terminating in a lower horizontally extending cutting edge and an upper horizontally extending edge, a spindle, means to rotate said spindle and means mounting said second blade on said spindle so that said lower cutting edge is at a vertical angle relative to and closely adjacent said horizontal cutting edge of said first blade and the radius from the axis of said spindle to said lower cutting edge of said second blade is greater than that to said upper cutting edge of said second blade so that slab extending beyond said first blade will be sheared into strips upon rotation of said spindle, said conveyor including a pair of rollers and an endless belt entrained thereover providing an upper slab conveying flight and means to move said upper flight intermittently towards said blades in adjustable strokes synchronously with rotation of said spindle.

3,306,148
STICK FOR A GUILLOTINE-TYPE PAPER-CUTTER MACHINE

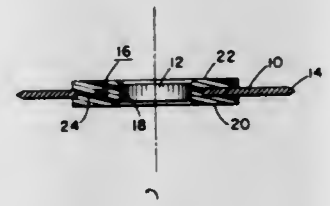
Ignaz Oesterreicher, Schottenfeldgasse 85/8, Vienna VII, Austria
Filed Oct. 3, 1963, Ser. No. 313,633
Claims priority, application Austria, Sept. 6, 1963, A 7,205/63
4 Claims. (Cl. 83—658)



1. A cutting stick formed of a plurality of relatively thin resilient plates secured together in face to face disposition, and end members to couple said plates together, said plates and end members each having a first aperture and a second aperture, anchor means extending through said first apertures, and plastic material filling said second apertures.

3,306,149
ROTARY CUTTER

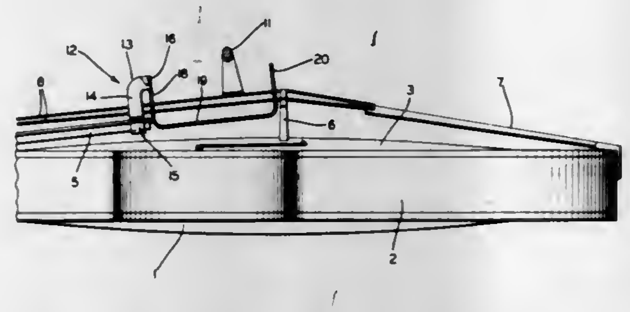
Walter John, Unter-Grundemich, Germany, assignor to Dienes Werke fur Maschinenteile G.m.b.H., Vilkerath, near Cologne, Germany, a company
Filed Jan. 12, 1965, Ser. No. 425,027
Claims priority, application Germany, Feb. 12, 1964, D 43,604
2 Claims. (Cl. 83—676)



1. A rotary cutter comprising: a circular disc having a cutting edge located along the outer periphery thereof and provided with an axially extending central aperture; a reinforcing and support hub formed of a plastic base material having dry lubricant characteristics including a substantially tubular portion disposed coaxially with said aperture and having a radially extending flange of uniform thickness and with a flat front face at each axial end of said cylindrical portion and being integrally united therewith for clamping said disc between said flanges and to provide a dry lubricant bearing surface on each side of said disc.

3,306,150
VIOLIN BOW GUIDE

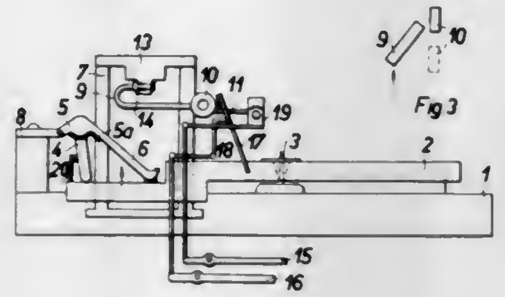
Glenn U. Phillips, 422 Indiana Ave., McDonald, Ohio 44437
Filed Feb. 23, 1966, Ser. No. 529,405
2 Claims. (Cl. 84—283)



1. A device for guiding a bow of a violin-like instrument having strings stretched along a fingerboard and over a bridge spaced from the end of the fingerboard, said device being formed of one piece of slightly spring-like material and comprising an inverted U-shaped portion having depending flat spring fingers and an integral cross bar, said fingers having opposed attaching claws at their lower ends for clamping upon opposite side edges of the fingerboard near the end thereof, the upper ends of said fingers being curved away from the fingerboard so that the cross bar of the U-shaped portion will be located beyond the end of the fingerboard, a depending integral flat leg extending downward from the center of the cross bar of the U-shaped portion and having a longitudinal portion adapted to be located below the strings of the instrument, the end of said leg extending upward above the strings at a point near the bridge, the flat surfaces of said depending leg and the upwardly extending end thereof providing stops to prevent the bow from passing down over the fingerboard and upward over the bridge.

3,306,151
MUSICAL INSTRUMENTS HAVING STRUCK VIBRATING MEMBERS

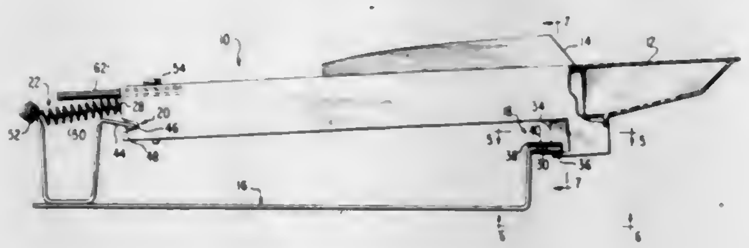
Karoly Cser, Budapest, Hungary, assignor to Bács-Kiskun Megyel Finonrmechanikai Vallalat, Kecskemet, Hungary, a firm
Filed Sept. 28, 1964, Ser. No. 399,574
4 Claims. (Cl. 84—404)



1. A musical instrument comprising a sounding block, a string in the form of a wire secured in said sounding block, a hammer, means for moving the hammer in a plane toward and away from said string to strike the string, said string being of rectangular cross section and being so disposed with respect to said plane that said plane is not parallel to any side of said string, a microphone, and means mounting said microphone adjacent said string for movement transversely of the length of said string in a plane that is not parallel to any side of said string thereby to vary the reproduced amplitude of the tonal components of the note emitted by said string.

3,306,152
KEYBOARD

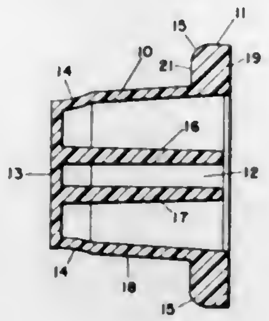
Paul A. Klann, P.O. Box 2398, Waynesboro, Va. 22980
Filed June 17, 1964, Ser. No. 375,780
11 Claims. (Cl. 84—423)



3. A keyboard comprising:
(a) a plurality of rear open ended molded hollow plastic keys, each key having a flat bottom surface, a vertical rib, a horizontal abutment and inner supporting ribs in at least some keys,
(b) a stationary metal base for supporting and guiding all the keys, the base including a lined horizontal flange with vertical guide slots therein for guiding the vertical rib of each key, the flat bottom surface and horizontal abutment of each key sandwiching the lined flange to define stop positions for each key,
(c) a lined horizontal bar-like fulcrum cooperating with a recess in the rear end of each key to provide a pivot point for each key,
(d) a coil spring for each key having one end connected to a stationary support and the other end connected to the key in front of the fulcrum,
(e) a screw carried by each key and adjustably holding one end of the coil spring for adjusting the bias of the coil spring, and
(f) an actuator tab extending from the rear open end of each hollow plastic key.

3,306,153
SELF-THREADING BOLT

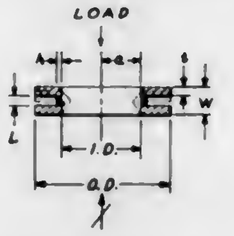
Robert Brown, Erie, Pa., assignor to Niagara Plastics Company, Erie, Pa., a corporation of Pennsylvania
Filed June 29, 1964, Ser. No. 378,865
1 Claim. (Cl. 85—1)



A self-threading bolt comprising
a generally cylindrical hollow body with a closed end, and an outwardly directed flange integrally attached to the end of said body opposite said closed end,
said generally cylindrical body including a first portion tapering inwardly from said flange toward said closed end and having a second portion adjacent said closed end having a greater taper than said first portion,
said hollow body having two spaced flat webs therein disposed generally parallel to each other and to a diameter of said hollow body and equally spaced on either side of said diameter,
said webs being integrally attached at their sides to the inner periphery of said body and integrally attached at their ends adjacent said closed end to the inside of said end of said body,
said webs terminating substantially flush with the open end of said hollow body,
said spaced webs defining a space for receiving a tool whereby said bolt may be rotated to thread it or unthread it into or out of a female threaded member,
said body being made of a material adapted to be self-threaded on its external, tapered surfaces when inserted in a threaded opening in a mating member made of a harder material,
said material being taken from the group of polyethylene and vinyl,
said flange having flat edges on the outside thereof defining a hexagon for receiving a wrench.

3,306,154
COMPRESSIVE LOAD LIMIT INDICATORS

Jay R. Bailey, Woodland Hills, Calif., assignor to McCulloch Corporation, Los Angeles, Calif., a corporation of Wisconsin
Filed Oct. 23, 1965, Ser. No. 506,448
4 Claims. (Cl. 85—62)



1. A preload washer for indicating when a predetermined torque has been applied to tighten a bolt comprising:
(a) a disc having an open central portion therethrough to receive a bolt; and
(b) a peripheral groove extending inwardly from the circumferential surface of said disc,
(c) said groove spacing the upper and lower portions of said disc to form flanges at both ends,

(d) said flanges being integral with a radially inwardly deformable, generally cylindrical spacer extending between the open central portion and the inner periphery of said groove,
(e) said spacer being pressure responsive to form a bead extending into said open central portion when said flanges are compressed toward each other to substantially narrow said groove,
(f) the bead being formed free of stopping surfaces within said central portion after the elastic limit of the spacer has been exceeded by said compression and plastic yielding has occurred,
(g) said spacer having a length less than the value of L found by solving therefor in the following equations:

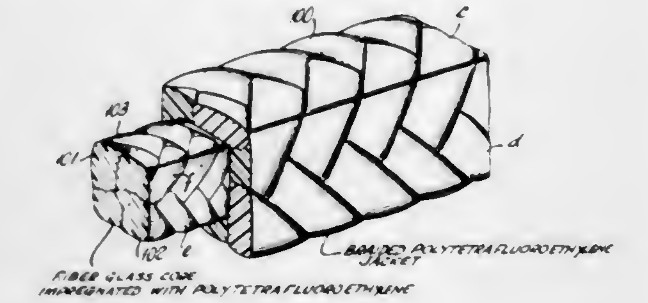
$$E_r = \frac{S_{cr} a\sqrt{3(1-N^2)}}{h}$$

$$\frac{L}{2} \approx 1.72\sqrt{ah}\sqrt[4]{\frac{E_r}{E}}$$

where S_{cr} is the critical buckling stress in the spacer material or is the stress in pounds per square inch obtained by dividing the compressive load, at which buckling starts to occur in the material, by the cross-sectional area of the spacer; E_r is the reduced modulus of elasticity in pounds per square inch; *a* is the mean radius of the spacer in inches; N is Poisson's ratio of the material in the spacer; *h* is the wall thickness of the spacer in inches; and E is elastic modulus of elasticity in compression of the material in the spacer.

3,306,155
BRAIDED PACKING MATERIAL

Julio Zumeta, New York, N.Y., and Edward Murray Case, Weston, Conn., assignors to The Marlo Company, Inc., New York, N.Y.
Filed June 23, 1964, Ser. No. 377,236
9 Claims. (Cl. 87—1)

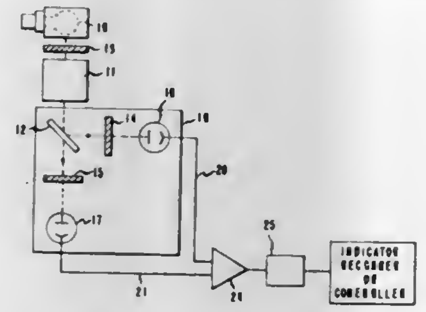

FIBER GLASS CORE IMPREGNATED WITH POLYTETRAFLUOROETHYLENE
BRAIDED POLYTETRAFLUOROETHYLENE JACKET

1. A packing material comprising a solid uniform braided core formed entirely of braided glass fibers, each of said fibers continuously extending from one end of said core to the opposite end of said core, said braided glass fibers being impregnated with a member selected from a group consisting of polytetrafluoroethylene polymer and monochlorofluoroethylene polymer to form a packing material of good heat transfer characteristics.

3,306,156
METHOD AND APPARATUS FOR PHOTOMETRIC ANALYSIS

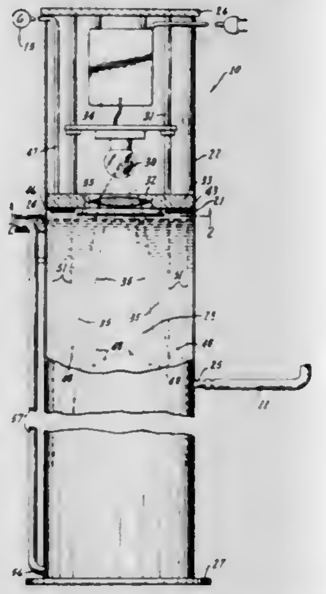
Leo G. Glasser, Robert J. Kanzler, and Daniel J. Troy, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 19, 1957, Ser. No. 641,167
5 Claims. (Cl. 88—14)

1. An analyzer for the photometric analysis of a sample on the basis of radiation transmitted from said sample wherein intensities of the several wave lengths in said radiation are single-valued functions of a first variable and a second variable characteristic of said sample comprising in combination beam-splitting means adapted to receive and divide radiation from a specific region of said sample into two separate beams, one of which beams is passed through a first filter to a first radiation detector and the other of which beams is passed through a second filter to a second radiation detector, both detectors being disposed with respect to said beam-splitting means so that each said radiation detector views the identical area of said specific region, said first filter and said second filter being preselected to pass narrow bands of wave lengths in each of said beams so that the minimum change in said first variable desired to be detected exerts a greater effect on the ratio of the intensity of radiation passed in said first beam to the intensity of radiation passed in said second beam than is exerted by the anticipated maximum change in said second variable within the range of analysis, and a ratio-measuring electrical circuit connected to the output sides of said radiation detectors.



3,306,157
TURBIDIMETER FOR SENSING THE TURBIDITY OF A CONTINUOUSLY FLOWING SAMPLE

Clifford C. Hach, Ames, Iowa, assignor to Hach Chemical Company, Ames, Iowa, a corporation of Iowa
Original application Dec. 15, 1959, Ser. No. 859,691. Divided and this application Nov. 19, 1962, Ser. No. 238,699
1 Claim. (Cl. 88—14)

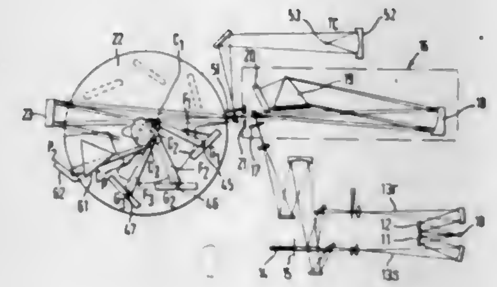


A turbidimeter for sensing the turbidity of a continuously flowing fluid sample comprising, in combination, a container for supporting a vertical column of fluid to be tested, means defining a drain opening in said container for establishing an upper surface on said fluid column by allowing fluid to freely drain from the column at the level of said upper surface, means for transmitting a continuous flow of said fluid to said column, a light source fixed relative to said container for directing a slightly diverging, circular beam of light down into said fluid through said upper surface, a ring of photoelectric cells surrounding said light beam and being disposed above and facing said upper fluid surface, the electrical output of said cells being dependent upon the amount of light energy from said light beam that is reflected toward the photoelectric cells by particles suspended in said fluid, and an annular shield disposed between said light beam and the photoelectric cells in said ring so as to intercept light reflected from said upper surface and thus prevent surface reflection from affecting the electrical output of said cells.

3,306,158
GRATING SPECTROSCOPES

Hideki Makabe, Mukomachi, Otokuni-gun, Kyoto, and Shojiro Hashizume, Jyoto-ku, Osaka, Japan, assignors to Shimadzu Seisakusho Ltd., Nakagyo-ku, Kyoto, Japan

Filed May 28, 1963, Ser. No. 283,941
Claims priority, application Japan, May 29, 1962, 37/22,068
4 Claims. (Cl. 88—14)

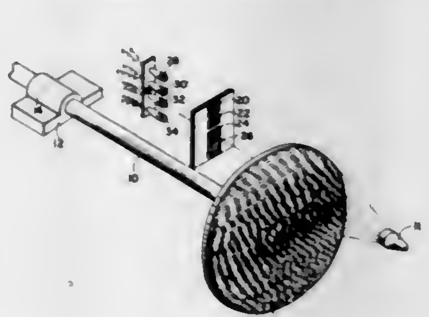


1. A grating spectroscope comprising a turntable rotatable about a central axis, at least two diffraction gratings arranged on said table at its peripheral portion in a spaced relationship so that when said turntable is rotated said diffraction gratings pass through the optical path of the spectroscope, said diffraction gratings being rotatable about their own axes, a cam shaft rotatably carried on said central axis of said turntable, actuating cams for revolving the respective diffrction gratings, said cams being mounted on said cam shaft, and substantially radially extending cam followers each engaging at one end with a respective one of said cams and coupled at their other end to rotatably position a respective one of said diffraction gratings.

3,306,159
ANGLE TRANSDUCER EMPLOYING POLARIZED LIGHT

Horace A. Beall, Jr., Los Alamitos, and Charles A. Call, Brea, Calif., assignors to North American Aviation, Inc.

Filed June 19, 1963, Ser. No. 289,109
1 Claim. (Cl. 88—14)

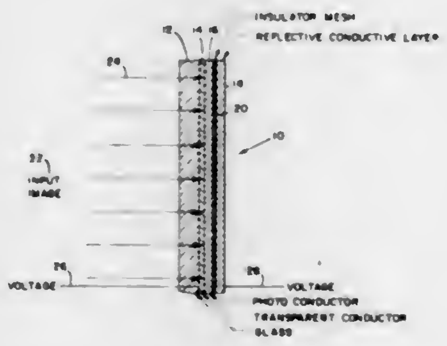


In combination:
- a rotatable member;
- a sheet of polarizing material attached to said member in a plane which is perpendicular to the axis of rotation of said member, adapted to polarize light which is substantially parallel to the axis of rotation of said member;
- a source of non-polarized light positioned and adapted to illuminate said sheet of polarizing material;
- a plurality of orthogonally related pairs of polarizing filters whose directions of polarization are substantially different from each other, each adapted to polarize light transmitted by said rotatable sheet of polarizing material and to transmit said polarized light with maximum intensity when the direction of polarization is aligned with the direction of polarization of each of said filters and to transmit said polarized light with minimum intensity when the direction of polarization is perpendicular to the direction of polarization of each of said filters;
- a plurality of photoelectric sensing elements each associated with a different one of said polarizing filters to sense the light intensity transmitted by each of said filters,
- a plurality of alternating current bridges, one for each pair of polarizing filters, operatively coupled to said photoelectric sensing elements, and
- means coupled to the outputs of said alternating current bridges for combining the outputs thereof to provide an alternating current signal whose phase angle is a measure of the angle of rotation of said rotatable member.

3,306,160
MULTI-PURPOSE PHOTO SENSOR

Friedrich Dinhobel, University City, Mo., and John R. Shoemaker, Akron, Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio, a corporation of Delaware

Filed Sept. 24, 1964, Ser. No. 399,002
8 Claims. (Cl. 88—24)

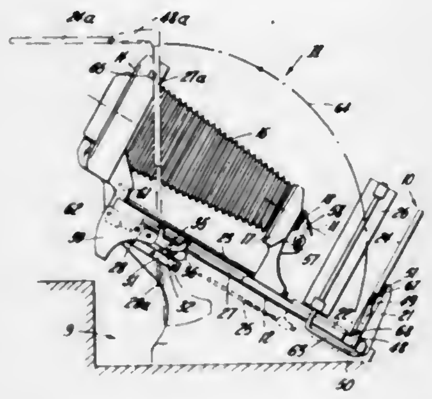


1. In a multi-purpose photo sensor the combination of
- a transparent support medium,
- a transparent conductive layer thereon serving as an electrode,
- a dielectric photoconductive layer operatively affixed to and covering the conductive layer acting as a shunt resistor,
- a dielectric mesh of transparent insulating material operatively affixed to and covering the photoconductive layer to act as a support and a spacer,
- an elastic photoreflective conductive film operatively affixed to and covering the mesh positively separated from said photoconductive layer,
- means to project an optical light image onto the transparent support medium to activate the photoconductive layer,
- means to apply an electrical field between the transparent conductive layer and the photoreflective conductive film,
- means to project light through the transparent support medium for reflection off the reflective conductive film, and
- a viewing screen to receive the reflection of the light from the reflective conductive film.

3,306,161
PHOTOGRAPHIC APPARATUS

Albert Ernest Adams, London, England, assignor to Pictorial Machinery Limited, Crawley, England, a British company

Filed Sept. 29, 1964, Ser. No. 400,125
Claims priority, application Great Britain, Sept. 30, 1963, 38,450/63
9 Claims. (Cl. 88—24)

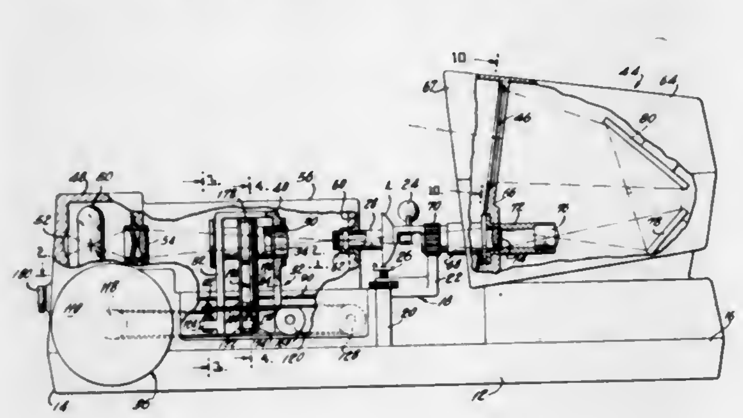


1. Photographic apparatus comprising a camera, a copyholder for holding material to be photographed by the camera, locating means for locating the copyholder in a photographing position, means for effecting relative movement between the locating means and the camera to vary the magnification of the photographic image, pivotally mounted supporting means supporting the copyholder, pivoting means operable from a position adjacent the imaging position of the camera to pivot the supporting means and thereby move the copyholder from the locating means to a loading position in which the copyholder is adjacent the said imaging position, and means for adjusting the pivotal mounting of the supporting means in dependence on relative movement between the locating means and camera whereby the copyholder on return to the photographing position engages with the locating means regardless of relative movement between the locating means and camera while the copyholder was in the loading position.

3,306,162
LENS TESTING APPARATUS HAVING A PAIR OF MUTUALLY PERPENDICULAR HAIRLINES

Clinton E. Hooper, Brookfield, Conn., assignor to A. Lemay Optical Corp., Carmel, N.Y., a corporation of New York

Filed Mar. 31, 1966, Ser. No. 539,082
8 Claims. (Cl. 88—56)

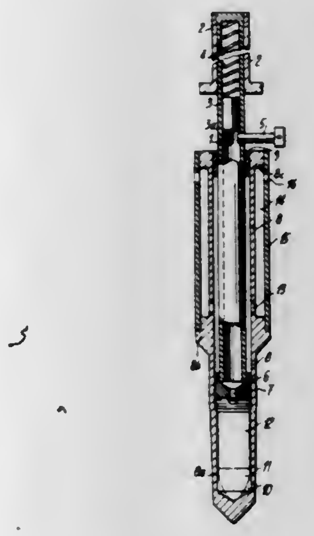


1. In a lens testing apparatus, base means having front and rear ends and adapted to be situated with its front end adjacent the operator of the lens testing apparatus, lens-carrier means mounted on said base means between said ends thereof for carrying a lens to be tested, a pair of mutually perpendicular hairline means for respectively measuring the spherical and cylindrical powers of said lens, both extending to the immediate vicinity of and perpendicularly with respect to the optical axis of the lens to be tested and each situated in a plane normal to said axis, said pair of hairline means being situated forwardly of said lens-carrier means, a pair of support means respectively supporting said pair of hairline means for movement along said axis, a pair of manually operable adjusting means accessible at the region of the front end of said base means and operatively connected with said pair of support means for respectively adjusting the positions of said pair of hairline means along said axis one of said hairline means being selectively movable into position, in alignment with, forwardly of and rearwardly of, said other hairline means, and image-forming means carried by said base means rearwardly of said lens-carrier means and cooperating with said pair of hairline means and a lens to be tested to provide, in response to manipulation of said pair of adjusting means, sharp images of said pair of hairline means perpendicularly intersecting each other and visible to an operator situated adjacent said front end of said base means.

3,306,163
PROJECTILE FIRING DEVICE

Jean-Jacques Griessen, Geneva, Switzerland, assignor to Transurvey Holding Company, Inc., Societe Anonyme, Panama, Panama

Filed July 29, 1964, Ser. No. 385,859
Claims priority, application Switzerland, May 12, 1964, 6,178/64; May 27, 1964, 6,936/64
8 Claims. (Cl. 89—1)

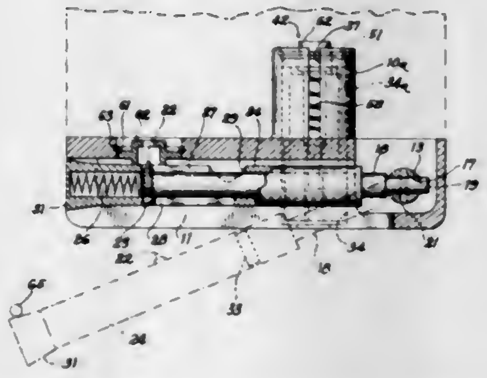


1. A projectile firing device comprising:
- a cylindrical guide member,
- a body member having a cylindrical axial bore in one end thereof extending to a closed end wall, said cylindrial guide member being slidably disposed within said axial bore in a fluid-tight manner,
- a piston slidably disposed within said axial bore between said guide member and said closed end wall of said body member and being in contact with said guide member, the space between said piston and said closed end wall forming an extensible explosion chamber,
- an auxiliary projectile including a cartridge case having an explosive charge and a ball member, said auxiliary projectile being positioned within said extensible explosion chamber in forceful contact with said piston and said closed end wall of said body member,
- striker means for exploding the charge in said cartridge case, and said body member including at least one radial aperture communicating with said axial bore

at a point spaced from said piston on the side thereof remote from said closed end wall so as to effect communication of said radial aperture with said extensible explosion chamber only at a predetermined time after explosion of said cartridge case.

3,306,164
SAFETY DETONATOR FOR DEVICES PROJECTED FROM AIRCRAFT AND THE LIKE

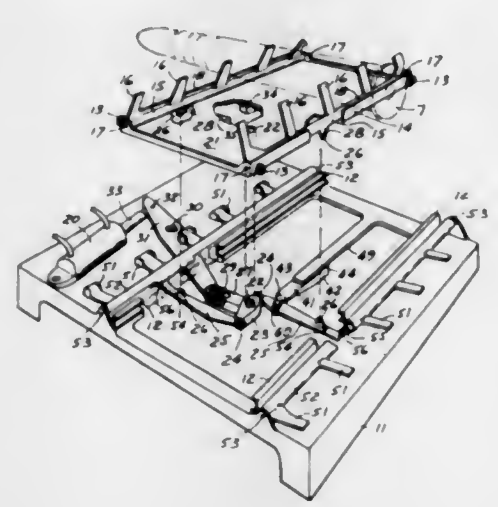
Mike Rad, Jr., Richmond, Ill., assignor to Haber Corporation, Chicago, Ill., a corporation of Illinois
Filed Apr. 13, 1965, Ser. No. 447,829
4 Claims. (Cl. 89—1.5)



1. The combination of a package to be detonated and a safety detonator attached thereto and both adapted to be ejected from a chamber by pressure fluid directed against an exposed face of said detonator, said detonator comprising a block having an elongated recess in said exposed face, an arm receivable in said recess and being mounted at one end for pivotal movement relative to said recess, means biasing said arm in a direction to swing into said recess, an elongated member slideably supported on said arm for longitudinal movement and having a transverse slot therein, spring means biasing said member outwardly, a firing pin carried on the distal end of said arm, a primer carried in said block and adapted to be struck by said pin, said block having a cylindrical chamber extending transversely of said recess and being in communication therewith through a passage extending longitudinally of said chamber, a hollow piston movable axially in said chamber and having a lug extending through said passage into said elongated recess to engage in said transverse slot when the same is in registration with said passage, a pin disposed axially within said piston and extending into said cylindrical chamber, said pin having an end portion of reduced diameter affording a shoulder at the juncture of the end portion with the main body portion of the pin, a collet mounted in one end of said cylindrical chamber and extending in a direction opposed to said pin whereby said pin may telescope into said collet, a sleeve slideable in said cylindrical chamber and circumposed about said collet, said sleeve having internal camming means adapted to operate with said collet to compress the same so as to limit telescoping movement of said pin relative to said collet up to said shoulder whereby said lug is disposed in registration with said recess and in position to engage in the transverse slot of said elongated member to releasably lock the same in retracted position, said sleeve when said package and detonator are ejected from said chamber being caused to move by inertia relative to said collet to permit the same to expand thereby to afford clearance to receive the body of said pin so that said piston under the influence of the pressure fluid is caused to move to a position wherein said lug is clear of said transverse slot thereby permitting said elongated member to move to extended position so that it may be rocked out of said longitudinal recess and thereafter effect detonation by said firing pin striking said primer.

3,306,165
DEVICE FOR FEEDING CARTRIDGES OF AMMUNITION OUT OF A CARTRIDGE MAGAZINE OF AN AUTOMATIC GUN

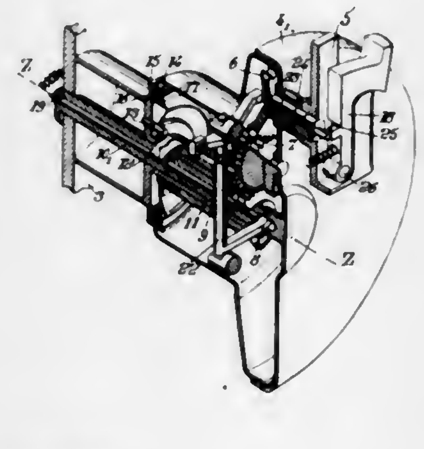
Carl Mauritz Christiansson, Bofors, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a corporation of Sweden
Filed Jan. 6, 1965, Ser. No. 423,783
5 Claims. (Cl. 89—33)



1. A device for feeding cartridges of ammunition within a cartridge magazine of a gun including a plurality of mutually parallel vertical magazine compartments constituting vertical magazine chutes arranged side by side and each opening at the bottom into a channel for feeding the cartridges laterally and perpendicularly to the longitudinal direction of the cartridges along a cartridge transport path extending laterally to the longitudinal direction of the chutes below the bottom openings of the chutes towards an outlet port for the cartridges located at the bottom part of a side wall of the magazine, said feeding device comprising, in combination, a set of cartridge driving means the number of which corresponds to the number of cartridge chutes arranged laterally of each other, said driving means constituting a unit and having a spacing in the direction of the cartridge transport path between each two cartridge driving means corresponding to the width of the chutes, said driving means being movable as a unit along said path in a reciprocating movement through a distance corresponding to said width of the chutes from a starting position, in which the cartridge driving means are each located rearwardly of a chute as seen from said outlet port of the magazine to an end position, in which all said driving means but the one located next to the outlet port occupy a position rearwardly of the adjacent chute in the direction towards the outlet port of the magazine, said driving means further being movable laterally to the direction of the transport path between an active position for actuating a cartridge lying on the transport path for feeding cartridges along said path, and an inactive position in which they are located out of the way of a cartridge resting on the transport path; a set of cartridge retaining means which are located on either side of the chutes and which are arranged to be movable between an active position in which the cartridge retaining means extend into spaces in the channel on either sides of the bottom opening of each chute for retaining cartridges lying on the transport path against movement along this path, and an inactive position in which said cartridge retaining means are located out of the way of cartridges moving laterally along the transport path; motor means connected to the cartridge driving means to impart to said driving means a reciprocating motion between said starting position and said end position along the transport path, means to move the cartridge driving means from the inactive position thereof to the active position thereof and to bring said cartridge retaining means from the active position thereof to the inactive position there of in the starting position of the unit, and to bring the cartridge driving means from the active position thereof to the inactive position thereof and to bring the cartridge retaining means from the inactive position thereof to the active position thereof in the end position of the unit, said set of cartridge retaining means each including two rows of cartridge actuating arms constituting rows of cartridge driving arms and rows of cartridge retaining arms respectively, each of said rows extending in the direction of the transport path to cooperate with the front and the rear end respectively of cartridges located on said transport path; a support rod extending in the direction of the transport path and being movable for bringing the cartridge retaining arms to and from an active position thereof, the arms of each row of cartridge retaining arms being attached to and protruding laterally from said support rod.

3,306,166
GUN TRAINING MECHANISM WITH TRIGGER

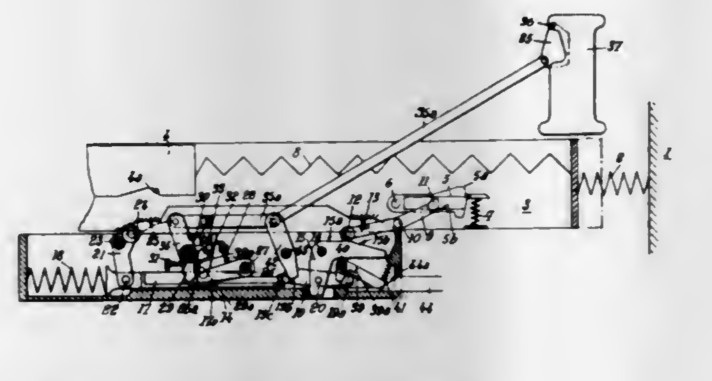
Robert Ramseyer, Versoix, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S.A., Geneva, Switzerland
Filed Mar. 5, 1965, Ser. No. 437,407
Claims priority, application Luxembourg, Mar. 12, 1964, 45,645
3 Claims. (Cl. 89—41)



1. In combination,
a gun carriage,
a gun support rotatably supported by said gun carriage about a vertical pivot axis,
two horizontal sleeves extending horizontally from said gun support on opposite sides thereof,
a gun rotatably supported by said gun support about a horizontal axis,
elevation aiming means for laying said gun with respect to said gun support, said elevation aiming means comprising a first control handwheel of horizontal axis, located on a first side of said gun support, a first shaft rigidly fixed to said first control handwheel and coaxially journalled in one of said sleeves and gearing means connecting said shaft to said gun,
azimuth aiming means for laying said gun support with respect to said gun carriage, said azimuth aiming means comprising a second control handwheel of horizontal axis, located on a second side of said gun support, a second shaft rigidly fixed to said second control handwheel and coaxially journalled in the other of said sleeves, and gearing means connecting said second shaft to said gun carriage,
means for locking said elevation aiming means with respect to said gun support, located on said first side of said gun support,
means for locking said azimuth aiming means with respect to said gun carriage, located on said second side of said gun support,
each of said locking means comprising a horizontal tubular shaft surrounding the corresponding sleeve, brake means operative by the rotation of said tubular shaft with respect to a mean position thereof, a handle for controlling said locking means, said handle being pivotally carried by the corresponding control handwheel about a horizontal axis and, a train of three equal gears for connecting said handle to the outer extremity of said tubular shaft, said handle having a mean position corresponding to the mean position of said tubular shaft, the plane of said handle in said mean position remaining parallel to a fixed plane, said brake means being operative by the pivoting of said handle about said mean position,
mechanical means for starting and stopping the firing of said gun, said mechanical means including a trigger carried by one of said handles,
and mechanical means for selecting the kind of firing of said gun, said last mentioned mechanical means including a lever carried by the other of said handles.

3,306,167
AUXILIARY CONTROL OF A GUN FIRING MECHANISM

Robert Ramseyer, Versois, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S.A., Geneva, Switzerland
Filed Mar. 8, 1965, Ser. No. 437,947
Claims priority, application Luxembourg, Mar. 17, 1964, 45,672
5 Claims. (Cl. 89—132)

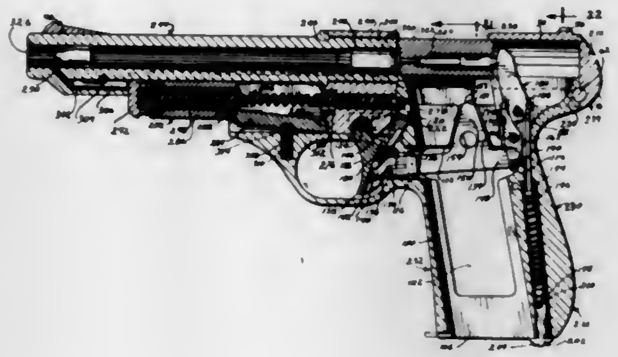


1. A gun comprising, in combination,
a fixed support,
a gun part reciprocable in said fixed support in a longitudinal direction,
resilient means urging said gun part frontwardly with respect to said fixed support,
a breechblock reciprocable with respect to said gun part, in said longitudinal direction,
resilient means urging said breechblock frontwardly with respect to said gun part,
retractable sear means for holding said breechblock in rear position with respect to said gun part,
means for retracting said sear means, including a part slidable on said fixed support,
a resilient energy accumulator for operating said retracting means,
said retracting means including two reversible cooperating abutment force transmitting means arranged to be urged from cooperating abutment relation with each other by the force they serve to transmit,
retractable locking means for keeping said abutment means in cooperating engagement with each other,
fire initiating trigger means,
and means operative by said trigger means for moving said locking means into retracted position.

3,306,168

GAS OPERATED SEMI-AUTOMATIC PISTOL

Howard J. Blumrick, 749 N. 98th St.,
Seattle, Wash. 98103
Filed Aug. 16, 1965, Ser. No. 483,008
12 Claims. (Cl. 89—191)

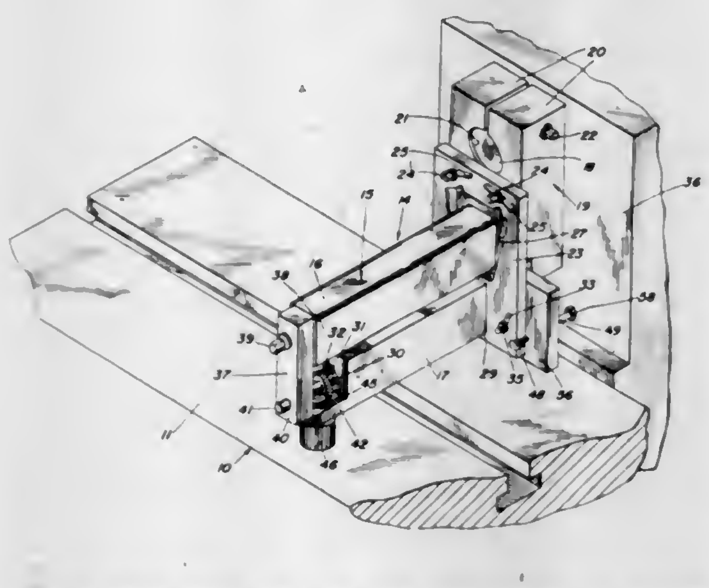


1. A pistol, said pistol comprising a frame, a bolt, a breech slide, a barrel and a receiver, said receiver adapted to receive said bolt, said bolt adapted to move in said receiver, said barrel and said receiver rigidly connected, said bolt and breech slide being integral, a gaseous recoil vent connecting with said barrel, a plunger associated with said vent, said plunger adapted to move against said breech slide, and said gaseous vent, upon the gun being fired, becoming a trap for gas so that the gas pressure in the vent increases so as to move said plunger against said breech slide in order to move the bolt away from the barrel.

3,306,169

MILLING MACHINE ATTACHMENT

Leopold F. Glaude, 2314 N. Kilpatrick,
Chicago, Ill. 60639
Filed Apr. 20, 1965, Ser. No. 449,539
5 Claims. (Cl. 90—17)

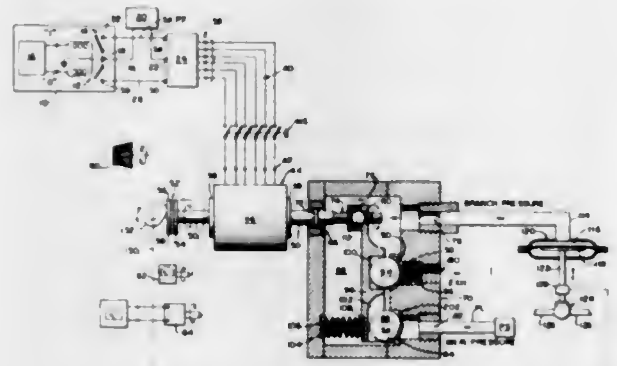


1. An attachment for a milling machine which includes a work table or bed, said milling machine attachment comprising generally horizontally extending drive shaft projecting over and above the said work table or bed, a milling machine cutter, a supporting frame structure located at one side of the said work table or bed, means cooperating with the said supporting frame structure for supporting the said drive shaft for rotation, means cooperating with the said drive shaft-supporting means for supporting the said milling cutter for rotation above the said work table or bed, means operatively interconnecting the said drive shaft and the said milling machine cutter for rotation of the said milling machine cutter, and manually adjustable means adjustably mounted upon the said supporting frame structure for pivotally adjusting the said supporting means for the said drive shaft and with the said supporting means for the said milling machine cutter to position the said milling machine cutter for rotation at a preselected angle relative to and above the said work table or bed, said supporting means for the said drive shaft comprising an elongated horizontally extending supporting member extending over and above the said work table or bed and pivotally adjustable upon and relative to the said drive shaft, a relatively stationary elongated supporting means extending over and above the said pivotally mounted supporting member and having means thereon for supporting the front end portion of said drive shaft, and in which the said manually adjustable means comprises a vertically extending supporting plate member arranged at the rear of the said pivotally mounted supporting member and at the rear of the said relatively stationary elongated supporting member, and in which the said elongated horizontally extending supporting member is manually adjustable upon and relative to the said supporting frame structure.

3,306,170

ELECTRO-PNEUMATIC PROCESS CONTROL SYSTEM FOR VALVES AND THE LIKE

Kenneth G. Kreuter, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,551
33 Claims. (Cl. 91—1)

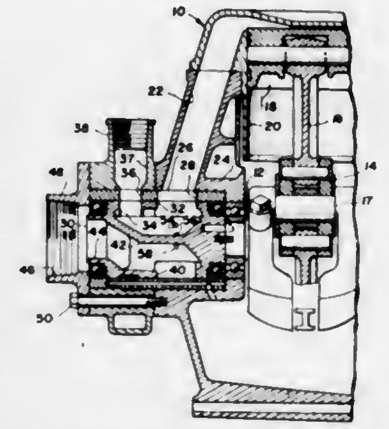


1. Means providing a regulated output displacement as a function of a modulated multiple state electric signal comprising control means generating a modulated multiple state electric signal; transfer means responsive to said signal providing a plurality of stepping pulses as a function of said electric signal; electric motor means including displaceable means energized by said stepping pulses through an equal increment of displacement for each of said pulses; output means driven by said motor means through said equal increments of displacement; pneumatic relay means including displaceable control pressure modulating means and a control pressure output; means interconnecting said displaceable pressure modulating means and said output means causing said displaceable pressure modulating input means to modulate the value of control pressure at said control pressure output as a function of said multiple state signal; displaceable pressure actuated means connected with said control pressure output and constrained through a regulated output displacement by said control pressure as a function of said modulated multiple state electric signal; and feedback means interconnected between said pressure actuated means and said output means effecting a compensating feedback displacement of said output means and said control pressure modulating input means as a function of said regulated output displacement.

3,306,171

FLUID OPERATED DEVICE

John Edward Gordon, Galt, Ontario, Canada, assignor to Joy Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 11, 1964, Ser. No. 366,365
7 Claims. (Cl. 91—180)

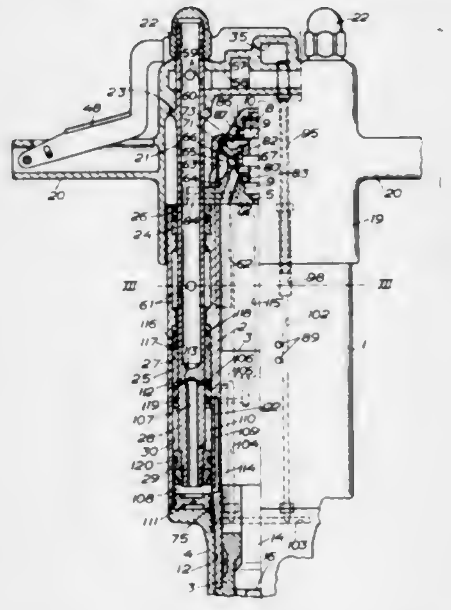


1. In a compressed gas operated motor: a rotatably mounted crankshaft; a hollow cylindrical rotary inlet and exhaust valve rotatable in timed relationship to said crankshaft and in a given direction; a plurality of cylinders; fluid conducting passageways communicating between said valve and said cylinders respectively, a plurality of circumferentially spaced inlet ports in said valve, one of said ports being larger than any other of said ports by a ratio greater than 20 to 1 and the others of said ports being spaced rearwardly of said one port relative to said direction of rotation.

3,306,172

MEANS FOR TRANSMITTING FORCE BETWEEN AN OSCILLATING AND A DESIRABLY STEADY MEMBER OF AN APPARATUS

Kurt Anders Gustav Attebo, Barkarby, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden, a corporation of Sweden
Filed July 13, 1964, Ser. No. 381,953
10 Claims. (Cl. 91—283)

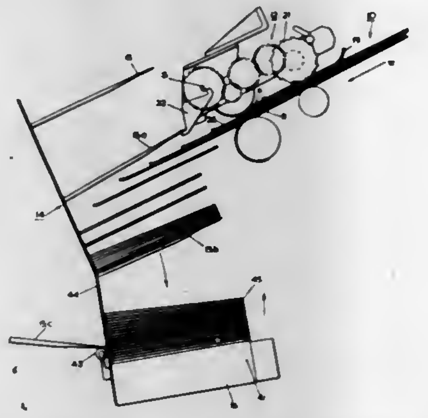


1. In an apparatus with vibration reduction, a member in which the occurrence of vibration is undesirable, an oscillating element movable relative thereto, means associated with said member and said element for confining therebetween a first elastic fluid body having a normally closed inlet and outlet and adapted for transmitting a total force in one direction between said member and said element, and means on said member and on said element and associated with and cooperable with said inlet and outlet for automatically adjusting the pressure in said first elastic fluid body by opening selectively said inlet and said outlet, so as to keep said transmitted force relatively constant over a considerable number of successive oscillations of said oscillating element.

3,306,173

STACKING MACHINES

Douglas Burton Robinson, Sharnbrook, England, assignor to Cutler-Hammer, Inc.
Filed Jan. 13, 1965, Ser. No. 425,355
Claims priority, application Great Britain, Feb. 11, 1964, 5,656/64
14 Claims. (Cl. 93—93)



1. In an apparatus for conveying, counting and stacking articles being supplied in a stream, the combination with an input conveyor and a means for counting said articles being moved by said conveyor, of stacking means at the discharge end of said conveyor comprising an endless means carrying a plurality of devices for receiving and stacking said articles, said devices each being afforded limited movement relative to said endless means, means energizable to advance said endless means a predetermined distance, means actuable by said counting means each time the latter registers a predetermined count to energize said means for advancing said endless means a predetermined distance to move one of said devices into an article receiving and stacking position in relation to the discharge end of said conveyor, latch means engageable with a following device to hold that device against the direction of travel of said endless means to cause said device to move to a displaced position relative to said endless means, and means actuable by said counting means to cause said latch to release said device upon registration of a predetermined count to permit the latter to move out of said displaced position relative to said endless means to thereby separate the stream of articles and be positioned to receive following articles thereupon.

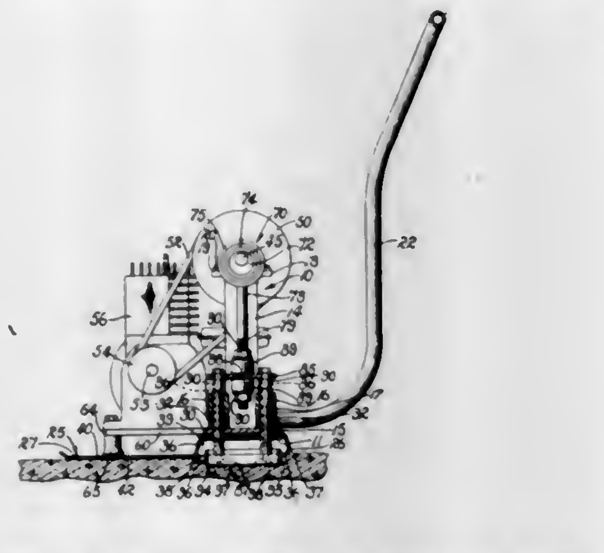
3,306,174

VIBRATORY TAMPER

Alvero A. Wardell, 4606 E. Donner Ave.,
Fresno, Calif. 93726
Filed June 22, 1964, Ser. No. 376,924
3 Claims. (Cl. 94—49)

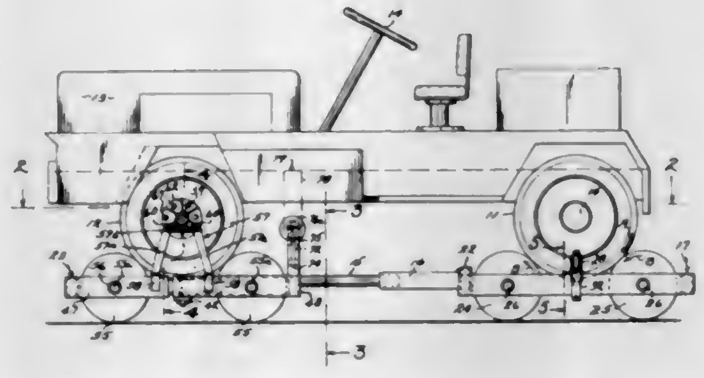
3. A vibratory tamper comprising a support frame; a float shoe mounted on said frame having predetermined leading and trailing portions adapted to be propelled in a predetermined substantially rectilinear path of travel, said leading portion providing a downwardly opening channel and said trailing portion providing a substantially planar surface adapted to contact concrete in a plastic state and to effect a troweling action during said rectilinear movement; manually engageable handle means rigidly extended from said frame; a tamping member affording a substantially planar tamping surface; a support member having a bore therethrough and a pair of spaced depending legs guided by the frame mounting the tamping

member within said channel of the leading portion of the shoe in substantially parallel relation to said float surface for rectilinear reciprocating movement in a direction substantially normal to said tamping surface; power means carried by the frame; reciprocating means connected to said power means in driven relationship; a connecting rod having one end connected to said reciprocating means and an opposite end extended through said bore in the support member; and resilient means connecting said opposite end of the connecting rod to said support member to impart said rectilinear reciprocating movement to said tamping element and to absorb vibrations in a plane substantially normal to the path of reciprocating movement.



3,306,175
TRUCK DRIVEN COMPACTION ROLLER DEVICE

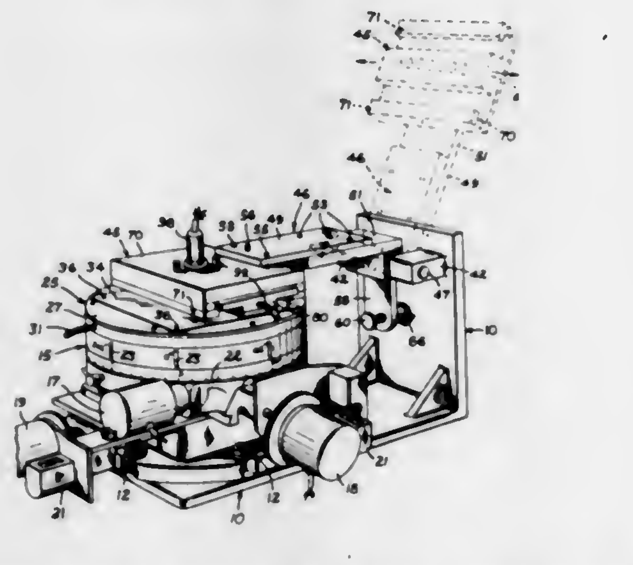
Ray Ferwerda, 1050 NW. 163rd Drive,
North Miami, Fla. 33160
Filed June 23, 1964, Ser. No. 377,198
8 Claims. (Cl. 94—50)



1. A soil compacting device adapted to be directly driven by the wheels of a truck supported directly thereupon, said device comprising a main frame member, a first subframe means connected at one end of said main frame member, a pair of soil compaction roller means rotatably mounted in said first subframe means on parallel axes so spaced that the peripheries of said roller means will support a truck wheel between them at a level above a surface supporting said roller means, axle means pivotally connected near the other end of said main frame member on a vertical axis, second and third subframe means respectively at opposite ends of said axle means, generally vertical pivotal mountings connecting said second and third subframe means to said axle means, a pair of soil compaction roller means rotatably mounted in each of said second and third subframe means on parallel axes so spaced that the peripheries of said last named roller means will support a steerable truck wheel between them at a level above a surface supporting the associated roller means, means for connecting the hubs of a pair of steerable truck wheels respectively at each of said last named subframe means, and means for turning said second and third subframe means in unison about their vertical pivotal mountings.

3,306,176
METHOD AND APPARATUS FOR MAKING PRECISION ART WORK

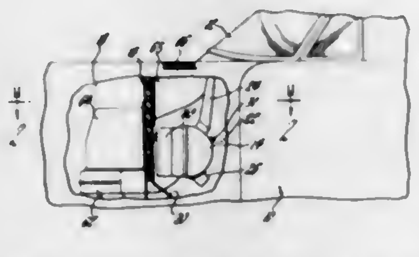
Clifford H. Myers, Kettering, Ohio, assignor to Fine Line Corporation, Dayton, Ohio, a corporation of Ohio
Filed Aug. 25, 1964, Ser. No. 391,879
12 Claims. (Cl. 95—75)



1. A photographic process for making precision art work, comprising the steps of placing a photo-sensitive material in pressure contact with an opaque mask having a transparent aperture of precise configuration formed therein, placing a light source on the opposite side of said mask for exposing said material exactly to the precise geometric configuration of said aperture, and producing predetermined relative movement between said photo-sensitive material and said mask while retaining said material in pressure contact with said mask to expose in a progressive manner the path of said aperture on said material and thereby define a precision line having a width precisely the same as said aperture.

3,306,177
QUIET FORCED AIR SYSTEM FOR AUTOMOBILES

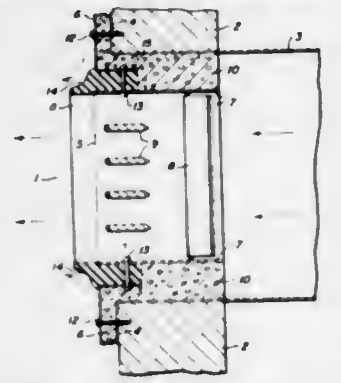
Edward F. Lewis, Newfane, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 18, 1964, Ser. No. 397,575
3 Claims. (Cl. 98—2)



1. A forced air system in an automobile having a passenger compartment, said system comprising a duct extending in one general direction, a blower, air flow silencing means, and an air distributor with an air discharge opening leading into said compartment, said blower being connected to said distributor by said duct, said air flow silencing means defining a flow path in one end of said duct for only one fluid, said flow path being for air and extending in another general direction into said distributor, and a cross section of said duct as measured along said one general direction being tapered whereby quietness of operation and substantial uniformity of air flow to and through all portions of said silencing means may be effected.

3,306,178
AIR SUPPLY GRILLE FOR AIR CONDITIONING SYSTEMS

Lawrence W. Marino, 4020 New York Ave.,
Seaford, N.Y. 11783
Filed Nov. 5, 1964, Ser. No. 409,159
5 Claims. (Cl. 98—40)



1. An air supply grille assembly adapted to pass conditioned air through a partition into a room, said air supply grille assembly comprising:

(a) a core fixedly mounted adjacent an opening in said partition, said opening communicating with a source of conditioned air, said core being adapted to pass conditioned air into said room,

(b) a heat conductive finish frame mounted adjacent that side of said partition in said room, said finish frame being peripherally spaced from said core, said finish frame being adapted to conceal the boundary of said partition opening from said room,

(c) thermal insulation means interposed between said core and said finish frame to thermally insulate said finish frame from said core and thereby prevent condensation on said finish frame of moisture from non-conditioned room air,

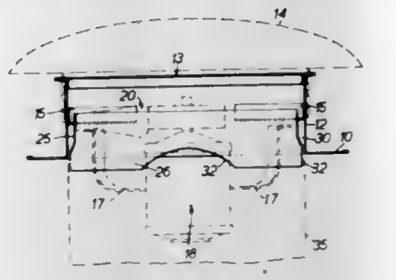
(d) deflector means peripherally disposed adjacent said core, and interposed between said core and said finish frame, said deflector means further being interposed between said thermal insulation means and said room, said deflector means having a substantially sloping profile adapted to deflect currents of non-conditioned room air away from said core and thereby prevent condensation in said core of moisture from non-conditioned room air,

(e) said deflector means cooperating with said finish frame to conceal the partition opening from said room.

3,306,179
FAN VENTILATOR WITH AIR SHROUD MEANS

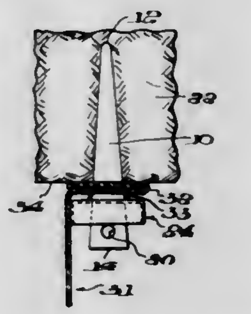
Howard Russell Lamble, Hayling Island, Raymond Alfred Frank Burtenshaw, Havant, and Peter Harold Gowan, Weybridge, England, assignors to Colt Ventilation and Heating Limited, Surbiton, England, a British company
Filed June 1, 1965, Ser. No. 460,042
Claims priority, application Great Britain, June 3, 1964, 23,062/64
6 Claims. (Cl. 98—43)

1. A powered discharge ventilator for use mounted on a bounding structure of a space to be ventilated by the ventilator to extract air from said space and discharge it to the outside of said bounding structure, the ventilator comprising a body structure adapted to be mounted on the bounding structure, support means carried by said body structure, an extraction fan including an impeller motor unit mounted on said support means and housed in said body structure, said body structure defining passage means leading outside said space for the discharge of the extracted air, a circular sectioned shroud mounted on said support means and housed in said body structure, said shroud having a downstream end and an upstream end, the downstream end of the shroud closely surrounding the tips of the blades of the impeller of said impeller motor unit, the shroud extending upstream of the impeller to its upstream end and opening through its downstream end into said passage means, the upstream end of said shroud opening into the space to be ventilated by the ventilator, the shroud defining a flared entry portion for extracted air at its upstream end.



3,306,180
APPARATUS FOR SUPPORTING MINE BRATTICES

Edward M. Asbury, 450 Burton Drive,
Pittsburgh, Pa. 15218
Filed Feb. 18, 1965, Ser. No. 433,672
4 Claims. (Cl. 98—50)



1. Apparatus for hanging brattice cloth from a surface of a mine at a location above the mine floor comprising,

a triangular wedge shaped spad having a pointed front edge, inclined side walls diverging from said front edge and terminating in a base portion, said spad arranged to penetrate a rock-like surface of a mine a preselected distance and suspend a portion of a brattice cloth therefrom,

a stop member having an aperture therethrough with a dimension less than the dimension of said spad base portion,

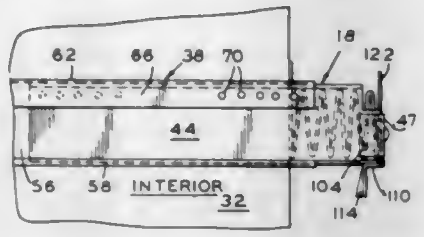
said spad extending through said aperture with said stop member engaging said spad side walls at a location between said spad front edge portion and said spad base portion, said spad inclined side walls supporting said stop member thereon,

said stop member arranged to support a portion of said brattice cloth pierced by said spad member and positioned on said pad member between said rock-like surface and said stop member, the weight of said hanging brattice cloth supported by said stop member, and

said stop member fabricated from a deformable material and being detachably mounted so that a pulling force of a preselected magnitude exerted on said stop member by said portion of said brattice cloth pierced by said spad member and positioned on said spad member between said rock-like surface and said stop member enlarges said apertures in said stop member to a dimension greater than the dimension of said spad base portion to thereby disengage said stop member and said brattice cloth from said spad.

3,306,181
WINDOW MOUNT FOR AIR CONDITIONERS

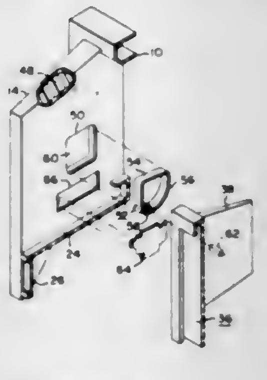
Norman W. Woods, Brantford, Ontario, Canada, assignor to Keeprite Products Limited, Brantford, Ontario, Canada, a corporation of the Province of Ontario
Filed Sept. 21, 1964, Ser. No. 397,987
3 Claims. (Cl. 98—94)



3. In combination a window, an air conditioner housing, and means for mounting said housing in said window, said window comprising a frame and a movable sash, said frame having a pair of vertical side runs and a sill, said sash being mounted for vertical movement in said side runs and being partially open when said housing is mounted in said window, said housing having a top wall, a bottom wall, and vertical side walls, one of said side walls being spaced from one run, said mounting means comprising top and bottom channels mounted on said housing, a side closure having a frame formed with top and bottom slides telescopic in said top and bottom channels, respectively, said top channel and said top slide having vertically registering perforations, a pin extending downwardly through said perforations to lock said top slide in said top channel with said closure extended laterally from said housing to said one run to substantially close the space defined by said one side wall, said one run, said sash and said sill, said sash being positioned directly over and immediately adjacent the upper end of said pin to block upward withdrawal of the pin from its locking position, and means securing said sash so positioned so that said pin cannot be removed to unlock the slide without first releasing and then raising said sash.

3,306,182
ROOM AIR CONDITIONER AIR DEFLECTOR MOUNTING ARRANGEMENT

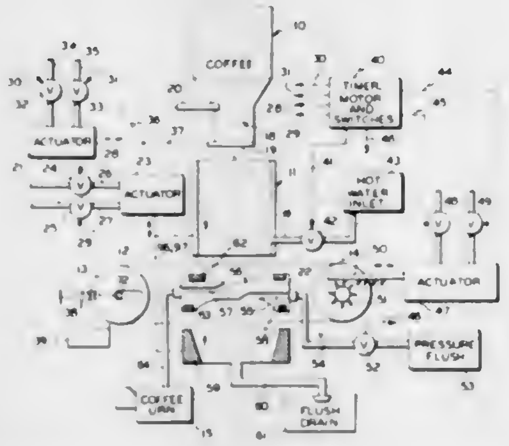
William L. Schwartz, Franklin Township, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 26, 1965, Ser. No. 474,614
4 Claims. (Cl. 98—94)



4. In a room air conditioner:
a conditioned air outlet having end walls and a bottom wall;
a tiltable deflector for controlling the vertical direction of the air discharged out of said outlet, said deflector being pivotally connected at its ends to said outlet end walls;
said pivotal connection at each end including a recessed, formed, ribbon spring including a fixed portion bearing against said outlet end walls, and a bowed flexing portion having a loop at its free end, said spring being disposed for movement of said loop in a substantially vertical direction effected by selectively tilting adjustment of said deflector, said spring exerting a downwardly-directed force upon said deflector to increase the frictional engagement along the line of contact between said deflector and said outlet bottom wall.

3,306,183
BEVERAGE INFUSION MACHINE

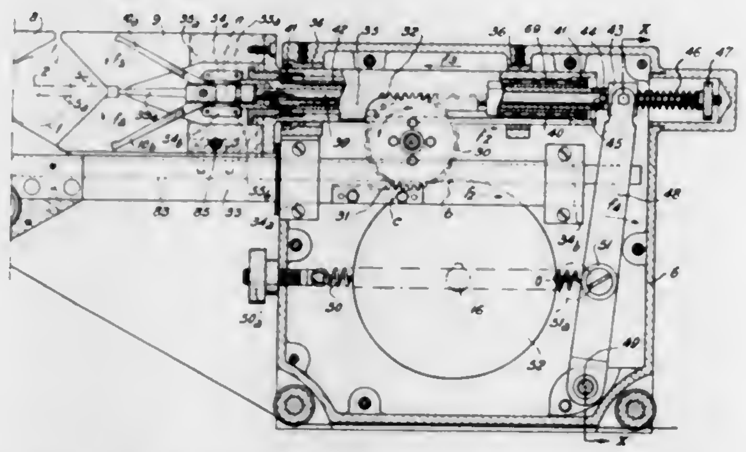
Sanford E. Richeson, Brooklyn, N.Y., assignor to Alfred B. Levine, Chevy Chase, Md.
Filed July 13, 1964, Ser. No. 382,160
8 Claims. (Cl. 99—289)



5. In an automatic coffee infusion and dispensing machine, a stationary member provided with an upper and lower chamber, a filter web having a portion proximate the upper chamber and a second portion proximate the lower chamber, a coffee infusion container positionable to sandwich said filter web portion against the upper chamber, a flush member positionable to sandwich said filter web second portion against the lower chamber, and actuated means for positioning said container and flush member in unison thereby to substantially equalize the pressure on said stationary member.

3,306,184
APPARATUS FOR CONSTRICTING AND BINDING A CONTINUOUS LENGTH OF MATERIAL AT SPACED POINTS THEREALONG

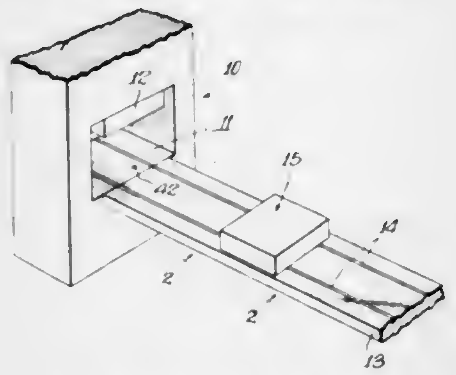
Ferdinand Hanau, 15 Blvd. Flandrin, Paris, France
Filed Oct. 11, 1965, Ser. No. 494,620
Claims priority, application France Oct. 14, 1964, 991,326
9 Claims. (Cl. 100—10)



1. Apparatus for binding a continuous length of yielding material at determined intervals along said length, comprising:
constrictor means including a pair of relatively displaceable members defining a variable space therebetween through which the material is passed;
means for relatively displacing the constrictor members toward each other for constricting the material and away from each other to permit the passing of the material therebetween;
means feeding segments of binding strip into said space for engagement with the material so as to form a bend of the strip around the constricted material portion;
strip-manipulator means including a pair of fingers and means mounting said fingers for opening and closing movement and for rotation;
means imparting closing movement to the fingers so as to clamp a bend of strip therebetween and for subsequently opening said fingers to release the strip;
means imparting rotation to the fingers while in closed condition to twist the strip clamped therebetween; and
means connected for operating said constrictor displacing means, strip feeding means, and finger opening and closing and rotating means in a cyclic sequence.

3,306,185
ROLLING BOLSTER

Robert Soman, Warren, Ohio, assignor to The McKay Machine Company, Youngstown, Ohio
Filed July 8, 1965, Ser. No. 470,513
3 Claims. (Cl. 100—229)

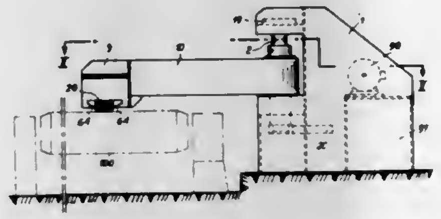


1. For use with presses and the like having a bed, the combination comprising a die-supporting carriage movable toward and away from working position on said press bed and in part formed of a pair of spaced-apart walls, said carriage having a lower portion for disposition upon said press bed and an upper surface for supporting a die, a pair of shafts extending between and journaled in said walls in spaced, side-by-side relation and said shafts having eccentric portions adjacent respective walls, a wheel journaled on each eccentric shaft portion aforesaid, drive means in part disposed between said walls and connected with one of said wheels for effecting rotation thereof, and an actuator disposed outside each of said walls and each being connected to a respective shaft aforesaid to effect rocking movement thereof between a first position wherein the wheels carried thereby project beneath the lower portion of said carriage when the latter is to be moved and a second position wherein said wheels are retracted above such lower carriage portion when said carriage is in working position on said press bed, said shafts, wheels, actuators, and drive means being disposed directly beneath said upper surface.

3,306,186
APPARATUS FOR MARKING ROLLED STOCK

Franz Voos, Solingen, and Franz Molitor, Langenfeld, Germany, assignors to Stommel & Voos Stahlstempelfabrik, Solingen, Germany, a firm
Filed Oct. 22, 1965, Ser. No. 500,836
5 Claims. (Cl. 101—18)

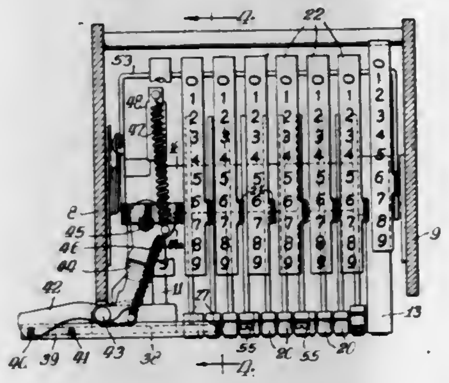
1. An apparatus for marking rolled stock such as blooms, billets or sheet bars comprising
a column;
an arm, said arm having one end attached to said column;
a marking head mounted at the other end of said arm, said marking head having a mounting plate, said mounting plate having thereon at least one guide track, said guide track having at least one feeler, said feeler being so arranged in said guide track as to project from the end face of said marking head, a carriage, and motivating means, said carriage being movable along said guide track by said motivating means;
axle means, said axle means being guided in said carriage; and



at least one type carrying adjustable marking disc, said marking disc being seated on said axle means, said marking disc having a plurality of individual adjacent types, a toothed rim, and selecting means for adjusting said marking disc, said selecting means having a gearing, said gearing being engageable with said toothed rim, and a gear coupling, said gear coupling controlling the engagement and disengagement of said gearing and said toothed rim;
said feeler on said guide track when brought into contact with a surface to be marked being adapted to adjust said marking disc so said marking discs will be parallel to said surface.

3,306,187
CHECKWRITER WITH TWO POSITION PREFIX BAR

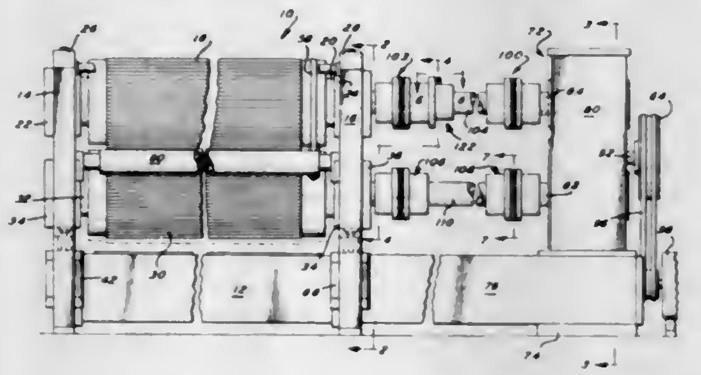
Hubert Jagger, Lincolnwood, Ill., assignor to Theodore B. Hirschberg, Jr., Chicago, Ill.
Filed Oct. 2, 1964, Ser. No. 401,087
7 Claims. (Cl. 101—20)



5. In a check writing machine, means defining a printing line, a plurality of printing segments individually adjustable for selectively disposing printing characters thereof on the printing line, said segments comprising a first group and a second group and having a normal nonprinting position and abutment elements disposed adjacent and in back of the printing line in said normal position of said elements, operating means for effecting a printing operation, a prefix bar having a first normal inner position extending inward along the printing line in front of the abutment element of the first member in the normal position of the latter effective for restraining said first member against movement to a printing position, said prefix bar having a second outer position clear of the

abutment element of said first segment, said prefix bar having spaced apart latch engageable means thereon corresponding to said first inner and said second outer positions thereof, respectively, and means for selectively engaging said latch engageable means of said prefix bar for disposing it in either of said positions and for moving it inward along the printing line into contact with the first one of said segments then in printing position incident to a printing operation.

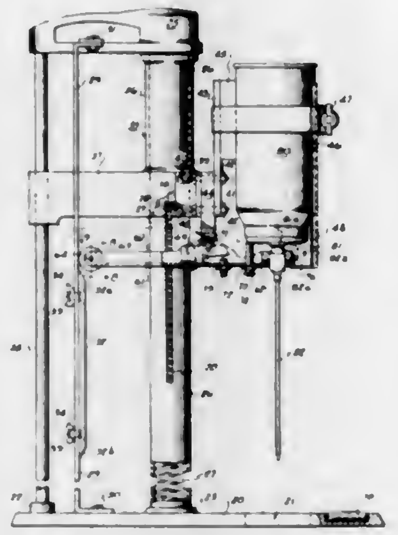
3,306,188
EMBOSSING MACHINE
Reginald Couzens, Wallingford, and Michael M. Young, Philadelphia, Pa. (both % Dietz Machine Works, Inc., 3105 W. Allegheny Ave., Philadelphia, Pa. 19132)
Filed Sept. 22, 1965, Ser. No. 489,251
3 Claims. (Cl. 101—23)



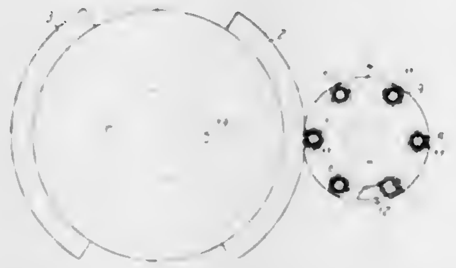
1. Embossing apparatus comprising a frame, upper and lower mating embossing rolls coupled to said frame, means supporting the ends of said upper roll in fixed relation to said frame, means supporting the ends of the lower roll so that the lower roll may be moved toward and away from the upper roll, motor means connected to said means supporting the ends of the lower roll for effecting such movement of the lower roll, a driving gear and a driven gear disposed in spaced relation to said rolls and in meshing interengagement with respect to each other, motor means coupled to said driving gear for rotating the same, an upper tranmission means extending from one of said gears to said upper roll, said upper transmission means comprising a shaft, a pair of couplings disposed in spaced relation on said shaft, said couplings being of the type permitting flexing in any lateral direction, a lower transmission means extending from the other gear to said lower roll, said lower transmission means comprising a shaft, a pair of couplings disposed in spaced relation on said shaft, said couplings being of the type permitting flexing in any lateral direction to facilitate movement of the lower roll toward and away from the upper roll without interfering with the meshing engagement of said gears, and angular adjustment means on said shaft of said upper transmission means between said couplings for adjusting the rotary disposition of said upper roll with respect to said lower roll without interfering with the meshing engagement of said gears.

3,306,189
DART-MARKING MACHINE
Antonino Alcamo, 305 Graham Ave., Brooklyn, N.Y. 11211
Filed Jan. 28, 1963, Ser. No. 254,110
4 Claims. (Cl. 101—26)

1. A dart-marking machine comprising: carriage means; shaft means including spring means, said carriage means being manually slidable along said shaft means against restraint of said spring means; disposable sealed container means including valve means, said container means being detachably supported on said carriage means and movable therewith along said shaft means, said container means having therein a dye substance and a propellant substance; a needle including a longitudinal duct centrally therethrough, said needle being coupled with said valve means for communication of the duct with the interior of said container means and said dye substance and propellant substance therein; stationary cam means; and, cam follower means supported on said carriage means and movable therewith for actuation by said cam means for opening said valve means whereby said dye substance is propelled by said propellant substance through the duct of said needle in response to actuation of said cam follower means.

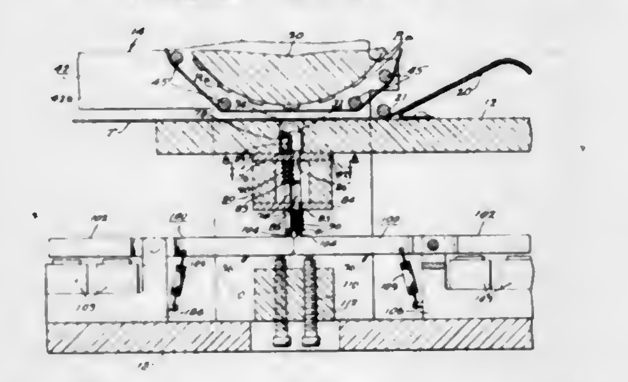


3,306,190
CONTROL DEVICE FOR ROTARY PRINTING APPARATUS
Kurt Groth, Fribourg, Switzerland, assignor to Polytype A.G., Fribourg, Switzerland
Filed June 9, 1965, Ser. No. 462,656
Claims priority, application Switzerland, June 15, 1964, 7,739/64
4 Claims. (Cl. 101—37)



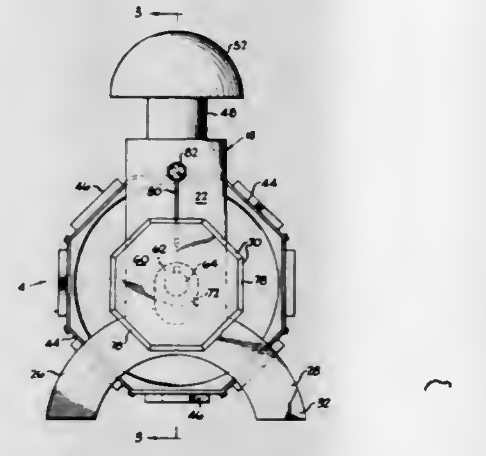
1. A control device for cyclically operating apparatus to interrupt the operation thereof in the absence of workpieces to be processed, and including a cyclically rotatable turret plate having uniformly circumferentially spaced mandrels carrying hollow workpieces through plural stopping points and eventually into operative relation with a work unit included in said apparatus, said device comprising, in combination a checking device selectively positionable fixedly at a selected one of said stopping points in advance of said work unit adjacent the path of movement of said mandrels and operable to detect the absence of a hollow workpiece on a mandrel; a control device for storing and releasing signals; a first control switch connected in a first input circuit to said control device; a first driving eccentric periodically closing said first control switch in accordance with rotation of said turret plate, said first control switch, in conjunction with said checking device, transmitting pulses through said input circuit to said control device for storage of signals responsive to absence of a workpiece on a mandrel; a second control switch; a coupling and braking device effective, when activated, selectively to drive said work unit or to arrest the latter at a fixed position; a controller for said device; said second control switch being a normally open switch connected in an input circuit to said controller; a second eccentric operable by said work unit and effective to close said second control switch to transmit a signal to said controller for activating said device to interrupt the operation of said work unit; a third control switch connected in a second input circuit to said control device; a third eccentric operated cyclically by said rotating turret plate to close said third control switch to complete said second input circut to deliver an erase impulse to said control device; circuit means connecting said control device to said controller and operable, responsive to a receipt of an erasing pulse from said second input circuit, and in the absence of a pulse from said first input circuit provided by activation of said checking device responsive to absence of a hollow workpiece on a mandrel, to condition said controller to operate said coupling and brake device to restart cyclical operation of said apparatus.

3,306,191
HIGH SPEED PRINTER
Philip P. Sharples, Bryn Mawr, Pa., assignor, by mesne assignments, to Anelex Corporation, Boston Mass., a corporation of New Hampshire
Continuation of application Ser. No. 246,249, Dec. 18, 1962. This application Aug. 27, 1965, Ser. No. 483,103
6 Claims. (Cl. 101—93)



1. In a high speed printer, a rotatably mounted printing drum having a plurality of characters on the outer periphery thereof arranged in circumferential columns around the periphery of the drum, a hammer mounting frame, a plurality of hammers mounted in said mounting frame, said hammers corresponding in number to the number of columns on the drum, each of said hammers comprising a hammer head and a rod depending from said head, said hammer heads arranged in a row in close side by side relation and hammer rods for alternate hammers arranged in a first row and the hammer rods for intermediate hammers between the alternate hammers also arranged in a second row spaced from said first row, hammer rod actuating means adjacent one end of said rod remote from the head for selectively actuating the hammers whereby the heads engage character receiving means against selected ones of the characters whereby characters are printed in a row on the character receiving means, resilient biasing means for each of the hammers, means on said rod and said mounting frame cooperating with said resilient biasing means to normally urge the hammers away from the characters and in close proximity to said actuating means, said resilient biasing means for alternate hammers disposed adjacent the said one end of said rod and said resilient biasing means for the hammers between the alternate ones disposed adjacent the end of said rod opposite said one end whereby the biasing means are so positioned on adjacent rods so as to be free and clear of one another thereby to provide for free independent actuation of the hammers and means for guiding the hammers during actuation to insure free independent movement.

3,306,192
DETENT AND ALIGNING MEANS FOR SELECTIVE ROTARY PRINT WHEEL
Norman T. McFarland, Mayview, and Leonid Kripak, Villa Park, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Sept. 23, 1964, Ser. No. 398,615
1 Claim. (Cl. 101—108)

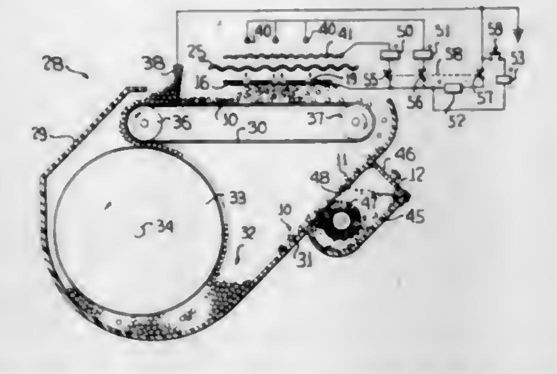


A stamping toy comprising a wheel providing a plurality of stamping faces arranged in sequence about the periphery of said wheel, a plurality of printing characters, one on each of said faces, a reciprocable frame in which said wheel is journaled for rotation, means on said frame for pressing said wheel in the direction of one of said stamping faces, an outer housing in which said frame is reciprocable, means for guiding said frame for reciprocation in said housing, said housing having a lower base portion, a dial disposed outside of said housing, means connected with said dial and with said wheel effecting dependent rotation of said dial and wheel, a plurality of characters on said dial corresponding with the printing characters on said wheel, each of said characters being disposed in the diametral plane of its corresponding character on said wheel on the opposite side of the axis of said wheel, whereby any character on said wheel will be in a downwardly disposed position at the time its corresponding character on said dial is in an upwardly disposed position, said dial providing a plurality of notches adjacent said housing corresponding to the location of said characters, and an elongated detent on said housing arranged to extend in the direction of reciprocation of said frame and engaged with the uppermost notch to hold said dial and wheel in position with one of said characters on said dial uppermost and the corresponding character on said wheel in position to print upon downward reciprocation of said frame, whereby said dial may move diametrically with said wheel by sliding along said detent, and said detent being displaceable and engageable in other notches in said dial to hold said dial and wheel in position to print other of said characters.

3,306,193
ELECTROSTATIC SCREEN PRINTING WITH MAGNETIC CONVEYER AND MOVING BASE ELECTRODE
Kenneth W. Rarey, South Holland, and John B. Kennedy, Jr., Chicago, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Sept. 14, 1964, Ser. No. 396,060
11 Claims. (Cl. 101—114)

1. Apparatus for electrostatic printing upon a substrate, said apparatus comprising a housing, a base electrode disposed adjacent to a portion of said housing, a stencil screen disposed between said substrate and said base electrode, supply means in said housing for supplying conductive carrier particles and toner particles to said base electrode, means for moving said base electrode with said

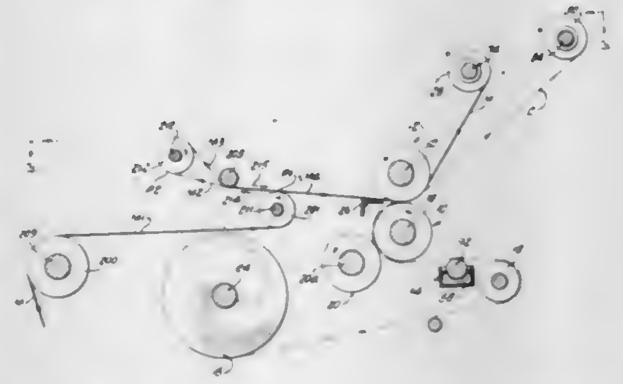
carrier particles and toner particles relative to said stencil screen and said housing, and transfer means for transferring said toner particles from said base electrode to said substrate; said supply means comprising a depository in said housing, and magnetic means for transferring said conductive carrier particles and toner particles from said depository to said base electrode.



3,306,194
PAPER GUIDE MEANS FOR PATTERN DUPLICATING MACHINE

Frank J. Cutri, Brooklyn, N.Y., assignor to Carlton Paper Corp., Brooklyn, N.Y., a corporation of New York

Filed June 30, 1965, Ser. No. 468,412
6 Claims. (Cl. 101—131)

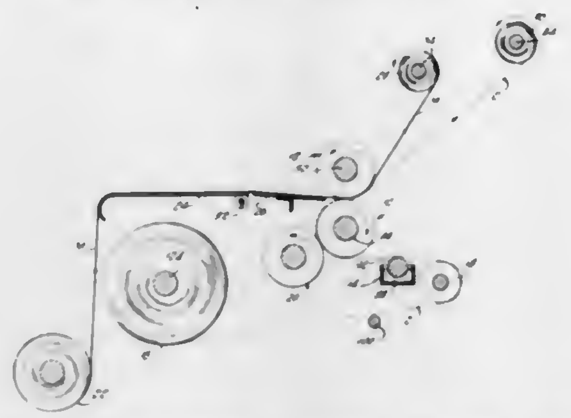


1. Paper guide means for a machine of the type described having a main feed roller, a counter roller parallel to and coacting with said main roller for pressing against each other a master sheet and a copy sheet which pass together between said main and counter rollers, said guide means comprising a holder for loosely supporting a roll of said master sheet parallel to and spaced from said main and counter rollers, and first, second and third idler rollers and a rod all parallel to and spaced from each other and sadi holder and main and counter rollers, said first idler roller in front of said main and counter rollers, said second idler roller between said first idler roller and said main and counter rollers, said third idler roller in front of the second idler roller and above the level of said first and second idler rollers, said rod between said second and third idler rollers and intersecting the line tangent to the top of said second idler roller and the bottom of said third idler roller whereby the master sheet extended from said holder over the front and top of said first idler roller, under, behind and over the second idler roller, under the rod, under, in front of and over the third idler roller and back under the rod and then between said main and counter rollers is frictionally engaged in double thickness by said rod, said guide means being thereby adapted to maintain said master sheet under sufficient friction along a sufficiently long path so that finger pressure on said master sheet adjacent either side edge thereof against said first idler roller causes shifting of said master sheet on said idler rollers in the direction outwardly of said side edge.

3,306,195
PATTERN DUPLICATING MACHINE

Frank J. Cutri, Brooklyn, N.Y., assignor to Carlton Paper Corp., Brooklyn, N.Y., a corporation of New York

Filed Apr. 28, 1965, Ser. No. 451,478
11 Claims. (Cl. 101—132.5)

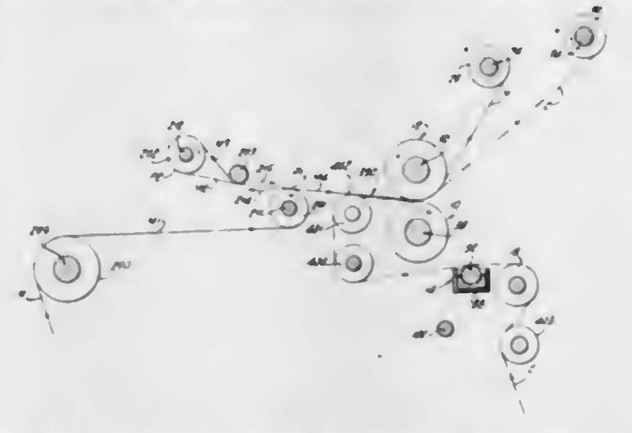


1. In a spirit duplicating machine, a main roller, a counter roller parallel to and coacting with said main roller for pressing against each other a master sheet and a copy sheet which pass together between said main and counter rollers, means directing a copy sheet along a given path to said main roller, moistening means situated along said path in advance and spaced from said main roller for moistening the copy sheet with spirit at that face of the copy sheet which is subsequently pressed against the master sheet by coaction of said main and counter rollers, and a pressure roller parallel to said main roller and coacting therewith for pressing the copy sheet against said main roller, said pressure roller engaging the moistened face of said copy sheet before the latter is pressed against the master sheet, said moistening means including a trough and a moistening roller extending partly into said trough and engaging said face of said copy sheet, drive means operatively connected to said main roller for driving the latter, and transmission means transmitting rotation of said main roller to said moistening roller.

3,306,196
PATTERN TRANSFER MACHINE

Frank J. Cutri, Brooklyn, N.Y., assignor to Carlton Paper Corp., Brooklyn, N.Y., a corporation of New York

Filed June 14, 1966, Ser. No. 557,410
8 Claims. (Cl. 101—132.5)

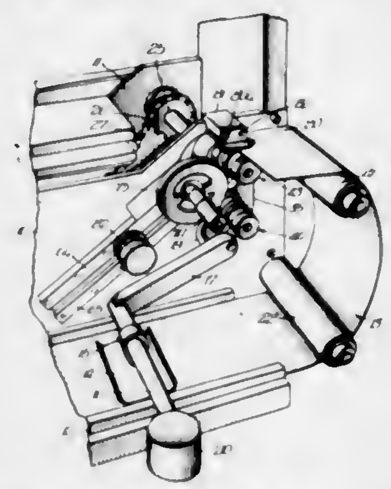


1. In a spirit duplicating machine of the type described having a main feed roller, a counter roller parallel to and coacting with said main roller for pressure against each other, a master sheet having an inked pattern thereon suitable for transfer, and a copy sheet pressing together therebetween to thereby transfer said master sheet pattern onto said copy sheet, copy sheet control means comprising, first and second copy sheet idler rollers spaced in parallel arrangement from each other, and said main roller, said first copy sheet idler roller being disposed above the level of said second sheet idler roller, means for moistening said copy sheet, said copy sheet passing through said moistening means and then being extended over said second and first copy sheet idler rollers respectively and thence over said main roller, said master sheet being disposed over said copy sheet at said first copy sheet idler roller and thence over said counter roller, said master sheet thereby being in registration contact with said pre-moistened copy sheet as said master and copy sheets travel together from said first copy sheet idler roller until they pass together between said main roller and said counter roller, thereby effecting the transfer of said master sheet pattern onto said copy sheet.

3,306,197
ALTERNATIVE PRINT DRUMS FOR APPLYING INDICIA TO MOVING SHEET

Hans A. Jensen and Augustus H. Eberman, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill., a corporation of Illinois

Filed May 5, 1965, Ser. No. 453,448
10 Claims. (Cl. 101—212)



1. Apparatus for applying indicia to a moving surface comprising, a pair of drums each having peripherally arranged indicia applying means, a first member rotatably mounting said drums with their axes of rotation in parallel spaced relation, means mounting said first member so that the latter may be moved to cause either of said drums to occupy a position formerly occupied by the other drum, a second member and means movably mounting the same adjacent said first member, said second member being adapted in one position thereof to engage said first member thereby to prevent movement of the latter, said second member being movable to another position away from said first member thereby to permit movement of the latter, a roller mounted from said second member for rotation about an axis parallel with said axes, which roller is adapted to prepare said indicia applying means by peripheral engagement of the former with the latter, said second member mounting said roller so that when the former is in said one position the periphery of the latter is engaged with the indicia applying means of one of said drums.

3,306,198
ELECTROSTATIC PRINTING PROCESS

Kenneth W. Rarey, South Holland, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

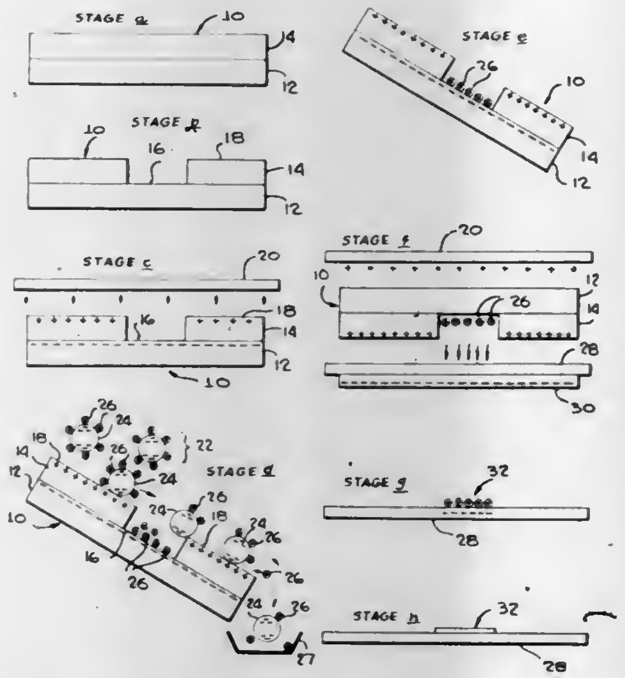
Filed Dec. 4 1963, Ser. No. 328,086
13 Claims. (Cl. 101—426)

1. A method of printing from a printing plate upon a substrate, said method comprising the steps of:

(a) providing a printing plate having image and non-image areas of different electrical potentials, the image areas being electrically conductive surfaces and the non-image areas being electrically insulative surfaces;

(b) charging said non-image areas for providing said non-image areas with a predetermined polarity;

(c) developing the conductive image areas with an image-forming material which is comprised of electrically charged image particles which have a polarity the same as the polarity of the charged non-image areas;

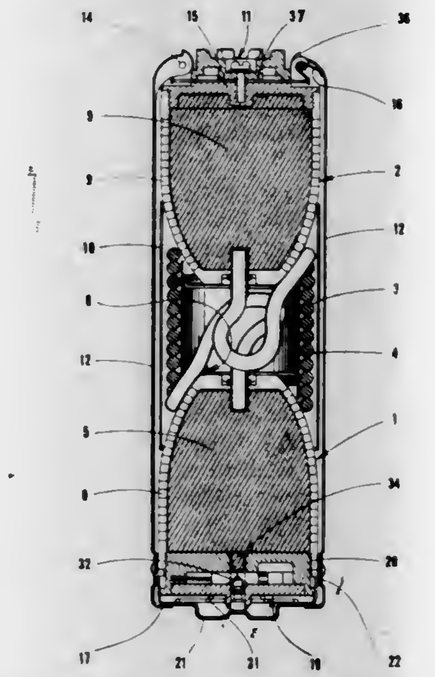


(d) establishing a potential difference between the conductive surfaces of said printing plate and said substrate for transferring the image-forming material from said conductive surfaces to said substrate, the potential difference being established so that the polarity of the substrate is opposite to the polarity of the charged image particles whereby the charged image particles are attracted from said conductive surfaces to said substrate.

3,306,199
MUNITIONS FOR TARGETS

Bert Karin, Fullerton, and Alan C. Baker, La Mirada, Calif., assignors to Northrop Corporation, Beverly Hills, Calif., a corporation of California

Filed Oct. 5, 1964, Ser. No. 402,065
2 Claims. (Cl. 102—7.4)

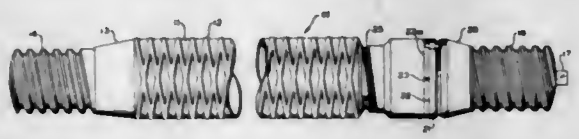


1. A munition or the like comprising a contact-burst body, an air-burst body, a length of flexible detonating cord connected between said bodies, said air-burst body

incorporating aerodynamic drag means, said bodies being generally cylindrical with a decreasing taper at the rear of said contact-burst body and at the front of said air-burst body, spacer means mounted between said two bodies, said cord being coiled between said bodies when in a stowed condition, a cylindrical housing having a plurality of longitudinal segments fit together edge-to-edge and surrounding said coiled cord, the outside diameter of said housing being susbtantially the same as said bodies, said drag means attached to the rear of said air-burst body and having a plurality of vanes foldable forward over said bodies and conforming to the outer shape of said bodies as stowed, and wind-actuated release means surrounding said vanes to normally hold the entire two-body munition assembly in a compact condition as stowed.

3,306,200
CONTAINER AND METHOD OF MAKING THE SAME

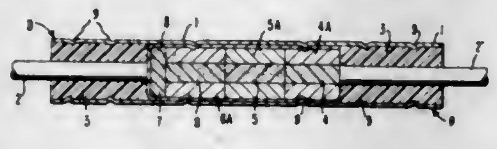
Tony E. Branscum, Winfield, Kans., and Estil N. Barnes, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 20, 1964, Ser. No. 412,811
11 Claims. (Cl. 102—24)



9. An explosive package containing in combination:
(a) a container comprising a tubular body member having a first threaded end, a second end having a threaded closure member threadedly engaged into a second end of said container, said closure member also having interior threads adapted to receive the threaded end of another container and sealing means between said closure member and said tubular body;
(b) and an explosive in said container.

3,306,201
EXPLOSIVE COMPOSITION AND WATERHAMMER-RESISTANT DELAY DEVICE CONTAINING SAME

George A. Noddin, Mantua, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed June 30, 1965, Ser. No. 468,424
9 Claims. (Cl. 102—27)

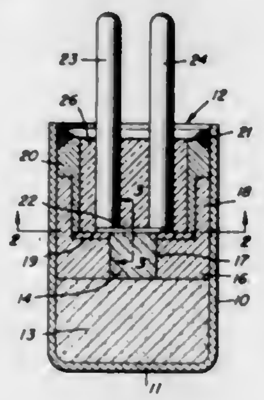


1. An explosive ignition composition consisting essentially, by weight, of at least about 88% red lead and about from 7 to 11% lead azide, lead styphnate, or a mixture thereof.

3,306,202
ELECTRIC INITIATOR

Vincent J. Menichelli and Irving Kabik, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Dec. 2, 1964, Ser. No. 415,547
2 Claims. (Cl. 102—28)

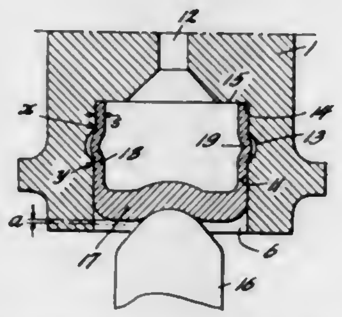
1. An electric initiator for explosives which is insensitive to the application of electrical currents or electrical power below a predetermined level which is above the level usually required to fire such devices and which will reliably function when electrical currents or electrical power above another predetermined level is applied, comprising
- a metallic receptacle having a closed end and an open end,
- a main charge of explosive in said receptacle adjacent said closed end,
- a cup-shaped metallic charge holder having its base in contiguous relation to said main charge and its sidewall contacting said receptacle, said charge holder having a bore through its base,
- a heat sensitive explosive charge disposed in said bore and in contact with said main charge,
- an insulating disk in the bottom of said charge holder, said disk having a bore therethrough in axial alignment with the bore in said holder,
- a resistance heating element spanning the bore in said disk and in contact with said heat sensitive explosive charge, said element comprising a flat strip of conductive metal,



- a pair of lead-in conductors in contact with said resistance heating element and extending out of said open end of said receptacle for connection to a source of electric power, said lead-in conductors having a predetermined heat capacity and acting as heat sinks,
- a block of insulating material in which said conductors are embedded, and
- a metallic sleeve surrounding said block of insulating material and soldered to the inside wall of said receptacle,
- whereby for low values of applied electrical current or electrical power heat will be conducted away from said resistance heating element through said lead-in conductors so that said heat sensitive explosive charge is not prematurely heated to its detonation point.

3,306,203
THREADED PERCUSSION PRIMER

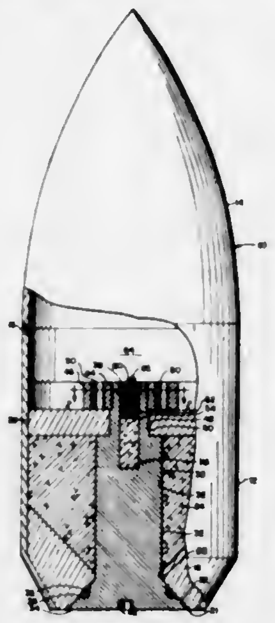
Franz Schaadt, Rolandstrasse 34, Dusseldorf, and Gunter Backstein, Rembrandtstrasse 24, Essen (Ruhr), Germany
Filed Mar. 24, 1964, Ser. No. 354,478
Claims priority, application Germany, Apr. 27, 1960, R 27,844
1 Claim. (Cl. 102—45)



A method of sealing a percussion primer in a casing of a cartridge with a cylindrical bore therein forming a side wall to prevent escape of powder gases during firing comprising forming an annular groove in the side wall of the bore, securing a cup-shaped element within the bore containing the primer charge, and laterally forcing a part of the cup-shaped element into the groove by a striker to seal the cup-shaped element in the casing against the escape of powder gases upon the firing of the cartridge by the impact force of a projected striker.

3,306,204
ROCKET PROJECTILE WITH SUPPORTED PROPELLANT GRAIN

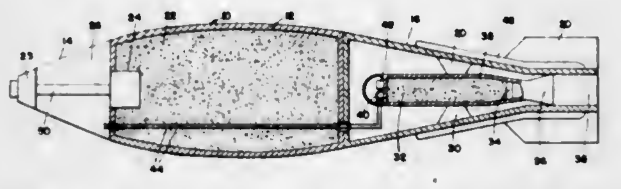
Guy C. Throner, Jr., Glendora, Calif., assignor to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio
Filed Oct. 5, 1962, Ser. No. 228,603
15 Claims. (Cl. 102—49)



1. A rocket projectile adapted to be launched by a suitable launching device comprising: a rocket chamber having a nozzle section with a throat and a discharge orifice, propellant grain in said rocket chamber having a cavity therein, a bulkhead in said rocket chamber forward of said propellant grain, said bulkhead comprising a partition wall having its outer periphery in engagement with the internal surface of said rocket chamber, a plug filling said cavity and connected at its forward end to said bulkhead, means for separating the major portion of said plug from said bulkhead, and means for ejecting said major portion of said plug through said discharge orifice after launching of the rocket projectile from a launching device.

3,306,205
FIN STABILIZED PROJECTILE

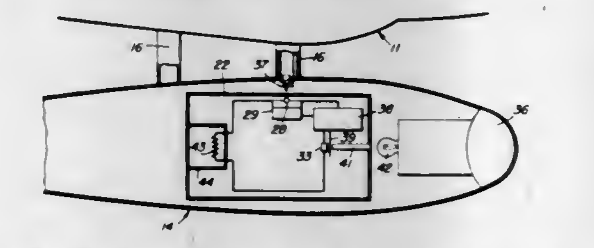
Irwin Marcus, Pompton Plains, and Irving L. Kintish, Rockaway, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Mar. 25, 1965, Ser. No. 442,841
1 Claim. (Cl. 102—49)



A low velocity fin stabilized mortar projectile having high terminal velocity capability comprising
- a projectile body having a nose portion and integrally therewith an open rearward tapered end portion having fins,
- a booster generally centrally forwardly disposed within said projectile body,
- fuze means located within said nose portion operatively communicating with said booster for detonation thereof,
- a body of explosive charge disposed in said projectile body operatively associated with said booster,
- a separate rocket motor fixedly mounted and wholly enclosed within said rearward end portion of said projectile body disposed axially rearwardly of said explosive charge,
- an exhaust nozzle at the rear of said rocket motor axially aligned with said rearward open end portion of said projectile body,
- rocket fuel within said rocket motor,
- means for igniting said rocket fuel after said projectile has started its downward trajectory to impart high terminal velocity to said projectile; and
- proximity sensing means disposed in the nose portion of said projectile, said sensing means operatively communicating with said igniting means for ignition of said rocket fuel, to impart a high impact velocity to said projectile by means of the thrust of burning gases escaping through said aligned exhaust nozzle and open end portion.

3,306,206
RADIO FREQUENCY FREE COMMUNICATION SYSTEM

Rodney E. Grantham, Bethesda, Md., assignor to the United States of America as represented by the Secretary of the Navy
Original application Dec. 4, 1962, Ser. No. 242,332, now Patent No. 3,228,337, dated Jan. 11, 1966. Divided and this application Sept. 16, 1965, Ser. No. 487,936
3 Claims. (Cl. 102—70.2)



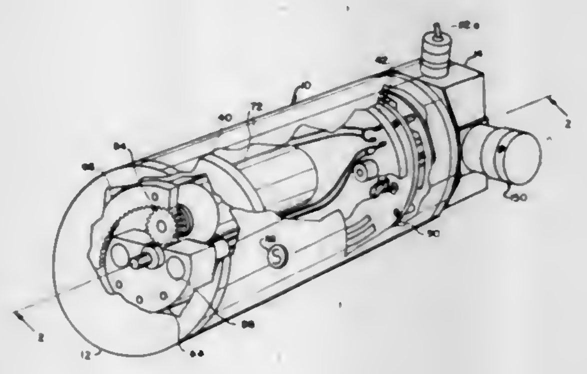
1. A detonator for use in an explosive missile comprising:
- a battery,
- an explosive primer operatively connected to said battery for activating said battery upon detonation of said primer,
- a photoconductive switch means for closing a circuit upon energization by a light source,
- time delay safety means shielding said photoconductive switch means from light activating energy for a predetermined time after activation of said battery,
- a resistive primer in contact with initiating means for detonating a warhead in the missile upon energization of the resistive primer by electrical energy,
- a series circuit formed by connecting together said photoconductive switch means, said resistive primer and said battery,
- a conductive shield enclosing and forming a radio frequency free enviroment for said battery, said photoconductive switch means, and said resistive primer,
- means for detonating said explosive primer,
- and light means operatively connected to said photoconductive switch means for selectively closing said last named means.

3,306,207
COAXIAL SAFE AND ARM DEVICE

Gerald H. Becker, Morrisville, and Dominick C. Lucenti, Fallsington, Pa., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,367
5 Claims. (Cl. 102—70.2)

1. A safety and arming device comprising:
a housing having an end closure at each end thereof;

at least one pyrotechnic train having one end thereof connected to said housing;
a support member mounted within said housing for rotation relative thereof;
a curved gear rack mounted within said housing;
drive means comprising a reversible electric motor mounted on said support member and a gear mounted on the drive shaft of said motor and engaged with said gear rack, whereby said support member is rotated between first and second angular positions thereof relative to said housing when said motor is operated;
an initiator mounted on said support member so as to be respectively out of and in register with the end of said pyrotechnic train when said support member is in said first and second angular positions;
an electrically-insulative panel mounted within said housing;
first actuation means comprising a plurality of electrical conductors mounted on said panel, a plurality of electrical contacts each of which is electrically connected to said motor and mounted on said support member so as to slidably contact at least one of said conductors when said support member is rotated between said first and second angular positions, and electrical power supply and switch means electrically connected to said conductors, said switch means being remote from said housing and adapted to selectively pass electric current to different ones of said conductors so that said motor can be energized to reversibly rotate said support member to said first and second angular positions, said first actuation means being arranged so that flow of electric current from said power supply to said motor is terminated when said support member is rotated to first and second angular positions; and

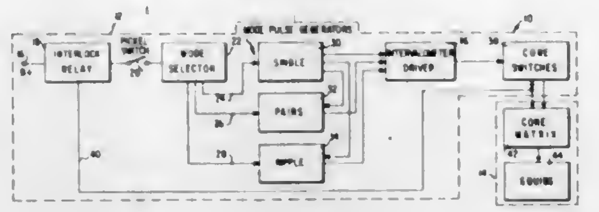


second actuation means comprising a pair of electrical conductors mounted on said panel, a pair of electrical contacts electrically connected to said initiator and mounted on said support member for contact with said pair of conductors when said support member is in said second angular position, and electrical power supply and switch means electrically connected to said pair of conductors, said switch means being remote from said housing.

3,306,208
UNIVERSAL INTERVALOMETER

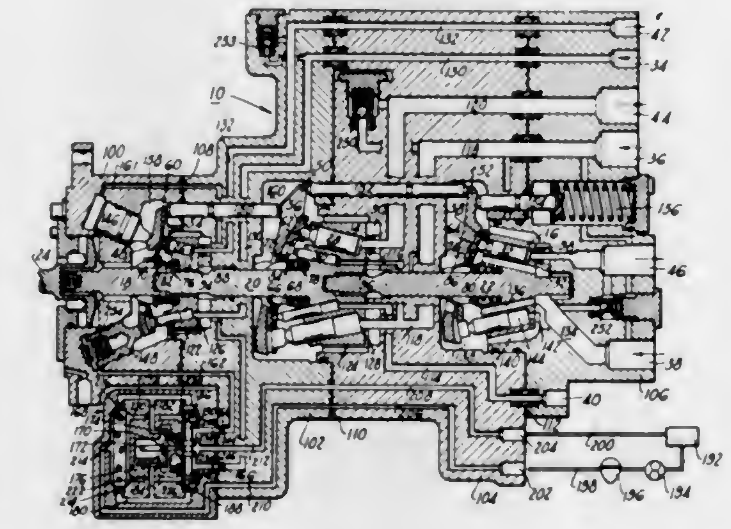
John M. Bergey, Rohrerstown, Raymond J. Anater, Akron, John T. Roland, Manheim, and Bruce G. Steiner, Richland, Pa., assignors to Hamilton Watch Company, Lancaster, Pa., a corporation of Pennsylvania
Filed Sept. 20, 1963, Ser. No. 310,296
9 Claims. (Cl. 102—70.2)

1. An intervalometer comprising a magnetic core matrix stepper switch for generating a squib firing signal for each step of said switch, a pair of drive cores for alternately providing stepping impulses to said stepper switch, a trigger switch, and a plurality of pulse generators including a single pulse generator, a pulse pair generator, and a ripple pulse generator, for energizing said drive cores in response to actuation of said trigger switch.



3,306,209
PUMP

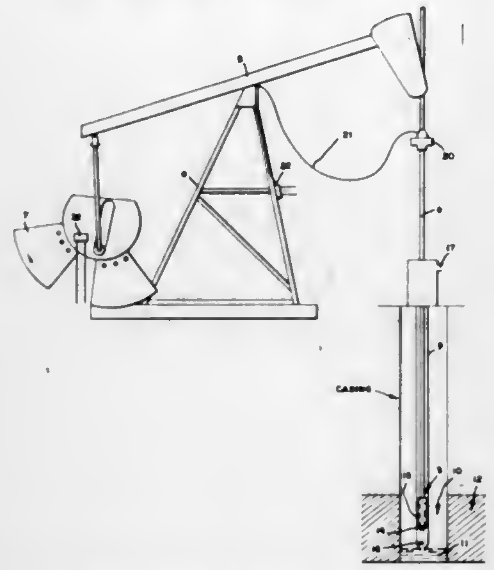
Henry P. Tyler, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed Mar. 26, 1964, Ser. No. 354,887
2 Claims. (Cl. 103—6)



1. A multi-fluid pump comprising:
a first, second and third pump having respective first, second and third rotors, pistons and cam plates;
a means to collectively control each cam plate including,
  a pressure responsive member arranged to operate one of said cam plates,
  a link means to connect said one of said cam plates to each of the other of said cam plates, and
  a spring means operatively connected to said cam plates and link means to oppose said pressure responsive member;
a control valve arranged to actuate said pressure responsive member;
a first passage means in said pump for delivering separate fluids to each of said pumps with one of said passages adapted to supply a fluid to cool the pump before being circulated by centrifugal force to the pump pistons, and
a second passage means in said pump for exhausting fluids from each of said pump means with one of said passages adapted to intermix a pair of fluids in a constant ratio throughout a control range for said pump; and
a bypass means for each of said fluids operatively connected between said first and second passage means to permit normal circulation of fluid regardless of pump operation.

3,306,210
AUTOMATIC OIL WELL PUMP CONTROL

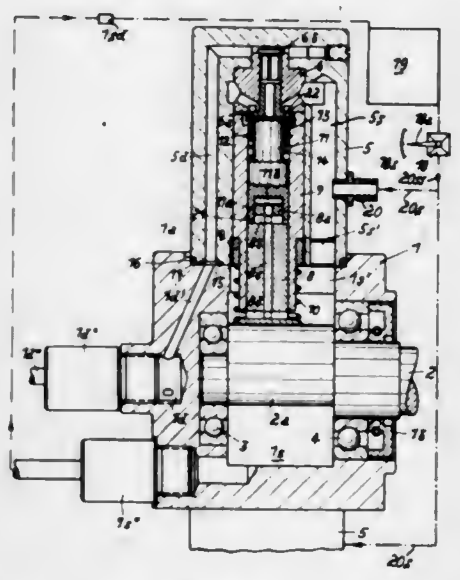
Harvey W. Boyd, 4401 Anetta Drive; Joseph I. Burleigh, 1205 Superior Lane; and Jessie L. Roberson, 2003 W. Indiana, all of Midland, Tex. 79701
Filed Aug. 25, 1965, Ser. No. 482,538
2 Claims. (Cl. 103—25)



1. Control means for a motor driven reciprocating rod type of oil well pump which exhibits the property of increasing the load on the pump rod on the downstroke when the well fluid is below pumping level comprising in combination, means for sensing an increase in the weight of the pump rod string, switch means operable by the sensing means at a threshold when the weight exhibited by the rod string on the downstroke increases to substantially that on the upstroke, and means shutting down the pump motor responsive to operation of said switch for a time period permitting fluid to enter the well and reach said pumping level.

3,306,211
PISTON PUMPS

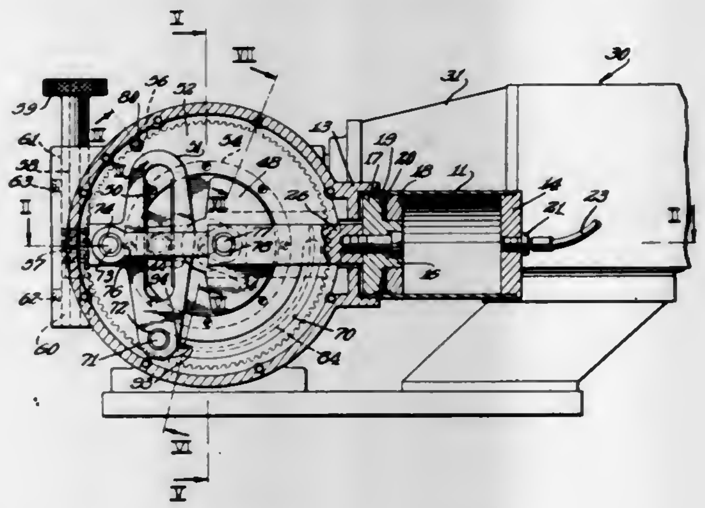
Werner Kunzler, Munich, and Karl Knauer, Gauting, near Munich, Germany, assignors to Munchner Motorzubehor G.m.b.H., Munich, Germany, a corporation of Germany
Filed May 4, 1964, Ser. No. 364,638
Claims priority, application Germany, Mar. 16, 1964, M 60,308
9 Claims. (Cl. 103—37)



1. A piston pump which includes, in combination, a pump housing; a rotary drive shaft mounted in said housing; a drive cam provided on said drive shaft; at least one pump body provided on the pump housing and extending radially with respect to the axis of the drive shaft, said pump body being provided with an operating chamber; a drive piston mounted in the pump body and arranged to be reciprocated in the body by the drive cam on the drive shaft, a supply piston mounted for reciprocation in the pump body and arranged to co-operate and move with the drive piston, said supply piston projecting into the aforesaid operating chamber; a suction conduit which is connected to said operating chamber and through which fluid at a low pressure and acting on the supply piston, is supplied to said chamber; and a device for regulating the quantity of flow which comprises an adjustable throttle arranged in the suction conduit for regulating the low pressure of the fluid supplied to the operating chamber, the drive piston and the supply piston defining between them a chamber in which prevails a constant pressure independent of the variable low pressure of the fluid supplied to the operating chamber.

3,306,212
PUMP WITH ADJUSTABLE SPEED AND STROKE

Samuel H. Norton, University Heights, Ohio, assignor to TRW Inc., a corporation of Ohio
Filed July 27, 1964, Ser. No. 385,237
12 Claims. (Cl. 103—38)



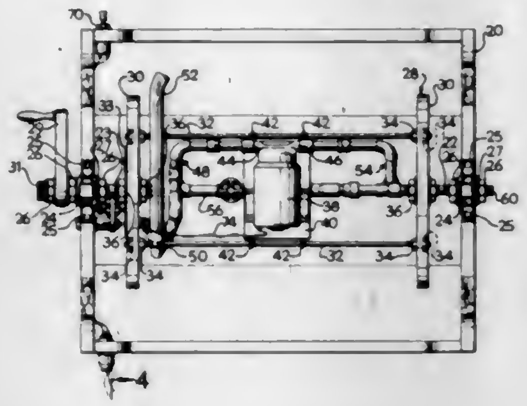
1. A pump comprising
a circular frame,
a shaft rotatably driven in said frame,
a crank connected to said shaft and rotated thereby,
a rocking arm having
  an elongated slot formed therein,
a cam roller interconnecting said crank and said rocking arm at said slot,
an angularly adjustable ring concentrically outwardly of said shaft and supported by said frame,
a trunnion pin carried by said ring and pivotally connected to said rocking arm,
a cylinder,
a piston reciprocable in said cylinder,
and a connecting rod connected to said piston and to said rocking arm,
whereby rotation of said shaft will rotate said crank thereby oscillating said rocking bar and reciprocating the piston through a suction and compression stroke, the length proportion of said strokes being adjustable by adjusting said ring in said frame, thereby adjustably positioning said trunnion pin and changing the location of the pivot axis of said rocking arm.

3,306,213
HOSE REEL AND PUMPING APPARATUS

Clarence J. Fritz, 395 Kossuth, Columbus, Ohio 43206
Filed Oct. 12, 1965, Ser. No. 495,189
7 Claims. (Cl. 103—41)

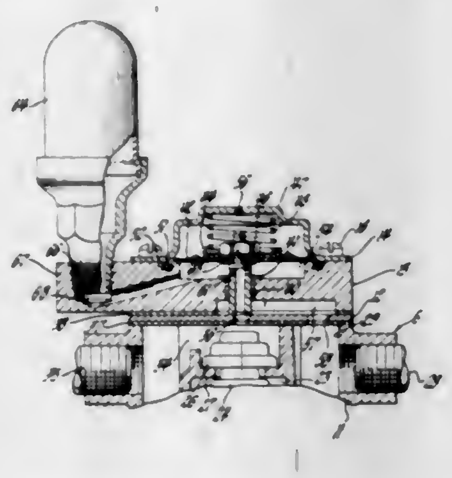
1. A hose reel and pumping apparatus comprising, in combination, a frame; a reel rotatably mounted on said

frame; a fluid pump means rotatably mounted within said reel and including a pump inlet and a pump outlet; first conduit means connected to said pump inlet; second conduit means connected to said pump outlet, said first and second conduit means being rotatably mounted within said reel; and resilient hose means including a first portion connected to said first conduit means and a second portion communicating with said second conduit means, at least one of said portions being removably wound on said reel.



3,306,214
PRESSURE CONTROL

Norman R. Hagler, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 2, 1964, Ser. No. 348,680
4 Claims. (Cl. 103—42)

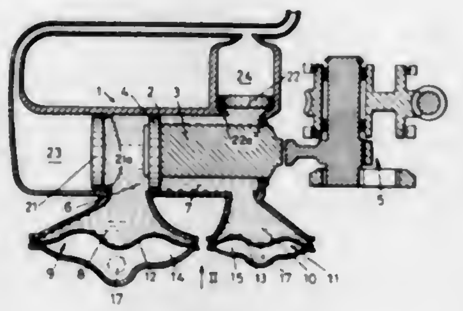


1. The combination of a liquid pump having a pulsating delivery characteristic and a delivery connection, and a pressure controlling device connected to the outlet of the pump,

the pressure controlling device including a valve connected to the pump by a conduit and operable to control the delivered pressure,
a movable wall operatively connected to the valve,
a chamber adapted to contain liquid under pressure to exert a valve actuating force on the movable wall,
means defining a restricted connection between the outlet of the pump and the said chamber branching from the delivery connection and branching from the said conduit between the pump and the said valve,
and an elastic accumulator for fluid openly connected to the said chamber,
the area of the restricted connection being very small relative to the capacity of the accumulator so that flow through the restricted connection during a cycle of pulsation of the pump does not substantially vary the pressure in the chamber.

3,306,215
CONTINUOUS-FEED RECIPROCATING PUMP

Martin Sebastiani, Owingerstrasse 1, Oberlingen (Bodensee), Baden, Germany
Filed Apr. 26, 1965, Ser. No. 450,670
Claims priority, application Germany, Apr. 24, 1964, S 90,758
10 Claims. (Cl. 103—44)

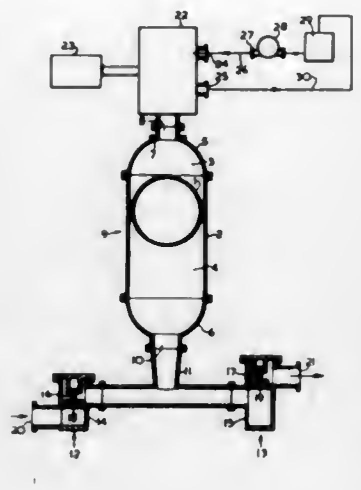


1. A continuous-feed reciprocating pump, particularly for thick materials like mortar, comprising wall means defining a pumping space including first and second oppositely disposed, serially interconnected space portions, a suction line for the materials connected to said first space portion, a feeding line for the materials connected to said second space portion and supplied with the materials from both space portions, a connecting line for the materials between said space portions, check valve means for said first space portion in at least one of said suction line and said connecting line, said second space portion having approximately half the volume of said first space portion, first and second chamber means for the respective first and second space portions, and resilient separator means in said chamber means for forming therein respective first and second intermediate spaces and first and second feeding spaces of variable volumes, wherein said check valve means is constituted by two check valves, one of said check valves being between said suction line and said first feeding space, the other of said check valves being between said first feeding space and said connecting line which leads to said second feeding space, while said feeding line is directly linked to said second feeding space.

3,306,216
LIQUID DISPLACEMENT PRESSURE TRANSFER PUMP

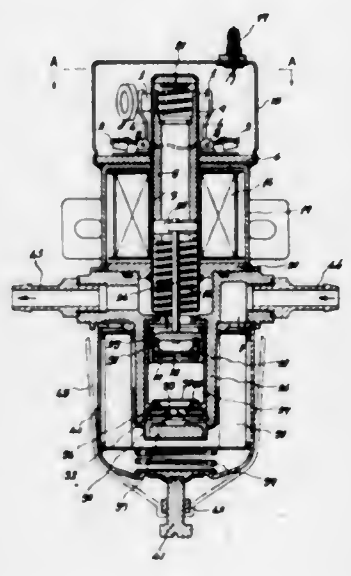
Charles Harold Warman, Castlecrag, New South Wales, Australia, assignor to Research and Development Pty. Limited, Perth, Western Australia, a corporation of the State of Western Australia, Australia
Filed Apr. 19, 1965, Ser. No. 448,985
Claims priority, application Australia, May 6, 1964, 44,158/64
4 Claims. (Cl. 103—52)

1. A liquid displacement pressure transfer pump comprising a vessel having a first and a second liquid medium therein with the first liquid medium superposed above the second liquid medium, said second liquid medium having a greater specific weight than first liquid medium, and a separator member of a bulk specific weight not greater than the specific weight of said first liquid medium floating and moving freeing adjacent and with the transition zone between said first and second liquid media, said separator member conforming to the walls of said vessel and having a working clearance therewith, said vessel having valved connections, whereby in cyclic operation said first liquid medium is admitted to said vessel at a pressure different from that of said second liquid medium to thereby displace said second liquid medium from said vessel by pressure transform and through said separator member, whereafter said second liquid medium is admitted to said vessel at a pressure different from that of said first liquid medium to thereby displace said first liquid medium from said vessel by pressure transfer from and through said separator member.



3,306,217
DEVICE FOR OPENING AND CLOSING THE CONTACTS OF A VEHICLE FUEL PUMP

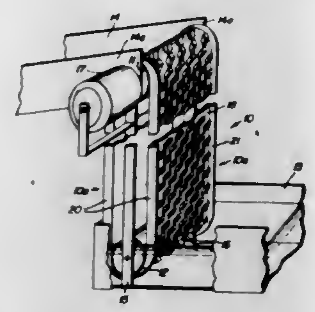
Yukio Hirano, Kiriu, Japan, assignor to Mitsubadenkiseisakusho Co. Ltd., Kiriu, Japan, a corporation
Filed Aug. 2, 1965, Ser. No. 476,418
Claims priority, application Japan, Nov. 11, 1964, 39/86,338; Apr. 19, 1965, 40/22,824
5 Claims. (Cl. 103—53)



1. In a mechanism provided with a reciprocating part of magnetic material such as a plunger of fuel pump and the like, an electromagnetic coil for attracting said reciprocating part against the compressive force of spring, and contacts for opening and closing the circuit of said electromagnetic coil, a device for opening and closing the contacts in the fuel pump for use in vehicles, in which an L shaped rocking piece of magnetic material is used and a magnet is fixed on each forward end of two arms thereof, an auxiliary plate of magnetic material being protruded from a part thereof, the end of a contact plate being mounted in said rocking piece, thereby precise opening and closing operation is effected by lever action of two magnets and rocking piece.

3,306,218
METHOD OF AND APPARATUS FOR ELEVATING LIQUIDS AND SEMI-LIQUIDS

John P. Reeves, 4168 Marquis Way, Salt Lake City, Utah 84117
Filed Sept. 13, 1965, Ser. No. 486,903
10 Claims. (Cl. 103—72)

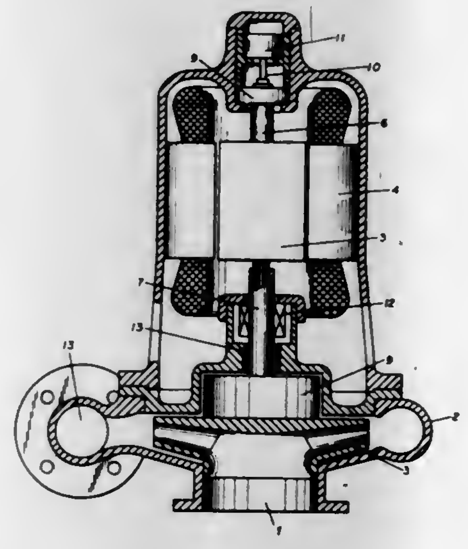


1. A method of elevating liquids and semi-liquids, comprising the steps of

feeding the material to be elevated onto the lower end of the working face of the belt of an upwardly-extending, endless, belt conveyor, said working face of which belt is provided, transversely thereof, with mutually spaced, longitudinally staggered, projections defining a plurality of continuous but devious channels extending endlessly with and superficially of said working face of the belt; and
driving said belt at a speed such that the resistance to flow of said material by reason of frictional engagement thereof with belt and belt projection surfaces is greater than the kinetic energy of the material as it is being elevated.

3,306,219
CENTRIFUGAL PUMPS WITH SLIP-COUPLING (CLUTCH)

Sixten Englesson, Djursholm, Sweden, assignor of one-half to AB Flygts Pumpar, Solna, Sweden
Filed Dec. 14, 1964, Ser. No. 418,083
Claims priority, application Sweden, Dec. 16, 1963, 13,955/63
4 Claims. (Cl. 103—87)

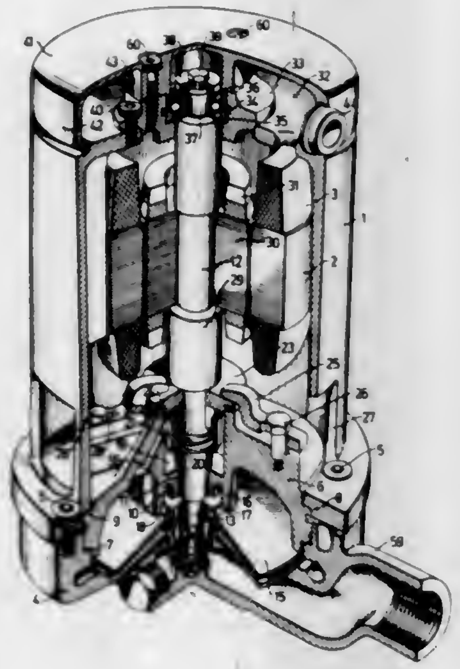


1. A centrifugal pump including a fluid pumping chamber and an impeller arranged in said fluid pumping chamber for the pumped fluid, and a driving motor for said impeller arranged outside the pumped fluid, a hydraulic slip-coupling adjustably connecting said impeller to its driving motor, said slip-coupling being arranged in said fluid pumping chamber, said slip-coupling and impeller being thereby operable to impart the occurring heat to said fluid.

3,306,220

CENTRIFUGAL PUMP, PARTICULARLY A HOT WATER PUMP

Jens Karl Adolf Dahlgren, Stockholm, and Filip Torvald Stahl, Alvsjo, Sweden, assignors to Aktiebolaget Flygts Pumpar, Solna, Sweden, a corporation of Sweden
Filed May 3, 1965, Ser. No. 452,478
13 Claims. (Cl. 103—87)

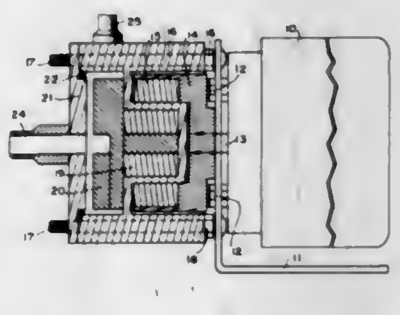


1. A centrifugal pump, particularly a hot water pump, having a pump housing including a cover defining with said housing pump and motor chambers, an impeller, a substantially vertical throughgoing driving shaft for the impeller having an axis, a drive motor stator including an upper end wall and being mounted on the pump-housing, a shaft bearing and sealing arrangement having securing means and being positioned in the pump-housing cover between the pump chamber and motor chamber, an upper bearing bracket having securing means and being attached to the upper stator end wall, the driving shaft being withdrawably connected to the impeller, and being adapted to be withdrawn axially together with the rotor of the driving motor and said sealing arrangement and bearing bracket, subsequent to removing the securing means of the latter, and the securing means of the sealing arrangement, as a unit through said end wall.

3,306,221

MAGNET DRIVE PLASTIC PUMP

Kenneth Wayne Goodpasture, 623 W. Colfax St., Palatine, Ill. 60067
Filed May 18, 1965, Ser. No. 457,229
2 Claims. (Cl. 103—87)

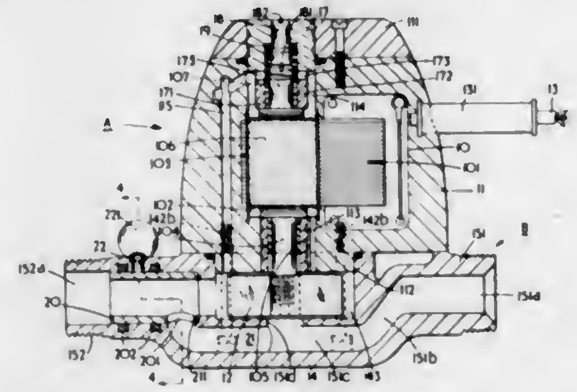


1. A centrifugal pump of the class described comprising of a plastic body having an outlet port and a plastic suction head having an inlet port together providing a pumping chamber and a magnet compartment, a rotatable magnetically influenced ceramic magnet located in such compartment with a plastic impeller secured to and driven by same such ceramic magnet which in turn becomes the internal shaft of the pump and the magnet compartment of the plastic body becomes the sole bearing for said magnet.

3,306,222

ELECTRICALLY DRIVEN CIRCULATING PUMP

Clifford George Simcox, Walmley, Sutton Coldfield, England, assignor to James Beresford & Son Limited, Birmingham, England, a corporation of Great Britain
Filed June 7, 1965, Ser. No. 462,692
Claims priority, application Great Britain, June 25, 1964, 26,232/64
6 Claims. (Cl. 103—87)



1. An electrically driven circulating pump comprising the unitary assembly of a separately formed self-contained electric motor unit and a separately formed pipeline connection unit, said separately formed self-contained electric motor unit incorporating a body consisting of an encasement of a synthetic plastics material possessing good electrical insulating properties, good heat conductivity and strength, a stator unit embedded in the encasement, a rotor chamber in the mass of the encasement, a thin metal sleeve bounding the rotor chamber, rotor disposed within the rotor chamber, a spindle for said rotor, a bearing for the inner end of said spindle mounted within the encasement, a detachable means for closing one end of the encasement which on removal permits of access being gained to the rotor chamber for effecting the insertion of and the removal of the rotor as required, a pump impeller fixed on the inner end of the spindle which projects from the encasement bearing, said separately formed pipeline connection unit incorporating liquid inlet and outlets, a pump chamber intermediate said inlet and outlets, means for attaching the separately formed pipe connection unit to the said separately formed self-contained electric motor unit so that the the high pressure side of the pump chamber of the impeller then becomes located within the pump chamber, a passage through the encasement which leads from the high pressure side of the pump chamber of the assembly into a space around the outer bearing of the spindle and thence into the rotor chamber and a passage through the encasement leading from the rotor chamber to the low pressure side of the pump chamber of the assembly, said passages in addition to serving to conduct coolant to and from the rotor chamber and outer spindle bearing serve also to circulate coolant through the mass of the encasement.

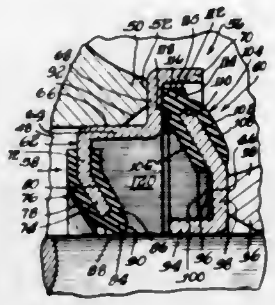
3,306,223

WATER PUMP SEAL

Joseph M. Liebig, Wheaton, Ill., assignor to Illinois Milling, Inc., Chicago, Ill., a corporation of Delaware
Filed Oct. 22, 1964, Ser. No. 405,719
10 Claims. (Cl. 103—111)

1. In combination with a water pump having a housing with a central axial cavity and having a rotary shaft with an impeller thereon, a water pump seal comprising a rigid

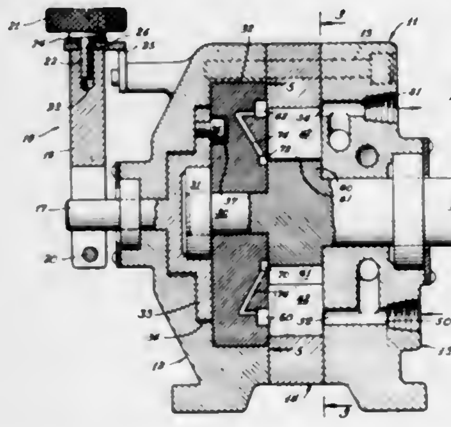
member with a sidewall fixedly fitting in said cavity and with a wall extending radially inwardly therefrom, an elastomeric seal element mounted on said rigid member including a substantially radial wall thereof and having a cantilevered lip circumferentially engaging said shaft, and a guard element fixed on said shaft and rotary therewith and having an elastomeric cantilevered lip thereon riding on said rigid member.



3,306,224

VARIABLE VOLUME PUMP OR MOTOR

Richard W. Roberts, Lombard, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Oct. 8, 1964, Ser. No. 402,590
3 Claims. (Cl. 103—120)



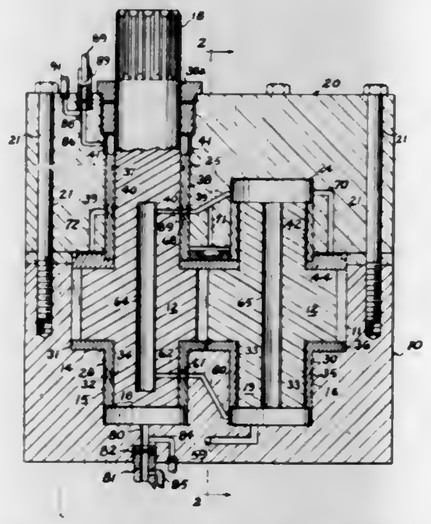
1. A fluid pressure energy translating device including a casing, a rotor mounted within said casing, a cam ring surrounding the rotor, said rotor and cam ring defining a pair of fluid chambers, fluid pressure inlet and outlet means in said casing on one side of said rotor and communicating with each of said chambers, a plurality of vanes mounted in said rotor and engaging said cam ring to define a plurality of fluid spaces, a rotatable port plate mounted adjacent said rotor and on the opposite side thereof with respect to said inlet and outlet means and rotatable with respect to said cam ring, said port plate having first elongated port in fluid communication with the inlet means having a plurality of fluid spaces, said port plate having a second elongated port in fluid communication with the outlet means and a plurality of fluid spaces, said elongated ports being of greater arcuate extent than said fluid inlet and outlet means whereby rotation of said port plate will simultaneously vary the effective length of said inlet and outlet means to thereby vary the fluid displacement of said device.

3,306,225

SELF-LUBRICATING PUMP

Sylvester W. Smith, 1961, Joseph Court, Decatur, Ga. 30032
Filed July 8, 1964, Ser. No. 381,057
4 Claims. (Cl. 103—126)

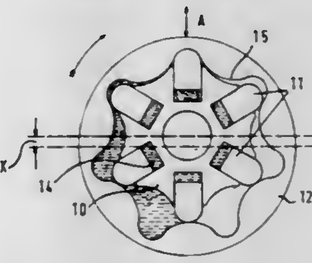
1. A gear pump including a body having an opening, an outlet, and an inlet therein, a pair of intermeshed gears received in said body, a first shaft and a second shaft, each of said shafts carrying one of said gears, a face plate contiguous with said body and secured thereto to close said opening, a bearing in said body to journal one end of said first shaft, a bearing in said face plate to journal the other end of said first shaft, a bearing in said body to journal one end of said second shaft, a bearing in said face plate to journal the other end of said second shaft, a wear plate slidably carried on said first and second shafts between said gears and said face plate, said wear plate being complementary shaped to fill said opening and defining a pair of apertures therethrough to receive said first and second shafts, said wear plate defining a plurality of slots disposed about each of its apertures, said face plate defining a plurality of slots corresponding in size and position with the slots of said wear plate and disposed in juxtaposition therewith to define sealing channels, and a plurality of resilient members slidably received in said sealing channels and sealing said wear plate with said face plate, said shaft and said housing; said resilient members communicating with said outlet to introduce the fluid pressure from said outlet against said resilient members to force said resilient members into said sealing channels.



3,306,226

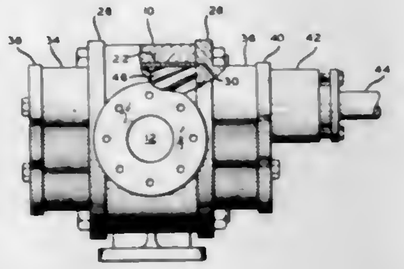
FLUID PUMPS AND MOTORS

Robert Dennis Walter, Allesley, Coventry, England, assignor to Concentric (Engineering) Limited, Birmingham, England, a British company
Filed Feb. 23, 1965, Ser. No. 434,305
Claims priority, application Great Britain, Mar. 26, 1964, 12,923/64
1 Claim. (Cl. 103—126)



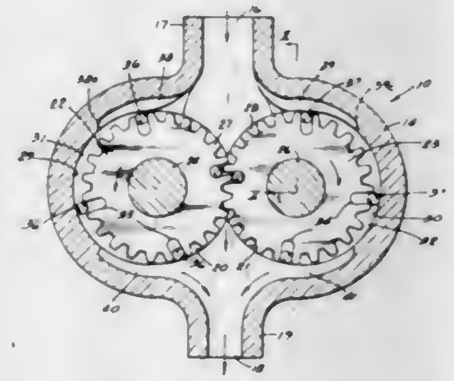
A pump or motor comprising a hub provided with a plurality of slidable vanes, the hub and vanes together constituting a lobed rotor, and a rotatable annulus having its inner periphery which co-operates with the rotor of substantially complementary shape, the hub having an axis and being formed with a plurality of slots angularly offset about said axis, the hub having two flat parallel facs in each slot, each slot receiving one of said vanes, the vane having two parallel flat faces slidably engaging the faces of the hub in the associated slot, and a contact face of semicircular cross section, said contact face connecting said flat faces of said vane and movably engaging said annulus during rotation of said rotors.

3,306,227
ROTARY PUMP
Clyde E. Bailey, Beatrice, Nebr., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 5, 1965, Ser. No. 477,413
6 Claims. (Cl. 103—126)



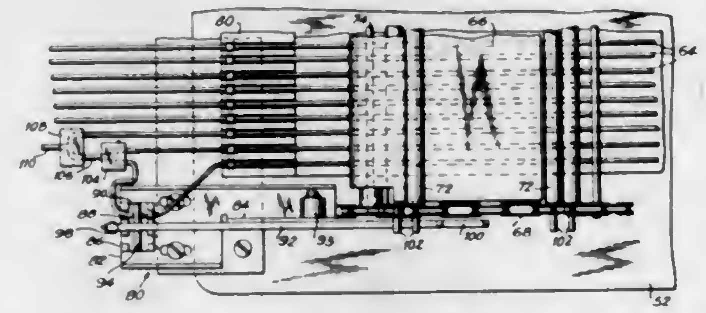
1. A pump comprising: a housing having an inlet port and an outlet port; a chamber formed in said housing and comprising a pumping cavity communicating with said inlet port and said outlet port; a stationary liner of complementary shape mounted on the wall of said chamber, each end of said liner extending slightly beyond the respective ends of said chamber wall and said housing; a first and a second end plate, each substantially closing one end of said housing; and a grooved recess of a shape like that of said liner formed in the inner wall of each of said end plates for receiving therein said extended ends of said liner when said end plates are mounted on said housing.

3,306,228
COMBINATION GEAR AND VANE PUMP
Gilbert H. Drutchas, Birmingham, Mich., assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed Aug. 20, 1965, Ser. No. 481,248
1 Claim. (Cl. 103—126)



A pump comprising
a housing having an inlet and an outlet at opposite sides thereof,
  said housing having formed internally thereof between said inlet and said outlet a double-lobed pumping cavity including first and second lobes disposed relatively transversely of said inlet and said outlet,
a pair of pumping rotors in said housing having shaft means disposed on axes of rotation concentric to the bore walls of said first and second lobes,
  each rotor having alternating gear teeth and gear tooth spaces and being in full meshing engagement with one another,
  said housing having an offset casing contour disposed eccentrically outwardly of each respective rotor to form a crescent-shaped expansible working chamber in each respective lobe,
each rotor having a plurality of circumferentially spaced peripheral slots formed therein and disposed between the alternating gear teeth and gear tooth spaces,
  each slot slidably carrying a cylindrically roller-type vane sized to move radially in a corresponding slot for engagement with the adjoining bore wall of a corresponding one of said first and second lobes,
said housing having formed therein oppositely transversely extending radial ports on the inlet and outlet sides to communicate each working chamber with said inlet and said outlet, respectively,
  said radial ports having cut-off points spaced from one another circumferentially and disposed so that the pump develops three separate pumping actions independently utilizable as a function of the porting provided in said pump.

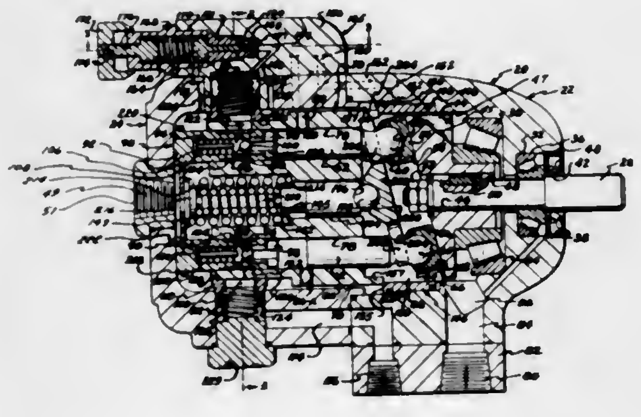
3,306,229
PUMP APPARATUS AND METHOD OF OPERATION THEREOF
William J. Smythe, Rye, N.Y., assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Apr. 5, 1965, Ser. No. 445,480
20 Claims. (Cl. 103—149)



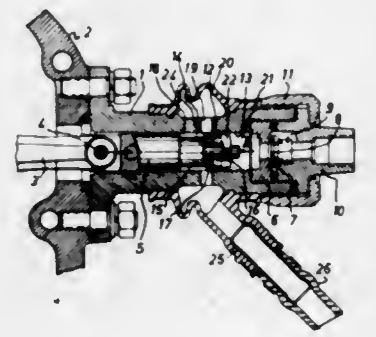
1. A peristaltic pump apparatus, comprising: at least two resiliently compressible pump tubes; a plurality of compressing means, operable cyclically and sequentially, each for sequentially, progressively compressing said two tubes in the direction of their lengths in a pumping action to displace fluids respectively therethrough as respective streams and then sequentially disengaging from said tubes, the disengagement of each of said compressing means from said tubes occurring at a constant interval of time after the disengagement of the next preceding compressing means and prior to the disengagement of the next succeeding compressing means; each of said two tubes having an inlet for fluid flow coupling to a respective source of fluid, and an outlet for the discharge of the respective stream of fluid; and means for continuously adding together the streams of liquids of said two tubes into a resultant stream and for regularly periodically adding a volume of an inert different fluid to at least one of the streams to provide a segmentized resultant stream, said addition of each volume of the different fluid occurring at a constant interval of time after the addition of the next preceding volume of the different fluid and prior to the addition of the next succeeding volume of the different fluid; said constant interval of time between successive additions of the different fluid being an integral multiple of said constant interval of time between successive disengagements of said compressing means from said tubes.

3,306,230
CENTRIFUGALLY COOLED HYDRAULIC MACHINE
Robert E. Raymond, Zanesville, Ohio, assignor to Hydro-Kinetics, Zanesville, Ohio
Filed June 2, 1965, Ser. No. 467,168
17 Claims. (Cl. 103—173)

1. A pump comprising, in combination, housing means forming a chamber and including a housing intake port, a separate high pressure outlet port, and a low pressure coolant outlet port; cylinder barrel means within said chamber and including barrel wall provided with a cylinder intake port, said barrel wall being spaced from the inner surface of said housing means to provide both a supercharged fluid delivery passage communicating with said cylinder intake port and a coolant passage communicating with said housing coolant outlet port; a plurality of reaction plugs having inner ends slideably disposed in said cylinders and blind out ends freely engaging said housing means, said blind outer ends of said reaction plugs forming fluid reaction surfaces for forcing the reaction plugs against the housing means; piston means mounted for reciprocating movement in said cylinder barrel means; cam means in driving engagement with said piston means and including a centrifugal pumping surface between said housing intake port and an inlet end of said supercharged fluid delivery passage; and check valve means communicating with said housing coolant outlet port to permit fluid to flow out of said coolant outlet port when a predetermined pressure is reached and to prevent fluid to flow into said coolant outlet port.

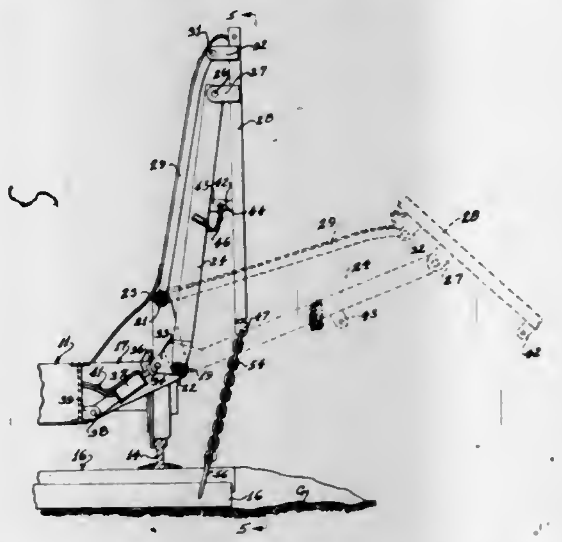


3,306,231
PISTON PUMPS
Jean G. Cadiou, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France, a corporation of France
Filed Sept. 10, 1965, Ser. No. 486,462
Claims priority, application France, Sept. 11, 1964, 987,840
1 Claim. (Cl. 103—178)



Piston pump comprising a cylinder, a piston in said cylinder, a suction valve member carried by said piston, said valve member comprising an annular member slidably mounted in said cylinder and freely mounted on said piston with an axial clearance so that said valve member may open or close a suction passage provided between said annular valve member and said piston, whereby the inertia of said valve member and its frictional engagement with the cylinder wall and even the inertia alone are sufficient for opening and closing said suction passage in response to the piston reciprocations, an elastic expansible casing mounted on said cylinder constituting a suction chamber and said casing having an integral pipe for connecting said casing to a suction pipe line.

3,306,232
APPARATUS FOR REMOVING CROSSTIES
John D. Holley, Montgomery, Ala., assignor to Kershaw Manufacturing Co., Inc., a corporation of Alabama
Filed June 7, 1965, Ser. No. 461,973
7 Claims. (Cl. 104—6)

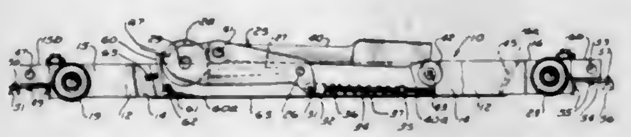


1. In apparatus for removing a crosstie from beneath the rails of a railroad track after ballast has been removed therefrom:
- (a) a frame adapted to be supported for movement along a railroad track,
- (b) a first outwardly extending arm pivotally connected adjacent its inner end to said frame,
- (c) a second outwardly extending arm pivotally connected adjacent its inner end to said frame at an elevation above and in spaced relation to the pivotal connection of said first arm to said frame,
- (d) a depending arm pivotally connected adjacent its upper end to said second arm adjacent the outer end thereof,
- (e) means to pivotally connect the outer end of said first arm to said depending arm at an elevation below and in spaced relation to the pivotal connection of said second arm to said depending arm,
- (f) power actuated means disposed to move said first and second arms about their pivotal connections to said frame to move the outer ends of said first and second arms from a first position adjacent said frame to a second position outwardly of said frame whereupon the lower end of said depending arm is pivoted from a position adjacent said frame to a position outwardly thereof, and
- (g) crosstie engaging means operatively connected to the lower end of said depending arm and disposed to engage a crosstie while the lower end of said depending arm is adjacent said frame whereupon the crosstie is removed from beneath the rails in response to movement of the outer ends of said first and second arms to said second position.

3,306,233
RAILWAY CAR HOLDER ASSEMBLY
Wallace J. Saxonmeyer, Park Forest, Ill., assignor to Whiting Corporation, a corporation of Illinois
Filed Feb. 24, 1964, Ser. No. 346,649
9 Claims. (Cl. 104—249)

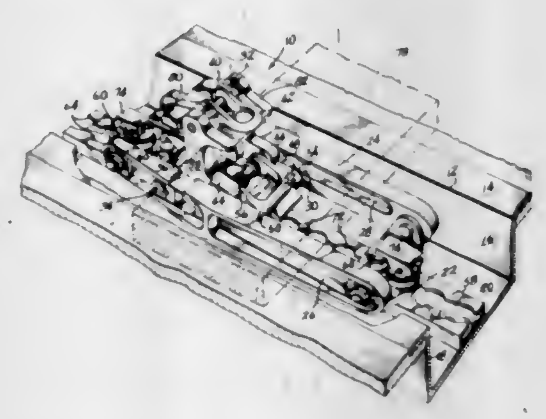
3. A railway car holder assembly of the type adapted to be mounted between rails of track for holding one or more cars on the latter, said assembly comprising, a pair

of juxtaposed car holders extending longitudinally of said rails between the same, each of said car holders having collapsible means including a member adapted to be engaged by a railway car axle for acting as a stop against movement of a car in one direction thereof and for permitting movement of the car in an opposite direction, separate track means mounting each of said car holders for movement in either direction along a rectilinear path parallel to the direction of car movement along said rails, equalizer bar means pivotally secured to corresponding ends of the car holders so that the latter receive equal coupling shocks from a railway car axle engaged thereby, anchor means fixedly secured in spaced relation with said car holders, and long travel cushioning means connected to said anchor means and to said equalizer bar means for cushioning movement of the car holders in a direction corresponding to said one direction of the car, erecting and collapsing movement of said car holders being independent of said cushioning means, whereby coupling shocks received by the car holders are largely absorbed by the cushioning means.



3,306,234
SECURING DEVICE

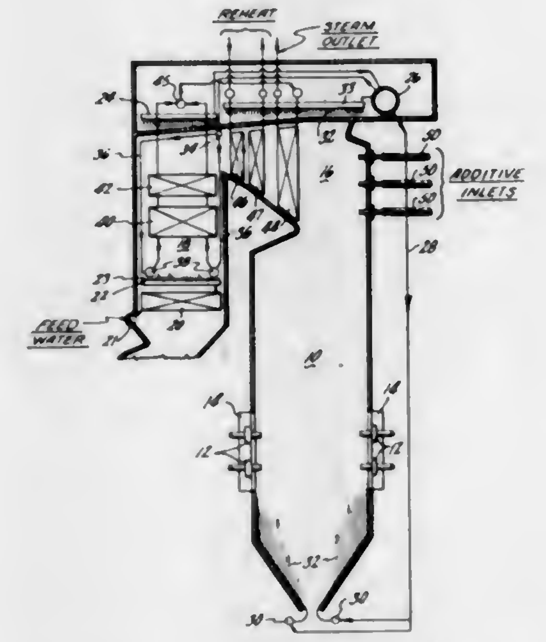
Richard J. Hansen, Seattle, and Francis M. McDonough, Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed May 14, 1964, Ser. No. 367,514
7 Claims. (Cl. 105—369)



3. A securing device for use in a floor cavity having opposed walls comprising:
(a) a first member having a first end and a second end and being pivotally supported by its first end in said walls;
(b) a second member having a first end and a second end and being pivotally connected at its second end to the second end of said first member, said second member having at its first end laterally extending ears with pivotally mounted shoes slidably mounted in longitudinally extending tracks disposed within the opposed walls;
(c) means pivotally mounted to the first end of said second member for locking said first and second members in an upright position;
(d) securing means mounted to at least one of said first and second members whereby said securing means is moved to a securing position by moving said first and second member to an erected position.

3,306,235
CORROSION REDUCING METHOD AND MATERIAL FOR FURNACES

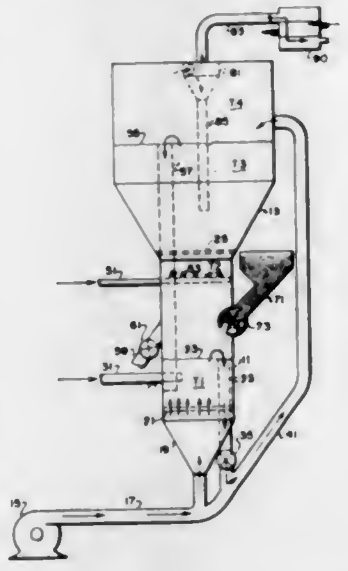
Everett C. Lewis, Avon, and John T. Reese, Simsbury, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Oct. 26, 1964, Ser. No. 406,500
5 Claims. (Cl. 110—1)



1. A method of reducing corrosion of heat transfer surfaces due to the action of combustion products in a steam generator comprising applying a mixture of a corrosion retardant material and sodium tetraborate to the surfaces subject to said corrosion.

3,306,236
BURNER FOR WASTE MATERIALS AND METHOD OF BURNING WASTE MATERIALS

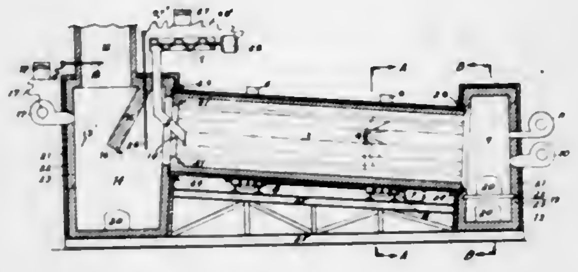
Donald L. Campbell, Short Hills, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Sept. 11, 1964, Ser. No. 395,777
15 Claims. (Cl. 110—8)



1. A burner for consuming various kinds of waste materials which may comprise solids and/or fluids, said burner comprising, in combination, a lower vessel compartment, means for maintaining at a temperature to cause substantial vaporization of said waste materials a mass of dense fluidized solids in the lower part of said lower vessel compartment, means for passing the vapors so generated on said fluidized solids upwardly, means for augmenting the heat in said upwardly passing vapors, said means located upwardly of said mass of dense fluidized solids in the lower part of said lower vessel compartment, an upper vessel compartment containing a further mass of fluidized solids maintained at a higher temperature than said mass of dense fluidized solids in the lower part of said lower vessel compartment and through which said augmented heated vapors pass, means for circulating solids continuously from each vessel compartment to the other means for withdrawing consumed waste solids, said means located between said upper and lower vessel compartments, and means for eventually passing all the gaseous and vaporous products, including fluid combustion products, overhead.

3,306,237
ROTARY INCINERATOR AND METHOD OF OPERATING SAME

George E. Ransom, Jr., 172 Beech Terrace, Wayne, N.J. 07470
Filed Jan. 28, 1964, Ser. No. 340,668
5 Claims. (Cl. 110—14)

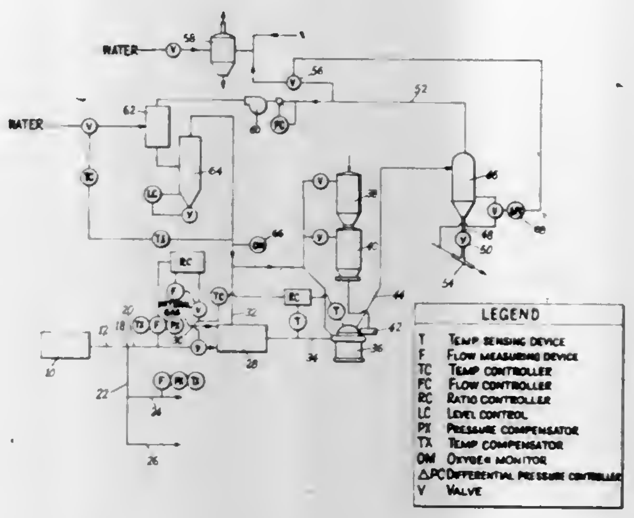


2. The method of operating a waste material incinerator which comprises, feeding waste material to the forward end of an inclined rotary kiln incinerator furnace chamber, agitating and moving small increments of the material by a rotary motion of the kiln, supplying fuel and air under pressure at the lower end of the kiln counter to the movement of the material in the kiln to effect combustion throughout the kiln, conducting the gaseous products of combustion from the elevated end of the kiln to an adjacent furnace chamber, passing the products of combustion to a succeeding chamber, and subjecting said gaseous products prior to their entrance to a stack to a high sufficient for effective elimination of odor and moisture for reducing to a minimum any fly ash in said succeeding chamber.

3,306,238
FUEL INJECTION SYSTEM FOR BLAST FURNACES

Samuel A. Bell and William E. Marshall, Middletown, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
Filed May 20, 1965, Ser. No. 457,349
9 Claims. (Cl. 110—104)

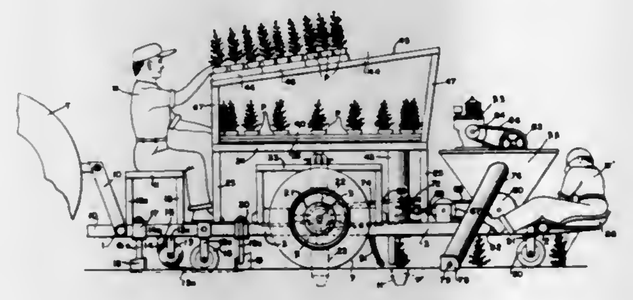
1. A powdered fuel injection system comprising:
(a) means for pulverizing a solid fuel;
(b) powdered fuel collection means;
(c) a low oxygen conveying gas system for transporting pulverized fuel from said pulverizing means to said collection means;
(d) a recirculating means for returning at least a portion of said low oxygen conveying gas from said collection means back to said pulverizing means;
(e) water removal means in said recirculating means;
(f) an injection nozzle;
(g) means for feeding fuel from said collection means to said injection nozzle;
(h) a separate injection gas system for said injection nozzle; and



(i) means to maintain the pressure in said conveying system at a level higher than the pressure in said injection system.

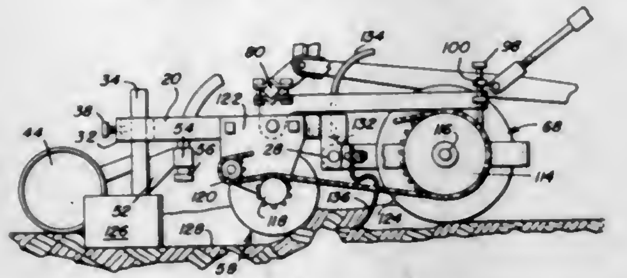
3,306,239
METHOD AND MEANS FOR TRANSPLANTING

Wayne Martin, Jr., 434 N. High St., Hillsboro, Ohio 45133
Filed Jan. 12, 1965, Ser. No. 424,943
20 Claims. (Cl. 111—1)



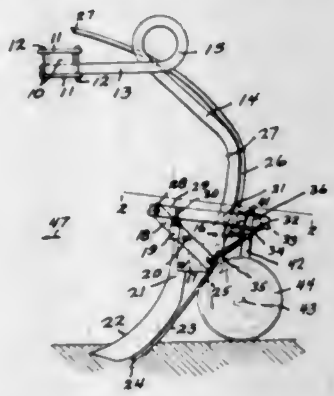
3. A machine for transplanting rows of potted plants through a web of plastic mulch, comprising a horizontal frame adapted to travel across the ground; a transverse axle journaled on said frame; ground wheels fixed on said axle; a roll of plastic mulch on the frame adapted to unwind and leave a web on the ground as the frame travels; means adjacent the roll for embedding the sides of the web below the ground; means in rear of the embedding means for continuously punching parallel rows of spaced pot-receiving holes in the web and into the ground; a shelf on said frame above the punching means; conveyor means on said shelf for moving series of potted plants from loading points to delivery points; drop-tubes at the delivery points of the shelf for delivering potted plants successively into the last punched holes; means on the frame for delivering water successively onto the last deposited plants in said holes; means on the frame for intermittently and successively actuating the watering means according to the spacing of the plants in said rows; means on the frame for delivering loose dirt collected from beyond the side of the web and intermittently and successively depositing same on the web in alignment with the rows of watered plants according to the spacing of the plants in said rows; and means for continuously directing the dirt so deposited to successively fill the holes around the pots and to cover the tops of the pots in the holes.

3,306,240
CHEMICAL INCORPORATOR
William D. Ritchie, Rte. 1, Box 82,
Prosser, Wash. 99350
Filed July 1, 1965, Ser. No. 468,753
10 Claims. (Cl. 111—6)



1. A ground-working apparatus comprising an elongated frame, furrow opening means mounted on and depending from the forward portion of said frame for effecting an outward lateral movement of soil, material discharge means mounted on the frame rearward of said furrow opening means and in alignment therewith, furrow closing means mounted on said frame rearward of said discharge means for effecting an inward lateral movement of soil, and soil packing means mounted on said frame rearward of said furrow closing means, said furrow closing means comprising an elongated feed auger, said auger including at least one soil mixing and moving blade helically wound thereon for effecting a return of the soil initially moved outward by the furrow opening means.

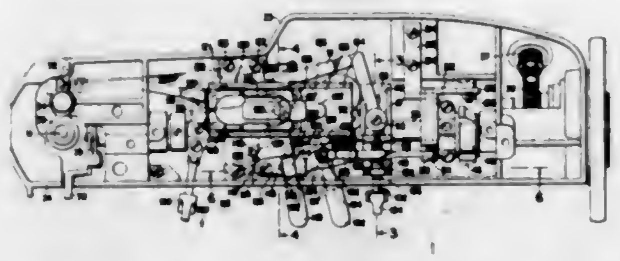
3,306,241
AMMONIATED FERTILIZER SEALING DEVICE
Maurice L. Copple, Sloan, Iowa 51055
Filed Aug. 9, 1965, Ser. No. 478,170
3 Claims. (Cl. 111—7)



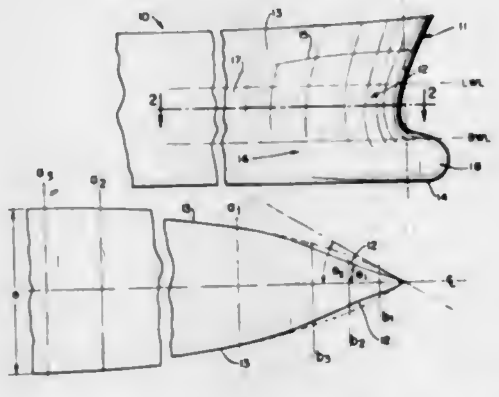
1. An ammoniated fertilizer sealing device comprising a blade, a tube attached to said blade and adapted to eject a fertilizing gas adjacent said blade, a pair of transversely spaced discs positioned rearwardly of said blade and adapted to pulverize soil behind said blade and to seal said gas into said soil, said discs converging rearwardly, substantially vertical shanks to which said discs are journalled, a horizontally extending framework to which said shanks are attached, vertically positioned spaced plates attached to said blade, angularly positioned straps attached to said plates, said framework being pivotally connected to said straps, stop members attached to said straps and adapted to limit downward movement of said framework, and resilient means connecting said plates and said framework.

3,306,242
BUTTONHOLE MECHANISMS FOR ZIGZAG SEWING MACHINES
Jan Szostak, Linden, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 17, 1964, Ser. No. 383,411
8 Claims. (Cl. 112—158)

1. A buttonholing device in a sewing machine having a frame, an endwise reciprocating and laterally jogging needle and a work feeding device carried in said frame, actuating mechanism in said frame for operating said needle and said work feeding device, a first shiftable regulator in said frame operatively connected to said needle actuating mechanism for controlling the lateral position of needle jogging, and a second shiftable regulator in said frame operatively connected to said work feeding actuating mechanism for controlling the direction and magnitude of said work feeding device, said buttonholing device comprising an exchangeable template carried in said sewing machine frame, and means operatively connecting said template with said first and second shiftable regulators to produce automatically a buttonhole having a size dictated by the size of the template.



3,306,243
CARGO SHIP HULL
William O. Gray, Pratt Island, Darien, and Bryant A. Hilliard, Norwalk, Conn., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Sept. 17, 1964, Ser. No. 397,172
1 Claim. (Cl. 114—56)



A full form ship hull having a substantial difference between its designed Ballast Water Line and Load Water Line at its forward end including,

(a) a bulbous bow protruding from the lowermost portions of said hull forwardly of the forward perpendicular of said hull,

(b) forwardmost sides of said hull at the bow of said ship defining an elongate concavity having upper and lower extremes,

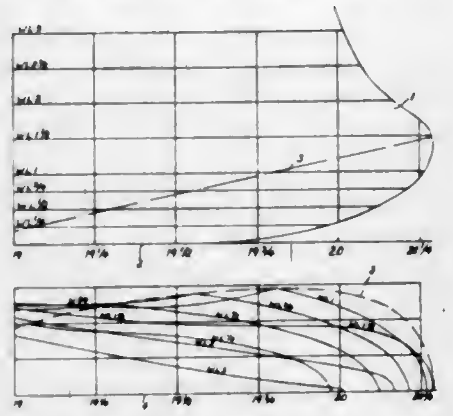
(c) said concavity extending rearwardly and terminating at a point of less than full beam,

(d) said concavity being disposed below said Load Water Line and extending to slightly above the Ballast Water Line at the forward perpendicular and at least partly above said Load Water Line and cooperating with said bulbous bow to provide minimum wave making resistance, the lower extreme of said concavity defining a line substantially parallel to said Load Water Line,

(e) said hull having a first predetermined entrance angle at said Load Water Line and Ballast Water Line at said forward perpendicular and a second predetermined entrance angle above said concavity and said Load Water Line,

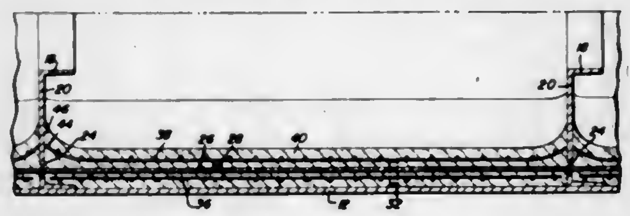
(f) said first entrance angle being less than said second entrance angle.

3,306,244
BOW BULB FOR SHIPS
Herbert Schneekluth, Aachen, and Friedrich Ahrens, Altenholz, Germany, assignors to Paul Lindenau Schiffswerft und Maschinenfabrik, Kiel-Friedrichsort, Germany
Filed Aug. 25, 1965, Ser. No. 482,484
4 Claims. (Cl. 114—56)



1. In a ship hull comprising a vertical edge at the forward portion of the bow, a base and a normal water line, the improvement comprising a bow-bulb projecting beyond said hull vertical edge and disposed below the normal water line, said bow-bulb including lateral faces forming a longitudinal edge extending substantially from the forwardmost portion of said bow-bulb and rearwardly and angularly toward the base of said hull, said longitudinal edge being disposed at the maximum transverse width of said bow-bulb and extending substantially the entire length of said bow bulb.

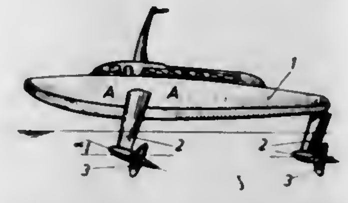
3,306,245
METHOD OF REBOTTOMING METAL HULL WITH REINFORCED CONCRETE
Alfred A. Yee, 3169 Alika Ave., Honolulu, Hawaii 96817
Filed Mar. 16, 1965, Ser. No. 440,166
3 Claims. (Cl. 114—65)



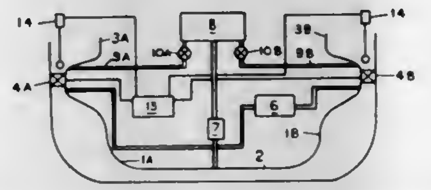
1. In a floating vessel having a metal bottom subject to corrosion, a continuous skin of concrete completely covering at least one surface of the bottom and forming a bottom for the vessel in the event of deficiency of any portion of the metal bottom, said concrete skin being reinforced by continuous longitudinal tendons, said metal bottom including a plurality of transverse ribs, each of said ribs having holes receiving said tendons and permitting passage of the concrete for forming a monolithic integrated concrete skin, said tendons being retained in place by transversely extending members of serpentine configuration having spaced bottom edge portions attached to the metal bottom, and upper and lower layers of reinforcing wire mesh embedded in said concrete skin above and below the tendons respectively.

3,306,246
WATERCRAFT
Otto Reder, Bremen-Lesum, Germany, assignor to VFW Vereinigte Flugtechnische Werke G.m.b.H.
Filed Feb. 11, 1966, Ser. No. 526,882
Claims priority, application Germany, Apr. 17, 1963, W 34,312
7 Claims. (Cl. 114—66.5)

1. In combination with a watercraft having a hull and being free from normally submerged hydrofoils: strut means connected to and extending downwardly from said hull, a plurality of tangential lift force propeller means connected to said strut means below said hull for submersion in water during the operation of said watercraft, mechanical driving means, some of said tangential lift force propeller means being autorotating by their movement through the water for delivering the main lifting forces to lift the hull above the water surface and only the remaining tangential lift force propeller means being drivingly connected to said mechanical driving means for propelling said watercraft in substantially horizontal direction and partially lifting said hull above the water surface while permitting at least the major portion of said propeller means to remain substantially continuously submerged in the water during the operation of said watercraft.



3,306,247
STABILIZING APPARATUS FOR SHIPS
Hew Dalrymple Fanshawe, North Berwick, Scotland, assignor to Brown Brothers & Co. Limited, Edinburgh, Scotland, a company of Great Britain
Filed Dec. 31, 1964, Ser. No. 422,716
Claims priority, application Great Britain, Dec. 31, 1963, 51,268/63
6 Claims. (Cl. 114—125)

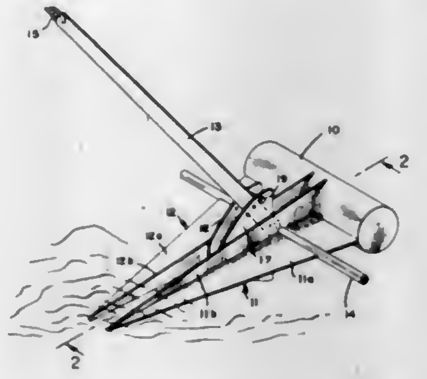


1. Stabilizing apparatus for a ship, comprising two units disposed in side by side relationship; each unit consisting of two spaced main tanks contrived to contain stabilizing liquid, a conduit interconnecting the tanks, said conduit being located to be submerged when the unit contains the requite quantity of the stabilizing liquid, a subsidiary tank connected to the top of each main tank, a valve intercalated between each main tank and the associated subsidiary tank, and means for changing the level of stabilizing liquid in one main tank with respect to the level of the liquid in the other main tank; and means for operating the valves of both units in a determined phase relationship, corresponding tanks of the two units having capacities and space relationships such that the two units are capable of providing substantially similar stabilizing effects.

3,306,248
BOAT ANCHOR
Horace C. Austin, 1342 Fla-Mango Road, West Palm Beach, Fla. 33611
Filed July 12, 1965, Ser. No. 471,031
2 Claims. (Cl. 114—208)

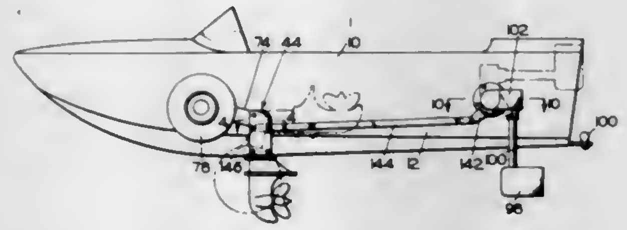
1. In a boat anchor the combination of a pair of flukes, each of said flukes comprising two elongated triangular plates, one of the long sides of one of said triangular plates being attached substantially to the center of the other so that the fluke formed thereby is of T-shaped cross section, each of said flukes being tapered substantially to a point at the earth-engaging end thereof, an elongated cylindrical member, means attaching the other ends of said flukes to said elongated cylindrical member,

the central ribs of the T-shaped cross sections being attached to said elongated cylindrical member so that they are in alignment with each other and substantially parallel to the axis of said elongated cylindrical member, the tops of the T-shaped cross sections of said flukes being attached to mid portions of said cylindrical member adjacent to each other between said ribs and substantially at right angles to said axis, said top of said T-shaped flukes having a width substantially equal to the diameter of said cylindrical member, a shank, means pivotally attaching said shank to said flukes, and means limiting pivotal movement of said shank with respect to said flukes, said cylindrical member comprising a sealed hollow chamber providing buoyancy to said other ends of said flukes to orient the pointed ends thereof downward and facilitate penetration of the earth thereby.



3,306,249
PROPELLER, RUDDER AND WHEEL ASSEMBLY FOR BOATS

Theodore O. Chase, 436 22nd St.,
Richmond, Calif. 94801
Filed Sept. 7, 1965, Ser. No. 485,230
7 Claims. (Cl. 115—1)

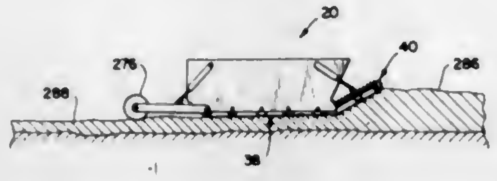


1. A boat construction comprising a pair of drive propeller supporting means disposed on opposite sides of the boat, power drive means for said propellers, wheel supporting means secured integrally to said propeller supporting means in longitudinally disposed, angular position, and horizontal axis pivot means mounting said propeller and wheel supporting means on said boat for rotation between two positions, one of which positions comprises a downwardly extended operative position of the propeller supporting means and an inoperative position of the wheel supporting means for operation of the boat in water and the other of which positions comprises a downwardly extended position of the wheel supporting means and an inoperative position of the propeller supporting means for movement of the boat over land.

3,306,250
AMPHIBIOUS VEHICLE

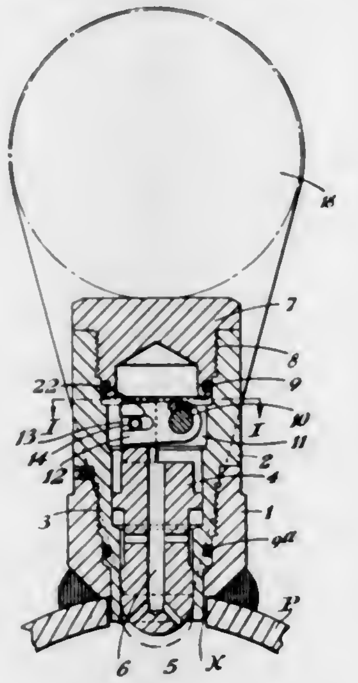
Arthur H. Pitchford, 5881 Lorene Drive,
Bethel Park, Pa. 15102
Filed Oct. 13, 1965, Ser. No. 495,432
7 Claims. (Cl. 115—1)

1. In an amphibious vehicle having an elongated body comprising side walls, front and rear walls and a bottom wall, the combination comprising: traction means mounted beneath said body for steerably moving said vehicle over ground surfaces; a frame pivotally connected to the rear of said vehicle; at least one hollow, watertight roller member supported on said frame for rotation about its longitudinal axis; a plurality of tractive elements secured to and radiating from said roller member; means operatively connected to said frame for forcibly moving said roller member into a vehicle propelling position and for maintaining said roller in said position; and means for driving said traction means and for forcibly rotating said sealed roller member.



3,306,251
PIPE LINE PIG OR SPHERE LOCATING DEVICES

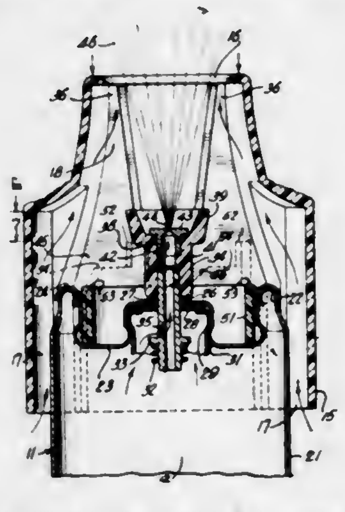
Walter Robert Suttle, Creswell, near Worksop, England, assignor to General Descaling Company Limited, Worksop, England, a corporation of the United Kingdom
Filed Jan. 18, 1965, Ser. No. 426,077
Claims priority, application Great Britain, Sept. 16, 1964, 37,860/64
9 Claims. (Cl. 116—124)



1. A device for indicating the passage of a pig or go-devil past an opening in a pipe line at a given point along the length thereof, said device comprising a hollow body member having at least one open end, said body member being adapted at said open end to be attached to said pipe line at said given point and to completely enclose said opening therein, plunger means slidably mounted in the interior of said body member and movable in response to forces generated by the passage of a pig or go-devil past said opening in said pipe line, visual indicator means mounted on the exterior of said body member and movable between a first and a second position, and means for moving said visual indicator from said first position to said second position comprising biasing means effective when said visual indicator is in said first position for urging said visual indicator toward said second position thereof, latch means for latching said visual indicator in said first position thereof in opposition to said biasing means, and coupling means connected between said latch means and said plunger to unlatch said latch means in response to said movement of said plunger, thereby releasing said visual indicator for movement from said first to said second position thereof to indicate the passage of said pig or go-devil past said opening in said pipe line.

3,306,252
SHIELDED AEROSOL MEDICAMENT DISPENSER

Francis J. Knight, New Brunswick, Francis A. Mina, Morristown, and Wallace H. Steinberg, Matawan, N.J., assignors to Johnson & Johnson, a corporation of New Jersey
Filed Dec. 3, 1963, Ser. No. 327,761
2 Claims. (Cl. 118—3)

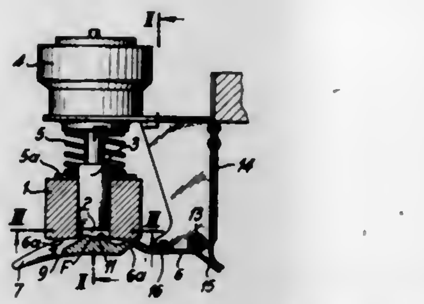


1. An aerosol spray unit which comprises an aerosol vessel having a pressure chamber containing fluid under pressure; a valve member yieldably mounted in said vessel and having a passage normally not in communication with the pressure chamber, said valve member being axially displaceable inwardly with respect to said vessel to place said passage in communication with the pressure chamber and allow fluid to be ejected under pressure through said passage; and a spray head comprising a hood mounted in a fixed axial position with respect to said valve member and being adapted for inward axial movement with respect to said vessel to impart inward axial movement to said valve member, said hood defining a spray opening spaced axially outwardly of said valve member and said hood extending axially inwardly from the opening beyond and in radially spaced relation with said valve member; a plurality of angularly spaced supporting walls extending radially between said valve member and said hood for supporting said hood radially outwardly of said valve member; and an annular cam spaced radially inwardly of said hood around said valve member, said cam being shaped and positioned with respect to said supporting walls to contact said supporting walls and block their inward axial movement in one rotative position of said hood with respect to said vessel and thereby prevent actuation of the unit, and to permit the inward axial movement of said walls and said hood in another rotative position of said hood with respect to said vessel and thereby permit actuation of the unit.

3,306,253
THREAD LUBRICATOR

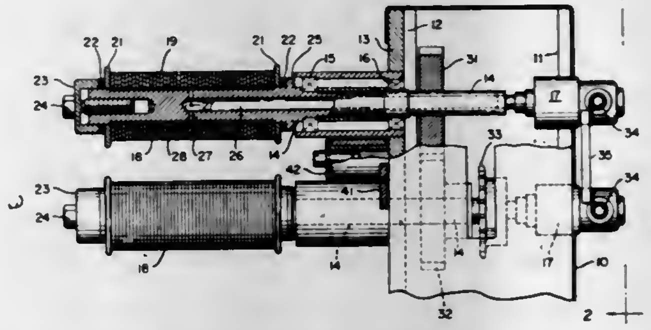
Johannes Frentzel-Beyme, Monchen-Gladbach, Germany, assignor to Walter Reiners, Monchen-Gladbach, Germany
Filed Oct. 4, 1963, Ser. No. 313,810
Claims priority, application Germany, Oct. 12, 1962, R 33,672
12 Claims. (Cl. 118—10)

1. A device for applying a smoothing substance to the surface of a filament, such as a thread or the like, comprising a rotatable body formed of the smoothing substance and having a filament-engaging surface portion; support means in pressing engagement with said body only at a location other than on said filament-engaging surface portion; and guide means carried by said support means outside of said body, said guide means guiding a filament across said filament-engaging surface portion and stressing the filament at a location situated away from said surface portion so as to press the filament into yieldable engagement with said surface portion.



3,306,254
APPARATUS FOR APPLYING ADDITIVES TO CIGARETTE FILTER TOW

Garland B. Keith, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Jan. 8, 1964, Ser. No. 336,502
6 Claims. (Cl. 118—227)



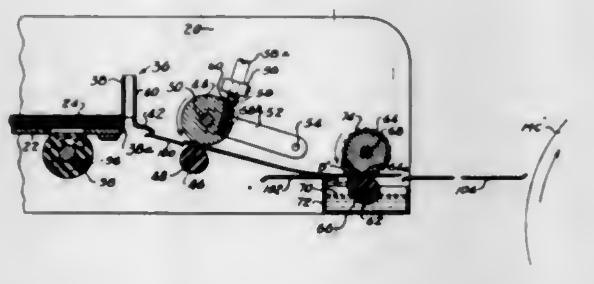
1. In a device for applying a coating material to continuous filament filter tow including, a pair of rotatable applicator members having inner and outer surfaces, each applicator being further comprised of a drive shaft having an axial passage therein, a plurality of substantially flat discs having apertures therethrough positioned on said shaft and being spaced relative thereto, thereby forming a chamber between the inner surfaces of the discs and the shaft, means for compressing the disc against each other, at least a single passage-way in the shaft connecting the chamber with said axial passage, means for conducting the coating material through the passage into the chamber and thence between the discs to thereby coat the outer surface of the applicator with a layer of said material, means for rotating said applicators in opposite directions, and means including movable members adapted to move into and out of contact with said tow, thereby raising and lowering the tow with respect to the applicators and thus adjusting the angle and area of contact therebetween.

3,306,255
DAMPENING APPARATUS FOR PLANOGRAPHIC PRINTING

James A. Kollbas, Cleveland, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,680
2 Claims. (Cl. 118—227)

1. A device for applying pre-dampening liquid to a duplicating master with its active surface in upwardly-facing position and forwarding the same to a duplicating machine, comprising a fountain for containing the pre-dampening liquid; a fountain roller dipping into a bath

of pre-dampening liquid when placed in the fountain; means for rotating the fountain roller to move its upper surface in a predetermined direction; a transfer roller above and adjacent said fountain roller and effective when operated in conjunction with the fountain roller to form therewith a preliminary bead of pre-dampening liquid at the bight of said rollers; means for advancing a master into the bight of said rollers in said predetermined direction; a feed table for holding a supply of masters; means for separating a single master and forwarding it to said advancing means; means for guiding the advancing master at a level such that the leading edge divides the preliminary bead when formed by said rollers and traps the major portion thereof above itself to form an upper bead lying against the upper surface of the master and swept thereacross as the master is fed between the rollers; and a master receiving table adjacent the master cylinder of the duplicating machine to which the master is fed by the dampening rollers to rest in a ready position until attachment to the master cylinder is effected.



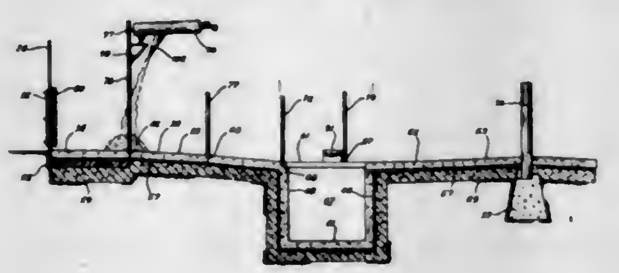
3,306,256
METHOD AND MEDIUM FOR PRESERVING AND PACKAGING LIVE FISH

Sterling R. Lewis, Mount Vernon, Ohio, assignor to S & L Enterprises, Inc., Centerburg, Ohio, a corporation of Ohio
No Drawing. Filed Sept. 27, 1965, Ser. No. 490,732
5 Claims. (Cl. 119—3)

5. A liquid packaging medium for live fish comprising an aqueous solution containing from 0.05% to 3% by weight of an antibiotic, and from 0.05% to 3% by weight of a sugar.

3,306,257
LIVESTOCK PEN ARRANGEMENT

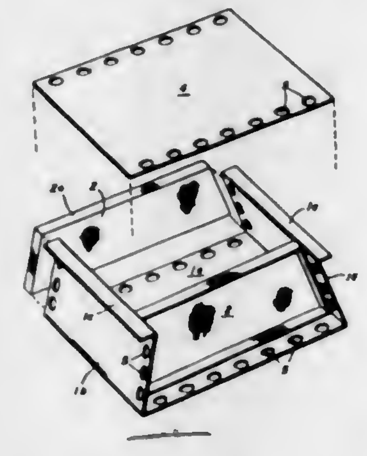
William J. Conover, Rhodes, Iowa, assignor to Black, Sivalls & Bryson, Inc. (B. S. & B.), Kansas City, Mo., a corporation of Delaware
Original application Mar. 4, 1963, Ser. No. 262,472, now Patent No. 3,148,663, dated Sept. 15, 1964. Divided and this application Aug. 24, 1964, Ser. No. 391,801
3 Claims. (Cl. 119—16)



1. In a livestock layout:
a pen having a roof and a substantially circular wall;
a floor for said pen;
a plurality of partitions supported on said floor and forming a plurality of stalls within said pen, said stalls having inner closed ends spaced outwardly from the center of said floor and forming thereby a central floor area;
an animal watering device mounted in each stall adjacent the inner closed end thereof; an annularly extending grate and sanitation means formed in said floor below the stalls and a watering device adjacent the inner end of said stalls for receiving and disposing of livestock excrement;
a supporting pole mounted at the center of said floor and providing support for said roof; and
feeding means mounted on said pole for depositing feed in each stall at the outer end thereof opposite said inner end thereof.

3,306,258
SMALL ANIMAL SHIPPING CAGE

Guilbert M. Hunt, Brecksville, Ohio, assignor to United States Steel Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Oct. 5, 1965, Ser. No. 493,082
3 Claims. (Cl. 119—19)

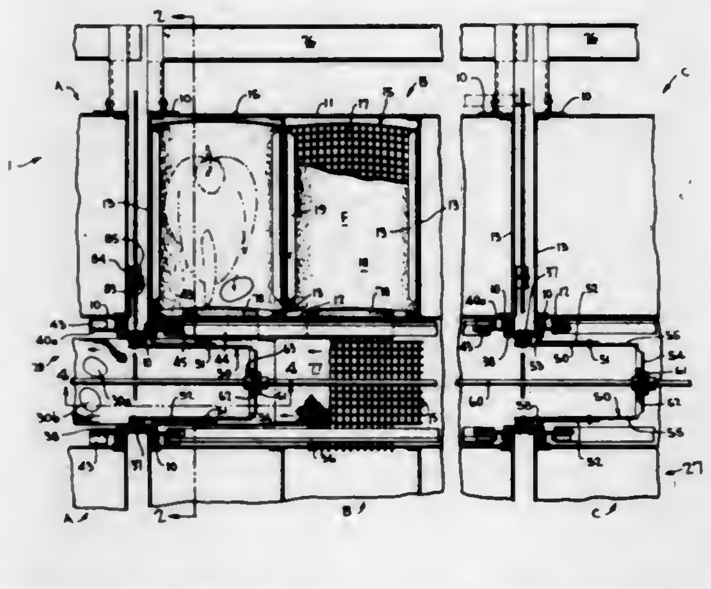


1. A shipping cage for small animals comprising a generally imperforate bottom member, two inwardly and upwardly sloping sides, of similar imperforate material, extending thereabove, outwardly extending flanges at the tops of said sides, a generally imperforate cover structure engaging said flanges, two screen sides having flanges for attachment to the said bottom, sides, and cover, said screens being disposed inboard of the outer edges of the generally imperforate bottom, sides, and cover, and vent means located outboard of said screens, in the bottom, side, and cover members extending therebeyond.

3,306,259
EGG COLLECTING APPARATUS

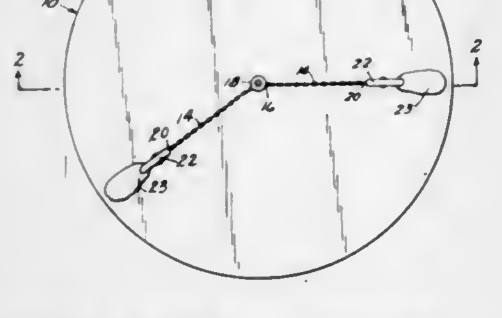
Charles Willauer, Jr., Quakertown, Pa., assignor to Willauer Machine Company, Inc., Quakertown, Pa., a corporation of Pennsylvania
Filed June 3, 1965, Ser. No. 461,088
13 Claims. (Cl. 119—48)

8. An egg collecting apparatus for first and second batteries of longitudinally and horizontally aligned laying nests arranged in a back-to-back relationship comprising a trough, a conveyor having an operative horizontal run disposed for longitudinal movement between said first and second batteries of nests, said operative run of said conveyor being disposed adjacent to said nests in direct egg receiving communication with said nests, each of said nests having a floor sloping downwardly, said floor and said trough forming a substantially continuous surface for delivery of the eggs by gravity transversely onto said conveyor along a predetermined path, a longitudinally disposed egg barrier supported along the length of each of said batteries of nests at an intermediate point along said path for substantially vertical movement into and out of said paths for eggs moving transversely onto said conveyor from each of said nests, lifter means operatively associated with said barriers to cause said movement and for supporting said barriers above said paths during said movement, drive means for operation of said lifter means whereby said barriers are operated into and out of each of said paths and thereby delivering the eggs in said nests to said conveyor and means for moving the eggs transversely on said conveyor and for stopping said transverse movement of the eggs while the eggs from said first battery of nests are in spaced relationship to the eggs from said second battery of nests, said last mentioned means comprising a first and second portion of said conveyor adjacent said first and second batteries of nests, respectively, said first and second portions of said conveyor sloping transversely downwardly away from the respective nests to cause the eggs to move by gravity toward the center of said conveyor and a raised portion of said conveyor disposed between said first and second portions to limit the transverse movement of said eggs.



3,306,260
ANIMAL FEEDING DEVICE

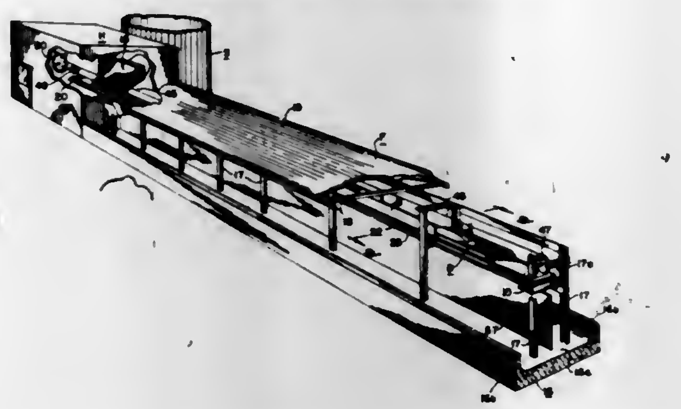
Ledo Ciampi, 448 White Bear Ave.,
St. Paul, Minn. 55106
Filed Sept. 2, 1965, Ser. No. 484,626
8 Claims. (Cl. 119—51)



1. An animal feeding device comprising:
(a) a solid base member;
(b) a flexible, substantially inelastic strand member;
(c) securing means fastening one end of said strand member in a generally central location on one face of said base member;
(d) food clamp means secured to the other end of said strand member and adapted to hold a solid body; and
(e) said strand member having a length such that said clamp means is located substantially within the perimeter when on the face of said base member during limits of movement of said strand member about said securing means.

3,306,261
FEED DELIVERY METHOD AND APPARATUS

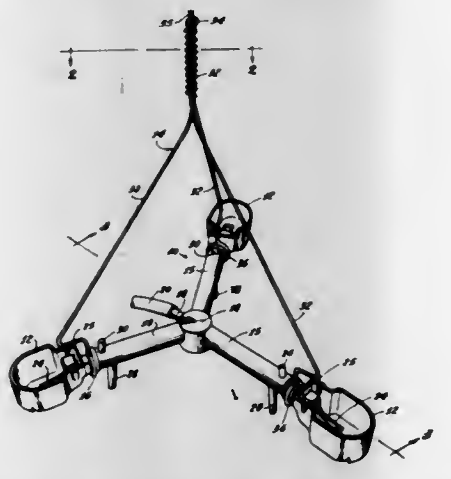
Chester A. Purdy, R.F.D. 1, Belmont, Wis. 53510
Filed Aug. 31, 1964, Ser. No. 393,172
26 Claims. (Cl. 119—56)



25. In a livestock feeder an elongated trough defined by a longitudinal bottom portion between laterally spaced upstanding side walls, a vertical partition extending longitudinally within said trough from said bottom portion to a height greater than the height of said side walls dividing said trough into two compartments, belt conveying means substantially contiguous with the upper edge of said partition having a lateral width greater than the width of said partition, said conveyor means being operable to discharge feed laterally over its edges for discharging feed longitudinally of the trough into both of said compartments, a baffle extending longitudinally along each side of said conveyor means laterally spaced therefrom to cooperate with said conveyor means to define a vertically extending longitudinal opening along each edge of said conveyor means along which feed is free to fall into the associated compartment, each longitudinal opening being located inwardly from the associated side wall, said baffles extending from a position above said conveyor means to a lower edge at least as low as the upper edge of said partition, said baffles cooperating with said partition and conveyor means to prevent wind from freely blowing across said trough so that feed is not lost as it drops free from said conveyor means into said trough.

3,306,262
POULTRY WATERING DEVICE

Harold W. Hart, Glendale, Calif., assignor to H. W. Hart Manufacturing Company, Glendale, Calif., a corporation of California
Filed Oct. 11, 1965, Ser. No. 494,660
7 Claims. (Cl. 119—72)



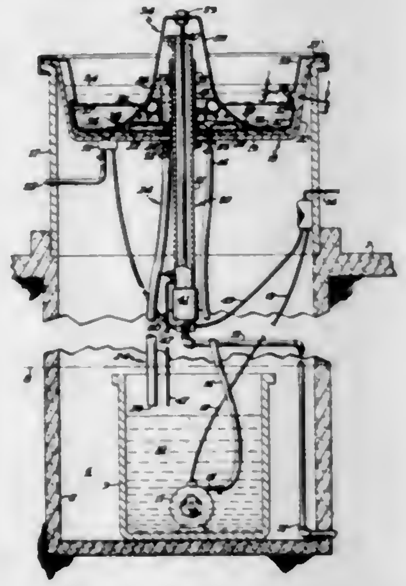
1. A drinking water device for fowls or the like, comprising:
a compact structure comprising an array of substantially horizontal conduits for connection to a water source said conduits having distributed water outlets;

drinking cups connected to said outlets to cooperate with the conduit structure to form an assembly to rest on a floor for supplying water to young fowls; and

suspension means including wire-like members above the assembly and connected thereto to suspend the assembly above floor level for older fowls;

said wire-like members extending diagonally downwardly to the regions of the respective cups to prevent fowls from perching on the conduit structure adjacent the cups, the wire-like members of the suspension means at least partially overhanging said water outlets to prevent the fowls from perching on the water outlets.

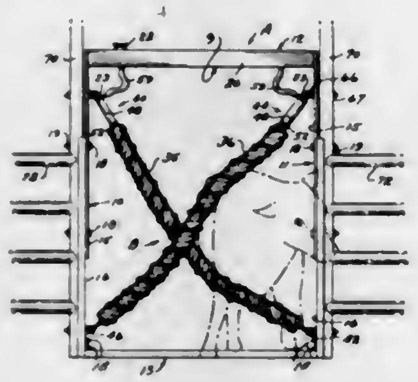
3,306,263
RECIRCULATING LIVE-STOCK WATERING SYSTEM
Glenn J. Johnson, Rte. 2, Powell, Wyo. 82435
Filed Apr. 22, 1965, Ser. No. 450,051
16 Claims. (Cl. 119—73)



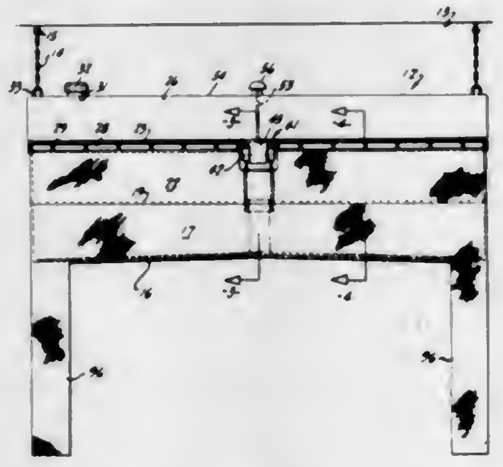
12. A recirculating live-stock watering system comprising:
- (a) a container disposed within the soil below the frost line thereof,
- (b) a watering bowl disposed in elevated relation to said container and having a bottom and side walls with upper edges,
- (c) water supply means connected in fluid communicating relationship with said bowl for maintaining a supply of water within said bowl and said container at all times and having a discharge discharging water directly into said bowl,
- (d) pump means connected with the interior of said container and the supply of water therein and having a discharge,
- (e) conduit means connected with the discharge of said pump means and terminating within said bowl and having a normally open discharge discharging the entire flow of said conduit means into said bowl, and
- (f) return-flow conduit means depending from said bowl and having an inlet disposed within said bowl above the bottom and below the upper edges thereof and having a discharge discharging into said container.

3,306,264
ANIMAL RUBBING AND OILING APPARATUS
Linus I. Berens, Box 655, Rte. 7, Tallahassee, Fla. 32301
Filed Oct. 18, 1965, Ser. No. 496,873
5 Claims. (Cl. 119—157)

4. Animal rubbing apparatus including a frame circumscribing an opening for the passage of animals of a given size therethrough, a pair of elongated flexible members of substantially diametrical cross section and having a substantially rough outer surface, means for interconnecting said pair of elongated flexible members to said frame with said flexible members criss-crossing substantially centrally of the opening circumscribed by said frame in juxtaposition to divide the opening circumscribed by said frame into four substantially triangular quadrants, each said quadrant having one side thereof bound by a portion of said frame and the other sides thereof bound by a portion of each said flexible members and defining a confined animal passageway of a height and width so that the portion of said frame comprising one side of each said quadrants compels an animal of the size for which the apparatus is primarily designed to rub against and displace said flexible members from their normal positions in order to pass through said confined animal passageway; and oiling means comprising means for dispensing oil and other fluids for animal treatment onto said flexible members for dispersal to the hide of an animal as it rubs against said flexible members.

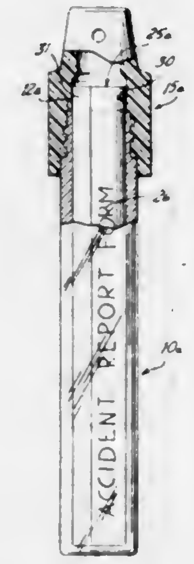


3,306,265
CATTLE INSECTICIDE APPLICATOR
Harry L. Jager, P.O. Box 41, Esparto, Calif. 95627
Filed Oct. 19, 1965, Ser. No. 497,832
3 Claims. (Cl. 119—157)



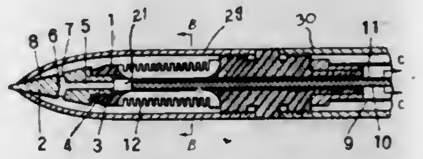
1. A cattle insecticide applicator comprising:
- (a) a horizontal, elongated box-like reservoir for the storage of liquid insecticide;
- (b) a valve housing mounted on the bottom of said reservoir;
- (c) a circular cylindrical valve rotatably mounted on said housing for rotation about a horizontal axis, said valve having a diametrical passageway formed therein including an inlet port and an outlet port, said housing having a vertical recess connecting with the bottom of said reservoir for the movement of fluid from said reservoir into said recess, said inlet port communicating with said housing recess in a first angular position of said valve and being removed therefrom in a second angular position of said valve, said housing also having formed therein a drainage bore, said drainage bore being removed from said outlet port in said first angular position as fluid flows from said housing recess through said inlet port and into said passageway, said drainage bore being in communication with said outlet port in said second angular position, said drainage bore being vertically below said outlet port in said second angular position to drain the fluid stored in said passageway by gravity;
- (d) means for venting said inlet port and said passageway to the atmosphere in said second angular position of said valve;
- (e) a horizontally elongated wick disposed in a generally vertical attitude below said drainage bore to receive by gravity the effluent discharge therefrom;
- (f) a horizontally elongated canvas-like strap pivotally supported on the bottom of said reservoir box and affixed to the upper edge of said wick to provide flexible support thereto;
- (g) a fabric applicator mounted on the bottom of said strap and enclosing said wick in face to face engagement therewith to receive the fluid distributed by said wick, the fabric of said applicator being of porous material to transfer the fluid received from said wick to the backs of cattle coming into wiping engagement with said fabric; and
- (h) means connecting said fabric applicator and said valve for moving said valve between said first angular position and said second angular position in dependence upon the lateral swinging movement of said fabric applicator.

3,306,266
AUTOMOTIVE ACCESSORY
Joseph G. McCunney, 6112 N. Broad St., Philadelphia, Pa. 19141
Filed Mar. 28, 1966, Ser. No. 537,989
4 Claims. (Cl. 120—1)



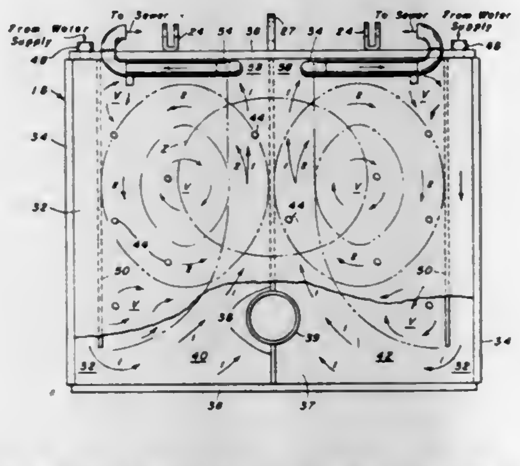
1. An automotive accessory for reporting an accident, said accessory comprising an elongate imperforate tube having one end closed and one end open, an elongate marking device, a flexible sheet imprinted to provide an accident report form, said sheet being detachably secured to and wound directly about said marking device for assembly therewith, said sheet-and-marking-device assembly being snugly inserted in said tube for simultaneous removal through the open end thereof, said marking device being of a length no greater than the axial dimension of said sheet in its wound condition, and a closure removably secured over said open tube end.

3,306,267
INK WRITING IMPLEMENT
Hiroyuki Matsumoto, Adachi-ku, Tokyo, Japan, assignor to Dai Nihon Bungu Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed Aug. 6, 1965, Ser. No. 477,897
Claims priority, application Japan Aug. 13 1964, 39/63,524; Oct. 23, 1964, 39/82;663, 39/82,664, 39/82,665
8 Claims. (Cl. 120—51)



1. An ink writing implement including a tubular pen core with a central passage, an ink reservoir fitted to one end of the pen core and in communication with the central passage, and a pen point entirely of molded plastic fitted to the other end of the pen core, said pen point having a plurality of surface ink channels and a plurality of internal passages which connect the central passage of the pen core with the surface ink channels wherein said central passage contains a core rod having a capillary ink flow control channel.

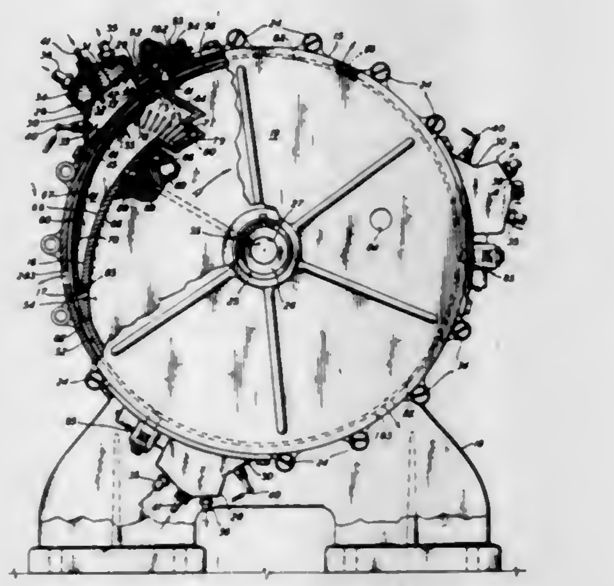
3,306,268
HOLLOW SHEET METAL STRUCTURE
Steven J. Humanic, Library, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed Oct. 4, 1965, Ser. No. 492,643
9 Claims. (Cl. 122—498)



1. For a high temperature furnace having a wall provided with a door aperture and having a door frame in said door aperture, a hollow furnace door movable on said door frame from an open position to a closed position, said furnace door having:
- (a) a high temperature inner face plate disposed adjacent said door frame and having a maximum heat zone,
- (b) a low temperature outer face plate opposite said high temperature inner face plate,
- (c) closure means adjacent said high temperature inner face plate and said low temperature outer face plate and defining with said high temperature inner face plate and said low temperature outer face plate a fluid chamber,
- (d) a partition member disposed in said maximum heat zone between said high temperature inner face plate and said low temperature outer face plate and dividing said fluid chamber into a first fluid compartment and a second fluid compartment, said partition member providing two-way stretch to said furnace door adjacent said maximum heat zone and removing heat from said maximum heat zone to said closure means,

(e) each of said first fluid compartment and said second fluid compartment having:
  (1) a first conduit means connected thereto and adapted to introduce a fluid into one corner thereof,
  (2) a second conduit means connected thereto and adapted to remove fluid from an opposite corner thereof, thereby swirling said fluid through said maximum heat zone in a generally circular path between said closure means and said partition member and simultaneously removing a portion of said fluid therefrom and reswirling the remainder of said fluid through said maximum heat zone in said generally circular path,
  (3) a partition member connected to one of the said first conduit means and said second conduit means for separating the portion of said fluid carried by said partition member from the remainder of said fluid in said fluid compartment to maximize swirling and reswirling of said fluid.

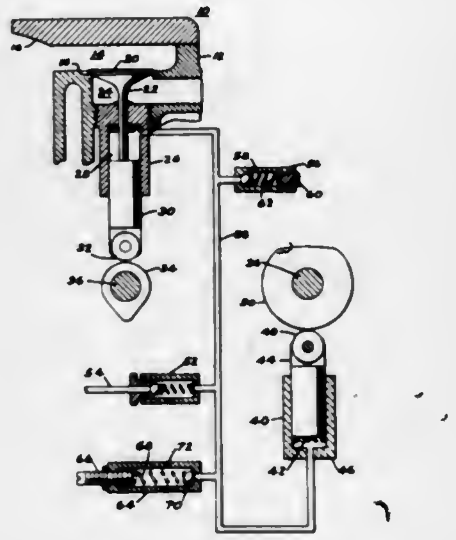
3,306,269
ROTARY COMPRESSION COMBUSTION ENGINE
**Clarence O. Dimmock, Jr., 148 Hampton Road,
Garden City, N.Y. 11040
Filed July 13, 1964, Ser. No. 382,003
9 Claims. (Cl. 123—15)**



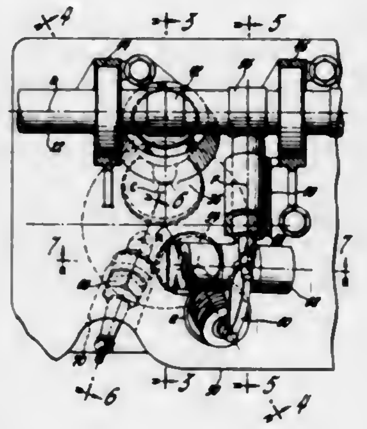
1. A rotary compression combustion engine comprising, in combination with
(a) a stator casing having opposed spaced sidewalls and an intervening enclosing transverse cylindrical wall defining together therein a cylindrical housing chamber, and a cylindrical rotor coaxially mounted upon a drive shaft rotatably supported by said opposed sidewalls and extending through at least one of the latter to the exterior of said housing chamber with said rotor having a cylindrical edge surface to be driven in one certain direction and juxtaposed closely to said stator enclosing cylindrical wall; of
(b) means fixedly mounted upon said stator enclosing cylindrical wall defining at least one combustion chamber radially outward of said housing chamber with said combustion chamber having a relatively large open face defined by an opening in said cylindrical wall, said open face having a forward transverse edge and opposed transversely-spaced side edges;
(c) a valve plate having a transverse back edge pivotally mounted to said stator on a transverse axis to the rear side of the combustion chamber open face with respect to the direction of rotation of said rotor and normally closing said open face in an outward retracted position, transversely-spaced side edges, and a forward transverse edge structure constituting a nose structure adapted to be swung inward into said housing chamber to an open position upon firing of fuel mixture in said combustion chamber for communicating the combustion chamber to said housing chamber;
(d) means defining in the cylindrical edge surface of said rotor a circumferentially-extending pocket having opposed sidewalls axially spaced at least the width of said stator valve plate, a generally radially-extending leading transverse impaction face, a curved open face at the edge surface of the rotor and a trailing transverse edge in the vicinity of the rotor cylindrical edge surface;
(e) a second valve plate having a trailing transverse edge pivotally mounted to said rotor on a transverse axis at the trailing transverse edge of the pocket and normally closing the open face of the pocket in a radially outer position, transversely-spaced side edges, and a transverse leading edge adapted to be swung inwardly into the pocket to define the bottom of an expansion chamber tapering back gradually from said impaction face toward the pivot axis of said rotor plate valve;
(f) means for supplying a pressurized combustible fuel mixture to said combustion chamber;
(g) means to fire the pressurized combustible fuel mixture in said combustion chamber at a time when said rotor is in a firing position relative to said stator at which said stator valve plate substantially overlies the leading section of said rotor valve plate with said impaction face located forward of said combustion chamber to cause said stator valve plate to swing radially inward under the influence of the pressure in said combustion chamber of expanding combustion gases into the leading portion of said rotor pocket with retraction of said rotor valve plate into the bottom of the latter which converts it into an expansion chamber so as to permit expanding combustion gases to rush out of the opened combustion chamber circumferentially forward into the open expansion chamber for rotor-driving impaction against the leading transverse face of the latter;
(h) means to swing said rotor valve plate radially outward thereafter at a forward exhaust position of said rotated rotor to its pocket closing position with swing thereby of said stator valve plate to its chamber closing position, for recycling; and
(i) means to exhaust combustion gases from said expansion chamber as said rotor valve plate is swung outward to its pocket closing position.

3,306,270
VALVE OPERATION SYSTEM
**Eugene L. McCarl, 834 Wyolen St.,
Jacksonville, Fla. 32205
Filed July 9, 1964, Ser. No. 381,485
9 Claims. (Cl. 123—90)**

1. In a valve operating system for an internal combustion engine provided with a cylinder, a valve for controlling fluid flow between said cylinder and a passage externally thereof, and a seat for said valve; cam means driven by the engine, means for providing a positive mechanical driving connection between said cam means and valve for opening the valve and including an expansible chamber having a moveable wall connected for movement with the valve and facing in the direction of movement of the wall corresponding to opening of the valve, means providing a second expansible chamber having a moveable wall, means providing a liquid passage between the chambers, a substantially incompressible liquid filling said chambers and passage, said cam means being operatively associated with the moveable walls of said chamber alternately to effect contraction of the first chamber and simultaneous expansion of the second chamber and contraction of the second chamber and simultaneous expansion of the first chamber in response to driving of the cam means, the rate of change of volume of said second chamber during contraction thereof being greater than the rate of change of volume of the first chamber during expansion thereof, and a pressure relief valve connected to said passage to limit the liquid pressure in said passage during contraction of said second chamber.

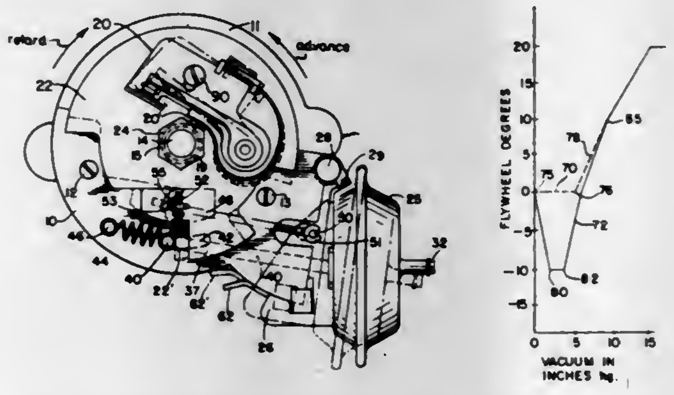


3,306,271
INTERNAL COMBUSTION ENGINE WITH SINGLE OVERHEAD CAMSHAFT AND HEMISPHERICAL COMBUSTION CHAMBERS
**Joseph D. Turlay, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 19, 1966, Ser. No. 521,676
7 Claims. (Cl. 123—90)**



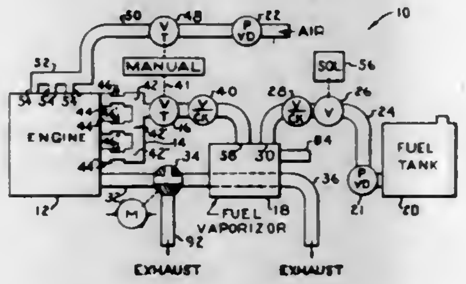
1. In an internal combustion engine,
a combustion chamber defining wall forming a portion of a sphere,
fluid flow passages through said wall and terminating in a pair of valve seats,
first and second poppet valves adapted to engage said valve seats to close said passages, said valves being movable on axes intersecting the center of said sphere,
a camshaft rotatably mounted over and operably engaging said first valve, said camshaft having an axis perpendicular to and intersected by the axis of said first valve and
mechanism operably connecting said second valve with said camshaft
whereby both said passages are controlled by a single camshaft.

3,306,272
VACUUM SERVO ADVANCE MECHANISM
**Louis A. Bevacqua, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Apr. 1, 1965, Ser. No. 444,760
8 Claims. (Cl. 123—117)**



1. A vacuum servo advance mechanism including in combination, a first fixed plate, a second plate rotatably mounted with respect to said first plate, vacuum means to rotate said second plate relative to said first plate including a vacuum actuated diaphragm, pivotal means supporting said vacuum means on said first plate and linking means coupling said diaphragm and said pivotal means to said second plate, said diaphragm being responsive to an initial vacuum and acting through said linking means to move said second plate in one direction relative to said first plate, said linking means being responsive to increased movement of said diaphragm to move said second plate relative to said first plate in a direction opposite to said one direction.

3,306,273
FUEL VAPORIZER
**Maynard W. Dolphin, 844 Hackett St.,
Beloit, Wis. 53511
Continuation of application Ser. No. 324,784, Nov. 19, 1963. This application Dec. 10, 1964, Ser. No. 418,949
4 Claims. (Cl. 123—133)**

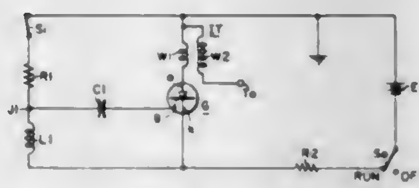


2. An apparatus for supplying fuel for an internal combustion engine including a manifold having a plurality of delivery tubes and an inlet, means for delivering airless dense gaseous fuel into the combustion space comprising
  means defining an enclosed gas generating chamber having an inlet and outlet in flow communication with said manifold inlet,
  a source of liquid fuel supplying same into said chamber inlet under pressure,
  heat supply means in heat exchange relation to said chamber, comprising a passage surrounding the gas chamber and having a common wall therewith receiving fluid borne waste heat therethrough from the engine and yielding heat directly to fuel within the gas chamber,

and means directly responsive to dry gas fuel pressure within said chamber, controlling said heat supply means, and an electrically operating control device controlling the heat supply means in response to the pressure within the dry gas fuel chamber.

3,306,274
IGNITION CIRCUITS USING GATE CONTROLLED SWITCHES

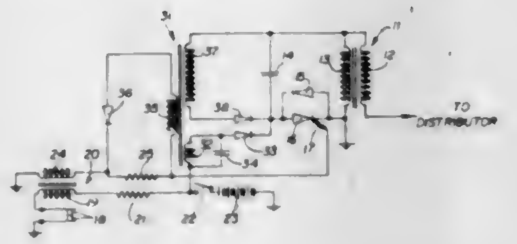
John W. Motto, Jr., Greensburg, and Warren C. Fry, Connellsville, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 23, 1964, Ser. No. 384,675
4 Claims. (Cl. 123—148)



1. An ignition circuit comprising, a gate controlled switch having anode, cathode and gate electrodes, an ignition transformer including a primary ignition coil operatively connected to the anode electrode of said gate controlled switch and a secondary ignition coil, an on-off circuit including a set of ignition points, a capacitive device operatively connecting the gate electrode of said gate controlled switch to said on-off circuit, upon opening said ignition points a pulse being applied through said capacitive device to the gate electrode of said gate controlled switch to turn off said gate control switch, a voltage being induced in said primary ignition coil and in response thereto an output spark voltage being induced in said secondary ignition coil, said gate controlled switch being turned on after a predetermined time.

3,306,275
ELECTRONIC APPARATUS

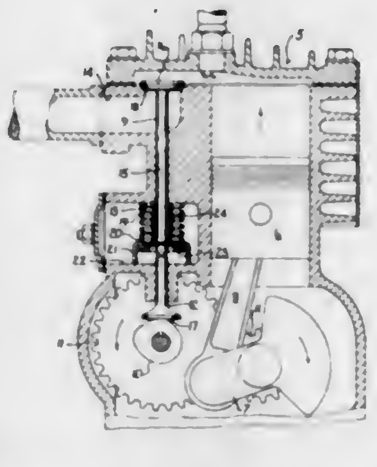
Arthur G. Hufton, Villa Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Nov. 9, 1964, Ser. No. 409,793
5 Claims. (Cl. 123—148)



1. In an ignition system for an internal combustion engine, which system has an ignition coil for supplying high voltage firing pulses to the internal combustion engine and pulse means operable in synchronism with the internal combustion engine, a firing circuit for providing intermittent current flow in the ignition coil to produce firing pulses therein, including in combination, capacitor means, charging means coupled to said capacitor means for applying a voltage thereto for charging said capacitor means, a gate controlled semiconductor switch connected in series with said capacitor means and the ignition coil, said semiconductor switch having a gate region responsive to a pulse of a given polarity to turn said semiconductor switch on and responsive to a pulse of opposite polarity to turn said semiconductor switch off, means coupled to the pulse means to apply pulses of the given polarity to said gate region to turn said semiconductor switch on and discharge said capacitor means through said ignition coil for producing a firing pulse therein, a transformer having primary and secondary windings, said primary winding being connected in series between said semiconductor switch and a source of potential, said secondary winding being connected to said gate region and being responsive to current flow in said primary winding subsequent to discharge of said capacitor means to apply a pulse opposite said given polarity to said gate region to turn said semiconductor switch off.

3,306,276
MEANS FOR REDUCING STARTING TORQUE IN FOUR-CYCLE ENGINES

Joseph R. Harkness, Germantown, Richard W. Seilenbinder, Milwaukee, and John D. Santi, West Allis, Wis., assignors to Briggs & Stratton Corporation, Milwaukee, Wis., a corporation of Delaware
Filed Mar. 25, 1965, Ser. No. 442,621
14 Claims. (Cl. 123—182)



13. A four-stroke cycle internal combustion engine having a cylinder in which a piston is reciprocable and having intake and exhaust poppet valves for respectively controlling admission of combustible gases to the cylinder from an intake manifold and discharge of spent gases from the cylinder to an exhaust manifold, said engine being characterized by:

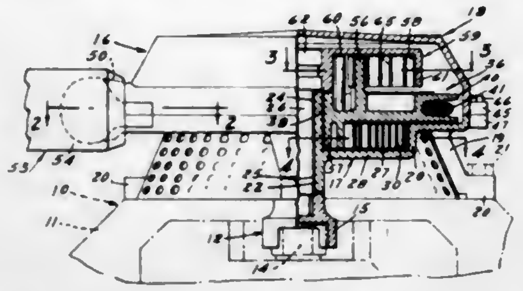
means for moving one of the valves toward and from its seat in timed relation to piston reciprocation and for limiting the instantaneous distance of said one valve from its seat to different values in different predetermined portions of the engine's cycle, said means leaving the valve substantially free to move through a predetermined small distance toward and from its seat during a predetermined portion of the engine cycle in response to the difference between pressure in its manifold and pressure in the cylinder.

3,306,277
SPRING STARTER FOR INTERNAL COMBUSTION ENGINES

Austin Gudmundsen, Inglewood, Calif., assignor to McCulloch Corporation, Los Angeles, Calif., a corporation of Wisconsin
Filed Oct. 23, 1964, Ser. No. 406,067
6 Claims. (Cl. 123—185)

1. In an engine starter:
(A) a rotatably mounted shaft;
(B) a rotatably mounted pulley;
(C) a flexible member wound on said pulley for rotating said pulley when pulled;
(D) rewind means, energizable by the rotation of said pulley, for returning said pulley to its original position after said pulley has been rotated by said flexible member;

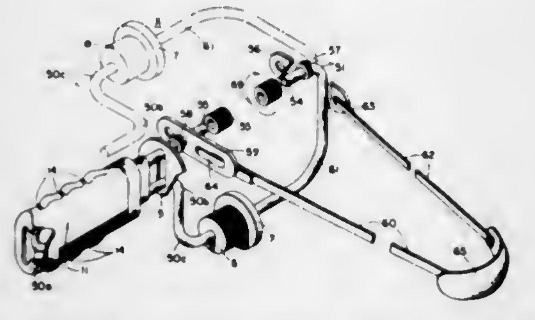
(E) and means interconnecting said pulley and said shaft including a starter spring energizable in response



to the rotation of said pulley, whereby a starting rotational force is yieldingly applied to said shaft by pulling said flexible member.

3,306,278
ELASTIC BAND U-SHAPED PROJECTILE LAUNCHING DEVICE

William C. Spatari, 184 N. Maple, Burbank, Calif. 91505
Filed Dec. 2, 1963, Ser. No. 327,321
2 Claims. (Cl. 124—22)

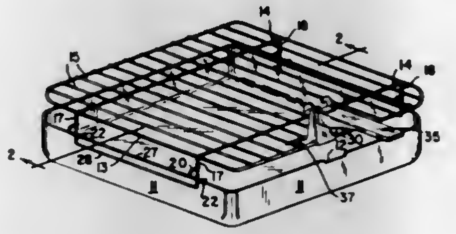


1. A multiple resilient band missile launching device comprising a frame support having a generally rectangular U-shape including a pair of spaced apart parallel members, a member forming the base of the U-shaped frame support and connecting the said parallel members, a handle of predetermined shape attached to a right angle integral extension of one parallel member which extends outwardly from the U-shaped support and is co-extensive with the plane passing through the parallel members, a pair of elastic bands, said right angle extension being turned back on itself and extending the length of the handle and having an end portion which provides a connection means for one of said elastic bands, an interconnecting pounch joining the elastic bands, the free end of the remaining elastic band being connected to the end of the other of the parallel members, an S-shaped brace having one end connected to the end of the handle and positionably spiralling around the user's forearm, a shock absorbing arrow support means positioned on the member forming the base of the U-support, whereby when the frame support is positioned so that the plane of the U-support is horizontal, the arrow support means will support one end of an arrow while the feathered end of the arrow will be positioned in the pouch, said frame support being positionable so that the U-support is vertical thus forming an opening between the parallel members whereby pellets may be fired.

3,306,279
BARBECUE SKILLET

Frank L. Dale, New York, N.Y., assignor to Timberland Products Company, Inc., Stamford, N.Y.
Filed May 19, 1965, Ser. No. 457,030
4 Claims. (Cl. 126—25)

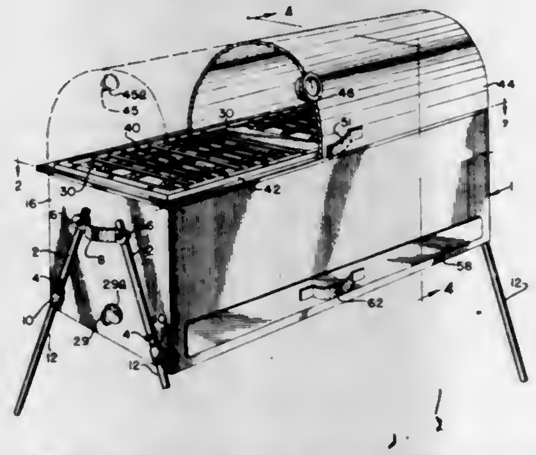
1. A barbecue cooking device, a rectangular-shaped fire pan having upstanding side flanges, a grill adapted to be positioned on said fire pan, a pair of posts depending from opposite side edges of said grill, the posts of each pair being spaced apart in a direction lengthwise of the side edges of the grill, said pairs of posts being spaced apart in a direction transversely of the grill complemental to the spacing of the opposite side flanges of said fire pan, upper and lower laterally extending downwardly facing hook members fixed to each of said posts, the upper hook members fixed to the posts of one pair extending outwardly from the posts, and the lower hook members fixed to the posts of said pair extending inwardly, upper hook



members fixed to the posts of said other pair extending inwardly therefrom, and the lower hook members fixed to the posts of said other pair extending outwardly therefrom, whereby the upper hook members fixed to said posts are adapted to engage the upper edges of the side flanges of said fire pan to support said grill in elevated relation to said fire pan, and upon lateral movement of said grill relative to said fire pan, said lower hook members engage the upper edges of the side flanges of said fire pan to support said grill at a higher elevation.

3,306,280
BARBECUE GRILLS

James W. Vannoy, 441 W. Main St., Healdton, Okla. 73438
Filed Sept. 27, 1965, Ser. No. 490,221
5 Claims. (Cl. 126—25)



1. A grill for broiling food, which grill comprises:
(a) a substantially rectangular body having outer walls and a bottom plate,
(b) a plurality of receptables formed within said body and being spaced inward from said outer walls, and being spaced from each other and from said bottom plate,
(c) an upper plate closing the space between said outer walls and said receptacles and between said receptacles,
  (1) said receptacles being normally open at the tops thereof,
(d) a perforate plate extending transversely across the lower ends of said receptacles to form a bottom therefor,
(e) a further plate closing the space between the lower ends of said receptacles and said outer walls and between the lower ends of said receptacles,
(f) heat insulating material interposed between said outer walls and said receptacles and between the adjacent walls of said receptacles,
(g) a grill extending across said open tops of said receptacles to normally support food thereon,

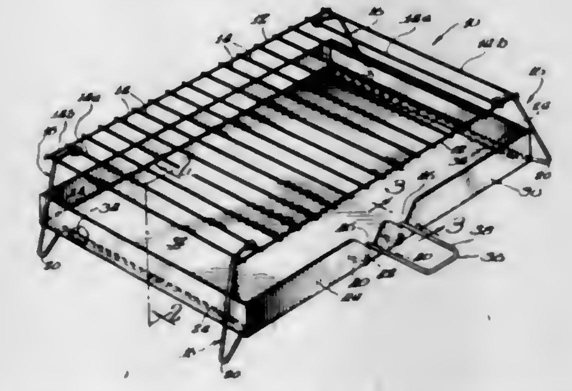
(h) a hooded cover positioned over the top of said grill and encompassing the open tops of said receptacles,

(i) a side of said rectangular body having an elongated opening formed therein, and

(1) an ash receiving tray fitted within said elongated opening and extending beneath said receptacles.

3,306,281
COLLAPSIBLE AND PORTABLE BARBECUE OR COOKING DEVICE

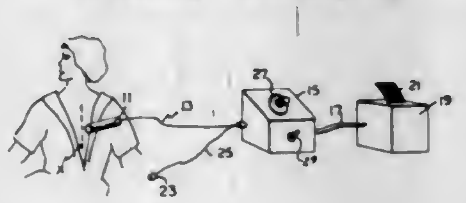
William S. Hoebel, Long Grove, Ill., assignor to Johnson-Stuart Company, Skokie, Ill.
Filed Oct. 14, 1964, Ser. No. 403,706
3 Claims. (Cl. 126—25)



1. A collapsible barbecuing device comprising a gridiron formed of a plurality of spaced longitudinally and transversely extending wire members, a leg member pivotally secured to said gridiron adjacent each of the opposite ends of said gridiron, each said leg member formed of a single strip of wire bent and shaped to form a pair of spaced side members and a transverse member connecting said side members, each said side member having an upper, an intermediate, and a lower portion, with the upper portion having a looped terminal engaging a transversely extending wire member inwardly of the end thereof pivotally connecting said leg to the gridiron, said intermediate portion forming an obtuse angle with said upper portion, said lower portion extending inwardly and angularly upward of the intermediate portion and with the transverse member extending above the bottom of the intermediate portion, a fuel pan supported between said legs and on said transverse member of said legs, said pan being removably positioned on said legs to permit collapsing of said legs with respect to said gridiron.

3,306,282
METHOD FOR CHARTING TEMPERATURE DEVIATIONS

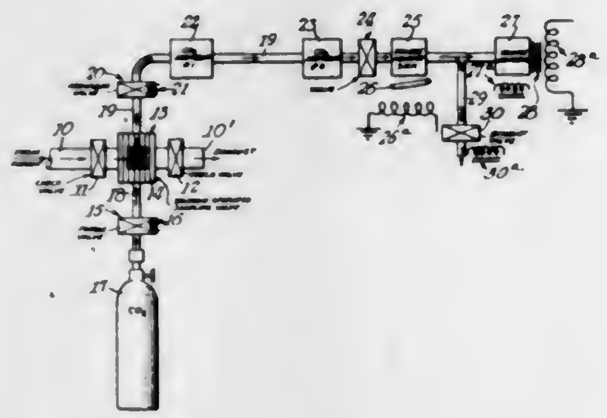
Walter V. Pierce, Clairton, Pa.
(209 Richland Ave., Dravosburg, Pa. 15034)
Filed Apr. 3, 1964, Ser. No. 357,186
5 Claims. (Cl. 128—2)



1. A method for charting, using a temperature responsive device having a recording stylus, calibration means, and a probe with a single sensing end, on paper having a center line, skin temperature variations existing along the spinal column comprising the steps of: placing the sensing end of the probe in contact with the individual patient's skin at a starting point; calibrating the device to place the stylus on the center line when sensing the starting point temperature; and gliding the probe sensing end over the surface of the skin vertically from the starting point in the area of the spinal column while advancing the chart paper to produce a chart showing only temperature deviation along the single glide path relative to the starting point temperature with temperatures above the calibration temperature being charted to one side of the center line and temperatures below the calibration temperature being charted to the other side of the center line.

3,306,283
OXYGEN UTILIZATION ANALYZER

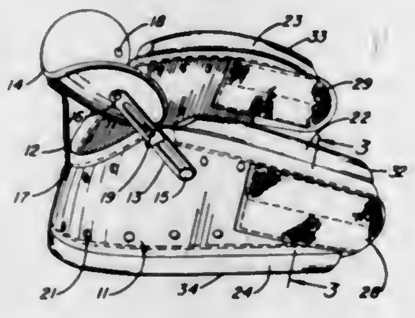
Leon J. Arp, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa
Filed Feb. 27, 1964, Ser. No. 347,785
7 Claims. (Cl. 128—2.07)



1. In apparatus for the volumetric determination of exhaled carbon dioxide, means including a valve for isolating a predetermined quantity of exhaled breath, means including a source of carbon dioxide coupled to said valve for purging the first-mentioned means and delivering the carbon dioxide-diluted quantity to a carbon dioxide absorber, a carbon dioxide absorber coupled to said valve, and means operatively associated with said absorber for reporting the unabsorbed portion of said quantity.

3,306,284
CERVICAL BRACE

Paul E. McKinley, 4623 Boynton Place, Columbus, Ohio 43227
Filed Mar. 12, 1962, Ser. No. 178,816
5 Claims. (Cl. 128—75)



1. A cervical collar for entirely encircling and conforming generally to the shape of the neck of a wearer, for engaging the chest, upper shoulder portion, and occipital bone of the wearer, and for immobilizing the head of the wearer and having a separate component for supporting and substantially preventing rotary motion of the chin of the wearer, comprising:

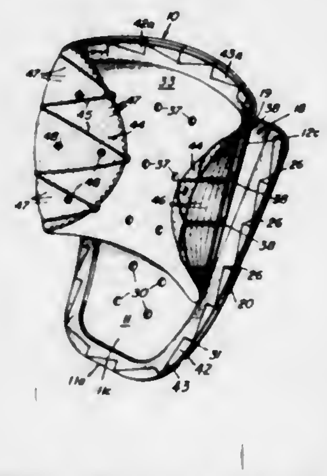
a substantially tubular base component having an axial height with upper and lower side edges, said base component being formed of a semi-flexible material and having its end portion joined so as to form a substantially circular enclosure;

a separate substantially rigid concave chin cup component having opposite terminal portions spaced from but adjacent to the respective upper front side edges of the base component;

and means for adjustably but fixedly securing and supporting said chin cup in fixed position on the base component.

3,306,285
ABDOMINAL SUPPORT

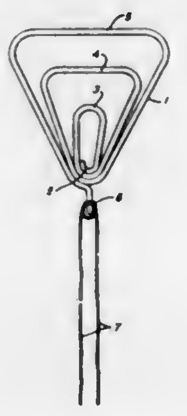
James J. Ryder, Nickson Hotel, Roswell, N. Mex. 88201
Filed Dec. 28, 1964, Ser. No. 421,196
12 Claims. (Cl. 128—96)



1. In a foundation structure adapted for use in a support for an abdominal region of a wearer, a rigid base member and presser means including first, second and third spring projections securely on said rigid base member, said first spring projection extending longitudinally outwardly away from said rigid base member and said second and third spring projections being oppositely situated with respect to each other and extending longitudinally in generally opposite directions outwardly away from said base member and longitudinally directionally transversely of the longitudinal direction of said first spring projection, and said spring projections each having a free outer end and a rearwardly directed presser face for said spring projection to be in thrust receiving relation to an abdominal region of a wearer of the foundation structure and flex longitudinally when the thrust is varied.

3,306,286
INTRAUTERINE DEVICE

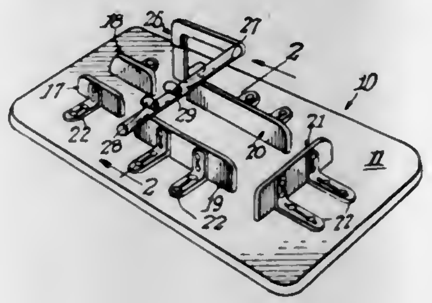
Mary Aftab Ahmed, Karachi, Pakistan, assignor to Schueler & Company, New York, N.Y., a partnership of New York
Filed Apr. 13, 1965, Ser. No. 447,747
5 Claims. (Cl. 128—130)



1. An intrauterine device comprising a single elongated rod of flexible polyethylene preformed in the shape of an outer triangle, a coplanar triangle within the outer triangle, and an ovaloid coplanar shape within the inner triangle, an end region of a side of the outer triangle having an outward extension therefrom substantially aligned with the longer axis of the ovaloid shape, a transverse bore defined in the extension at its free end region, and a length of nylon string threaded through the bore and having a knot about the extension, both end portions of the nylon string beyond the knot extending a substantial distance from the bore.

3,306,287
INFANT SUPPORTING APPARATUS

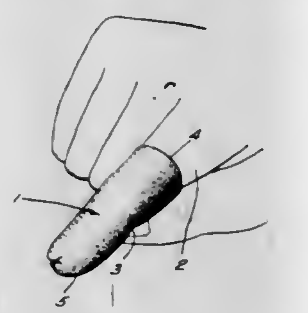
Leon J. Arp, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa
Filed Jan. 2, 1964, Ser. No. 335,159
2 Claims. (Cl. 128—134)



1. In apparatus for use with infants, a platform equipped with upstanding barriers for confining the infant, said barriers including parallel members to support and confine the head of the infant and including separate members to confine the torso of the infant, bracket means upstanding from said platform, gas conduits supported by said bracket means for conveying gas to and from the nose of an infant on said platform, and pedestal means for supporting said platform, said pedestal means including adjustable connection means attached to said platform and selectively adjustable for tilting said platform.

3,306,288
TUBULAR BANDAGE AND MATERIAL THEREFOR

Benjamin Rosenfield, Rego Park, N.Y., assignor to The Scholl Mfg. Co., Inc., Chicago, Ill., a corporation of New York
Filed Nov. 9, 1964, Ser. No. 409,769
3 Claims. (Cl. 128—157)



3. A bandage for application over an extremity of the human body and capable of exerting a compressive force thereon, comprising

a tubular fabric knitted of threads having a minimum of inherent stretch, and

spandex threads interknitted in the fabric along with certain of the first said threads to render the fabric as a whole stretchable, the stretch of the spandex threads being limited by the extent of stretch of the other threads and the tightness of the knitting.

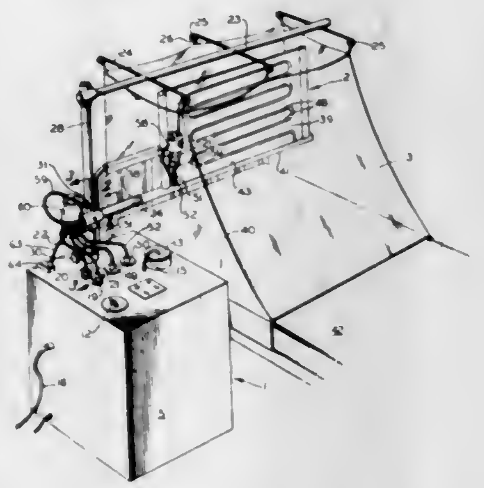
3,306,289

OXYGEN TENT ATMOSPHERE CONDITIONING APPARATUS AND METHOD

Leon Robert Cameto, William R. Evans and Raleigh J. Harris, all of Oakland, Calif., assignors to Mist O_2 Gen Equipment Co., Oakland, Calif.

Filed Jan. 2, 1962, Ser. No. 163,453

5 Claims. (Cl. 128—191)



1. Apparatus for conditioning the atmosphere within a patient treatment tent comprising:

(a) a nebulizer
(b) a conduit fully enclosing and sealing from contamination by said atmosphere a coolant adapted to be circulated through said conduit,
(c) said conduit including a heat exchanger and inlet and outlet portions for respectively conducting said coolant into said heat exchanger and out of the latter upon said circulation,
(d) said nebulizer and said heat exchanger including said inlet and outlet portions of said conduit being adapted to be positioned within the atmosphere within said tent,
(e) means for so positioning said nebulizer, heat exchanger and said inlet and outlet portions and
(f) said nebulizer including a gas pipe line and a fluid pipe line connected therewith for conducting a breathable gas and a fluid to said nebulizer,
(g) said conduit further including heat removing means for removing heat from said coolant upon said circulation of the latter, and
(h) a gas supply tank connected with said gas pipe line for supplying breathable gas to said nebulizer.
(i) detachable couplings in said conduit and gas line for disconnecting said heat exchanger and said nebulizer from said heat removing means and from said gas supply tank tb enable sterilization of said heat exchanger and said nebulizer independently of said heat removing means and said gas supply tank.

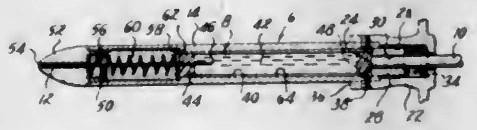
3,306,290

AUTOMATICALLY RETRACTABLE NEEDLE SYRINGE

Harold S. Weltman, 292 S. Franklin St., Wilkes-Barre, Pa. 18702

Filed Feb. 14, 1964, Ser. No. 344,996

10 Claims. (Cl. 128—218)



1. A hypodermic syringe, comprising; an elongated tubular body having a first bore portion in one end thereof for slidably receiving a tubular carpule, and a second bore portion at the other end thereof aligned with and adjacent to said first bore portion; manually operable plunger means carried by said one end of said tubular body, selectively engageable with said carpule to slide the same within said tubular body and to effect selective emptying thereof; a hub mounted on said other end of said tubular body, and having an axial bore therethrough aligned with said first and second bore portions; a piston received within said second bore portion, and having a bore therethrough aligned with said axial hub bore; a hollow needle pointed at both ends thereof, said needle extending through and being secured within said piston bore, and being translatable within said axial hub bore, the opposite ends of said needle extending for a substantial distance from the opposite sides of said piston: abutment means within said tubular body at the junction of said first and said second bore portions, said piston being engageable with said abutment means to limit movement of said piston toward said first bore portion and resilient means arranged to bias said piston and said needle away from said hub and toward said first bore portion, to engage said piston with said abutment means.

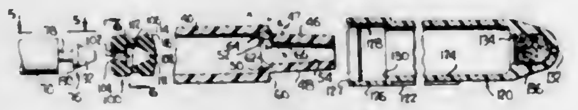
3,306,291

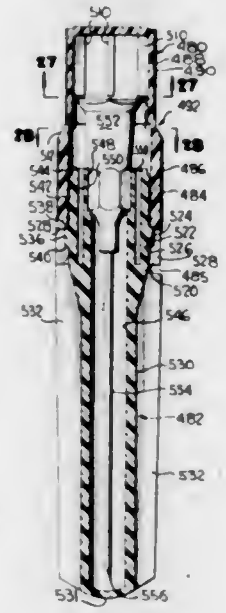
DISPOSABLE STERILE SYRINGES, NEEDLE CONTAINERS AND THE LIKE HAVING PRESTRESSED FRANGIBLE PORTIONS THEREIN

George K. Burke, Bethlehem, Pa., assignor to Burron Medical Products, Inc., Bethlehem, Pa., a corporation of Pennsylvania

Filed Apr. 14, 1964, Ser. No. 359,674

41 Claims. (Cl. 128—218)





6. A disposable sterile medical and surgical device comprising a hollow body means formed of organic plastic material of low molecular weight which is hard flowing and sets up quickly in a mold and is difficult to break, said body means including an intermediate frangible portion for separating the body means into two separate pieces, so that the body means cannot be effectively reused for its intended purpose, said frangible portion including a prestressed area having a concentration of stresses therein to render said area readily breakable by manual effort, and enclosure means disposed in telescoping relationship with said body means and being engaged therewith to define with the body means an enclosed space.

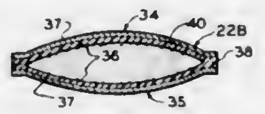
3,306,292

BANDAGE

Arthur T. Spees, 633 S. Carondolet St., Los Angeles, Calif. 90057

Filed Nov. 20, 1962, Ser. No. 238,851

4 Claims. (Cl. 128—268)



4. A sealed pouch for use in a bandage and adapted to contain a fluid substance comprising walls of flexible material, said walls comprising in part at least a laminate including a layer of a tough, relatively stretchable material and a layer of a relatively nonstretchable material, the continuity of said layer of relatively nonstretchable material being interrupted in a given area in the hollow region of the pouch to provide a weak region subject to rupturing upon substantial internal pressure of the contents of the pouch thereagainst such as induced by external pressure on other portions of the pouch.

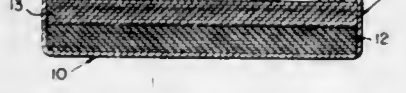
3,306,293

DISPOSABLE DIAPER

Herman L. Marder, Plainfield, Werner O. Tundermann, Colonia, and George D. Grippo, New Brunswick, N.J., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

Filed July 31, 1963, Ser. No. 298,904

15 Claims. (Cl. 128—284)



1. A diaper including a non wet strength absorbent core, an envelope including a pair of members, said members encasing said core to form a substantially flattened tube, said tube being open at its ends and substantially longer than said core, the corresponding longitudinal marginal edges of said envelope members being substantially in overlapped relationship so that when wet the envelope members are held together at the marginal edges by the surface tension of the liquid therebetween, said envelope members being secured to said core but unsecured to each other so that they become separated from each other when dipped in a toilet bowl.

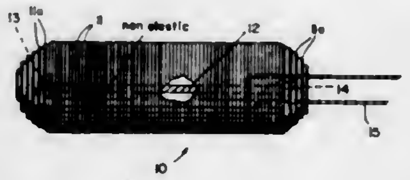
3,306,294

SEGMENTED TAMPONS

Stanley Penksa, Worcester, N.Y. 12197

Filed Apr. 15, 1964, Ser. No. 359,925

1 Claim. (Cl. 128—285)



A vaginal tampon body composed of a multiplicity of stacked relatively thin discs of absorbent material all having the same dimensions, said discs having aligned axial holes therethrough, a string extending through said aligned holes and having enlargements on the ends thereof, said string having a length such that said enlargements are urged inward from the ends of the body thereby imparting to the discs at and near the ends of the body a generally conical deformation with the maximum deformation occurring at the extreme outermost discs whereby the ends of the body are rounded.

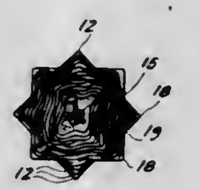
3,306,295

SEGMENTED TAMPONS

Stanley Penksa, Worcester, N.Y. 12197

Filed Mar. 16, 1965, Ser. No. 440,196

3 Claims. (Cl. 128—285)



1. A vaginal tampon body composed of a multiplicity of relatively thin plate-like segments of absorbent material all having the same dimensions and all having the configuration of a multiple-pointed star, said segments being stacked with the star points thereof in alignment thereby providing circumferentially spaced alternating peaks and troughs throughout the length of said body, said segments having aligned axial holes therethrough, a string extending through said aligned holes and having enlargements on the ends thereof to hold the stacked segments together in compact condition, said string having a length such that said enlargements are urged inward from the ends of the body thus imparting to the segments at and near the ends of the body a generally conical deformation with the maximum deformation occurring at the extreme outermost segments whereby the ends of the body are rounded.

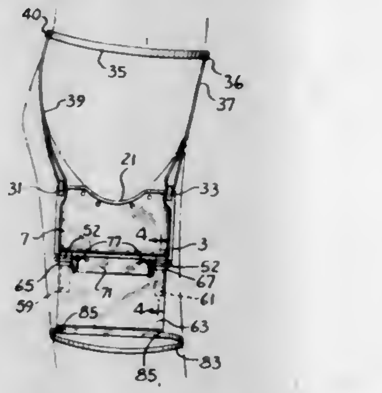
3,306,296

A BODY WORN URINAL WITH DETACHABLE RECEPTACLE

David H. Moss, 6111 N. Damen Ave., Chicago, Ill. 60645

Filed Sept. 23, 1963, Ser. No. 310,573

2 Claims. (Cl. 128—295)

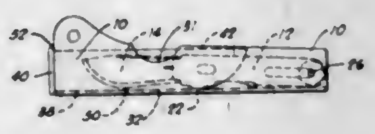


1. A sanitary urinal device adapted for wear by both male and female persons, said device comprising a flexible rubber-like pouch having a trough-shaped body, said body having opposite sides the upper ends of which define at least in part an elongated top opening in the body that is substantially the full length of the body, said upper ends being beaded and being contoured to form inverted arches, means for suspending the pouch from the person wearing same so that the inverted arches fit into the crotch of the person with the genital organs of the person projecting into the top opening of the pouch, the bottom of said body having a pair of spaced discharge openings one adjacent to each end of the body,

a nipple permanently secured to and depending from the pouch bottom at each discharge opening, a pliable thin gauge plastic bag having at its top upwardly projecting tubes that are spaced apart substantially the same distance as the spacing of the nipples and removably telescoping respectively therewith to provide conduits for draining liquid from the pouch into the bag, means forming a liquid tight seal at the telescopic connections, a check valve in each nipple for permitting liquid to flow from the pouch to the bag but preventing back flow of liquid from the bag to the pouch, each said valve comprising a flattened tubular member that projects downwardly from the nipple and extends into the bag, the top of the bag and the bottom of the pouch having means forming a flexible and removable connection between the two to suspend the bag from the pouch, and means by which the bag may be removably secured to one leg of the person to prevent the bag and pouch from swaying.

3,306,297
TRACHEOTOMY SET

John A. Voorhees, Oklahoma City, Okla., and Paul C. Baylor, Hurst, Tex., assignors to Sel-Mar, Inc., Oklahoma City, Okla., a corporation of Oklahoma
Filed June 1, 1964, Ser. No. 371,272
4 Claims. (Cl. 128—305)

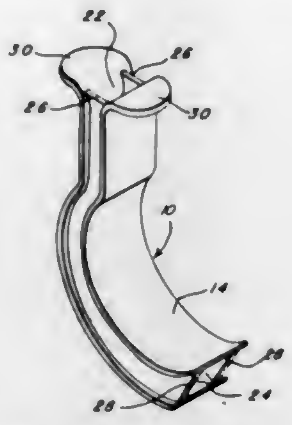


1. A pocket surgical set comprising:
- a handle portion having a bottom and parallel spaced side walls extending upwardly from said bottom;
- blade means having a generally pointed free end and pivotally attached to one end of said handle portion and positioned in a sheathed position in said handle between said spaced, parallel side walls; and
- an elongated, resilient airway member of V-shaped transverse cross-sectional configuration and having a crown and a pair of diverging sides and being open at opposite ends, said airway member being frictionally and removably retained in said handle portion and over said blade with said diverging sides being resiliently deformed toward each other from their relaxed position and bearing against the spaced parallel side walls of said handle portion, the crown of said airway member being spaced from the bottom of said handle portion and covering and protecting said blade means and locking the blade in the blade means in a folded, sheathed position.

3,306,298
AIRWAY

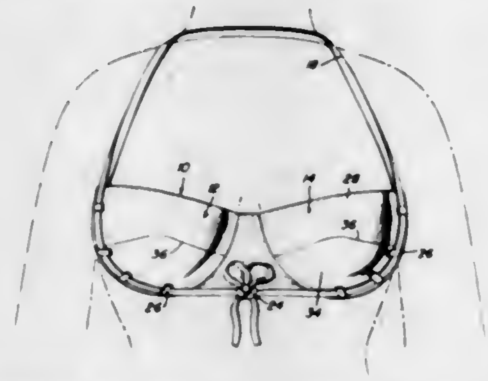
Victor H. Raimo, 214 Ballentine Parkway, Newark, N.J. 07104
Filed Mar. 31, 1964, Ser. No. 356,260
1 Claim. (Cl. 128—351)

An airway for preventing suffocation of a surgical or other patient, comprising an elongated body having a straight portion at the outer end thereof which is adapted to extend through the lips and mouth, and a curved portion at the inner end thereof which is adapted to be positioned adjacent the trachea, said body having an upper surface and a lower surface joined by a pair of spaced apart longitudinal ribs defining at least one closed-sided channel extending throughout the length of said body and having an orifice at each of said outer and inner ends thereof, the width of said ribs between said upper and lower surfaces being greater at the inner end than at the outer end thus making the orifice at the inner end larger than the orifice at said outer end, said body being further provided with at least one open-sided channel, said ribs having sufficient structural strength to prevent occlusion of said closed-sided channel by biting pressure exerted thereon under use conditions, said curved portion at the inner end of said body having a larger cross section than the straight portion at the outer end of said body and being adapted thereby to lift the epiglottis and to lift and straighten the tracheal curve of a patient.



3,306,299
BACKLESS BRASSIERE

Betty I. Paramore, 2514 Park Oak Drive, Los Angeles, Calif. 90028
Filed June 4, 1965, Ser. No. 461,360
6 Claims. (Cl. 128—505)



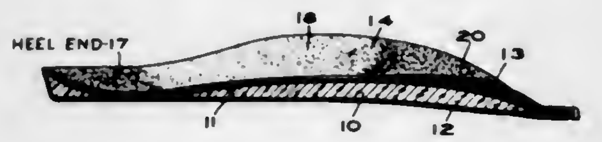
1. A backless brassiere comprising a pair of flexibly interconnected shape sustaining cup-shaped members, means on the interior surface of each cup-shaped member for adhering engagement with the skin surface of a breast of a wearer, and flexible straps connected to the outer upper extremities of the cup-shaped members for encircling around the neck of the wearer forwardly of the shoulders, said straps having end portions extending downwardly along the outer edge of the cup-shaped members and under the cup-shaped members, the outer peripheral edge and the lower peripheral edge of each of said cup-shaped members being provided with loops for receiving the free end portion of the flexible straps which are terminally connected to the upper outer corner of the oppositely disposed cup-shaped member for guidingly retaining the straps so that the free ends of the straps may be adjustably secured together at a point between and below the flexibly interconnected cup-shaped members.

3,306,300
FOOT SUPPORT

Jan H. van Kleef, 5 Ronaldshay Ave., Hamilton, Ontario, Canada
Filed June 26, 1963, Ser. No. 290,791
1 Claim. (Cl. 128—619)

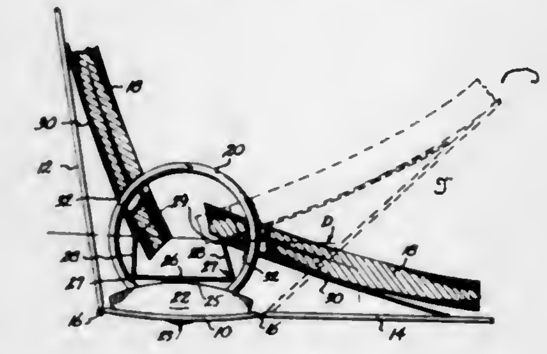
An arch support for the human foot comprising:
- a one piece integral core consisting of a cup shaped heel member at one end having raised side edges around three sides and a reduced in height central zone;

- a sole pad of intermediate thickness merging with said heel member and having inner and outer sides;
- an arch pad extending along the inner side of said sole pad and of increased thickness in relation thereto;
- a lateral arch pad extending along the outer side of said sole pad and raised and thickened above the height of said side edges of said cup shaped heel member;
- said cup shaped heel member, sole pad, arch pad and lateral arch pad being formed integrally of bonded ground cork arranged into a unitary structure;
- fibrous material bonded around the exteror of said core and having marginal forwardly extending portions;
- a metatarsal pad of sponge rubber lying on the upper surface of said fibrous material and overlying a part of said sole pad between said arch pad and said lateral arch pad and of reduced width in relation thereto whereby said arch pad and lateral arch pad remain uncovered;
- and a top cover of leather bonded to the exposed upper surface of said fibrous material and overlying said metatarsal pad and said marginal forwardly extending portions of said fibrous material.



3,306,301
LOOSE-LEAF BINDER

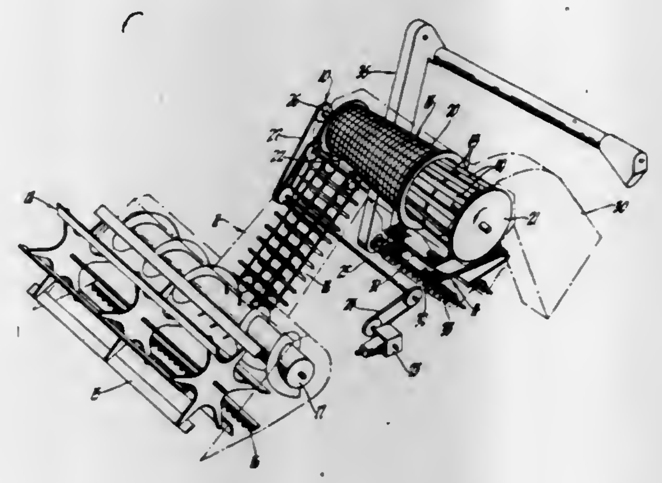
Raynold S. Mason, 912 Main St., Edmonds, Wash. 98020
Filed Mar. 14, 1966, Ser. No. 534,159
6 Claims. (Cl. 129—4)



1. A loose-leaf binder comprising a pair of cover members hinged to a back member and adapted to be swung to open and closed positions;
- a plurality of spaced apart substantially circular retaining rings adapted to receive filler sheets provided with apertures at their inner marginal edges for fitting over said rings;
- said retaining rings being split and portions thereof being swingable toward and away from each other to close or open the rings;
- a shield plate mounted on and spaced from said back member to provide a chamber enclosing therein ring operating mechanisms for supporting said rings and for opening and closing said rings;
- said shield plate having apertures through which the rings extend with a major portion of the arc of the circle of each ring exposed;
- a channel-shaped member having its web superposed over said shield plate within said plurality of circular retaining rings;
- the marginal flanges of said channel-shaped member each being hingedly joined at one edge to said web and each having an opposite edge inwardly spaced from said rings;
- a flat sheet lifter member fulcrumed at one of its edges to each of said opposite flange edges of said channel-shaped member and provided with apertures for fitting over said rings exterior of filler sheets thereon, the inner edges of said apertures being spaced from said fulcrums to maintain said fulcrums spaced inward from said rings.

3,306,302
THRESHING ASSEMBLY

Alexander Hing Mark, Livonia, Mich., and Joseph Necas, Toronto, Ontario, Canada, assignors to Massey-Ferguson Limited, Toronto, Ontario, Canada, a corporation of Canada
Filed May 5, 1964, Ser. No. 365,062
5 Claims. (Cl. 130—27.8)



1. A threshing cylinder assembly comprising, in combination, a frame, a rotatably driven stub shaft journalled in said frame, a cylinder shaft mounted in said frame coaxially with said stub shaft for both rotation and axial movement, a threshing cylinder mounted on said cylinder shaft, means interconnecting said stub shaft and said mounting shaft for selectively varying the axial position of said mounting shaft, and means interconnecting said stub shaft and said cylinder for simultaneous rotation.

3,306,303
TOBACCO PRODUCT

Abraham Bavley, Bon Air, and James Douglas Grossman, Richmond, Va., assignors to Philip Morris Incorporated, New York, N.Y., a corporation of Virginia
No Drawing. Filed May 19, 1964, Ser. No. 368,710
7 Claims. (Cl. 131—17)

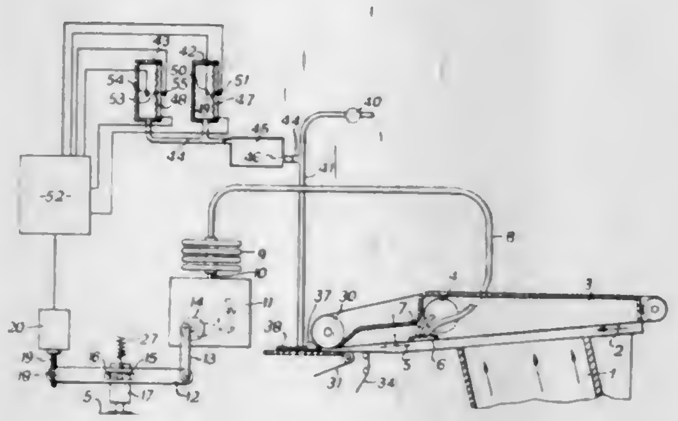
1. A tobacco product containing tobacco and from 0.025% to 5.0% by weight, based on the tobacco, of the product obtained by the pyrolysis of a mixture comprising from 1 to 30% by weight of an oxygenated terpenoid and from 70 to 99% of a terpene, wherein said pyrolysis is conducted in an inert atmosphere at a temperature of from about 400° C. to about 600° C. for a period of time of from about 1 minute to about 24 hours, to produce a pyrolysis product, said pyrolysis product, when incorporated in said tobacco product and smoked, providing improved main-stream mildness, reduced side-stream odor and desirable flavor and aroma.

3,306,304

TOBACCO-MANIPULATING MACHINES

Desmond Walter Molins, Gordon Francis Wellington Powell, and Frederick Pocock, London, England, assignors to The Molins Organisation Limited, a British company

Filed June 26, 1961, Ser. No. 119,436
Claims priority, application Great Britain, June 29, 1960, 22,772/60
8 Claims. (Cl. 131—21)



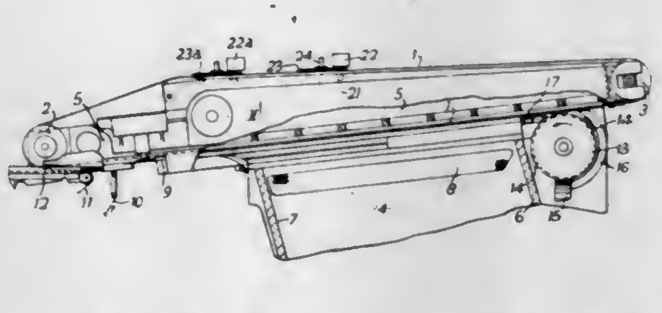
1. A continuous rod cigarette-making machine having means to form an elongated continuous tobacco stream, a conveyor to convey the tobacco stream lengthwise, and side walls to form with the conveyor a trough having an open side; said machine comprising a stationary compression member in the open side of the trough to form therewith a confining passage of fixed configuration through which the conveyor conveys the tobacco stream, means to pass air at more than atmospheric pressure through the tobacco confined at any instant in the passage, means to detect variations in the effect on the air of variations in air permeability of the confined tobacco due to variations in the quantity of tobacco from place to place along the filler and adjustable means responsive to said detecting means for controlling the size of the section of the tobacco stream in dependence on said detected variations.

3,306,305

MANUFACTURE OF CIGARETTES

Desmond Walter Molins, Deptford, England, assignor to The Molins Organisation Limited, a company of Great Britain

Continuation of application Ser. No. 806,909, Apr. 16, 1959. This application Sept. 5, 1962, Ser. No. 221,598
Claims priority, application Great Britain, Apr. 28, 1958, 13,409/58
5 Claims. (Cl. 131—61)



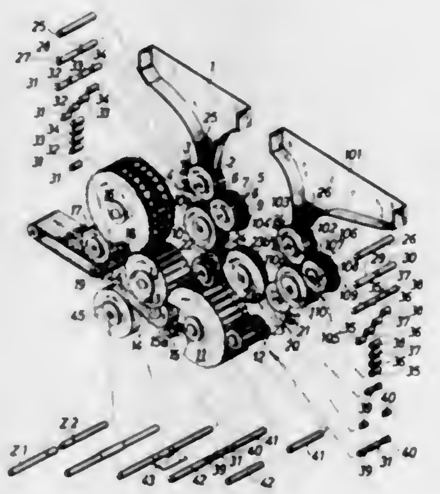
5. In a continuous rod cigarette-making machine, apparatus for producing cigarettes having dense ends comprising a conveyor for moving an elongated tobacco filler stream in the direction of its length and in a predetermined path, a trimming device positioned adjacent said path at a distance from said conveyor which is less than the maximum depth of said filler stream, means operating on said filler stream upstream of said trimming device to compress said filler stream against said conveyor at spaced positions along its length to a depth less than the depth of said filler stream existing between said positions, whereby the operation of said trimming device will leave more tobacco per unit length at said position, than between said positions, rod forming means compressing the trimmed filler stream to substantially uniform cross-section to form a continuous cigarette rod, whereby said rod may be severed at positions corresponding to said first-named positions to form cigarettes having a greater density of filler at the severed end than at the intermediate points.

3,306,306

APPARATUS FOR THE PRODUCTION OF FILTER CIGARETTES AND THE LIKE

Willy Rudszinat, Hamburg-Lohbrugge, Germany, assignor to Haunl Werke Koerber & Co., Kg., Hamburg-Bergedorf, Germany

Original application Nov. 21, 1961, Ser. No. 153,926, now Patent No. 3,245,414, dated Apr. 12, 1966. Divided and this application Apr. 20, 1965, Ser. No. 449,455
14 Claims. (Cl. 131—94)



1. An an apparatus for producing rod-shaped smokers' articles of double unit length having multiplex mouthpieces of double unit length and including a pair of axially spaced tobacco-containing sticks, a pair of rod-shaped filter elements of a first type and of unit length axially spaced from each other and located between the sticks, a rod-shaped filter of a second type and of double unit length located between the filter elements, and a single tubular wrapper constituting the sole means for connecting the filter elements to the filter and to the adjacent portions of the sticks, in combination, separate sources of filters, adhesive-coated wrappers and pairs of sticks; a separate source of filter element rods of multiple unit length; means for subdividing each multiple length rod into successive pairs of filter elements, each of said pairs of filter elements being axially aligned and spaced from each other; conveyor means comprising a plurality of equidistant parallel holding means and arranged to advance such holding means sideways; means for feeding said filters, said pairs of filter elements and said pairs of sticks into consecutive holding means of said conveyor means in such a way that the thus fed rod-shaped parts advance only sideways all the way from the respective sources, into, and also with the respective holding means to form in each holding means an unconnected assembly of a filter, a pair of filter elements and a pair of sticks; means for feeding said single wrapper each to consecutive holding means; and means for convoluting such wrappers around the filters, filter elements and sticks in the respective holding means.

3,306,307

TREATMENT OF TOBACCO

Geoffrey Norman Richards, Townsville University, Queensland, Australia, assignor to American Machine & Foundry Company, New York, N.Y.

No Drawing. Filed Apr. 15, 1965, Ser. No. 448,251
Claims priority, application Great Britain, Apr. 17, 1964, 15,982/64
2 Claims. (Cl. 131—140)

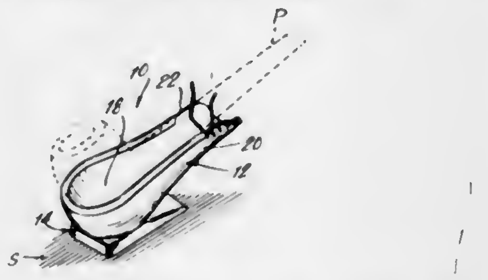
1. A method for the production of reconstituted tobacco sheet comprising the steps of cooking tobacco stems in water at a temperature between 120° C. and 140° C. for periods ranging from two hours at 140° C. to about five hours at 120° C. followed by diluting with water and slushing and then mechanically beating the resultant pulp for about five minutes to produce a refined pulp having adequate freeness, and thereafter forming the pulp into a sheet.

3,306,308

PIPE SUPPORT

Victor Shanok and Jesse P. Shanok, both of 863 65th St., Brooklyn, N.Y. 11220

Filed Oct. 27, 1964, Ser. No. 406,735
1 Claim. (Cl. 131—260)



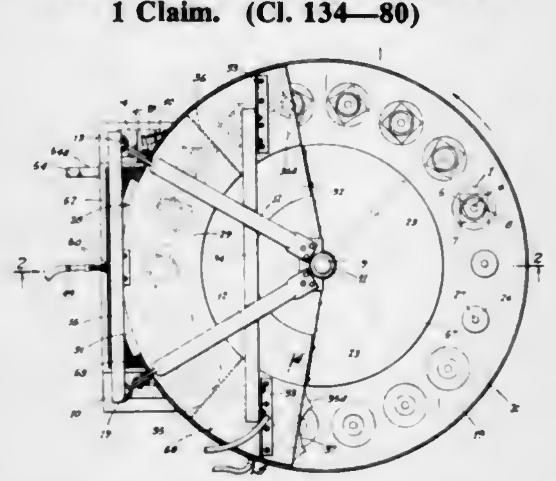
A pipe holder comprising a receptacle having an open bowl portion and an open stem portion extending from said bowl portion, and magnetic mounting means secured to the bottom of said bowl portion for mounting the latter on a supporting surface, said magnetic mounting means comprising a keeper member secured to the bottom of said bowl, and a ceramic magnet mounted by said keeper, said keeper being a channel shaped member having a base wall provided with two diverging wall portions and opposing flanges at the opposite margins of said base wall, said magnet being secured in surface abutment with one of said wall portions and the other wall portion diverging downwardly from said one wall portion to stabilize said receptacle.

3,306,309

INSULATOR UNIT CLEANING MACHINE

John G. Pahl, 1624 E. Alpine Ave., Stockton, Calif. 95205, and Emil F. Pahl, 1025 Edan Ave., Stockton, Calif. 95207

Filed Dec. 8, 1964, Ser. No. 416,749
1 Claim. (Cl. 134—80)



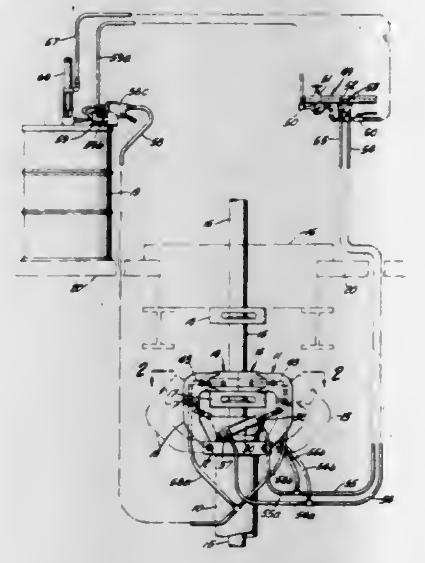
In a machine to clean generally cylindrical insulator units each having a base and a circular axial socket opening centrally through the base and extending upwardly therefrom, a rotary table, means freely rotatably supporting the insulator units in an upstanding position and in evenly spaced relation on the table for movement thereby successively to the same predetermined point upon rotation of the table, a nozzle positioned adjacent the table and operative to discharge a high pressure water jet in a direction to impinge substantially tangentially against and impart rotation to each insulator unit approaching said predetermined point; said unit supporting means comprising, for each insulator unit, a spindle freely rotatably journaled in and upstanding from the table, and a disc fixed on the spindle supporting the base of the insulator unit, a portion of the spindle extending above the disc and frictionally but removably engaging in the socket of said base-supported insulator unit.

3,306,310

SYSTEM FOR SPRAYING DRILL PIPE

John C. Grant, Huntington Park, Calif., assignor to Byron Jackson Inc., Long Beach, Calif., a corporation of Delaware

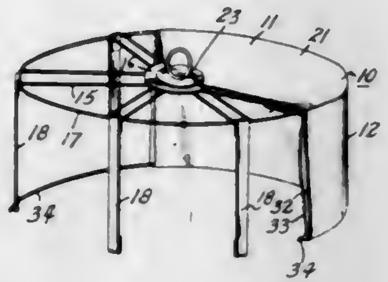
Filed Feb. 15, 1965, Ser. No. 432,561
4 Claims. (Cl. 134—122)



4. Apparatus for spraying drill pipe and the like as the pipe is being run into and out of a well through a well riser, the pipe carrying an object of larger diameter than the pipe, said apparatus comprising, in combination:
(a) a base;
(b) means for fixedly mounting said base adjacent to the top of the well riser;
(c) a plurality of spray nozzles disposed in positions to provide a central opening therebetween through which the drill pipe is passed as it is run through the well riser, said nozzles being arranged to project liquid sprays into said opening and upon the drill pipe as it passes through said opening, said opening being of a diameter to freely admit the pipe while excluding the object of larger diameter that is carried by the pipe;
(d) means for mounting said nozzles on said base for movement outwardly from said positions to other positions to enlarge said central opening to allow passage therethrough of the object of larger diameter that is carried by the pipe, and for return movement of said nozzles to said first mentioned positions;
(e) power means operable independently of the drill pipe for moving said nozzles from either one of said positions to the other one of said positions; and
(f) means for supplying liquid to said nozzles.

3,306,311
FOOD STORAGE MEANS

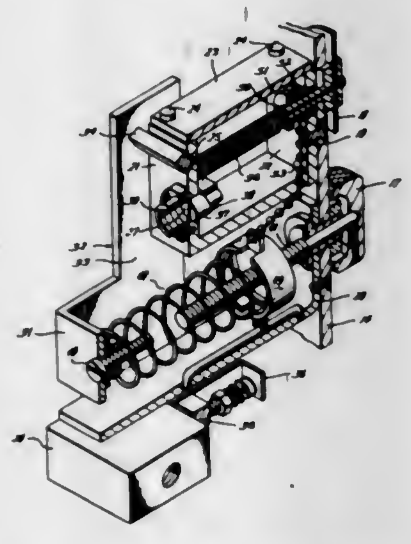
George R. Buerger, 721 N. 75th St., Omaha, Nebr. 68114
Filed Dec. 1, 1964, Ser. No. 415,099
4 Claims. (Cl. 135—5)



1. In a cover of the class described, a disc-like member and a skirt depending from the periphery of the disc, the skirt including a double-walled envelope, a freely floating ring in the envelope, and legs having pivotal connection with the edge of the disc-like member and enclosed within the double-walled envelope of the skirt.

3,306,312
PRESSURE REGULATOR

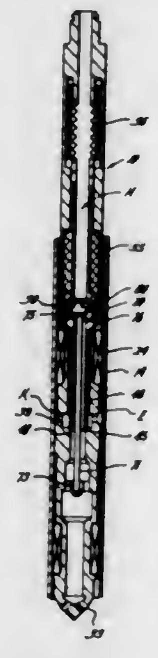
Addison N. Love, Houston, Tex., assignor to Harold Brown Company, a corporation of Texas
Filed Mar. 5, 1965, Ser. No. 437,357
7 Claims. (Cl. 137—82)



1. A controller for gas-operated motor valves, comprising,
(a) a housing having a wall,
(b) a bracket element supported in spaced relation to said wall,
(c) an opening through said bracket element defining a diaphragm chamber,
(d) a flexible sealing diaphragm mounted transversely of the chamber,
(e) conduit means communicating with the chamber on one side of said diaphragm for directing thereagainst the pressure of a fluid to be controlled,
(f) lever means and fulcrum means mounted for pivotal movement on said bracket element,
(g) piston means secured to the lever means extending into said chamber into engagement with the opposite side of said diaphragm and operable to translate movement of said diaphragm to corresponding pivotal movement of said lever means,
(h) spring means disposed in biasing relation between said wall and said lever means,
(i) adjustment means for varying the biasing force of said spring means, and
(j) pilot valve means in said housing responsive to the movements of said lever means for correspondingly controlling operating gas flow to a motor valve.

3,306,313
GAS LIFT VALVE

Erskine E. Roach, Houston, Tex., assignor to Harold L. Brown, Houston, Tex.
Filed Dec. 30, 1960, Ser. No. 79,696
9 Claims. (Cl. 137—102)

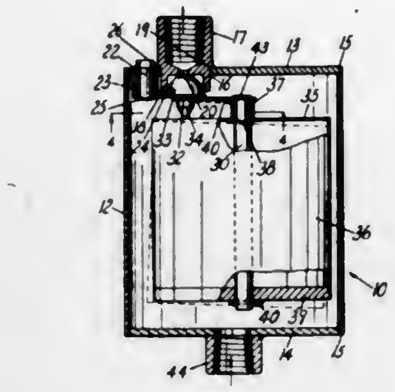


8. A gas lift valve, comprising,
(a) a generally tubular casing having a passageway extending longitudinally thereof and opening at spaced points to the exterior thereof,
(b) gas injection ports through the wall of the casing communicating with said passageway intermediate its ends,
(c) a tubular main valve member cooperable with an annular seat in said passageway below the gas injection ports, said main valve member being connected to said casing via pressure responsive means defining with said casing a closed annular chamber preloaded with gas at a predetermined pressure, said pressure responsive means being constructed and arranged so that the preload biases the main valve member toward the seat,
(d) said pressure responsive means being arranged to define a reactor surface responsive to the pressure from said gas injection ports to oppose the bias of said preloaded pressure,
(e) auxiliary valve means including passageway-closing means positioned in said passageway above said ports and cooperable with said main valve member in response to the reciprocating movement of the main valve member for controlling fluid flow upwardly through said passageway,
said auxiliary valve means being actuatable to close said passageway when the main valve member moves to its open position and to open said passageway when the main valve member moves to its closed position.

3,306,314
FLOAT OPERATED AIR RELIEF VALVE

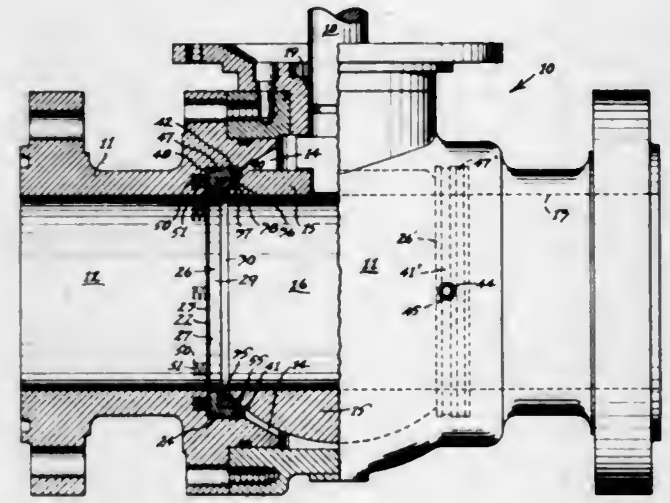
Nils A. Judsen, Three Rivers, Mich., assignor to Armstrong Machine Works, Three Rivers, Mich.
Filed Jan. 27, 1964, Ser. No. 340,420
8 Claims. (Cl. 137—202)

8. An air relief valve assembly for liquid circulating systems comprising a chambered body member provided with an inlet and having a top wall provided with an outlet having an inwardly facing valve seat, a valve coacting with said valve seat, a support member for said valve of springably resilient material fixedly mounted at one end on said body member and disposed in transverse relation to said valve seat, and a float disposed within said body member and fixedly connected to said valve support member.



3,306,315
LUBRICATED BALL VALVE CONSTRUCTION

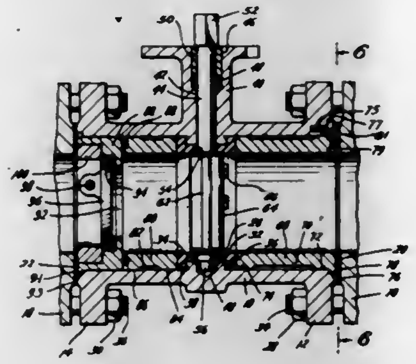
Clyde W. Cook, Erin, Tenn., assignor to Cook Valve Company, Inc., Erin, Tenn., a corporation of Tennessee
Filed May 6, 1964, Ser. No. 365,301
3 Claims. (Cl. 137—246.22)



1. In a ball valve construction including a valve body having a cylindrical fluid passage and a ball valve opening and closing said fluid passage, valve seat means comprising:
(a) an annular recess in said valve body coaxial with said fluid passage and opposing said valve,
(b) an annular seat holder received in said annular recess, said seat holder having a circular opening therethrough in alignment with said passage,
(c) said seat holder having a face opposing said valve,
(d) an annular seat recess in said seat holder opening through said face,
(e) an annular valve seat fixed within said seat recess,
(f) said seat having a seat face with a low coefficient of friction projecting axially from said seat recess beyond the face of said seat holder to slidably engage said valve,
(g) an annular cavity having opposed annular walls in said seat face,
(h) radial alignment holes extending through said seat and seat holder connecting said cavity with said recess in said valve body for conveying fluid lubricant to said cavity, and
(i) means for introducing a fluid lubricant through said valve body into said aligned holes.

3,306,316
DISC VALVE AND FITTING

Crawford K. Stillwagon, Houston, Tex., assignor to Keystone Valve Corp., Houston, Tex., a corporation of Texas
Filed July 20, 1964, Ser. No. 383,812
3 Claims. (Cl. 137—375)



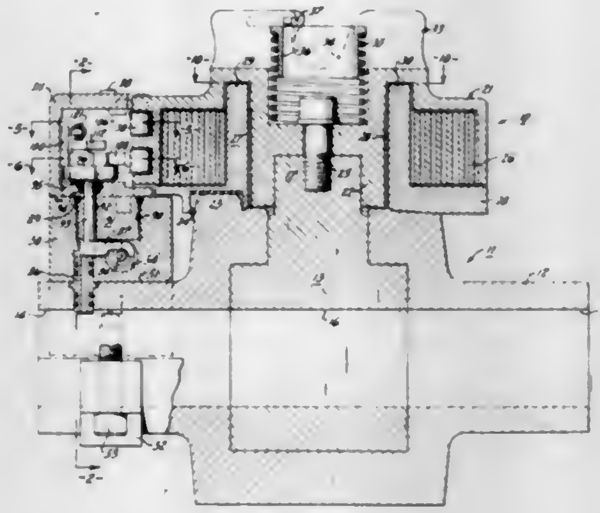
1. A valve and fitting comprising a body, a resilient rubber-like annular valve seat in said body as a separate item therefrom and a disc-type closure and stem combination mounted in said seat and body, said body having a flow passageway therethrough and being of a length along said passageway equal to a predetermined space in a pipeline and greater than the length of said seat, means on said body at each end of the flow passageway adapted for use in coupling said body ends to adjacent connections on a pipeline, said body having an intermediate portion of an inner dimension great enough to receive said valve seat and said seat being disposed in said intermediate portion, said seat and body having aligned openings therein transversely of said flow passageway and of a size to receive said stem, said stem extending through said openings from the exterior of said body to the interior of said seat and said disc being mounted thereon within said seat and rotatable with said stem between a closed position transversely of said flow passageway and an open position with its major dimension in substantial alignment with said flow passageway, and a pair of means in said body abutting opposite end portions of said seat, one of said seat abutting means being movable toward the other to clamp said seat between them, said seat abutting means comprising body liners lining said body and in sealing engagement with and extending from each end of said seat to and having the ends remote from said seat flush with the respective ends of said body when said seat is fully clamped endwise between said seat abutting means in its operative position within said body.

3,306,317
HIGH AND LOW PRESSURE-RESPONSIVE ACTUATING MECHANISM FOR PLUG-TYPE VALVES

Norman F. Brown, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex., a corporation of Delaware
Filed Oct. 29, 1962, Ser. No. 233,755
9 Claims. (Cl. 137—458)

1. Apparatus comprising in combination: a valve having a valve element movable between open and closed positions of operation, means for biasing said valve element into one of said positions of operation, means for latching said valve element in opposition to said biasing means and while said valve element is in the other of said positions of operation, means for urging said latching means toward a releasing position, means defining a fluid-pressure chamber, a pressure-responsive pilot disposed partly within said chamber and movably operated by the fluid pressure therewithin, and control means actuated by said pressure-responsive pilot for retaining said latching means in a latching position under normal pressure conditions but allowing movement of said latching

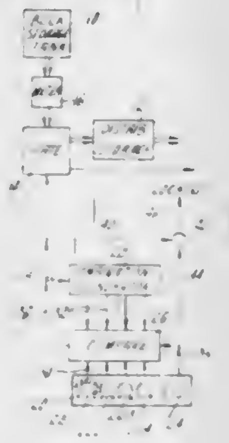
means into a releasing position when abnormal pressures are applied to said fluid-pressure chamber; said latching means comprising a pivotally mounted latch finger movable between latching and releasing positions, and a latch finger control member pivoted to said latch finger; said control means comprising a pivotally mounted control finger in contact with said pressure responsive pilot, and



a control head pivotally operated by said control finger and having surface engagements for contacting said latch finger; said means for urging said latching means toward a releasing position comprising a tension spring connected intermediate said latch finger control member and said control means, said tension spring resiliently urging said control finger in opposition to said pilot.

3,306,318
SECURITY SYSTEM

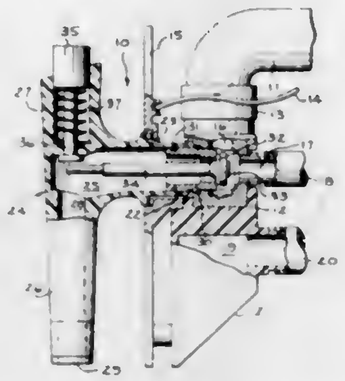
An Wang, Lincoln, Mass., assignor to Wang Laboratories, Inc., Tewksbury, Mass., a corporation of Massachusetts
Filed Feb. 26, 1965, Ser. No. 435,480
12 Claims. (Cl. 137—552.5)



1. A security system comprising an input register controllable by a subscriber to provide a first combination of digit signals,
- a signal generator for generating a second combination of digit signals, said signal generator including a plurality of logic units connected in cascade, each said logic unit producing an output in response to an input signal and the output from the preceding logic unit in the cascaded series,
- a comparator for providing an output signal upon actuation by the subscriber in response to a satisfactory comparison between said first and second combinations of digit signals groups to provide a lock release signal, and
- means to apply said release signal to said signal generator to revise said second combination of digit signals.

3,306,319
WATER TAKEOFF FOR WASHING MACHINE CONNECTOR

Norman L. Kendt and Don E. Payton, both of Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Apr. 6, 1964, Ser. No. 357,721
3 Claims. (Cl. 137—562)



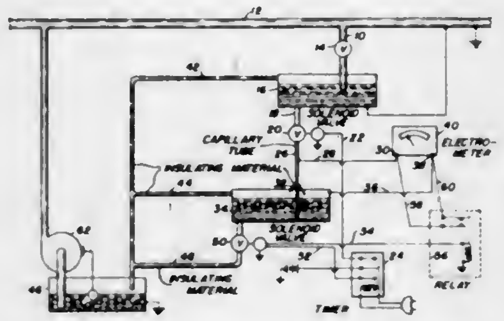
1. A coupling to connect an automatic washing machine to a water faucet comprising:
- (a) a generally elongated body portion adapted to be secured to the faucet in liquid receiving relationship thereto,
- (b) a passageway within said body portion adapted to receive liquid from the faucet and transmit it toward the washing machine,
- (c) a handle member having a first leg secured to said body portion,
- (d) said handle member having a second leg generally parallel with the longitudinal axis of said body portion,
- (e) said first and second legs of said handle member being hollow to form a liquid conduit therein,
- (f) a valve seat in said body portion at the point where said first leg is secured thereto, and
- (g) a valve adapted to cooperate with said valve seat to allow or prevent fresh water from entering said leg,
- (h) said valve including a valve stem extending into said first leg,
- (i) said handle member having a third leg in generally longitudinal alignment with said second leg,
- (j) said third leg housing a valve operator including a shaft extending into said third leg and being adapted to engage and move said valve stem laterally of said first leg,
- (k) said valve being open when said shaft moves said valve stem laterally of said first leg and said valve being closed when said valve stem is generally aligned with longitudinal axis of said first leg.

3,306,320
APPARATUS FOR DETECTING CHANGE IN LIQUID COMPOSITION FLOWING IN PIPELINE

Donald C. Bond, Crystal Lake, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Continuation of application Ser. No. 144,659, Oct. 12, 1961. This application Oct. 4, 1965, Ser. No. 495,765
1 Claim. (Cl. 137—624.13)

An apparatus for detecting the interface between different hydrocarbon liquids flowing through a conduit, which comprises:
- a liquid-containing reservoir having an electrically conductive interior surface adapted to contact the contained liquid, said electrically conductive surface being connected to ground;
- means for withdrawing a portion of said liquid from said conduit and conducting said withdrawn liquid to said reservoir;

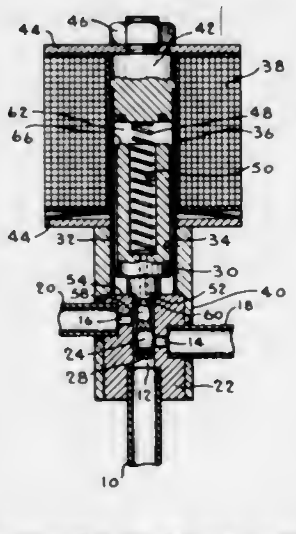
- an elongated tubular member of capillary dimension substantially vertically disposed beneath said reservoir said tubular member communicating with said reservoir at its inlet end and having an open discharge end;
- flow control means for periodically interrupting the flow of liquid from said reservoir through said tubular member;
- a receptacle having an electrically conductive interior surface positioned beneath the open discharge end of said tubular member, said surface being electrically insulated from said tubular member and from ground;



- means for periodically withdrawing liquid from said receptacle;
- means for measuring the electrostatic charge developed by said liquid flowing through said tubular member and accumulated on the electrically conductive surface of said receptacle; and
- timing means operatively connected to said flow control means, to said means for periodically withdrawing liquid from said receptacle, and to said receptacle for periodically stopping flow through said tubular member, emptying said receptacle, and grounding the electrically conductive surface of said receptacle preparatory to commencing a subsequent determination.

3,306,321
SOLENOID ACTUATED THREE-WAY VALVES

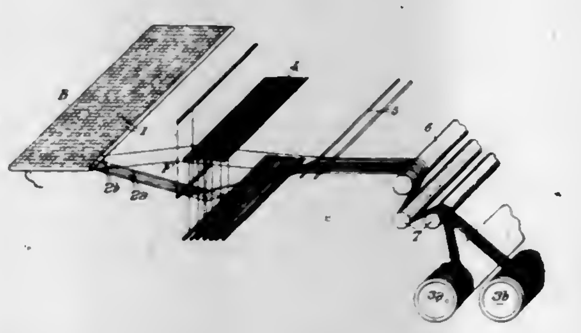
Clifford F. Bastle, Milwaukee, Wis., assignor to Controls Company of America, Melrose Park, Ill., a corporation of Delaware
Filed June 19, 1964, Ser. No. 376,445
3 Claims. (Cl. 137—625.48)



1. A solenoid actuated three-way valve comprising,
- a valve housing defining a central valve chamber,
- valve seat means having two opposing faces each provided with an outlet opening,
- a solenoid including a coil, a plunger, and spring means which biases the plunger to an outward position in respect to said coil when said coil is deenergized, said plunger being moved into said coil when said coil is energized,
- valve means movably mounted in said plunger, the outlet opening on one of said faces being located thereon in a position to be aligned with said valve means when said plunger is in said outward position, and the outlet opening on the other of said faces being located thereon in a position to be aligned with said valve means when said plunger is moved into said coil, said valve means moving against the face containing the outlet opening with which said valve means is aligned to thereby seal such outlet opening in response to the flow of fluid through said inlet opening; said valve means comprising a resilient plug mounted for slidable motion in said plunger, said motion being substantially perpendicular to the direction of travel of said plunger.

3,306,322
METHOD FOR WEAVING ENDLESS BELTS

Bernard Jacques Willmann, Selestat, France, assignor to Ets Martel-Catala & Cie, Selestat, Bas-Rhin, France, a society of France
Filed Mar. 8, 1965, Ser. No. 437,689
Claims priority, application France, Mar. 13, 1964, 967,398
1 Claim. (Cl. 139—20)



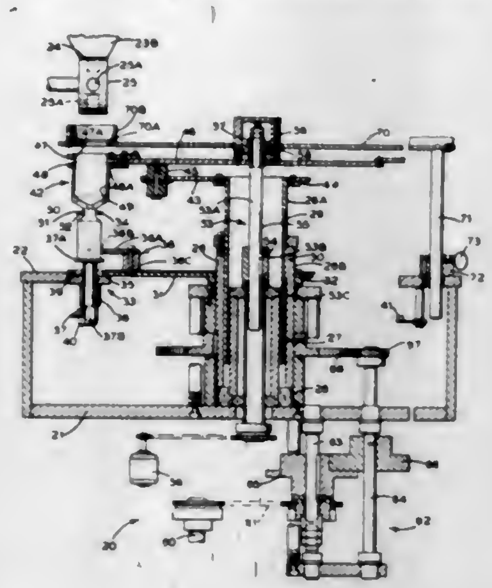
A method of making an endless belt the length of the loop-shaped sections of which is fixed and the length of which in a direction transverse to said loop-shaped sections increases as weaving proceeds, which comprises weaving said belt from sheets of parallel warp threads some of which are made of a plastic material while the others, interspaced at regular intervals among said plastic material warp threads, are metallic and from a plastic material weft thread, repeatedly throwing said weft thread across said warp threads to weave it with them, and maintaining the warp threads under tension with a greater tension being constantly applied to the metallic warp threads than to the plastic material warp threads.

3,306,323
FILLING MACHINE

Theodore Aronson, 60 Crescent Road, Glen Cove, N.Y. 11542
Filed Apr. 23, 1964, Ser. No. 361,935
15 Claims. (Cl. 141—72)

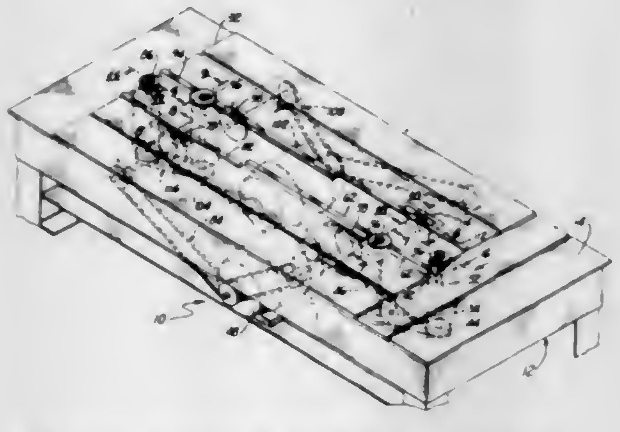
1. An apparatus for charging a container with a fluent material comprising,
- (a) funnelling means adapted for receiving a predetermined amount of fluent material,
- (b) said funnelling means including a shaker plate, an inner and outer funnel spaced one from the other connected to said shaker plate and whereby the fluent material is placed in said inner funnel,
- (c) means for positioning the opening of a container in sealing relationship with the opening of said outer funnel,
- (d) means for vibrating said inner funnel whereby the vibration of said inner funnel enhances the flow of fluent material from said inner funnel to the container and whereby the air displaced within the container is

exhausted therefrom through the space defined between the respective funnels, said latter means including a drive shaft, a pair of concentric eccentrics mounted on said drive shaft, and means rotatably



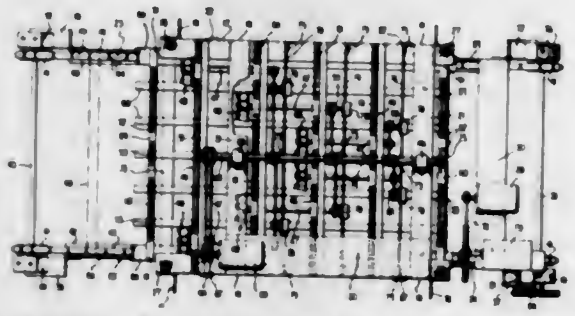
journalling said shaker plate about said concentric eccentrics whereby the relative settings of said eccentrics vary the amplitude of vibration imparted to said shaker plate when said drive shaft is actuated.

3,306,324
DRAWER FABRICATING APPARATUS
Estelvin Lillywhite, 2523 East 3150 South,
Salt Lake City, Utah 84109
Filed Aug. 28, 1964, Ser. No. 392,772
4 Claims. (Cl. 144—3)



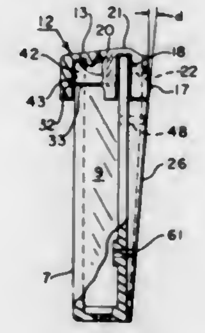
1. A drawer fabricating apparatus comprising
an elongated bed;
first guide means;
a first pair of shapers for forming mortises in selected pieces of drawer material, said first pair of shapers comprising a first rotary cutting member above the bed and mounted on a vertical axis extending upwardly through said bed; and a second rotary member having a cutting edge adapted to extend upwardly through the bed and mounted on a horizontal axis beneath the bed, said first and second rotary cutting members being arranged such that they cut into material moved along the first guide means with crossing cuts, to thereby form a pair of mortises extending at right angles to one another;
a second guide means;
a second pair of shapers for forming tenons in other pieces of drawer material, said second pair of shapers comprising third and fourth spaced rotary cutters mounted on a single axis and a fifth rotary cutter mounted on a separate axis, said fifth rotary cutter being arranged with respect to said third and fourth rotary cutters to cut into material moved along the second guide means a spaced distance from the maximum depth of cuts made in the material by the said third and fourth cutters, the material between the third and fourth cutters and between the fourth and fifth cutters thereby forming tenons extending at right angles to one another; and
power means for driving said first and second shapers.

3,306,325
MACHINE FOR PROCESSING WOODEN PIPE RESTS AND THE LIKE
Melton G. Rabon, Rte. 1, Columbia, S.C. 29203
Filed July 9, 1964, Ser. No. 381,361
12 Claims. (Cl. 144—133)



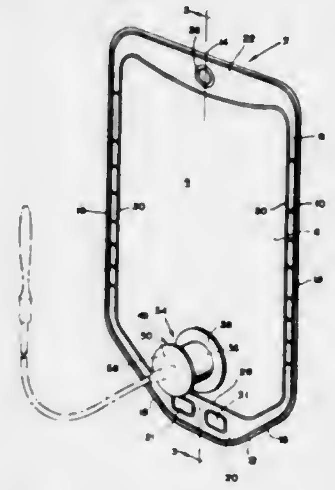
2. A machine for processing wooden pipe rests or spacers comprising a main frame, a vertically adjustable underslung horizontal bed on the main frame, power-operated endless cleated conveyer means on said bed to be raised and lowered bodily therewith relative to the main frame, a plurality of spaced parallel longitudinal cutter shafts journaled for rotation on the main frame in a common horizontal plane and at a fixed elevation, means carrying said shafts and rendering them individually laterally adjustable on the main frame, tapered cutter heads on said shafts disposed in laterally aligned pairs and with pairs of said heads staggered longitudinally, an overhead drive means for said shafts on the main frame including a single jack shaft common to said shafts and adjustable tension belt transmission means interconnecting said jack shaft and said shafts.

3,306,326
CONTAINER FOR DEFECT CARDS
Harry M. Thomas, 731 Oakland Ave.,
Oakland, Calif. 94611
Filed Apr. 23, 1965, Ser. No. 450,378
5 Claims. (Cl. 150—.5)



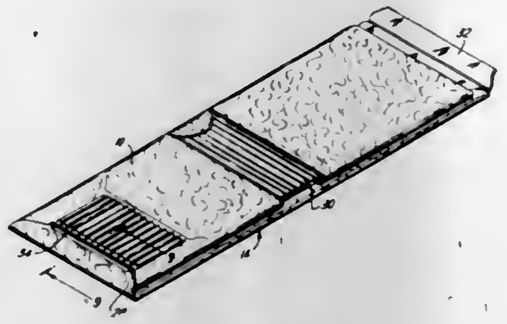
1. In a defect card container having an elongated body defining an open top chamber, said body being rabbeted along the top edge of the back to provide a recess, an elongated flexible cover having top, back and side panels covering the top of said chamber and extending partially down the sides, front, and into said rabbet recess of said body, the side panels of said cover being slotted and the back edge of said top edge panel being hinged permitting flexing of said cover to open and closed positions, said body being formed with the back thereof thicker at the than at the bottom, the improvement comprising: an elongated flange extending substantially the length of the underside of said top panel and being integral therewith to reinforce said cover, means restricting movement of said cover parallel to said hinge while permitting rotary displacement of said back cover panel, and said rear cover panel having a thickness equal to or less than the front to rear depth of said recess to permit rotary movement thereof.

3,306,327
DISPOSABLE PLASTIC BAG
John C. Ilg, Fitzwilliam, N.H., assignor to Elliot Laboratories, Inc., Fitzwilliam, N.H., a corporation of New Hampshire
Filed Aug. 4, 1964, Ser. No. 387,367
10 Claims. (Cl. 150—2.1)



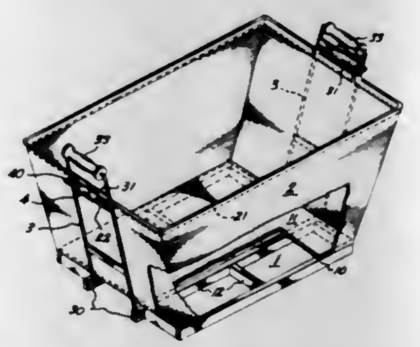
1. A disposable, fully collapsible, flexible plastic bag for use as an enema bag, a hot water bag, an ice bag or the like comprising a pair of thin, collapsible, flexible flat wall panels of thermoplastic sheet material normally collapsed against each other and sealed together around their entire peripheries and through which the contents of said bag are visible, a hole in a said wall panel spaced slightly from one edge of the interior of said bag and a substantially greater distance from the opposite edge of said interior, a plastic spout mounted on said wall panel over said hole, said spout comprising a hollow, tubular neck extending sideways from said wall panel and a radially outwardly extending integral flange at the inner end of said neck, a face of said flange being sealed flush to said wall around said hole with said neck over said hole, the wall of said neck being substantially more rigid and thicker than said wall panels, and a removable closure for said neck, said spout being of semi-flexible elastic and yieldable plastic sealed to said plastic wall panel by means of said flange but of substantially greater rigidity and thickness than said wall panels, said closure consisting of a cap having an end wall and a tubular side wall extending therefrom and adapted to be telescopically received within said neck, said side wall being tapered inwardly as it extends away from said end wall, the inner surface of said neck having a taper conforming to the outer taper of said side wall of said cap, whereby when said side wall is moved into said neck the outer tapered surface of said side wall is forced into sealing relation with the inner relatively flexible tapered surface of said neck, said side wall and the inner surface of said neck having bayonet lock means for locking said side wall in said neck with said tapered surfaces of said neck and side wall urged into sealing contact with each other, said bayonet lock means comprising at least a pair of slots in the edge of said cap side wall and at least a pair of integral lugs extending radially inward y from the inner surface of said neck, said lugs being adapted to be received in said slots, each of said slots extending axially from the edge of said side wall and then in a circumferential direction.

3,306,328
PLASTIC SEALING METHOD AND APPARATUS
George Markus, West Orange, N.J., assignor to Evans-Aristocrat Industries, Inc., Elizabeth, N.J., a corporation of New Jersey
Filed Mar. 25, 1965, Ser. No. 442,660
11 Claims. (Cl. 150—38)



1. A method of manufacturing an article of layers of thermoplastic material comprising: forming a blank of two layers of said thermoplastic material joined together; folding up said blank to at least in part form said article thereby having portions having a thickness of a number of layers; heat fusing portions of a plurality of said number of layers together, said plurality being at least one fewer than said number.

3,306,329
FOLDABLE BASKET
Reinhold Ray Braun, 1727 Summit Ave.,
Seattle, Wash. 98101
Filed May 20, 1965, Ser. No. 457,257
12 Claims. (Cl. 150—50)

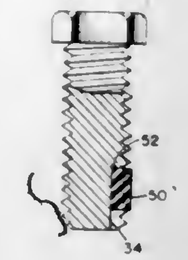


1. A collapsible basket comprising a bottom element, an upper marginal frame, sides of flexible material joining said marginal frame and the margins of the bottom, bails of stiff material pivotally mounted at opposite sides of the bottom and in use directed upwardly to the marginal frame, and means interengageable between said bails and the marginal frame to hold the marginal frame and the bails upraised, but disengageable to allow the sides to collapse and the bails to fold inwardly onto the bottom element.

3,306,330
FRICTION LOCK SCREW
Richard B. Wallace, Bloomfield Hills, Mich., assignor to The Oakland Corporation, Troy, Mich., a corporation of Michigan
Filed Apr. 18, 1966, Ser. No. 543,402
2 Claims. (Cl. 151—7)

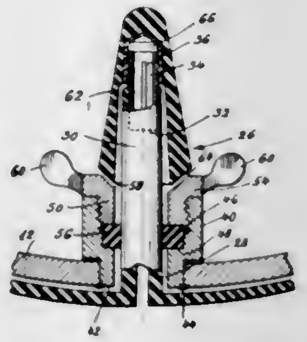
1. A friction locking screw having a threaded portion provided with an elongated slot extending from a threaded end of the screw longitudinally thereof for a distance at least several times its width and terminating at its inner end in an abrupt undercut shoulder located below the roots of the thread convolutions, an elongated friction locking element formed of a deformable plastic material such as nylon positioned in said slot with its inner end permanently pressure deformed to conform to and underlie the undercut shoulder, said element completely filling

the cross-sectional area of said slot and extending radially outwardly therefrom beyond the roots of the threads on said threaded portion, said element being shorter than said slot by an amount sufficient to space the outer end of said element inwardly of the threaded end of said screw by a distance greater than the axial dimension of a single thread convolution, to facilitate starting a nut on said screw without interference from said plastic element.



3,306,331
INNER TUBE AND TIRE VALVE STEM PROTECTOR

Vladimir Ph. Cherniaew, Brooklyn, N.Y., assignor of fifty percent to David Ratner, Brooklyn, N.Y.
Filed June 28, 1965, Ser. No. 467,248
7 Claims. (Cl. 152—204)

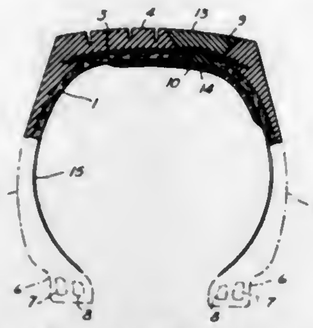


1. In a wheel for a vehicle, a circular rim having a hole therein, a tire on the rim, said tire including an outer tire casing, an inner tube in the casing, a protective ring structure interposed between the tube and tire casing, a valve assembly carried by the tube, said valve assembly including a tubular member extending radially of the inner tube projecting through the hole in the rim, said tubular member being open at the outer end thereof, a tubular valve member fitted in the outer open end of the tubular member, said valve having an elongated slot therealong, an internally threaded ring member fitted in said hole, and sleeved around said tubular member, a nut member threaded into said ring member, said ring member having a tapered top, and a conical cover removably fitted on the tubular valve member and adapted to seat on the tapered top of the nut member for sealing the slot in the valve member.

3,306,332
REPAIRING OF RADIAL CORD TIRES

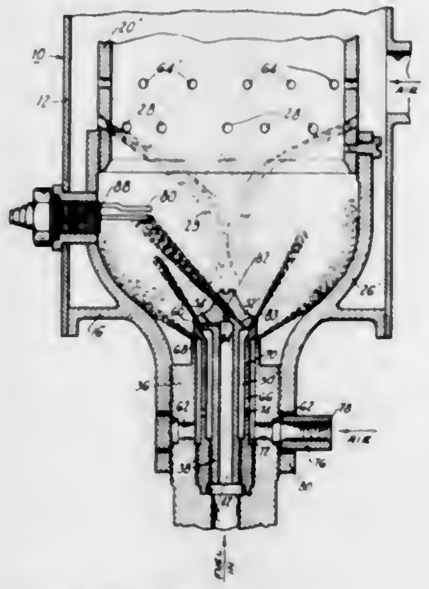
Norman E. Williams, Rootstown, and David D. Dewey, Akron, Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Mar. 29, 1965, Ser. No. 443,410
7 Claims. (Cl. 152—367)

1. In a pneumatic tire having a carcass terminating in circular beads and being formed of superposed plies of rubber reinforced with cords lying in radial planes, a patch including a reinforcing sheet formed of parallel cords embedded in rubber, said sheet being adhered to the interior wall of said tire with its parallel cords oriented in radial planes and extending from bead to bead to reinforce said carcass in the vicinity of said patch.



3,306,333
AIR SPRAY COMBUSTOR

Frank C. Mock, Los Angeles, Calif., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed Mar. 31, 1964, Ser. No. 356,169
5 Claims. (Cl. 158—4)



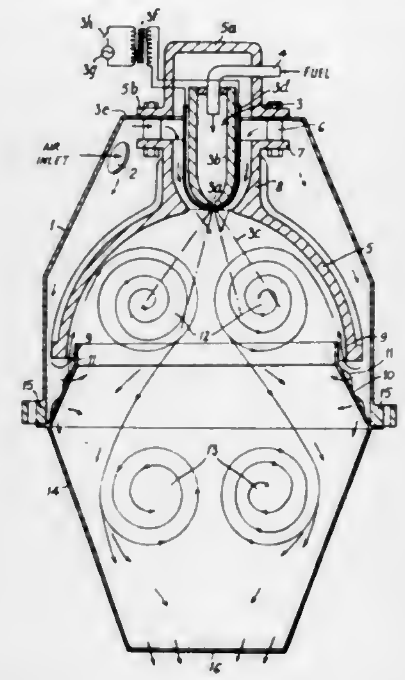
1. A combustor comprising:
a cylindrical flame tube having a generally-closed upstream end and an opened downstream end;
a ring of primary air holes formed in the side of said flame tube admitting pressurized air, producing toroidal air circulating within said upstream end;
a fuel-air nozzle extending through said upstream end at the approximate axial centerline of said flame tube;
said fuel-air nozzle having passage means adapted to direct a fuel-air mixture into said flame tube to assist toroidal circulation;
a spark plug having electrodes extending into said flame tube intermediate said closed upstream end and said ring of primary air holes and fuel spray ignition means comprised of an additional fuel ejecting passage, formed as part of said fuel-air nozzle, operative to direct a fuel spray toward said electrodes.

3,306,334
SPACE HEATERS

Gregory Michael Goubsky, 2 Sunbury Way, Hanworth, Middlesex, England
Filed Apr. 26, 1965, Ser. No. 450,650
2 Claims. (Cl. 158—4)

1. A space heater system comprising a primary combustion chamber, said chamber having an outer casing in two coaxial parts for ease of assembly and maintenance,

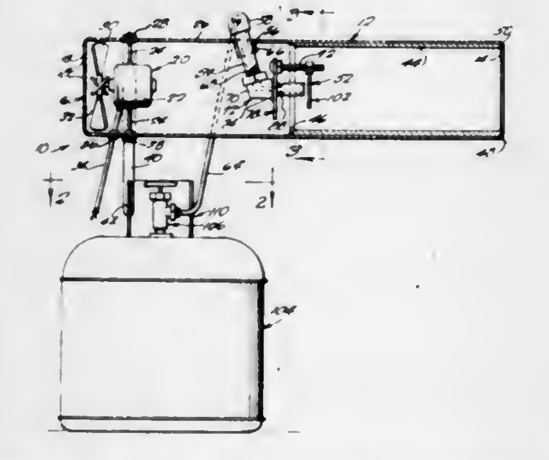
an air inlet leading tangentially into a first one of said parts, a fuel burner located in said first part, a bell-shaped casing also located in said first part and forming said combustion chamber proper, distance pieces interconnecting said first part of said outer casing and said bell-shaped casing, one end of said first part of said outer casing terminating in a pot-shaped casing, a flange on said pot-shaped casing, said flange forming a bearing surface for said distance pieces, a wall for said burner, an annular wall between said bell-shaped casing and said flange, said annular wall defining with said wall of



said burner a passageway through which air from said air inlet may pass, said bell-shaped casing having an open mouth, a conical baffle in said first part of said casing, said open mouth and said baffle being spaced apart to form a passageway for the entry of air from said air inlet so as to create rotating vortices beneath said fuel burner, said primary combustion chamber having a forward part limited by a wall forming a second part of said casing, said second part terminating in an exit mouth, an outlet flange on said first part of said outer casing, and means securing said conical baffle and said wall to said flange.

3,306,335
GAS SPACE HEATER

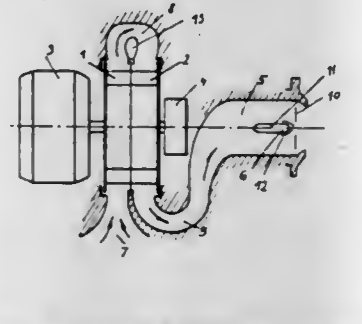
Charles H. Myers, Wood River, Ill.
(424 Kingdom St., Bethalto, Ill. 62010)
Filed Nov. 3, 1964, Ser. No. 408,638
7 Claims. (Cl. 158—7)



1. A gas space heater, comprising a tubular housing having an open forward end and a perforated rear end, a gas burner assembly mounted on the housing and having a longitudinal tubular nozzle concentrically spaced in the housing, the forward end of the nozzle being longitudinally spaced from the forward end of the housing, and a suction device mounted within the housing between the burner assembly and the perforated rear end of the housing said nozzle having a closed rear end and an open forward end, a reduced diameter jet concentrically spaced within said nozzle, the side wall of the nozzle being formed with openings spaced rearwardly from the forward end of the jet.

3,306,336
PRESSURIZED FLUID FUEL BURNER

Kurt Zenkner, Quellenstrasse 22, Grunwettersbach-Karlsruhe, Germany
Filed Apr. 26, 1965, Ser. No. 450,582
Claims priority, application Germany, Apr. 27, 1964, Z 10,798
6 Claims. (Cl. 158—76)



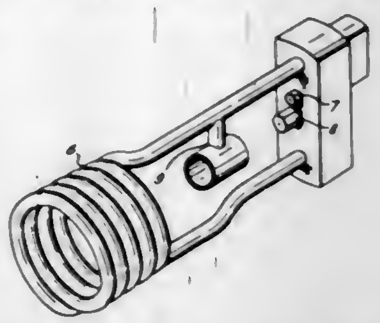
1. An oil, gas, or other fluid fuel burner with air admixing blower means, comprising a motor having a rotating drive shaft; a transverse-flow blower with air inlet and outlet terminal orifices; a blast tube connected to the outlet terminal orifice; a fuel nozzle within the open end of the blast tube; the blower having at least two blower stages; each of said at least two stages including a rotor in axial alignment with and drivingly connected to said drive shaft; the first of the rotors having a peripheral air outlet orifice, the successive rotor having a peripheral air inlet orifice adjoining the outlet orifice of the previous rotor; one air deflecting housing of the air outlet and inlet orifices attached from the outside for every pair of rotors; a segment of a ring structure of a bulbous cross section of an aerodynamic shape of a large radius of curvature in the flow of air between every pair of rotors to avoid air turbulence, said ring structure interposed between the air outlet of one rotor and the air inlet of the successive rotor within said housing; said blast tube axially aligned with respect to said drive shaft; said fuel nozzle coaxial with said blast tube; said blast tube having a large radius of curvature between said outlet terminal orifice and said fuel nozzle to avoid turbulence.

3,306,337
LIQUID FUEL HEATERS

Bernard Thomas David Martin, Rettendon, Essex, England, assignor to Maywick Appliances Limited, Wickford, England, a British company
Original application Aug. 21, 1962, Ser. No. 218,298, now Patent No. 3,258,056, dated June 28, 1966. Divided and this application Jan. 17, 1966, Ser. No. 521,022
4 Claims. (Cl. 158—81)

1. A heater, comprising: a liquid fuel burner jet, a liquid fuel supply line connected to said liquid fuel burner jet, a combustible gas burner jet, a combustible gas supply line connected to said combustible gas burner jet, said combustible gas burner jet being mounted in close, spaced relationship to said liquid fuel burner jet whereby upon ignition of said combustible gas burner jet the flame issuing therefrom pre-heats said liquid fuel burner jet to permit ignition of the liquid fuel supplied thereto, said liquid fuel supply line including a closed circuit member

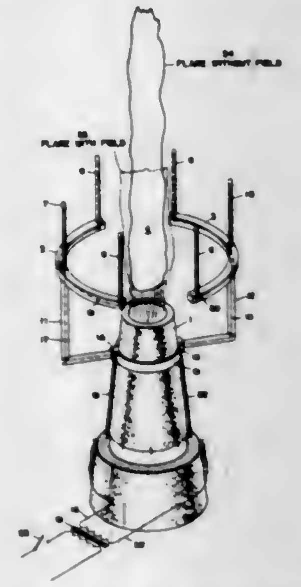
disposed forwardly of said liquid fuel burner jet, whereby upon ignition of said liquid fuel burner jet the flame issuing therefrom pre-heats said liquid fuel, and guide means for stabilizing and directing said liquid fuel flame toward said closed circuit member.



3,306,338
APPARATUS FOR THE APPLICATION OF INSULATED A.C. FIELDS TO FLARES

Franklin J. Wright, Watchung, and Duane G. Levine, Fanwood, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Nov. 1, 1965, Ser. No. 505,943
3 Claims. (Cl. 158—99)



1. Apparatus for improving flame characteristics of a flare issuing from the top of an elevated stack, comprising:

(a) a vertical stack which vents at its top a combustible fuel mixture that mixes with surrounding atmospheric air to form the flare by combustion in a flare area above the stack;

(b) at least a pair of insulated electrodes upstanding on opposite sides of the flare area, said electrodes being spaced in said surrounding atmospheric air from each other and from the flare area in proximity thereto; and

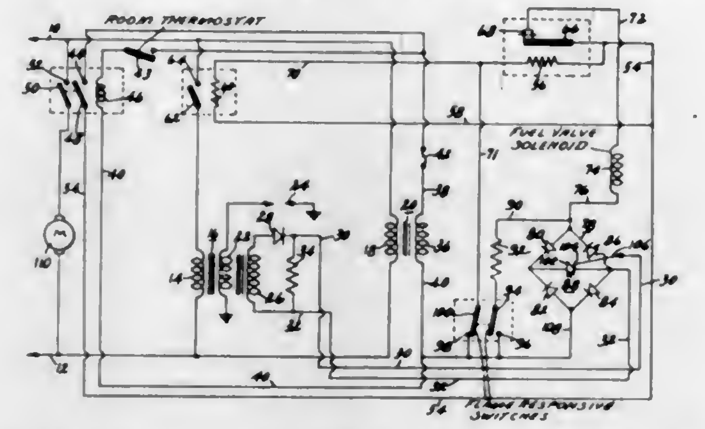
(c) means for charging said electrodes to opposite polarity by alternating electric current at sufficient voltage to develop an alternating electrostatic field across the flare area with no flow of electric current from the electrodes across the flare area.

3,306,339
GAS FURNACE IGNITION CONTROL SYSTEM

Edward D. Barton and Frederick T. Tucker, Rochester, N.Y., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed June 5, 1964, Ser. No. 372,893
3 Claims. (Cl. 158—124)

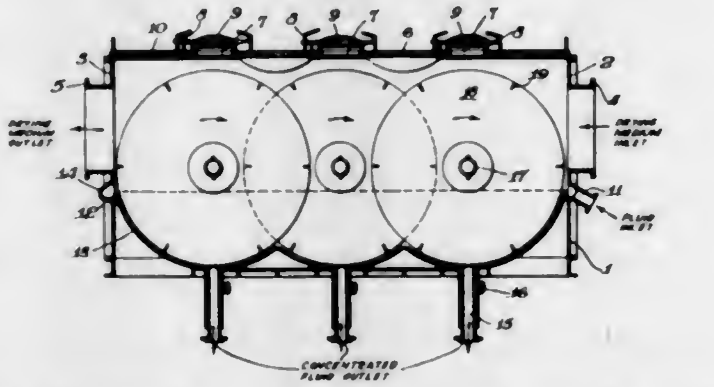
1. An ignition control system for a fluid fuel burner having an electrically activated fuel supply means including, a spark igniter, an electric power supply for energizing said spark igniter, a radio frequency detection means associated with said spark igniter in which a radio frequency signal is derived in response to operation of said spark igniter, a fuel control solenoid, a silicon controlled rectifier controlled full wave rectifier bridge means connecting said fuel control solenoid with said power supply when gated, circuit means connecting said radio frequency detection means with the gate of said silicon controlled rectifier so as to cause said fuel control solenoid to be energized when a radio frequency signal is detected by said detection means, flame sensor switching circuit means shunting said rectifier bridge means and operable to be closed responsive to fuel ignition to provide a shunt path around said bridge means so that said fuel control solenoid is maintained energized independent of the operative condition of said bridge means.



3,306,340
PROCESS AND APPARATUS FOR THE CONCENTRATION OF TEMPERATURE SENSITIVE FLUIDS

Lothar Hoffmann, Holzrichterweg 32, Dortmund-Bittermark, Germany; Günter Kammholz, Gladbeckerstr. 70, Gelsenkirchen-Bauer, Germany; Ernst Philippi, Poststrasse 4, Herten-Scherlebeck, Germany; Gerhard Meyer, Gerd-Hauptmannstr. 12, Gelsenkirchen-Bauer, Germany; and Heinz Werner, Jurgengang 36, Essen, Germany

Filed Apr. 20, 1965, Ser. No. 449,446
4 Claims. (Cl. 159—10)

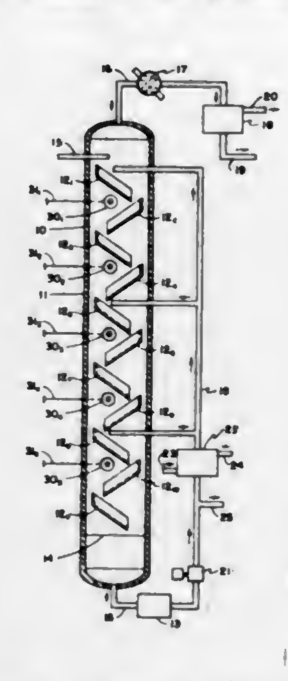


1. A method of increasing the concentration of temperature-sensitive manure mashes by evaporating the solvent containing the substance to be concentrated comprising introducing the diluted mash into a container, rotating a plurality of staggered, overlapped, parallel and vertical discs through said mash with a portion of each disc being above said mash to cause turnover of said mash, preventing mash stagnation by passing the mash over the undulated bottom of the container which conforms to disc bottom arrangement, and passing a gaseous drying medium over said mash adjacent its surface in a direction of flow parallel to the planes of rotation of said discs and contrary to the direction of movement of the upper portions of said discs whereby the solvent is evaporated at the surface of said mash and heating the mash as it is drained from the container.

3,306,341
FALLING FILM EVAPORATOR FOR STRIPPING LATEX SOLUTIONS

Duane Wood Pugh, Baton Rouge, and David Crosby Parnell, East Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Aug. 14, 1964, Ser. No. 389,607
5 Claims. (Cl. 159—13)



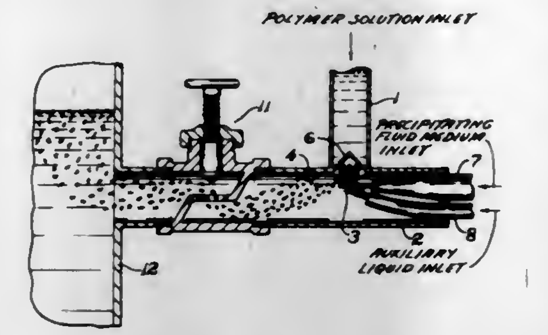
1. In combination, a column having an upper liquid inlet and a lower outlet means, said column including a cylindrical casing wall within which is provided a staged series of vertically superposed generally transverse, upwardly facing, open-end, box-like trays having corresponding lateral edges spaced from the wall defining a pair of parallel vertical planes and providing an annular space between the edges of said trays and said wall, adjacent pairs of trays converging with open ends facing one away from another, the lower tray of a pair extending beyond the point of convergence and the upper tray with its open end terminating short of the point of convergence so that liquid can fall into and cascade downwardly in a generally vertical zig-zag path from one tray to another, a plurality of capacitance probes located at different levels within the column walls and extending into said annular space substantially perpendicular to the parallel planes, a foam corrective device, said capacitance probes being operatively connected to said foam corrective device to operate said device when a change of capacitance is measured, each of said probes having a sensitivity range of up to about ten micromicrofarads and a surface area of between twelve and eighty square inches and a diameter ranging from about one-half inch to about one inch and a length to diameter ratio greater than twelve.

3,306,342
FLUID PROCESSES USEFUL IN PRECIPITATION OF DISSOLVED SOLIDS

Joseph Geatano Di Salvo, Avon Lake, and John Samuel Brooks Wolfe, Broadview Heights, Ohio, assignors to Goodrich-Gulf Chemicals, Inc., Cleveland, Ohio, a corporation of Delaware

Filed Mar. 2, 1966, Ser. No. 536,531
5 Claims. (Cl. 159—47)

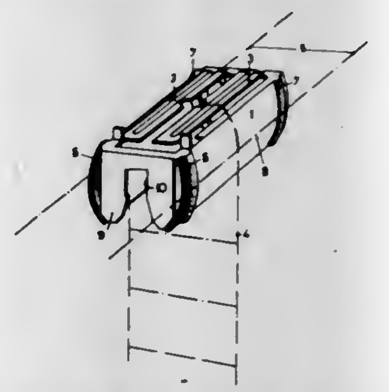
1. A process for effecting controlled precipitation of a member selected from the group consisting of polybutadiene, polyisoprene and terpolymers containing ethylene and propylene monomeric units from a solution thereof in a hydrocarbon solvent comprising forming a suspension of said solution and water into a completely confined stream and passing said stream into a mixing zone, passing a completely confined stream of steam into said mixing zone at an angle of incidence with the first named stream, bringing said streams together while still completely confined with sufficient impact as to cause fragmentation of said suspension and effect substantially instantaneous release of sufficient of said solvent to obtain from the fragments of said suspension discrete solid particles, and passing the resulting combined streams from said mixing zone to a separation zone whereby release of said solvent by said particles is substantially completed.



3,306,343
TAPEROLL FOR VENETIAN BLIND

Erich E. Hensel, The Hague, Netherlands, assignor to Hunter Douglas International Ltd., Montreal, Quebec, Canada, a corporation of the Province of Quebec.

Filed Apr. 22, 1965, Ser. No. 450,068
Claims priority, application Netherlands, Apr. 23, 1964, 6,404,452
2 Claims. (Cl. 160—177)



1. A tilting device for a Venetian blind, said device comprising a substantially U-shaped longitudinal frame having an upper wall, convex side walls, and end walls, said end walls being provided with recesses adapted for mounting the device non-rotatably on a tilt rod, the upper wall having means for fastening the top end of a ladder means which is intended for supporting the slats of the blind from said upper wall, the side walls being provided with protruding spacer portions having a height which is at least equal to the thickness of the material of the ladder means and defining on either side of said device a channel along which parts of the ladder means may extend.

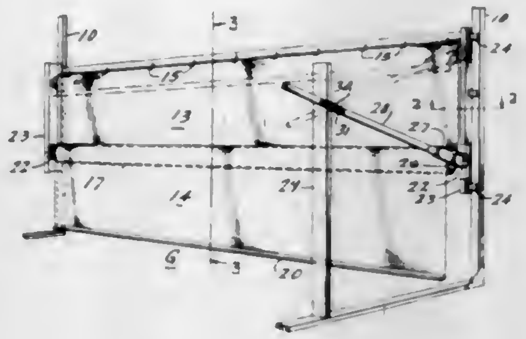
3,306,344
FLEXIBLE CLOSURE

Wilbur R. Youngs, Findlay, Ohio, assignor to R. L. Kuss and Company, Inc., Findlay, Ohio, a corporation of Ohio

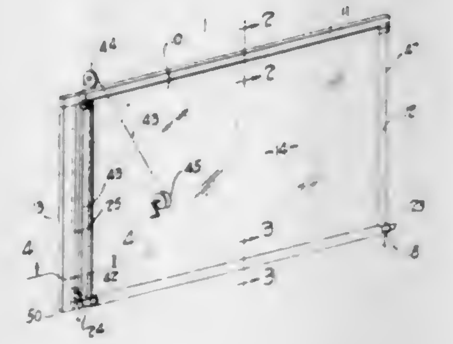
Filed Oct. 11, 1965, Ser. No. 494,787
5 Claims. (Cl. 160—241)

1. A flexible closure for an opening defined by an elevated horizontal header, a pair of vertical side members and a base, comprising, in combination, a flexible curtain having an upper edge secured to said horizontal header and extending downwardly between said side members and terminating in a lower edge, a plurality of rollers extending horizontally between said side members and secured to and supported by said flexible curtain,

said rollers being equally spaced in vertical distance from one another on said flexible curtain, when said curtain is fully extended, and means mechanically coupled to and coacting directly with each of said rollers at at least one extremity for directly applying a rotational force thereto and for simultaneously rotating each of said rollers at the same speed whereby when the closure is being opened, each of said rollers will move upwardly as they roll themselves upon portions of said flexible curtain above them and will roll upon themselves portions of said curtain below them.

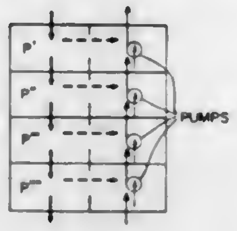


3,306,345
CLOSURE
Wilbur R. Youngs, 2700 Northbourne Drive, Springfield, Ohio 45506
Filed Nov. 16, 1964, Ser. No. 411,365
7 Claims. (Cl. 160—243)



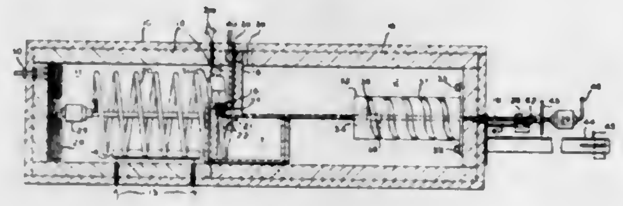
1. A closure for an opening defined by a base, a head and side members comprising:
- (a) a flexible, weatherproof, fabric curtain;
- (b) means for securing the top marginal edge of the fabric curtain to the head member;
- (c) a roller;
- (d) means for securing the roller to the bottom marginal edge of the fabric curtain;
- (e) a rope secured to one end of the roller and adapted to be wound therearound, the other end of the rope being firmly anchored to the base below the roller;
- (f) means for anchoring the rope to the base;
- (g) means movable along a side member between the base and head member as the roller moves along the curtain coacting with the rope adjacent the roller end, for changing the direction of application of an applied force; and
- (h) means for selectively applying a tensioning force to the rope in a direction towards the head member and for relieving the force, respectively, causing the roller to rotate towards the head member, whereby the roller wraps itself in the curtain removing it from the opening, and the force when relieved causing the roller to rotate away from the head member, whereby the roller unwraps itself from the curtain to cover the opening.

3,306,346
METHOD FOR COOLING VOLATILE LIQUIDS
Donald F. Othmer, Coudersport, Pa.
(333 Jay St., Brooklyn, N.Y. 11201)
Filed Dec. 3, 1962, Ser. No. 241,721
12 Claims. (Cl. 165—1)



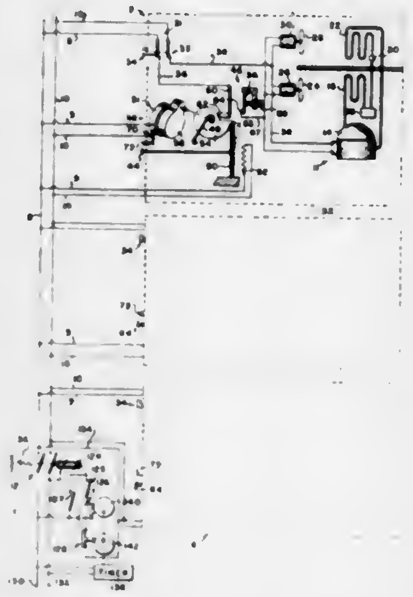
1. The method of cooling a first liquid stream containing a volatile liquid which comprises the following steps:
- (a) passing the said first liquid stream through a series of three or more stages, each of a successively lower pressure;
- (b) flash evaporation of a part of said volatile liquid from said first liquid stream in each of said stages with consequent cooling thereof;
- (c) passing through another part of each of the said series of stages, counter-currently to the order of the flow of said first liquid stream, a second liquid stream quite different from that of first liquid stream, which second liquid stream is at a lower temperature in each stage than is the said first liquid stream on the same stage; wherein the said second liquid stream discharges on each stage into elements of open flow with large surface areas of droplets, films, or streams exposed to the vapors formed in said flash evaporation; and said elements of open flow are then allowed to flow together to become a stream which is forced to the stage of next higher pressure, wherein the process is repeated;
- (d) condensing substantially all of the vapors formed by said flash evaporation of said volatile liquid in said first liquid stream, said vapors having a temperature no higher than that of said first liquid stream on the same stage, and said condensing of substantially all of the said vapors formed on one stage being accomplished in a single contacting on the same stage with the said second liquid stream in elements of open flow with large surface areas exposed, with consequent
- (e) heating of said second liquid stream.

3,306,347
FLUID STORAGE METHOD AND APPARATUS THEREFOR
John A. Favre, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed May 23, 1963, Ser. No. 282,672
11 Claims. (Cl. 165—2)



9. A method of isolating and storing multiple vaporous constituents in a storage zone containing an inert material throughout the length of said storage zone after the elution of said components in spaced sequence from a chromatographic separation column which comprises passing each of said vaporous constituents separately and sequentially into the inlet of the said storage zone, and during the passage of said vaporous constituents into the storage zone cooling said storage zone to a uniform temperature progressively from the outlet of said storage zone to the inlet until the said storage zone reaches a uniform temperature below the condensation temperature of each of the said constituents so as to sequentially condense each of the said constituents in said inert packing material and prevent the mixing of said vaporous constituents.

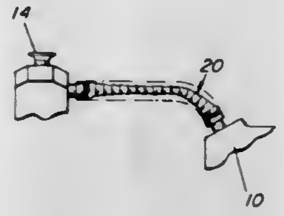
3,306,348
AIR CONDITIONING
Carl L. Tucker, Skaneateles, N.Y., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed May 18, 1965, Ser. No. 456,790
9 Claims. (Cl. 165—12)



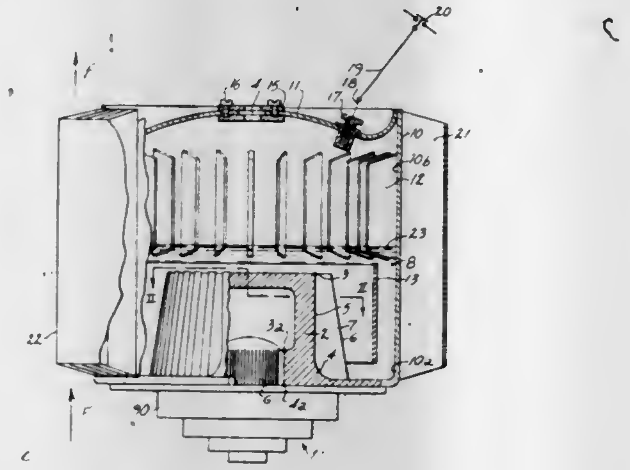
7. In an air conditioning system for maintaining various zones of a building at individually selected temperatures, the combination of: a plurality of separate air-conditioning units; power means constituting an electric power supply for said units; and a control system including a plurality of switch assemblies associated respectively with said units, each of which comprises a unit-control switch and is connected to said power means, timer motor-cam means including a cam and means to turn said can from a rest position to close said unit-control switch, latch means which is moved during the operation of the unit to and from a position to latch said cam in said rest position, and latch control means to render said latch means ineffective after said timer motor-cam means has been inoperative for a substantial period of time and to render said latch means effective after said timer motor-cam means has operated for a period of time, and manual means to release said latch means.

3,306,349
AUTOMOTIVE COOLANT SYSTEM WITH VACUUM RELIEF DEVICE THEREIN
Allie B. Holmes, 4824 Ayers, Corpus Christi, Tex. 78415
Filed Feb. 23, 1966, Ser. No. 529,368
7 Claims. (Cl. 165—51)

1. In engine cooling systems wherein a coolant is circulated from engine to radiator, a vacuum relief device comprising:
- A. a flexible coolant conductor interposed between engine and radiator for circulating coolant to said system, said conductor including:
  - (1) a tube which is deformable inwardly in the radial direction for contraction from its normal size and shape upon the creation of a vacuum within said system as the coolant may vary in temperature; and
  - (2) at least one limiting reinforcement means, which is integral with said tube, said reinforcement means being contractible and non-expansible of said conductor in a radial direction from its normal dimension and shape, to relieve stress upon associated elements within the cooling system.



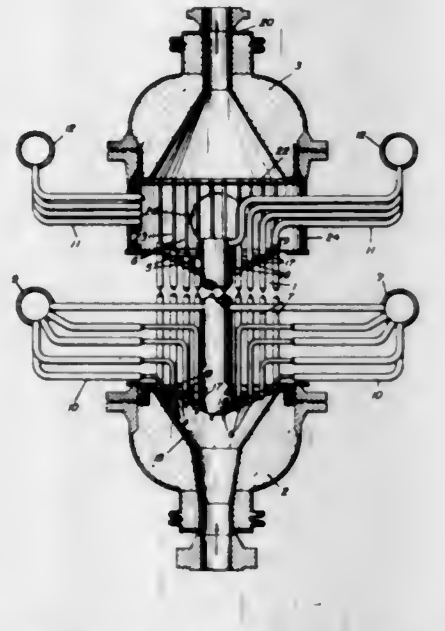
3,306,350
ELECTRON DISCHARGE TUBE HAVING IMPROVED COOLING MEANS THEREFOR
Charles Alphonse Emile Beurtheret, Saint-Germain-en-Laye, France, assignor to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, a corporation of France
Filed May 13, 1963, Ser. No. 279,805
Claims priority, application France, May 22, 1962, 898,347, Patent 1,346,268
11 Claims. (Cl. 165—105)



1. The combination with an electron discharge tube including an electrode adapted to be heated through electron bombardment, of a cooling arrangement for said electrode comprising a heat exchange wall made of heat conductive material surrounding said electrode, a pressure resistant shell surrounding said heat exchange wall in spaced relation therewith and defining a pressure enclosure therearound, a body of vaporizable fluid in said enclosure, heat dissipating formations provided on the outer surface of said heat exchange wall projecting into said fluid to vaporize same and dimensioned in accordance with the relations $b=m\sqrt{ac}$ and $d<b/3$, wherein b is the depth of the grooves, d the width thereof, a the average thickness of the ribs, c the heat conductivity of said wall material and m a numerical factor, said heat-dissipating formations further having a depth b less than 12 mm., so as to establish stable temperature gradients over said surfaces, and means for maintaining a prescribed pressure on said fluid within the enclosure of at least three atmospheres above normal atmospheric pressure.

3,306,351
HEAT EXCHANGER FOR COOLING CRACKED GASES BY MULTIPLE MEDIA

Fromút Vollhardt, Gottingen, Germany, assignor to Schmidt'sche Heissdampf-Gesellschaft m.b.H., Kassel-Wilhelmshohe, Germany
Filed Apr. 15, 1965, Ser. No. 448,500
Claims priority, application Germany, Apr. 16, 1964, Sch 34,989
1 Claim. (Cl. 165—140)

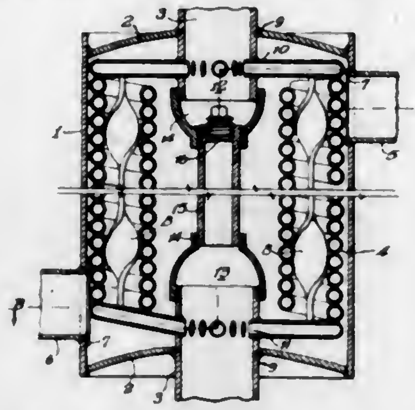


Heat exchanger particularly for cooling cracked gases or the like comprising a gas input head having a gas inlet port, a gas discharge head having an exhaust port, concentric cooling chambers located in said heads in stepwise relationship from the outside toward the center, means interconnecting said chambers to form a bottom wall in said gas input head and a top wall in said gas discharge head, cooling pipes extending between said chambers in said gas input head and said gas discharge head, flue pipes located in said cooling pipes extending through said chambers connecting said gas input head to said gas discharge head, a gas guiding hood located in the interior of said gas input head extending from said gas inlet port over said flue pipes with said hood forming an acute angle with the central plane of the stepwise chamber arrangement, said flue gas pipes at the gas discharge head extending beyond said top wall, a flat tube plate through which said flue pipes pass fixed to said extended flue pipes, said tube plate being arranged above and in spaced relation to said top wall to form a heating chamber, a casing at said gas discharge head covering said tube plate, and a jacket provided with an intake and an outlet for the supply and discharge of a medium to be heated surrounding said heating chamber.

3,306,352
COMPACT COILED TUBE HEAT EXCHANGER

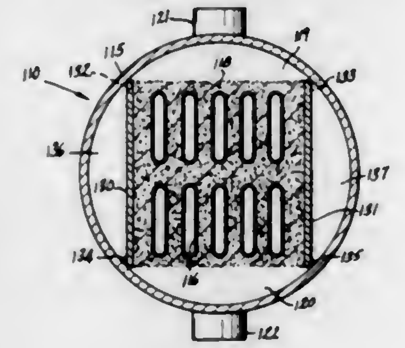
John Leo Curren, 705 W. 10th St., Wilmington, Del. 19806
Filed Feb. 10, 1965, Ser. No. 431,536
4 Claims. (Cl. 165—163)

1. A heat exchanger comprising:
(a) A jacket having bulged top and bottom sections, and having an inlet and outlet to permit passage of a liquid through the jacket,
(b) A pipe assembly vertically disposed in said jacket, and extending through the top and bottom thereof, said assembly having an upper supply chamber hermetically sealed from a lower return chamber,
(c) A nest of tubular coils vertically disposed in said jacket and positioned in close proximity to the jacket and the pipe assembly, the upper end of each coil being connected to the supply chamber of said pipe assembly, and the lower end of each coil to the return chamber of said pipe assembly, the combined cross sectional areas of the tubes comprising said coils being less than the cross sectional area of the supply chamber, and
(d) A thin spiral wiping vane in the center of each coil.



3,306,353
HEAT EXCHANGER WITH SINTERED METAL MATRIX AROUND TUBES

Frederick A. Burne, Hamden, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed Dec. 23, 1964, Ser. No. 420,567
6 Claims. (Cl. 165—164)

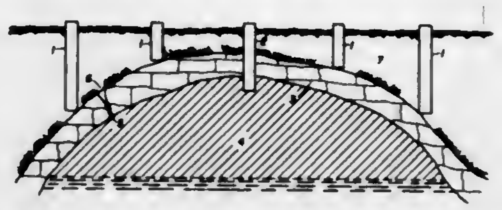


5. A heat exchange module for insertion in a conduit adapted to convey a first heat exchange medium, said module comprising
(A) a plurality of tubular conduit means for conveying a second heat exchange medium,
(B) a pervious body surrounding said plurality of tubular conduit means and joined thereto by a metallic bond, said pervious body being of a substantially rectangular cross-section,
(C) a pair of non-pervious plates on opposing side faces of, and in intimate contact with, said pervious body, said plates surrounding said tubular conduit means on the two sides of said tubular conduit means which are parallel to the longitudinal axis of said tubular conduit means, and
(D) aperture means in each of said non-pervious plates to allow passage of said first heat exchange medium therethrough, whereby the pressure on opposite sides of each of said plates may be substantially equalized.

3,306,354
METHOD FOR STORING FLUIDS IN A SUBTERRANEAN FORMATION

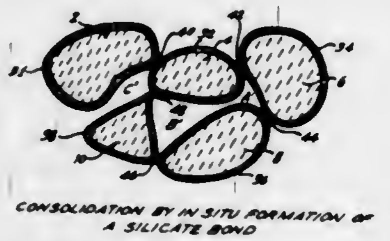
Leo J. O'Brien, Crystal Lake, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed June 5, 1964, Ser. No. 372,762
15 Claims. (Cl. 166—29)

1. In the method of storing a fluid in a subterranean formation wherein the fluid to be stored is injected at an elevated pressure into a first permeable fluid storage zone overlain by a stratum of relatively fluid impermeable cap rock and a second fluid permeable zone above said cap rock, the improvement which comprises inhibiting the leakage of said stored fluid from said first permeable fluid storage zone to said second permeable zone through flow passages in said cap rock by disposing a permeability reducing agent in said second permeable zone in proximity to said flow passages in sufficient amount to inhibit the leakage of said stored fluid through said cap rock.



3,306,355
FORMATION CONSOLIDATION

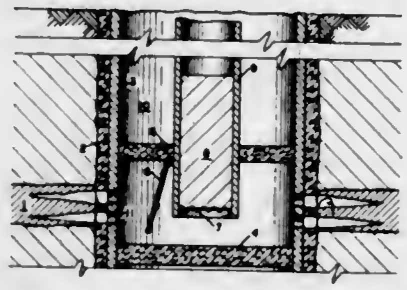
George P. Maly, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed June 9, 1964, Ser. No. 373,722
10 Claims. (Cl. 166—29)



1. A method of consolidating loose sand which comprises:
contacting said loose sand with an aqueous basic solution;
permitting said aqueous basic solution to react with said sand;
contacting said reacted sand with an acid; and
dehydrating at least a portion of said acid-contacted sand.

3,306,356
CATALYTIC POLYMERIZATION METHOD

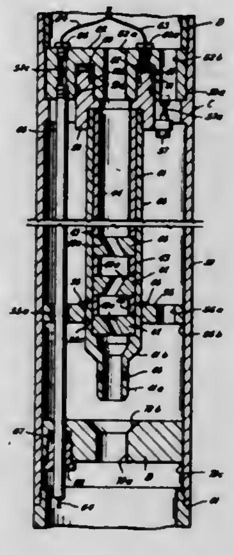
Derry D. Sparlin, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Mar. 23, 1964, Ser. No. 353,940
13 Claims. (Cl. 166—33)



1. A process for providing a polymer-catalyst mixture at a remote location utilizing a polymerizable material selected from the group consisting of phenol aldehyde resins, alkyd resins, acrylic acid resins, epoxy resins, melamine resins, urea formaldehyde resins, polystyrene, polyisobutylene, and polymethylstyrene which is catalyzed by a catalyst selected from acidic and basic compounds which comprises passing a mixture of said polymerizable material in a liquid state and salt solution through a permeable mass of an ion exchange resin positioned in the proximity of said remote location, wherein said salt is converted to a catalyst for said polymerizable material.

3,306,357
FLOW LINE PRESSURE CONTROL

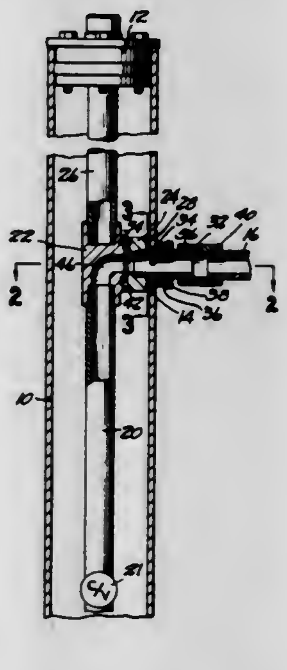
Roy H. Cullen, Suite 1931, 500 Jefferson Bldg., Houston, Tex. 77002, and Charles H. Elliott, Houston, Tex.; said Elliott assignor to said Cullen
Filed July 22, 1964, Ser. No. 384,429
7 Claims. (Cl. 166—63)



1. A fluid flow controller for use in a flexible hose, comprising:
(a) a tubular housing section,
(b) a choke assembly disposed in said housing section,
(c) a choke seat in said housing below said choke assembly for the flow of fluid therethrough,
(d) means for releasably supporting said choke assembly in said housing spaced from said choke seat,
(e) said housing having passage means for flowing fluid around said choke assembly and through said choke seat when said choke assembly is spaced from the choke seat, and
(f) explosive means for applying an explosive force to said choke asesmbly to move it to a seated position on said choke seat.

3,306,358
PITLESS WELL ADAPTER

Clifford C. Williams, 20 Henderson Ave., Joliet, Ill. 60432
Filed Aug. 26, 1964, Ser. No. 392,121
7 Claims. (Cl. 166—89)

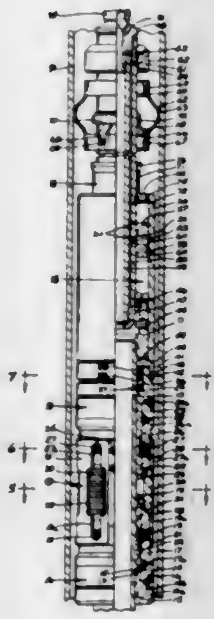


1. In a well
a well casing having an opening spaced below its upper end,

a conduit in said casing connected to a pump,
a delivery line adjacent to said casing opening,
a two-part adapter including a hanger unit and a supported unit,
said hanger unit including a part spanning said casing opening and a part defining a passage and connected to said delivery line,
said hanger unit cooperating with said well casing to define a chamber surrounding said passage-defining part, and
means providing a sealed supporting connection between said hanger unit and said supported unit,
said supported unit supporting said conduit and having a passage communicating at one end with the passage of said hanger unit and at its opposite end with said conduit,
said passage defining part of said hanger unit having an aperture communicating with said chamber.

3,306,359
WIRE LINE WELL TOOL

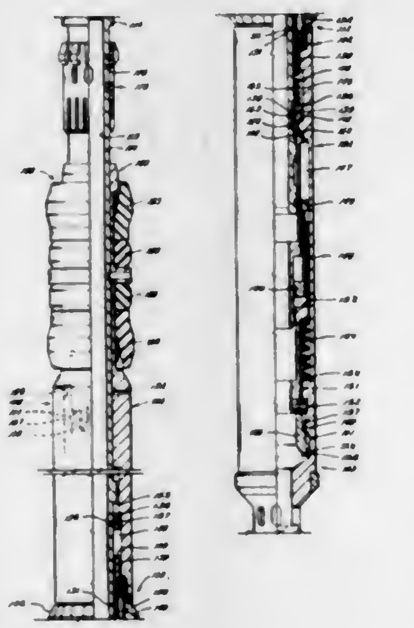
Joe E. Edwards, Jr., Houston, Tex., assignor to Brown Oil Tools, Inc., Houston, Tex., a corporation of Texas
Filed Apr. 27, 1964, Ser. No. 362,622
14 Claims. (Cl. 166—120)



12. The subcombination with a well tool apparatus adapted to be set in a well pipe and having a main support defining a central bore, gripping members spaced about said main support and movable outward into pipe-gripping position and inward from pipe-gripping position, and means coacting with said main support to move said gripping members outward and inward of a setting tool comprising,
a mandrel defining a central bore,
a cylinder surrounding said mandrel,
means between said mandrel and said cylinder forming a setting chamber,
means releasably connecting said mandrel with said main support of said well tool apparatus with the central bore of the mandrel in communication with the central bore of said main support,
means providing communication between the central bore of said mandrel and the exterior of said setting tool whereby well fluids flow readily through said central bores and said communication, means during lowering of said well tool apparatus and said setting tool in a well bore,
a flexible line connection to said mandrel, and
means conducting fluid pressure to said setting chamber,
said mandrel and said cylinder being movable longitudinally with respect to each other when fluid pressure is conducted to said setting chamber,
said longitudinal movement of said mandrel and said cylinder actuating said co-acting means whereby said gripping members are moved outwardly into pipe-gripping position.

3,306,360
CONTROL APPARATUS FOR WELL TOOL ANCHOR

David E. Young, Bellaire, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Aug. 9, 1965, Ser. No. 482,020
16 Claims. (Cl. 166—120)

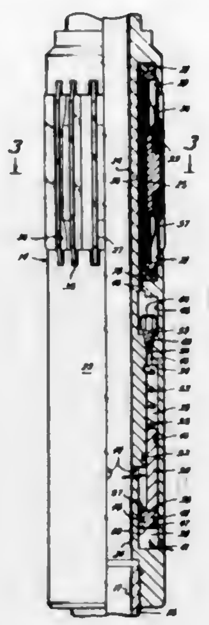


13. A packer for use in a well conduit comprising: inner and outer telescoping members, pack-off means on said outer member, expandable elements mounted on said outer member and having outer surfaces for engaging a well conduit, an expandable fluid-tight sleeve on said body adjacent said elements for expanding said elements into engagement with a well conduit, said members having a space therebetween in fluid communication with said sleeve, upper and lower slidable piston means in said space and defining a closed chamber, a fluid in said closed chamber, means for limiting motion of said pistons in a direction away from one another, means on said inner member for respectively engaging said piston means for moving a piston to apply pressure to said sleeve and actuate said elements, means on said inner member for bypassing fluid around one of said pistons, a pressure chamber in said outer member in fluid communication with said bypass means, piston means in said pressure chamber, and spring means for actuating said last-mentioned piston means to apply pressure to said sleeve.

3,306,361
DOUBLE SET HYDRAULIC ANCHOR

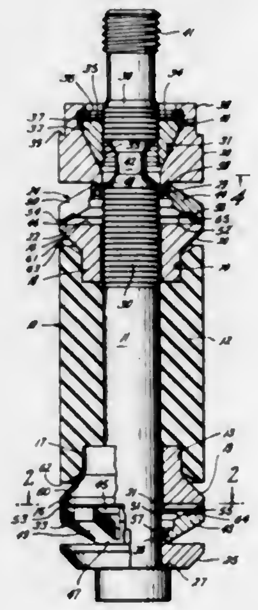
Maurice P. Lebourg, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed June 11, 1964, Ser. No. 374,430
13 Claims. (Cl. 166—122)

2. A well packer sized and adapted for reception in a well bore including: means for packing-off a well bore; means responsive to hydraulic pressure for anchoring said well packer relative to the wall of a well bore; and means for applying hydraulic pressure to said anchoring means in response to a pressure differential acting from either above or below said packing-off means for anchoring said well packer to the well bore with a force dependent upon said differential pressure across said packing-off means.



3,306,362
PERMANENTLY SET BRIDGE PLUG

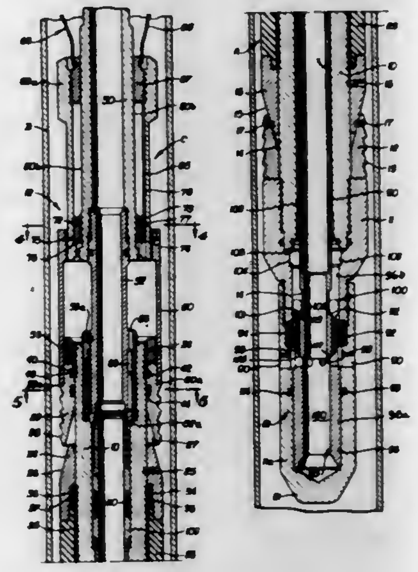
Harold J. Urbanosky, Houston, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Mar. 11, 1964, Ser. No. 350,978
12 Claims. (Cl. 166—135)



9. In a packer device having a packing element operatively mounted around a mandrel and adapted for expansion to seal off a well bore, the improvement comprising: anchor means on said mandrel for anchoring said device in a well bore upon expansions of said packing element, said anchor means including a star-shaped member with separate finger elements initially disposed at an acute angle to the central axis of said mandrel and movable toward a position at right angles to said central axis where the ends of said finger elements lockingly engage the wall of a well bore; and expander means on said mandrel movable relative to and engaging said anchor means for moving said finger elements toward said position where the ends of said finger elements lockingly engage the wall of a well bore.

3,306,363
VALVE CONTROLLED WELL PACKER APPARATUS

Horace W. McZilkey, Jr., Los Angeles, Calif., assignor to Baker Oil Tools, Inc., Los Angeles, Calif., a corporation of California
Filed Apr. 22, 1964, Ser. No. 361,783
9 Claims. (Cl. 166—152)



1. A well packer apparatus adapted to be lowered and set in packed-off condition in a well bore, including a body having a fluid passage, a valve member movable upwardly and downwardly in said body passage between positions opening and closing said passage, shifting means connectible to a running-in string extending to the top of the well bore and movable upwardly and downwardly in said passage by the running-in string, means releasably coupling said shifting means to said valve member for transmitting the upward and downward movement of said shifting means to said valve member and shift said valve member to passage opening and closing positions, means engageable with said coupling means for locking said coupling means to said shifting means during upward movement of said shifting means and valve member in said passage, said valve member having a longitudinal passage therethrough to permit fluid pressure in said body, when said valve member is in closed position, to pass from one end of said valve member to its opposite end and act with equal force in opposite longitudinal directions on said valve member, precluding such fluid pressure from exerting a shifting force on said valve member.

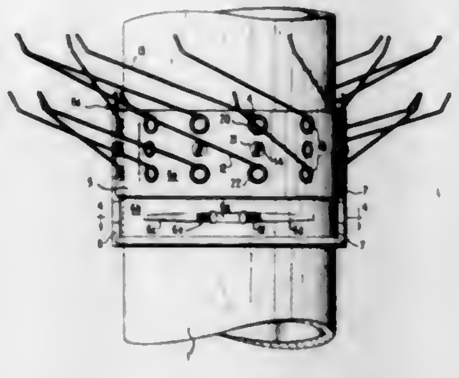
3,306,364
ABRADING APPARATUS FOR USE IN WELL BORES

William D. Owsley, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Feb. 8, 1965, Ser. No. 431,101
8 Claims. (Cl. 166—173)

8. In an abrading apparatus for use in a well bore, which apparatus comprises body means and body means portions defining aperture means, the improvement comprising:
at least one abrading element comprising
    flexible, surface abrading means,
    resilient means,
    abutment means extending from said resilient means and connected with said surface abrading means;
said abrading element being adapted to be mounted on said body means with
    the resilient means thereof disposed at least in part on one side of said body means,

the abutment means disposed on an opposite side of said body means, and

said resilient means extending at least in part through at least a portion of said aperture means, having a portion larger than said aperture means

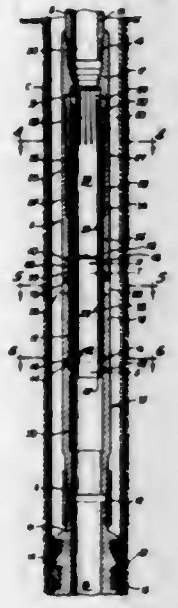


portion on said one side of said body means in a direction extending transversely of said aperture means portion, with said larger portion of said resilient means being yieldably and resiliently contractable so as to be movable through said aperture means portion.

3,306,365
WELL BORE TESTING AND DISPLACING VALVE APPARATUS

Archer W. Kammerer, Jr., Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif., a corporation of California

Filed May 13, 1963, Ser. No. 279,911
16 Claims. (Cl. 166—224)

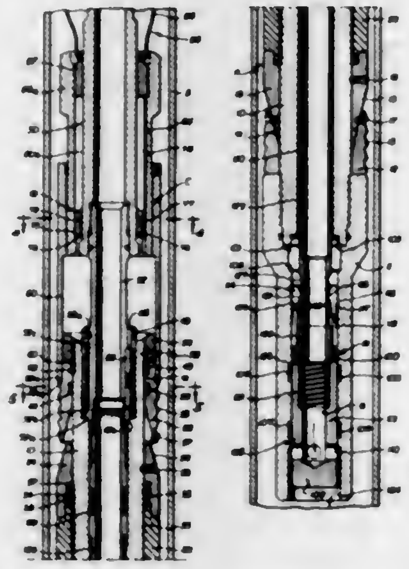


1. In subsurface valve apparatus adapted for connection to a tubing string to be disposed in a well bore: a tubular member adapted to be connected to the tubing string and having a side port; an upper valve member in said tubular member disposed initially above said port; a lower valve member in said tubular member disposed initially across said port to close the same, said lower member including an upper head portion in sealing relation to said tubular member above said port and a lower head portion in sealing relation to said tubular member below said port, the upper head portion having an upwardly facing total transverse area subject to fluid pressure in said tubular member greater than the downwardly facing total transverse area of said lower head portion subject to fluid pressure in said tubular member to provide a differential area on said lower valve member subject to the pressure of fluid in the tubular member tending to shift said lower member downwardly in the tubular member to port opening position; and means for shifting said upper valve member downwardly in said tubular member to port closing position.

3,306,366
WELL PACKER APPARATUS

John F. Muse, Fullerton, Calif., assignor to Baker Oil Tools, Inc., Los Angeles, Calif., a corporation of California

Filed Apr. 22, 1964, Ser. No. 361,782
12 Claims. (Cl. 166—224)



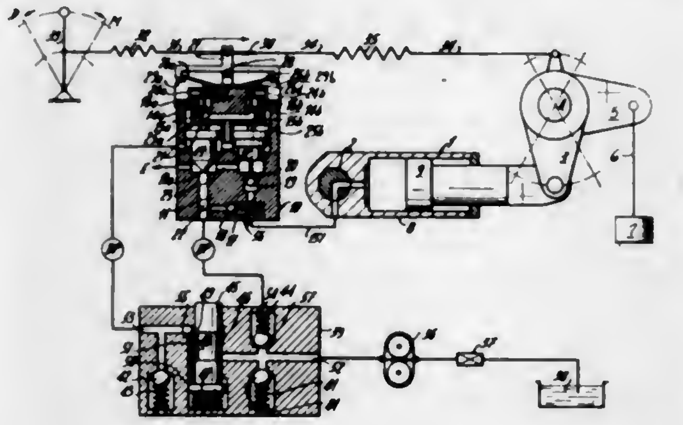
1. A well packer apparatus adapted to be lowered and set in packed-off condition in a well bore, including a body having a fluid passage, a valve member movable upwardly and downwardly in said body passage between positions opening and closing said fluid passage, shifting means connectible to a running-in string extending to the top of the well bore and engageable with said valve member and movable upwardly and downwardly in said passage by the running-in string to positively shift said valve member upwardly and downwardly in said passage between positions opening and closing said passage, and means engageable with said shifting means for retaining said shifting means positively coupled to said valve member during upward shifting of said valve member in said passage by said shifting means.

3,306,367
HYDRAULIC CONTROL ARRANGEMENT

Victor Raeber and Maurice Bonjour, Vevey, Switzerland, assignors to Ateliers de Constructions Mecaniques de Vevey S.A., Vevey, Switzerland, a corporation of Switzerland

Filed Feb. 10, 1964, Ser. No. 343,874
9 Claims. (Cl. 172—4)

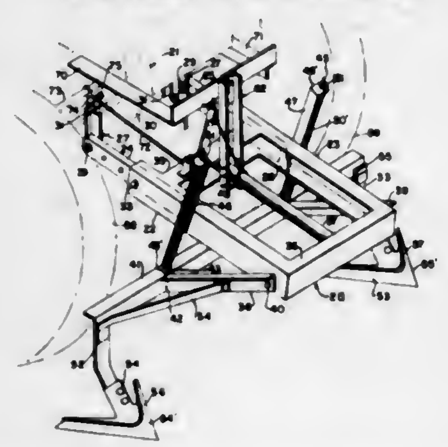
1. A hydraulic control arrangement including at least one supply of oil under pressure, at least one hydraulic auxiliary power unit including a cylinder and a piston, at least one distributor feeding said oil into the auxiliary power unit with a view to controlling the desired movements of the latter, said distributor including at least one chamber connected, on the one hand, with the cylinder of the auxiliary power unit through a hydraulic channel and, on the other hand, with the supply of oil under pressure through a supply channel, wherein said distributor includes an exhaust channel, an exhaust port for said chamber, communicating with said exhaust channel, means to control exhaust of oil from said port, at least one valve closing said supply channel and ensuring the fluid tightness of said chamber when said chamber is subjected to an internal oil pressure greater than the pressure exerted by said supply of oil, the said means preventing exhaust of oil from said exhaust port, said supply channel communicating with the exhaust channel, said distributor further including at least two differential valves and two auxiliary valves, one differential valve controlling the flow of oil from the supply channel to the exhaust channel and one differential valve constituting the means to control the exhaust of oil from said port, and wherein an adjusting unit is located between said supply of oil and the distributor, said unit including pressure reducing means which divides the supply of oil into a high pressure channel and a low pressure channel, said high pressure channel communicating with the supply channel, and said low pressure channel communicating with the differential valves so that the supply of oil from said low pressure channel selectively activates the differential valves under the control of said auxiliary valves.



3,306,368
GROUND LEVELING DEVICE

Leo Rosenvold, Wildrose, N. Dak. 58795

Filed Sept. 16, 1964, Ser. No. 396,994
4 Claims. (Cl. 172—276)

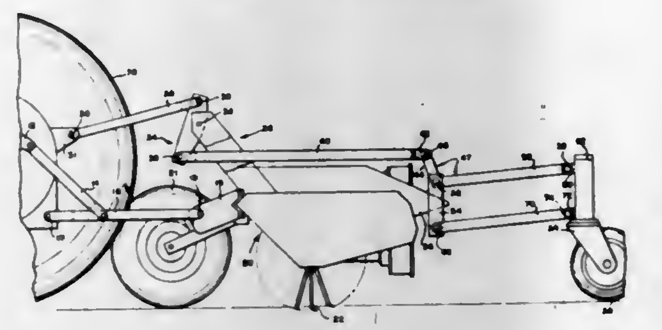


1. A ground leveling device adapted to be attached to the forward end of a tractor comprising a frame, said frame having its rearward end pivotally mounted to said tractor, said frame having telescoping means to move said frame forwardly relative to said tractor to adjust said frame to different size tractors, a pair of arms pivotally attached to the forward end of said frame, sweeps attached to said arms to level a path in front of the tires of a tractor, biasing means urging said sweeps downward relative to said frame, cable means to raise said frame and sweeps off the ground when turning the tractor to either the left or right, said frame and sweeps being adapted to be raised by said cable free of said biasing means, said sweep having U-shaped rod means mounted to said sweeps with the U-portion of the U-shaped rod means projecting forward and slightly upward, said U-shaped rod means limiting the downward movement of the sweeps when leveling the ground.

3,306,369
SUPPORT FOR IMPLEMENTS OR THE LIKE

Willie F. Brewer, Minden, La., assignor, by mesne assignments, to FMC Corporation, San Jose, Calif., a corporation of Delaware

Filed Nov. 2, 1964, Ser. No. 409,051
7 Claims. (Cl. 172—319)



5. For use with a tractor having lift arm means and an upper stabilizer bar, a ground working implement having forward and rear ends, a mast and bracket means at the forward end of said implement, means for pivotally connecting said tractor lift arm means to said bracket means for moving said implement between working and transport positions, depth control wheel means carried at the forward end of said implement to engage the ground when said implement is in working position for predetermining the depth of ground penetration by said implement, a lever pivoted at a first point to said mast, arm means pivoted to the rear end of said implement for movement in a vertical plane with respect to said implement, a caster wheel pivotally connected to said arm means for engagement with the ground, rigid link means operatively connecting said arm means with said lever at a second pivot point spaced from said first point, and means for pivotally connecting said tractor stabilizer bar to said lever at a third pivot point, said lever being rotatable by said stabilizer bar to lower said caster wheel with respect to said implement when tractor lift arm means are actuated to raise said implement and vice versa whereby said caster wheel at all times aids in supporting said implement in both its working and transport positions, said implement and said depth control wheel being free of the ground when said implement is in transport position, the lever and link being constructed and arranged that when the lever is rocked by said stabilizer bar in response to changes in ground contour it causes said caster wheel, in cooperation with said depth control wheel means, to maintain a substantially constant predetermined working position of said implement with respect to the surface of the ground.

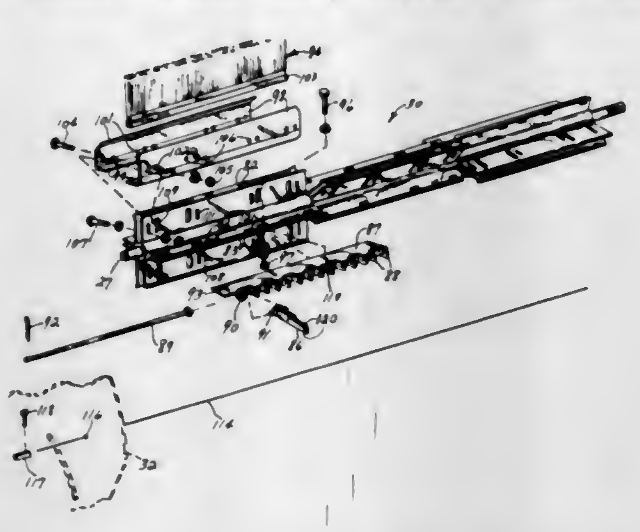
3,306,370
TURF GROOMER WITH ADJUSTABLE TURF-ENGAGING IMPLEMENTS

Sherman C. Heth and Evan T. Lewis, both of Racine, Wis., assignors to Jacobsen Manufacturing Company, Racine, Wis., a corporation of Wisconsin

Filed May 27, 1964, Ser. No. 370,449
5 Claims. (Cl. 172—519)

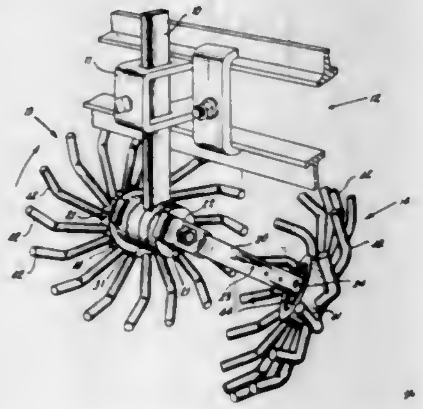
1. A radially adjustable brush mounting for a lawn sweeping machine, comprising a rotor including radially extending spaced-apart mounting plates having radially extending slots spaced therealong, a brush including an elongated backing strip having a back edge, L-shaped clamping plates reversely nested together and flanking said backing strip and extending beyond said back edge and having two sets of bolt holes in the extending portion with one set aligned with said slots in said mounting plates and with the other set aligned with said back edge of said backing strip, bolts in said other set of said bolt holes and in contact with said back edge of said backing

strip to align the latter radially and secure said clamping plates together, the thickness across said clamping plates being similar to the spacing between said mounting plates for radially slidable snug reception of said clamping plates, and bolts extending through said slots and said one set of said bolt holes and being radially slidable along said slots for radially adjustably securing said brush on said rotor.



3,306,371
ROTARY CULTIVATORS

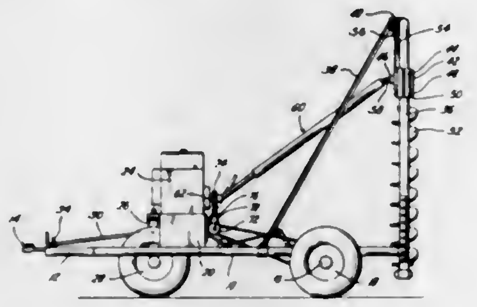
Roland Eugene Bush, P.O. Box 3992, 3rd and O Sts., Lincoln, Nebr. 68505
Filed June 14, 1965, Ser. No. 463,787
1 Claim. (Cl. 172—540)



In a rotary cultivator, a mounting shank, a pair of washer-like discs grooved on one side of each to receive the shank when positioned with the grooved faces together thus providing a transverse axis and provided with a plurality of radial splines on the other, a second set of washer-like discs like the first set grooved on one side and radially splined on the other whereby when the second set is aligned with the first with the splines on the inside, the grooves of each of the second set of discs is engaged respectively with the splines of the first set whereby the second set of discs may be received on the first set in a multiplicity of radial positions whereby the grooves on the outside of the second set of discs may be positioned in a large number of radial positions, a pair of cultivator wheel supports including shanks received in the oppositely disposed grooves of the outer discs and having axles extending at approximately forty-five degrees to the shanks, a fastening means to hold the discs and shanks in transverse aligned relation, cultivator wheels mounted for rotation on the axles including hubs slidably and reversibly positionable on the axles and the wheels having a plurality of radially and tangentially disposed tines extending therefrom, the tines being formed in bent dish-shaped relation whereby the last named shanks and the wheels thereon may be positioned with the shanks inclined forwardly or rearwardly at any desired position and the wheels reversed in any of the positions when the cultivator is drawn along the ground with the tined wheels presented to the ground to produce any desired lifting, pushing or scarifying action.

3,306,372
POST HOLE DRILLING MACHINE

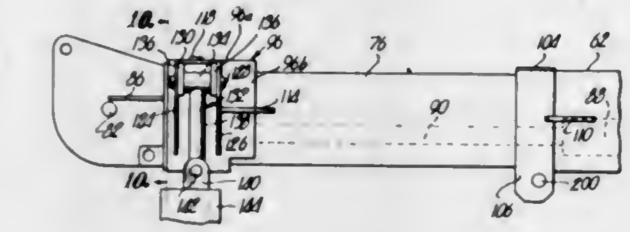
Valton G. Struve, Houston, Tex., assignor of one-half to Arthur P. Ruth, Houston, Tex.
Filed Jan. 29, 1964, Ser. No. 341,011
1 Claim. (Cl. 173—25)



In a post hole drilling machine a frame, an axle rotatably mounted on the frame, wheels mounted on the axle for rotation therewith, a pulley mounted on the axle for rotation therewithin, a pulley rotatably mounted on the frame for rotation in a common plane with said axle mounted pulley, a driving belt passing about said pulleys, belt tightening means movably mounted on the frame for movement to one position in engagement with said belt to tighten the belt about the pulleys to cause the pulleys to rotate together and to another position to allow the belt to relax to permit the pulleys to rotate independently, power means on the frame, means forming a driving connection between said power means and said frame mounted pulley, and brake means on said belt tightening means positioned for engagement with one of said wheels upon movement of said belt tightening means to said other position to hold the wheels against rotational movement.

3,306,373
HOLE DIGGER AND DERRICK APPARATUS

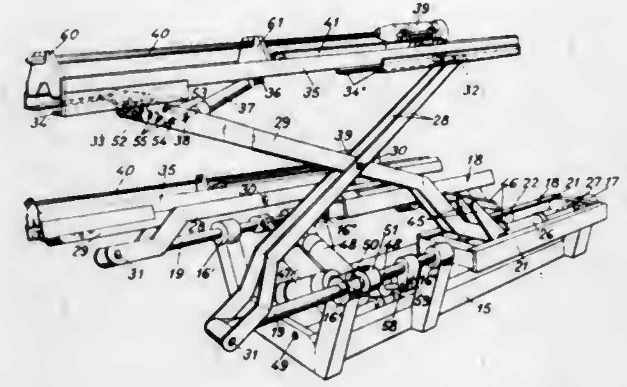
Raymond F. Pitman, Prairie Village, Kans., and Dean E. Broderson and Herbert W. Gronemeyer, Jr., Kansas City, Mo., assignors to Pitman Manufacturing Company, Grandview, Mo., a corporation of Missouri
Filed Nov. 28, 1960, Ser. No. 72,027
9 Claims. (Cl. 173—28)



1. In a hoisting unit adapted to be mounted on a mobile vehicle, a rotatable base assembly; extensible boom structure carried by said assembly and provided with a plurality of relatively longitudinally shiftable boom elements; tool means; and means mounting the tool means on the boom structure and including selectively engageable components for releasably securing the tool means to any selected boom for movement relative to the remaining boom elements.

3,306,374
POLAR POSITIONING DEVICE FOR ROCK DRILLS

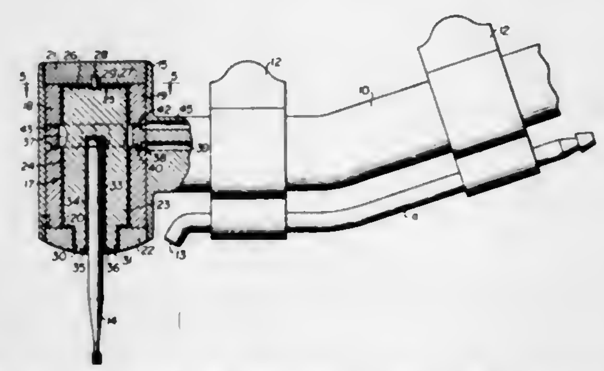
Axel Strömnes, Tunabro, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden, a corporation of Sweden
Filed Dec. 8, 1964, Ser. No. 416,783
Claims priority, application Sweden, Apr. 23, 1964, 5,031/64
11 Claims. (Cl. 173—43)



1. A polar positioning device for rock drills for positioning a rock drill to a plurality of alternative drilling positions according to a polar coordinate system, said positioning device comprising a substructure having coaxial journals thereon spaced in the longitudinal direction thereof, a base frame pivotally mounted on said journals about an axis extending longitudinally of said substructure and defining the polar axis of said coordinate system, an elongated feed shell for longitudinally movably carrying a rock drill thereon having feeding means thereon for feeding and retracting said rock drill along said feed shell, a link system linked between said feed shell and said base frame for translatory motion of said feed shell transversely thereto and to said base frame in a plane including said axis, said link system including a pair of elongated link frames in said plane disposed crosswise and pivoted to one another in scissors manner about a central pivot, first power means on said substructure and operatively connected to said base frame for defining the angular position of said link frames and feed shell about said axis, and second power means operatively connected to said link frames for moving said link frames and translating said feed shell thereon to the desired position in said plane relative to said base frame thereby to define the radius vector in said polar coordinate system.

3,306,375
HIGH-SPEED HANDPIECE

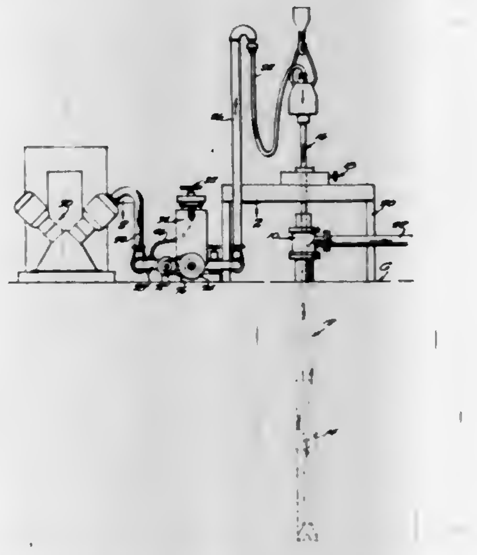
Elmer Fred Macks, Willow Lane, Vermillion, Ohio 44089
Continuation of application Ser. No. 36,513, June 16, 1960. This application Jan. 9, 1964, Ser. No. 338,282
19 Claims. (Cl. 173—59)



1. An assembly for driving a cutting tool comprising, a housing having an internal surface defining a cavity, said housing surface including a cylindrical portion, said housing including first and second spaced end walls defining the ends of the cavity, said first end wall including a through bore in axial alignment and communicating with the cavity, a tool drive spindle adapted for a tool, said spindle having a spindle section substantially filling said cavity and a shank section projecting through said bore, said spindle section having a peripheral surface including a cylindrically contoured portion, said housing and said spindle cylindrical surface portions being complemental and spaced apart to define a radial load carrying gas bearing therebetween, said spindle having an end wall at the end opposite said shank section, said spindle end wall and said housing second end wall being complemental coacting thrust surfaces defining a gas thrust bearing therebetween, and said spindle and housing including coacting means to cause rotation of the spindle in the housing by gas under pressure, a portion of said shank section and said first end wall defining a space for directed escape of the gas under pressure therethrough to clear the area on which the tool is operating.

3,306,376
DRY CHEMICAL INJECTOR

Ralph W. Payne, 3668 E. Everglade, Odessa, Tex. 79760
Filed Aug. 14, 1964, Ser. No. 389,738
6 Claims. (Cl. 175—206)



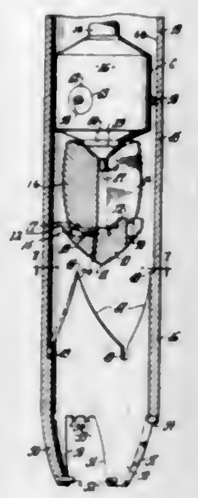
1. In combination with a well bore, a well head having a discharge pipe, a table overlying the well head and carrying a drive, a drill string extending operatively through the drive and down through the well head into the well bore; of a compressor having an output side, a flow pipe connected to said output side and connected to the upper end of the drill string, an injector for comminuted chemical material comprising a closed cylinder adapted to hold such material, a conveyor associated with and open to the cylinder to receive material therefrom, a bypass pipe connected to the flow pipe at points spaced along the flow pipe, said conveyor opening into the bypass pipe.

3,306,377
COLLAPSIBLE DRILL BIT

Howard L. Johnson, Los Angeles, Calif. (Box 5413, Inglewood, Calif. 90310)
Filed Dec. 23, 1963, Ser. No. 332,797
14 Claims. (Cl. 175—261)

1. A tubular bit-engaging segment adapted to form the distal terminus of a rotary drill stem, which segment is adapted for thrust engagement in rotary driving relation with a collapsible drill bit of the character described, said tubular segment being formed with a circular series of downward extending, bottom edge projections consisting of bit-engaging teeth alternating with longer, downwardly converging inserts, the inserts corresponding in number to the number of radially tiltable, upstanding segments forming a segment-engaging circle of a collapsible bit to which

said tubular segment may be coupled, each insert being frictionally longitudinally receivable between an adjacent pair of such segments when out-tilted for lateral edge engagement therewith and the teeth being receivable in corresponding upward-opening sockets which may be laterally spaced apart about the top edge surfaces of said out-tilted segments.

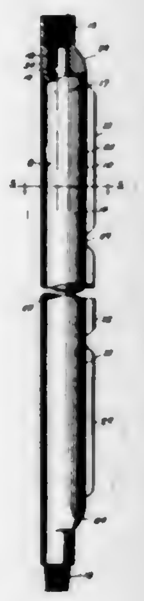


3,306,378
DRILL COLLAR

Edward B. Williams, Jr., Greenville, Tex., assignor of one-third to Edward B. Williams III, one-third to Joseph W. Williams, and one-third to David B. Williams, all of Greenville, Tex.

Filed Mar. 16, 1965, Ser. No. 440,194

7 Claims. (Cl. 175—325)



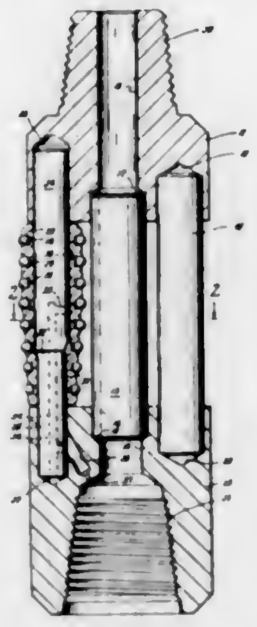
1. In a rotary drilling string comprising a drill pipe and a drill bit rotated by the drill pipe for drilling a bore hole,
drill collars connecting the drill bit to the drill pipe to maintain a stiff stem above the drill bit for minimizing deviation of the drill bit caused by corkscrewing of the drill pipe under load,
said drill collars each including an elongated body of less cross section than the bore hole made by the drill bit, and
means connecting the drill collars in end to end relation with major portions of the drill collars offset outwardly from the axis of rotation and with said major portion of one drill collar spaced circumferentially in symmetry with said major portion of the other to gyrate in contact with the wall of the bore hole.

3,306,379
ROLLER REAMER

Joseph A. Kloesel, Jr., and Sam T. Crews, Midland, Tex., assignors to Drilco Oil Tools, Inc., Midland, Tex., a corporation of Texas

Filed Mar. 25, 1965, Ser. No. 442,710

18 Claims. (Cl. 175—345)



1. Well tool adapted for connection into a rotary drill string to form one element thereof, comprising,
an upper body member having an upper end and a lower end and a generally cylindrical outer periphery and having means at the upper end thereof for making connection to another drill string element,
a lower body member having an upper end and a lower end a generally cylindrical outer periphery and having means at the lower end thereof for making connection to another drill string element,
an intermediate body member disposed between said upper and lower body members, the intermediate body member having an upper end connected to the lower end of the upper body member, the intermediate member having a lower end connected to the upper end of the lower body member,
said upper and lower body members being coaxial and of larger maximum diameter than the maximum transverse extent of said intermediate body member leaving a space adjacent the intermediate body member between the upper and lower body members,
at least one axle pin in said space having an upper end supported by said upper member and a lower end supported by said lower member and a roller rotatably mounted on said pin within the axis of rotation of the roller eccentric to the axis of said upper and lower body members and the outer periphery of the roller extending in part beyond the outer peripheries of the upper and lower body members,
and fluid passage means extending through said tool from the upper end of the upper body member to the lower end of the lower body member.

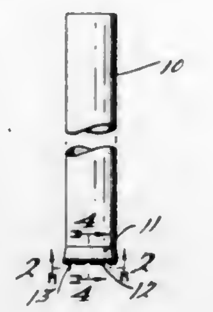
3,306,380
CORE DRILL

Wesley S. Warren, Kalamazoo, and Ertman L. Kessler, Plymouth, Mich., assignors to General Automation Manufacturing, Incorporated, Troy, Mich., a corporation of Michigan

Filed Jan. 27, 1964, Ser. No. 340,272

4 Claims. (Cl. 175—330)

3. In a core drill, a cylindrical tubular driving shank, a tubular head on the end of the driving shank, said head in radial section having an arcuate convex end face and straight sloping sides which are substantially tangent to said end face and tapering toward each other from the point of tangency with said end face to the point of engagement with said shank, and rows of diamonds in the arcuate end face of the head to substantially the point of tangency of said sloping sides.



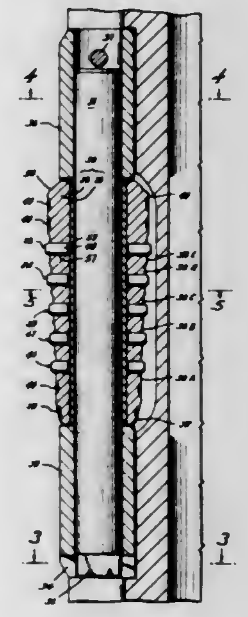
3,306,381
REAMING APPARATUS

William Robert Garrett and Stanley C. Moore, Midland, Tex., assignors to Drilco Oil Tools, Inc., Midland, Tex., a corporation of Texas

Continuation of abandoned application Ser. No. 1,556, Jan. 11, 1960. This application Dec. 16, 1963, Ser. No. 330,715

14 Claims. (Cl. 175—346)

1. A side wall roller reamer comprising:
a tubular member having
means at its upper end for connecting the member to a rotary drill string whereby the reamer can be rotated about the axis of said tubular member which thus forms the reamer axis and
means at its lower end for connecting the member to a rotary drill string whereby torque and fluid can be transmitted by the reamer from such drill string at the upper end of the reamer to such drill string at the lower end of the reamer to rotate a drill bit connected to the lower end of the last mentioned drill string,
a plurality of rollers disposed around the outer periphery of said tubular member,
means mounting each of said rollers on said member for rotation about an axis which thus forms the roller axis, said roller axes being parallel to the reamer axis,
each roller having an outer surface that is a surface of revolution with respect to the roller axis,
each roller being larger in diameter at its upper end than at its lower end providing an outer surface having portions of increasing radius progressing upwards along the roller,
each roller including a plurality of cylindrical apertures in its outer surface disposed around the periphery thereof with their cylindrical axes perpendicular to the roller axis,
a number of said apertures being disposed in an annular row around each roller near the upper end thereof,
a generally cylindrical insert disposed in each of said apertures,
each insert including a portion at one end protruding from the aperture and forming a tip adapted to contact the sidewall of a bore hole,
each insert in the apertures below said annular row of apertures protruding a distance such that the distance of its tip from the roller axis measured perpendicular to the roller axis is at least as great as the distance from the roller axis of the portion of the outer surface of the roller adjacent the aperture nearest thereabove, and
each insert in the apertures in said annular row of apertures equally protruding from its aperture to place its tip at a distance (*b*) from the roller axis, said distance (*b*) being greater than the maximum distance (*r*) from the roller axis of the tips of inserts in apertures below said row,
the last said distance (*r*) added to the distance (*a*) of the roller axis from the reamer axis constituting the on-gage radius R_{gage} of the reamer adapted to ream the bore hole to the same radius as the on-gage radius of a new drill bit connected to a drill string below the reamer,



said distance (*b*) of the tips of the inserts in said annular row from the roller axis added to said distance (*a*) of the roller axis from the reamer axis constituting the underream radius R_{max} of the reamer,
each insert in said annular row being disposed with its axis spaced apart from those of the adjacent inserts on both sides thereof progressing around said row a distance at least equal to the critical spacing S_{min} determined by the equation:

$$(R_{\text{max}}-R_{\text{gage}}-a-b)^2=\left(b\sin\frac{180S_{\text{min}}}{2\pi r}\right)^2+\left(a+b\cos\frac{180S_{\text{min}}}{2\pi r}\right)^2,$$

3,306,382
AUTOMATIC WEIGHT-RESPONSIVE CONTAINER FILLERS

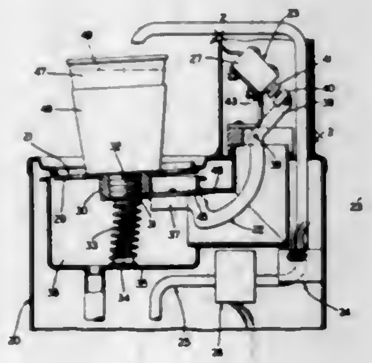
Wilbur L. Espenschied and John A. Maurer, Canton, Ohio, assignors to The Weber Dental Manufacturing Company, Canton, Ohio, a corporation of Ohio

Filed Feb. 5, 1965, Ser. No. 430,539

2 Claims. (Cl. 177—117)

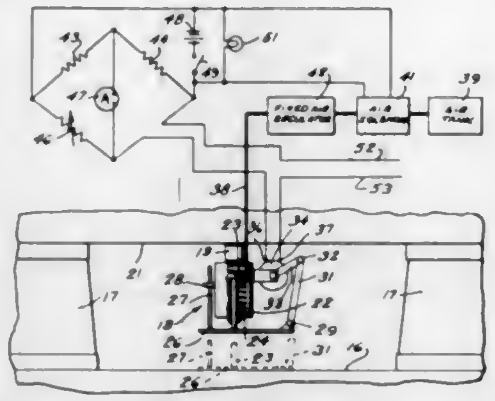
1. Automatic container filler construction for dental units and the like of the type in which a container platform upon which a container may be positioned is mounted on a frame movable between an upper first position and an intermediate second position and a lower third position, in which the container platform is mounted normally biased to the upper first position in the absence of a container thereon, in which the container platform will move to intermediate second position as a result of the container being positioned thereon, in which the container platform will move to lower third position as a result of the container being filled with water to a generally predetermined level, in which a water line is provided with a water valve operably connected therein with

the valve being normally biased to closed position and electrically actuated to open position, and in which the water line is mounted positioned for directing water into the container when the container is positioned on the container platform and the water valve is electrically actuated to open position; the improvements including an electrical circuit operably connected through the water valve for electrically actuating the valve to open position upon the electrical circuit being closed and permitting the valve to be biased to closed position upon the electrical circuit being opened, a snap-action 3-position "on-off" switch operably connected in the electrical circuit, said switch comprising a stationary upper contact, a stationary lower contact spaced therefrom, an electrically conducting upper spring blade having a contact at one end for contact with the stationary upper contact, an electrically conducting lower spring blade having a contact at one end for contact with the stationary lower contact, the opposite ends of the spring blades being positioned permanently in electrical contact with each other spaced from the stationary upper and lower contacts, a pivoted platform supporting arm having one end fixed to said container platform and the other end operably engaging the switch for actuating the switch upon movement of the container platform, the switch being constructed and arranged for opening the electrical circuit when the container platform is in upper first position and for closing the electrical circuit when the container platform is moved from upper first to intermediate second position, and for opening the electrical circuit when the container platform is moved from intermediate second to lower third position, and for maintaining the electrical circuit open during return movement of the container platform from lower third to upper first position, so that placing of a container on the container platform will move the platform from upper first to intermediate second position to open the water valve and begin the flow of water into the container, the filling of the container will move the container platform from intermediate second to lower third position to close the water valve and stop the flow of water into the container, and removal of the filled container from the container platform will permit the platform to return from lower third to upper first position while the water valve remains closed.

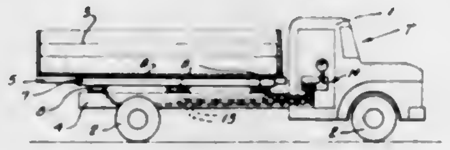


3,306,383
PNEUMATIC-ELECTRIC LOAD WEIGHING DEVICE FOR TRUCKS
Gene R. Saxton and Charles L. Morganti, Chicago, and John K. Morganti, Cicero, Ill., assignors to Morsax Co., a partnership
Filed Jan. 13, 1965, Ser. No. 425,185
5 Claims. (Cl. 177—136)

1. A device for weighing the payload of a truck comprising a pneumatically operated cylinder, a piston mounted for reciprocation within said cylinder, variable electrical resistance means, a movable arm connected to said resistance means to change the resistance thereof, means operable by movement of said piston to displace said movable arm and thereby vary the resistance of said electrical resistance means, and a bridge circuit including said variable electrical resistance means as one branch thereof.



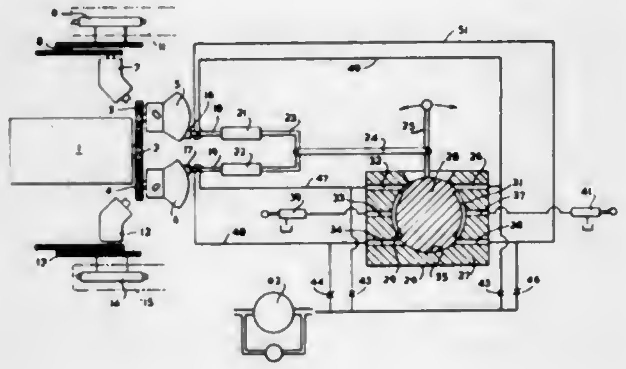
3,306,384
HYDRAULIC WEIGHER WITH STABILIZING RODS FOR USE ON TRUCK
Victor Ross, 1849 14th Ave., Pointe-aux-Trembles, Quebec, Canada
Filed June 7, 1966, Ser. No. 555,849
6 Claims. (Cl. 177—141)



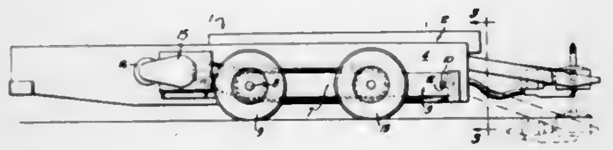
1. In a truck having a chassis and a load-carrying box, a system for giving indication of the weight of the load carried in the box, said weighing system comprising load sensing devices disposed between the chassis and the box and supporting the latter, load totalizing and indicating means connected to said load sensing devices, and means for preventing relative lateral movement of said box with respect to said chassis, while allowing free vertical relative movement between said box and said chassis, said last-named means comprising spaced pairs of transversely extending crossed rods arranged in spaced substantially parallel relationship, one end of one rod of each pair pivotally connected to the chassis and the other end of the same rod of each pair pivotally connected to the load carrying box, opposite ends of the other rod of each pair being pivotally connected to the load carrying box structure and to the chassis respectively.

3,306,385
VEHICLE DRIVE AND STEERING SYSTEM
Bertram Carl Kempson, St. Marks, Cheltenham, England, assignor to Dowty Hydraulic Units Limited, Ashchurch, Tewkesbury, England, a British company
Continuation of abandoned application Ser. No. 131,522, Aug. 15, 1961. This application Aug. 28, 1964, Ser. No. 394,378
Claims priority, application Great Britain, Aug. 19, 1960, 28,812/60
5 Claims. (Cl. 180—6.48)

1. In combination, a vehicle having two ground-engaging elements spaced transversely thereof, a power source for driving the vehicle, a pair of infinitely variable speed ratio hydraulic power transmissions interconnecting the ground-engaging elements with the power source, a pair of movable secondary speed controls connected to the transmissions to vary the speed ratios thereof, a primary speed control connected to the secondary speed controls to select a common speed ratio for the transmissions, and a pair of steering controls connected to the secondary speed controls to effect overriding adjustments in the speed ratios of the transmissions, there being overrider means in the connections between the secondary speed controls and the primary speed control permitting the secondary speed controls to move individually in relationship to the primary speed control, said primary speed control having movable intermediate controls connected therewith, and said secondary speed controls including pairs of movable servo and follower controls, the former of which are connected with the intermediate controls by the overrider means and individually responsive to the operation of the steering controls to move in relation to the intermediate controls, and the latter of which are connected with the transmissions and individually responsive to the operation of the servo controls to follow the movements thereof, there being connections between the intermediate controls and the follower controls limiting the movements of the follower controls in relation to the intermediate controls to less than the movements permitted the servo controls in relation to such intermediate controls by the overrider means, so that the follower controls interlock with the intermediate controls after small overriding adjustments in the speed ratios of the transmissions, and additional overrider means in the connections between the intermediate controls and the primary speed control permitting the intermediate controls to move individually in relation to the primary speed control, so that the follower controls and the intermediate controls can move together for larger overriding adjustments in the speed ratios of the transmissions.



3,306,386
SUSPENSION UNIT FOR VEHICLES
Harley G. Pyles, Fairmont, W. Va., assignor to Galis Manufacturing Company, Fairmont, W. Va. a corporation of West Virginia
Original application Jan. 23, 1963, Ser. No. 254,544, now Patent No. 3,252,525, dated May 24, 1966. Divided and this application Feb. 4, 1966, Ser. No. 525,070
8 Claims. (Cl. 180—6.48)



1. Suspension means for a vehicle having a frame including spaced side frame members separated by and connected to separate front and rear frame members, said suspension means comprising,

first mounting means rigidly secured to the side frame members and extending outwardly therefrom,

a pair of spaced side bars positioned on opposite sides of the frame adjacent to the frame side members, each of the side bars being pivotally connected to the first mounting means intermediate the end portions of the side bars, the side bars arranged to pivot in vertical planes about the mounting means,

a first pair of wheels each rotatably mounted on the first mounting means adjacent one of the side bars at the side thereof remote from the frame side member,

second mounting means rigidly connected to the respective side bar in spaced relation to the first mounting means and extending outwardly from the side bars,

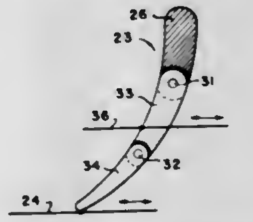
a second pair of wheels each rotatably mounted on the second mounting means adjacent one of the side bars at the side thereof remote from the side frame member,

each side bar having a separate drive and speed reducing means mounted thereon adjacent an end of the side bar with one of the first pair of wheels positioned between the drive and speed reducing means and one of the second pair of wheels so that the separate drive and speed reducer means serves as a counterweight for the second pair of wheels,

connecting means drivingly connecting each of the wheels on each side bar with the separate drive and speed reducing means mounted thereon so that the wheels associated with each side bar are driven by the separate drive and speed reducing means, and

equalizing means pivotally connected at its center to the vehicle frame and at its opposite ends to the respective side bars, the equalizing means constructed and arranged to connect the side bars to each other so that vertical movement of one side bar imparts, through the equalizing means, equal and oppositely directed vertical movement to the other side bar.

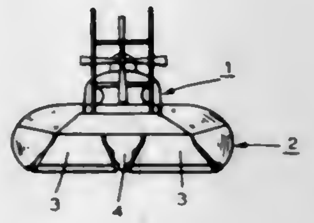
3,306,387
INTEGRATED PROPULSION SYSTEM FOR PERIPHERAL JET GROUND EFFECT MACHINES
Harvey R. Chaplin, Jr., 3507 N. Ottawa St., Arlington, Va. 22213
Filed Oct. 20, 1960, Ser. No. 63,935
3 Claims. (Cl. 180—7)



2. An air cushion supported vehicle comprising a hull having an elongated planform with a pointed forward end, a peripheral nozzle in the bottom of said hull, a plurality of stabilizing nozzles dividing the bottom of said hull into a plurality of sections, air intake means on said hull, a plurality of ducts connected between air intake means and said nozzles whereby air entering said intake means is forced out of said nozzle, a plurality of variable camber deflection vanes for controlling the direction of air ejected from said peripheral nozzle, and control means for varying the camber of said deflection vanes, said plurality of deflection vanes being mounted in cascades, and said variable vanes each including a fixed leading edge and a plurality of hinged, interconnected sections pivotally connected to said fixed leading edge, said control means including a first means and a second means, said first means interconnecting the trailing edges of said variable vanes, said second means interconnecting said variable vanes at a point on a hinged section intermediate the fixed and trailing sections.

3,306,388
GROUND EFFECT VEHICLES WITH INDEPENDENT FLEXIBLE STERN SKIRT SECTION

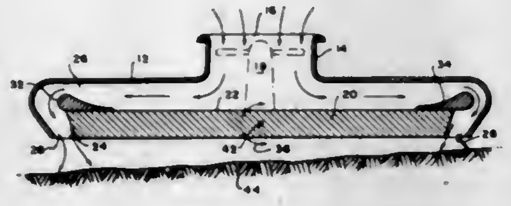
Richard Stanton Jones, Cowes, Isle of Wight, England, assignor to Westland Aircraft Limited, Yeovil, England
Filed Aug. 12, 1964, Ser. No. 389,079
Claims priority, application Great Britain, Aug. 23, 1963, 33,428/63
5 Claims. (Cl. 180—7)



1. A ground effect vehicle comprising, in combination, a base, a keel extending longitudinally of the base substantially to the stern thereof, flexible depending skirt means having portions extending along the sides of the base and terminating adjacent the stern of the base at points spaced laterally from the terminal end of said keel, a plurality of independent flexible inflatable skirt sections freely suspended from the base and disposed between the terminal end of the keel and the terminal ends of said skirt portions, said independent skirt sections being movable independently of the adjacent skirt portions and the keel and being inflatable independently of the adjacent skirt portions, the lateral ends of the independent skirt sections being shaped to conform to the adjacent faces of the longitudinal keel and adjacent skirt portions, whereby to provide a flexible understructure system of reduced stiffness at and adjacent the stern of the vehicle.

3,306,389
PITCH AND ROLL CONTROL FOR GROUND EFFECT MACHINES

Anibal A. Tinajero, 1310 N. Meade St., Arlington, Va. 22209
Original application Mar. 23, 1962, Ser. No. 182,144, now Patent No. 3,279,553, dated Oct. 18, 1966. Divided and this application Oct. 21, 1965, Ser. No. 508,629
4 Claims. (Cl. 180—7)



4. In a vehicle of the ground effect type having a hollow outer body and a frame member located in spaced relation therefrom to form an inner space wherein gas is directed at high velocity through said interior space and is discharged through a downwardly and inwardly canted nozzle located around the periphery of said vehicle to produce within and beneath the approximate peripheral confines of said vehicle a gas at higher pressure than that of the atmosphere, apparatus for controlling the spatial orientation of said vehicle with the ground comprising:

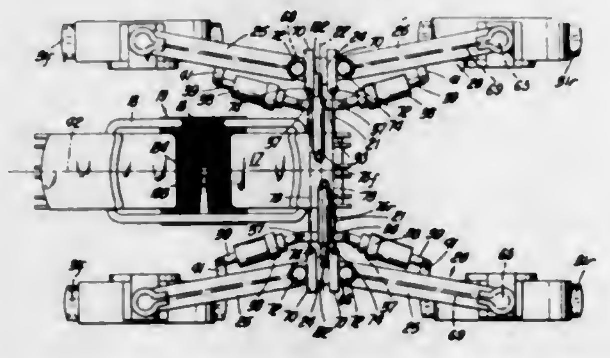
gas-flow controlling means mounted peripherally of the vehicle and movable at substantially all portions of said interior space to vary the amount of flow of gas thereat;

said gas-flow controlling means comprising a plurality of movable elements, each of said elements comprising a body having a flat surface slidable on the upper surface of said frame member and a curved upper surface in contact with the gas flowing in said interior space, said upper surface being streamlined in the direction of the gas-flow and curving concavely upwardly and then convexly outwardly, downwardly and inwardly to said flat surface whereby gas flowing thereover is directed with a smooth streamlined flow into said nozzle;

said element being slidably mounted for movement on said frame member at its associated portion of said space to variably reduce the gas flow to a portion of said peripheral nozzle in substantially direct flow correspondence therewith.

3,306,390
FOUR-WHEEL-DRIVEN-AND-STEERED VEHICLE WITH WHEEL GAGE ADJUSTING MEANS

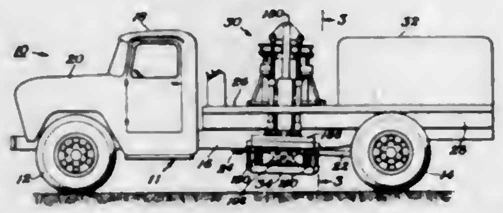
Andre Georges Jamme, 28 Rue Laboulaye, Villemomble, France
Filed June 25, 1963, Ser. No. 290,456
Claims priority, application Great Britain, July 2, 1962, 25,319/62
15 Claims. (Cl. 180—46)



1. A vehicle comprising a body, a pair of members mounted in spaced relation to each other on opposite sides of the body for swivelling movement about a common horizontal axis, a pair of radial arms respectively mounted on the two members for rotary movement about upright axes, ground-engaging means mounted on the outer ends of the respective arms, means connected to the respective arms for adjusting the positions of the arms relative to the body about said upright axes, and differential means interconnecting the members so that swivelling movement of either of the members about said horizontal axis relative to the body causes swivelling of the other member in the opposite direction about said horizontal axis.

3,306,391
PORTABLE SEISMIC TRANSDUCER

Marvin G. Bays, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Mar. 16, 1964, Ser. No. 352,228
13 Claims. (Cl. 181—.5)



1. A portable seismic transducer assembly comprising:

a vehicle having front and rear sets of wheels and a driveshaft extending longitudinally of the vehicle for driving one set of the wheels;

a base plate member for engaging the surface of the earth disposed below the driveshaft and between the front and rear wheels, the base plate member having a frame extending to a point above the driveshaft;

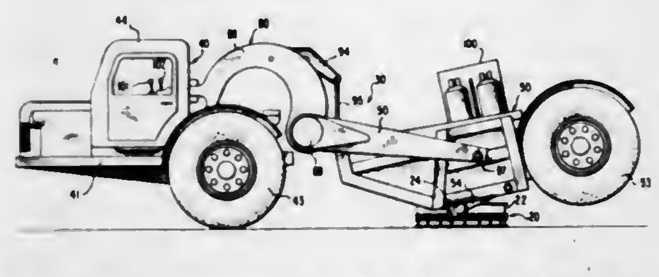
a reaction mass member disposed above the driveshaft and slidably connected to the frame for reciprocation through a relatively short vertical stroke;

means interconnecting the reaction mass member and said frame for reciprocating the reaction mass member through said stroke; and,

lift means interconnecting the base plate member and the vehicle for alternately lifting the base plate member from the ground for transport and for pressing the base plate against the ground with at least a portion of the weight of the vehicle.

3,306,392
HYDRAULIC SYSTEM FOR SEISMIC CARRIER VEHICLE

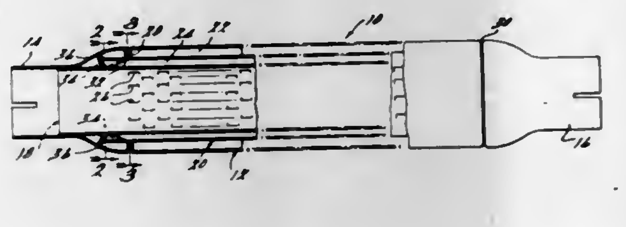
Lauren G. Kilmer, Tulsa, Okla., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
Filed June 8, 1964, Ser. No. 373,277
10 Claims. (Cl. 181—.5)



1. In the combination of a pulse type seismic wave generator and a vehicle for superposition thereon including first support wheel means on said vehicle, second support wheel means on said vehicle, generator support means mounted on said vehicle engaging said generator and mounted for movement between positions in which said generator is relatively lower and relatively higher on said vehicle, means on said vehicle attached to said generator support means for moving said generator to said positions, and means on said vehicle for raising and lowering said second support wheel means relative to said first support wheel means, whereby when said generator is moved to a said lower position and said second support wheel means is raised the mass of said vehicle is supported on said first wheel means and on said generator, the improvement of operator means operably connected to said means for moving said generator support means and to said means for raising and lowering said second support wheel means whereby said generator is lowered relative to said vehicle and said second support wheel means is raised relative to said first support wheel means simultaneously in one position of said operator means and whereby said generator is raised relative to said vehicle and said second support wheel means is lowered relative to said first wheel support means simultaneously in a second position of said operator means, said means attached to said generator support means including first double-acting jack means extendable to lower said generator and retractable to raise said generator and said means for raising and lowering said second wheel support means including second double-acting jack means retractable to raise said second support wheel means and extendable to lower said second support wheel means, and said operator means including first two-way valve means, second two-way valve means, each said valve means including a first conduit connected thereto, a second conduit connected thereto and a third conduit connected thereto and being operable to a first position interconnecting the first and third conduits connected thereto and to a second position interconnecting the first and second conduits connected thereto, means for connecting said valves to a source of pressure fluid including a pressure conduit connected to said third conduits connected to each said valve means and an exhaust conduit connected to said second conduits connected to each said valve means, means interconnecting the retraction side of the said first jack means, the extension side of said second jack means and said first conduit connected to said first valve means, means interconnecting the extension side of said first jack means, the retraction side of said second jack means and said first conduit connected to said second valve means, said first and second valve means being in said first and second positions thereof, respectively, in said one position of said operator means, and said first and second valves means being in said second and first positions thereof, respectively, in said second position of said operator means.

3,306,393
MUFFLER WITH CHAMBERS FORMED BY THREE CONCENTRIC TUBES

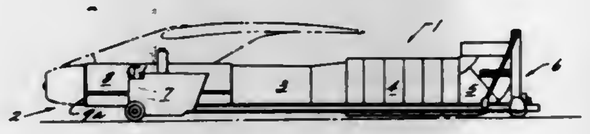
Eldred G. Straw, Grass Lake, Mich., assignor to Walker Manufacturing Company, Racine, Wis., a corporation of Delaware
Filed Nov. 25, 1964, Ser. No. 413,688
2 Claims. (Cl. 181—48)



1. A muffler for silencing sound in flowing gases comprising an elongated tubular housing having annular reduced diameter portions at opposite ends forming a gas inlet and a gas outlet, a perforate gas flow tube extending through said housing and having opposite ends supported in said reduced diameter portions, an intermediate tube in said housing around at least a portion of the length of the flow tube, said tubes and housing being substantially coaxial, said housing having a radially extending annular tube support and partition portion engaging the outside of said intermediate tube comprising an annular inwardly extending fold of a U-shaped cross section wherein the opposite legs of the U are substantially in contact with each other.

3,306,394
MOBILE NOISE SUPPRESSOR FOR FAN-JET AIRCRAFT

Charles J. Smith, Cincinnati, and Alvin J. Brungard, Greenhills, Ohio, assignors to General Electric Company, a corporation of New York
Filed Nov. 3, 1965, Ser. No. 506,452
14 Claims. (Cl. 181—51)



1. Jet engine noise suppressor apparatus comprising:

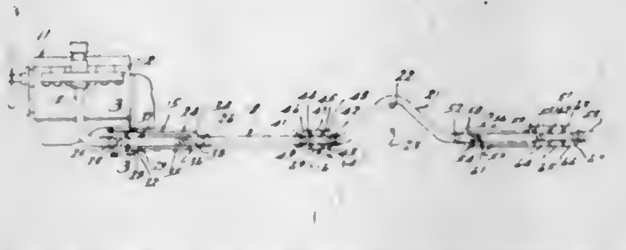
an elongated, generally tubular body member open at both ends, said body member having sound absorbent means located interiorly thereof;

a mobile support structure for said body member, whereby said body member can be positioned with one of its ends adjacent the tailpipe of a turbofan engine for capturing the primary exhaust gas stream thereof; and

means including an open-ended, axially-extending duct member surrounding said body member adjacent said one end thereof and substantially co-axial therewith, said duct member being supported from said body member for relative axial movement with respect thereto, wherein in its forwardmost position said duct member is effective to capture the secondary exhaust gas stream of the fan portion of the turbofan engine and direct same into said body member for co-mingling with said primary gas stream.

3,306,395
EXHAUST SYSTEM COMPRISING SILENCERS WITH REDUCED WALL CONNECTIONS

Paul F. Jettinghoff, Jackson, Mich., assignor to Walker Manufacturing Company, a corporation of Delaware
Filed Mar. 5, 1965, Ser. No. 437,445
6 Claims. (Cl. 181—59)



1. A silencing device for the exhaust system of an internal combustion engine comprising an outer pipe having a reduced diameter inlet bushing at one end thereof and a reduced diameter outlet bushing at its other end, an inner pipe having an inlet end supported by said inlet bushing and an outlet end supported by said outlet bushing, an intermediate pipe affixed at one of its ends to the periphery of said inner pipe and extending at a spaced distance therefrom along a portion of the length of said inner pipe adjacent to one of said bushings, a reduced diameter portion of said outer pipe being in engagement with said inner pipe around its periphery to define with said one of said bushings a first silencing chamber encompassing said intermediate pipe, the other end of said intermediate pipe being open to said silencing chamber, a plurality of perforations formed in said inner pipe adjacent to said one end of said intermediate pipe whereby said intermediate pipe functions as a tuning neck for said first silencing chamber, and a plurality of perforations formed in the portion of said inner pipe between said reduced diameter portion and the other of said bushings for forming a silencing chamber between said portion of said inner pipe and the portion of said outer pipe between said reduced diameter portion and the other of said bushings which functions as a spit chamber.

3,306,396
UNIVERSAL TANK STAGE

John B. Goss, 2606 Knoblock, Houston, Tex. 77023
Filed July 22, 1964, Ser. No. 388,971
5 Claims. (Cl. 182—128)

1. A tank stage for providing a working support for use inside of a tank comprising:

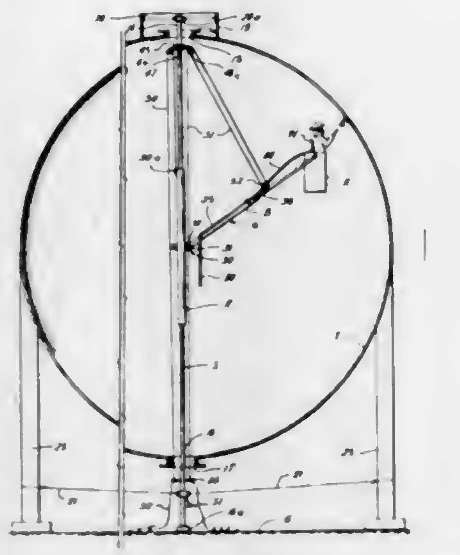
(a) a support member disposed wholly within the tank and extending longitudinally in the tank,

(b) means including a cable disposed within the tank and connected to said support member for supporting said support member in such longitudinally extending position,

(c) boom means pivotally mounted on the longitudinally extending support member,

(d) stage means on said boom means,

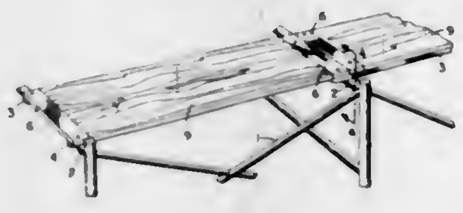
(e) means for pivoting said boom means relative to said support member, and



(f) means within the tank for mounting said cable for movement to lift and lower said support member and the boom means therewith relative to the tank.

3,306,397
SECTIONAL PLATFORM OR SUPPORT FOR USE WITH SCAFFOLDING

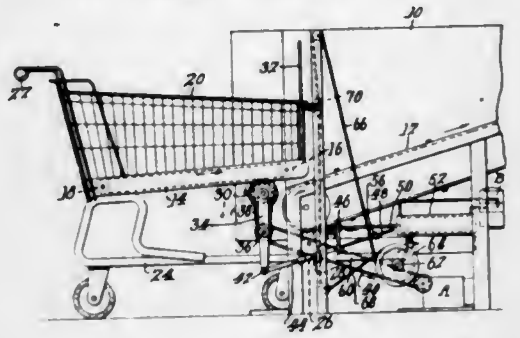
Elmer L. Brumenshenkel, R.R. 8, Lexington, Ohio 44904
Filed May 24, 1965, Ser. No. 458,276
3 Claims. (Cl. 182—223)



1. A load supporting platform for use with scaffolding and adapted to be removably carried thereon, said scaffolding having horizontally disposed platform supporting members arranged at spaced intervals therealong, said platform comprising a plurality of sections for arrangement in end-to-end relation, said sections having a pair of substantially parallel longitudinally disposed side rails, a cross tie plate secured to and connecting each of said side rails adjacent their end portions, and a load supporting panel secured on said side rails and between the tie plates at the end of each respective section, one of the side rails of each section lying substantially flush with a longitudinal edge of said panel with at least one end extended beyond and underlying one of the tie plates and laterally overlying an end of an adjacent section when said sections are assembled in end-to-end relation, the other of said side rails of each section lying inwardly of the opposite longitudinal edge of said panel a distance sufficient to receive laterally thereof an extended adjacent end of a rail of said adjacent section, and means for securing the sections in end-to-end relation, said means comprising elongate fastener members removably engaging the respective adjacent overlying end portions of said cross ties and said side rails and disposed to engage both sides of a horizontal platform supporting member when assembled on said scaffold, thereby preventing movement and disalignment of adjacent platform sections assembled on said scaffold.

3,306,398
AUTOMATICALLY ACTUATED SHOPPING CART

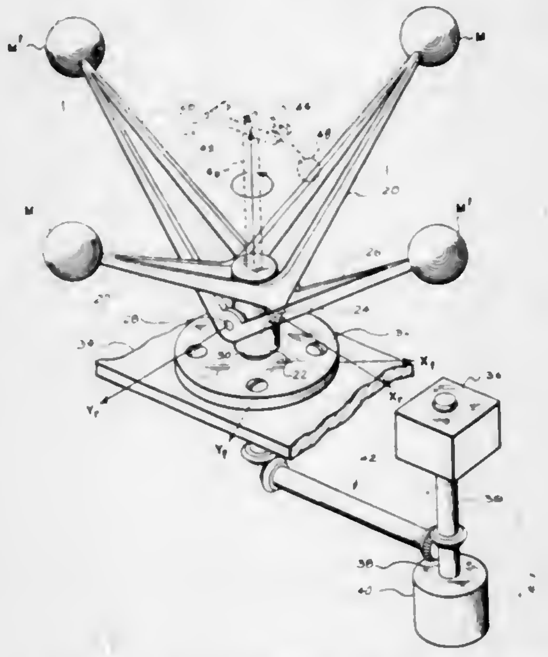
Armand A. Lachance, % American Metal Products Co., Auburn, Mass., and Joseph M. Howard, Worcester, Mass.; said Howard assignor to said Lachance
Filed Oct. 15, 1965, Ser. No. 496,590
12 Claims. (Cl. 186—1)



1. The combination of an automatically discharging shopping cart and a checkout counter at which an operator is positioned to check the articles in the cart, wherein the cart includes a basket having an openable gate and a conveyor bottom in position to travel articles thereon to and through the gate, and the checkout counter includes a conveyor and means to drive the counter conveyor, said checkout counter also including power operated means to drive the basket bottom conveyor when the latter is in proper position relative to the checkout counter conveyor, said power operated means being movable generally vertically between an upper operative position in contact with the basket bottom conveyor and a lower inoperative position, power means to move said power operated means between the operative and inoperative positions thereof, and means on the checkout counter to control the position of the power operated means, said control means being under the control of the operator, and the power operated means being independent of the counter conveyor and the means to drive it.

3,306,399
VIBRATION ABSORBER

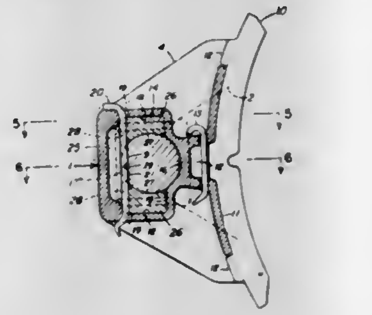
William G. Flannelly, South Windsor, Conn., assignor to Kaman Aircraft Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Nov. 18, 1964, Ser. No. 412,163
11 Claims. (Cl. 188—1)



1. In a vibration absorber for use in reducing vibrations of a body occurring in a given plane, the combination comprising a first mass system having its mass arranged generally symmetrically about a first axis of symmetry, means for supporting said first mass system for rotation about a first axis fixed relative to said body perpendicular to said given plane and also for rotation about a second axis normal to said first axis and fixed relative to said first mass system, said first mass system having a moment of inertia about said first axis of symmetry which is equal to or greater than its moment of inertia about an axis normal to said first axis of symmetry and said second axis, a second mass system having its mass arranged generally symmetrically about a second axis of symmetry, means for supporting said second mass system for rotation about said first axis and also for rotation about a third axis normal to both said first and second axes and fixed relative to said second mass system, said second mass system having a moment of inertia about said axis of symmetry which is equal to or greater than its moment of inertia about an axis normal to said second axis of symmetry and said third axis, and means for rotating said two mass systems in unison about said first axis.

3,306,400
SELF-ALIGNING BRAKE HEAD ASSEMBLY

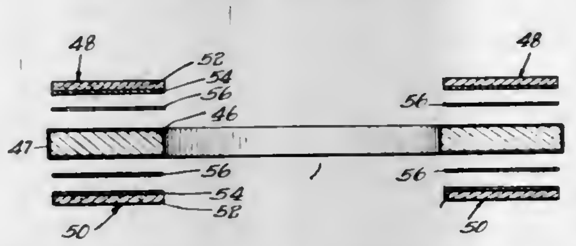
Geoffrey W. Cope, Williamsville, N.Y., assignor to Symington Wayne Corporation, Salisbury, Md., a corporation of Maryland
Filed Dec. 24, 1964, Ser. No. 420,920
6 Claims. (Cl. 188—220.1)



1. A railway brake assembly comprising a brake beam having a cylindrical hub on an end portion thereof, said hub having a segmental slot therein, a brake head rotatably mounted on said hub, and resilient means in said head and received in said slot for locking said head against lateral displacement, said resilient means having a flat face normally engaging a flat inner wall of said slot for yieldably resisting rotation of said head out of a normal position.

3,306,401
BERYLLIUM CONTAINING FRICTION ELEMENT

Lester F. Dasse, St. Joseph, Mich., assignor, by mesne assignments, to Lambert Brake Corporation, St. Joseph, Mich., a corporation of Michigan
Filed Apr. 21, 1965, Ser. No. 449,782
9 Claims. (Cl. 188—251)

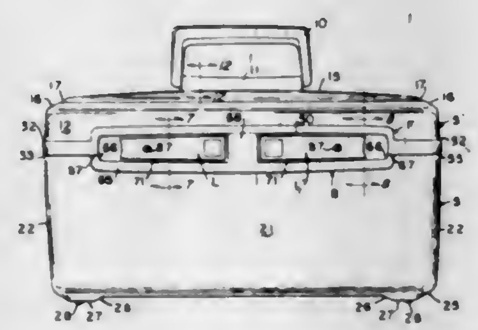


1. A friction member for a friction device comprising a pre-sintered body of beryllium formed under predetermined high pressure and temperature for a predetermined length of time and having a subsequently finished surface, a lining element secured to said body surface, said lining element comprising a presintered laminate formed under predetermined high pressure and temperature for a predetermined length of time and including a pre-sintered outer layer of metallic and non-metallic lining material and a relatively thin pre-sintered inner layer of

substantially only metallic material, and a bonding material melted and bonded under a pressure and for a time subsequently less than said predetermined sintering pressures and times between and joining said body and said inner layer.

3,306,402
TRAIN OR BEAUTY LUGGAGE CASES

Emmett H. Heitler, Denver, and Willard G. Axtell, Englewood, Colo., Robert K. Fujioka, Los Angeles, Calif., and Roger D. Winter, Denver, Colo., assignors, by mesne assignments, to Samsonite Corporation, Denver, Colo., a corporation of Colorado
Filed June 20, 1963, Ser. No. 289,187
15 Claims. (Cl. 190—49)

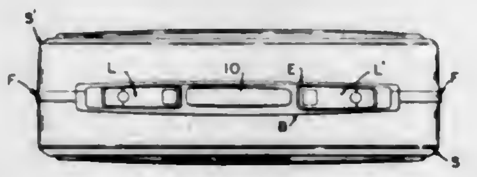


1. A train or beauty case comprising:
upper and lower concave shells, each having a front wall, a rear wall, and end walls, said upper shell having a top wall and said lower shell having a bottom wall, the front wall of said lower shell having a notch extending downwardly therein and the front wall of said upper shell having a notch extending upwardly therein;
a beam extending around the edge of one of said shells and providing spaced recesses at the front of said luggage case and having at the front a portion offset both upwardly and downwardly and engaging the notch of one of said shells;
means attaching the edge of said one of said shells to said beam;
a frame adapted to interfit with said beam when said case is closed and having an offset portion engaging the notch of the other of said shells, said offset portion of said frame engaging the offset portion of said beam when said case is closed;
means attaching the edge of the other of said shells to said frame;
a handle for carrying said luggage case;
means attaching said handle at a central position to the top wall of said upper shell;
latch means mounted in each recess of said beam;
a catch for engagement with each of said latch means and mounted on said frame; and
hinge means pivoting said beam and frame together at the rear of said case.

3,306,403
LUGGAGE CASES

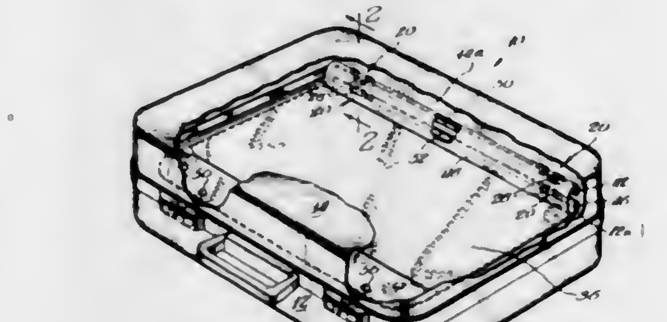
Emmett H. Heitler, Denver, and Willard G. Axtell, Englewood, Colo., Robert K. Fujioka, Los Angeles, Calif., and Roger D. Winter, Denver, Colo., assignors, by mesne assignments, to Samsonite Corporation, Denver, Colo., a corporation of Colorado
Filed June 20, 1963, Ser. No. 289,188
20 Claims. (Cl. 190—49)

1. A luggage case comprising:
two opposed concave shells, each having a top wall, a bottom wall, end walls and a side wall;
a first edge means extending around and attached to the edges of said top, end and bottom walls of one shell and including a beam disposed centrally across the top of said luggage case but spaced from each end wall of said shell, and providing a principal load carrying member, said beam providing spaced recesses in the top of said luggage case and having a width, transverse to the adjacent edge of said shell, greater than the remainder of said first edge means, which extends around each corner of said shell between each end wall and said top and bottom walls;
a second edge means extending around and attached to the edges of said top, end and bottom walls of the other of said shells, said second edge means being adapted to interfit with said first edge means, at least along the top and ends of said case when said case is closed, said second edge means including an escutcheon adapted to interfit with said beam when said case is closed and spaced from the ends of said other shell, said second edge means having a lesser width than said beam and extending around each corner of said other shell between each end wall and said top and bottom walls;
a handle for carrying said luggage case;
means attaching said handle at a central position to the upper portion of said luggage case;
latch means mounted in each recess of said beam;
a catch for engagement with each of said latch means and mounted on said escutcheon; and
hinge means pivoting said first and second edge means together at the bottom of said case.



3,306,404
LUGGAGE OR CARRYING CASES

Bernard Yellin, Oak Park, Ill., assignor to Beco Products Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 13, 1964, Ser. No. 410,990
6 Claims. (Cl. 190—51)

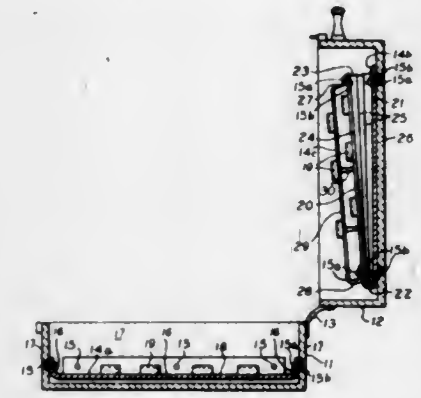


1. A luggage or carrying case of the character described including, a pair of sections hingedly secured together, each of said sections having a bottom wall, a clip member fixedly secured to each of said bottom walls, a partition member, means for detachably securing one end of said partition member to both said clip members.

3,306,405
TRAVELLING CASE

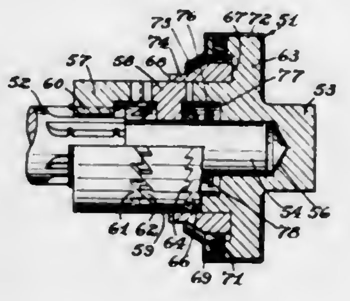
Robert Rosenblum, 365 West End Ave., New York, N.Y. 10024
Filed Apr. 30, 1965, Ser. No. 452,298
3 Claims. (Cl. 190—51)

1. In combination: a travelling case, a first article holding member adapted to be enclosed within said travelling case, a second article holding member also adapted to be enclosed within said travelling case together with the first article holding member, releasable means for fastening said first article holding member within and to said travelling case for support thereby, and releasable means for fastening said second article holding member within the travelling case and to the first article holding member for support thereby, said releasable means for fastening the first article holding member to the travelling case including a first pair of material layers, with the releasable means for fastening the second article holding member to the first including a second pair of material layers, said first and second pairs of material layers being mutually adherent when placed in contiguous abutting contact, and separable when adherent, with one material layer in the first pair being fixedly mounted to the travelling case and the other layer in said pair being fixedly mounted to the first article holding member for fastening same to said travelling case for support thereby, and one material layer in the second pair being fixedly mounted to the first article holding member, and the other material layer in said second pair being fixedly mounted to the second article holding member for fastening same to the first article holding member for support thereby.



3,306,406
OVERRUNNING CLUTCH WITH SPEED RESPONSIVE RETARDER AND INTERMEDIATE COUPLING

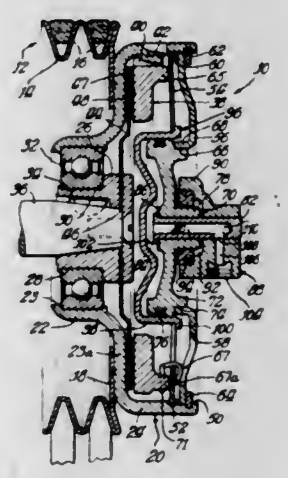
Joseph W. Poliseo, Elmira, N.Y., assignor to The Bendix Corporation, Elmira, N.Y., a corporation of Delaware
Original application Feb. 11, 1963, Ser. No. 257,572, now Patent No. 3,181,673, dated May 4, 1965. Divided and this application Dec. 16, 1964, Ser. No. 418,614
1 Claim. (Cl. 192—46)



A self-energizing overrunning clutch comprising:
a driving shaft;
a driven shaft in axial alignment with the driving shaft;
a driven clutch member fixedly secured to the driven shaft; said driven clutch member having a first set of teeth;
a driving coupling member secured to the driving shaft; said driving coupling member having a second set of teeth;
an intermediate coupling member slidably journalled on one of said shafts intermediate said driving coupling member and said driven clutch member; said intermediate coupling member having a third and fourth set of teeth axially aligned and cooperative with said first and second set of teeth respectively; said intermediate coupling member having a cylindrical exterior surface;
first spring means for urging said intermediate coupling member away from engagement with the said driven clutch member;
a centrifugal weight member including an axially elongated arm non-rotatably secured to the driven clutch member radially outwardly of said first and third sets of teeth, said weight member being adapted for radial movements; and
second spring means for biasing said weight member radially inwardly whereby said elongated arm frictionally engages with the cylindrical exterior surface causing said second and fourth sets of teeth to cam apart towards partial engagement on rotation, and thereby axially displacing said intermediate coupling member, and engaging said first and third sets of teeth.

3,306,407
FLUID PRESSURE ENGAGED CLUTCH WITH BELLEVILLE SPRING

Richard L. Smirl, La Grange Park, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 30, 1964, Ser. No. 422,368
2 Claims. (Cl. 192—85)

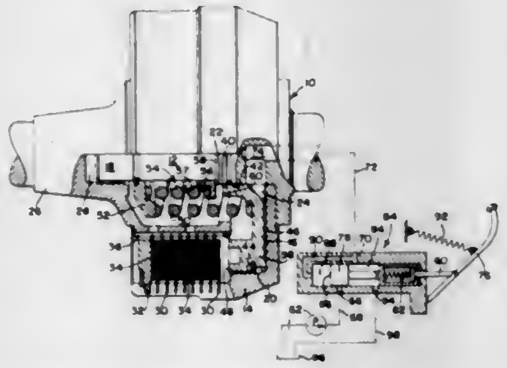


1. A friction device, comprising: a rotative input member having a radial section which carries a cylindrical flange section at the outer periphery of the radial section, rotative output means, and an actuating assembly comprising an end plate nested within said input member and having an annular periphery in engagement with the interior of said cylindrical flange section and adapted to be driven therewith, and an annular pressure plate disposed between said radial section and said end plate having an outer periphery drivingly keyed to said cylindrical flange section, a resilient Belleville diaphragm interposed between said end plate and said pressure plate having an outer periphery fulcrumed on said cylindrical flange section and an inner periphery adapted to be actuated, said diaphragm having an intermediate portion in engagement with said pressure plate effective to urge said pressure plate toward said radial section for promoting clutch engagement with said output means when said inner periphery is actuated, each of said end plate and belleville diaphragm having a centrally aligned opening, a hydraulic means received within said central openings of said end plate and diaphragm and selectively effective to actuate

said inner periphery of said diaphragm, said hydraulic means comprising an annular fixed piston carrying an annular shoulder on the outer periphery thereof and effective to receive the inner portion of said end plate to provide a driving connection therebetween, a cylinder having a cylindrical section slidable on said fixed piston and effective to receive the inner periphery of said Belleville diaphragm for movement therewith, and fluid supply means having a passage extending centrally through said piston for actuating said slidable cylinder.

3,306,408
HYDRAULICALLY ENGAGED CLUTCH WITH DUAL SPRING MEANS AND MODULATING VALVE

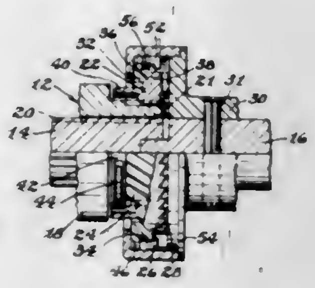
Glenn W. Kahle, Moline, Ill., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Feb. 12, 1965, Ser. No. 432,272
11 Claims. (Cl. 192—85)



1. A hydraulically actuated friction clutch comprising a drive member, a driven member, a plurality of frictionally engageable clutch members operably connected to said drive and driven members for driving said members in unison when engaged, a hydraulic mechanism for effecting the engagement of said clutch members including a fixed and a movable member, means for supplying fluid under pressure to said hydraulic mechanism for moving said movable member into a clutch engaging position, a first spring means acting on the movable member and biasing it away from a clutch-engaging position, and a second spring means engaging said movable member only after some movement toward its clutch-engaging position at a predetermined distance from said engaging position to furnish additional biasing force.

3,306,409
CENTRIFUGALLY-CONTROLLED, HELICALLY-SPLINED DENTIL OVERRUNNING CLUTCH

Paul F. Giometti, Warren, Mich., assignor to The Bendix Corporation, Elmira, N.Y., a corporation of Delaware
Filed Apr. 19, 1965, Ser. No. 449,207
3 Claims. (Cl. 192—104)



1. A clutch for drivingly connecting axially-aligned driving and driven shafts comprising:

a collar member secured to the driving shaft, said collar member having a first helical spline formed on one end thereof;

a driving clutch member having a second helical spline formed thereon adapted to engage said first helical spline, said driving clutch having first clutch teeth formed on one end thereof, said driving clutch member having a first oblique outer surface;

a driven clutch mmber having second clutch teeth formed thereon adapted to engage said first clutch teeth;

a plurality of grooved segmental centrifugal weight members having a second oblique surface in contact with said first oblique surface;

an annular centrifugal weight retainer member having a radially-inwardly-extending projection on one end thereof and secured to said driven clutch member;

said centrifugal weight retainer member having radially-inwardly-projecting lugs driving said centrifugal weights with said driven clutch member and permitting said centrifugal weights to move radially responsive to the angular velocity of said driven clutch member;

a ring-shaped spring member fitted to said grooves of said centrifugal weights, biasing said weights against said driving clutch member;

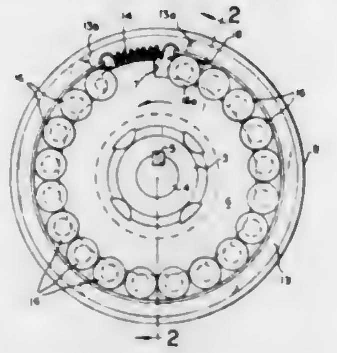
an axial projection formed on the other end of the driving clutch member;

a retarder ring having radially-inwardly-extending depending fingers secured to said axial projection; and

said fingers adapted for frictionally engaging said collar member to resist the rotation of said driving clutch member relative to said collar member.

3,306,410
CENTRIFUGAL CLUTCH CONSTRUCTION

Terence G. Hare, 1257 Grove Point Drive, Union Lake, Mich. 48085
Filed Oct. 16, 1964, Ser. No. 404,252
20 Claims. (Cl. 192—105)

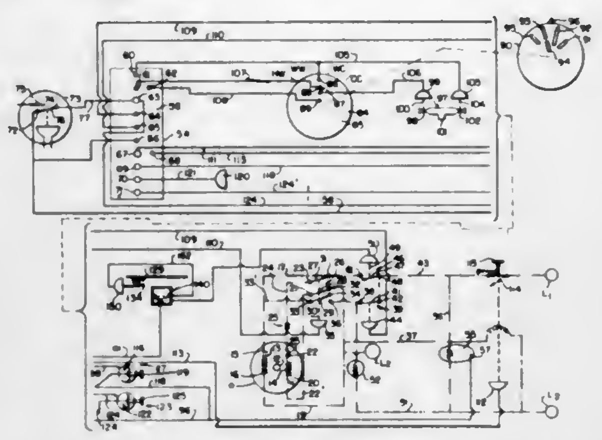


1. A clutch construction comprising inner and outer relatively rotatable members; a flexible friction band interposed between said members; a plurality of separate elements interposed circumferentially between said band and said inner member in abutting engagement with one another and otherwise being independent of each other; and force applying means operable in response to rotation of one of said members to act on said elements and urge them radially outwardly and circumferentially to maintain said elements in abutting engagement notwithstanding said radially outward movement thereof.

3,306,411
WASHING MACHINE SYSTEM OR THE LIKE

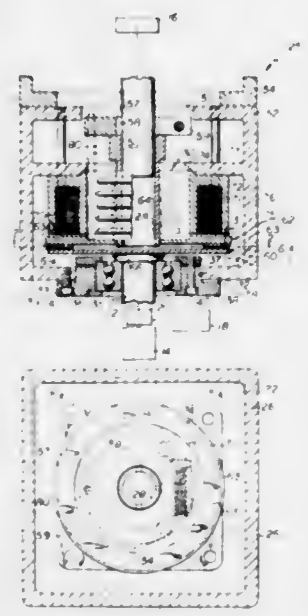
Donald C. Pridham, Jr., Orange, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed May 28, 1965, Ser. No. 459,728
20 Claims. (Cl. 192—135)

1. In a washing machine or the like having a door for access to a washing compartment and having a motor for spinning said compartment, the improvement comprising pneumatically operated actuating means for causing said motor to spin said compartment when a pneumatic signal is directed to said actuating means, a pneumatic source, passage means for interconnecting said source to said actuating means, and means disposed between said source and said actuating means and being operatively interconnected to said door for closing said passage means from said source if said door is open and for opening said passage means to said source if said door is closed.



3,306,412
DRIVE MECHANISM

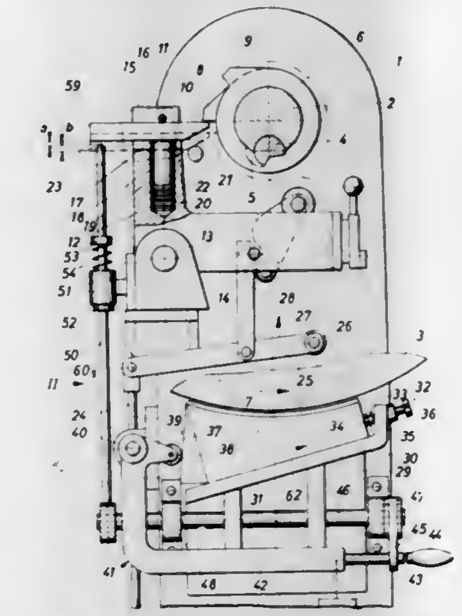
John Fisher, Aurora, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio
Filed Aug. 24, 1964, Ser. No. 391,483
12 Claims. (Cl. 192—138)



1. In a drive mechanism, a driving member having an annular first member rotatable therewith, a driven member, an axially expansible and contractible but circumferentially rigid biasing and torque transmitting member having one end rigidly connected to said driven member and the other end rigidly connected to an annular second member, said second member being movable between a first position in which it engages said first member to drivingly connect said driving and driven members with the torque being transmitted from said second member to said driven member solely by said biasing member and a second position in which it is disengaged from said first member to disconnect the driving connection therebetween, said biasing member biasing said second member into one of said positions and preventing relative rotational movement between said second member and said driven member, and means for moving said second member against the bias force of said biasing member to said other position.

3,306,413
APPARATUS FOR STOPPING MECHANICALLY DRIVEN PRESSES

Alfred Weber, Hammerstrasse 43, Bad Berneck, Bavaria, Germany
Filed Sept. 6, 1966, Ser. No. 584,295
Claims priority, application Germany, Aug. 28, 1963, W 35,177
3 Claims. (Cl. 192—144)



1. A rotary drive press comprising in combination:

a shaft;

a flywheel mounted for rotation with said shaft;

means comprising a releasable rotary coupling joining said flywheel to said shaft;

means for releasing said rotary coupling to de-couple said flywheel from said shaft after each cycle of the press;

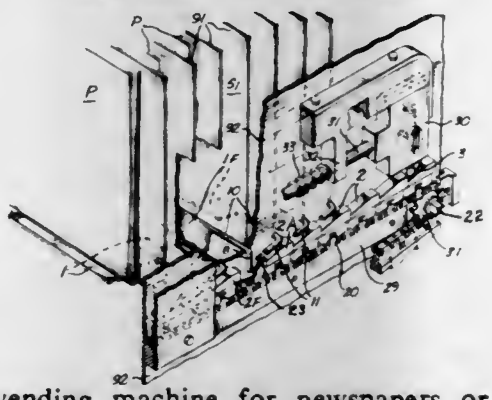
a brake shoe positioned adjacent to said flywheel for engagement therewith;

means for forcing said brake shoe into engagement with said flywheel; and

means carried by said shaft for actuating said last-mentioned means whenever said rotary coupling fails to de-couple said flywheel from said shaft following each cycle of the press.

3,306,414
NEWSPAPER VENDING MACHINE

George H. Vaara, 12550 9th NW., Seattle, Wash. 98146
Filed Apr. 13, 1965, Ser. No. 447,722
16 Claims. (Cl. 194—88)



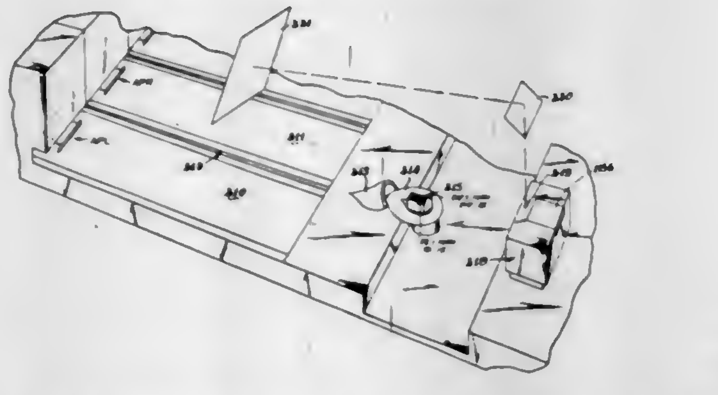
1. A vending machine for newspapers or the like, comprising shelves individually pivotally mounted along one edge, and of a size to support the lower edge of an individual paper that is disposed in an upright plane, when the individual shelf is disposed horizontally, a lever arm disposed laterally beyond the edge of a paper thus supported, and operatively connected to pivot with each shelf from the shelf's horizontal supporting position to a downswung delivering position, shelf-supporting means

also disposed laterally beyond a supported paper, in position to engage and initially support said lever arms in their horizontal disposition, means to advance said shelf-supporting means step by step past successive lever arms, to locate the supporting means successively in non-supporting position beyond the last shelf's lever arm, beyond the next to last, and so on throughout the series of lever arms, whereby successive shelves corresponding to such lever arms will swing down, and their supported papers will drop, clear of the shelf-supporting means.

3,306,415

TAPE CONTROLLED MATRIX PRINTING SYSTEM FOR RECORDING BOWLING SCORES

Paul R. Hoffman, Grand Haven, Mich., assignor to Brunswick Corporation, a corporation of Delaware
Filed May 11, 1965, Ser. No. 454,865
29 Claims. (Cl. 197—2)



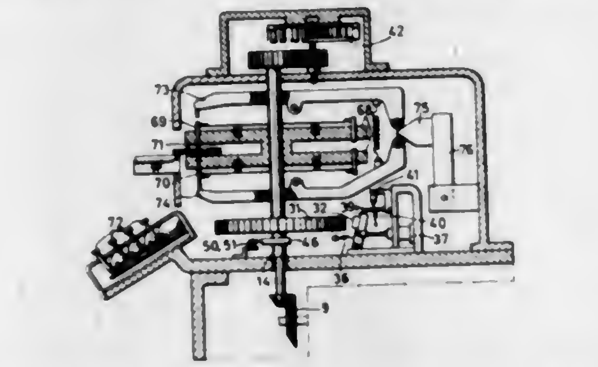
1. A printing system for printing bowling score information on a score sheet comprising a printing head, a plurality of arrays of type elements each array including a plurality of type elements, means mounting each array of type members in said head for individual movement of each array to move a selected one of the type elements of the array to a printing station adjacent the score sheet, hammer means mounted for movement for striking type at said station for printing on the score sheet, a plurality of first separate tape means, one for each array, for transmitting moving force to said arrays, second separate tape means for transmitting moving force to said hammer means, means for driving said first tape means and subsequently driving said second tape means, means for storing predetermined score information, separate latch means for blocking movement of each of said arrays by the corresponding first tape means, and control means for comparing movement of type with stored information and actuating said latch means to block movement of each array upon arrival of the type element of the array at said station corresponding to the stored information whereby subsequent driving of said second tape means prints indicia on said score sheet corresponding to stored information, said control means thereafter deactuating said latch means.

3,306,416

ELECTROMECHANICAL CONTROL FOR EMBOSSING MACHINES WHICH ROTATES FONT PAST AND BACK TO SELECTED CHARACTER

Rolf Dahlin and Göte Johansson, Jamjoslatt, Sweden, assignors to Citograf Aktiebolag
Filed June 23, 1965, Ser. No. 466,371
Claims priority, application Sweden, June 24, 1964, 7,680/64
4 Claims. (Cl. 197—6.6)

1. An electromechanical positioning apparatus, comprising a movable member movable along a predetermined path and positionable in any of a plurality of predetermined positions spaced along said path, first control means electrically operable for driving said movable member in one direction along its predetermined path, second control means electrically operable for driving said movable member in the other direction along its predetermined path, a sensing member movable along a sensing path in timed relation with the movement of said movable member along its predetermined path, a first electrical circuit terminal, a second electric circuit terminal, a plurality of sensing contacts, spaced along the sensing path of said sensing member to be connected with said first electrical circuit terminal by means of said sensing member during its movement along the sensing path, said sensing member being adapted to connect two adjacent ones of said sensing contacts in each of its positions corresponding to any of the predetermined positions of said movable member and to connect at least one of said sensing contacts in all other positions along the sensing path of said sensing member, a chain of series connected break contacts, each corresponding to one of the predetermined positions of said movable member, electrical means connecting said chain intermediate every two adjacent break contacts of said chain and each end of said chain with an individual one of said sensing contacts, first switching means connected with one end of said chain and with said second electric circuit terminal, second switching means connected with the other end of said chain and with said second electrical circuit terminal, and circuitry means for operating said first control means, when said first switching means alone is energized, and for operating said second control means, when said second switching means alone is energized, and for holding said first and second control means unoperated, when said first and second switching means are both energized, whereby actuation of one of said break contacts results in movement of said movable member to the predetermined position corresponding to said actuated break contact.



3,306,417

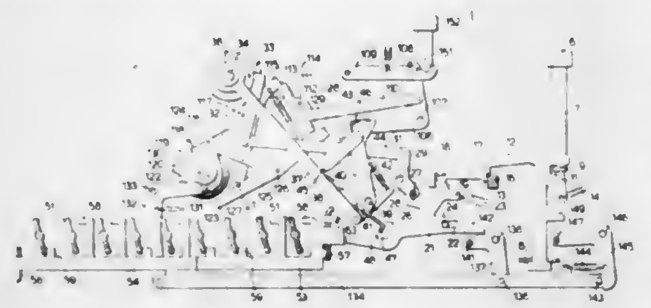
KEYBOARD MECHANISM FOR GENERATING CODE WITH SELECTABLE CODE MEMBER SETS

Teresio Gassino and Ilario Bovio, Ivrea, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy, a corporation of Italy
Filed Apr. 30, 1965, Ser. No. 452,094
Claims priority, application Italy, May 4, 1964, 10,308/64
6 Claims. (Cl. 197—17)

1. In a keyboard mechanism for generating code combinations, each key of said keyboard having an upper case character and a lower case character, said characters being represented by two different code combinations, in combination with a power operating mechanism:

- (a) a set of tiltable similar code bars selectively settable in two tilted positions for generating said code combinations,
- (b) a setting member associated with each one of said keys and operable by said operating mechanism at the depression of the associated key,
- (c) a pair of selecting members associated with each one of said keys and engageable by said setting member for selectively setting said code bars according to said two code combinations,

- (d) a support for said selecting members,
- (e) means shiftably mounting said support transversely to the operating movement of said setting members for conditioning said pair of members to be alternately engaged,
- (f) a case shift device comprising a depressible case shift key,
- (g) an upper case setting member operable by said operating mechanism at the depression of said shift key for shifting said support in a transverse direction,

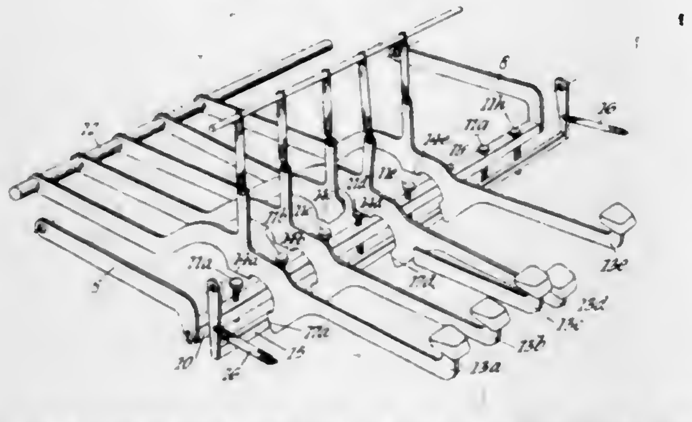


- (h) a lower case setting member operable by said operating mechanism at the restoration of said shift key for shifting said support in an opposite direction,
- (i) a first element directly connected to said shift key for causing said upper case setting member to be so operated,
- (j) a second element for causing said lower case setting member to be operated,
- (k) and motion inverting means constantly connecting said second element to said shift key.

3,306,418

CASE SHIFT DEVICE FOR MUSIC TYPEWRITERS AND THE LIKE

Lily Pavey, 29 Laing House, Councillor St., London, England
Filed May 26, 1965, Ser. No. 458,916
Claims priority, application Great Britain, Dec. 21, 1964, 51,778/64
3 Claims. (Cl. 197—74)

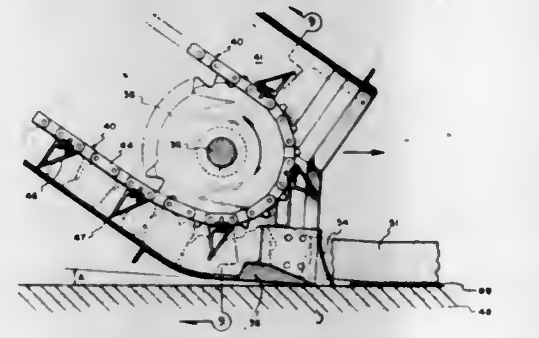


1. In a typewriting machine having a striker plate and a basket of typebars that is displaceable upwardly and downwardly past said striker plate in a manner providing a step-by-step motion of the basket of typebars, means for causing said motion consisting of a plurality of upwardly biassed shift key levers, a displaceable shift key locking bar common to all said shift key levers, a shoulder formation on each shift key lever such that on depression of a shift key lever said shoulder formation will engage under said displaceable shift key locking bar, a cam surface on each shift key lever such that on depression of a shift key lever its cam surface acts on said shift key locking bar to displace it out of engagement with the shoulder formation of the previously depressed shift key lever in a manner releasing said previously depressed shift key lever from its depressed setting, movement of said cam surface past the shift key locking bar permitting the shift key locking bar to return to its initial setting in which it locks with the shoulder formation of the depressed shift key lever to hold it in its depressed setting, a pivotally mounted shift lever frame having a plurality of actuating studs mounted thereon, each of said studs extending a different distance from said shift lever frame, links connecting the basket of typebars to said shift lever frame such that the setting of the shift lever frame determines the setting of the basket of typebars relatively to said striker plate, each of said shift key levers having an operating face cooperating with an actuating stud carried by said shift lever frame, said operating faces lying at different and unique distances from their corresponding actuating studs when said shift levers are in their unactuated position, said different and unique distances being proportional to the displacement of the shift lever frame obtained by the respective shift levers whereby each of said shift lever keys can be pivoted through an equal angle to selectively displace said shift lever frame and said type basket to any one of a plurality of different shift positions.

3,306,419

SALT HARVESTING APPARATUS AND METHOD

James R. Palmer, P.O. Box 475, Grantsville, Utah 84029, and Albert Z. Richards, Jr., 2022 Imperial St., Salt Lake City, Utah 84105
Continuation of abandoned application Ser. No. 276,848, Apr. 30, 1963. This application June 13, 1966, Ser. No. 562,418
2 Claims. (Cl. 198—7)



1. Salt harvesting apparatus comprising, a frame including longitudinally extending side members and having a wheeled support, an inclined conveyor having a bottom and sidewalls, transverse rake members mounted to move longitudinally of said conveyor closely adjacent the bottom, means pivotally mounting said conveyor on said frame to enable up and down movement of at least the forward end of said conveyor, an elongated wedge shaped cleavage blade mounted transversely of said conveyor at the forward end thereof with its thin edge forming the lower leading edge of the conveyor and its wide edge extending upwardly from the bottom of the conveyor, and said transverse rake members being arranged to pass closely adjacent said thick edge of said wedge shaped blade for engaging blocks of material passing thereover.

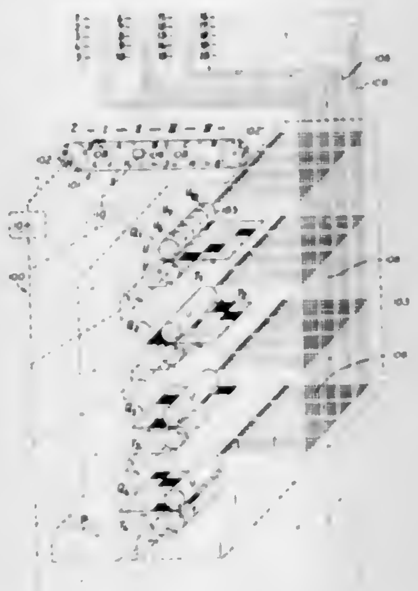
3,306,420

CONVEYOR APPARATUS

Norbert Nicolaus, Hannover, Germany, assignor to Firma Homann-Maytag G.m.b.H., Sarstedt, Germany
Filed Feb. 7, 1966, Ser. No. 525,568
9 Claims. (Cl. 198—19)

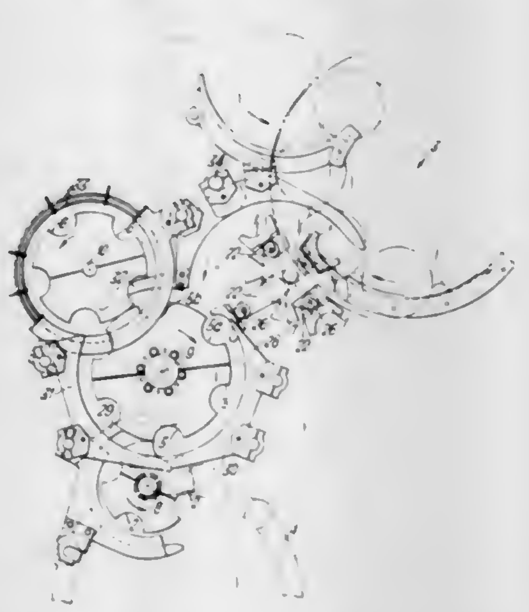
1. A conveyor apparatus which comprises an article transport means disposed for movement along a predetermined path to convey articles to each of a plurality of work stations located at successive spaced intervals therealong, a work operation indicator means disposed at each of said work stations to identify characteristic work operations to be performed on said articles upon arrival at

said work stations, and a work operation data storage means responsive to the movement of said transport means and operatively connected to each of said indicator means to activate same in response to work operation data delivered by said data storage means, said data delivery being in synchronism with the movement of the transport means to successive work stations, whereby when articles conveyed by the transport means arrive at said work stations, work operations to be performed on such articles are identified by the indicator means thereat in accordance with stored data delivered by the data storage means.



3,306,421
ARTICLE FEEDING APPARATUS

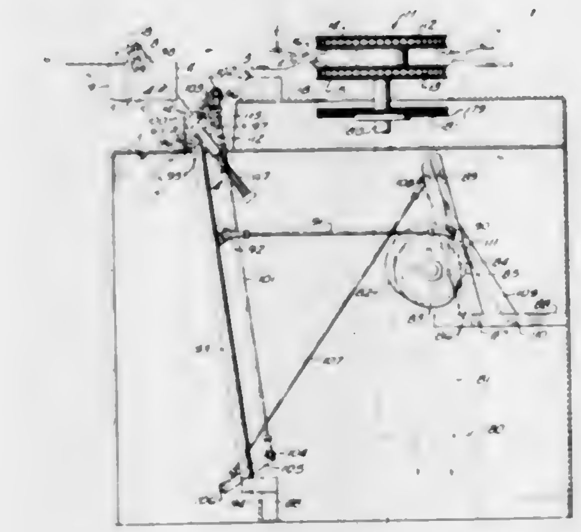
Michael Harcourt Christians Buttery, Bushey Heath, England, assignor to The Metal Box Company Limited, London, England, a British company
Filed Dec. 22, 1964, Ser. No. 420,330
Claims priority, application Great Britain, Jan. 7, 1964, 761/64
9 Claims. (Cl. 198—25)



1. Feeding apparatus for articles comprising a first series of pockets movable in rotation and each arranged to receive at least two articles in end-to-end relation and to move them in a direction transverse to the axis thereof, a second series of pockets movable in rotation and in timed relation with the pockets of the first series and each arranged to receive one article only, and an article separating device interposed between said first and second series of pockets and operable to separate the articles delivered from a pocket of said first series and to deliver them one at a time to pockets of the second series for movement thereby in a direction transverse to the axes of the articles, said pockets of the first series being movable with pocket supports mounted for rotation with a rotatable carrier and for movement relative to the carrier in a direction radial to the axis of rotation thereof, and including actuating means cooperating with the pocket supports to effect radial movement thereof in a manner such that following delivery of articles to a pocket the circumferential velocity of the pocket is increased to that of the pockets of the second series and the articles carried by said pocket are delivered to the separating device while the pocket is moving at said increased circumferential velocity.

3,306,422
DRIVE FOR UPRIGHTING BOXES

Elbert L. Bivans, Glendale, Calif., assignor to Bivans Corporation, Los Angeles, Calif., a corporation of California
Filed Oct. 17, 1963, Ser. No. 316,950
6 Claims. (Cl. 198—27)

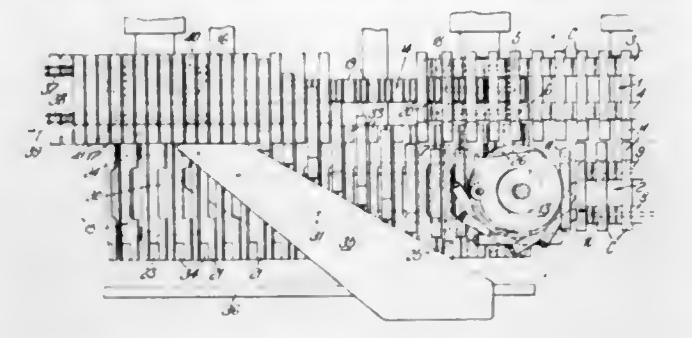


1. A drive for uprighting boxes comprising a suction head, an upright arm having a fixed pivot at its lower end, means for supporting said suction head at the upper end of said arm for movement between a pick-up position wherein said suction head faces downwardly and a delivery position wherein said suction head faces laterally, said two positions being substantially at right angles to each other, means for oscillating said arm for reciprocating said suction head from one position to the other, and means at the upper end of said arm for orienting said suction head with respect to said arm to face downwardly at said pick-up position and to face laterally at said delivery position.

3,306,423
COLLECTING AND ARRANGING CIGARETTES

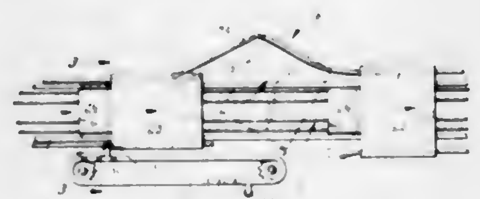
Tom Rowlands, London, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain
Filed Mar. 14, 1966, Ser. No. 534,202
Claims priority, application Great Britain, Mar. 19, 1965, 11,750/65
5 Claims. (Cl. 198—32)

1. Apparatus for forming two side by side rows of cigarettes moving in a direction transversely of their axes into one row, comprising a first fluted conveying surface, a second fluted conveying surface disposed alongside the first and having its flutes spaced at double the pitch of those of the first surface, means to drive said surfaces at the same speeds, feeding means adapted to supply to the two surfaces two rows of cigarettes in which each cigarette in which each cigarette is separated from each adjacent cigarette in its own row by a distance equal to the pitch of the second conveyor's flutes and is aligned with a gap between adjoining cigarettes of the other row, and ploughing means by which cigarettes are moved axially from the second surface into empty flutes on the first surface.



3,306,424
CONVEYOR

Wolfgang B. Fahrenbach, Oakland, Calif., assignor to Robalex, Inc., San Francisco, Calif., a corporation of California
Filed Mar. 26, 1964, Ser. No. 354,864
1 Claim. (Cl. 198—33)

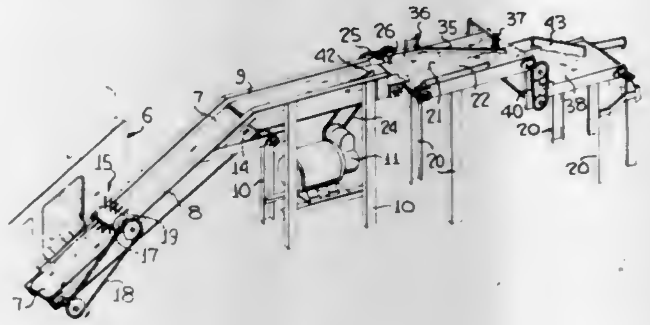


In a horizontally disposed conveyor constructed to carry articles in spaced apart timed relation along a substantially horizontal path, a pair of spaced apart sprocket means, means journalling each of said sprocket means for rotation, a pair of guide tracks disposed in parallel relation to and at either side of said path and between said sprocket means, a plurality of endless article supporting parallel wires trained about said sprocket means with one stretch thereof extending in parallel relation between said tracks, a series of conveying elements or lugs attached to said wires at spaced intervals therealong and having inwardly projecting portions with respect to the path of the conveyor, said sprocket means having driving seats engaged by said inwardly projecting portions, and each of said conveying elements having side extensions slidably seating in said tracks to provide a level condition of said conveyor along said upper stretch, each of said conveying elements providing a pusher member for pushing an article along said upper stretch with said article supported by said wires, and at least one processing station located along said upper stretch and having means to operate on each article successively as they are carried therepast.

3,306,425
OVERCAP ORIENTING APPARATUS

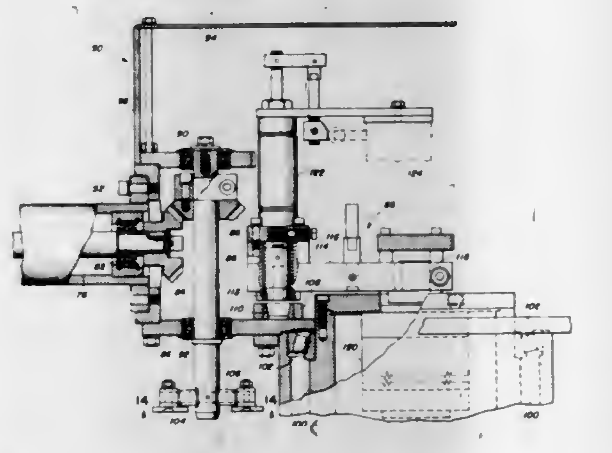
Elmer W. Rapp, Jr., Elk Grove, and Steven A. Bodnar, Chicago, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Sept. 2, 1964, Ser. No. 393,840
11 Claims. (Cl. 198—33)

1. In an apparatus for orienting cap-like articles having top portions and peripheral skirts defining therewithin a hollow, a travelling belt conveyor portion for receiving the articles in indiscriminate hollow-down hollow-up positions and which is provided with upstanding pin means arranged in spaced relation for engaging the hollow of each article presented thereon in hollow-down position and supporting said article with its skirt extending into proximity with the surface of the conveyor from which the pin means project, pin means for receiving thereon articles in hollow-up position and for supporting said articles by engagement of their top portion on said pin means with the skirts of said articles projecting upwardly well above the tops of the pin means; wherein all of said pin means are the same pins, and means for sweeping off from the belt such hollow-up articles, thereby to present at a delivery end portion of the belt only such articles as are moving hollow-down on the belt portion; wherein there is included a second conveyor belt portion travelling beside the pin equipped belt portion in position to receive and convey the hollow-up articles swept off the pin equipped belt portion, there also being included means supporting said second belt so that its article receiving surface is disposed approximately at the level of the tops of the pins on the pin equipped belt, and for causing said second belt portion to move at a greater lineal speed than the pin equipped belt portion.



3,306,426
ROTARY CONVEYOR APPARATUS

Alanson J. Arnold, New Orleans, and William M. Ripple, Metairie, La., assignors to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 19, 1965, Ser. No. 434,085
12 Claims. (Cl. 198—33)

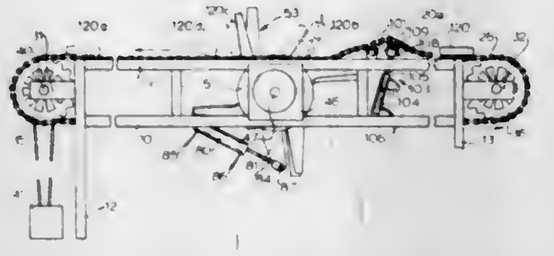


1. A rotary conveyor for conveying an article in a circular path through a plurality of successive operating stations spaced about said path comprising:

(a) a plurality of rotatably journalled articles supporting means,
(b) means for intermittently indexing each of said supporting means successively from one station to the next,
(c) means operative with certain of said supporting means to effect rotation thereof when in certain of said stations, and
(d) means operative with other of said supporting means to orientate and maintain the same stationary when at other of said stations.

3,306,427
LUMBER INVERTING APPARATUS

John W. Spencer, Route 1, Hillsborough, N.C. 27278
Filed June 7, 1966, Ser. No. 555,848
8 Claims. (Cl. 198—33)

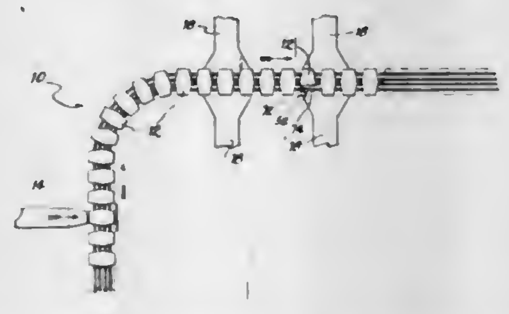


1. An apparatus for receiving boards from a book of lumber and for presenting all surfaces of a selected board to an observer for inspection of the same comprising:

(a) a structural frame adapted to rest on a surface for supporting said apparatus;
(b) chain means continuously movable across said structural frame in a predetermined path and adapted to receive and transport said selected board; and
(c) board inverting means mounted on said frame and partially in said path for lifting said selected board off of said chain means and for inverting the same, said inverting means comprising:
  (1) a shaft rotatably mounted in said frame and positioned transversely with respect to said path;
  (2) star wheel means securely mounted on said shaft and including a plurality of integral and radially extending board receiving arms and a plurality of pivotally mounted arms in substantial radial alignment with and connected to said integral arms, said pivotally mounted arms adapted to be radially advanced and retracted relative to said integral arms; and
  (3) means for incrementally rotating said shaft whereby said selected board is lifted from said chain means by said integral arms and inverted by said pivotally mounted arms advancing past said integral arms and engaging said selected board.

3,306,428
CODING DEVICES FOR CONVEYORS

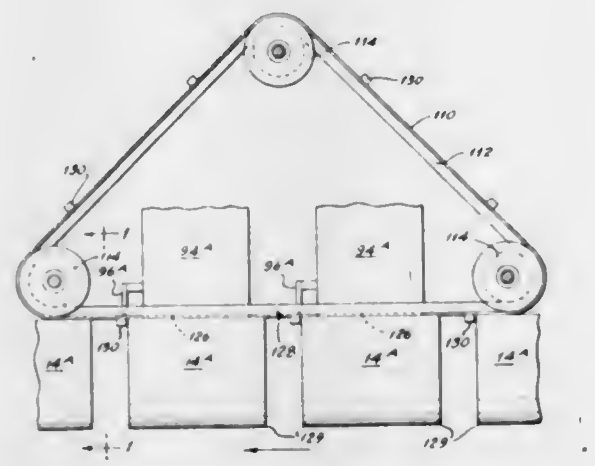
Walter G. Harrison, Westchester, Leo A. Gary, Chicago, and Allan C. Audet, Arlington Heights, Ill., assignors to The Spra-Con Company, Chicago, Ill., a corporation of Illinois
Filed May 6, 1964, Ser. No. 365,360
4 Claims. (Cl. 198—38)



1. In a conveyor apparatus which includes a plurality of carriage means secured to the conveyor for travel therewith, said carriage means comprising tiltable trays which are adapted to be tilted for discharge of articles to at least one side of the conveyor along the path of movement thereof, and including tray tilting means movable into the path of said trays to effect tilting thereof for the discharge of articles from the trays, and including mechanisms associated with the carriage means and cooperating mechanisms associated with the conveyor for operating on the carriage means whereby articles can be discharged from the carriage means, the improvement comprising control means for automatically operating said discharge mechanisms whereby the mechanisms can be selectively operated at varying locations along the path of travel of their associated carriage means, said control means including a plurality of code retaining members comprising light reflecting surfaces secured to the conveyor with sets of said code retaining members being associated with individual carriage means, code reading means located at said locations along the path of travel of said carriage means, means for selectively positioning different combinations of said code retaining means for individual carriage means, and said code reading means being arranged in different combinations at said locations, said code reading means being adapted to actuate said control means when a combination of any of said code retaining means corresponds to the combination of said code reading means at any one of said locations, and wherein said light reflecting surfaces comprise plates mounted on rotary members, means adapted to engage individual ones of said rotary members for causing rotation of said members to thereby shift said plates from a non reflecting to reflecting position, said engaging means being individually operable whereby different combinations of said light reflecting surfaces can be shifted to a reflecting position.

3,306,429
MATERIAL HANDLING CONVEYORS

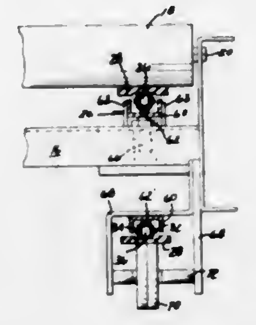
John M. Leach, P.O. Box 341, Port Jefferson, N.Y. 11777
Filed May 16, 1966, Ser. No. 550,516
1 Claim. (Cl. 198—63)



A material handling system comprising a movable conveyor, material holding magazines having material receiving openings and mounted for movement with said conveyor, a movably mounted, flexible, continuous belt disposed over and in contact with one or more of said magazines and provided with a series of cutout areas spaced so that each falls over the receiving opening of a magazine beneath it but does not extend beyond the confines of the magazine, each of the solid areas of said belt between cutout areas spanning the space between two adjacent magazines beneath it, means for moving said belt at the same speed as the magazines, two flexible, continuous side cleats extending vertically upwardly from said belt over said magazines, and a material supply hopper having an open end for feeding material through a cutout area of said belt and through a receiving opening into its magazine, said open end of said hopper being nested between said cleats and in contact with said belt whereby side spill from said hopper is prevented by said cleats at all times, and flow from said hopper is discontinued by a solid area of said belt while a space between two magazines is passing under said hopper.

3,306,430
BELT-CHAIN COMBINATION DRIVE

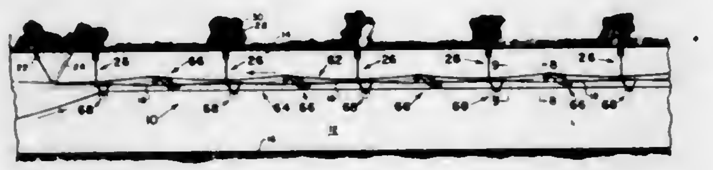
Daniel A. Fogg, White Cloud, Mich., assignor to Rapids-Standard Company, Inc., Grand Rapids, Mich., a corporation of Michigan
Filed May 24, 1965, Ser. No. 458,010
7 Claims. (Cl. 198—127)



1. Conveyor apparatus comprising: conveyor means forming a conveyor surface; propelling means for propelling objects on said surface; said propelling means including (a) a continuous roller chain having rollers and roller connecting and straddling side links, and power drive means therefor, and (b) a flexible continuous friction drive belt having a friction face on one side and an undulated central portion on the opposite side removably interfitted with said links of said roller chain; said belt having lateral retention shoulders straddling said central portion; a chain guide and support track in engagement with the rollers of said roller chain, between said links, opposite said belt, to hold said belt and chain in operative drive engagement with each other, and with said conveyor means and to maintain lateral alignment thereof.

3,306,431
BELT CONVEYOR

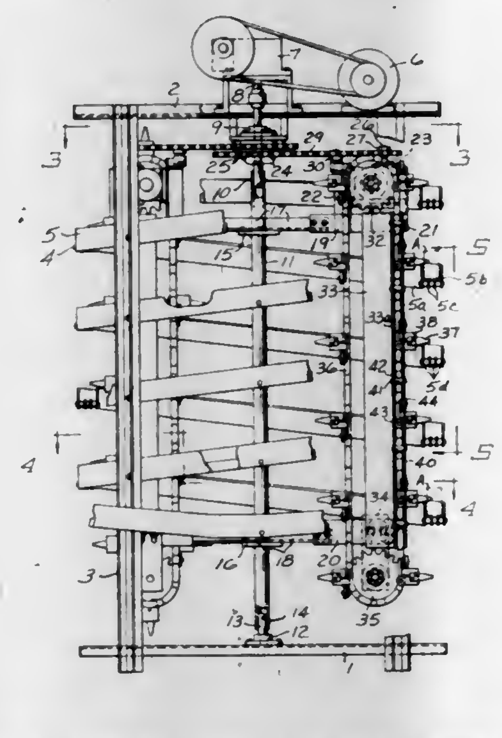
William N. Poundstone, Morgantown, W. Va., assignor to Consolidation Coal Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 17, 1958, Ser. No. 742,580
4 Claims. (Cl. 198—192)



1. In an endless conveyor having a conveying reach and a return reach the combination comprising a pair of spaced flexible strands, a plurality of flexible troughing idler assemblies spanning the distance between said strands for transferring the load on said conveying reach into said strands, said troughing idler assemblies including troughing idlers and means to position said troughing idlers above said flexible strands, intermediate supporting means for supporting said strands intermediate their end portions, said intermediate supporting means secured to and depending from a fixed member positioned above said strands, said intermediate supporting means having a flexible portion movable relative to said fixed member so that said flexible portion of said intermediate supporting means moves relative to said fixed member as said flexible strands move under conditions of uneven load distribution on said conveying reach, a plurality of return reach idler rollers spanning the distance between said strands, said return reach idlers adapted to support said conveyor return reach and transfer the load thereof into said flexible strands, said return reach idlers secured to and depending from said strands.

3,306,432
HELICAL STORAGE UNIT

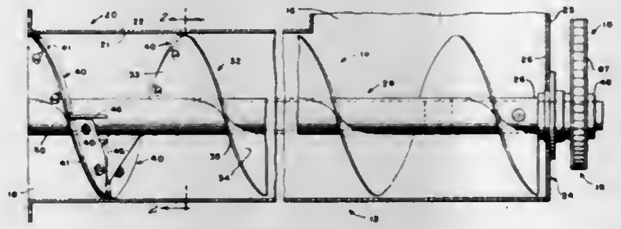
Peter S. Hoagland, Lathrup Village, Mich., assignor to F. Jos. Lamb Company, Inc., Detroit, Mich., a corporation of Michigan
Filed Oct. 21, 1965, Ser. No. 499,550
10 Claims. (Cl. 198—212)



1. A storage unit comprising a frame, a vertical spindle mounted for rotation thereon, means for rotating the spindle, a helical runway secured to the frame coaxial with the spindle, vertically aligned pairs of sprockets supported by the spindle and mounted radially to the axis of the spindle for rotation about horizontal axes, an endless chain extending around each vertically aligned pair of sprockets, propelling members projecting from the chains for urging workpieces around the helical runway, a stationary sun member secured to the frame coaxial with the spindle, and means mounted on the spindle for rotation around the sun member and forming a driving connection between the sun member and sprockets whereby the endless chains are moved a vertical distance equal to the pitch of the helical runway during each revolution of the spindle.

3,306,433
CONVEYOR

Allison W. Blanshine, Lititz, Pa., assignor to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Oct. 23, 1965, Ser. No. 503,554
4 Claims. (Cl. 198—213)

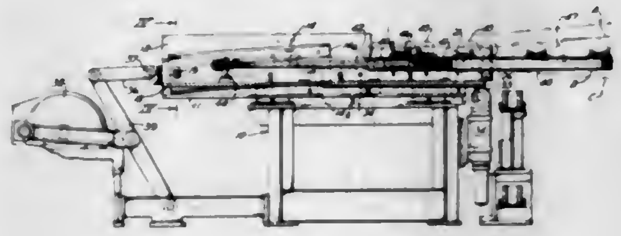


1. A screw conveyor comprising in combination, an auger housing having an inlet at one end and an outlet at an opposite end, said housing having an interior wall and an exterior wall, an auger operable in said housing, said auger having a central shaft and a helical auger flight thereon, drive means in operative engagement with said auger shaft at said one end for rotating said auger, said

auger shaft being unsupported at said opposite end, said auger flight having an outer peripheral edge which moves in close proximity to said interior wall, said auger flight having a leading face which pushes material toward said outlet and a trailing face opposite from said leading face, said auger having a discharge end adjacent said outlet, a plurality of wear strips on said flight adjacent said discharge end, said wear strips being mounted on said flight trailing face, each of said wear strips having portions at least spaced axially from the other and having an outer surface radially outwardly spaced from said flight outer peripheral edge, said outer surface being in contact with said interior wall to provide a bearing support for said auger opposite end when said auger is rotated, each of said wear strips being formed from a relatively stiff nonflexible material, each of said wear strips being contoured and a segment of a helix to closely fit against the helical auger flight, and at least one threaded fastener extending through each of said wear strips and through slot means in said flight to hold said wear strip to said flight and to provide for radial adjustment of said wear strip relative to said flight.

3,306,434
WALKING BEAM APPARATUS

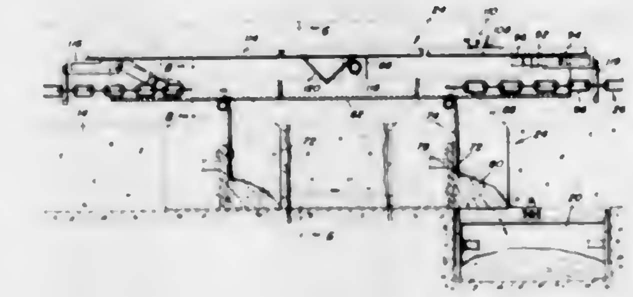
William Mynard McConnell, Pittsburgh, Pa., assignor to Taylor-Wilson Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 22, 1965, Ser. No. 500,868
3 Claims. (Cl. 198—219)



1. Walking beam apparatus for moving an elongated workpiece transversely of its longitudinal axis from a first station to a second spaced-apart station comprising
(A) an elongated beam member including
  (1) a leading end for engaging and supporting a part of a workpiece in travel from said first station to said second station; and
  (2) a trailing end axially coextensive with said leading end;
(B) a frame removably mounting said beam member for horizontal and vertical travel between said first and second stations;
(C) at least one cam fixedly mounted on one of said frame and the leading end of said beam member;
(D) at least one cam follower mounted on the other of said frame and the leading end of said beam member for engagement and disengagement with said cam upon forward travel of said beam member from a first position to a second position;
(E) power means connected to said trailing end of the beam member for simultaneously moving said beam member horizontally and vertically between said first position at which said leading end of the beam is below said first station and said second position at which the leading end of the beam member has advanced to and is below said second station;
(F) said cam being positioned relative to said cam follower and having a peripheral shape such that when the leading end of said beam member advances from said first position toward the said second position, the cam and cam follower engage, raising the leading end of the beam member to pick off a workpiece at said first station;
(G) said cam having a length relative to the distance between said first and second stations such that upon continued advance of the beam member, the cam and cam follower disengage when said workpiece has substantially reached said second station and the beam member falls below the second station to deliver the workpiece to said second station;
(H) means on said frame for supporting said beam member during retraction from said second position to said first position, said fixed cam passing beneath said cam follower upon return of the beam member from said second position to said first position.

3,306,435
RECIPROCATING PIT CLEANING SYSTEM

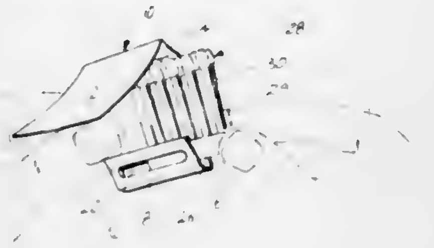
Harvey M. Wenger, Holland, Mich., assignor to Richard Greene, Spencer, N.Y.
Filed Aug. 19, 1965, Ser. No. 480,933
10 Claims. (Cl. 198—224)



1. A system for removing material collected within a plurality of elongated channels having material unloading ends comprising a plurality of scraper assemblies respectively mounted for movement within each of the channels, reversible engaging means operatively connected to each of the scraper assemblies for displacement thereof in opposite directions, flexible drive means extending through all of said engaging means for driving engagement therewith in one direction of movement through the respective channels, power operated reciprocating means connected to said flexible drive means for imparting limited movement thereto in both directions within all of the channels to intermittently advance the scraper assemblies in one direction through the respective channels, and limit means mounted on the flexible drive means for reversing the direction in which the reversible drive means advances the scraper assemblies when reaching the material unloading ends of the channels, said flexible drive means comprising a plurality of endless chains, and sprocket wheel means operatively mounted in engagement with said chains for guiding movement of portions thereof parallel to the channels, each of said scraper assemblies comprising a pair of runners slidably mounted in each of the channels, spacing means interconnecting the pair of runners in fixed spaced relation to each other, blade means pivotally mounted by the spacing means between the runners for engagement with material within the channel, and stop means fixedly mounted on the runners for preventing pivotal movement of the blade means in one direction for displacing said material only toward the unloading end of the channel in response to advancement of the scraper assembly through the channel, each of said reversible engaging means comprising elongated guide means through which said flexible drive means extends, a pair of pawl elements pivotally mounted by the guide means for driving engagement with the flexible drive means in opposite directions of movement, and pawl lifting means movably carried by the guide means for displacement between opposite positions alternatively holding one of the pair of pawl elements out of engagement with the flexible drive means.

3,306,436
REFILLABLE MATCHBOOK COVER

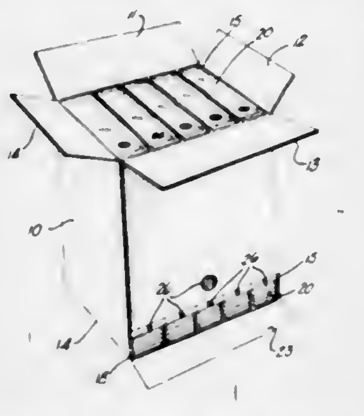
William Robert Diehl, Haddam, Conn., assignor to Rowland Products, Incorporated, Kensington, Conn., a corporation of Connecticut
Filed Oct. 22, 1965, Ser. No. 501,741
4 Claims. (Cl. 206—29)



1. A matchbook cover assembly comprising: a conventional book of safety matches having a fragmentary portion of the rear panel thereof, the striking flap and strips of matches; and an integrally formed, refillable matchbook cover of relatively rigid, resiliently deflectable synthetic plastic sheet material, said cover having a plurality of folds therein providing front, top, rear, bottom and retaining wall panels enclosing said book of safety matches, said retaining wall panel extending in spaced relationship from said rear wall panel toward said top wall panel and having a retaining flap depending from the upper end thereof engaging between the striking flap and said strips of matches to retain said book within said enclosure between said retaining wall and rear wall panels, said retaining wall panel having a transversely extending aperture exposing the striking surface on the engaged striking flap of said book of matches, the free end of said front wall panel being engaged between said strips of matches and said retaining flap and resiliently bearing against said retaining flap to provide a hinged closure for said cover and said book of matches, said front wall panel being disengageable between said strips of matches and said retaining flap and pivotable about its fold with said top wall panel to expose said strips of matches for removal of one of said matches, said conventional book of safety matches being removable from said cover by sliding movement in the direction of the sides of said cover to permit insertion thereinto of a new book of safety matches of similar construction.

3,306,437
CODED SHIPPING AND DISPENSING CARTON ASSEMBLY

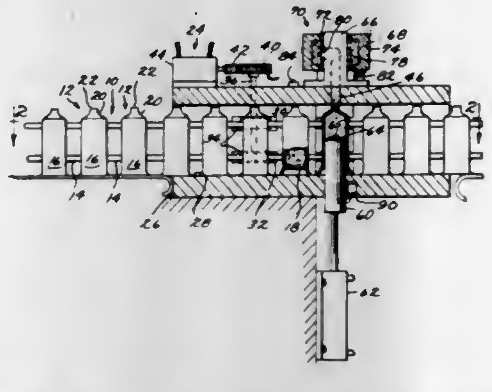
Richard L. Nelson, 21 Richards Place, Battle Creek, Mich. 49015
Filed July 30, 1965, Ser. No. 477,087
11 Claims. (Cl. 206—56)



1. A combination shipping and dispensing carton assembly, which comprises a carton having front, back, and side panels with top and bottom carton closing flaps extending from the ends of same, one of said panels having a tear-out strip means extending across same substantially parallel to said bottom and spaced a short distance above same, the side edges of said panel carrying said tear-out strip means and extending from said tear-out strip to the bottom of said carton being of weakened construction, whereby removing said tear-out strip means and breaking said weakened portions will produce a bottom hinged reclosable flap for ingress and egress to said carton at the bottom of said panel, and at least one inner carton fitting in said shipping carton and extending substantially from top to bottom of same, said inner carton having in one edge panel, adjacent the bottom thereof, a full width dispensing opening slightly shallower than the height of said opening in said shipping carton adjacent the bottom of same, whereby the dispensing opening in said inner carton will be fully exposed when said reclosable flap of said shipping carton is in open position.

3,306,438
PACKAGE OF OIL-IMPREGNATED FIBERS

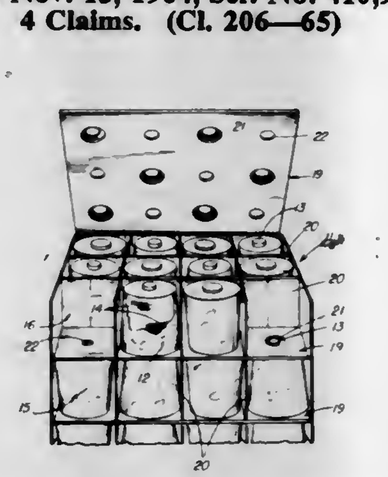
Martin L. Abel, Oak Park, Mich., assignor to The Permawick Company, Detroit, Mich., a corporation of Michigan
Original application Nov. 13, 1963, Ser. No. 323,308. Divided and this application Jan. 14, 1966, Ser. No. 553,262
1 Claim. (Cl. 206—56)



A package for oil-impregnated fibers comprising a plurality of parallel spaced apart containers flexibly interconnected to form a machine gun-like belt, each of said containers being generally cylindrical with a reduced outlet neck at one end thereof and a flat circular bottom closure near the other end thereof, and a predetermined amount of oil-impregnated fibers in each of said containers.

3,306,439
CARTONS

Alvin B. Storey, Charlotte, N.C., assignor to Celanese Corporation, a corporation of Delaware
Filed Nov. 13, 1964, Ser. No. 410,972
4 Claims. (Cl. 206—65)

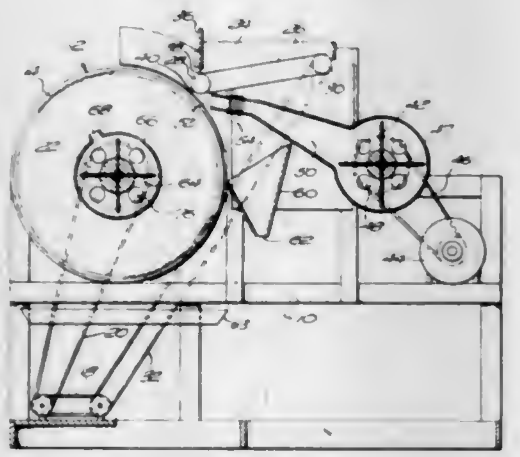


1. In a carton for the storing and shipping of conical packages of yarn arranged in superimposed layers, the combination with said conical packages of yarn of a plu-

rality of pads spaced vertically one above the other for supporting said layers of conical packages of yarn and being supported by said layers of conical packages of yarn, said pads containing apertures of alternating size wherein one aperture is for receiving and engaging the base of said conical package and the following aperture is for receiving and engaging the opposite end of said conical package in a manner so that every other conical package is inverted and positioned in such a manner to provide the minimum amount of space between said conical package, said pads further positioned in said superimposed layers so that the alternating apertures of the adjoining pad of the next layer are positioned to receive and engage the projecting ends of said conical packages from the initial pad with the underside of said adjoining pad as well as to provide the base for the same end of the conical packages on the upper side of said adjoining pad as is contacting said pad on the lower side of said pad; and a plurality of cell-walled partitions spaced vertically one above the other on said pads, said partitions containing cell-walled separator compartments for each conical package to fit within the spacings between said yarn package, each wall of said compartments containing a partial slit in a vertical direction from the top edge of said wall and a partial slit in a vertical direction from the bottom edge of said wall, said partial slits providing flexibility for said wall.

3,306,440
WINNOWING MACHINE FOR BLUEBERRIES

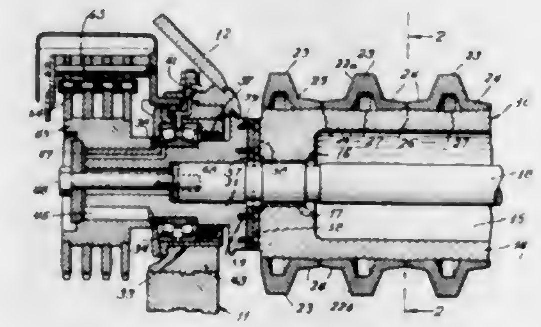
Kenneth H. Russell, 62 Princess St., St. Stephen, New Brunswick, Canada
Filed Aug. 23, 1963, Ser. No. 304,102
1 Claim. (Cl. 209—27)



A winnowing machine for blueberries, comprising a frame, a cylindrical drum mounted on said frame to rotate about a horizontal axis, the cylindrical wall of said drum being of woven wire screen with a mesh slightly smaller than the diameter of the berries to be recovered, means for revolving said drum, a conveyor belt with a smooth surface arranged to discharge berries on said cylindrical wall of said drum at a point where the rising side of the screen is nearing the top, the delivery end of said conveyor being spaced from said drum, adjustable means near the delivery end of the conveyor for limiting the depth of the stream of berries delivered to the drum, means below said conveyor for directing a stream of air toward the space between the conveyor and drum and in a direction approximately tangent to the cylindrical wall of the drum, the last named means including a fan, a variable speed motor driving said fan, and a duct receiving air from the fan, said duct being adjustable to vary the direction of said stream, a feeder hopper for supplying berries to said conveyor, a discharge hopper beneath said duct and next to said drum to receive berries from the surface of said drum, a receptacle beneath the drum to receive under-sized berries falling through the meshes of the drum, and means for directing a stream of air outward through said screen at a descending point therof.

3,306,441
ROLLER ASSEMBLIES WITH ROLLS RADIALLY SEPARABLE FROM DRIVE HUBS

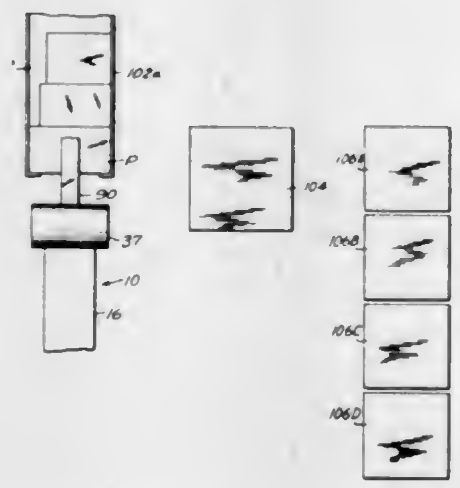
Douglas O. Sanders and Gordon M. Mohr, Duluth, Minn., assignors to Pettibone Mulliken Corporation, a corporation of Delaware
Filed July 12, 1963, Ser. No. 294,488
8 Claims. (Cl. 209—106)



1. In an apparatus of the class described having a plurality of rollers rotatably mounted on a frame, the improvement comprising: a driving hub journaled on said frame; a driven hub journaled on said frame; a roller extending between said hubs; dowel shaft means extending axially through said hubs and said roller and releasably affixed in place, and when released axially removable from said roller to permit said roller to be removed from between said hubs while the hubs remain in the operating positions; said driving hub and the adjacent end of the roller having a radially positioned keyway on one and an interlocking key on the other to operatively interconnect the two while permitting the removal of the roller after the shaft has been removed.

3,306,442
MULTI-PROGRAM APPARATUS

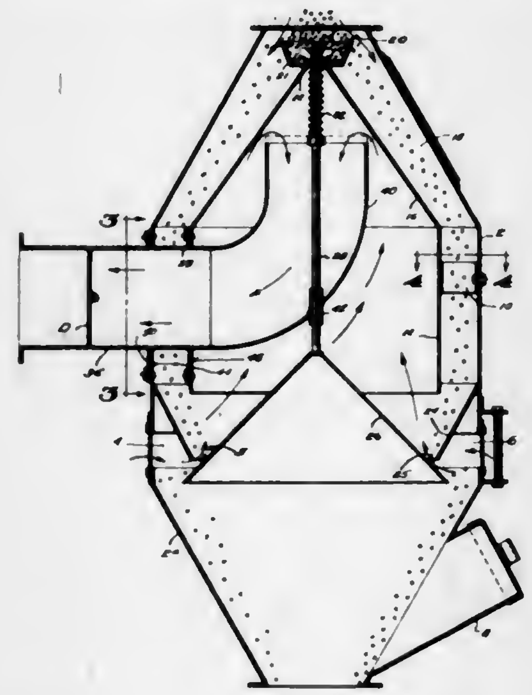
George C. Devol, P.O. Box 1273, Greenwich, Conn. 06830
Filed Nov. 2, 1964, Ser. No. 408,255
13 Claims. (Cl. 209—121)



12. Apparatus for selectively handling articles, including an article-handling unit comprising an article holder operable to seize and release articles successively, carrying apparatus for moving said article holder through three-dimensional movements, and program means for controlling said article holder to seize and release articles and said program means including a plurality of stored programs for controlling said carrying apparatus to effect various prescribed three-dimensional movements of said article holder, a detector cooperable with an article that is to be handled for sensing a physical characteristic thereof, and means responsive to said detector to render a selected one of said plurality of stored programs effective to cause selective handling of an article in accordance with its detected characteristic.

3,306,443
VACUUM ASPIRATOR MECHANISM WITH CONICAL BARRIER ELEMENT

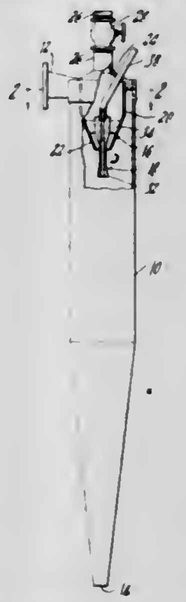
Frank C. Sereno, Stoughton, and Alfred T. Glynn, North Quincy, Mass., and Austin T. Drake, Fostoria, Ohio, assignors to Sturtevant Mill Company, Dorchester, Mass., a corporation of Massachusetts
Filed Feb. 19, 1964, Ser. No. 345,970
3 Claims. (Cl. 209—136)



1. A machine of the class described comprising an outer casing member having an upper grain inlet formed at the top thereof and a bottom grain outlet and air ducts formed at the bottom thereof, a conically shaped barrier element having a cylindrical skirt portion supported in spaced relation to the inner side walls of the casing to define an annular passageway for conducting grain from the grain inlet downwardly through the casing towards the grain outlet, a deflector member and a rod element adjustably suspended from the conically shaped barrier element for supporting said deflector in spaced relation to inner sidewall portions of the casing member to provide a restricted air passageway through which grain from the said annular passageway is caused to pass, suction pipe means transversely located through the side of the casing and the cylindrical skirt element of the barrier portion and vertically adjustable on said rod element for inducing a flow of air from the said air ducts upwardly through the restricted air passageway whereby particles of grain and grain hulls approaching the restricted passageway are travelled inwardly and upwardly into the area enclosed by the conical barrier element and said suction pipe means having an inner extremity curved upwardly to provide an elbow portion which terminates in close proximity to the apex of the conically shaped barrier element and which forms an annular orifice through which relatively light grain hulls may be selectively removed while relatively heavier grain particles are rejected.

3,306,444
HYDROCYCLONE APPARATUS

Edwin P. Troland, Hingham, Mass., assignor to Bird Machine Company, South Walpole, Mass., a corporation of Massachusetts
Filed June 17, 1965, Ser. No. 464,602
14 Claims. (Cl. 209—211)



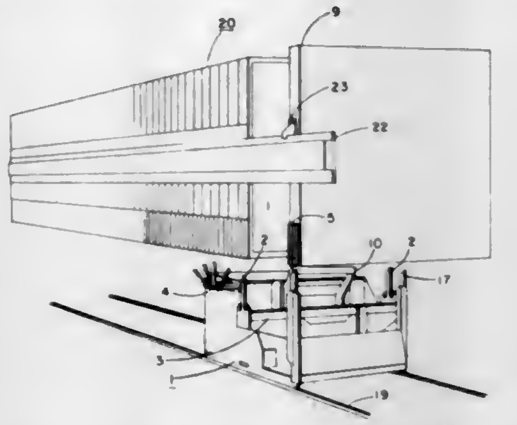
1. In hydrocyclone apparatus capable of separating oversize fibrous matter from acceptable fibres of about the same density in a suspension thereof, said apparatus comprising an elongated tubular body, an inlet through which the suspension may be fed under pressure tangentially to the wall of said body adjacent an end thereof so that the suspension forms a vortex extending from adjacent one end to adjacent the opposite end of said body and immediately surrounding an air core, the length and velocity of flow of said vortex being such as to cause said oversize fibrous matter to segregate largely in the inner part of said vortex and the acceptable fibre to segregate largely in the outer part of said vortex during its flow, and inner and outer concentric vortex finders disposed axially in the path of said vortex to receive respectively said air core and an inner portion of said vortex containing mainly said oversize fibrous matter and light particles and the outer part of said vortex containing mainly said acceptable fibre, said vortex finders having separate outlets for separately discharging the vortex portions received by each, the improvement wherein said inner vortex finder projects axially into said vortex beyond the mouth of said outer vortex finder at least 0.5 times the diameter of said mouth and said inner vortex finder is provided adjacent its mouth with a closely surrounding substantially concentric baffle presenting a surface opposed to the axial flow of the vortex and disposed to provide at least substantially as much resistance to flow into the inner finder as its resistance to flow outwardly of the inner finder, said surface having an outer diameter of at least about one and one half times the diameter of the mouth of the inner vortex finder and not substantially greater than the diameter of the mouth of the outer vortex finder, said baffle being effective to increase the selective segregation of said oversize fibrous matter in the portion of the vortex that flows out through said inner vortex finder.

3,306,445
METHOD AND APPARATUS FOR UNLOADING PLATES AND FRAMES

John Moziek, South Hadley, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Nov. 18, 1963, Ser. No. 324,507
8 Claims. (Cl. 210—67)

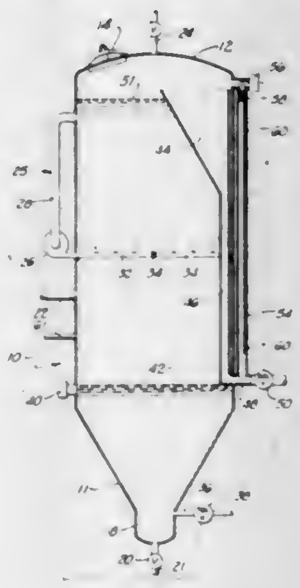
7. A method of automatically unloading a series of horizontally sequentially arranged plates and frames comprising:

advancing a vertically movable bracing means along a predetermined path below one of said frames, automatically raising said bracing means into engagement with said frame while simultaneously separating the frame from its adjacent plates, advancing an ejector between the plate and the frame and automatically driving said ejector into contact with the contents in said frame, thereby dislodging said contents from the confines of the frame.



3,306,446
MULTIPHASE SEPARATOR

Dallas B. Lewis, 2015 Whitley Ave., Hollywood, Calif. 90028; Lucille Parker, Jack Heldt, and Robert Gaston, executors of said Dallas B. Lewis, deceased
Filed Oct. 4, 1963, Ser. No. 313,830
2 Claims. (Cl. 210—114)



1. A separating apparatus for a multiphase stream comprising:

a vessel;

means for introducing the multiphase stream to an intermediate level of said vessel;

means on said vessel for agitating at least two phases of said stream to maintain said two phases intermixed and cause them to occupy a common upper portion of said vessel, said agitating means including a spray member positioned above said introducing means for spraying a fluid upwardly in said vessel;

conduit means for recirculating at least a portion of said two phases, said conduit means withdrawing said portion of said two phases from the upper portion of said vessel and supplying all of said portion of said two phases to said spray member, said spray member being disposed beneath the area from which the said portion of said two phases is withdrawn from the vessel;

a pump for forcing said portion of said two phases from the upper level of said vessel through said conduit means and spray member to maintain said two phases intermixed;

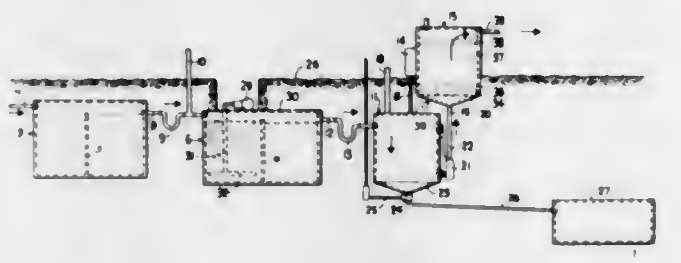
separate means beneath said spray member for introducing a fluid at elevated temperature into said vessel;

means for separately removing liquid from the bottom portion of said vessel; and

separate means for removing said two phases from the upper portion of said vessel.

3,306,447
WATER PURIFICATION SYSTEM

Robert B. Medeiros, 7 Meadowbrook Ave., Sonoma, Calif. 95476
Filed Nov. 15, 1963, Ser. No. 324,099
2 Claims. (Cl. 210—121)

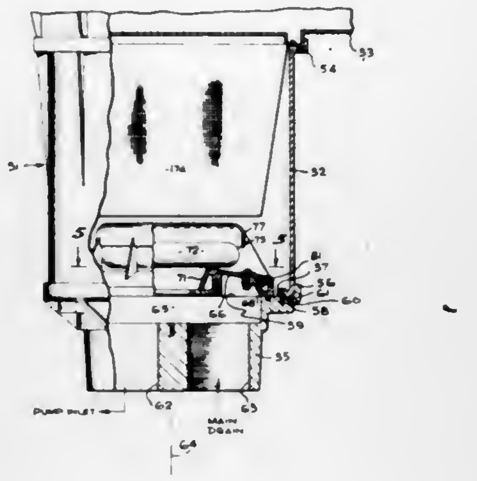


1. A water purification system, comprising a septic tank having an inlet opening and an outlet opening, means connecting said inlet opening to a source of water which is to be purified, a holding tank having an inlet opening, a pipe connecting the outlet opening of the septic tank to the inlet opening of the holding tank, a filter tank located above the holding tank, filter material in the filter tank, a filter outlet pipe connected to the filter tank near the top thereof, a filter inlet pipe connected to the bottom of the filter tank, an electric pump having its output connected to the filter inlet pipe, a pipe connected to the holding tank near the bottom thereof and connected to the inlet of the pump and means including a float operated switch connected to the holding tank and to the pump for actuating said pump at a first predetermined liquid level in said holding tank to pump liquid from the holding tank to the filter tank and for deactuating said pump at a second predetermined liquid level in said holding tank to allow liquid in said filter tank to flow by gravity from said filter tank through said pump and into said holding tank, a drainage pit located below said holding tank, a pipe connecting the bottom of said holding tank to said drainage pit, and a valve in the last mentioned pipe.

3,306,448
AUTOMATIC SKIM TANK AND SYSTEM

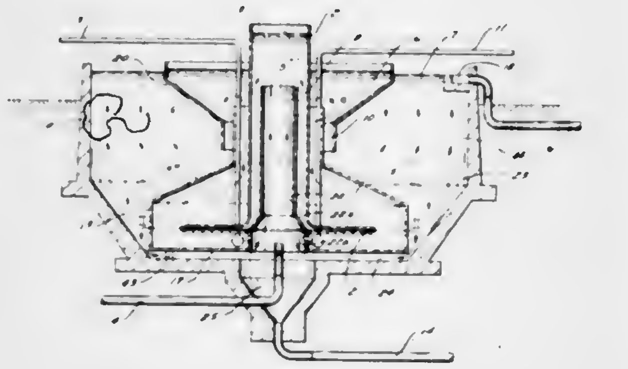
William O. Baker, West Covina, Calif., assignor to Swimquip, Inc., El Monte, Calif., a corporation of California
Filed Feb. 9, 1966, Ser. No. 526,272
17 Claims. (Cl. 210—121)

1. In combination, a tank having an inlet in an upper portion thereof to receive water from the surface of a swimming pool or the like; a partition extending across the tank and below said inlet and defining a chamber below the partition; said partition having an opening adapted to be supplied by water entering the tank through the inlet; means forming a seat about said opening; a float above the partition and engageable with the seat to close the opening; said float being engageable with said seat in response to a lowering of the level of water in the tank substantially below the normal operating level thereof; a cage adjacent to and above the seat confining the float to the area adjacent to the seat; means forming an outlet from the chamber adapted to be connected to the suction line of a pump; and by-pass means operative upon closure of said opening to supply the suction line, said by-pass means comprising a conduit leading from a source of water to said chamber.



3,306,449
HIGH SPEED PRECIPITATING APPARATUS

Toyomasa Minegishi, Tokyo, Japan, assignor to Toyo Engineering Corporation, Tokyo, Japan, a corporation of Japan
Filed Jan. 16, 1963, Ser. No. 251,777
19 Claims. (Cl. 210—123)



1. An apparatus for treating a liquid, comprising:

an outer tank body;

a material solution feeding pipe extending upwardly in the central region of said outer tank body at the bottom thereof;

an inner cylindrical body extending upwardly in said outer tank body above said feeding pipe;

an outer cylindrical body surrounding said inner cylindrical body and defining therewith a first upright narrow zone which is open at its upper end;

an inner tank body surrounding said outer cylindrical body and having a cylindrical upper part defining with said outer cylindrical body a second upright narrow zone which is open at both ends, the lower part of said inner tank body being enlarged to form a condensing and mixing chamber, said inner tank body having a bottom wall secured to said inner cylindrical body so that said inner tank body is closed at its lower end, said bottom wall of said inner tank body being spaced above said outer tank body to provide a passage therebetween which communicates with the lower end of said inner cylindrical body;

a plurality of liquid flow jetting ports comprised of a plurality of non-radially directed nozzles at the lower end of the outer cylindrical body, said nozzles having axes which extend at least in part horizontally for directing liquid circumferentially from the lower end of said first zone into said condensing and mixing chamber, the lower end of said first zone being closed except for said jetting ports;

a rectifying tube body having a cylindrical lower part surrounding the upper part of said inner tank body and defining therewith a third, upright narrow zone which is open at both ends, the upper part of said rectifying tube body being enlarged;

the sidewall of said outer tank body being spaced from said inner tank body and said rectifying tube body to define an enlarged precipitating and separating chamber;

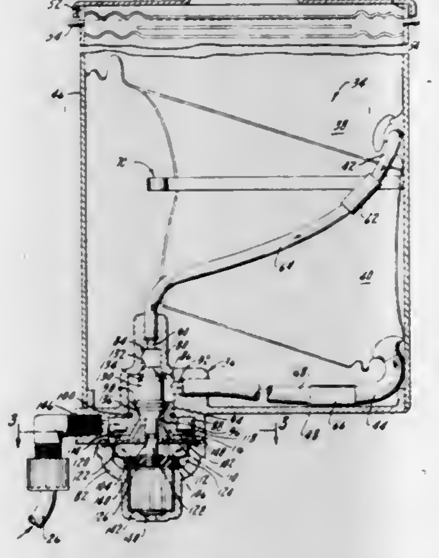
means for withdrawing clean liquid from the upper end of said outer tank body;

means for withdrawing sludge from the central region of the bottom of said outer tank body;

means for feeding a flocculating agent and means for feeding a gas to the lower end of said inner cylindrical body.

3,306,450
WATER CONDITIONING SYSTEM

Benjamin H. Kryzer, St. Paul, and Thomas J. Schoenecker, North St. Paul, Minn., assignors to Union Tank Car Company, Chicago, Ill., a corporation of New Jersey
Filed June 5, 1963, Ser. No. 285,815
10 Claims. (Cl. 210—134)



8. In a water softening system wherein water to be treated is contacted with ion exchange resin particles during a service cycle and the ion exchange resin particles are regenerated with an acid solution and a brine solution during a regeneration cycle, including an acid dispenser connected to a line in said system for passing acid solution to said resin particles during said regeneration cycle, means for providing a low pressure in said line during said regeneration cycle and a high pressure in said line during said service cycle, said acid dispenser having a reservoir chamber for said acid solution and a metering chamber, a valve means for passing acid solution from said reservoir chamber to said metering chamber and from said metering chamber to said line, said valve means comprising a body member forming a first and second chamber, said first chamber communicating with said reservoir chamber and said metering chamber, said second chamber communicating with said line, and pressure responsive means mounted in said body member to permit acid solution to pass from said reservoir chamber

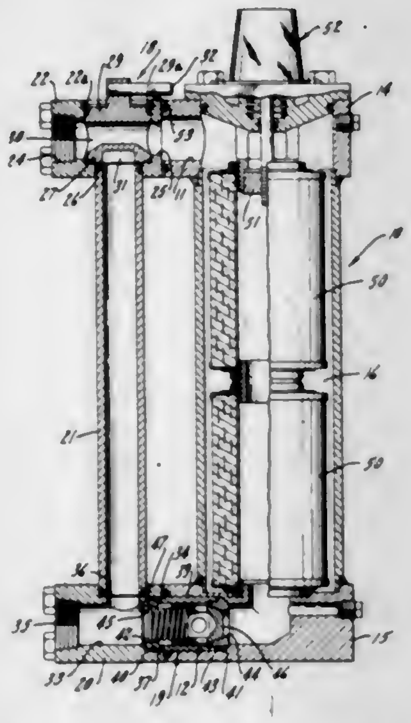
to said metering chamber during said service cycle and to permit acid solution to pass from said metering chamber to said line during said regeneration cycle, said pressure responsive means preventing acid solution from said reservoir chamber from passing to said line during said service cycle and preventing acid solution from said reservoir chamber from passing into said first chamber during said regeneration cycle.

3,306,451
FILTER ASSEMBLY HAVING CHECK VALVE AND BYPASS CONDUIT

Walter J. Kudlaty, Elmhurst, Ill., assignor to Marvel Engineering Company, Chicago, Ill., a corporation of Delaware

Filed Oct. 21, 1965, Ser. No. 499,859

4 Claims. (Cl. 210—135)



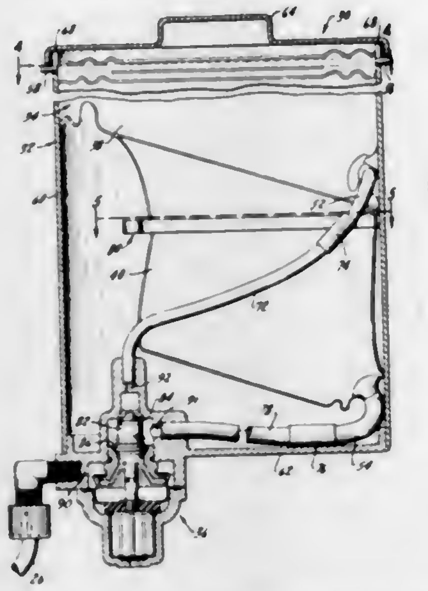
1. A filter and filter by-pass assembly including:
a filter housing having a chamber adapted to contain at least one filter element,
an inlet fitting and an outlet fitting connected to said chamber,
an inlet passage and an outlet passage for said chamber formed, respectively, in said inlet and said outlet fittings,
a valve fitting adapted to connect to said inlet fitting,
said valve fitting having an inlet, an outlet and a by-pass outlet with said outlet communicating with said chamber inlet passage,
a by-pass discharge fitting connected to said chamber outlet fitting,
said by-pass discharge fitting having an inlet and outlet and a by-pass inlet with said inlet communicating with said chamber housing outlet passage,
a by-pass conduit connecting said by-pass outlet of said valve fitting and the by-pass inlet of said by-pass discharge fitting,
a valve located in said valve fitting and operative between a first position in which it connects said valve fitting inlet and said valve fitting outlet and a second position in which it connects said valve fitting inlet and said valve fitting by-pass outlet,
a check valve cartridge removably insertable in said chamber outlet passage and said by-pass discharge fitting inlet passage to prevent flow into said chamber through said outlet passage, and
means formed on said chamber outlet fitting and said by-pass outlet fitting to secure said check valve cartridge in position between said fittings.

3,306,452
WATER CONDITIONING SYSTEM

Roland R. Reid, White Bear Lake, Minn., assignor to Union Tank Car Company, Chicago, Ill., a corporation of New Jersey

Filed June 5, 1963, Ser. No. 285,822

5 Claims. (Cl. 210—136)



1. In a water softening system wherein water to be treated is contacted with ion exchange resin particles during a service cycle and said particles have their water softening capacity restored by contact with a regenerating liquid during a regeneration cycle, a regenerating liquid dispenser connected to first conduit means in said system for passing said regenerating liquid to said particles during said regeneration cycle, means for causing low pressure in said first conduit means during said regeneration cycle and high pressure in said first conduit means during said service cycle, said dispenser comprising means forming a reservoir for storing a relatively large supply of said regenerating liquid, flexible means forming a metering chamber for holding a predetermined relatively small supply of said regenerating liquid, valve means including a first port communicating with said particles through said first conduit means and a second port communicating with said metering chamber and a third port communicating with said reservoir, said valve means passing said regenerating liquid from said reservoir through said second and third ports to said metering chamber during said service cycle and from said metering chamber through said first and second ports to said first conduit means during said regeneration cycle, said flexible means being hermetically sealed except for communication of the inside thereof with said second port, means including said high pressure causing means inducing said regenerating liquid to substantially fill said metering chamber during said service cycle, and means including said low pressure causing means inducing said regenerating liquid to flow from said metering chamber during said regeneration cycle until said metering chamber is substantially empty, whereby substantially the same predetermined amount of regenerating liquid contacts said particles during each regeneration cycle.

3,306,453
COUNTERBALANCING CONTROL FOR A LAUNDRY MACHINE

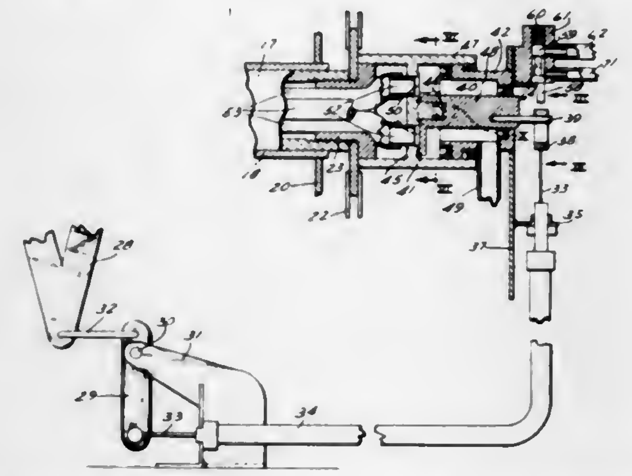
Aman U. Khan, Benton Harbor, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware

Filed May 12, 1964, Ser. No. 366,856

9 Claims. (Cl. 210—144)

1. A laundry apparatus including a rotatably driven receptacle and means providing generally peripherally located counter-balancing liquid receiving pockets on said receptacle,

a supporting pylon mounting the receptacle on a generally horizontal axis,
means for supplying counterbalancing liquid to selected ones of said liquid receiving pockets located at the periphery of said receptacle,
means for selective distribution of balancing liquid to said pockets comprising a distributor assembly including a control valve,



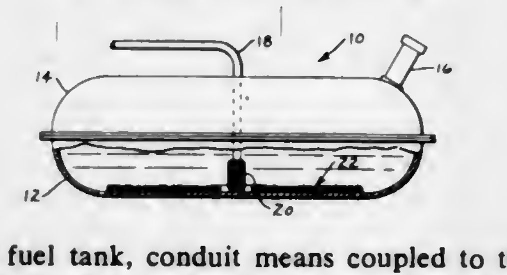
and means for controlling the control valve including a vibration magnifying linkage and lever coupling,
an off-balance motion indicator lever arm projecting from said pylon and connecting the coupling to the pylon,
and transmission means connected to said magnifying coupling and to said control valve.

3,306,454
FLUID CONTAINER WITH CONTAMINANT-COLLECTING MEANS

Edmond F. Webb, 25601 Franklin Hill Drive,
Franklin, Mich. 48025

Filed Sept. 24, 1962, Ser. No. 225,469

6 Claims. (Cl. 210—172)



1. In a fuel tank, conduit means coupled to the tank for withdrawing fuel from the tank, a layer of cellular material affixed to the bottom of the tank and having a multiplicity of randomly disposed intercommunicating cells positioned throughout said layer, said multiplicity of randomly disposed intercommunicating cells forming a multiplicity of labyrinth-type receptacles in said material with upwardly facing openings in the top of said layer for receiving and holding contaminants from the fuel whereby dislodgement of contaminants held in said receptacles by movement of fluid in the fuel tank is minimized.

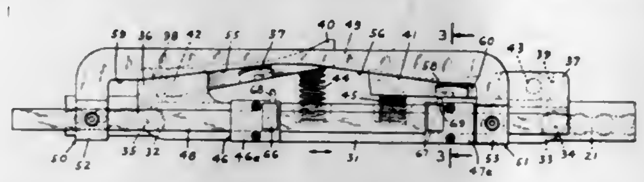
3,306,455
PLATE SELF-SHIFTER FOR FILTER PRESSES

William L. Fismer, Verona, N.J., assignor to T. Shriver & Company, Incorporated, Harrison, N.J., a corporation of New Jersey

Filed June 6, 1966, Ser. No. 555,434

11 Claims. (Cl. 210—230)

1. In a filter press having an enlongated frame, a filter press head fixed to one end of said frame, a follower movably mounted on said frame and a plurality of filter press plates supported by said frame between said head and said follower and movable along said frame; the combination therewith of a carriage movable lengthwise of said frame, means for reciprocating said carriage lengthwise of said frame, a pair of pawls mounted on said carriage and movable into raised and lowered positions, means for resiliently biasing said pawls to raised position, cam means mounted on said carriage for movement between two positions for selectively moving one of said pawls into said lowered position and enabling the other pawl to be biased to said raised position, and flange means on said filter plates engageable by a pawl in said raised position and out of engagement with the other pawl in said lowered position whereby reciprocation of said carriage along said frame moves said plates in one direction when said movable cam means is in one position and in the other direction when said cam means is in the other position.

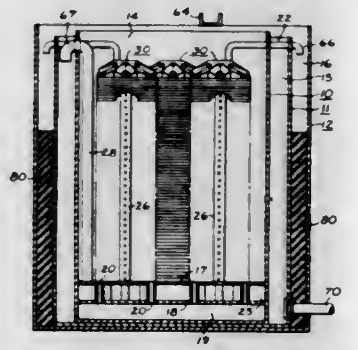


3,306,456
SETTLING APPARATUS

Robert E. Fromson and Darl C. Washburn, Jr., Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Sept. 16, 1964, Ser. No. 396,912

4 Claims. (Cl. 210—256)



1. Settling apparatus comprising three open-top nested cylindrical tanks arranged to define a liquid-input chamber in the center tank and encircling liquid-output and sludge-storage chambers thereabout; an array of thin, hollow, frustrated, conical, spaced-apart, convoluted settling members disposed in the innermost tank, convolutions in said members extending radially inward and upward and having at their lowermost portions vertically-aligned openings for downward transmissions of sludge to a common sludge header chamber at the bottom of the innermost tank and being open at their upper ends to a hollow interior of such array; a vertical perforated, liquid-output pipe extending downward through said hollow interior to an output-liquid header chamber at the bottom of said innermost tank; and respective syphon means having inlets to the two header chambers, respectively, and outlets opening into the liquid-output and sludge-storage chambers, respectively, at a level below the top of the innermost tank.

3,306,457
DRUM FILTER

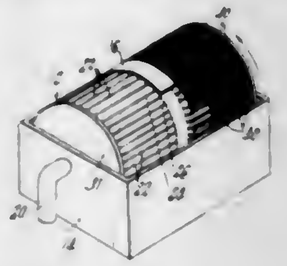
Neil F. Putnam, Nashua, N.H., assignor, by mesne assignments, to Improved Machinery Inc., Nashua, N.H., a corporation of Delaware

Filed Sept. 16, 1963, Ser. No. 308,983

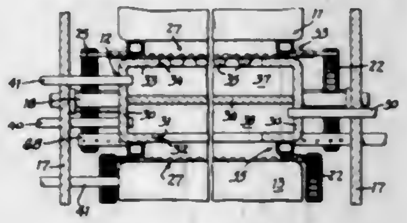
11 Claims. (Cl. 210—330)

1. In a rotary drum filter having a cylindrical drum with a plurality of axially extending and radially upstanding rib members spaced from one another to define a

plurality of axially extending filtrate compartments on the surface of said drum throughout its circumference, a filter surface comprising a plurality of generally rectangular filter elements supported on the outer edges of said rib members and having their adjacent edges abutting one another to cover said filtrate compartments throughout the surface of said drum, each said filter element being of generally rectangular shape defining an outer convex surface curved in the form of a portion of a cylinder, said element having on its convex surface upstanding rim means about the entire periphery of said element, a plurality of spaced parallel ridges with grooves therebetween extending in the direction of the curve of said convex surface with the outermost extent of said rim means and said ridges defining said convex surface, a filter means covering the convex side of said element defining filtrate passages along said grooves, and opening means providing the sole communication between said grooves and the inner surface of said element, said opening means being positioned generally along a line closely adjacent to one side of said element inside of said rim means.

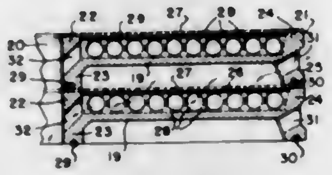


3,306,458
MULTIPLE SHELL FILTERS
Gene Hirs, 6865 Meadowlake,
Birmingham, Mich. 48124
Filed Feb. 28, 1964, Ser. No. 348,119
4 Claims. (Cl. 210—333)



1. In a filter mechanism for removing contaminant particles from a contaminated liquid, at least three superimposed hollow shells arranged in spaced vertically stacked relation providing an uppermost shell, at least one intermediate shell and a lowermost shell, each of said shells having side walls imperforate to said fluid and substantially horizontal upper and lower surfaces, the upper surface of the uppermost shell and the lower surface of the lowermost shell being imperforate, and the remainder of said upper and lower surfaces of said shells being perforate to said fluid, each of said shells with the exception of said uppermost shell and said lowermost shell being subdivided into upper and lower compartments by an interior substantially horizontal fluid impervious wall, individual filter media interposed respectively between adjacent shells, said media being imperforate to said contaminants and perforate to said liquid and lying substantially parallel to said upper and lower shell surfaces adjacent thereto, the lowermost shell and the upper compartment of each shell with the exception of said uppermost shell underlying said media, respectively, and the uppermost shell and the lower compartment of each shell with the exception of the lowermost shell overlying said media, respectively, an inflatable peripheral seal carried between shells at one of said upper and lower surfaces by each shell with the exception of one of said uppermost and said lowermost shells, each said seal comprising an annular hollow flexible member having a first wall affixed to said one surface and having a second wall opposite said first wall for contacting said filter medium to press the same against the opposing horizontal surface of the next adjacent shell, said seal member having side walls extending between said first and second walls and having a deflated condition wherein said second wall is self-biased to a retracted position between said side walls and immediately adjacent said first wall so that when said seal member is deflated said second wall retracts within said side walls to release said filter medium and provide clearance for movement thereof without requiring any movement of said shells, and said seal member having an inflated condition in which said second wall is extended out from within said side walls to press said filter medium against said opposing horizontal surface, means for inflating said seals to displace the media adjacent thereto into fluid-tight engagement with the horizontal surface of the next adjacent shell, thereby peripherally sealing the adjacent horizontal shell surfaces to one another with the media therebetween, means for introducing fluid containing contaminant particles into said uppermot shell and into the lower compartment of each of the other of said shells, and means for removing filtrate fluid from the lowermost of said shells and the upper compartments of the remainder of said shells, respectively.

3,306,459
PLATE FILTER
John H. Bush, Needham, Mass., assignor to Millipore Filter Corporation, Bedford, Mass., a corporation of Massachusetts
Filed Dec. 15, 1964, Ser. No. 418,428
2 Claims. (Cl. 210—344)

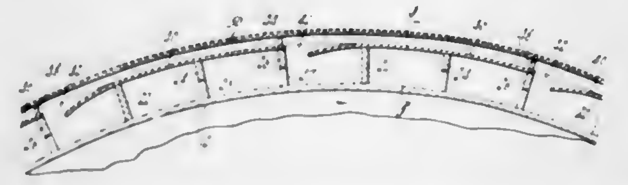


1. A plate-like filter unit comprising a disc having rim and hub members, the rim member having upper and lower annular peripheral flanges and the hub having upper and lower annular flanges and also having a central opening therethrough, said rim having lateral passageways therethrough terminating below the disc for the entrance of fluid, and the hub having fluid discharge passageways therethrough having their entrances above the disc and extending to the central opening, a screen for supporting a filter element mounted on and united to the respective upper annular flanges, and a plurality of concentric wire coils for supporting the screen resting on the surface of the disc and having their upper portions engaging the screen, no two of said coils which are adjacent one another having the same pitch which prevents intermeshing of the coils.

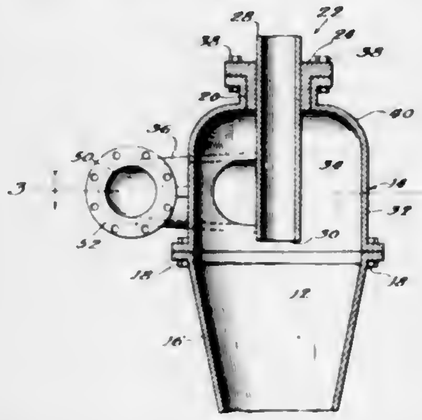
3,306,460
WIRE WOUND FILTER WITH UNDERLYING PERIPHERALLY SPACED COVER ELEMENTS
Oscar Luthi, Nashua, N.H., assignor, by mesne assignments, to Improved Machinery Inc., Nashua, N.H., a corporation of Delaware
Continuation of application Ser. No. 338,995, Jan. 20, 1964. This application June 28, 1966, Ser. No. 561,295
14 Claims. (Cl. 210—404)

1. A rotary drum filter including
a cylindrical drum,

a plurality of axially extending and radially upstanding imperforate rib elements spaced from one another to define a plurality of axially extending filtrate compartments on the surface of said drum throughout its circumference,
a plurality of axially and peripherally extending cover elements having an inner surface supported on the outer edges of said rib elements to provide a cover for the major arcuate portion of said filtrate compartments throughout the surface of said drum,
each said cover element having an arcuate extent less than that of a said filtrate compartment, with adjacent cover elements spaced from one another in a peripheral direction providing an axially extending slot therebetween for communication between the outer surface of said cover elements and one of said filtrate compartments,
peripherally extending ridge element means supported on the outer surface of each of said cover elements providing a multiplicity of ridge elements spaced from one another in an axial direction providing a multiplicity of peripherally extending grooves therebetween and
a foraminous sheet filter medium covering the outer side of said ridge element means defining filtrate passages along said grooves.

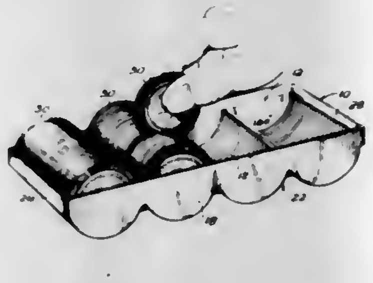


3,306,461
HYDROCYCLONE
John L. Weis, Questa, N. Mex., assignor to International Minerals & Chemical Corporation, a corporation of New York
Filed Aug. 18, 1964, Ser. No. 390,355
10 Claims. (Cl. 210—512)



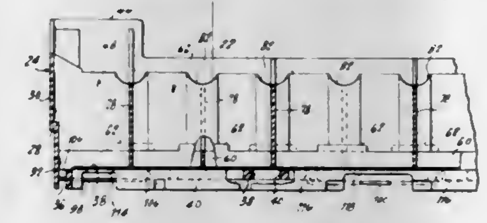
1. In a liquid solids vortex separator comprising a vortex vessel of circular horizontal cross-section having a substantially cylindrical upper portion and a substantially conical lower portion, an outlet conduit extending upward out of said vessel at a point intermediate the length thereof, the cylindrical upper portion of the vessel and said outlet conduit cooperating to form an annulus internally of the vessel, and a second outlet at the lower end of said vessel, the improvement comprising a horizontally curving nozzle of decreasing internal cross-section having a substantially circular initial cross-section and an elliptical cross-section having a vertical major axis greater than and a horizontal minor axis smaller than the diameter of said initial circular cross-section at a substantially tangential juncture with the wall of said vessel, the inner surface of the outer wall of said nozzle joining the inner surface of the wall of said vessel to provide a substantially uninterrupted, horizontally curving surface, the said outer wall of said nozzle being about one and one-fourth to about one and one-half times the thickness of the inner wall of said nozzle, the inner surface of the inner wall of said nozzle terminating at a juncture with the inner surface of the wall of said vessel to provide fluid communication between said nozzle and vessel, said nozzle curving at least about 30° between said initial cross-section and said second mentioned juncture, and curving between about 15 and 50° between said second mentioned juncture and the terminus of the outer wall of said nozzle with the inner surface of the wall of said vessel.

3,306,462
STORAGE CASE FOR DISK-SHAPED OBJECTS
Edward da Cruz, Bethel, Conn.
(87 Beaverbrook Road, Danbury, Conn. 06810)
Filed Mar. 31, 1965, Ser. No. 444,171
8 Claims. (Cl. 211—49)



1. A storage case for substantially identical round disks comprising in combination
- (A) means including a curved wall forming a cavity, and
- (B) convex ribs
  - (1) protruding inwardly from and spanning the curved wall and
  - (2) forming between themselves concave grooves lying in parallel planes perpendicular to the axis of the cavity and accommodating the rims of the disks,
- (C) with the ribs having a minimum radius less than the radius of the disks and the grooves having a maximum radius greater than the radius of the disks,
- (D) and with the ribs and grooves each being substantially semi-circular and providing stable embracing support for the disks in different orientations of the case.

3,306,463
CUP RACK
Louis Maslow, Huntsville Road, Dallas, Pa. 18612
Filed Feb. 19, 1964, Ser. No. 346,034
4 Claims. (Cl. 211—71)

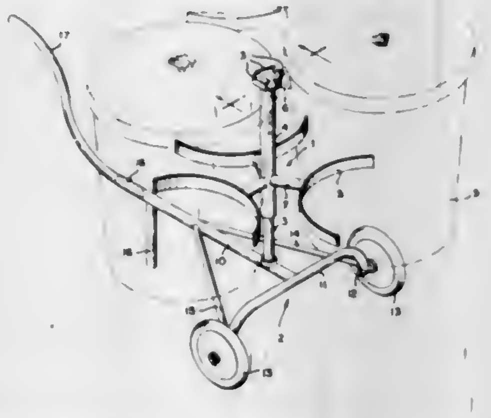


1. A dishwasher rack comprising a substantially rectangular open gridwork having four bounding walls and defined by a plurality of laterally spaced parallel struts extending between an opposing pair of said walls and parallel to the other pair of said walls, and means defining a plurality of open cells superimposed on said struts so that the latter underlie said cells and support articles placed within said cells, and conveyor engaging elements provided on said bounding walls, said walls

having a continuous open slot defined at the bottom edges thereof, and said conveyor engaging elements being engaged in said slot and accessible through said walls, said conveyor engaging elements being formed of a metallic material.

3,306,464
RECEPTACLE HOLDER AND SUPPORT

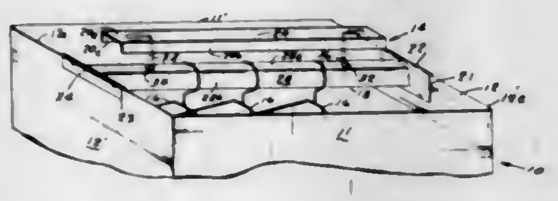
Joe W. Rogers, 806 Madison Ave., Toppenish, Wash. 98948
Filed Apr. 21, 1966, Ser. No. 544,168
12 Claims. (Cl. 211—78)



1. In combination, a vertical post, a body member telescopingly received on said post, mounting means carried by said body member for mounting a plurality of receptacles, and anti-friction step bearing means located between said post and said body member providing vertical support and free rotation of the body member on the post.

3,306,465
WARDROBE HANGER BAR WITH CAP LOCKING MEANS

Francis P. Brennan, Lisle, Ill., assignor to Brennan Engineering Corporation, Downers Grove, Ill., a corporation of Illinois
Filed May 12, 1965, Ser. No. 455,075
4 Claims. (Cl. 211—124)



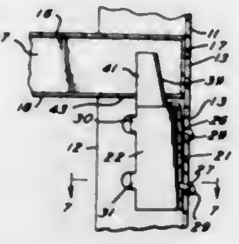
1. A hanger bar structure for use with a portable moving wardrobe carton and for bearing a plurality of garment hangers therein, comprising:

an inverted U-shaped main bar having an upper wall and depending side walls for receiving and supporting hangers and having means at opposite ends for mounting the bar on a carton; an inverted U-shaped locking member having an upper wall substantially the same width as said bar upper wall and depending side walls lying in approximately the same plane as said bar side walls, said member lying along and over said bar; and

means for releasably affixing said member to said bar to prevent disengagement of hangers suspended from said structure and comprising mating struck out tongues and openings formed between said upper walls of said locking member and said main bar, respectively, said tongues being offset to underlie the edges of the openings for clamping the locking member to the main bar.

3,306,466
METAL SHELVING

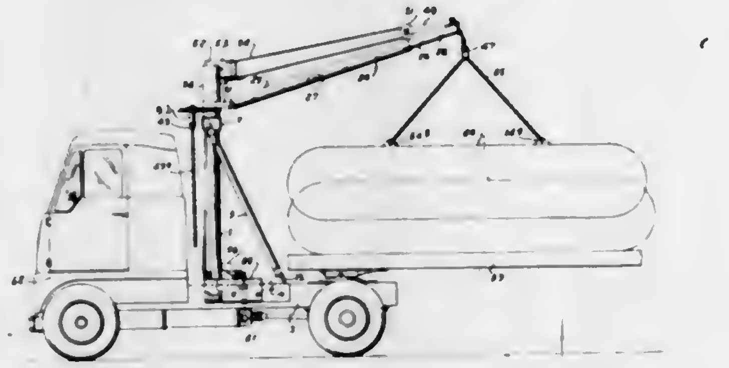
John S. Liston, Philadelphia, Pa., assignor to American Metal Works, Inc., Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 9, 1965, Ser. No. 478,249
8 Claims. (Cl. 211—148)



6. A shelf construction comprising
vertical frame angles having flanges with spaced vertical openings therein,
said angles being disposed to provide a frame with front, rear and side flanges,
clips for engagement with said flanges, said clips each having
a first upright plate portion with vertically spaced hooks extending outwardly from one face thereof engaged in spaced vertical openings in one each of said flanges,
a second upright plate portion with vertically spaced fingers extending therefrom engaged in spaced vertical openings in another flange of each of said angles,
at least one of said plate portions having a shelf receiving portion thereabove, and
a shelf supported by said shelf receiving portion.

3,306,467
COLLAPSIBLE TRUCK MOUNTED HOIST

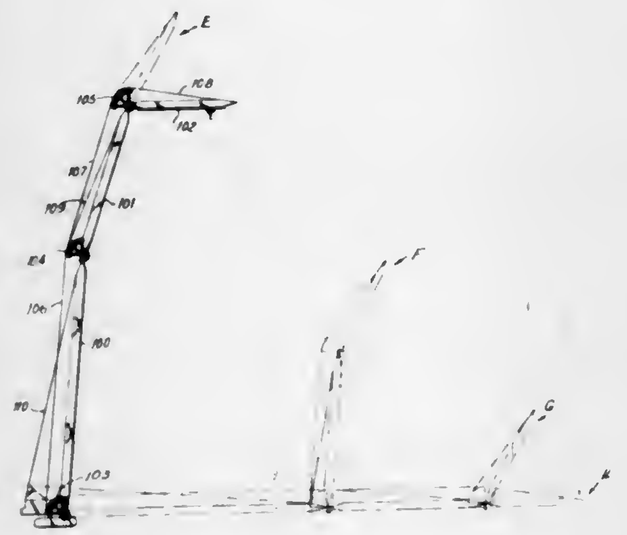
Sam Ollin Weempe, Dallas, Tex., assignor to Master Tank and Welding, Dallas, Tex., a partnership
Filed July 27, 1965, Ser. No. 475,153
6 Claims. (Cl. 212—55)



1. In collapsible boom adapted to be mounted on a truck having a frame with an operator's position and a load carrying portion thereon, a base frame attached to the truck frame between the operator's position and the load carrying portion; a vertical post attached to the base frame; a telescoping boom mounted on the post; means for rotatably mounting the boom with relation to the post; means for hingedly mounting the boom to the post for vertical movement with relation to the post, said boom being movable from a horizontally disposed position to a vertically disposed downward position; means for raising and lowering the boom; a pair of braces attached between the post and the base frame; means for hingedly attaching the braces at their upper ends to the post, said braces being movable about the hinged attachment means from a position extending longitudinally and rearwardly of the base frame to a declining position adjacent the post; and means for disengageably attaching the braces to the base frame at their lower ends, whereby the braces may be disengaged at their lower ends for movement inwardly to a position adjacent the post.

3,306,468
BOOM AND PIVOTAL JIB STRUCTURE

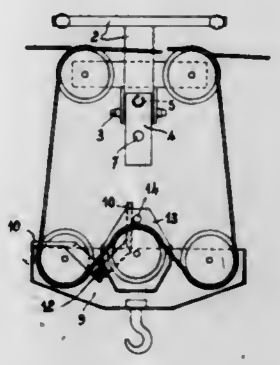
Selig Pollack, 11 W. 42nd St., New York, N.Y. 10036
Filed Oct. 15, 1965, Ser. No. 496,496
2 Claims. (Cl. 212—59)



1. An infinitely variable multi-boom crane structure having an adjustable jib comprising:
(a) a chassis;
(b) a main boom pivotally mounted on said chassis for retraction and reach;
(c) an auxiliary boom having an end pivotally mounted to the free end of said main boom and having a free end;
(d) a jib pivotally mounted to the free end of said auxiliary boom;
(e) a fixed quadrant mounted on said chassis,
(f) first and second auxiliary quadrants of radius equal to said fixed quadrant pivotally mounted at the free ends, respectively, of said main boom and said auxiliary boom, the axes of said auxiliary quadrants being coincident, respectively, with the pivotal connections between said main and auxiliary booms and said auxiliary boom and said jib,
(g) a flexible guy wrapped over said fixed quadrant and the auxiliary quadrant at the free end of said main boom, and tangentially engaging both said quadrants throughout all pivoted positions of said boom,
(h) a flexible guy wrapped over said auxiliary quadrants and tangentially engaging said quadrants throughout all pivoted positions of said auxiliary boom,
(i) auxiliary boom adjustment means for controlling the angular relation of said main and auxiliary booms comprising a flexible topping lift wrapped over said first auxiliary quadrant and extending to a point adjacent the free end of said auxiliary boom,
(j) jib adjustment means for controlling the angular relation of said job and auxiliary boom comprising a second flexible topping lift wrapped over said second auxiliary quadrant and extending to a point adjacent the free end of said jib, and
(k) means for varying the length of said first and second topping lifts, thereby to articulate said auxiliary boom with respect to said main boom and said jib with respect to said auxiliary boom.

3,306,469
LOAD HOISTING TACKLE

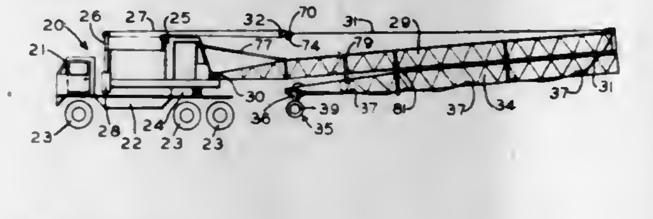
Pierre Durand, Lyons, France, assignor to Richier (Societe Anonyme), Paris, France
Filed Oct. 24, 1965, Ser. No. 504,442
Claims priority, application France, June 22, 1965, 46,137
1 Claim. (Cl. 212—71)



A load-hoisting tackle chiefly for tower cranes and the like appliances comprising upper pulleys, a carriage carrying said upper pulleys, a compound strap including two downwardly flaring flanges separated by a gap and adapted to pivot away from each other round horizontal axes lying in their planes and perpendicular to the axes of the upper pulleys, elastic means urging the lower ends of the flanges towards each other, a main pulley block including at least one pulley and adapted to be connected selectively through two strands and four strands with the upper pulleys and two sloping members arranged symmetrically to either sides of a vertical plane perpendicular to the axis of the pulley of the main pulley block and adapted to rock each round a spindle parallel with last-mentioned axis between an outwardly directed inoperative position and an operative position for which said members are adapted to enter the gap between the flanges of the strap to urge said flanges apart and an auxiliary pulley block including a pin parallel with the pulley axes, said auxiliary pulley block resting normally on the main pulley block to allow the latter to be connected through two strands with the upper pulleys and being adapted, upon raising between the flanges of the strap and urging the latter apart to snap into an upper position on the carriage to ensure a four-stranded connection with the main pulley block, the release of the auxiliary block being provided by the engagement of the sloping members inside the gap between the strap flanges and subsequent dropping of the auxiliary block onto the main block.

3,306,470
FOLDING BOOM FOR MOBILE CRANES

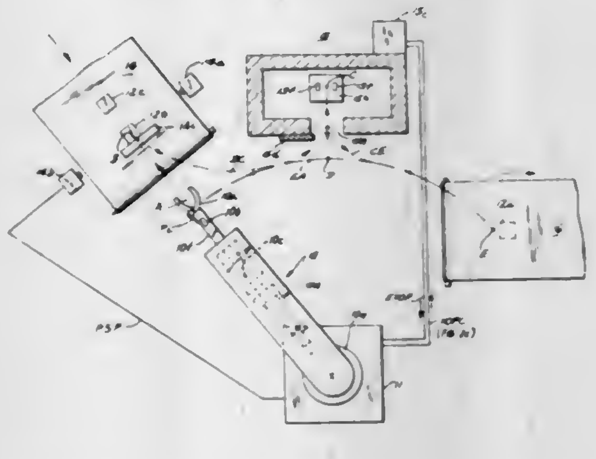
Robert A. Green, 698 Chapel Hill Blvd., Boynton Beach, Fla. 33435, and Wesley Dobson, 123 NW. 11th Ave., Delray Beach, Fla. 33444
Filed Jan. 25, 1965, Ser. No. 427,848
6 Claims. (Cl. 212—144)



1. In a crane,
(a) a folding boom construction comprising a plurality of adjoining sections,
(b) at least two of said adjoining sections being hingedly connected together,

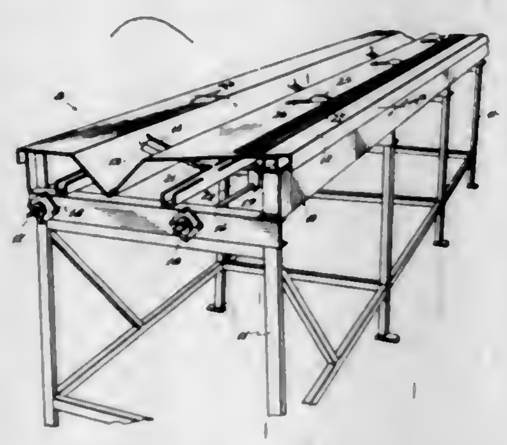
(c) a wheeled carriage connected to the outermost section of said boom,
(d) means carried on the pendant lines for fastening said pendant lines to the boom in the vicinity of the hinge connecting the two sections without disconnecting said pendant lines from the boom,
(e) said wheeled carriage having a main axle pivotally attached to the end of said boom,
(f) said wheeled carriage having a plurality of auxiliary axles for changing the center of gravity of said wheeled carriage while the carriage is attached to the end of said boom.

3,306,471
PROGRAMMED APPARATUS
George C. Devol, Brookside Drive, Greenwich, Conn. 06830
Filed May 19, 1964, Ser. No. 368,550
30 Claims. (Cl. 214—1)



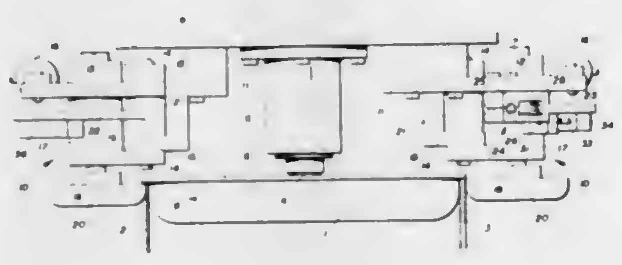
1. Apparatus comprising a work member and actuating means therefor, first control means including continuous-control program means for said actuating means for producing a prescribed path of movement by said work member, second control means including point-to-point program means for said actuating means for producing a stroke of movement by said work member from a first position to a second position, and operation-controlling detector means for rendering said first and second control means selectively operable.

3,306,472
ADJUSTABLE GATE FOR BAR STOCK
Edward G. Blanz, Cincinnati, Ohio, assignor to Americraft Manufacturing Co., Cincinnati, Ohio, a partnership composed of Edward G. Blanz and Albert H. Blanz
Filed Apr. 22, 1965, Ser. No. 450,140
6 Claims. (Cl. 214—1)



1. A gate for bar stock moving on a table in a transverse direction comprising,
a stop element pivoted to said table,
a separating finger on said stop element movable between positions above and below the surface of said table,
a transporting element adjustably mounted on said stop element, said transporting element presenting a rigid metering surface spaced downstream from said separating finger, said metering surface being movable between positions above and below the surface of said table,
means for selectively varying the distance between said separating finger and said metering surface,
and means for pivoting said elements with respect to said table to move said separating finger and metering surface between their respective positions.

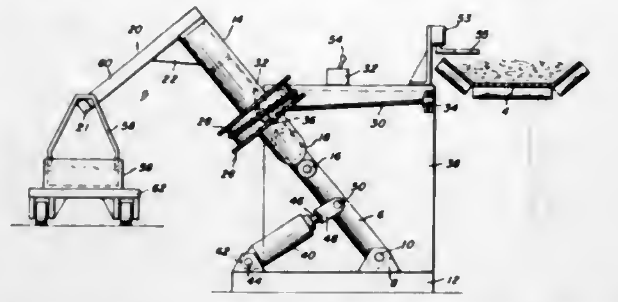
3,306,473
SEAM LOCATING DEVICE FOR METAL DRUMS
Thomas A. McCoy, Stockton, Calif., assignor to Carando Machine Works, Stockton, Calif., a partnership
Filed June 14, 1965, Ser. No. 463,795
5 Claims. (Cl. 214—1)



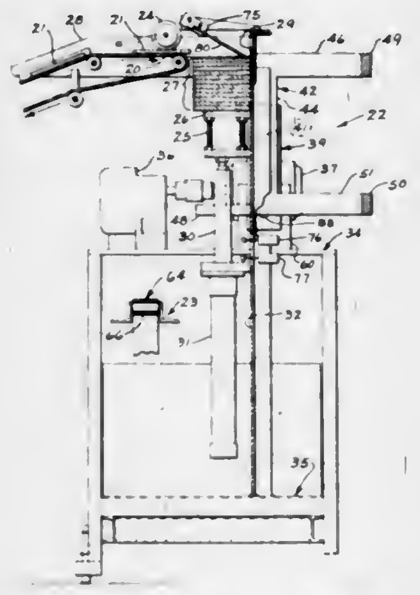
1. A drum seam locating apparatus comprising a circular chuck adapted to fit in driving relation into one end of a drum having a longitudinal exterior seam, a power device to drive the chuck, electrically released connection means between the device and chuck, a circuit for said connection means, the circuit when closed causing the chuck to be immediately halted, a normally open switch in the circuit, a control unit mounted adjacent the chuck and including a rotatable roll normally riding a chuck engaged rotating drum, the axis of the roll being parallel to that of the chuck, the control unit including a fixed mounting block, a roll supporting carrier pivoted on the block in spaced relation to the pivot of the roll and arranged so that when the seam passes between the chuck and roll the carrier will be swung away from the chuck, a member provided with the unit and on which member the switch is mounted, an element mounted on the carrier and projecting therefrom for engagement with the switch to close the same when the carrier is so swung, means mounting the member for movement toward and from the element, friction means tending to restrain such movement, and means between the carrier and the member to return the latter to its initial position subsequent to any movement thereof caused by a switch engaging movement of the element and upon return of the roll to a drum riding position.

3,306,474
TRANSFER APPARATUS FOR CONVEYOR SAMPLING BASKETS
Herbert J. Curtis, Hobart, Ind., assignor to United States Steel Corporation, a corporation of Delaware
Filed July 22, 1965, Ser. No. 474,070
3 Claims. (Cl. 214—1)

1. Apparatus for unloading containers from a conveyor comprising a mast pivoted adjacent the conveyor for downtilting movement laterally thereof, means for effecting such movement, a sleeve slidable and rotatable on said mast, an arm projecting from said sleeve over the conveyor to engage a container approaching thereon, cam means on said mast and sleeve effective to raise said sleeve on rotation thereof, and drum-and-cable means for rotating said sleeve as it tilts downwardly.

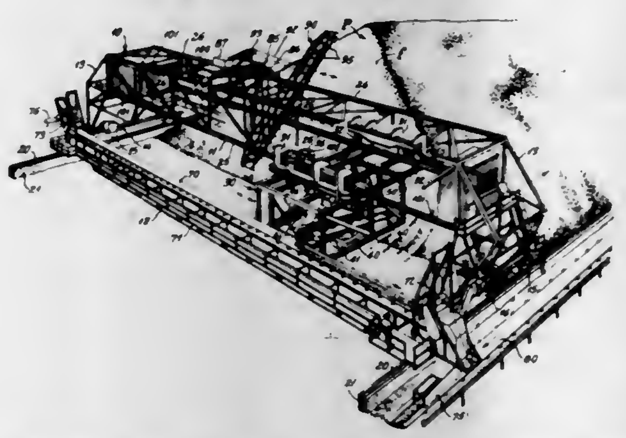


3,306,475
STACKING APPARATUS
Howard D. Mays, Zanesville, Ohio, assignor to The Mosaic Tile Company, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 30, 1963, Ser. No. 334,226
15 Claims. (Cl. 214—6)



13. An apparatus for accumulating stacks of generally flat objects which are serially delivered by a first conveyor and depositing such stacks upon a second conveyor, comprising, in combination,
(1) an elevator adjacent the delivery end of said first conveyor for receiving such flat objects from such first conveyor when said elevator is at an upper position, said elevator movable through a receiving zone to an intermediate position and thence to a lower position and back to said upper position,
(2) a first motor means for operating said elevator,
(3) a transfer carriage comprising
  (a) a pair of spaced apart members having
  (b) a first pair of spaced apart horizontal arms for receiving such flat objects from said elevator when said elevator is in its intermediate position when said transfer carriage is in a first position and for placing a stack of such objects upon said second conveyor belt when said transfer carriage is in a third position,
  (c) and a second pair of spaced apart horizontal arms for receiving such flat objects from said first conveyor when said elevator is in such lower position when said transfer carriage is in a second position,
(4) a second motor means for said transfer carriage,
(5) an elongate bridle member having one end rotatably connected to the transfer carriage and the other end fixed to the drive shaft of said second motor means,
(6) means for controlling the movement of said transfer carriage relative to said bridle member such that the rotation of said drive shaft and bridle member translates said transfer carriage through a circular path around said drive shaft while said first and second pair of arms of said transfer carriage are maintained in horizontal position,
(7) and means controlling the movement of said elevator and said transfer carriage, comprising
  (a) means responsive to the delivery of such flat objects by said first conveyor for moving the elevator downwardly in increments equal to the height of such objects through said receiving zone to its intermediate position for accumulating a stack of objects on said elevator,
  (b) means responsive to the arrival of said elevator at its intermediate position for causing said elevator to move to its lower position and to deposit such stack upon said first pair of arms when said transfer carriage is in a first position,
  (c) means responsive to the arrival of said elevator at its lower position for causing said transfer carriage to move from its first position to its second position where said second pair of arms is at the delivery end of said first conveyor for receiving such flat objects from said first conveyor while said elevator is in its lower position,
  (d) means responsive to the arrival of said transfer carriage at its second position for causing said elevator to return to its upper position to remove such flat objects from said second pair of arms and to receive subsequent flat objects from said first conveyor,
  (e) and means conditioned by the movement of said elevator from its lower position to its upper position and responsive to the receipt of a subsequent flat object thereon for causing said transfer carriage to advance to its third position where said first pair of arms delivers a previously accumulated stack to said second conveyor and causing said transfer carriage to continue on its circular path and to return to its first position where said first pair of arms is again ready to receive a subsequent stack of objects from said elevator.

3,306,476
APPARATUS FOR RECLAIMING PARTICULATE MATERIAL
Ralph C. McMillan, Clarendon Hills, Ill., assignor to Link-Belt Company, a corporation of Illinois
Filed Aug. 3, 1965, Ser. No. 476,887
19 Claims. (Cl. 214—10)

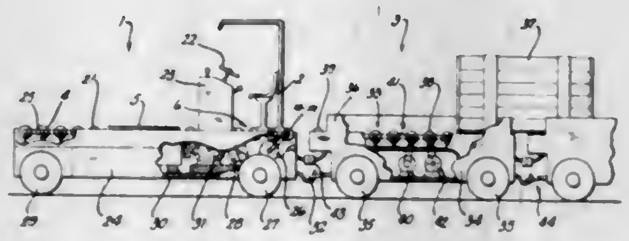


1. Apparatus for reclaiming particulate material from a storage pile comprising
a bridge having digging means mounted thereon to be movable along said bridge and traverse the face of the pile, said bridge being mounted to move said digging means toward the face of the pile,

a trimmer mounted to be movable along said bridge independently of said digging means and agitate the pile face to maintain the face trimmed in a substantially uniformly sloped condition as material is removed therefrom by said digging means,

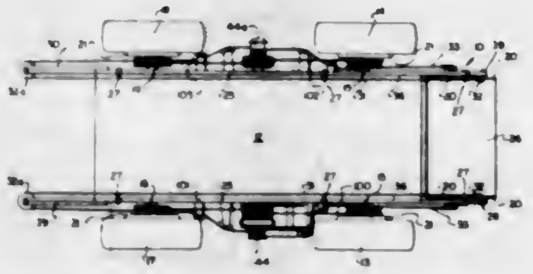
and conveying means on said bridge disposed to receive material from said digging means and deliver it to one end of said bridge for transfer to a point of use.

3,306,477
TRUCK TRAIN
Alfred Wriedt, Beckersbergring 107, Ulzburg, Germany
Filed July 21, 1964, Ser. No. 384,158
Claims priority, application Germany, July 23, 1963, W 34,939
4 Claims. (Cl. 214—38)



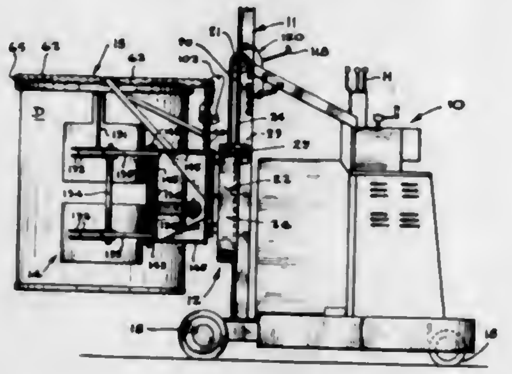
1. A truck train comprising a drive vehicle and at least one trailer carriage connected to said drive vehicle by coupling means, said drive vehicle having a first loading surface extending over substantially the whole length of said drive vehicle and having a leading section, drive means for driving said drive vehicle, steering means for steering said drive vehicle, a first roller conveyor provided in said first loading surface and adapted to convey carloads in the direction of the train length, first motor means for actuating said first roller conveyor, power connection means interposed between said drive vehicle and said trailer carriage, a power source supplying said power connection means, and control means to independently control said power source, said drive means and said first motor means, said trailer carriage having a second loading surface located at substantially the same level as said first loading surface of said drive vehicle and extending over substantially the whole length of said trailer carriage, a second roller conveyor provided in said second loading surface and adapted to convey carloads in the direction of the train length, second motor means for actuating said second roller conveyor and connected to said power connection means, and further coupling and power connection means adapted to connect a further trailer carriage, said first roller conveyor comprising a number of cylindrical rollers arranged in parallel in the leading section of said first loading surface, a group of frustro-conical rollers arranged in a fan-like pattern to form an arcuate conveying path extending from the end of said group of cylindrical rollers over an angle of about 90 degrees, and further cylindrical rollers arranged in parallel in the rear section of said first loading surface beginning adjacent the rear end of said arcuate conveying path, said second roller conveyor comprising two parallel sets of parallel rollers forming two independent conveyor tracks on both sides of said second loading surface, and an idler roller arranged ahead of the said two sets of parallel rollers in the leading section of said second loading surface, said first and second loading surfaces forming together an elongated common loading and conveying path extending in the direction of the train length and adapted to convey carloads under control of said control means independently of the movement of said truck train so that, with the said roller conveyors actuated, any carload placed upon said first number of cylindrical rollers can be conveyed over said first number of cylindrical rollers, said group of frustro-conical rollers, said further cylindrical rollers, said idler roller and said sets of parallel rollers to the rear end of said trailer carriage and upon reversing the conveying direction by means of said control means, also back to said leading section of said first loading surface on said drive vehicle.

3,306,478
LOW PROFILE, SELF-LOADING HAULING AND DUMPING VEHICLE
George W. Moehr, P.O. Box 272, Big Piney, Wyo. 83113
Filed Feb. 1, 1965, Ser. No. 429,265
13 Claims. (Cl. 214—82)



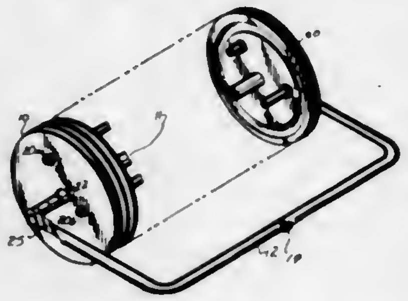
1. A vehicle for use in underground mining operations comprising a chassis; wheels mounted on opposite sides of said chassis; a load box having open front and rear ends mounted on said chassis; guideways along opposite sides of the load box, said guideways extending upwardly from the front of the vehicle, along the top of the load box and beyond the rear of the load box; a power source carried by saide chassis; a scoop; means mounting said scoop for guided movement along said guideways; means powered by said power source for driving said vehicle wheels in either a forward or reverse direction; and means powered by said power source for moving said scoop between a loading position at the front of the load box, a dumping position within the load box, and an unloading position at the rear of the load box such that the body of the scoop does not extend above the guideways.

3,306,479
DRUM TILTING APPARATUS
Fred P. Hopfeld, Elmwood Park, Ill., assignor to Grand Specialties Company, Chicago, Ill., a corporation of Illinois
Filed Dec. 3, 1964, Ser. No. 415,765
7 Claims. (Cl. 214—307)



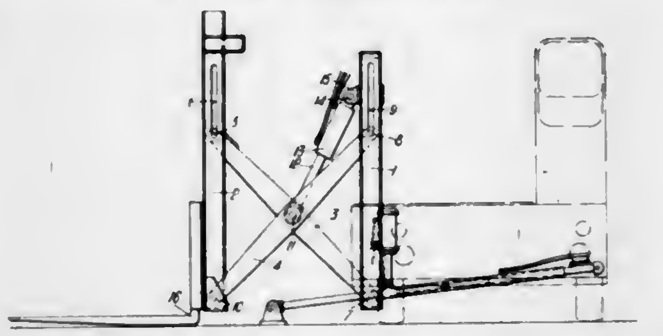
1. An attachment for a lift truck having a vertically movable lift mechanism, said attachment adapted to support an open mouth drum and to rotate said open mouth drum while preventing the emptying of the contents therefrom during the rotation of said drum, said attachment comprising a frame means for attachment to said lift means of said truck for vertical movement therewith and for rotatable movement realtive to said truck, side clamp means extending forwardly and movable into clamping engagement with the sides of said drum, said side clamp means being pivotally mounted on said frame means, support means on said frame means extending forwardly of the sides of said drum, a pair of lid means pivotally mounted on each of said support means and each movable between a generally vertical position and a generally horizontal position, said lid means extending toward one another when in a horizontal position to cover the open mouth of said drum, means for pivoting said side clamp means to engage the sides of said drum to hold said drum to said frame means for lifting by said lift truck, and means for pivoting said lid means to a closed position to cover said open mouth drum and for pivoting said lid means to open positions to serve as a chute for guiding the material from said drum.

3,306,480
GOLF BALL RETRIEVER
Harvey G. Wysong, 2610 Winslow Drive NE., Atlanta, Ga. 30305
Filed Nov. 19, 1964, Ser. No. 412,535
8 Claims. (Cl. 214—356)



1. Apparatus for retrieving golf balls comprising an axle, a plurality of coaxial discs mounted on said axle, each of said discs defining a plurality of ports radially spaced from said axle and circumferentially spaced around said discs, the ports of each disc being axially aligned with the ports of each other disc to form a series of ports, a rod extending through each series of ports, spacing means mounted between each disc on said rods for spacing said discs apart a distance slightly less than the diameter of a golf ball, means on said rods for clamping said plurality of discs together, means on said axle for keeping said plurality of discs in the center of said axle, means connected to the ends of the axle for transporting said discs, alternate ones of said discs being beveled at their peripheries, and each disc having an annular groove at least on one face thereof.

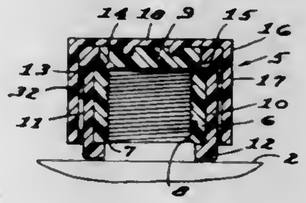
3,306,481
MAST EXTENSION MECHANISM FOR AN INDUSTRIAL TRUCK
George Neville Bowman-Shaw, Toddington, England, assignor to Lancers Machinery Limited, Leighton Buzzard, England, a corporation of Great Britain
Filed Apr. 10, 1964, Ser. No. 358,816
Claims priority, application Great Britain, Apr. 16, 1963, 14,854/63
6 Claims. (Cl. 214—670)



1. A side loading industrial truck comprising a chassis, a recess in said chassis extending inwardly thereof from one side, guide members on the chassis at the sides of said recess, first and second mast assemblies supported on said guide members, means to move both said first and second mast assemblies transversely of the chassis along said guide members to a position near one side of said chassis, a loading device supported from and movable vertically with respect to said second mast assembly, and means to move said second mast assembly with respect to said first mast assembly to a predetermined distance beyond said one side of said chassis.

6. A side loading industrial truck comprising a chassis, a recess in said chassis extending inwardly thereof from one side, a mast assembly disposed in said recess, a number of first rollers rotatably mounted along each side of said recess and of said mast assembly, a generally cruciform guide element at each side of said mast assembly having flanges rotatably engaged by said rollers, a number of second rollers rotatably mounted about axes at an angle to the axes of said first rollers on at least one of said guide element and said recess and respectively engaging at least one flange on said recess and element, a number of third rollers rotatably mounted about axes at an angle to the axes of said first rollers on at least one of said guide element and said mast assembly and respectively engaging at least one flange on said assembly and said element, the disposition of said rollers, channels and cruciform element being such that in combination they permit travel on said rollers of said guide element in said recess and of said assembly on said guide element to dispose said assembly beyond one side of said chassis, and to prevent sideways spreading of the sides of said recess longitudinally of said chassis, and a loading device supported from and movable in a vertical direction with respect to said mast assembly.

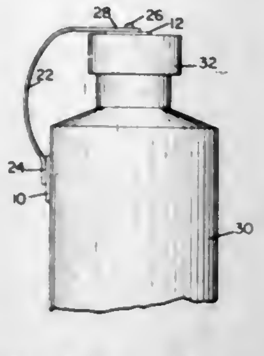
3,306,482
SAFETY CLOSURE FOR CONTAINERS
Armas A. Tuuri, 6040 David Berger, Mount Morris, Mich. 48458
Filed Dec. 2, 1965, Ser. No. 511,103
11 Claims. (Cl. 215—9)



1. A safety closure for containers comprising first and second relatively rotatable and axially movable members; engageable and disengageable clutch means on said members operable respectively to disable and enable relative rotation of said members; and means on said members engageable in response to relative axial movement thereof in one direction to effect relative rotation of said members to such positions as to require further relative rotation of said members to engage said clutch means.

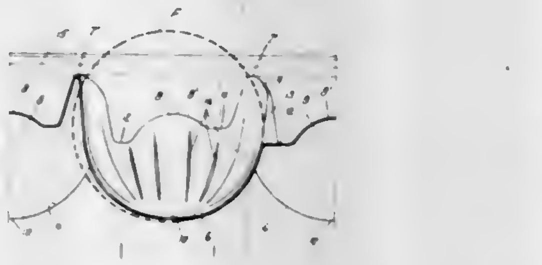
3,306,483
ATTACHABLE CAPTIVE CAP DEVICE
Frank Bellafiore, Fitchburg, Mass. (Box 75–C, Corey Hill Road, Ashburnham, Mass. 01430)
Filed Oct. 21, 1965, Ser. No. 499,140
1 Claim. (Cl. 215—99)

In combination with a container having a cap which has to be rotated to remove it, a cap captive device comprising a tab, pressure-sensitive adhesive on one side of the tab so that it may be manually secured to the container, a strap secured at one end to the tab, a second tab at the other end of the strap, pressure-sensitive adhesive on one side of said second tab so that it can be adhesively secured to the cap, and means rotatively securing second tab with respect to said strap so that said cap is rotatable and therefore removable from the container without disturbing or disrupting the strap when the tabs are so secured.



3,306,484
TRAY MADE OF THIN SHEETING WITH CAVITIES TO RECEIVE FRUIT OR ROUND OBJECTS

Pietro Padovani, Chievo, Verona, Italy, assignor to I.S.A.P., S.p.A, Chievo, Verona, Italy
Filed Nov. 30, 1964, Ser. No. 414,819
Claims priority, application Italy, Dec. 5, 1963, 25,285/63; Germany, Apr. 20, 1964, J 25,687
7 Claims. (Cl. 217—26.5)

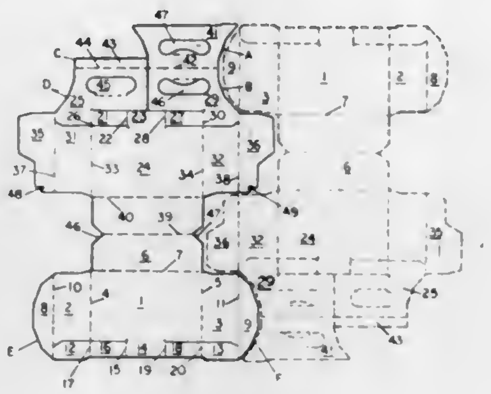


1. A multi-cavity packing tray of thin sheeting for fruit or round articles comprising, rows of cup-like cavities alternately arranged in adjacent rows, a portion of the wall of each cavity being integrally joined to a portion of the wall of each of at least three adjacent cavities along an arcuately curved folded edge, said cavities having centers lying in a common plane, the vertices of said arcuately curved folded edges lying in at least two different planes, webs at the juncture of three cavities joining the lower ends of three adjacent arcuate folded edges, said webs lying below said planes and providing finger receiving openings in the wall of the cavities for removing an article positioned therein.

3,306,485
ARTICLE CARRIER

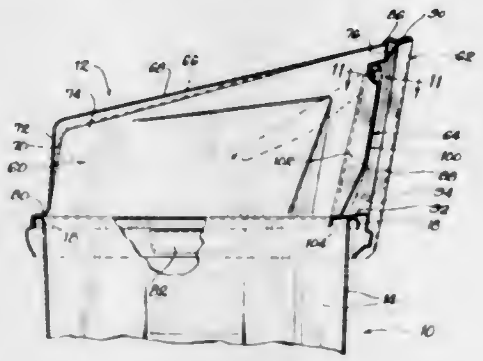
Prentice J. Wood, Jonesboro, Ga., assignor to The Mead Corporation, a corporation of Ohio
Filed July 27, 1964, Ser. No. 385,330
4 Claims. (Cl. 220—113)

1. An article carrier formed from a blank adapted for side-by-side nesting with a reversed adjacent blank, each blank comprising a pair of handle panels foldably joined together along a medial fold line, a first riser panel foldably joined to one of said handle panels along a fold line generally normal to said medial fold line, an end panel foldably joined to said riser panel along a fold line which is aligned with the fold line between said first riser panel and said one handle panel, a first side wall panel foldably joined to said end panel along an edge thereof remote from said first riser panel, a bottom panel foldably joined to said first side wall along an edge thereof generally normal to the fold line between said first side wall and said first end panel, a second side wall panel foldably joined to said bottom panel along an edge thereof which is opposite the said first side wall panel, a second end panel foldably joined to an end edge of said second side wall panel which is generally aligned with the fold line between said first end panel and said first side wall, and a second riser panel foldably joined to said second end wall panel along an edge thereof remote from said second end panel, the end edges of said handle panels adjacent said first riser panel being recessed inwardly from the fold line between said first riser panel and said one of said handle panels sufficiently to receive at least a substantial portion of a riser panel of an adjacent nested blank.



3,306,486
WASTE RECEPTACLE

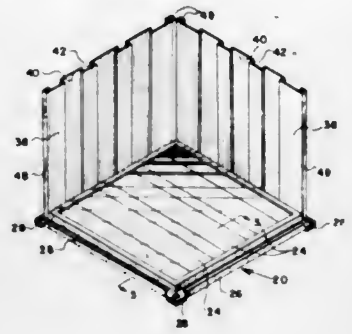
Louis J. Martino, Lombard, Wayne E. Moll, Villa Park, and Ralph E. Weimer, Lombard, Ill., assignors to McDonald's System, Inc., Chicago, Ill., a corporation of Illinois
Filed Mar. 30, 1964, Ser. No. 355,766
6 Claims. (Cl. 220—1)



1. A waste receptacle comprising an upright thermoplastic container having four sides defining an open top, a bottom, and an inverted U-shaped lip circumscribing the open top, and a hood releasably snap-connected to and gripping said container by said lip, said hood comprising a thermoplastic body having a top, a back and two sides and an open front and open bottom, means in said body sides for releasably snap-connecting said hood to said U-shaped lip, and a bead in said body sides and top adjacent said open front, a four-sided thermoplastic door frame having a central window, said door frame being connected to said body at said body open front by a bead in said door frame complementary to said body bead, the front of said door frame inclining downwardly and inwardly of said body, and a door swingably mounted adjacent its top on said door frame and gravity urged to a position in which it closes the door frame window and swingable to an open position against the force of gravity to allow said waste receptacle to receive trash through said window.

3,306,487
KNOCKED-DOWN CARGO SHIPPING CONTAINER

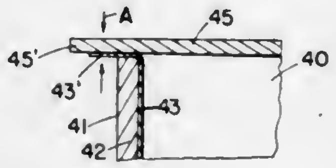
Resta S. Gregoire, Newport, Pa., assignor, by mesne assignments, to Gregoire Engineering and Development Company, Adelphi, Md.
Filed Oct. 5, 1964, Ser. No. 401,609
11 Claims. (Cl. 220—1.5)



1. A rectangular knock-down cargo container comprising
a bottom having grooves along its side edges, said grooves having a flange extending inwardly from one side thereof,
four sides having cleated bottoms adapted for a sliding fit in said grooves with the top of the cleats slidingly engaging said flanges extending from the sides of the grooves,
corner posts having angle grooves for slidingly engaging angle flanges on adjacent side edges of said sides to lock them together at the corners,
a top having a groove to fit over the upper edges of said sides and corner posts, and
corner tie bolts between the top and bottom for closing the top tightly over the sides to form a weather-tight container.

3,306,488
CONTAINER AND LINER THEREFOR

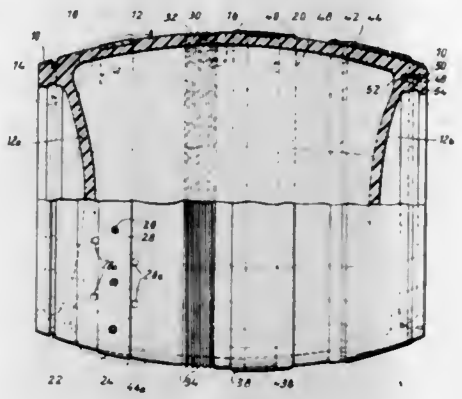
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Filed Dec. 27, 1965, Ser. No. 516,458
10 Claims. (Cl. 220—63)



1. A container assembly comprising:
a tubular member comprising the side wall of said container,
an end wall joined to said side wall at one end thereof,
said side wall being made of a plurality of sheet materials,
a first of said side wall sheet materials defining a wall portion of tubular shape and providing the major support for said side wall,
a second of said side wall materials provided as a thin sheet liner disposed against and supported by said first sheet wall,
said sheet materials being bonded together to form a unitary lamination defining said side wall,
said thin sheet liner extending beyond said first sheet wall portion at an end thereof, and
a circumscribing seal line between said thin sheet liner and said end wall.

3,306,489
CONTAINER

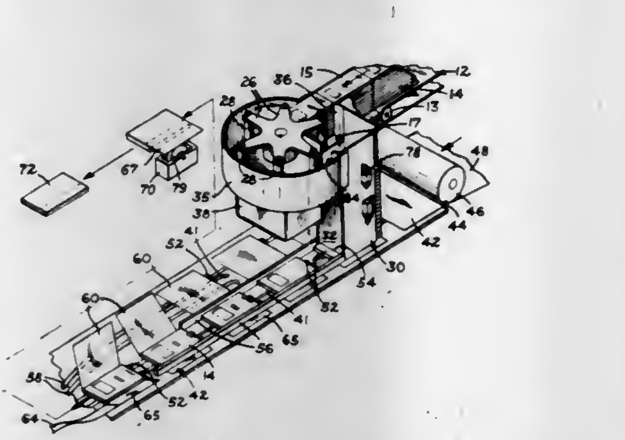
Fritz Armbruster, Stuttgart-Stammheim, Germany, assignor to Diener & Roth, Stuttgart, Germany
Filed Jan. 9, 1964, Ser. No. 336,751
Claims priority, application Germany, Jan. 14, 1963, A 42,073
13 Claims. (Cl. 220—71)



12. A container, particularly a barrel for storage of carbonated liquids, comprising a tubular side wall at least the major part of which consists of synthetic plastic material and which has a tendency to expand and contract radially in response to changes in temperature, said side wall comprising two chimes at the axial ends thereof; first reinforcing means comprising at least one annular reinforcing hoop surrounding said side wall at a point intermediate said chimes and having a tendency to expand and contract less than said side wall in response to changes in temperature so that said hoop means limits the expansion of the side wall in response to heating; stop means provided on said side wall and comprising an annular groove provided in the outer peripheral surface of said side wall, said hoop being received in said groove for preventing axial shifting of circumferentially distributed increments of said hoop in direction toward both ends of said side wall when said side wall contracts more than said hoop in response to cooling; and second reinforcing means comprising an annular reinforcing element embedded in one of said chimes.

3,306,490
FEEDING APPARATUS FOR BOOKS OR THE LIKE

Albert H. Ash, Springfield, and Charles W. Bunting and Orville Morley, Dayton, Ohio, assignors to McCall Corporation, Dayton, Ohio, a corporation of Delaware
Filed Dec. 9, 1964, Ser. No. 417,125
7 Claims. (Cl. 221—10)



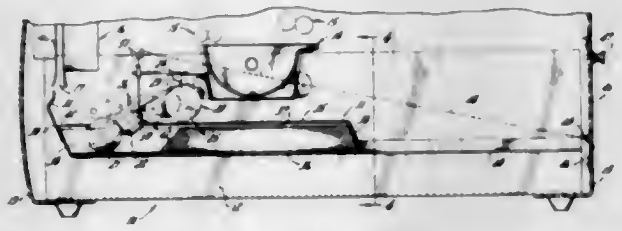
1. An apparatus adapted to receive successive piles of material prearranged in a continuous supply line and to transfer the piles into a stacked arrangement in a hopper from which the material is distributed as single pieces,

said apparatus comprising, barrier means for stopping each pile of material received from the continuous supply line, guide means directing the piles into engagement with said barrier means and maintaining the material in a substantially vertical pile, a hopper positioned adjacent to and offset from the supply line and adapted to receive successive piles of material in a stacked relation with the piles oriented in the same position as on the supply line, guide means extending from said hopper for retaining the material in a substantially vertical pile, a rotary advancing member, means on said member for engaging and transferring each pile in a direction transverse to the direction of the continuous supply line and into said hopper without rotating the pile, a detector means for signalling when the stacked material in the hopper falls a below a predetermined level, and means for actuating said rotary member in response to a signal from said detector means.

3,306,491
APPARATUS AND STRUCTURE FOR HANDLING COPY PAPER

Burton D. Eisner, Highland Park, and Leo D. Sacre, Prospect Heights, Ill., assignors to American Photocopy Equipment Company, Evanston, Ill., a corporation of Illinois

Filed Oct. 14, 1964, Ser. No. 403,873
4 Claims. (Cl. 221—41)



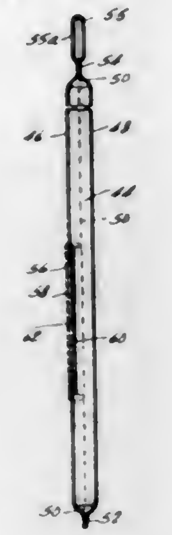
1. Apparatus for handling copy paper sheets comprising, in combination, a frame, a paper guide plate mounted in said frame at an angle from the vertical, box support members in said frame extending toward said guide plate and forming an obtuse angle therewith, a box with top and bottom panels interconnected by a pair of side panels and a pair of end panels positioned with said bottom panel on said support members, said side panels being parallelogram shaped so that one of said end panels lies flatly against said guide plate, said top panel having a central opening, said top panel and said one end panel defining a slot at one end adjacent said guide plate, and a sheet feeding member mounted on said frame for vertical movement through said central opening so as to engage and drive sheets in said box through said slot and over said guide plate.

3,306,492
FLEXIBLE PLASTIC BAG DISPENSER

Emanuel Kugler, 124 Richmond Place, Lawrence, N.Y. 11418

Filed Aug. 22, 1966, Ser. No. 573,901
6 Claims. (Cl. 221—63)

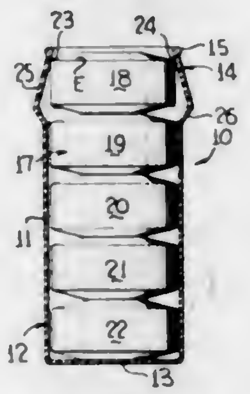
2. A dispensing package of flexible plastic consumer bags comprising, in combination, a dispensing bag having a front wall, a rear wall joined to said front wall at top, bottom and side edges forming an internal chamber, and a header assembly having means for hanging said dispensing bag from a vertical surface, said front wall having an access opening formed therein comprising a cutout providing communication from outside of said internal chamber into said internal chamber, a plurality of flat consumer bags positioned one on top of another within said internal chamber and generally parallel to said front and rear walls with the uppermost consumer bag being positioned against the inside surface of said front wall and accessible through said access opening, a security strip overlaying said front wall at said access opening comprising a section of plastic material joined to said dispensing bag at said side edges and being removable therefrom by a tearing action for opening said access opening, said consumer bags being accessible when said security strip is removed from said dispensing bag.



3,306,493
DISPENSING CONTAINER

John L. Szajna, Norridge, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Aug. 24, 1964, Ser. No. 391,536
6 Claims. (Cl. 221—64)

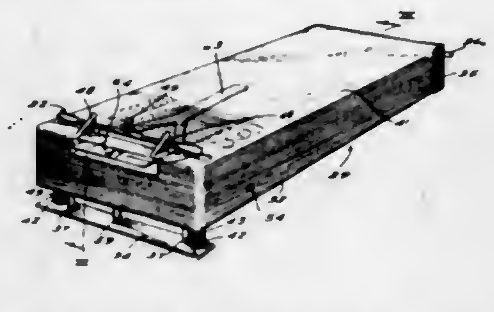


1. A tablet dispenser comprising a tubular dispenser body having first and second end portions, a wall closing said first end portion, a peripheral edge of said second end portion defining a normally generally oval-shaped opening, said oval-shaped opening being normally effective to prevent tablets from passing outwardly therethrough, said body between said oval-shaped opening and said closing wall being generally normally circular in transverse cross-section, free of inward projections and of a size normally effective to permit tablet movement toward said oval-shaped opening, and depressible means forming an integral portion of said body adjacent said peripheral edge for changing the oval-shape of said opening to a generally circular shape whereby a single tablet can be dispensed through said opening and also changing the circular cross-section of the adjacent body portion to a generally oval-shaped cross-sectional configuration whereby remaining tablets in said body are retained therein, said depressible means comprising a depressible wall between said body portion and said peripheral edge, said depressible wall defining a tablet-receiving chamber having an axial length corresponding generally to the thickness of tablets packaged in said body.

3,306,494
MEANS FOR DISPENSING COTTON-TIPPED APPLICATORS

John F. Castner, Reedsburg, Wis., assignor, by mesne assignments, to Hankscraft Company, Reedsburg, Wis., a corporation of Wisconsin

Original application Dec. 11, 1963, Ser. No. 329,661, now Patent No. 3,233,729, dated Feb. 8, 1966. Divided and this application Oct. 22, 1965, Ser. No. 501,116
9 Claims. (Cl. 221—81)

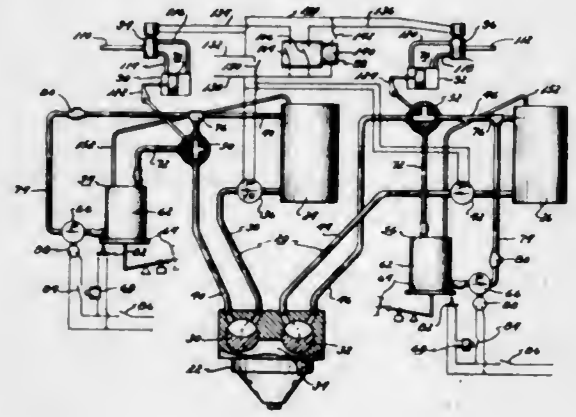


1. A swab dispenser, comprising in combination:
(a) a cabinet receptive of a carded strip of swabs;
(b) a pair of parallel plungers receiving said strip therebetween, said plungers being reciprocably supported by said cabinet intermediate their ends, and being engageable with the next carded swab at opposite sides of the strip at one of their ends for detaching and dispensing such next carded swab;
(c) means rigidly joining said plungers together at their other ends, said joining means being disposed outside of said cabinet for engagement with a support surface; and
(d) spring means disposed at least partially outside of said cabinet and acting between said cabinet and said joining means and biasing said plungers in a direction away from the carded strip.

3,306,495
DISPENSING APPARATUS WITH CALIBRATING MEANS

Frank D. Wabers, Detroit, Mich., assignor to American Motors Corporation, Detroit, Mich., a corporation of Maryland

Filed June 2, 1964, Ser. No. 372,035
2 Claims. (Cl. 222—77)

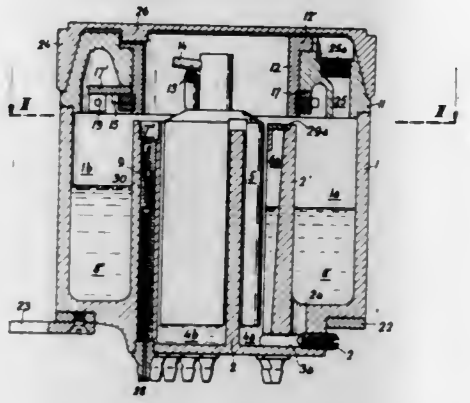


1. Fluid mixing and dispensing apparatus, comprising; separate fluid sources and a common mixing and dispensing head having respectively separate fluid supply and return lines provided therebetween,
a by-pass line provided in each of said return lines,
fluid collecting and weighing means provided in each of said by-pass lines,
a control valve provided between said return and by-pass lines,
and means operatively connected to each of said control valves for separate opening and closing actuation thereof in timed relation to each of said other control valves.

3,306,496
LUBRICANT DISPENSING DEVICE

Otokar Chládek, Vladislav, Czechoslovakia, assignor to Elitex, Zavody textilniho strojirenstvi, Libered, Czechoslovakia

Filed Dec. 20, 1965, Ser. No. 515,077
Claims priority, application Czechoslovakia, Dec. 21, 1964, 7,207/64
10 Claims. (Cl. 222—137)



1. A lubricant dispensing device comprising, in combination:
(a) a storage container adapted to contain a liquid lubricant to a predetermined level in the normal operative position of the device;
(b) a pumping compartment;
(c) a restricted duct connecting respective portions of said container and of said compartment below said level;
(d) plunger means received in said compartment and at least partly extending below said level;
(e) actuating means for moving said plunger means inward and outward of said portion of said compartment;
(f) a discharge conduit having one end portion communicating with said portion of said compartment and another end portion above said level, the horizontal cross section of said conduit being substantially smaller than the cross section of said plunger means transversely of the direction of movement thereof;
(g) a horizontally extending distribution conduit communicating with said other end portion of said discharge conduit and sloping downwardly away from the latter;
(h) a plurality of dosing vessels communicating with said distribution conduit for gravity flow of liquid lubricant from said other end portion through said distribution conduit to each of said dosing vessels; and
(i) discharge means for separately discharging lubricant from each dosing vessel.

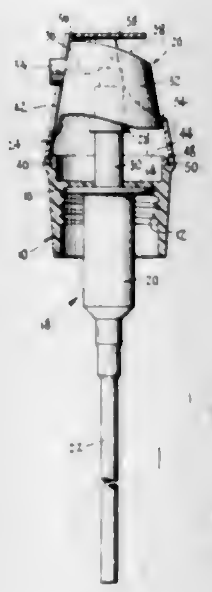
3,306,497
ACTUATOR CAP FOR DISPENSERS

Allen J. Kenney, Huntington, and William R. O'Donnell, Trumbull, Conn., assignors to Valve Corporation of America, Bridgeport, Conn., a corporation of Delaware

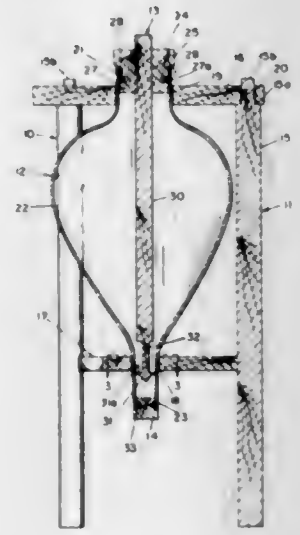
Filed Mar. 18, 1965, Ser. No. 440,783
8 Claims. (Cl. 222—182)

1. An actuator for a dispensing device comprising, in combination:
(a) a cap body piece having screw threads for engagement with a threaded container neck, and having an exterior peripheral surface for engagement by the fingers to enable the body piece to be manually screwed onto the container neck,
(b) an operable dispensing button and means movably mounting the button on the cap body piece for both turning and axial movement,

(c) said button having a discharge orifice at one side,
(d) a cover piece enclosing said button, adapted to expose a portion of the button for finger engagement,
(e) guide means on said button and cover piece, preventing relative turning therebetween while enabling relative axial movement to be had, and
(f) a friction mounting on said cover piece and a portion of the cap body piece which is located entirely above the said finger-engageable peripheral surface thereof, yieldably holding the said cover piece and button in different adjusted rotative positions with respect to the body piece, thereby to enable the cover piece and button to be rotatably adjusted with respect to a container on which the body piece is screwed, all without enclosing said peripheral surface or interfering with the screwing on or unscrewing of said body piece.

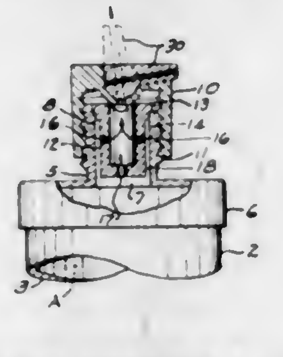


3,306,498
TOBACCO DISPENSER
Frank W. Gonzalez, 406 Paunack Place,
Madison, Wis. 53711
Filed Apr. 20, 1965, Ser. No. 449,553
1 Claim. (Cl. 222—185)



A tobacco dispenser comprising:
(a) a stand having at least three upstanding legs and an upper and a lower support member, each of said support members having a centrally disposed aperture therethrough,
(b) a shape-retaining container for holding pipe tobacco, said container having an upstanding neck and an enlarged body portion which tapers downwardly into a discharge throat, said upstanding neck being received in the aperture through said upper support member and said discharge throat being received in the aperture through said lower support member, whereby said container is supported by said stand,
(c) said upper support member being liftable off said legs to facilitate removal of said container from said stand,
(d) an externally manipulable plunger extending downwardly through said neck and protruding into said throat for preventing tobacco from passing from said body portion outwardly through said discharge throat, said plunger being adapted to form a substantially airtight seal with said neck, and
(e) removable means closing the bottom of said discharge throat in airtight relation.

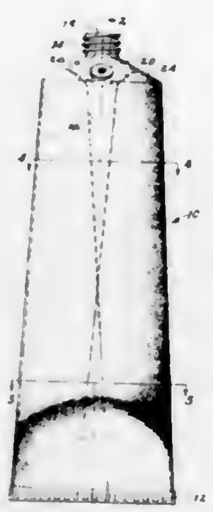
3,306,499
POWDER DISTRIBUTOR
Norman R. Lykes, 12001 N. Ranch Lane,
Scottsdale, Ariz. 85034
Filed May 6, 1965, Ser. No. 453,800
3 Claims. (Cl. 222—193)



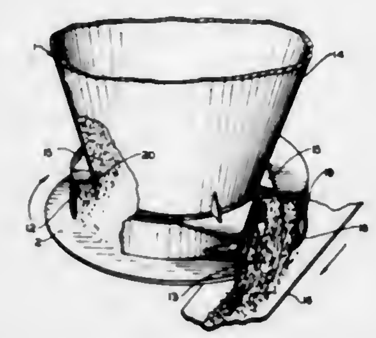
1. A powder scatterer comprising a cylindrical powder container of resiliently flexible plastic material to cause dispensing, said container closed at the bottom and at the top, a nozzle axially positioned on said top of said container and having an axial opening extending thru said nozzle, a nozzle plug having an axial opening therethrough and having an annular rim engaging the outer end of said nozzle surrounding said nozzle axial opening at its top and a midsection of reduced diameter below said rim forming an annulus area within said nozzle body, said plug having a plurality of radial holes in the body thereof connecting said annulus area with said axial opening in said plug to admit air to pass from said annulus area in said nozzle and into said axial opening of said plug via said radial holes and prevent caking of said powder.

3,306,500
SQUEEZE TUBE DISPENSER
Alfred D. Williams, 15 Hillcrest Ave., St. Catharines,
Ontario, Canada
Filed Nov. 12, 1965, Ser. No. 507,290
6 Claims. (Cl. 222—209)

1. A container-dispenser for plastic materials comprising in combination, a container of resilient wall form adapted to be hand-held and alternately squeezed and relieved to permit it to return to its normal shape, said container having a dispensing nozzle and being adapted to contain a supply of plastic material to be dispensed by alternately squeezing and releasing said container, an initially empty bladder disposed flat-wise against an inside wall surface of said container in the form of a liner therewithin disposed to intervene between the container contents and the inside wall of said container, said bladder having an inlet device arranged to extend through a wall portion of said container, and a check valve operable to permit ambient atmosphere to enter said bladder through said inlet device but to prevent egress of atmosphere from interiorly of said bladder through said inlet device, said bladder being sectionally dimensioned so as to have its greatest volumetric capacity in the region of that portion of said container which is remotest from said dispensing nozzle and said volumetric capacity decreasing progressively therefrom toward the region of the dispensing nozzle portion of said container.



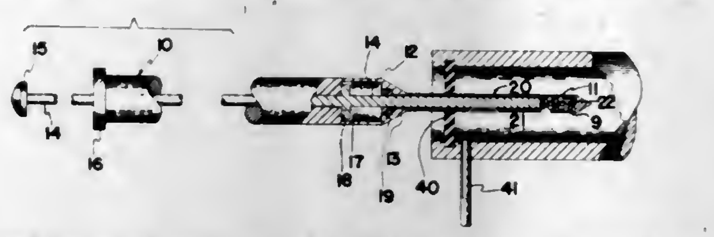
3,306,501
FEEDER APPARATUS
Leonard J. Keller Columbia, Tenn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Oct. 21, 1965, Ser. No. 499,956
16 Claims. (Cl. 222—328)



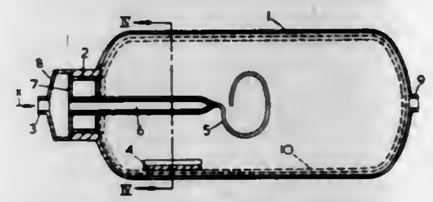
1. A material feeding apparatus comprising, in combination, a horizontal plate, rotatable about a vertical axis of rotation, a spiral element positioned above said plate for confining material disposed on said plate, said spiral element including a band spirally curving outwardly to form a passage through which material confined within said element exists said element in a stream as said plate rotates, a baffle element positioned above said plate cooperating with said spiral element for directing said stream of material exiting therefrom to a collecting means, and means for rotating said plate.

3,306,502
APPARATUS FOR INJECTION OF FLUIDS
Rano Joseph Harris, Jr., Baton Rouge, La., assignor to Precision Sampling Corporation, Baton Rouge, La., a corporation of Louisiana
Filed Apr. 28, 1965, Ser. No. 451,521
4 Claims. (Cl. 222—386)

1. In combination, apparatus comprising a hollow needle open from one end forward through its central axis to provide an axial opening, but being closed at its opposite extremity, a side perforated opening in the needle wall located at a distance away from the closed end of the needle, a wall portion in the needle located between the closed terminal end and the side perforated opening to define a reservoir, and a mating plunger reciprocable within said reservoir.



3,306,503
DISCHARGING FLUID FROM A CONTAINER
Kenneth G. Page, Coventry, England, assignor to Bristol Siddeley Engines Limited, Bristol, England
Filed Dec. 27, 1965, Ser. No. 516,518
Claims priority, application Great Britain, Dec. 31, 1964, 52,957/64
3 Claims. (Cl. 222—386.5)

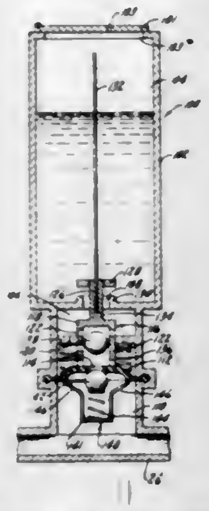


1. A container for a first fluid, a compartment communicatible with the interior of said container, a closure member for said compartment whereby the interior of the compartment is isolated from the interior of the remainder of the container, until the first fluid is to be discharged from the container, a collapsed bag initially housed completely within the compartment, a flexible tube positioned within said bag and extending from one end thereof, means for introducing a second fluid into said bag through said flexible tube, said one end of said bag and the inlet end of said flexible tube being anchored in said compartment and said flexible tube and said collapsed bag initially being rolled up into a spiral and housed in said compartment, whereby the introduction of said second fluid to said compartment and into said flexible tube will open said closure member of said compartment and cause said flexible tube and said collapsed bag to be unrolled from said compartment into the remainder of said container and to continue to unroll until said flexible tube is substantially straight, said second fluid then entering said bag through the outlet end of said tube, thereby causing said bag to expand away from said flexible tube.

3,306,504
WATER CONDITIONING SYSTEM
Edward J. Tischler, St. Paul, Minn., assignor to Union Tank Car Company, Chicago, Ill., a corporation of Illinois
Filed June 5, 1963, Ser. No. 285,751
6 Claims. (Cl. 222—442)

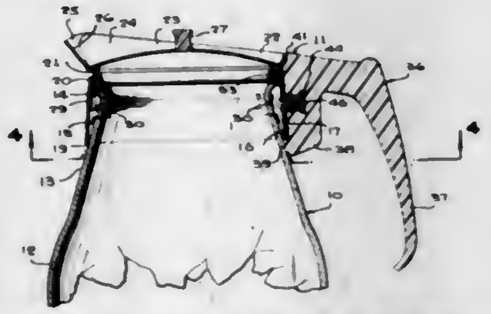
1. A liquid dispenser comprising means forming a reservoir chamber, a metering chamber and a pressure chamber, said reservoir chamber being adapted to store liquid above said metering chamber, said pressure chamber communicating with a line to which liquid is to be dispensed, said line communicating with means causing low pressure and high pressure in said line, said reservoir chamber communicating with said metering chamber through a first passageway, said metering chamber and said pressure chamber being separated by a diaphragm means having a second passageway therein, a first valve means attached to said diaphragm means to open and close said first passageway, and a second valve means for opening and

closing said second passageway, said second valve means coacting with said means causing low pressure and high pressure, for opening said second passageway when said line is under low pressure and for closing said second passageway when said line is under high pressure.



3,306,505
POURING TOP ASSEMBLY FOR CONTAINERS

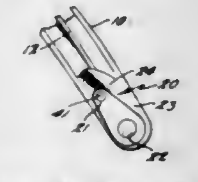
Anthony W. Serio, Hillcrest Road, Elmira, N.Y. 14903
Continuation of abandoned application Ser. No. 138,799, Sept. 18, 1961. This application Aug. 5, 1965, Ser. No. 539,587
(Filed under Rule 47(b) and 35 U.S.C. 118)
16 Claims. (Cl. 222—465)



15. A pouring assembly for use with a liquid container comprising a circular member having overlapping adjacent ends, metal bonding means permanently and immovably securing said ends to each other, said ends having portions shaped to define an offset, handle means having a slot therein for receiving said offset therein, means accessible only from the inner periphery of said circular member for securing said ends to said handle means, and means for securing a liquid container firmly in engagement with said circular member, whereby said permanently and immovably secured ends prevent a change of dimension of said circular member in the event of twisting of the handle during use.

3,306,506
GARMENT HANGER CONSTRUCTION

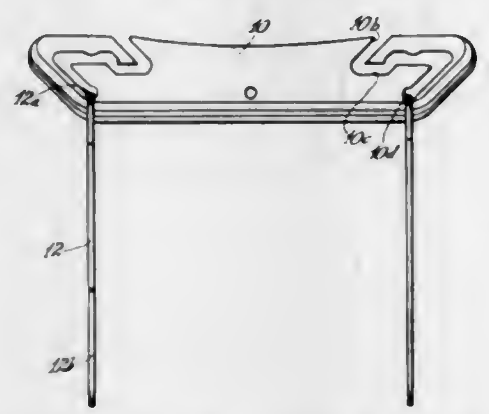
John H. Batts, Grand Rapids, Mich., assignor to John Thomas Batts, Inc., Zeeland, Mich., a corporation of Michigan
Filed Mar. 12, 1965, Ser. No. 439,320
1 Claim. (Cl. 223—88)



A molded plastic garment hanger having an enlarged header portion; a support element associated with said header portion; a pair of diverging thin legs extending downwardly and outwardly from the sides of said header portion; each of said legs extending forwardly from and out of the general plane of said header portion and having an upper surface of smoothly curved cross section; a trouser rod supporting terminal portion at the end of each of said legs extending downwardly therefrom and having spaced front and rear faces, the improvement in said hanger comprising: each of said rear faces of said terminal portions being inclined forwardly in an inward direction from a vertical plane tangent to and following the curvature of the bottom edge of the rear face of its supporting leg such that said rear faces of said terminal portions become progressively more undercut with respect to said rear edge of said leg from which they extend as they recede inwardly from the extremities of said legs and said rear faces of said terminal portions being offset with respect to vertical planes tangent to the curved rearward edges of the associated leg section as to not intersect said vertical planes when the hanger is loaded and tipped rearwardly to a stable position in response to the center of gravity of the hanger and load, thereby eliminating rearward protrusion of said rear face into a garment draped over the legs of said hanger.

3,306,507
CARRYING HANDLES

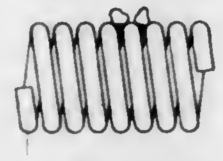
Glenn C. Wilson, 320 N. Euclid Ave., Oak Park, Ill. 60302
Filed Sept. 20, 1965, Ser. No. 488,592
1 Claim. (Cl. 224—45)



The combination with a carrying handle having terminal receptacles, each with a top entrance, an outward channel continued from the entrance, and a downward pocket continued from the channel; of a pair of hooks suspended from the carrying handle, each hook having a looped head portion locked in engagement with the handle by threading through the related entrance and channel to seat in said pocket and wrap around the bottom of the handle.

3,306,508
CUTTING MECHANISM

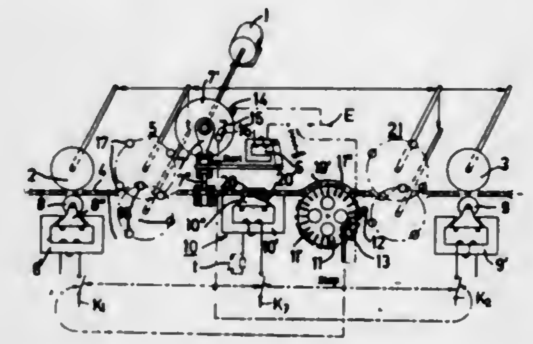
Harry R. Guedry, New Orleans, La., assignor of fifty percent to Associated Ideas, Inc., New Orleans, La., a corporation of Louisiana
Filed June 28, 1965, Ser. No. 468,193
1 Claim. (Cl. 225—97)



Apparatus for cutting particulate, fibriform materials, the individual elements of which are substantially equable in cross section comprising: at least one coil spring defined by a plurality of integral coil members, each coil member, by virtue of the spring design, normally pressed tightly against the adjacent counterpart coil member; support means attached to each end of said coil spring and adapted to locate and support said coil spring; reciprocating means with associated drive means therefor located adjacent at least one of said support means, said reciprocating means adapted, (a) to extend said spring and separate adjacent coil members a distance at least sufficient to pass individual elements of the particulate fibriform material through the interstices thus formed and, (b) to release said coil spring when extended, the speed of release being at least equal to the inherent recovery speed of the said spring.

3,306,509
DEVICE PROCESSING PERFORATED TAPE WITH TIME TRACK

Herbert Mahn, Hamburg-Garstedt, Germany, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 12, 1965, Ser. No. 432,203
Claims priority, application Germany, Mar. 7, 1964, P 33,784
4 Claims. (Cl. 226—43)

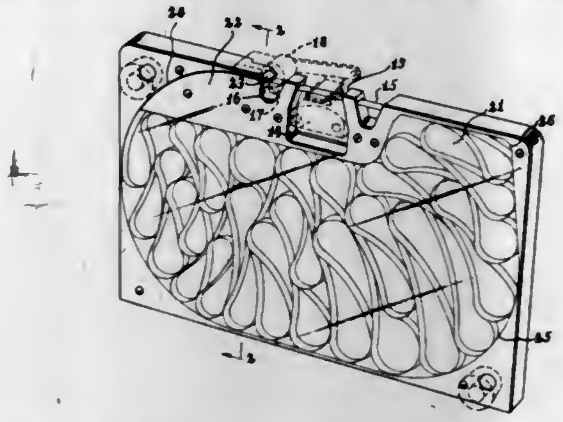


1. Apparatus for processing perforated tapes, comprising a perforating station, means for advancing the tape to the perforating station, means interposed between the perforating station and the advancing means for producing cyclically recurring acceleration and deceleration of the tape at the perforating station, said latter means comprising a first member rotatable about a given axis and comprising a plurality of pin members uniformly distributed in a circular pattern and projecting into the path of said tape and successively engaging the same, a second member rotatable about an axis spaced from the axis of the first member and rotating in synchronism with the rotation of said first rotatable member, said second member comprising a plurality of pin members uniformly distributed in a circular pattern and projecting into the path of said tape and interleaving the pin members of said first rotatable member thereby to cyclically vary the path length of the tape between said tape advancing means and said perforating station, tape braking means arranged adjacent to said perforating station, and tape length measuring means actuated by said tape and arranged to produce successive signal pulses upon the passage of successive predetermined lengths of tape, said measuring means being coupled to said braking means for actuating said braking means thereby to intermittently stop the tape.

3,306,510
ENDLESS TAPE CARTRIDGE

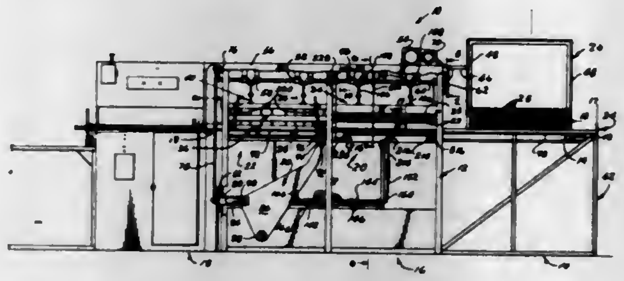
Robert T. Brumbaugh, Evanston, Ill., assignor to Mangood Corporation, a corporation of Illinois
Filed Aug. 19, 1964, Ser. No. 390,597
6 Claims. (Cl. 226—118)

1. An endless tape cartridge comprising, in combination with an endless loop of flexible tape, a container including parallel flat walls spaced apart a distance slightly greater than the width of the tape, edge portions closing the space between the flat walls at the periphery thereof, the edge portions being formed with arcuate recesses to receive rollers for driving the tape and with a slot therein aligned with the bite of the rollers through which the tape passes and terminating in thin lips closely adjacent to the bite of the rollers at the side thereof toward which the tape is moved, the lips and slot therebetween closely confining the tape between the bite of the rollers and a point downstream thereof in which the tape is in compression.



3,306,511
MACHINE FOR PRE-NAILING AND PRE-TACKING CARPET STRIPS

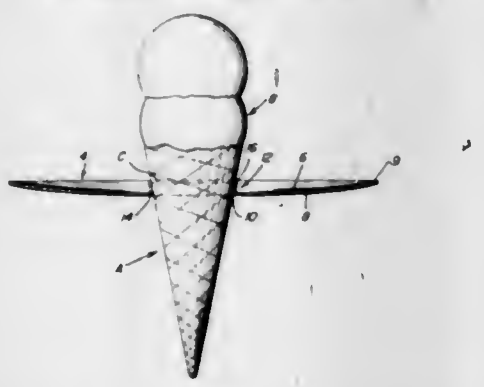
Guy W. Small, 172 E. Dexter St., Covina, Calif. 91722
Filed Apr. 19, 1965, Ser. No. 464,256
(Filed under Rule 47(b) and 35 U.S.C. 118)
11 Claims. (Cl. 227—103)



1. A machine for tacking and nailing carpet anchor strips comprising: an elongate supporting frame having infeed and outfeed ends, first work supporting and guiding means extending lengthwise of said frame from said infeed end toward said outfeed end for supporting and guiding said anchor strips for endwise movement along a first longitudinal direction line of said frame, said frame having a first operating station and a following inverting station spaced along said direction line, second work supporting and guiding means laterally offset from said first work supporting means and extending lengthwise of said frame from said inverting station to said outfeed end for supporting and guiding said anchor strips for endwise movement along a second longitudinal direction line of said frame parallel to and laterally offset from said first direction line, said frame having a second operating station along said second direction line, first conveyor means on said frame for feeding said anchor strip endwise along said first work supporting means in successive end to end relation from said infeed end to said inverting station in such manner that each strip is momentarily arrested at said first operating end inverting stations, second conveyor means on said frame for feeding said anchor strips endwise along said second work supporting means in successive end to end relation from said inverting station to said outfeed end in such manner that each strip is momentarily arrested at said second operating station, tack driving means on said frame at one of said operating stations operable when each strip is stationary at said one operating station for driving tacks through the respective strip from one side thereof to positions wherein said tacks protrude

beyond the opposite side of the strip at an angle to the plane of the strip, nail driving means on said frame at the other operating station operable while each anchor strip is stationary at said other operating station for driving nails part way through the respective strip from said opposite side thereof, inverting means on said frame at said inverting station for receiving each anchor strip endwise from said first operating station and thereafter simultaneously rotating and laterally translating the respective anchor strip to an inverted position on said second work supporting means, said work supporting means including fixed longitudinal shoulder means for supporting each anchor strip againt lateral movement while said tacks and nails are being driven through the respective strip, and operating means for driving said conveyor means, tack driving means, nail driving means, and inverting means in timed relation.

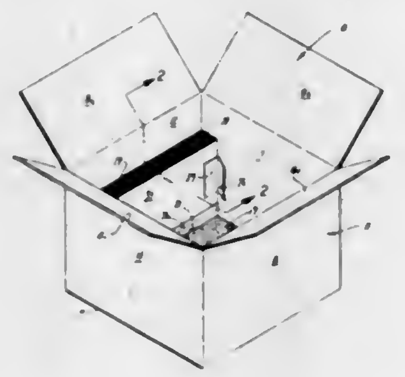
3,306,512
ICE CREAM DRIP TRAY
Edillo Pagnini, Hopedale, Mass., assignor to William V. Bellantonio, Milford, Mass.
Filed Feb. 26, 1965, Ser. No. 435,568
1 Claim. (Cl. 229—1.5)



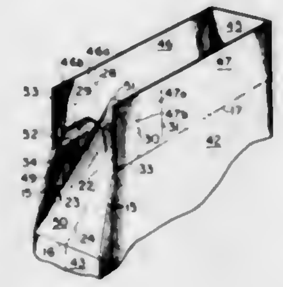
In combination, an inverted hollow cone-shaped container for foodstuffs such as ice cream, a generally horizontal drip tray for said container, said tray being constructed of a single horizontal panel-like body of somewhat deformable and flexible semi-stiff and liquid absorbent material and adapted to catch and absorb drippings from foodstuffs within said container which move by gravity downwardly along the outer surface of the container from the open upper major diameter end thereof, said body having a centrally disposed aperture formed therein, the inner peripheral portions of said body disposed about said aperture being struck upwardly and slightly outwardly to enlarge said aperture and form an integral, upwardly directed, vertically short and inverted truncated cone-shaped flange disposed about and defining said enlarged aperture between the inner surface portions of said flange, said cone-shaped container being wedgingly seatingly received in said enlarged aperture with the inner surfaces of said flange disposed in surface to surface contact with the opposing outer surfaces of said container spaced below the upper end thereof and above the vertical center of said container, said body, outwardly of said enlarged aperture, being imperforate in the area thereof adjacent and defining said flange and also slightly upwardly concaved so as to inherently provide additional stiffness to said body.

3,306,513
TEST TUBE SHIPPING CONTAINER
Sherman S. Fishman, P.O. Box 321,
San Francisco, Calif. 94101
Filed Oct. 24, 1965, Ser. No. 504,676
1 Claim. (Cl. 229—15)

A shipping container composed of a bottom, four upright walls, a top, a false bottom, a honeycomb section, a pleated bottom for the honeycomb with adhesive on each end, adhesive strips partially covered with wax paper; said bottom being attached to said upright walls, said upright walls having tops attached forming an enclosure; said false bottom loosely applied onto said enclosure bottom; said pleated bottom being attached at one end to an upright wall of said enclosure, its other end being attached to the outer bottom edge of said honeycomb; said honeycomb being attached to the same said upright wall; said adhesive strips being attached in part onto the outer surface of said honeycomb and adjacent to each upright wall which is 90° in relation to the said wall to which said honeycomb is attached; said bottom, walls and tops being made from a material selected from corrugated cardboard, styrenes and the like; said false bottom being made of a resilient material selected from rubberized felts, urethane foams, pellon and the like; said honeycomb being made of cardboard, chemically coated paper, metallic foils and the like; said pleated bottom being made from a selection of materials such as cardboard, latex coated paper and the like.

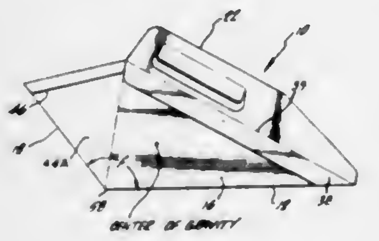


3,306,514
DISPENSING CARTON
Robert G. MacKendrick, Fairfield, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Apr. 13, 1965, Ser. No. 447,683
1 Claim. (Cl. 229—17)



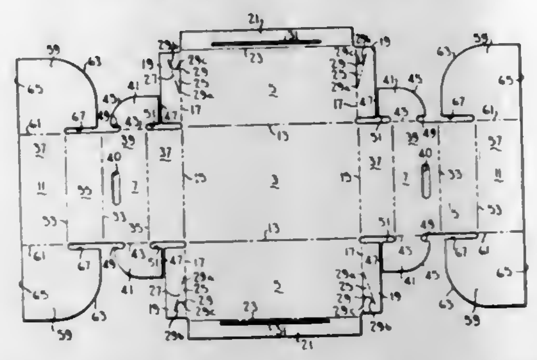
A reclosable dispensing carton formed of a single blank suitably cut and scored to provide a pair of opposed main panels, each of said panels having one of a pair of opposed edge-defining biased score lines extending from a lateral to a top edge near one corner thereof; a pair of opposed side panels hingedly connected to the lateral edges of said main panels, one of said side panels terminating in a score line at the point where said biased score lines intersect said lateral edges; a pair of bottom closure flaps hingedly connected to adjacent ends of said main panels; a pair of top closure flaps hingedly connected to adjacent ends of said main panels; a spout front panel hingedly connected to said one side panel along said terminating score line; a pair of opposed spout side panels each being superposed against and between said main panels and each hingedly connected along one edge to the edge of one of said main panels along said biased score lines, and hingedly connected along another edge to said spout front panel; a spout tab hingedly connected to the upper edge of said spout front panel lying in subposed relationship under and adhered to one of said top closure flaps and extending approximately to the upper termini of said biased score lines; a sealing flap hingedly connected to the upper edge of each of said opposed spout side panels, said sealing flaps positioned in underlying relationship to said spout tab and in non-adhesive contiguity therewith so that each sealing flap bears on the bottom of the spout tab along the conjunction of the spout side panel and the spout tab with sufficient pressure to form a seal which prevents leakage of granular material from the carton along the upper edge of each spout side panel; said spout front panel forming an angle with an extension of said one side panel twice that of the angle formed by said biased score lines and said extension; and lines of weakness in said top closure flaps and along the score lines connecting said top closure flaps and said main panels to facilitate tearing to open the spout; said spout in opened position having said spout front panel and spout side panels lying coplanarly with said one side panel and said main panels respectively.

3,306,515
DISPOSABLE CONTAINER
William E. Beaumont, Monterey Park, Calif., assignor to Nicholas E. Griffin, Pasadena, Calif.
Filed June 8, 1964, Ser. No. 373,271
4 Claims. (Cl. 229—22)



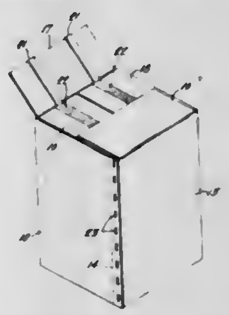
1. A collapsible, disposable urinal formed from a flat, unitary sheet of an impermeable material, and comprising:
- a hollow frustum of a pyramid having a triangular opening and having a substantially isosceles-triangular base with first and second side legs and a base leg;
- the frustum including first and second substantially flat and congruent walls integrally secured along the first and second side legs respectively of the base, the first and second walls extending upwardly from the base toward each other and secured together along their upper edges;
- the frustum having a third, substantially flat trapezoidal wall having a lower edge integrally secured to the base along the base leg, and having side edges integrally joined to the first and second walls;
- the frustum base having a first transverse crease formed along the base leg and a central first longitudinal crease extending across the base between the side legs to intersect the transverse crease, and
- the third wall having a central second longitudinal crease beginning at the intersection of the longitudinal and transverse creases in the base and extending across the third wall,
- whereby the base and third wall are foldable along the creases to be collapsed between the first and second walls and to collapse the hollow frustum to a substantially flat shape.

3,306,516
BOX
Leonard F. Taylor, Jr., 3113 Kimberly Ave., St. Louis, Mo. 63120
Filed Jan. 22, 1965, Ser. No. 427,361
6 Claims. (Cl. 229—36)



1. A box construction comprising a box bottom, two sides and two ends, a set of ears projecting inwardly into the box from the ends of each of the box sides, each of said ears having a staggered slit defining a tab in the ear, the lower end portion of each slit extending along the intersection of the box sides and ears and the other portions of the slit being offset from the lower end portion and located entirely in said ears, a set of tongues at each side edge of each of the box ends, the tongues projecting into the box through the slits in the ears thereby interlocking the ears and tongues, the tabs being deflectable by the tongues as they enter the box, each of said box ends being integral with the box bottom, the box ends being scored between the tongues to define lower and upper end panels, and the tongues being free from the box ends beneath the scoring wherein the lower panels of the box ends are placed against the ears and the upper panels and the tongues are then swung upwardly about the scoring for inserting the tongues through the ear slits for interconnecting the box sides and ends, said box comprising a second set of ears projecting into the box from the upper edge of the box sides, each of the ears of the second set of ears having a slot therein, and a box top joined to an end of the box and having two flaps at side edges thereof projecting into the box through the slots in said second set of ears when the top is closed.

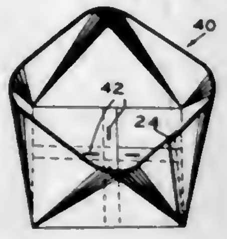
3,306,517
REINFORCED CARTON AND METHOD OF MAKING IT
William C. Diesinger, Jr., 624 Morris Ave., Bryn Mawr, Pa. 19010
Filed June 19, 1964, Ser. No. 376,538
5 Claims. (Cl. 229—37)



1. In a carton, in combination, four side panels forming a complete circumferential enclosure, and an end closure flap hingedly connected to at least one of said side panels, the side panel carrying said flap and the opposite side panel having a reinforcing strip, of material which is considerably stronger in tension than the material forming the side panels and end flap, secured thereto, said reinforcing strip extending across said flap, and means forming a tension load-carrying connection through the flap and strip between said opposite side panels.

3,306,518
PLASTIC CONTAINER FOR PLANTS

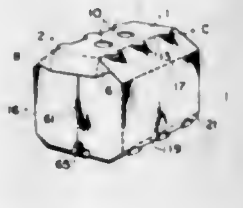
Thomas K. Connellan, 20484 E. River Road,
Grosse Ile, Mich. 48138
Filed June 30, 1965, Ser. No. 468,442
11 Claims. (Cl. 229—37)



8. A container for plants having a side wall and a bottom wall closing said side wall at one end thereof, said container having one square edge at the top of said side wall and another square edge at the bottom of said side wall, and said container being characterized by a relationship between said square edges wherein the sides of said top square edge extend at angles of 45° relative to the sides of said bottom square edge.

3,306,519
BOTTLE CARRIER

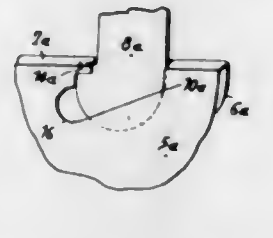
Prentice J. Wood, Jonesboro, Ga., assignor to The Mead Corporation, a corporation of Ohio
Filed July 25, 1966, Ser. No. 567,532
6 Claims. (Cl. 229—40)



3. A carrier formed from a unitary blank for packaging two rows of bottles having their axes disposed in substantially parallel relationship, said carrier comprising a top panel, a pair of top sloping panels foldably joined to opposite sides of said top panel, an upper end panel at each end of the carrier foldably joined to said top panel and having foldable connections with said top sloping panels whereby said upper end panel is disposed at a substantial angle to said top panel, a pair of side wall panels foldably joined respectively along the lower edges of said top sloping panels, a pair of bottom panels having foldable connections respectively with the bottom edges of said side wall panels, fastening means for securing said bottom panels together with said side wall panels in predetermined spaced relation, a pair of door panels at each end of the carrier having hinged connections with the end edges of said side wall panels respectively, each said pair of door panels having a combined width greater than said spaced relation of said side wall panels, the height of each said door panel being less than the height of said top panel above said bottom panels by a distance approximately equal to the vertical component of the width of one of said end panels, interlocking means for securing each said pair of door panels together to form a substantially complete closure for the ends of the carrier except for the resulting space between said top panel and the tops of each said pair of door panels, and said foldable connection between said end panel and said top sloping panels including web panels proportioned to hold the associated end panel in generally vertical position in the assembled carrier such that each said end panel effectively closes the space between the associated said door panels and said top panel.

3,306,520
ASSEMBLY OF ELEMENTS OF A PACKING-BOX OF CORRUGATED CARDBOARD OR SIMILAR DEFORMABLE MATERIAL

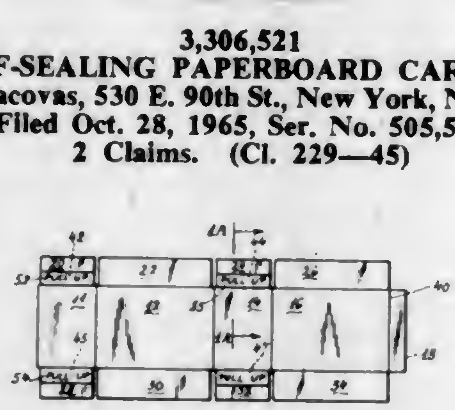
Adrien Allard, Brive-la-Gaillarde, France, assignor to Societe à Responsabilite Limitee: Allard & Fils, Brive-la-Gaillarde, France, a corporation of France
Filed Feb. 9, 1965, Ser. No. 431,287
Claims priority, application France, Feb. 11, 1964, 963,349, Patent 1,396,369
5 Claims. (Cl. 229—45)



1. A system of assembly of two elements of a packing-box of semi-rigid material capable of deformation, wherein one of the elements comprises at least one shoulder provided with at least one lug, the said shoulder being adapted to act as a latch and being introduced into a housing formed between two superimposed thicknesses of the other element, the said housing comprising, between the said two thicknesses, an abutment for each lug of the latch so as to serve as a staple, and being provided with an opening, the dimensions of which are such that the introduction of the latch into the housing through the said opening can only be effected after having deformed the latch so as to bend it, the latch then resuming its initial shape by elasticity between the two thicknesses delimiting the staple in which it is thus locked, said window through which the latch is introduced being formed in one of the two thicknesses of the element which carries the staple.

3,306,521
SELF-SEALING PAPERBOARD CARTONS

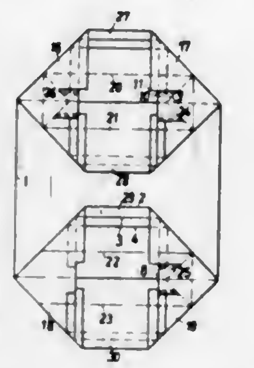
Alfred Giacovas, 530 E. 90th St., New York, N.Y. 10028
Filed Oct. 28, 1965, Ser. No. 505,509
2 Claims. (Cl. 229—45)



1. A fiberboard carton having a rectangular body with side and end was hingedly connected together and being open top and bottom, closure side and end flaps extending from and hingedly connected to the top edges of said side and end walls, tacky adhesive closure securing means applied to opposing closure flaps, said securing means including tapes having tacky adhesive areas and secured upon one surface of certain of the closure flaps, said adhesive areas on the tapes being adapted to be adhesively united with other opposing closure flaps, pull cover strips extending over the tacky adhesive areas of the tapes, said tacky adhesive closure securing tapes being applied to the opposed end wall closure flaps, the tape adhesive areas being constituted by pressure sensitive adhesive coated on the outer surface of the tapes, and means for securing the tapes to the end wall flaps, the pull cover strips extending across the tapes over the pressure sensitive adhesive on the tapes in side-by-side relation and running lengthwise of the end wall flap over the base and free end portions thereof.

3,306,522
MULTI-LAYER CROSS-BOTTOM BAG

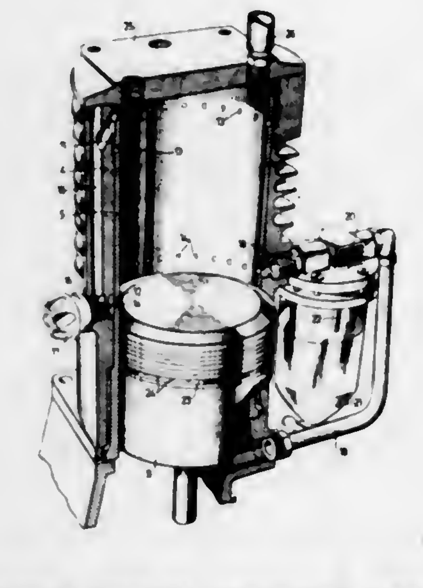
Karl-Heinz Honsel, Bielefeld, Germany, assignor to Erwin Behn Verpackungsbedarf G.m.b.H., Krefeld, Germany, a firm
Filed Mar. 10, 1966, Ser. No. 533,160
Claims priority, application Germany, Mar. 17, 1965, B 81,024
7 Claims. (Cl. 229—55)



1. Multi-layer cross-bottom bag of paper or the like comprising at least an inner and an outer tubular layer, each having bottom side folds turned inwardly towards one another and corner flaps formed in each tubular layer proximate the ends of said side folds by longitudinal incisions and adapted to be glued onto the associated inwardly turned side folds, the layers of said corner flaps formed by said longitudinal incisions being arranged in positively staggered fashion from the inside layer toward the outside layer.

3,306,523
PRESSURE IMPULSE TRANSMITTER

Erling Ingvar Nilsson, Lund, Sweden, assignor to AB Akerlund & Rausing, Lund, Sweden, a firm of Sweden
Filed June 28, 1965, Ser. No. 467,594
4 Claims. (Cl. 230—46)



1. A pressure impulse transmitter comprising

a power-operated compressor including a cylinder, a crankcase, and a piston movable in said cylinder;

means for communicating the cylinder with at least one pressure impulses-receiving unit;

means for communicating the cylinder with atmosphere at the end of the compression stroke of said piston and including an annular groove in the wall of said cylinder communicating with the interior of said cylinder and an annular groove in said piston communicating through said piston with the crankcase;

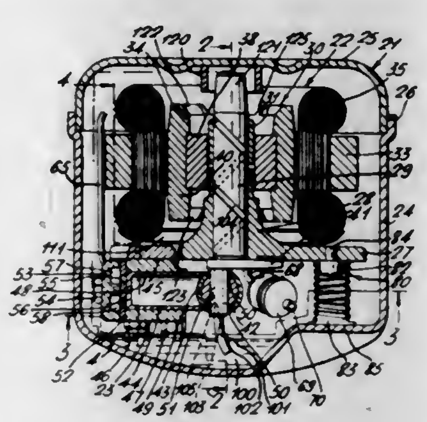
said piston annular groove being located so as to be opposite the cylinder wall annular groove at the end of the compression stroke of the piston and to connect the interior of the cylinder with the crankcase;

flow-resistant means connected between said cylinder wall annular groove and the crankcase; and

adjustable valve means for communicating the interior of the cylinder at the top thereof continuously with the crankcase in series with said flow-resistant means, to control the degree of compression achieved at the compression stroke of the piston.

3,306,524
HERMETICALLY SEALED MOTOR-COMPRESSOR

Koitiro Matuki, Ohta, Gunma, and Yutaka Hirano and Toshio Sunahara, Oh-ra-gun, Gunma, Japan (all % Tokyo Sanyo Electric Co., Ltd., 180 Aza Oh-tana, Oh-aza Sakata, Oh-izumi-cho, Oh-ra-gun, Gunma, Japan)
Filed Mar. 5, 1965, Ser. No. 437,490
Claims priority, application Japan, Mar. 5, 1964, 39/17,349; Mar. 10, 1964, 39/18,702; Mar. 13, 1964, 39/19,584; May 15, 1964, 39/37,862; June 16, 1964, 39/47,959
5 Claims. (Cl. 230—58)



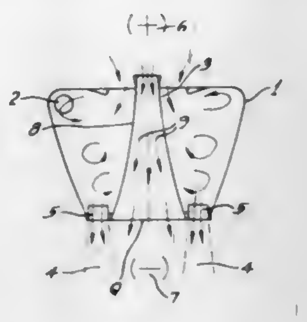
1. A hermetically sealed motor-compressor comprising a compressor, said compressor including a cylinder and having an intake muffler chamber and exhaust muffler chamber horizontally disposed on opposite sides of the cylinder, a motor driving the compressor, a frame having the motor mounted on the upper side thereof and the compressor mounted on the lower side thereof, a hermetically sealed casing enclosing the motor, compressor and frame, said casing having raised seats in the bottom thereof, and three resilient support means resiliently supporting the frame at the underside thereof, said three resilient support means being arranged in angularly spaced relation at substantially 120° intervals on a circle having a diameter smaller than the outside diameter of the motor and being mounted between the bottom surface of said frame and the raised seats formed in the bottom of said casing, and said cylinder with said two muffler chambers being disposed between two of said three resilient support means in such a manner that said two muffler chambers on the opposite sides of said cylinder are arranged substantially on the portion of said circle between said two resilient support means.

3,306,525
APPARATUS FOR AUGMENTING JET THRUST

Silvius Dornier, Friedrichshafen, Germany, assignor to Dornier-Werke, G.m.b.H., Friedrichshafen (Bodensee), Germany, a corporation of limited liability of Germany
Filed Nov. 2, 1964, Ser. No. 408,008
3 Claims. (Cl. 230—95)

1. An apparatus for converting a primary propellant jet of a low mass flow and high flow velocity into a secondary propellent jet of higher mass flow and lower flow

velocity as a result of admixture of the jet with a surrounding medium which comprises means for introducing the primary jet tangentially into a generally cylindrical mixing container having an inlet opening in one of the end walls thereof for the inflow of the mixing medium, an annular outlet opening for the secondary jet in the periphery of the other end wall, and a flow channel extending axially through the container.



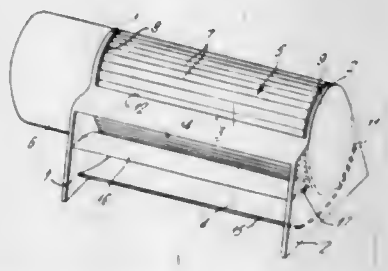
3,306,526
FANS

Nikolaus Laing, Aldingen, near Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.

Original application Nov. 26, 1963, Ser. No. 326,297, now Patent No. 3,258,195, dated June 28, 1966. Divided and this application Mar. 2, 1966, Ser. No. 531,081

Claims priority, application Germany, Mar. 11, 1960, L 35,582

1 Claim. (Cl. 230—125)



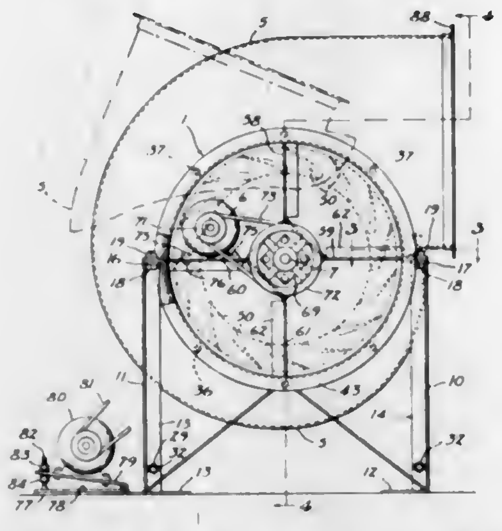
A table fan comprising a substantially unguarded bladed cylindrical rotor of a lightweight construction mounted for rotation about a longitudinal axis; guide means cooperating with the rotor on rotation thereof to induce a flow of air from an entry region through the path of the rotating blades of the rotor to a discharge side thereof, said guide means including a pair of vertical end plates, a first guide wall extending between and interconnecting the end plates which on rotation of the rotor forms and stabilizes a fluid vortex having a core which interpenetrates the path of the rotating blades of the rotor, a second guide wall extending between the end plates and having upstream and downstream ends and defining with said end plates and said first guide wall an outlet, portions of said end plates extending below said second guide wall to provide supporting feet adapted to support said fan on a supporting surface, and a portion of said second guide wall adjacent its downstream end having a vertical component of direction whereby said outlet extends in an upward direction and air passing through said outlet will be guided upwardly away from the supporting surface; an enclosed electric motor mounted on one end plate in alignment with the rotor; flexible mounting means for mounting one end of the rotor on the motor shaft for substantial universal movement with respect thereto; and flexible mounting means for mounting the opposite end of the rotor for substantially universal movement with respect to an end plate.

3,306,527
CENTRIFUGAL BLOWER AND MOUNTING MEANS THEREFOR

Loren Cook, Berea, Ohio, assignor to Loren Cook Company, a corporation of Ohio

Filed Aug. 27, 1964, Ser. No. 392,577

12 Claims. (Cl. 230—127)



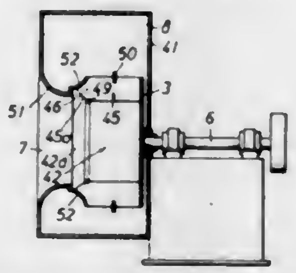
1. A system including a blower having an air inlet means and a discharge outlet, mounting means for said blower including a pair of rings, each having upper and lower separable parts, means for releasably securing the parts of each of said rings together, means for supporting said rings, and annular means associated with each end of said blower which may be positioned within the lower parts of said rings when the upper parts of the rings are removed, said annular means being held in position when the upper parts of said rings are positioned over said annular means and said securing means is set to hold the annular means within the rings, said blower being rotatable when the upper rings of the mounting means are loosely secured to the lower rings and said securing means being adjustable to a position in which said rings engage said annular means with sufficient force to prevent rotation of said blower relative to said rings, thereby enabling its air discharge means to be set in any desired position.

3,306,528
CENTRIFUGAL BLOWER

Bruno Eck, Geisbergstrasse 24, Cologne-Klettenberg, Germany

Filed Sept. 22, 1965, Ser. No. 489,371

19 Claims. (Cl. 230—127)



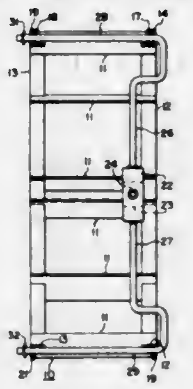
1. A centrifugal blower of the drum impeller type comprising a housing, axial inlet means associated with said housing, peripheral outlet means associated with said housing, an impeller drum rotatably mounted within said housing, said impeller drum being formed of a plurality of impeller blades, said impeller drum having free edges radially spaced from the axis of rotation to define an open end axially aligned with said inlet means whereby a substantial portion of air entering the open end of said drum enters said blades radially, each of said impeller blades having a portion extending radially inwardly of said inlet means and a portion extending radially outwardly of said inlet means to provide an internal diameter of said impeller less than the diameter of said inlet means and an external diameter of said impeller greater than the diameter of said inlet means, the portion of the blades adjacent said open end being of reduced exterior diameter and bent in a peripheral direction, and a cover ring over only said reduced diameter portion of said blades and secured thereto to rotate with said blades whereby to separate the inlet to the blades from said outlet means.

3,306,529
CENTRIFUGAL IMPELLER

James K. Nelson, Des Plaines, Ill., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 16, 1964, Ser. No. 411,263

7 Claims. (Cl. 230—134)



1. A centrifugal impeller suitable for mounting on a shaft comprising:

a unitary blade assembly of flexible material and having a pair of substantially parallel flexible side members and

a plurality of blades each connected between said side members,

a hub for connecting said blade assembly to said shaft, and

a plurality of radially projecting spokes spaced circumferentially not less than 60 degrees and each having one end disposed on said hub and the opposite end thereof in engagement with said blade assembly,

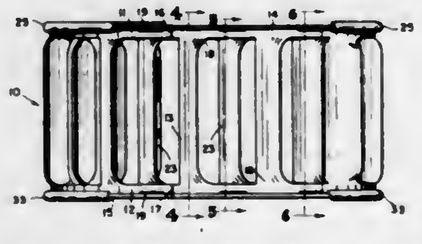
the engagement of said opposite spoke ends with said blade assembly thereby serving as the only radial support for said assembly, and the flexibility of said blade assembly material being such that the assembly of blades in an annulus assumes a circular form only under the influence of centrifugal forces resulting from rotation of the assembly about the axis of the shaft.

3,306,530
INTEGRAL AND INSERTED BLADE BLOWER WHEEL

Robert A. Beesley, Columbus, Ind., assignor to Vernco Corporation, Columbus, Ind.

Filed July 28, 1966, Ser. No. 568,579

4 Claims. (Cl. 230—134)



1. In a blower wheel comprising a pair of laterally spaced apart end lands;

a flange turned at approximately right angles to and from each of said lands from outer edges thereof radially of the wheel;

a plurality of blades integrally connected by ends to said lands;

each of said lands having a slot spaced between integral blades and along the outer edge of a land removed from its integral blade attaching edge;

an insertable blade having a flange extending laterally of and at each end of the blade;

said blade flanges entering respectively a slot at one land and an opposite slot at the other land;

said insertable blade having a length from which said blade flanges extend at each end, lapping across said lands; and

ring means wrapping over said land flanges and along said blade lengths, retaining said blade flanges in said slots.

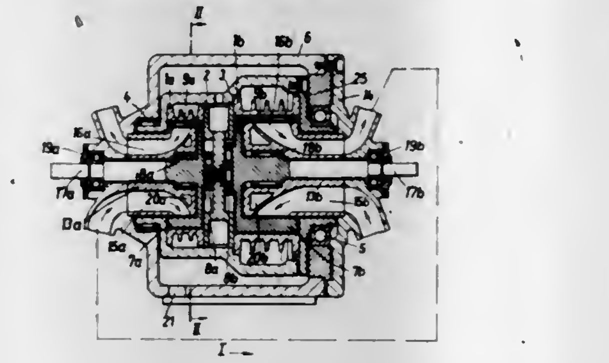
3,306,531
ROTARY PISTON MACHINE WITH ROTARY PISTONS ONE ARRANGED WITHIN AND ECCENTRICALLY WITH REGARD TO THE OTHER

Klaus Oppermann, Berlin, Germany, assignor to Borsig Aktiengesellschaft, Berlin-Tegel, Germany, and Wankel G.m.b.H., Lindau (Bodensee), Germany

Filed Sept. 7, 1965, Ser. No. 485,495

Claims priority, application Germany, Sept. 14, 1964, B 78,526

5 Claims. (Cl. 230—141)



1. A rotary piston machine having a housing and barrel jacket means rotatably journalled in said housing, which includes: shaft means rotatably journalled in said housing, inner rotary piston means connected to said shaft means for rotation therewith, outer rotary piston means connected to said barrel jacket means for rotation therewith and eccentrically arranged with regard to and surrounding said inner piston means, said inner rotary piston means together with said outer rotary piston means and said barrel jacket means confining working chambers, said housing means being provided with passage means communicating with said chamber means for conveying a gaseous medium into and out of said chamber means, and means drivingly connecting said inner piston means with said outer piston means and said barrel jacket means.

3,306,532
APPARATUS FOR REPELLING INSECTS

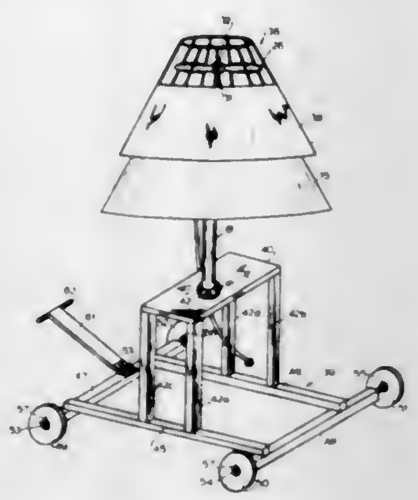
Odas F. White, Box 833, Hillsborough, N.C. 27278

Filed July 27, 1965, Ser. No. 475,046

6 Claims. (Cl. 230—241)

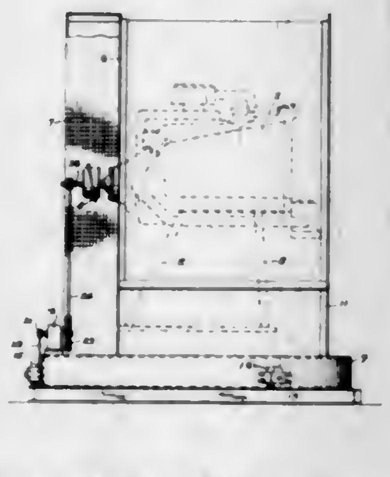
1. A mobile shade and insect repelling apparatus for a picnic table or the like comprising a cart, said cart having a pair of spaced axles, ground engaging wheels rotatably mounted on each extremity of said axles, frame members joining said axles in a fixed relationship, and a U-shaped plate invertedly mounted on said frame members, said U-shaped plate adapted to slide across the top of and reside on said table; a vertically mounted post means rigidly secured to the upwardly extending portion of said inverted U-shaped plate; first and second cone shaped, air deflecting members securely mounted on and being in axial alignment with said post means, said second cone member being spacially positioned above and concentric with said first cone member; a propeller rotatably mounted above said first cone member about a

common axis; and means mounted on said post means and connected to said propeller for driving the same at a relatively high revolving speed whereby air is forced downwardly between the outer surface of said first de-



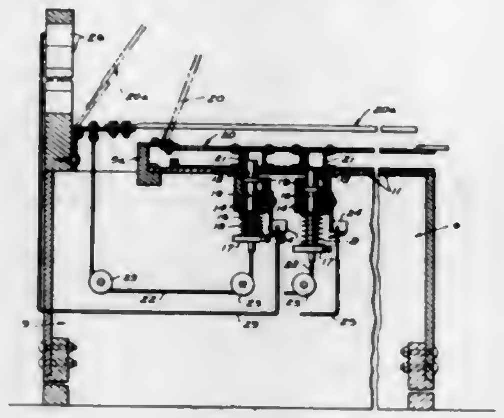
flecting member and the inner surface of said second deflecting member thereby establishing a wall of downwardly and rapidly moving air surrounding said area being effective to repel insects attempting to enter the same.

3,306,533
ORCHARD AIR MIXER WIND MACHINE
Rodney A. Vertrees and Carl E. Nelson, both of Rte. 1, Box 116, Rio Oso, Calif. 95674
Filed Apr. 1, 1965, Ser. No. 444,567
5 Claims. (Cl. 230—258)



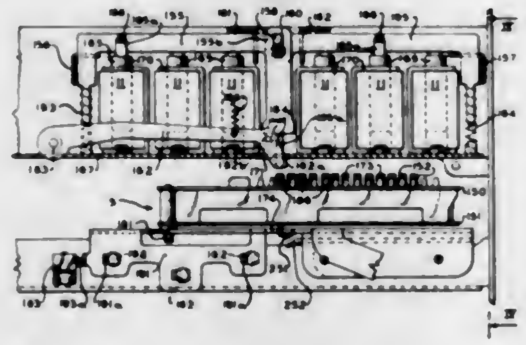
1. In an air mixer for orchards,
- (a) a cylindrical air tunnel of substantially uniform inside diameter throughout its length, having an intake end and an exhaust end of substantially the same diameter,
- (b) an internal combustion engine within said air tunnel,
- (c) means to mount said engine substantially along the axis of said tunnel thereby to space said engine from the inside surface of said cylindrical tunnel all around the engine to form an air passage surrounding said engine,
- (d) a propeller driven by said engine, said propeller being spaced from said intake end of said tunnel outwardly thereby to draw air into and impel air through said passage around said engine,
- (e) a base,
- (f) a support for said tunnel rotatably supported on said base, and
- (g) rotating means connected to and driven by said engine to rotate said support and the tunnel thereon on said base.

3,306,534
VOTE COUNTING MACHINE
Gene C. Holmes, 5708 Briarcliff Road, Los Angeles, Calif. 90028
Filed Sept. 23, 1965, Ser. No. 489,556
1 Claim. (Cl. 235—50)



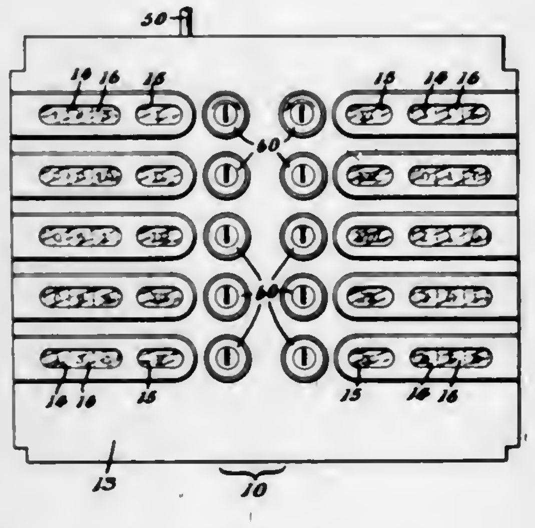
A machine for counting votes cast on a punchable ballot, comprising:
- (a) a ballot receiving plate having a plurality of holes underlying all of the punchable locations on the ballot;
- (b) a plurality of pins mounted under said plate for movement upwardly through said holes;
- (c) springs for urging said pins upwardly through punchings in said ballot, said springs having insufficient force to pierce said ballot whereby said pins are restrained by said ballot in those locations which have not been punched;
- (d) counters for said pins, each responsive to movement of its corresponding pin through a punching thereby to tabulate the punchings on the ballot;
- (e) a cover for holding said ballot on said plate and having recesses overlying said apertures to receive pins which move through said ballot;
- (f) retaining cords attached to said pins;
- (g) and an operating member attached to all of said cords for retracting all of said pins for placement of a ballot on said plate.

3,306,535
DIGITAL SELECTOR CARRIAGE FOR PRINTING MACHINE OR OTHER REGISTERING DEVICES
Heinrich W. Wagemann, West Orange, N.J., assignor to Monroe International Corporation, a corporation of Delaware
Original application Sept. 21, 1960, Ser. No. 57,498, now Patent No. 3,139,169, dated Sept. 21, 1960. Divided and this application Mar. 13, 1964, Ser. No. 357,001
6 Claims. (Cl. 235—60)



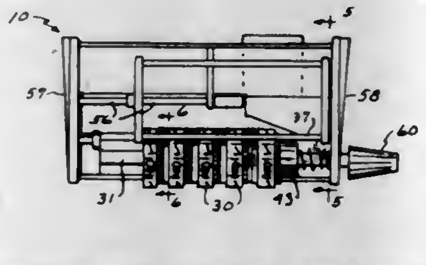
1. In a data processing machine: a carriage mounted for full steps of shifting movement; said carriage comprising a value selection carriage including an ordinally arranged series of differentially adjustable value selection means whose ordinal spacing is equal to the size of each full step of shifting movement; shift control means for controlling said carriage to partake of said steps of movement; and electrical switching means operated in a given mode of operation only if said carriage actually shifts a full step of movement.

3,306,536
MULTIPLE TOTALIZER
Ronald M. Wilson, Ambler, Pa., assignor to William M. Wilson's Sons, Inc., Landsdale, Pa., a corporation of Pennsylvania
Filed July 20, 1965, Ser. No. 473,444
13 Claims. (Cl. 235—91)



8. A multiple totalizer for recording the operation of a machine by any one of a number of operators on his individual counter, said totalizer comprising
- a plurality of individual counters mounted in two or more rows one counter above the other, each counter having a driving shaft extending parallel to the other shafts,
- an input shaft for each row of counters, extending transverse to the individual counter shafts, a cross shaft connected to each input shaft by bevel gears so that each shaft and the cross shafts revolve in unison, one of such shafts being connected to the machine whose operation is to be recorded, said shaft being rotated when the machine is operated.
- a plurality of lock cylinders mounted one cylinder above the other with their axes substantially parallel in two or more rows, each lock cylinder being associated with a particular counter and operated by only a key of a particular conformation, each lock cylinder having a cam or stud extending axially from the end surface at a location proximate the perimeter of said surface,
- a lock bar extending transverse to the axes of the lock cylinders, said bar having two or more rows of substantially L-shaped slots formed therein, one segment of the slot being lengthwise and one segment being transverse to the bar, each slot being located substantially opposite the end surface of a lock cylinder to receive the cam or stud of a lock cylinder therein, the lock bar being mounted for limited longitudinal movement,
- an electrical circuit connecting the machine and a power source, said circuit having an operator switch and a lock bar switch, said lock bar switch being located adjacent the lock bar whereby the switch remains open when the lock bar is in its initial position and the switch is closed when the lock bar is moved lengthwise into its operative position, and
- a latch bar for each counter mounted one above the other in two or more rows for limited movement transverse to the lock bar, one end of each latch bar abutting the lock bar having a slot formed to receive the cam or stud of a lock cylinder therein, each latch bar being detachably in contact with the driving shaft of an individual counter to engage and disengage the counter shaft with an input shaft when said bar is moved lengthwise whereby after insertion of an operating key in a particular lock cylinder, the lock cylinder is rotated causing the cam or stud to move the lock bar upward, thereby preventing rotation of any other lock cylinder stud and closing the lock bar switch to complete the machine operating circuit, and said lock cylinder cam or stud moves the associated latch bar lengthwise to engage its individual counter shaft with an input shaft so that operation of the machine is recorded on said individual counter.

3,306,537
ALIGNING DEVICE FOR THE PRINTING WHEELS OF AN ELECTRO-MAGNETIC COUNTER
Edward J. Zeitlin, Peekskill, N.Y., assignor to Standard Instrument Corporation, New York, N.Y.
Filed Feb. 3, 1965, Ser. No. 430,121
2 Claims. (Cl. 235—131)

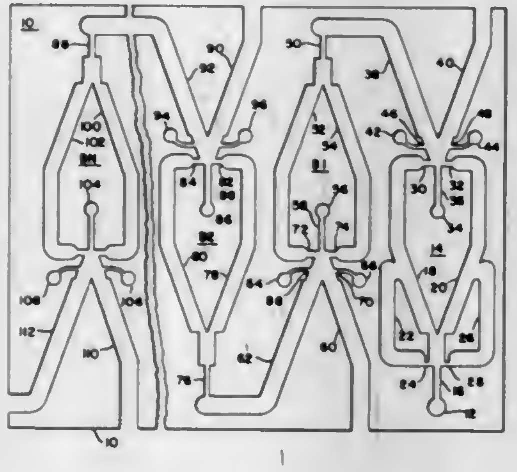


1. In a counting and printing apparatus having a counteractuating drive
- a plurality of counting wheels mounted in a row in adjacent relationship on a single shaft and freely rotatable thereon,
- a first counting wheel connected to said counter-actuating drive,
- each wheel provided with indicia on its surface,
- each wheel provided with an integral gear on one side and a single gear pocket on the opposite side,
- a plurality of inter-connecting gears mounted on a second shaft and freely rotatable thereon,
- said interconnecting gears provided with a plurality of teeth and having a rounded curvature from tooth to tooth,
- each inter-connecting gear positioned between two adjacent counting wheels and meshed with the integral wheel gear and meshable with the single pocket of the adjacent gear,
- a pivotally mounted frame that is mounted on one side of said counting wheels and is provided with a straight alignment bar that extends from one side of said row of counting wheels to the other side.
- said alignment bar positioned to abut with each interconnecting gear and to fit the curvature of said gear between teeth to hold all gears in an aligned relationship,
- said pivotal frame being unbalanced so that the force of gravity will always drop said frame when free in a counter-clockwise direction,
- said pivotal frame movable in a clockwise direction by the thrust of said interconnected gears when they are driven by the counter drive.

3,306,538
FLUID TIMER
Samuel T. McCracken, Jr., Burlington, Vt., assignor to General Electric Company, a corporation of New York
Filed Nov. 20, 1963, Ser. No. 324,992
4 Claims. (Cl. 235—201)

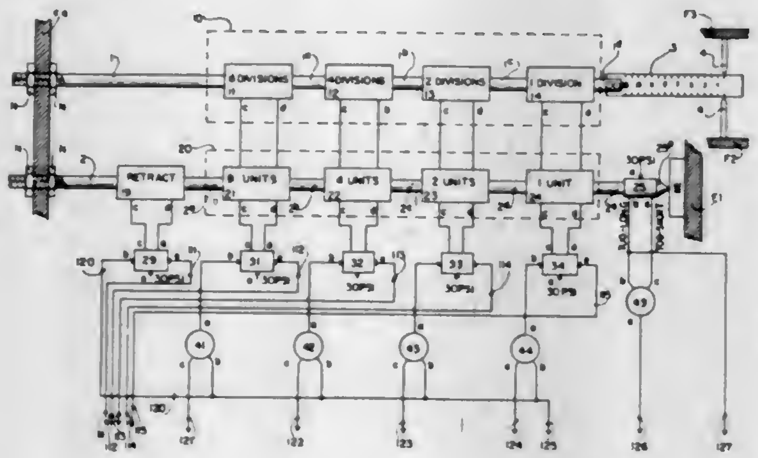
1. A fluid timer comprising:
a source of pressurized fluid;

a multistage fluid binary counter, each stage of said counter having
  a stage input passage,
  a pair of divergent signal input passages joined at their upstream ends to said input passage, and
  a fluid amplifier portion including a supply port connected to said source, the downstream ends of said divergent signal input passages terminating in signal input orifices or said fluid amplifier portion;



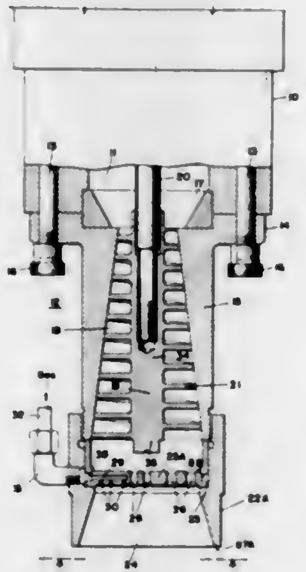
a fluid oscillator connected to said source;
said fluid oscillator producing periodic fluid pulses;
means for delivering said fluid pulses to the input passage of the first stage of said binary counter; and
means for setting each stage of said binary counter to either of its two operating states, said setting means comprising a pair of ports having control orifices emitting fluid pulses, alternatively, said control orifices being associated with the signal input orifices in the fluid amplifier portion of each counter stage to control the output of the respective stages.

3,306,539
ANALOG-TO-DIGITAL CONVERTER
Charles J. Grimland, Garland, Tex., assignor to The Geotechnical Corporation, a corporation of Delaware
Filed Oct. 6, 1964, Ser. No. 401,844
20 Claims. (Cl. 235—201)



1. A dimension measuring device comprising:
(a) a sensing head having a member movable to a "null" position wherein the head delivers a null signal;
(b) step-by-step means for advancing the head through graduated increments in the absence of a "null" signal; and
(c) inhibit means connected to the sensing head to receive said "null" signal, and connected to said step-by-step means for inhibiting further advance of the head.

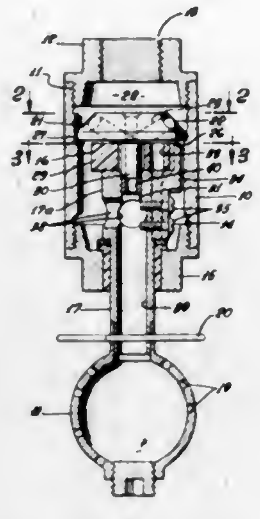
3,306,540
URETHANE-FOAM MIXING HEAD
Herman E. Reichert, Willow Grove, Pa., assignor to Jennings Machine Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 20, 1964, Ser. No. 390,862
5 Claims. (Cl. 239—142)



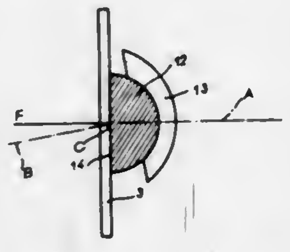
1. A dispenser attachment for a foam-mixing head comprising
  a hollow nose cone having a passage which at one end receives material from said head for discharge from the opposite end,
  a spray plate extending across said passage intermediate said ends thereof, said plate having holes extending therethrough for passage of said material and having passages extending intermediate opposite faces of the plate to ports opening only on the discharge face of the plate,
  said nose cone having a fitting for supply of gas under pressure to the port passages of said spray plate,
  a housing removably attached at one end to the mixing head for communication with a mixing chamber thereof and at its other end provided with means for detachably receiving said nose cone, and
  a helical agitator removably attached to a shaft extending through and beyond said mixing chamber into said housing.

3,306,541
ROTATING SPRAY DEVICE
Jay W. Lord, Jr., Wayne, Pa., assignor to Purex Corporation, Ltd., Lakewood, Calif., a corporation of California
Filed Nov. 16, 1964, Ser. No. 411,213
5 Claims. (Cl. 239—230)

1. A rotating spray device comprising a tubular body having at one end a liquid inlet, a circular member containing liquid discharge passages, a rotatable rotor-governor rotatably driven and centrifugally displaced by liquid discharged from said circular member, a tubular shaft rotatably driven by the rotor-governor, said shaft having an opening in the wall thereof for receiving liquid from the rotor-governor, a spray head carried by said shaft, and means forming a passage through which liquid discharged from the circular member by-passes the rotor-governor and joins the liquid flowing through said shaft to the spray head.



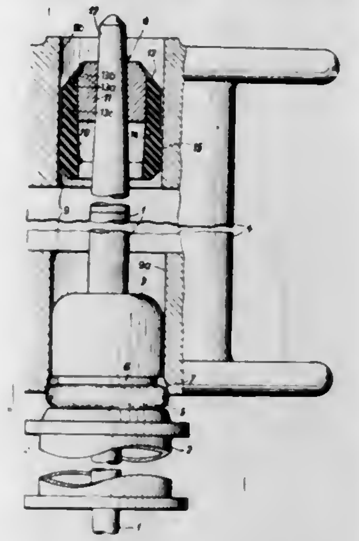
3,306,542
DEVICES FOR CONNECTING DUCTS, IN PARTICULAR FOR ATTACHING THE EJECTION DUCTS OF JET PROPULSION UNITS
André Alphonse Médéric Léon Camboulives, Billancourt, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France, a company of France
Filed Mar. 1, 1965, Ser. No. 435,855
Claims priority, application France, Mar. 5, 1964, 966,285
7 Claims. (Cl. 239—265.35)



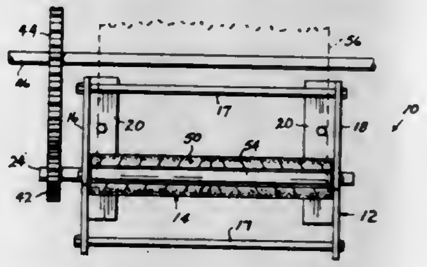
1. In combination with a jet pipe having an outer integral flange protruding generally transversely with respect to the longitudinal axis of said pipe, a jet pipe attachment device comprising a stationary housing, and a shoe accommodated in said housing for substantially free pivotal motion with respect thereto about an axis substantially perpendicular to said longitudinal axis, but refrained from free relative longitudinal displacement, said shoe having a bearing face engaging said flange, the mutual arrangement of said bearing face and said flange being such that the center of pressure of contact therebetween remains in a plane through said longitudinal axis irrespective of relative angular displacements of said jet pipe.

3,306,543
YARN CARRIER MOUNTING DEVICE
Karl Beerli, Niederuster, Zurich, Switzerland, assignor to Spindel-Motoren- und Maschinenfabrik A.G., Uster, Zurich, Switzerland
Filed Sept. 22, 1965, Ser. No. 489,197
Claims priority, application Switzerland, Aug. 21, 1962, 9,976/62
5 Claims. (Cl. 242—46.6)

1. A device for removably mounting a tubular yarn carrier on a rotatable spindle in a textile machine, comprising a metal core adapted to be secured to a spindle adjacent the outer end thereof for rotation therewith, and a sleeve of elastically compressible and flexible material surrounding said core and secured thereto at an annular surface of angularly coupling contact therewith, said sleeve having an annular centering portion overlying said surface of coupling contact, and an internally unsupported continuous annular portion axially offset from said centering portion and surface of coupling contact with said core, the outer diameter of said sleeve on said internally unsupported annular portion, as measured in the absence of external forces, being larger than the internal diameter of a yarn carrier mounted onto a spindle so that an immediate positive coupling is secured.



3,306,544
TOWEL WINDER
Buell L. Davis, Oklahoma City, Okla., assignor to Rollett Mfg., Inc., Oklahoma City, Okla.
Filed June 28, 1965, Ser. No. 467,536
5 Claims. (Cl. 242—55)

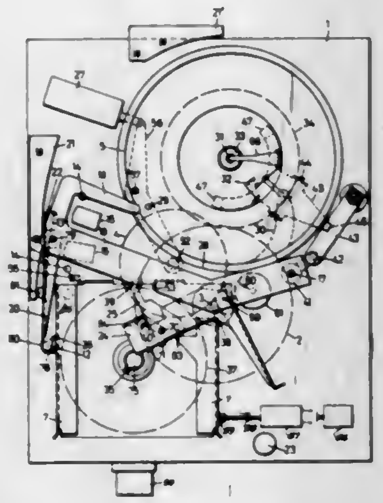


1. A towel winder, comprising: a frame; a driven shaft journaled by said frame; a sleeve surrounding said driven shaft within said frame; a friction clutch connecting said sleeve to said driven shaft, said clutch comprising a lock disk rotatably surrounding said driven shaft within and secured to said sleeve, a brake disk secured to said driven shaft adjacent said lock disk, and a spring normally urging said brake disk toward driving contact with said lock disk for rotating said sleeve with said driven shaft; and an idling roller journaled by said frame in contact with said sleeve.

3,306,545
APPARATUS FOR ATTACHING A TAPE TO A REEL
Dieter Vogler, Stuttgart, and Wilhelm Felstehausen, Nurnberg, Germany, assignors to Max Grundig, Furth, Bavaria, Germany
Filed July 8, 1963, Ser. No. 295,869
Claims priority, application Germany, Aug. 19, 1961, G 32,964; July 7, 1962, G 35,409
9 Claims. (Cl. 242—55.13)

9. In a sound recorder or other tape-handling apparatus, in combination, a tape having a leader portion of properties substantially different from those of the remainder of the tape, said leader portion having a free

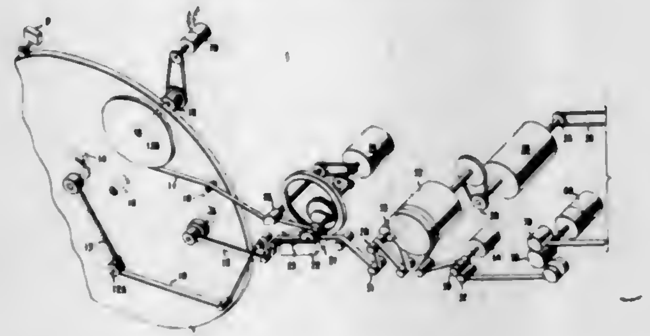
end; support means for supporting said tape on said apparatus; rotary reel means; adjustable drive means operatively connected to said rotary reel means for driving the latter at a normal speed in one adjusted position and at a fast speed at another adjusted position; means actuated by said tape when the latter is mounted on said support means for automatically starting said drive means at normal speed; means adapted to engage said rotary reel means to be driven thereby for automatically connecting said free end of said leader portion to said reel means;



first sensing means for sensing the connection of said free end of said leader portion of said tape to said reel means; second sensing means for sensing the approach of the junction between said leader portion and the remainder of said tape to said reel means; and means controlled by said first and second sensing means and cooperating with said adjustable drive means for placing the latter into said other adjusted position when said first sensing means senses attachment of said free end to said reel means and in said one adjusted position when said second sensing means senses the approach of said junction to said reel means.

3,306,546
FILM SPLICING APPARATUS AND PROCESS

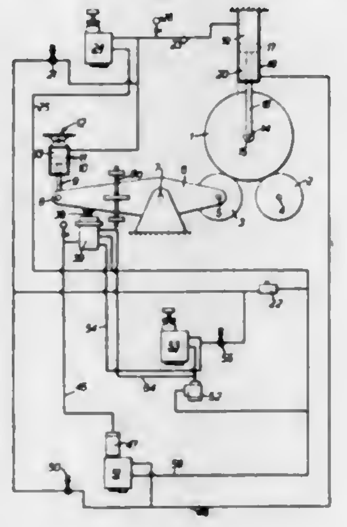
Danahey Ryan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Nov. 4, 1964, Ser. No. 408,953
8 Claims. (Cl. 242—58.2)



1. In an apparatus for processing web material having web feed means for providing successive web feed rolls, splicing means, means for driving said web, rewind length regulating signal means, defect detector means for signalling the occurrence of web defects, web cutting means and rewind means, the improvement of a control system which comprises (A) means for issuing a standby signal for the near depletion of an unwinding web roll; (B) means for signalling the depletion of said roll; (C) splice actuating means responsive to said depletion signal causing the new web to be spliced to the web from said depleted roll; (D) monitoring means for receiving both said standby signal and a signal from said length regulating means and only allowing said length regulating means signal to pass when it reaches said monitor before said standby signal; (E) web cutter actuating means capable of being triggered by signals from said defect detector and monitoring means which ever signal occurs first; and, (F) rewind actuating means responsive to said signals from said defect detector and said monitoring means.

3,306,547
WINDING APPARATUS

Eric William Reid, Reading, England, and John Duff Kidd, Edinburgh, Scotland, assignors to Keelavite Hydraulics Limited, Coventry, England, and Bertrams Limited, Edinburgh, Scotland, both companies of Great Britain
Filed Apr. 2, 1965, Ser. No. 445,219
3 Claims. (Cl. 242—66)

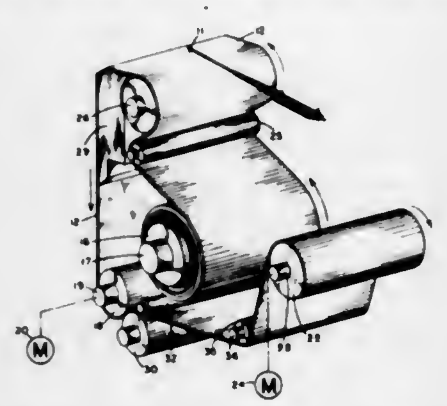


1. Winding apparatus including a reel to receive a roll of material, said reel being supported upon a pair of supporting drums rotatable about parallel axes at least one of which is arranged to be driven and to drive the reel, auxiliary reel supporting means comprising at least one subsidiary supporting member to which the reel is rotatably connected by bearings, power operated apparatus arranged to apply to such auxiliary supporting member a force tending to move the reel to vary the distance between the axis of the reel and the common plane in which the axes of the supporting drums lie, and control means arranged to be responsive to changes in the weight of the reel and automatically to cause variations in the force applied by the power operated apparatus to the auxiliary supporting member in a sense such as to counteract at least partially variations in the force with which the reel bears on the supporting drums due to the progressive increase in the weight of the reel during the winding process, one of the supporting drums being arranged to be movable against an opposing force under the influence of changes in the weight of the reel, and the control means being arranged to be responsive to such movement.

3,306,548
RECORD MEDIUM TRANSPORT AND REWIND SYSTEM FOR A RECORDING INSTRUMENT

John M. Polder, Parma, Ohio, assignor to Clevite Corporation, a corporation of Ohio
Filed June 22, 1964, Ser. No. 376,683
2 Claims. (Cl. 242—67.3)

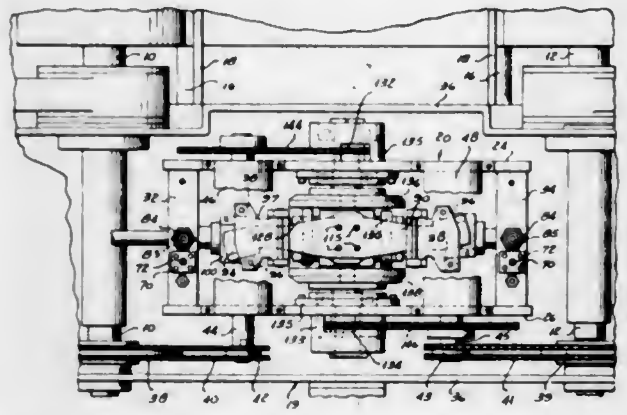
1. A record medium transport and rewind system for a recording instrument, comprising, in combination, a supply roll for suppling a length of record medium, take-up roll means for rewinding said record medium, recording means for recording on said record medium and located between said supply roll and said take-up roll means, drive roll means in driving engagement with said record medium at a location between said recording means and said take-up roll means for pulling said record medium from said supply roll past said recording means, take-up roll driving means driving said take-up roll to rewind said record medium after it has moved past said drive roll means, and record medium guide means located between the drive roll means and the take-up roll means around which the record medium is stretched, said record medium guide means comprising a unitary roller having a straight axis and a central section which is cylindrical and of a given diameter, and having two end sections spaced apart by



said central section which are of gradually increasing diameter from the central section toward the outer edge thereof, said central section having a given length transverse to the direction of motion of said record medium, and each of said two end sections having a given length transverse to the direction of motion of said record medium which is small compared to said first mentioned given length, said record medium engaging said central section and said two end sections whereby said record medium guide means tensions both edges of said record medium to an extent greater than it tensions the central portion thereof to accurately guide said record medium to said take-up roll and to substantially eliminate side wander thereof.

3,306,549
DYE JIGGERS

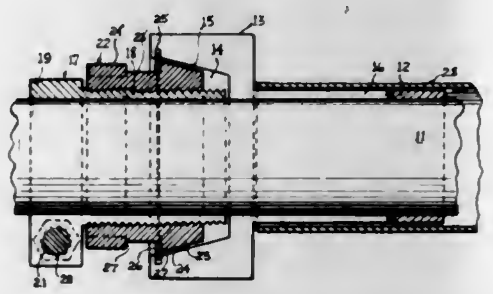
Herman Eberhardt, Fair Lawn, and Stephen B. Gaghan, Hawthorne, N.J., assignors to Van Vlaanderen Machine Company, a corporation of New Jersey
Filed Sept. 20, 1965, Ser. No. 488,661
24 Claims. (Cl. 242—67.5)



1. Apparatus for linearly elongated material through a zone at substantially constant speed and under substantially constant tension, comprising a pair of rotatable devices at the ends of said zone having peripheries movable with the material being advanced, a first disc operatively connected to one of said devices for controlling the rotation thereof, a second disc operatively connected to the other of said devices for controlling the rotation thereof, said discs having confronting traction faces, a roller unit including axially spaced apart first and second roller surfaces rotatable together about a vertically movable horizontal axis with said roller surfaces being disposed between said disc faces, means mounting said roller unit to permit movement of the axis of rotation of said roller surfaces both as a swinging movement and as a translational movement, and means for urging said roller unit about said axis of swinging movement to press said first roller surface against one of said disc faces and said second roller surface against the other of said disc faces.

3,306,550
EXPANDABLE CHUCK

Lynn H. Ewing, 2010 2½ Ave., Rock Island, Ill. 61201
Filed Jan. 6, 1965, Ser. No. 423,681
6 Claims. (Cl. 242—68.2)



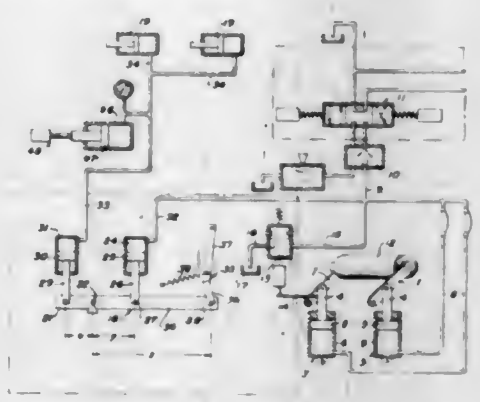
1. A chuck for securing a hollow core paper roll on a shaft comprising in combination,
(a) an expansion sleeve journaled upon said shaft with one end freely insertable in said hollow core paper roll and the opposite end providing an enlarged hollow head externally of the hollow core of the paper roll, said enlarged head having an inner tapered surface,
(b) a lock-up member journaled on said shaft axially from said expansion sleeve and providing an externally threaded tubular portion extending in the direction of said core and into the enlarged hollow head of said expansion sleeve,
(c) means for securing said lock-up member to said shaft,
(d) an expanding means threadably mounted on said tubular portion of said lock-up member and movable thereover axially of said shaft and inward of said enlarged hollow head of said sleeve,
(e) said expanding means having an outer tapered surface movable into facial abutment with said like inner tapered surface provided by said enlarged hollow head of said sleeve for radially expanding said enlarged hollow head and said sleeve within said core to frictionally secure said chuck to said core when said expanding means is moved axially of said shaft and inwardly of said sleeve.

3,306,551
TENSION DEVICE FOR AUTOMATIC BRAKE CONTROL FOR WEB ROLL STANDS

Merrill D. Martin, 2 Mall Court, Oakland, Calif. 94611
Filed July 21, 1965, Ser. No. 473,786
10 Claims. (Cl. 242—75.46)

1. In an unwind stand for carrying and supporting a web roll, having a hollow spool,
(a) a carriage including
(b) a cab at one end thereof,
(c) a pair of spaced loading arms on the carriage spaced from said cab,
(d) rotatable means on the loading arms to engage opposite ends of said spool for supporting said web roll,
(e) means for adjusting said loading arms for clamping said hollow spool,

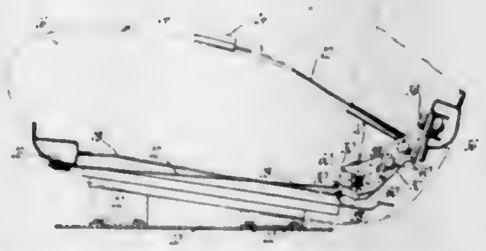
(f) fluid actuated means to raise said web roll and to support said web roll in raised position.
(g) a control valve to supply fluid under pressure to said fluid actuated means,
(h) fluid actuated brake means on said rotatable spool engaging means to apply a predetermined resistance to the rotation of said rotatable means thereby to determine the tension on the web during the unwinding of the web roll,



(i) means interconnected between said fluid actuated means and said brake means, responsive to the fluid pressure exerted in said fluid actuated support means by said web roll, to vary the said brake resistance in accordance with the decrease of the weight and diameter of the roll during unwinding thereby to maintain substantially constant tension on the web during the unwinding of said web roll.

3,306,552
SEAT BELT RETRACTOR

Andrew P. Nakolan, New Baltimore, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Mar. 11, 1966, Ser. No. 533,480
5 Claims. (Cl. 242—107.11)

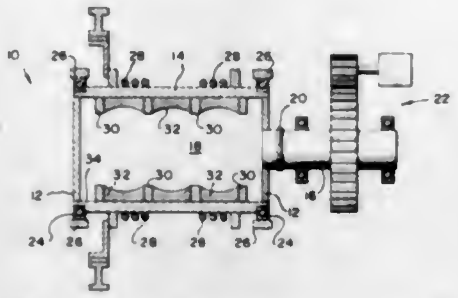


1. A take-up device for retracting a belt comprising:
a pair of side walls;
a pair of parallel, closely spaced pins fixed to said side walls;
a pair of floating pins held by said belt which extends around said floating pins and between said fixed pins in a figure-eight pattern;
and biasing means to rotate said take-up device thereby coiling said belt around said pins and retracting said belt from both ends relative to the take-up.

3,306,553
HOIST DRUM

Ivor Mansell, Chateauguay, Quebec, Canada, assignor to Canadian Ingersoll-Rand Co., Ltd., Montreal, Quebec, Canada, a corporation of Canada
Filed July 24, 1964, Ser. No. 385,002
5 Claims. (Cl. 242—117)

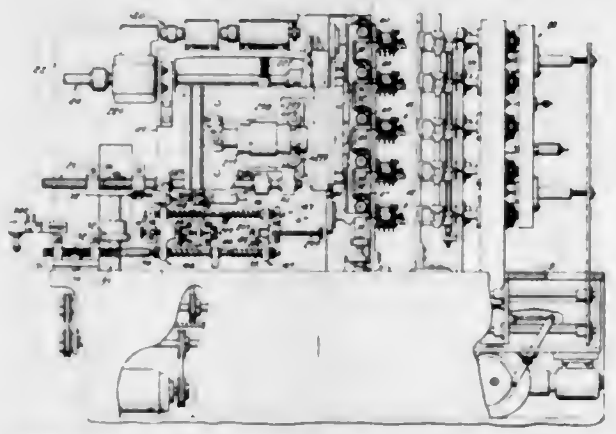
1. A hoist drum comprising:
supporting structure;
a tubular member;
an end plate mounted on and closing one end of said tubular member;
bearing means mounted on the outer periphery of said tubular member at opposite ends of said tubular member for rotatably supporting the drum and transferring a load on the drum directly to said supporting structure of the drum;



a drive shaft secured to and terminating at said end plate for rotating the drum; and
ring means mounted on the inner circumference of said tubular member for preventing said tubular member from being collapsed.

3,306,554
DISTRIBUTOR MECHANISM

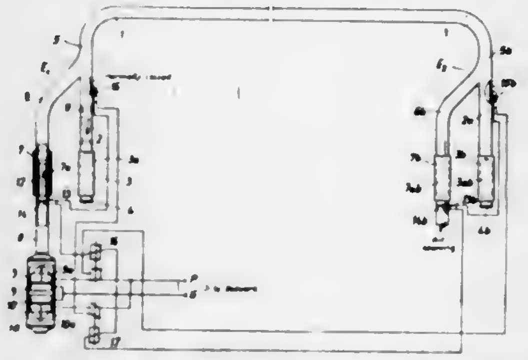
Clifford W. Henderson, Princeton Township, Mercer County, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed July 15, 1964, Ser. No. 382,808
7 Claims. (Cl. 242—158)



1. Apparatus for winding a desired number of turns of a strand material onto a winding form, which comprises:
a strand guide for directing strand material;
means for causing relative rotation between a winding form and the strand guide to wind the strand material in a plurality of turns onto a winding surface of the form;
a movable distributor carriage for mounting the strand guide;
drive means normally connected to the distributor carriage for driving the same reciprocatively so as to cause the strand guide to distribute the strand material back and forth across the winding surface of the form in a plurality of layers of convolutions;
traverse means normally positioned at a rest position adjacent to one end of the path of travel of the reciprocating distributor carriage, said traverse means being normally inoperative and disconnected from the distributor carriage;
means for counting the turns of strand material wound on the winding form;
means actuated by the counter, when a predetermined number of the desired number of turns remain to be wound on the winding form, for operating the traverse means to move the traverse means from said rest position and along said path of travel of the reciprocating distributor carriage toward the other end of said path so that said traverse means overtakes the distributor carriage somewhere on said path of travel:
override means actuated, when the moving traverse means overtakes the distributor carriage, for disconnecting the distributor drive means and for causing further movement of the distributor carriage and the guide to be controlled by the traverse means, the rate of movement of the traverse means bearing a relation to the relative rotational speed of the winding form such that, when the counting means registers the desired number of turns, the distributor carriage has moved to a position on said path of travel wherein the strand guide directs the last turn of said desired number onto a preselected portion of the winding form.

3,306,555
PNEUMATIC TUBE STATION

Friedrich Tonne, Robert-Haug-Weg 9, Stuttgart N, Germany
Filed Aug. 19, 1964, Ser. No. 390,541
Claims priority, application Germany, Aug. 21, 1963, T 24,535
6 Claims. (Cl. 243—19)

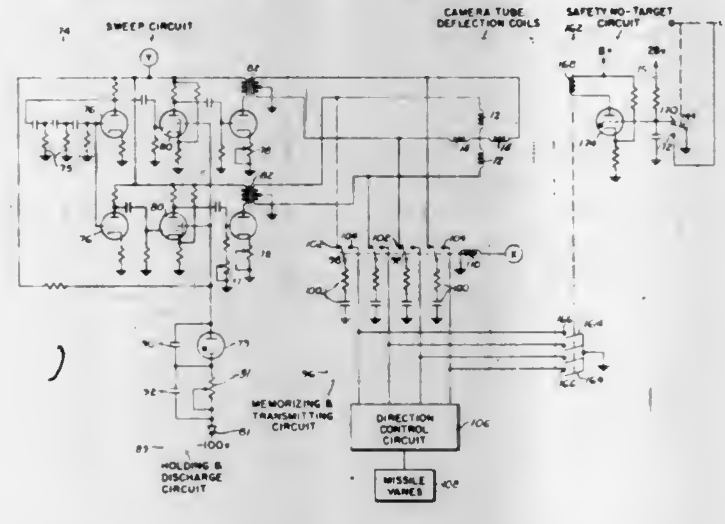


1. In a pneumatic tube installation: a conveying pipe having a main section adapted to convey dispatch tubes therethrough and comprising both a first and a second end section each including a receiving compartment for receiving dispatch tubes passed through said main section and also including pipe means connecting the respective receiving compartment with said main section, two additional pipe sections respectively branching off from said first and second end sections at such an angle that a dispatch tube passing from said main section toward either one of said first and second end sections will encounter less resistance when entering the respective end section than when trying to enter said additional pipe sections, each of said additional pipe sections including a dispatch compartment for dispatching dispatch tubes through said main section to the respective remote receiving compartment, the pipe means of each end section which connects the respective receiving compartment with said main section by-passing the respective adjacent dispatch compartment whereby a dispatch tube conveyed through said main section passes into a receiving compartment without passing through the respective adjacent dispatch compartment, and blower means arranged in series with a dispatch compartment only and located ahead thereof when looking in the direction of movement of a dispatch tube from said last mentioned dispatch compartment to said main pipe section.

3,306,556
AUTOMATIC GUIDANCE SYSTEM

Richard F. Kaufman, Richmond, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed June 23, 1961, Ser. No. 119,773
11 Claims. (Cl. 244—3.17)

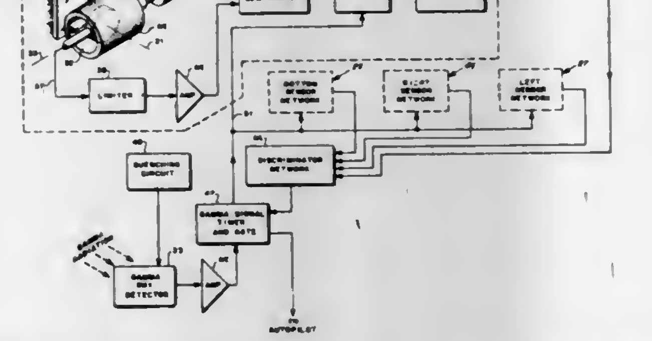
7. In an automatic guidance system for homing a guided missile on a target the combination of:
a camera tube mounted in the nose of said missile;
an image plate on the face of said tube upon which the electron beam of the camera tube impinges;
said tube having a signal output proportional to the light intensity in the scene viewed by the tube;
a target selected in the scene and means in the system for memorizing the intensity of the signal from said target;
means in the system for comparing the target signal with subsequent output signals and providing an on-target indication when the target signal and subsequent output signals are of the same intensity and an off-target indication when the target signal and subsequent signals differ in intensity;
a sweep generator connected to deflection coils in said camera for causing said electron beam to sweep the scene viewed by the camera tube,


SWEEP CIRCUIT
CAMERA TUBE DEFLECTION COILS
SAFETY NO-TARGET CIRCUIT
MEMORIZING & TRANSMITTING CIRCUIT
DIRECTION CONTROL CIRCUIT
HOLDING & DISCHARGE CIRCUIT
MISSILE VANES
-100v

means interconnecting said memorizing means and the deflection coils of said camera tube for memorizing the voltages on the deflection coils and for relaying these voltages for guidance purposes; and
means receiving the on-target and off-target indications from the comparing means for actuating the sweep generator when an off-target indication is received and for actuating the memorizing means when an on-target indication is received;
whereby the camera will sweep when it is not aligned on the target and the voltages on the deflection coils will be relayed through the memorizing means for guidance purposes when the sweep picks up the target.

3,306,557
APPARATUS FOR PASSIVE DEFENSE FROM EXPLOSIONS

Harold W. Miller, Point Pleasant, Joseph Turco, Ambler, and Bernard Zaslav, Elkins Park, Pa., assignors to the United States of America as represented by the Secretary of the Navy
Filed Mar. 31, 1961, Ser. No. 99,968
9 Claims. (Cl. 244—77)

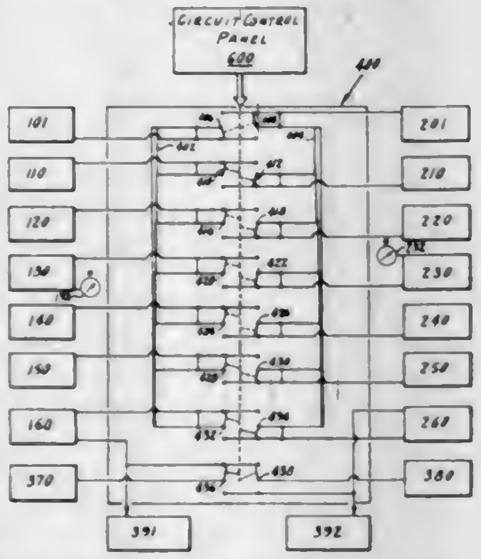


4. Apparatus for meneuvering an aircraft from its normal flight attitude so that its least vulnerable aspect faces the direction of a nuclear burst, the aircraft being of a type

equipped with automatic pilot means, comprising: light radiation responsive means adapted to be mounted on the aircraft for producing a sustained light signal indicative of the direction of radiation from a flash of light radiation, gamma radiation responsive means mounted on the aircraft for producing a gamma signal indicative of gamma radiation, gating means having one input connected to said light radiation responsive means for receiving said light signal and an output adapted to connect said light signal to the input controls of the automatic pilot of the aircraft, said gating means having another input connected to said gamma radiation responsive means for receiving said gamma signal and for selectively connecting said one input and said output of said gating means when said gamma signal reaches a predetermined threshold amount; whereby the aircraft will roll so that the wings are in the plane formed by the velocity vector of the aircraft and the center of the burst.

3,306,558
AIRCRAFT COMPASS SYSTEM CIRCUIT CONTROL JUNCTION BOX

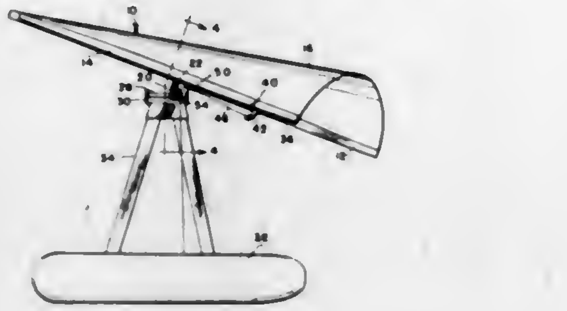
Ernest H. Overman, Jr., and Jack M. Calvert, both of Abilene, Tex., assignors to Aerotronics Engineering, Inc., Abilene, Tex., a corporation of Texas
Filed Apr. 29, 1966, Ser. No. 546,399
10 Claims. (Cl. 244—77)



1. In an aircraft having first and second independently operable navigation systems, major components of each of said systems being electronically equivalent to the analogous component of the other of said systems, each system including sensing means for deriving a position signal characteristic of the position of the aircraft relative to a point of reference, signal responsive means operatively connected to the sensing means for providing a heading reference signal for the aircraft and means responsive to the heading reference signal for providing navigational data; the improvement comprising a circuit control junction box, a switching system comprising a multiplicity of switching devices in said circuit control junction box, a plurality of said switching devices being remotely controllable, means interconnecting a plurality of the major components of the independently operable navigation systems to a plurality of the switching devices in the circuit control junction box, a circuit control panel, switching device controllers in said panel for controlling the remotely controllable switching devices for electronically interchanging any selected major component of a first navigation system for an equivalent major component of a second navigation system and for selectively feeding navigational reference signals between selected major components of each of the navigation systems and means interconnecting the circuit control panel switch device controllers and the remotely controllable switching devices in the circuit control junction box.

3,306,559
ROLL CONTROL SYSTEM FOR FLEXIBLE WING AIRCRAFT

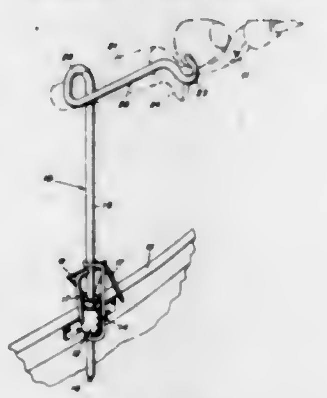
Peter F. Girard, La Mesa, Calif., assignor to The Ryan Aeronautical Co., San Diego, Calif.
Filed Nov. 4, 1963, Ser. No. 320,995
6 Claims. (Cl. 244—90)



1. In an aircraft:
a wing having a rigid longitudinal keel, leading edge members diverging rearwardly from the forward end of said keel, flexible lifting panels secured to and extending between said keel and said leading edge members, and spreader means secured to and holding said leading edge members in spaced relation;
the rear tip portions of said leading edge members being hinged;
and control means operatively connected to said tip portions to move the same differentially.

3,306,560
FISHING ROD HOLDER

Herbert O. Wheeler, 633 Forsythe Ave., Calumet City, Ill. 60409
Filed Aug. 29, 1966, Ser. No. 575,612
6 Claims. (Cl. 248—42)

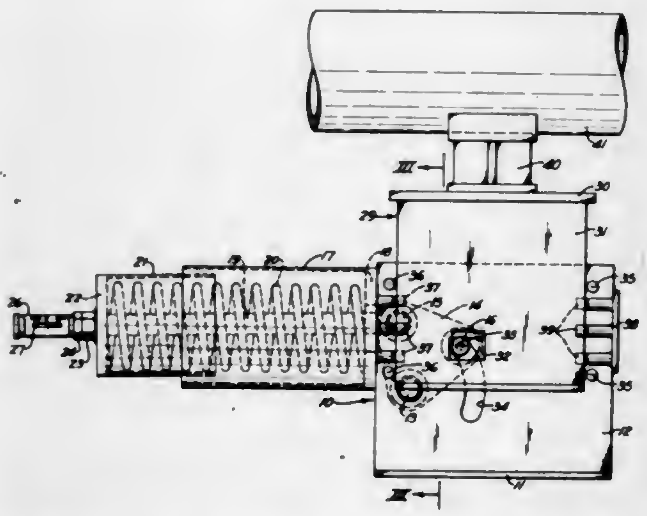


1. In a holder means for fishing rods, the combination including an elongated staff portion including cradle means for supporting the handle of a fishing rod in a generally horizontal position, the lower end of the staff portion being adapted for downward insertion into an open receptacle and to project below said receptacle, and locking means for the holder means, said locking means including an elongated element to be disposed outside the oarlock and generally parallel with the staff and having two spaced retaining means for at least partially encircling the staff portion at longitudinally spaced points, one above the oarlock and one below the oarlock.

3,306,561
UPTHRUST PIPE SUPPORT

Henry F. Huettner, Pittsburgh, Pa., assignor to National Valve and Manufacturing Company, a corporation of Delaware
Filed Apr. 27, 1965, Ser. No. 451,222
6 Claims. (Cl. 248—54)

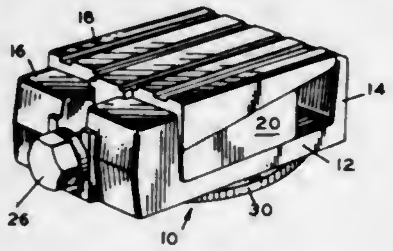
1. In a hanger of known type having
a support;
a spring seat rigidly mounted on said support;
a bellcrank mounted on the support by a horizontal pivot pin spaced from said spring seat; the bellcrank having angularly-related load and balance arms, the load arm carrying a load pivot;
a longitudinally extending spring having one end seated on said spring seat;
and a spring rod extending longitudinally of said spring, the outer end of the spring rod being connected to the outer end of the spring, and the inner end of the spring rod being pivotally attached to the balance arm of the bellcrank to form a balance pivot;



said spring being initially compressed a predetermined amount measured partly by the angle between the load and balance arms of the bellcrank;
the improvement which comprises:
a load saddle which extends above and around the bellcrank;
the saddle having a top horizontal load plate adapted to directly engage and carry the load by gravity contact only and side plates; each of the side plates carrying a bearing block which engages the load pivot of the bellcrank.

3,306,562
SELF-ALIGNING MACHINE LEVELERS

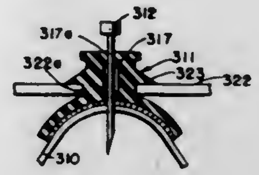
J. Paul A. Bellefleur, 24100 Sherman, Oak Park, Mich. 48237
Filed Feb. 15, 1965, Ser. No. 432,563
6 Claims. (Cl. 248—188.2)



1. A leveling device for mounting and leveling heavy loads including, in combination, a pair of members having engaging inclined surfaces such that upon movement of one relative to the other the combined height of the two members is varied, and means for providing lateral and angular adjustment of the device for compensating for the inclination of the floor upon which it is mounted including a floor engaging base member having a spherical surface portion mating with a spherical surface portion on the underside of the device, the two surface portions serving to support the load yet providing shiftable movement of the height varying members in any direction on the curved contour represented by the mating spherical surfaces for leveling the device and the load supported thereby regardless of the slant of the floor.

3,306,563
ASEPTIC DRAINING AND SUPPORT MEANS FOR FLEXIBLE BAGS

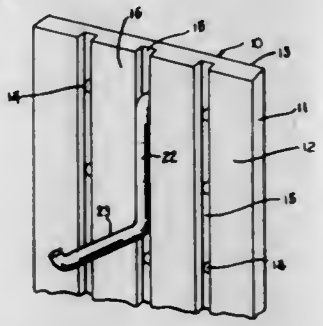
Ricardo Hurtado Soto, Aptdo. Aereo 9263, Bogota, Colombia
Filed July 31, 1964, Ser. No. 386,724
1 Claim. (Cl. 248—224)



A resilient, rubber-like patch adapted for contact attachment to a liquid-filled, flexible container to be drained, said patch being adapted to reseal itself following cannula puncture and containing an antiseptic material dispersed therein, said patch including a lower planar portion having a layer of adhesive attached to the bottom surface thereof, said patch including an upper portion extending upwardly from said planar portion, said upper portion being generally cylindrical and having a vertically extending bore provided therein, said bore being closed at the top and bottom thereof, said upper portion including a radially outwardly extending flange, said flange having a generally flat lower surface spaced from the upper surface of said lower planar portion and an inclined upper surface, whereby said upper portion is adapted to be inserted through an opening in a rigid support for supporting said patch and container by said flange.

3,306,564
PERFORATED HARDBOARD

Hal G. Nickel, 2380 Kevenauer Drive, Brookfield, Wis. 53005
Filed May 23, 1966, Ser. No. 551,996
9 Claims. (Cl. 248—225)



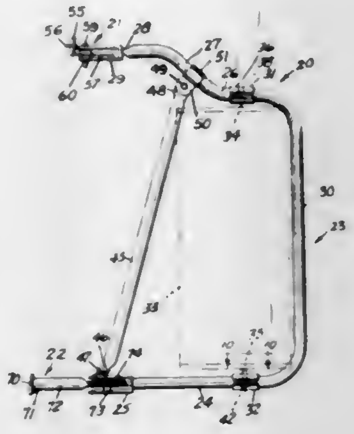
1. A perforated hardboard comprising: a sheet of hardboard having a frontal and a rear surface; a plurality of apertures systematically defined in and through said sheet and defining therewith a plurality of generally parallel lines and ranks of holes therein; a first plurality of grooves defined in said frontal surface of said sheet in parallel spaced relationship to each other, each of said grooves having a width, equal to the diameter of said apertures and being centered upon the apertures of a respective one of said lines of holes.

3,306,565
MOUNTING BRACKET FOR MIRROR

Theodore Louis Beach, Jr., Box 366, Donnelsville, Ohio 45319
Filed Mar. 8, 1965, Ser. No. 438,017
8 Claims. (Cl. 248—282)

1. A mounting bracket for a rear view mirror, comprising in combination, an upper support adapted to be attached to a vehicle and including a horizontal semicircular plate, a lower support adapted to be attached to

a vehicle body in vertical alignment with the upper support and including a semi-circular plate, a mirror supporting frame including an upper horizontal arm, a lower horizontal arm and a vertical bight connecting the outer ends of said arms, a clevis on the inner end of each arm, means pivotally connecting the clevis on said upper arm on opposite sides of the plate of the upper support, means pivotally connecting the clevis on said lower arm on opposite sides of the plate of the lower support swinging said mirror supporting frame about a substantially vertical axis, and means mounting a mirror in pivotal relation between said upper and lower arms.

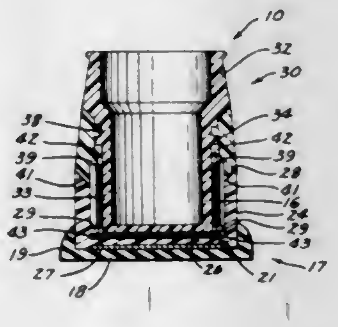


3,306,566
DRINKING CUP APPARATUS

Donald L. Paulson, 2015 40th Place, Des Moines, Iowa 50310, and Tom J. Roberts, 3914 73rd St., Des Moines, Iowa 50321

Filed, Jan. 7, 1966, Ser. No. 519,247

9 Claims. (Cl. 248—350)



1. A drinking cup apparatus comprising in combination:

base means;

cup means; and

means movably interconnecting said base means to said cup means, said cup means movable relative to said base means, said interconnecting means retaining said cup means in an upright condition wherein to hold a fluid therein.

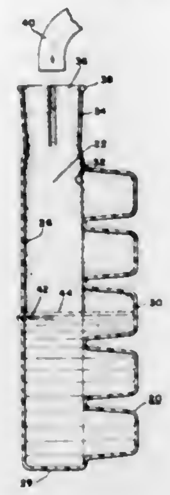
3,306,567
FLEXIBLE BAG FOR MAKING ICE CUBES

Arthur J. Frei, Sr., Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 20, 1964, Ser. No. 390,842

5 Claims. (Cl. 249—53)

1. A freezing mold adapted for filling and carrying in an upright position and freezing in a horizontal position including a generally bag shaped one piece envelope of a liquid holding material having a large extensive wall with a substantially unbroken and uninterrupted inner wall surface on one side and having on the opposite side a plurality of outwardly extending flexible freezing pockets extending in substantially the same direction directly away from said one side.

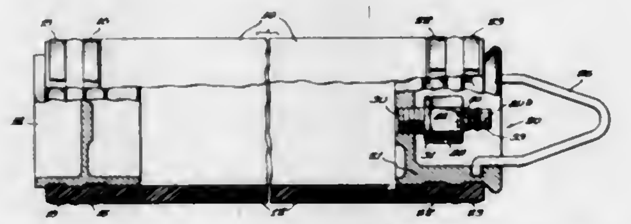


3,306,568
AIR PRESSURE CONTROL FOR CASTING CORES

Claude Baber, Kettering, Ohio, assignor to The Flexicore Co., Inc., Dayton, Ohio, a corporation of New York

Filed Feb. 15, 1965, Ser. No. 432,555

4 Claims. (Cl. 249—65)



1. An inflatable core for use in the manufacture of concrete slabs, said core including an elongated inflatable tube, means at both ends of said tube for rendering said tube airtight, at least one end of said tube having a normally closed air valve for passing air to inflate said tube, said valve being movable in an open position for deflating said core, said valve including a rigid housing having a valve member and valve seat within said housing to divide the interior into low and high pressure regions on opposite sides of said valve member and means within said housing providing a fine air passage in parallel to said valve for bleeding air through said valve when said tube is inflated, the dimensions of said fine air passage predetermined to permit air leakage to generally compensate for any tendency of the core to increase in its diameter during curing.

3,306,569
FLUID FLOW CONTROL DEVICE

Austin U. Bryant, Walnut Creek, Calif., assignor to Grove Valve and Regulator Company, Oakland, Calif., a corporation of California

Filed Sept. 8, 1964, Ser. No. 394,850

6 Claims. (Cl. 251—5)

1. In an expansible sleeve gas flow valve comprising:

a housing having inlet and outlet gas flow passages,

a core sleeve secured in said housing with opposite open ends thereof aligned with said flow passages,

means forming two axially spaced series of inlet and outlet through slots around said sleeve,

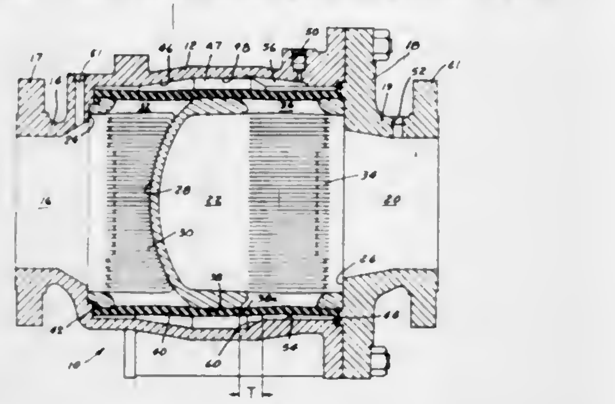
a barrier across said sleeve intermediate said spaced series of slots,

a sealing surface around said barrier,

a resilient, expansible sleeve on said core sleeve having an intermediate sealing portion normally snugly embracing said sealing surface and sealed around said core sleeve upstream and downstream of said inlet and outlet slots, respectively,

full expansion limiting surface in said housing displaced radially outward of the sealing portion of said resilient sleeve to form a chamber around said sealing portion, and

conduit means for introducing a control pressure gas into said chamber around said expansible sleeve,



the improvement comprising:

means in said housing forming an expansion blocking surface comprising a frusto-conical portion tapering inward from said full expansion-limiting surface at an angle of between 15° and 35° with the axis of said core sleeve, and a cylindrical portion closely embracing said expansible sleeve and spaced radially outwardly therefrom,

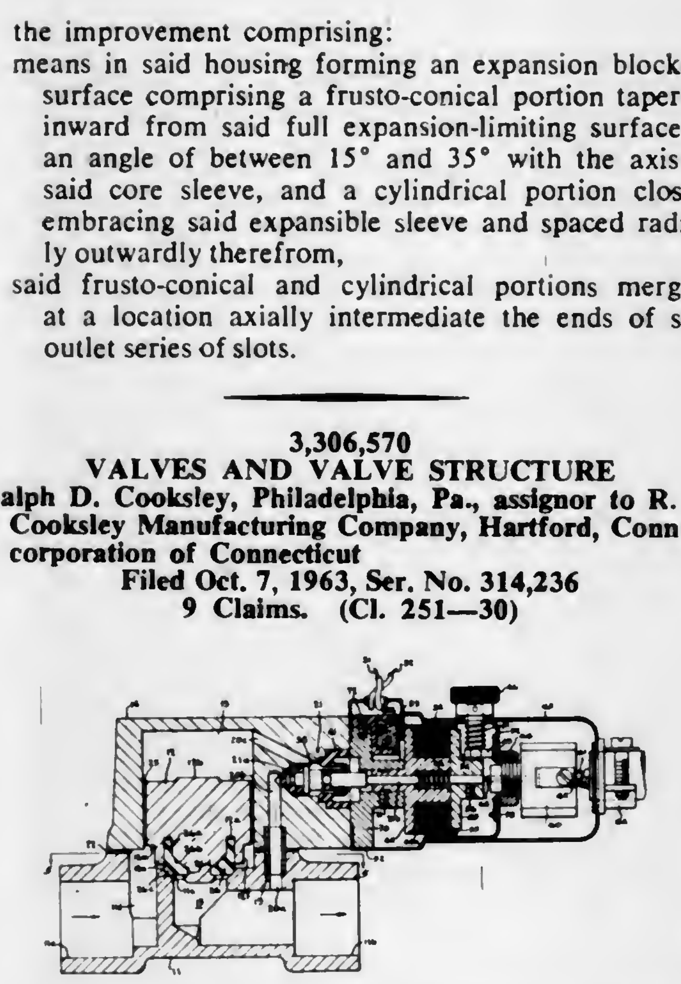
said frusto-conical and cylindrical portions merging at a location axially intermediate the ends of said outlet series of slots.

3,306,570
VALVES AND VALVE STRUCTURE

Ralph D. Cooksley, Philadelphia, Pa., assignor to R. D. Cooksley Manufacturing Company, Hartford, Conn., a corporation of Connecticut

Filed Oct. 7, 1963, Ser. No. 314,236

9 Claims. (Cl. 251—30)



5. The combination with a valve having a control element movable between first and second positions for causing said valve to move between open and closed positions,

of an electromagnet for actuating said control element comprising magnet structure having a central pole-piece and an outer pole-piece,

a coil disposed between said pole pieces,

an armature carried by said control element, which armature with said valve in closed position engaging said central pole member but at all times being in spaced relation with said outer pole member,

said magnet structure including an elongated passage within which said control element is slidably mounted,

a full-wave rectifier hermetically sealed in a housing having depending legs straddling the structure forming said elongated passageway and including terminals for direct attachment to the respective ends of said coil, and

terminals carried at the end of said housing opposite said legs for application to said full-wave rectifier of alternating current for control of said movement of said element between two control positions thereof.

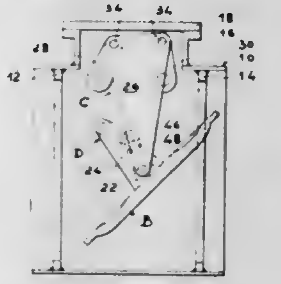
3,306,571
GATE-VALVE

Jean Bussi, Sceaux, and Maurice Lechevallier, Viry-Chatillon, France, assignors to Commissariat à l'Energie Atomique, Paris, Seine, France

Filed Apr. 27, 1964, Ser. No. 363,020

Claims priority, application France, May 13, 1963, 934,621

7 Claims. (Cl. 251—62)



1. Gate-valve having an obturating member which is adapted to move within a conduit from a longitudinal position to a transverse position so as to effect at will the obturation of said conduit irrespective of the direction of the forces exerted on said obturating member by the fluid which is present within said conduit, said gate-valve comprising a valve body having two coaxial annular seats located symmetrically at a predetermined axial distance away from each other, a single obturator flap which can be applied axially and in leak-tight manner against either one or the other of said two valve seats and means for guiding and operating the flap so as to permit said flap to move between a position in which it is located parallel to the axes of both valve seats and one of the positions in which said flap is applied against one valve seat, said means being adapted to impart to said flap a movement of translation which is substantially at right angles to the valve seats at least at the time of application of said flap against a valve seat or at the time of release of said flap from said valve seat.

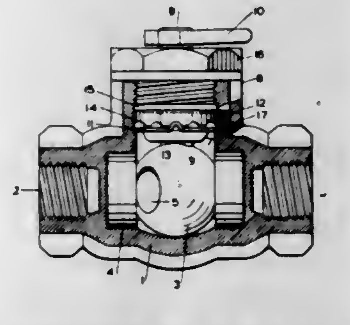
3,306,572
REGULATABLE VALVE

Frederick W. Dove, Johannesburg, Transvaal, Republic of South Africa, assignor to Glens Engineering Works (Proprietary) Limited, Johannesburg, Transvaal, Republic of South Africa

Filed July 10, 1964, Ser. No. 381,818

Claims priority, application Republic of South Africa, Aug. 2, 1963, 63/3,488

2 Claims. (Cl. 251—297)



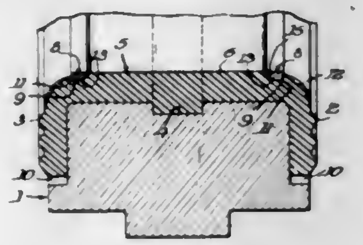
1. A valve comprising an inverted T-shaped body, a passage through the head of the T, an apertured spherical plug in the passage, flanked by resilient sealing rings; said plug having an integral spindle extending through the leg of the T and housed in a recess in said leg, and carrying a handle; a pair of clutch-like plates received

by said spindle in said recess, resilient packing in said leg pressing said plates together, one of said plates being secured to said spindle and rotatable therewith, said one plate being supported so that such plate as a whole cannot move axially, the other of said plates being nonrotatably secured to said housing, said clutch plates having cooperating protrusions and lock cavities on their contacting faces to hold said valve in various positions of adjustment.

3,306,573

REINFORCED SEAT FOR BUTTERFLY VALVE

James Trefil, Berwyn, Ill., assignor to Crane Co., Chicago, Ill., a corporation of Illinois
Filed Mar. 20, 1964, Ser. No. 353,400
6 Claims. (Cl. 251—306)

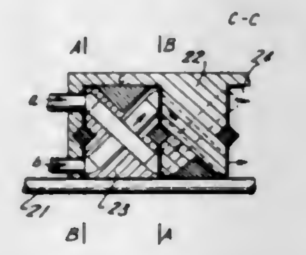


1. A reinforcing metallic retaining ring for a butterfly valve seat or the like, the combination of an annular elastomer seat, the said ring being of substantially semicircular configuration in cross-section, an inner annular portion of the said seat receiving said ring, the latter being formed with an inner annular rounded corner portion and with an outer annular sharp corner portion whereby to enable said ring to imbed itself within the ported portion of the said seat upon predetermined movement of said ring inwardly relative to the said seat.

3,306,574

ROTARY FLUID FLOW MACHINE

Herbert Bachl, Turkenstrasse 40, Munich, Germany
Filed Apr. 15, 1965, Ser. No. 448,389
Claims priority, application Germany, Apr. 15, 1964, B 76,342
3 Claims. (Cl. 253—39.15)

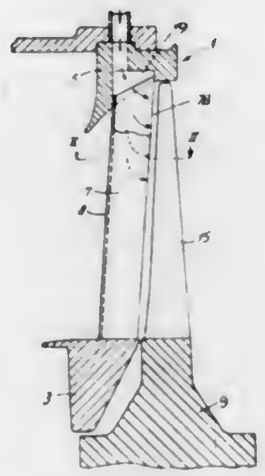


1. In a fluid flow machine for handling at least one working medium fluid and comprising rotor wheel and guide stages mounted on a rotatable axially centrally disposed shaft therein and wherein working medium fluid is caused to flow in a substantially axial direction in the center zone and substantially tangentially at the outer peripheries of said rotor stages; the improvement which comprises a centripetal axial flow path system and a centrifugal radial flow path system in at least one of said rotor wheel stages, said flow path systems being uninterconnected and intersecting in the center zone of said one rotor wheel stage, said working medium fluids flowing through said centripetal flow path system axially in the same direction and through said centrifugal flow path system radially in opposite directions whereby in said centripetal flow path system there is effected a working medium fluid expansion and whereby in said centrifugal flow path system there is effected a working medium fluid compression.

3,306,575

STEAM TURBINES

Adolf Frankel, Altrincham, England, assignor to Associated Electrical Industries Limited, London, England, a British company
Filed Feb. 26, 1965, Ser. No. 435,506
Claims priority, application Great Britain, Mar. 5, 1964, 9,389/64
12 Claims. (Cl. 253—76)



1. A steam turbine comprising:

(a) a rotor including circumferential rows of rotor blades,

(b) a fixed casing including circumferential rows of guide blades respectively arranged intermediate pairs of circumferential rows of rotor blades,

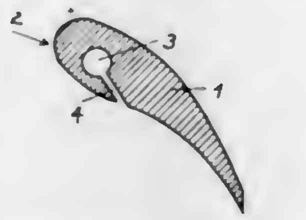
(c) port means provided in the trailing edges of at least the guide blades in the final circumferential row of guide blades, and

(d) means arranged to convey steam to the port means, so as to permit the steam to be discharged from the port means and substantially in the direction of the main steam flow past the blades whereby the steam causes water which has condensed on said guide blades to break into small drops and accelerates the droplets to substantially the same velocity as the main stream of steam.

3,306,576

ARRANGEMENT FOR REDUCING STEAM CONDENSATION WITHIN STEAM TURBINES

Jean Charles Chaboseau, Boissy-St.-Leger, France, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company
Filed May 24, 1965, Ser. No. 458,125
Claims priority, application France, July 18, 1964, 982,186
7 Claims. (Cl. 253—76)

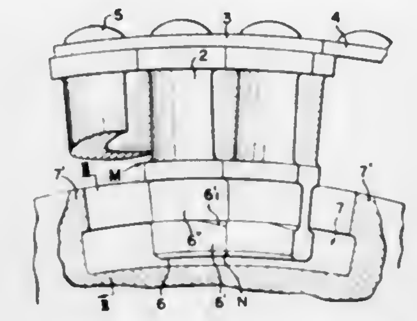


1. In a multi-stage steam turbine, the improvement wherein the stationary, guide blading thereof includes an internal conduit extending longitudinally of the same and in communication with orifices located in the wall of the blading, and means discharging auxiliary steam through said orifices for mixing with the main steam flow engaging the surfaces of the blading, the temperature of said auxiliary steam being sufficiently high to at least reduce condensation of the main steam flow in those zones of the flow path where mixing of said auxiliary and main steam occurs.

3,306,577

TURBINE DEVICE

Hideo Sagara, 530—19 8-chome Koogokita-machi, Hiroshima-shi, Japan
Filed Aug. 19, 1965, Ser. No. 481,008
Claims priority, application Japan, Aug. 25, 1964, 39/48,330; Aug. 27, 1964, 39/48,913
10 Claims. (Cl. 253—77)



1. A turbine comprising a rotor having a recess defined around the periphery thereof, a plurality of turbine blades secured to the periphery of said rotor, each of said blades including a root portion engaged within the recess of said rotor, and shroud means interconnecting a plurality of said blades into a plurality of groups of blades extending around the periphery of said rotor, adjacent groups being of a different number of blades.

3,306,578

APPARATUS FOR ELEVATING CONSTRUCTION MATERIALS

Donald L. Meeks and Kenneth C. Waller, Ponca City, Okla., assignors to Easy-Way Products, Inc., Ponca City, Okla., a corporation of Oklahoma
Filed Sept. 30, 1965, Ser. No. 491,652
3 Claims. (Cl. 254—4)

1. Apparatus for lifting flat construction materials of large surface area comprising:

a vertically-extending framework comprising:

a pair of horizontally spaced, generally triangular end sections, each of said triangular end sections including:

two upwardly extending, converging, elongated side members;

means connecting the relatively closely adjacent upper ends of said side members to each other; and

a generally horizontally extending brace interconnecting the two side members at points adjacent the lower ends of said side members;

a horizontally extending, elongated brace member extending between and interconnecting said horizontally extending braces in the two triangular end sections, said horizontally extending, elongated brace member being connected at its opposite ends at substantially the midpoints of said braces;

elongated cylindrical means having its opposite ends rotatably connected to the horizontally spaced, triangular end sections adjacent the upper ends of said elongated side members, said elongated cylindrical means being generally vertically aligned with said horizontally extending brace member;

crank means connected to said elongated cylindrical means on the opposite side of one of said triangular end sections from the other said triangular end section;

means secured to said one triangular end section for preventing the rotation of said crank means in one direction while permitting said crank means to rotate in the opposite direction;

casters mounted at the lower ends of said elongated side members for imparting portability to said apparatus; and

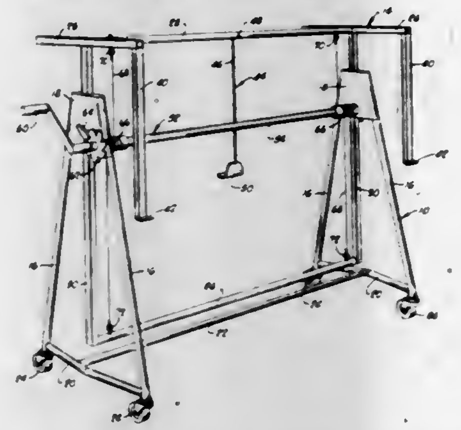
a support carriage slidingly mounted on said vertically extending framework for vertical movement with respect thereto, said support carriage comprising:

an H-shaped horizontal framework lying substantially in a horizontal plane and having

a pair of spaced, substantially parallel rods each extending horizontally and occupying substantially the same plane as one of said triangular end sections; and

an elongated, horizontal connecting rod attached at its opposite ends to said parallel rods at substantially the midpoint of each of said parallel rods, the horizontal connecting rod lying generally in the same vertical plane as said horizontally extending, elongated brace member;

a pair of spaced, rigid, vertically extending members aligned in a common plane with said horizontal connecting rod and each connected at its upper end to substantially the midpoint of one of said parallel rods and each extending slidingly through the connecting means of one of said triangular end sections and maintained substantially vertically aligned thereby;



a horizontal brace element interconnecting the lower ends of said rigid, vertically extending members and spaced below, and in vertical alignment with, said horizontal connecting rod;

a pair of horizontally spaced, substantially parallel, downwardly extending material support members each secured at its upper end to one end of one of said parallel rods, said material support members being aligned in a common, substantially vertical plane spaced horizontally from said elongated, horizontal connecting rod, said common vertical plane extending between the lower ends of the two side members of both of said triangular end sections; and

material supporting plates mounted on the lower ends of each of said material support members for engaging the lower edge of a flat sheet of construction material at horizontally spaced points therealong;

elongated, flexible means connected at opposite ends to the connecting rod and to the horizontal brace element and having a medial portion wound in a plurality of turns around said elongated cylindrical means whereby when said elongated cylindrical means is rotated with said crank, said support carriage will be elevated relative to said vertically extending framework;

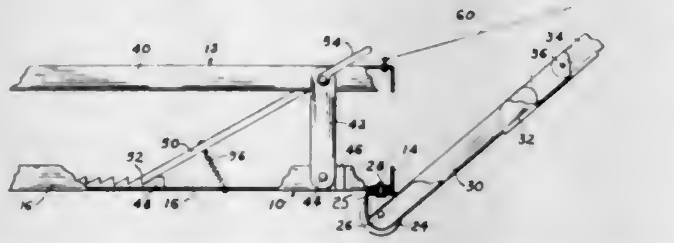
resilient, flexible, engaging means having an end connected to said horizontal connecting rod at a point between the ends thereof and having a second end; and

a clamping plate secured on said second end of said resilient, flexible engaging means for engaging an edge of a flat sheet of construction material supported on said material supporting plates,

said apparatus being for lifting flat construction materials being constructed and configured so that an open space unoccupied by any structural elements exists between said triangular end sections, and between the plane containing said horizontal connecting rod and said elongated horizontal brace and the plane containing said material support members.

3,306,579
HOISTING TRUCK WITH PARALLELOGRAM

Walter H. Campbell, 328 NW. Strawberry Road,
Stevenson, Wash. 98648
Filed July 26, 1965, Ser. No. 474,866
1 Claim. (Cl. 254—10)

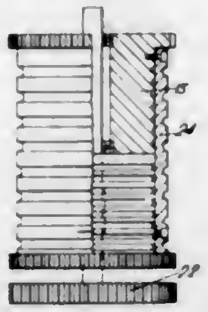


A hand cart comprising a lower frame, rear wheels on said lower frame, a steerable front wheel assembly on said lower frame, an upwardly and forwardly angled tongue integrated with said front wheel assembly, a pulling handle connected pivotally to the upper end of said tongue and arranged for pivotal movement outwardly away from said frame and inwardly toward said frame, an upper frame parallel with said lower frame, rear link means connecting said upper frame to said lower frame at the rearward end thereof, forward link means, a rotatable cross shaft pivotally connecting said upper frame to said lower frame at the forward end thereof, said upper frame having movement on said links in parallel relation to said lower frame between a lowered position adjacent said lower frame and upper positions spaced thereabove, flexible link means connected directly between said handle and said upper frame and arranged to move said upper frame to its upper positions upon outward pivotal movement of said handle on said tongue, stop means on said lower frame limiting pivotal movement of said upper frame in an upper position thereof, a toothed bar on said lower frame, a spring pressed lever having one end secured to said cross shaft for rotation therewith, the other end of said lever being arranged for engagement with said toothed bar for holding said upper frame in a selected upper position thereof, and an operating handle on said cross shaft for rotating said lever to disengage the latter from said toothed bar.

3,306,580
STRINGING OF CONDUCTORS

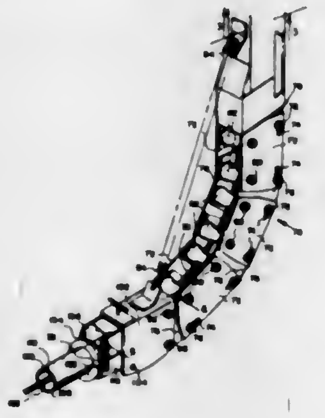
Walter Betta, Milan, Italy, assignor to C. R. F. Officine Meccaniche di Precisions S.p.A., Milan, Italy
Filed Nov. 19, 1964, Ser. No. 412,508
Claims priority, application Italy, Nov. 19, 1963,
23,634/63
11 Claims. (Cl. 254—134.3)

1. Equipment for mechanically stringing simultaneously the conductors of a bundle, comprising a pair of winches, each winch being provided with a pair of drums, a toothed wheel associated to each drum, and at least one gear joining the said toothed wheels, two pulling ropes each wound by a first end of the pair of drums of each winch and connected by its second end to at least one of the conductors of the bundle, and a differential device joining said two winches through said gears and adapted to equalize the tension on the two pulling ropes.



3,306,581
CABLE PULLING MECHANISM

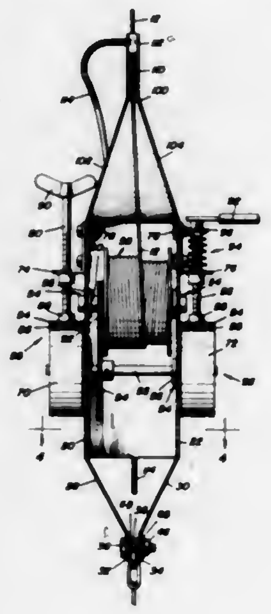
Joseph R. Miller, Phoenix, Ariz., assignor to Arizona Utility Equipment Sales, Phoenix, Ariz., a corporation of Arizona
Filed Oct. 21, 1965, Ser. No. 500,419
7 Claims. (Cl. 254—134.3)



1. In a cable guide mechanism, the combination of: a plurality of pairs of plates, each pair of plates having bolts extending therethrough in spaced relation to each other, thereby holding them in spaced relation to each other; said pairs of plates disposed in overlapping relationship to each other and pivoted on said bolts adjacent first edges of said pairs of plates; slotted openings extending through said plates at said overlapping portions of said pairs of plates, some of said bolts extending through said slotted openings whereby said plates are pivotally mounted and connected together by said bolts adjacent said first edges of said pairs of plates and are slidably and movably adjustable relative to each other by slidable movement of said bolts in said slotted openings of said plates so that said plurality of pairs of plates may be relatively adjusted about said bolts at said slotted openings to accomplish a substantially arcuate assembly of said pairs of plates; and cable guide sheaves rotatably mounted between said pairs of plates and capable of being arranged in an arcuate row relative to each other for guiding cable thereon; a substantially vertical boom having a lower end to which said plurality of plates is connected; a crane boom supporting an upper end of said vertical boom; a vehicle for supporting said crane boom; cable handling means on said vehicle means for guiding cable relative to said crane boom and said vertical boom for feeding cable downwardly parallel to said vertical boom and over said rollers between said plates; and nozzle means carried by the lower end of said plurality of plates; means for abutting said nozzle adjacent the end of an underground conduit and for aligning said nozzle therewith, so that cable may be pulled through said conduit and said nozzle over said rollers and upwardly parallel with said vertical boom and onto said cable handling means on said vehicle.

3,306,582
FIRE ESCAPE DEVICE

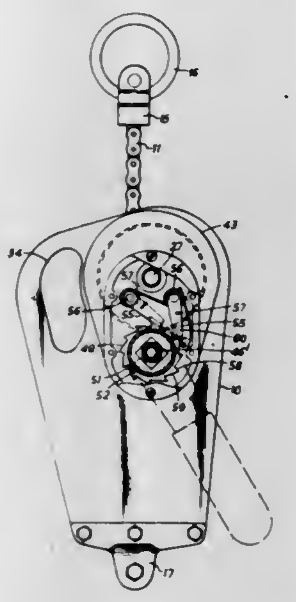
Charles A. Copeland, Jacksonville, Fla., assignor of one-half to Edward R. Mims
Filed Aug. 19, 1965, Ser. No. 480,873
3 Claims. (Cl. 254—154)



1. In a fire escape device including a supporting cable and sling, the improvement comprising lowering apparatus operatively connecting said sling to said supporting cable, said lowering apparatus including a housing having a cable receiving opening in the upper portion thereof, said housing including a pair of opposed side walls, a first shaft extending across the interior of said housing and rotatably journaled in the opposed side walls, a cable drum fixed to said first shaft for rotation therewith, said cable extending through said opening and having a portion thereof wound on said drum whereby said cable may be withdrawn from said housing so as to allow for a lowering of said sling, a second shaft extending across said housing in spaced relation to said first shaft, said second shaft being rotatably journaled in the opposed side walls and projecting outwardly beyond each side wall so as to define outwardly projecting shaft end portions, a brake drum fixedly mounted on each projecting shaft end portion of said second shaft exteriorly of the adjacent side wall for rotation with said second shaft, a mounting collar fixed to each housing side wall in vertically spaced relation above the corresponding brake drum, an elongated vertical rod mounted within each collar for a vertical extension and retraction thereof relative to the subjacent brake drum, a brake shoe fixed to the lower end of each rod for selective movement into and out of engagement with the corresponding subjacent brake drum in response to the extension and retraction of the corresponding rod, independent handle means on each vertical rod for the independent manipulation thereof so as to engage or disengage the corresponding brake shoe, and drive means engaged between said shafts for effecting a control of the rotation of said first shaft in response to a rotation of said second shaft whereby the rate of withdrawal of said cable from the cable drum is directly controllable through an engagement of said brake shoes with said brake drums.

3,306,583
MANUALLY OPERATED JACK FOR LIFTING AND LOWERING LOADS FROM AN OVERHEAD SUPPORT

Charles Henry Hewitt, Sylverah, Orchard Ave.,
Tickenham, near Clevedon, England
Filed Aug. 17, 1965, Ser. No. 480,385
4 Claims. (Cl. 254—171)



1. A manually operated jack suitable for operation by an invalid supported in a harness attached to the jack, said jack, comprising; a hollow casing having an opening at the upper end thereof; a sprocket wheel mounted in said casing, a suspensory chain extending through said opening into said casing and engaged with said sprocket wheel with one end of said chain accommodated within said casing; attachment means on the other end of said chain for securing said chain to an overhead support; said casing having means adapted to be attached to said harness; an external handle; transmission mechanism mounted in said casing and drivably connecting said handle to said sprocket wheel; said transmission mechanism, including, a drive shaft, reduction gearing drivably connecting said drive shaft to said sprocket wheel, and ratchet drive means between said handle and said drive shaft; a ratchet wheel; friction clutch means operable to clutch said ratchet wheel to said drive shaft in response to the torque exerted on said drive shaft due to a load on said chain; and a plurality of pawls mounted on said casing and resiliently urged against the teeth of said ratchet wheel to prevent rotation of said sprocket wheel in a direction to dispense said chain from said casing when said clutch means are engaged; said pawls being movable in succession into locking engagement with each tooth of said ratchet wheel at part-pitch intervals of movement of said ratchet wheel, whereby said sprocket wheel is rotatable to draw in chain into said casing in response to small angular reciprocal movements of said handle.

3,306,584
CABLE STORING AND TAKE-UP DEVICE

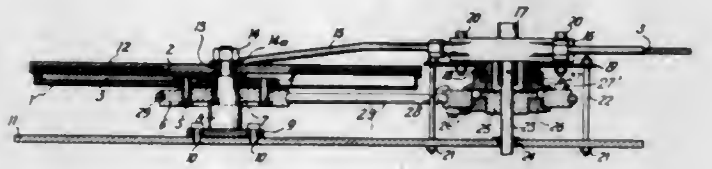
Jacques Ménétrier, Ville-d'Avray, Seine-et-Oise, France, assignor to SIAR, Societe Industrielle d'Application des Radioelements, Levallois, France
Filed Jan. 14, 1965, Ser. No. 425,570
4 Claims. (Cl. 254—175.5)

1. A storing and take-up device for stranded cable comprising

rotatable drum means,

guide means for directing cable into and out of said drum means,

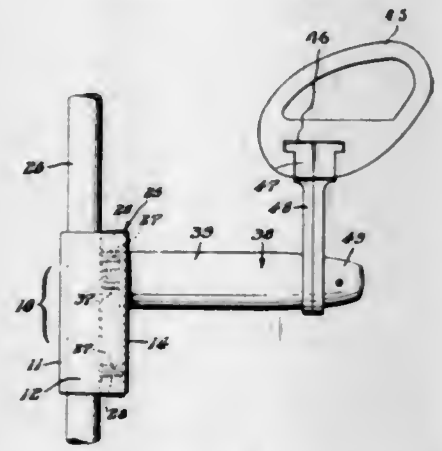
reversible drive means for moving cable along said guide means, belt means coupled to said rotatable drum means for driving said rotatable drum means in one direction of rotation and braking said rotatable drum means in the other direction of rotation,



ratchet means coupling said belt means to said reversible drive means and operative to drive said belt means in one direction of rotation and to produce a braking effect on said belt means in the other direction of rotation.

3,306,585
FASTENER ASSEMBLY

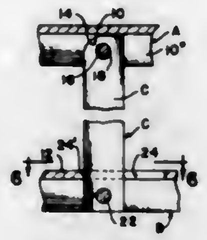
Louis Blum, Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa., a firm
Original application Dec. 18, 1961, Ser. No. 160,012. Divided and this application May 28, 1964, Ser. No. 380,112
5 Claims. (Cl. 256—65)



1. In a railing structure, the combination comprising a post, a railing on one side of said post, and means for supporting said railing on said post including an elongated clamp part generally U-shaped in transverse section embracing said post and disposed with its open side and the longitudinally extending terminal surfaces thereof facing toward the railing, an elongated fitting on the railing side of said post disposed between and interlocked with the opposed legs of said clamp part, the longitudinally extending terminal surfaces of said clamp part and the surface of said fitting facing toward said railing being smoothly merged, means urging said fitting away from said post and thereby drawing said clamp part tight against said post, and an elongated connector element having one end portion threaded into said fitting and extending laterally from said fitting for supporting said railing upon the other end thereof.

3,306,586
ADJUSTABLE RAILING

George E. Green, Baltimore County, Md.
(Long Green Pike, Glen Arm, Md. 21234)
Filed July 13, 1965, Ser. No. 471,598
1 Claim. (Cl. 256—73)



An adjustable railing comprising:

a top rail of channel cross section having a flat top web portion and two downwardly directed side flanges,

a bottom rail of channel cross-section having a flat top web portion and two downwardly directed side flanges,

a plurality of upright members extending between the top and bottom rails, each upright member having an upper end portion positioned between the flanges of the top rail and an end surface in close proximity to the web portion of the top rail,

a pin extending through said flanges and through the upper end portion of each upright member, each of said upper end portions having a curved surface between its end surface and one side of the upright member and concentric with said pin, whereby said upright member may pivot with respect to said rail in one direction,

said bottom rail having a plurality of openings through the flat web portion thereof, each upright member extending through one of said openings and having a lower end portion positioned between the flanges of said bottom rail,

a pin extending through the flanges of said bottom rail and through each of the lower end portions of the upright members,

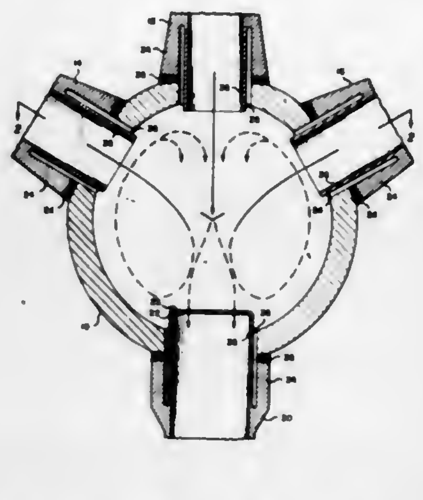
each of said openings in the bottom rail being of greater dimension longitudinally of the bottom rail than the transverse dimension of the upright member extending therethrough,

each said pin extending through the flanges of said bottom rail and each upright member positioning the latter adjacent one end of each opening considered lengthwise of the rail with the greater portion of the opening positioned on that side of the upright member opposite the side having the curved surface at its upper end, whereby each upright member may pivot with respect to the bottom rail in the same direction that said upright member may pivot with respect to the said top rail.

3,306,587
APPARATUS FOR MIXING FLUIDS

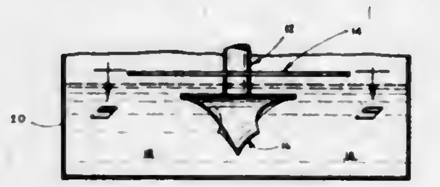
Willburt W. Schroedter, West Hartford, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed July 1, 1964, Ser. No. 379,698
5 Claims. (Cl. 259—4)

1. Apparatus for mixing high pressure fluids that are at substantially different temperatures, comprising a spherical housing, a first input line connected to the top of the spherical housing for introducing a stream of first fluid into the spherical housing interior in a direction coinciding with the vertical axis thereof, a plurality of second input lines connected to the spherical housing for introducing streams of a second fluid, which is at a substantially different temperature than the first fluid, into the spherical housing, said second input lines all being connected to the spherical housing in the same horizontal plane, and being equidistantly spaced, said second input lines being positioned such that the streams of second fluid form an acute angle with a horizontal plane passing through the center of the spherical housing, all of the second input lines being radially connected to the spherical housing so that all of the streams of second fluid intersect the first fluid stream at the center of the spherical housing, and an output line connected to the bottom of the spherical housing and being diametrically opposed to the first input line, through which the mixed fluid is discharged.



3,306,588
IMPELLER MIXER

Norman C. Reid, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Nov. 19, 1965, Ser. No. 508,682
9 Claims. (Cl. 259—134)



5. In combination with a drive shaft, an impeller in driving connection with said shaft comprising:

(1) first and second end sections adapted to be secured to said drive shaft;

(2) an elongated interconnecting section formed between said end sections and being in twisted relation so as to form a blade having an upper leading edge and a lower trailing edge and inner and outer contoured faces, said leading and trailing edges being in spaced relation and extending through a vertical plane passing through the longitudinal axis of said drive shaft so as to define a substantially flat vertex section of said blade.

3,306,589
CONCRETE MIXING MACHINE

Rupert H. Uden, Juniata, Nebr. 68955
Filed June 16, 1965, Ser. No. 464,366
6 Claims. (Cl. 259—154)

1. A continuous concrete mixing and handling machine comprising in combination:

container means open at the top to receive aggregate and having a smaller opening of predetermined size to regulate the discharge therefrom;

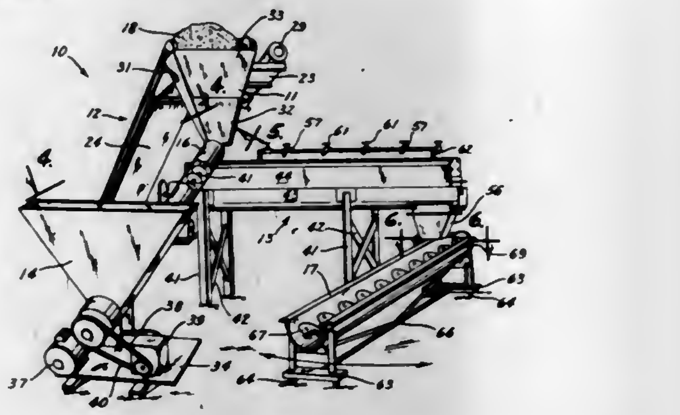
conveyor means operable to supply aggregate to said container means;

power means operable to drive said conveyor means;

hopper means open at the top to receive cement and having an opening formed in the bottom thereof to regulate the flow of cement from said hopper means;

tube means in communication with said bottom opening of said hopper means and positioned at the other end adjacent to said container means;

auger means mounted within said tube means for transporting therethrough the contents of said hopper means;



variable speed means operable to rotate said auger means;

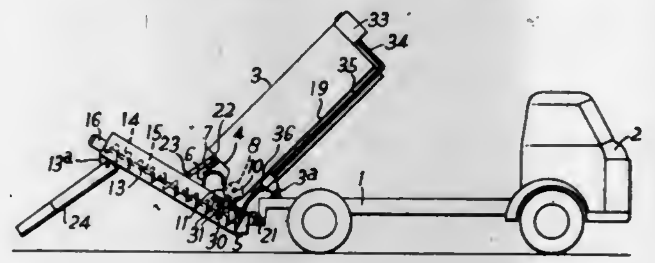
elongated tank means with one end stationed below said container means and said tube means;

means for supplying fluid at a predetermined rate into said tank means; and

rotatable helical auger means mounted in said tank means for moving the materials dumped therein and simultaneously mixing the materials and fluid added thereto, and for discharging them therefrom.

3,306,590
MIXING PLANT

Gerard J. Gallagher, Newcastle-upon-Tyne, England, assignor to Gibson Readymix Concrete Limited, Gateshead, England, a British company
Filed May 26, 1965, Ser. No. 459,053
Claims priority, application Great Britain, June 18, 1964, 25,169/64
10 Claims. (Cl. 259—161)

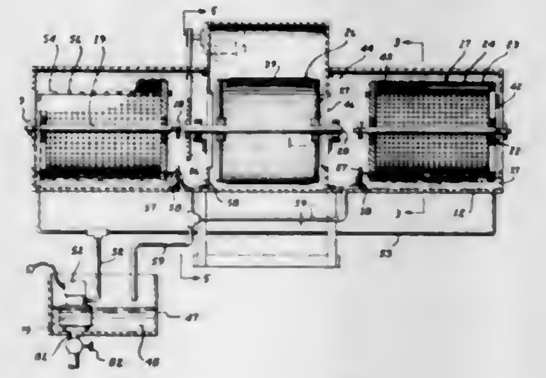


6. A mixing plant comprising, in combination, a container body for fluent materials in a substantially dry-mixed condition; at least one steel feed screw of Archimedean spiral type which is in communication with said body; a first trough of a tough flexible material in which said feed screw is arranged for rotation, said first trough having a discharge opening; a metal supporting frame which is pivotally and portably mounted and is adapted to be swung both in a horizontal plane and also upwards and downwards in vertical planes; a mixing chamber carried by said supporting frame and associated with said first trough and adapted to receive substantially dry-mixed materials discharged by the action of said feed screw through said opening, a wall of the said chamber being constituted by a second tough and flexible trough of U-shape in cross-section secured to said metal supporting frame; water-distributing means within the mixing chamber; at least one mixing screw of Archimedean

type which is accommodated and rotatable in said second trough for the purpose of mixing distributed water with the infed initially dry-mixed materials and simultaneously effecting a controlled and regular discharge from the mixing chamber of a finally mixed and wet fluent material; controllable means supplying power to the rotary feed and mixing screws, and water flow control means through which water is fed to said water distributing means.

3,306,591
EVAPORATIVE COOLER

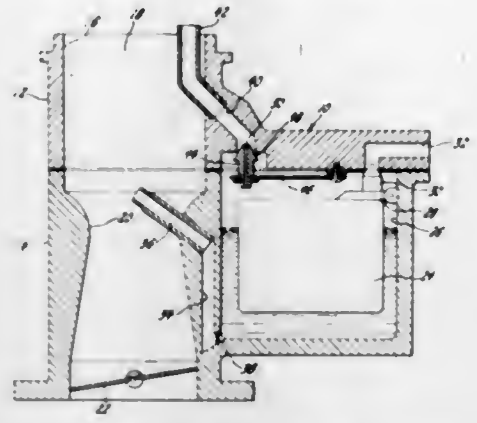
Bruno G. Valazza, 164 W. Central, Coolidge, Ariz. 85228
Filed Feb. 10, 1964, Ser. No. 343,762
1 Claim. (Cl. 261—23)



Air and water cooling apparatus for air conditioning of living space comprising
- (a) a frame,
- (b) a blower housing supported on said frame with an air outlet opening adapted to deliver air to said living space,
- (c) a power driven blower in said blower housing,
- (d) a pair of generally tubular drum housings having a fixed bottom portion and separable top portion, each such drum housing communicating with said blower housing and having a generally circular end opening communicating with ambient atmosphere,
- (e) a frame portion in each drum housing having a top non-circular recess,
- (f) a drum shaft supported on said frame with a non-circular portion engaging in said top recess,
- (g) a drum in each drum housing with one closed end and one open end facing said circular opening,
- (h) a friction reducing bearing means between said drum and shaft,
- (i) a tubular peripheral evaporative pad carried by each drum,
- (j) a water pan in each drum housing with an overflow to maintain a constant level, said drum extending into said pan,
- (k) a water supply tank, and
- (l) means for delivering water from said tank to one side of said drums, said water falling into said pan as make-up water therefor,
- (m) means for delivering said overflow water from said pans to said supply tank,
- (n) said pan water wetting said pad as the drum rotates and air is passed through said pad for cooling and an upside of the drum being thereby lightened,
- (o) said water delivered to a downside of the drum to weight the same and cause the drum to rotate
- (p) whereby any factor causing an increased rate of evaporation of water from the pad causes faster rotation of the drum and delivery of a larger amount of evaporative water into the path of incoming air.

3,306,592
CARBURETOR

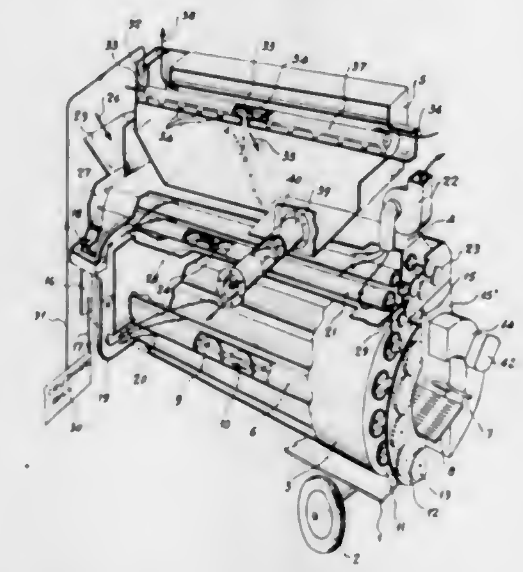
Richard J. Brunner, Rochester, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 10, 1966, Ser. No. 519,688
4 Claims. (Cl. 261—39)



1. An internal combustion engine carburetor comprising a mixture conduit having an air inlet, a fuel bowl, means to maintain fuel in said bowl at a substantially constant level, a fuel passage extending from said fuel bowl and adapted to discharge fuel into said mixture conduit to form an air-fuel mixture, a balancing passage extending between said air inlet and said fuel bowl above the fuel level therein and thermostatically operated valve means adapted to restrict flow through said balancing passage under high temperature conditions to thereby prevent undue enrichment of the air-fuel mixture formed in said mixture conduit.

3,306,593
PORTABLE APPARATUS FOR THE CALCINATION OF MINERALS

Ascensión Bocharan Garcia, Calle Toledo 43, Ciudad Real, Spain
Filed Dec. 9, 1964, Ser. No. 417,181
Claims priority, application Spain, Dec. 17, 1963, 294,593; Apr. 22, 1964, 299,032
8 Claims. (Cl. 263—1)

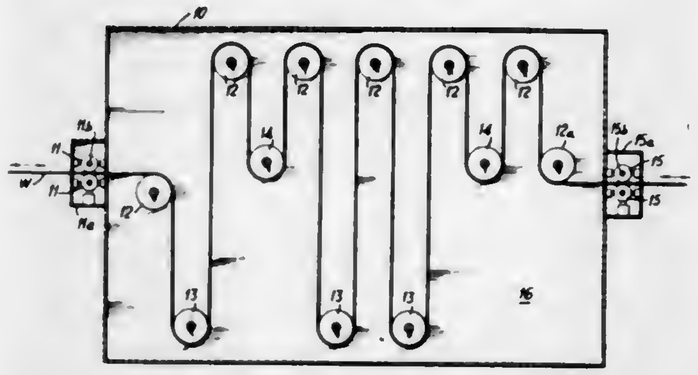


1. An apparatus for the calcination of minerals comprising:
- a calcination furnace including two groups of parallel and rotatable tubes forming a space defining a combustion chamber having a mouth at one end, conveyor means in each tube for pushing the material through the tubes in the same direction as the combustion gases and through the ends of the tubes remote from said mouth;

- a preheater chamber including a plurality of rotatable tubes, conveyor means in each tube for feeding mineral in a direction toward the mouth of said furnace;
- means for supplying mineral to said last mentioned tubes at the ends thereof remote from the mouth of the furnace;
- means for conveying mineral discharged from the last mentioned tubes to the first mentioned tubes; and
- means for directing hot gases from the furnace over said last mentioned tubes.

3,306,594
CLOSED HEAT TREATING CHAMBER HAVING A SEAL ROLL OSCILLATING MECHANISM

Fritz E. Bauer, North Adams, Mass., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Feb. 24, 1965, Ser. No. 434,951
3 Claims. (Cl. 263—3)

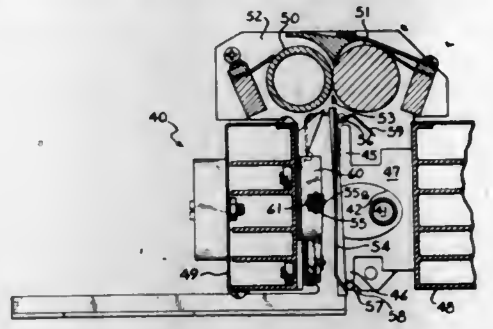


1. In an apparatus for the continuous application of heat to a web, said apparatus comprising a closed vessel forming a heat-treating chamber and having entrance and exit openings for the web, a pair of seal rolls at the entrance opening adapted to engage opposite sides of the web, a second pair of seal rolls at the exit opening adapted to engage opposite sides of the web, and internal rolls mounted in the chamber for passing the web in loops through the chamber from one pair of seal rolls to the other pair, the improvement which comprises reversible driving means connected to said seal rolls for rotating them and including a reversing element operable in a first position to drive the seal rolls in the direction to draw the web from said entrance to said exit opening, said element being operable in a second position to drive the seal rolls in the opposite direction, start-up means operatively connected to said element for moving it alternately from one of said positions to the other to oscillate the seal rolls and web, and means for rendering said start-up means inoperative.

3,306,595
FIXING UNIT FOR PHOTOCOPY MACHINES WITH IMPROVED GUIDING MEANS

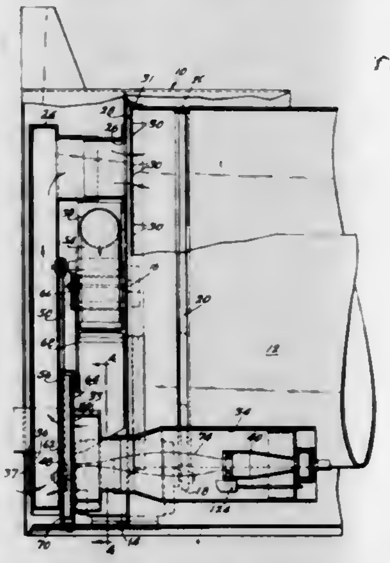
Burton D. Eisner, Highland Park, Ill., assignor to American Photocopy Equipment Company, Evanston, Ill., a corporation of Illinois
Filed Feb. 26, 1964, Ser. No. 347,464
3 Claims. (Cl. 263—6)

1. In a fixing unit for a photocopy machine of the type in which a coated copy sheet having the electrostatic image thereon is developed by application of a fusible pigmented powder to the charged areas, the combination comprising a heating unit for increasing the temperature of said fusible pigmented powder sufficiently high to fuse said powder and fix the developed image, transporting mechanism for advancing the copy sheet past said heating unit, and a guiding system for directing the copy sheet through the fixing unit, said guiding system including first guiding means engaging the back of the copy sheet and second guiding means comprising a plurality of faceted double conical glass beads having serrated ridges formed by the bases of the cones, said serrated ridges engaging the softened powder on the copy side of the copy sheet, said first and second guiding means being located sufficiently close to each other to restrict the buckling of the heated sheet whereby jamming of the machine is effectively prevented.



3,306,596
HEATED-GAS SYSTEM WITH APPARATUS FOR REMOVING GAS-BORNE FOREIGN BODIES

George T. Hollowell, Mayfield Heights, Ohio, assignor to American Gas Association, Incorporated, New York, N.Y., a corporation of New York
Filed Jan. 28, 1965, Ser. No. 428,694
14 Claims. (Cl. 263—10)



7. A structure for entrapping gas-borne foreign bodies and for supporting said foreign bodies for subsequent incineration, comprising a cellular ceramic filter having a plurality of recesses on one surface thereof of larger diameter than the openings of said filter, said recesses extending in depth only partially through said filter.

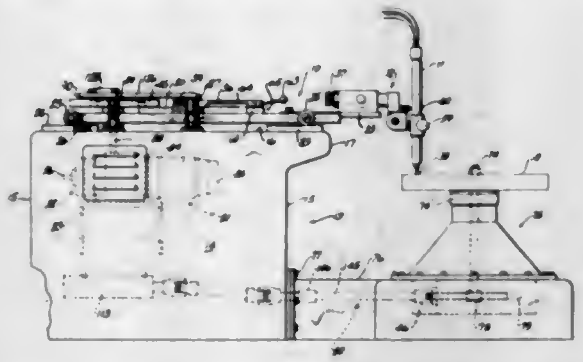
3,306,597
FLAME CUTTING MACHINE

Glenway Maxon, Jr., 1943 N. Summit Ave., Milwaukee, Wis. 53202, and William H. B. Wright III, 4777 Marlborough Drive, Whitefish Bay, Wis. 53217
Filed Aug. 2, 1963, Ser. No. 299,531
11 Claims. (Cl. 266—23)

1. A flame cutting machine of the type having a rotatable power driven cam drivingly connected with an elongated carriage by a latch means to effect lengthwise fore and aft reciprocation of the carriage along the top of a carriage supporting structure to enable the flame of a cutting torch on the carriage to cut through a work piece that is carried by a spindle which rotates the work piece about an upright axis, said flames cutting machine having the following characteristics:
- (A) that the front end portion of the carriage projects a distance beyond the supporting structure;

(B) that torch supporting means mounts the torch on said projecting front portion of the carriage, with its cutting tip lowermost and at a level beneath the top of the supporting structure and at a distance beyond the front end portion of the carriage;

(C) that the carriage is constrained to lengthwise fore and aft reciprocatory motion by cooperating guide means on the carriage and its supporting structure positioned both fore and aft of the axis of rotation of said rotatable cam, and all portions of which guide means are located above and a substantial distance rearwardly of the cutting tip of the torch so as to be remote from the zone at which flame cutting takes place;



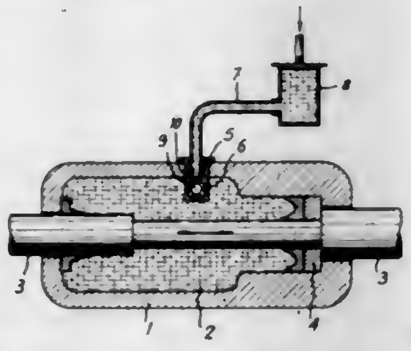
(D) and that the latch means normally maintains the carriage drivingly connected with the cam but is releasable to provide for lengthwise movement of the carriage relative to the cam axis.

3,306,598

HYDROSTATIC COMPRESSION SPRINGS USING ELASTOMERS

Jean Jarret, Fourqueux, and Jacques Jarret, Le Vesinet, France, assignors to Societe d'Exploitation des Ressorts Auto-Amortisseurs Jarret, Paris, France, a French company

Filed Dec. 4, 1964, Ser. No. 415,979
Claims priority, application France, Dec. 6, 1963, 956,267
2 Claims. (Cl. 267—1)



1. A hydrostatic compression spring comprising, in combination:

(a) a rigid envelope;

(b) a piston mounted in said envelope in a movable manner so that when said piston is subjected to a compression force it moves into the region enclosed by said envelope;

(c) an elastomer mass disposed within the region enclosed by said envelope and subjected to an initial pressure sufficient to cause it to completely fill said region when said piston is not subjected to a compression force;

the invention being characterized by:

(d) a valve unit mounted on said envelope so that one end of said unit communicates with the space outside said envelope and the other end thereof communicates directly with the region inside said envelope;

(e) a source of supplementary elastomer disposed outside of said envelope and detachably connected to the end of said valve unit that communicates with the space outside said envelope, and

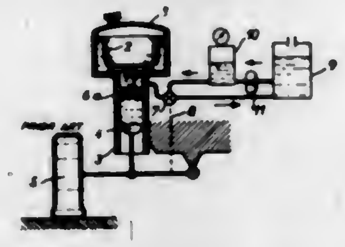
(f) one-way valve means within said valve unit to permit the passage of elastomer therethrough into said envelope while preventing the passage of elastomer out of said envelope.

3,306,599

DAMPING DEVICE APPLICABLE ESPECIALLY TO SUSPENSIONS HAVING AUTOMATIC HEIGHT CORRECTION

Fernand Stanislas Allinquant, 53 Ave. le Notre, Sceaux, France

Filed Nov. 16, 1964, Ser. No. 411,281
Claims priority, application France, Nov. 19, 1963, 954,327
4 Claims. (Cl. 267—64)



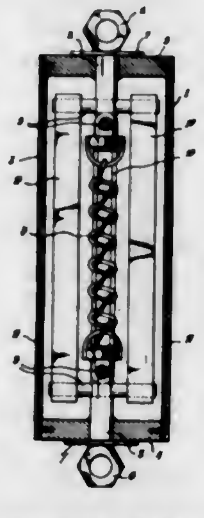
1. In combination with a main cylinder filled with a liquid and a first piston slidably mounted within said cylinder, an improved damping device comprising a second piston also slidably mounted within said cylinder, valve means in said second piston, a pump piston linked to and actuated by said second piston, a pump cylinder solid with said main cylinder and cooperating with said pump piston, and means cooperating with said second piston and pump piston assembly for progressively limiting the stroke thereof.

3,306,600

DEVICE FOR DAMPING ABRUPTLY-APPLIED TENSION FORCES

Rene Roux and Bernard Pierre, both of 181 bis Ave. de Grasse, Cannes, France

Filed Jan. 7, 1965, Ser. No. 423,908
Claims priority, application France, Jan. 8, 1964, 959,734, Patent 1,388,127
2 Claims. (Cl. 267—74)



1. A device for damping abruptly-applied tension forces comprising,

an inner tubular member,

an outer tubular member in telescopic relationship with the inner tubular member,

a disc secured at one end of the inner tubular member in fluid-tight relationship therewith,

a disc secured at one end of the outer tubular member in fluid-tight relationship therewith,

an elongate member passing through and secured to the disc of the inner tubular member in fluid-tight relationship thereto,

an elongate member passing through and secured to the disc of the outer tubular member in fluid-tight relationship thereto,

attachment means secured to the outer end of each elongate member,

at least one resilient member interconnecting the pins,

means securing the resilient member to the pins, and

a safety member interconnecting the pins to prevent disengagement of the telescopic members on application of an excessive force to the attachment means,

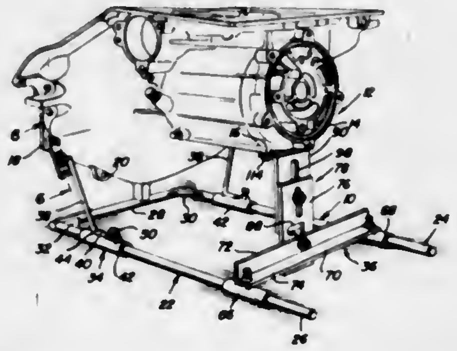
an abruptly-applied tension force on the attachment means being resisted by the resilient member and by pneumatic or hydraulic damping afforded by fluid-tight relationship of the telescopic members.

3,306,601

TRANSMISSION STAND

Jack E. Mitchell, 2306 McDonald, Missoula, Mont. 59801

Filed Oct. 6, 1964, Ser. No. 401,953
9 Claims. (Cl. 269—50)



1. A transmission stand for support on a work surface and adapted to support a transmission therefrom in elevated position above said work surface, said stand comprising a pair of elongated and generally parallel side members rigidly interconnected at one pair of corresponding ends by means of a transverse member secured to and extending between said one pair of ends, a pair of upstanding support arms pivotally and slidably supported at their lower ends from said side members for independent swinging of the upper ends of said arms about axes generally paralleling said side members and independent shifting of said arms longitudinally of said side members, the free ends of said arms including attaching means adapted to be secured to opposite side portions of one end of a transmission case, and a transmission support member adapted to have the other end of said case rested thereupon, said support member including opposite end portions slidably engaged with the other pair of corresponding ends of said side members for shifting longitudinally thereof and defining a brace extending between the other pair of ends of said side members preventing relative lateral shifting of said other pair of ends toward and away from each other.

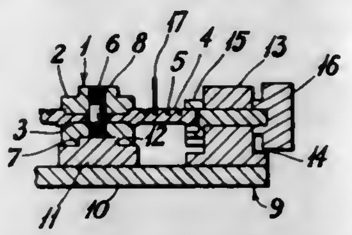
3,306,602

WORK HOLDER FIXTURE

Henry Gardner Scholer, Carteret, and John V. Mechura, West Long Branch, N.J., assignors to The Bendix Corporation, Eatontown, N.J., a corporation of Delaware

Filed Aug. 11, 1964, Ser. No. 388,879
4 Claims. (Cl. 269—55)

1. A holding fixture for processing semiconductor wafers comprising a hub; a plurality of arms fixed to and extending outward from said hub; each of said arms being formed of a resilient material and having a plurality of slots formed in a longitudinal surface thereof; means for holding said hub for rotation; and a cam member associated with said arms and adapted, on engagement therewith, to flex said arms in a direction whereby to open said slots to receive said wafers.

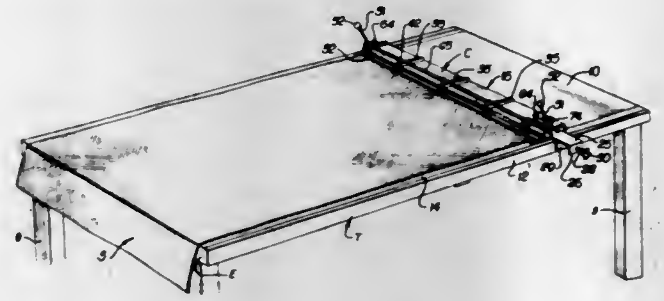


3,306,603

HOLDING APPARATUS FOR SHEET MATERIAL

David F. Ziers, Monterey Park, Calif., assignor to Manufacturing Specialties Co., Inc., Gardena, Calif., a corporation of California

Filed Mar. 19, 1965, Ser. No. 441,201
18 Claims. (Cl. 269—91)



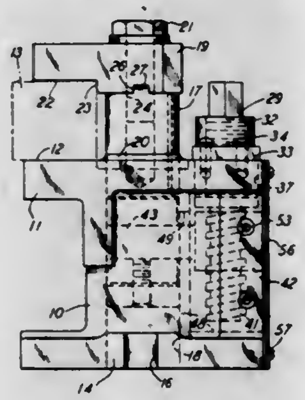
1. In apparatus for clamping sheet material placed upon a table: an elongate body movable along the table; means for releasably securing said body to the table at selected positions thereon; supporting means secured to said body and extending forwardly thereof; an elongate clamping member extending lengthwise of said body below said supporting means; means mounting said clamping member on said supporting means for vertical movement with respect thereto and into and from engagement with the sheet material placed on the table; and means for shifting and retaining said clamping member downwardly of said supporting means and in clamping engagement with the sheet material on the table.

3,306,604

VISE

Harry N. Christensen, 3019 Olive St., Racine, Wis. 53403

Filed Nov. 3, 1964, Ser. No. 408,509
7 Claims. (Cl. 269—240)

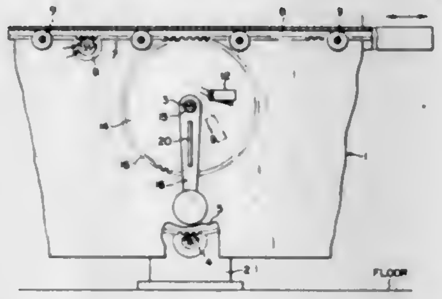


1. A vise comprising a base member, a first jaw on said base member and having a surface for supporting a workpiece, a circular post snugly mounted on said base member and being axially movable in a direction transverse

to said surface, a second jaw attached to said post and having a surface faced toward the other said surface for supporting said workpiece, a screw rotatably mounted in said base member and disposed parallel to said post, and a nut threadedly engaged with said screw and slidably guided in said base member and operatively associated with said post and being slidable in said base member for axially moving said post and said second jaw.

3,306,605
X-RAY APPARATUS

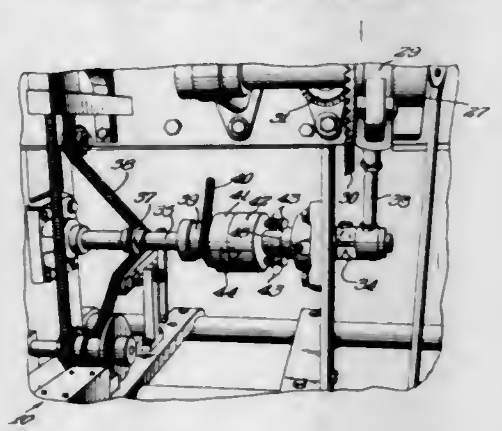
Charles R. Griffith, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 12, 1965, Ser. No. 455,281
3 Claims. (Cl. 269—323)



1. An X-ray table mounted on a floor comprising a normally-horizontal normally-retracted top portion selectably advancable and retractable in separate top-tilting and straight-line top-extending modes of movement, either mode of movement during advancement being capable of causing the end of such top portion to strike the floor at certain degrees of advancement thereof in the other mode; reversible power actuator means operable to effect advancing and retracting movement of said top portion selectively and in either mode selectively; and control means for said power actuator means, including operator's control means and means cognizant of the degree of advancement of said top portion in both modes, operable to effect advancing movement of said top portion in either mode of such movement, selectively, within a range limited to bringing the aforesaid end of the top portion to positions of non-contacting adjacency to the floor, and to effect retracting movement of said top portion in either mode of such movement, selectively.

3,306,606
COMBINATION INSERTER AND COLLATOR HAVING REVERSE INSERT TRACK

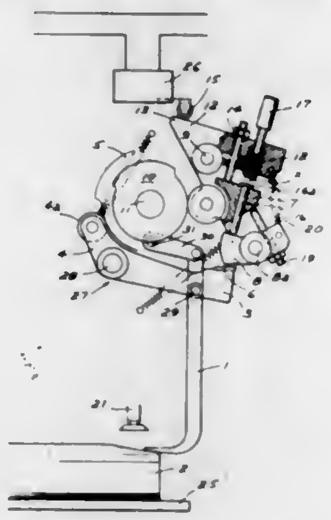
Eugene Sather, Washington, and Lester H. Stocker, Phillipsburg, N.J., assignors to Bell & Howell Company, Chicago, Ill., a corporation of Illinois
Filed Aug. 28, 1963, Ser. No. 305,082
12 Claims. (Cl. 270—58)



12. An inserter including an elongated insert track,
an inserting station at one end of the track,
a collated insert delivery extension at the opposite end of the track,
means for depositing a series of articles onto the track,
means for selectively transporting the articles toward either end of the track,
means for driving the transporting means toward one end of the track,
means for driving the transporting means toward the opposite end of the track,
and alternatively operable means coordinated in operation with the transporting means for selectively coupling said transporting means with either of said driving means.

3,306,607
LIFT CONTROL DEVICE FOR STACKS OF SHEETS

Adolf Schwebel, Offenbach am Main, Germany, assignor to Mabeg Maschinenbau G.m.b.H. Nachf., Hense & Pleines G.m.b.H. & Co., Offenbach am Main, Germany, a German company
Filed July 16, 1964, Ser. No. 383,140
11 Claims. (Cl. 271—31)



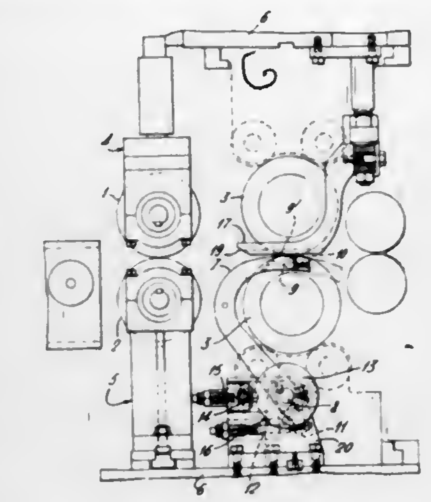
1. A control device for controlling lifting means for lifting a stack of sheets from which sheets are successively withdrawn by sheet pick-up means acting upon the top of the stack, said control device comprising a switch means for controlling a power supply for said lifting means, a movable detector sensing the top level of the stack and engageable therewith in pressure engagement, a first movable control member engageable with said detector for positioning said control member by the position of said detector, and a second movable control member engageable with said switch means to actuate the same for disconnecting said power supply, said first control member including a support member and a control pin slideable in said support member and engageable with said second control member, the lengthwise position of said pin being controlled by said detector and controlling the position of said second control member in reference to the switch means, movement of the detector into a position corresponding to a predetermined top level of the stack moving said pin into a position in which the second control member is positioned to engage the switch means for the purpose aforesaid.

3,306,608
SHEET POSITIONING MECHANISM

Clifford N. Beer, 15 Queen Eleanor's Road, Onslow Village, Guildford, Surrey, England
Filed Mar. 30, 1964, Ser. No. 355,696
Claims priority, application Great Britain, Jan. 6, 1964, 550/64
3 Claims. (Cl. 271—53)

1. A sheet positioning mechanism for use with a sheet slitting device of the type described, comprising a pair of retractable stop members for the frontal sheet edge defining its position in front of the slitting device, each stop

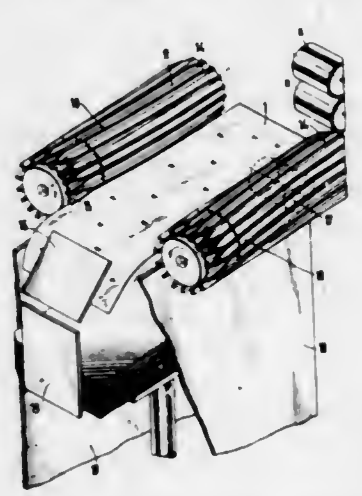
member consisting of a spring loaded retractable pawl; sheet feeding means point-contacting the sheet allowing the same a skewing movement to bring the front edge in simultaneous contact with both said pawls; a reciprocable



support for each pawl causing the latter to release said front edge of the sheet as slitting thereof commences, and means returning said supports with pawls to their original operative position before another sheet is to be cut.

3,306,609
STACK-FORMING CONVEYOR DEVICE FOR DATA CARDS

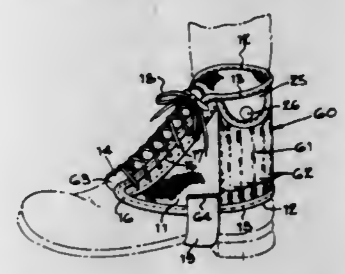
Hans-Diedrich Beuck, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Berlin, Germany, a corporation of Germany
Filed Feb. 24, 1965, Ser. No. 434,985
Claims priority, application Germany, Feb. 24, 1964, S 89,654
10 Claims. (Cl. 271—71)



1. Conveying device for stacking data cards which arrive in succession, comprising conveying means defining an entering plane for arriving cards, two parallel stacking rollers of mutually opposed directions of rotation mounted behind said conveying means along opposite sides respectively of the card conveying path in said entering plane, each of said rollers having an axially elongated roller body with peripherally distributed longitudinal slots engageable by respective lateral edges of the cards coming from said conveying means, respective bars extending lengthwise of said body and forming respective lateral walls of said slots, said bars having respective elastically yieldable rear ends extending toward each other and forming a card-decelerating brake and being fastened to said roller body at the front and rear ends only, said bars consisting of springy material and having with the exception of said rear ends, a radially elongated cross section which gradually merges with a radially flatter and peripherally wider cross section at said rear ends, said rear ends being located against each other in peripheral succession on a circle concentric to the axis of said roller body.

3,306,610
WEIGHTED TRAINING SPAT

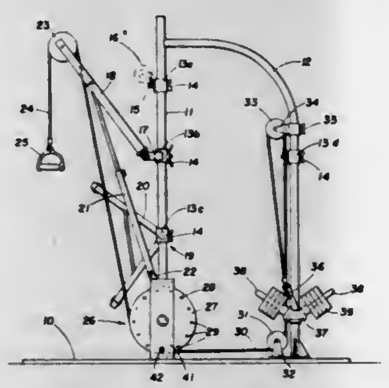
Ernest R. Biggs, Jr., 1204 W. 1st Ave., and Ray Arganbright, 1462 Wyandotte Road, both of Columbus, Ohio 43212
Original application Nov. 5, 1957, Ser. No. 694,647. Divided and this application Mar. 17, 1964, Ser. No. 352,686
1 Claim. (Cl. 272—57)



A therapeutic training spat adapted to be worn over the shoe of an athlete, said spat comprising a flexible body member configurated to surround and embrace the athlete's ankle and having a front portion, a rear portion and two opposed side portions, said flexible body member having two free edges disposed along vertical lines at the front portion thereof, lacing means interconnecting said free edges for securing said body snugly about the athlete's ankle, means defining a plurality of parallel vertical pockets on each side portion of said spat, said pockets extending for substantially the entire height of said spat, a plurality of elongated bar weights disposed entirely within said pockets, means associated with said pockets for releasably retaining said bar weights in said pockets, said bar weights being disposed to overlie the ankle joint, said spat body being flexible in the areas intermediate said pockets to conform closely to the athlete's ankle, a retaining strap secured to each said opposite side portion of said body adjacent to the lower edge thereof, said strap being secured to said body forwardly of, but closely adjacent to, said vertical pockets and being disposed to pass in a generally vertical plane under the athlete's instep, said strap being effective in conjunction with the lacing means to prevent relative movement between the bar weights and the athlete's ankle.

3,306,611
EXERCISING APPARATUS

Martin Gaul, 1524 Bathurst St., Toronto, Ontario, Canada
Filed Apr. 27, 1964, Ser. No. 362,767
6 Claims. (Cl. 272—81)

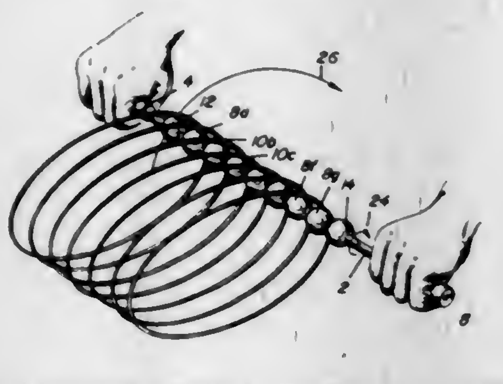


1. Body exercising apparatus and comprising: a support frame; a plurality of attachment devices adjustably mounted on said frame; at least one body exercising device removably supported by said attachment devices; a flexible cable attachable to said exercising device by one end thereof; a cable storage drum rotatably mounted on said

support frame and having the other end of said flexible cable attached thereto an adjustment plate rotatably mounted on said support frame in side by side relation with said storage drum; a plurality of holes formed in said drum and said plate and adjustable to register with one another; pin means selectively movable into one said hole in said drum and another said hole in said plate interlocking the same in a selected one of a plurality of positions relative to one another for rotation in unison; weight support means movably mounted on said frame for movement between upper and lower positions; and, linkage means extending between said plate and said weight support means for transmitting rotation of said plate in one direction with an upward movement of said support means and transmitting rotation of said plate in the other direction to permit a downward movement of said support means.

3,306,612
TOY EXERCISE DEVICE WITH ROTATABLE RINGS

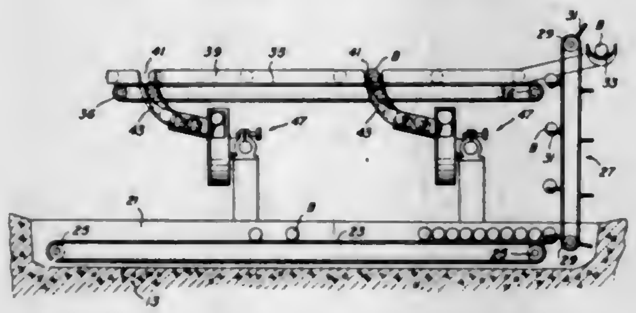
Leonard B. Rosen, R.D. 2, Jamestown, Pa. 16134
Filed Feb. 19, 1964, Ser. No. 345,888
5 Claims. (Cl. 273—1)



1. A toy exercising device comprising, in combination, an elongated central bar member, a plurality of rings, and a plurality of ball members rotatably received on said central bar member and having said rings fixed respectively thereto, whereby orbital movement of said central bar member results in orbital movement of said rings thereabout said rings being fixed to said ball members respectively in offset relation to the central axis of said enlongated central bar member, said central bar member including handle grip means secured to opposite ends thereof, said handle grip means having a central longitudinal axis offset laterally from the central longitudinal axis of said central bar member.

3,306,613
BASEBALL BATTING PRACTICE RANGE WITH BALL RETURN MEANS

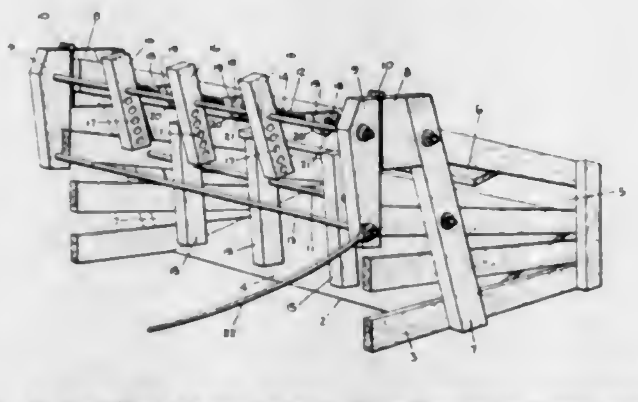
Artez F. Mainers, 143 Finley St., Memphis, Tenn. 38112
Filed July 29, 1964, Ser. No. 385,974
5 Claims. (Cl. 273—26)



1. In a ball batting range, a surface for receiving the batted balls, an accumulating area for the balls depressed from said surface, said surface being inclined to said accumulating area whereby the balls will roll into said accumulating area, first conveyor means in said accumulating area for conveying the accumulated balls towards a side of said range, a vertical transfer conveyor means for receiving the balls from said first conveyor means and lifting them upwardly, an upper conveyor means spaced above said surface for receiving the balls from said transfer conveyor means and moving them above and across said surface, a plurality of laterally spaced ball pitching machines supported from said surface in front of said upper conveyor means, a plurality of chute means respectively leading from said upper conveyor means along the length thereof to receive balls therefrom and to carry them to an associated one of said ball pitching machines, a plurality of selective release means respectively interposed between said chute means and its associated one of said ball pitching machines for releasing the balls one at a time to its associated one of said ball pitching machines, coin-actuated means coupled to said release means for operating said release means a pre-determined length of time upon deposit of a coin; each of said ball pitching machines comprising a hollow circular housing having a cylindrical inner surface, a wheel rotatably mounted in said housing in concentric relationship with said inner surface, means coupled to said wheel for rotating said wheel, said housing being open for a segment thereof to provide an inlet opening to receive between said wheel and said inner surface the ball to be pitched and to provide an exit opening through which the ball is adapted to exit, said wheel including a concave rim substantially semi-circular in cross-section and adapted to receive one side of the ball with the remote portion of the ball engaging said inner surface, the distance between said inner surface and the mid-portion of said rim being less than the diameter of the ball to be pitched whereby the ball is compressed when received between said wheel and said inner surface and is rolled around said inner surface from said inlet opening to said exit opening where it flies free of said machine.

3,306,614
BOWLING GAME TARGET

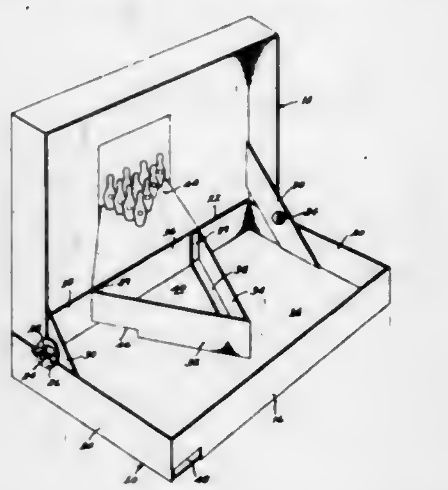
Christian R. Groff, 2013 Old Philadelphia Pike, East Lampeter Township, Lancaster County, Pa. 17602
Filed Aug. 9, 1965, Ser. No. 478,358
2 Claims. (Cl. 273—41)



1. A bowling game target, the elements comprising a framework having sides, a back, a top, an inclined floor and an open front, four rods spanning the horizontal distance between the sides across the open front, a pair of uprights mounted on said sides in proximity to the front, hinged members depending from the top of said uprights, two of said rods being mounted on said uprights and two of said rods being mounted on said depending hinged members, the two rods on the uprights being on substantially the same vertical plane and the two rods carried on the depending hinged portion being on substantially the same vertical plane, the two top rods being on substantially the same horizontal plane and the two bottom rods being on substantially the same horizontal plane, two of said rods disposed in diagonal relationship with one another being provided with a plurality of rotatable pins, the other top rod being provided with a plurality of eccentrically mounted rotatable elements having a point on one side and a flat surface on the opposite side, said elements being mounted on the rod in such manner that the points hang downwardly, said pins being mounted on said rods for rotation thereon and being suspended substantially vertically, the length of said pins being greater than the horizontal distance between adjacent rods on the same horizontal plane, the arrangement being such that the arc inscribed by the pins carried on the lower rod intersects the arc of the pins carried on the top rod and the points on the elements carried on the other top rod.

3,306,615
TOSS GAME SIMULATING BOWLING

Oscar F. Tack, 2919 Drexel, Detroit, Mich. 48215
Filed Apr. 14, 1964, Ser. No. 359,648
2 Claims. (Cl. 273—95)

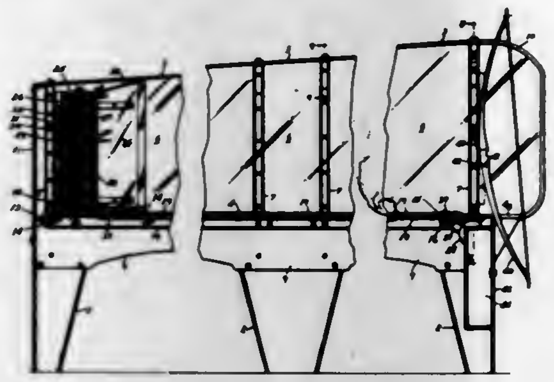


1. A game of skill comprising a box, an upright backstop member extending upwardly from one side of said box, a pair of side members within said box cooperating with a medial portion of the said one side of said box to define a triangular enclosure, said enclosure dividing the interior of said box into a triangular count zone and a relatively larger no-count zone, said triangular enclosure representative of the outline of set ten pins, ten count pieces representative of ten pins and to be tossed collectively into the count zone, and an outlet in one side of the triangular structure for passage of the count pieces to the no-count zone by tilting of the box.

3,306,616
ENCLOSED ARCHERY LANE HAVING A MOVABLE TARGET

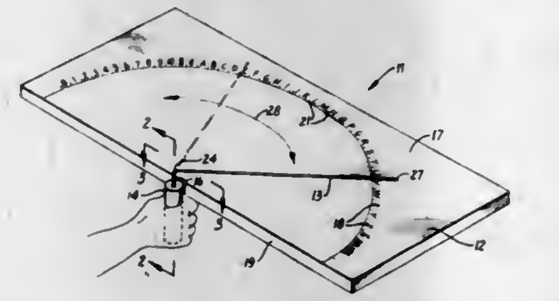
Charles R. Baldwin, Spokane, and Kimball De Young, Seattle, Wash., assignors to Lektro Guard Corporation, Spokane, Wash., a corporation of Washington
Filed Sept. 28, 1964, Ser. No. 399,798
11 Claims. (Cl. 273—101)

6. An archery device comprising an enclosed lane having a top wall, a floor and side walls joining the top wall and floor to provide an elongated passageway through which arrows may pass in flight from a bow to a target;
a target support and backstop in said lane movable lengthwise thereof from the back to the front;
a bow mounted at one end of the lane for movement transversely thereof up and down and sidewise;
means securing the bow for limited movement fore and aft with respect to the lane;
means secured to the target support operable to move it to and fro between the front end and the back end of said enclosed lane;
said target support carrying forwardly extending outwardly flaring shield means extending to the side walls and top wall of the lane to prevent arrows from passing the target support when it is in the rearmost position.



3,306,617
MESSAGE DEVICE WITH FREELY SWINGABLE POINTER

Thomas W. Gillespie, Box 307, Yreka, Calif. 96097
Filed Jan. 27, 1964, Ser. No. 340,368
4 Claims. (Cl. 273—161)



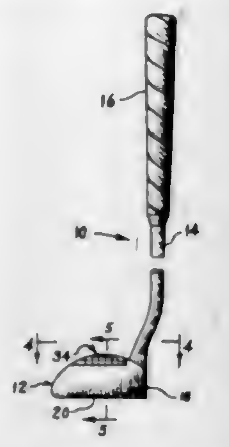
1. A message device comprising a board having semicircularly arranged indicia thereon for indicating message parts from which a whole message is indicated, a hub, a freely floating pointer mounted in said hub which is adapted to be held by a player in juxtaposed position to the board, and guide means on the edge of the board near the center of the semi-circle containing the indicia for positioning the hub at a central location so as to allow the pointer to swing freely over the indicia and indicate message parts, said guide means and said hub having matching wall configurations whereby the hub may be held in accurately fixed relation to the board.

3,306,618
GOLF CLUB WITH SLOPE INDICATING MEANS THEREON

Jon L. Liljequist, 507 W. Algonquin Road, Chicago, Ill. 60005
Filed Mar. 6, 1964, Ser. No. 349,911
6 Claims. (Cl. 273—162)

4. A putter for apprising a golfer of the slope characteristics of a putting green so that he can better direct his golf ball toward the cup, comprising: a generally upright shaft having an upper end adapted to be held by the golfer and a lower end, a club head fixedly attached to the lower end, said club head having both an elongate leading side defining a generally vertical ball engaging surface and broad lower surface means defining a substantially flat plane at generally a right angle to the ball engaging surface for imparting a substantial degree of noticeable stability to said shaft upper end in any lateral direction when held by said golfer in his normal putting stance with said lower surface means aligned flush against said putting green, and two dimensional level means carried by said club head and operatively aligned with said lower surface for indicating the slope characteristics of that portion of the putting green upon which said lower surface

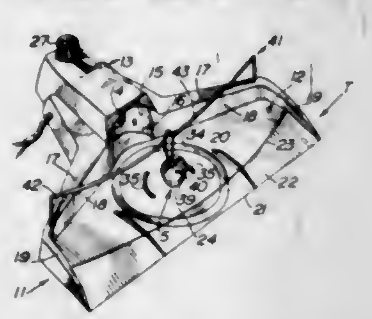
means is flushly aligned, said level means including both movable indicator means and angular indicia means associated therewith, both readily viewable by the golfer from above when assuming his normal putting stance, for



providing information regarding the magnitude and absolute direction of the slope of said portion whereupon said golfer is immediately apprised of said slope characteristics upon addressing the golf ball.

3,306,619
GOLF PUTTING TARGET

John R. Brandell, 300 N. State St., Chicago, Ill. 60610
Filed Sept. 11, 1963, Ser. No. 308,263
5 Claims. (Cl. 273—179)

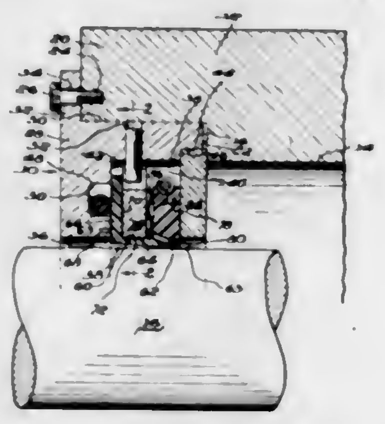


2. A ball target device comprising a frame forming a tray providing a floor, spaced abutments at the opposite sides of the tray defining a ball receiving area on the floor between the abutments, and upstanding walls extending at and along the rear of the floor and merging with said abutments, said floor having an upwardly inclined surface extending between said abutments, at and rearwardly of the front edge of the floor, to a ridge disposed inwardly of said front edge, and a downwardly inclined floor portion extending rearwardly from the ridge toward said upstanding walls, a retaining rod, latch keeper means comprising spaced latching slots formed in the frame and hooks forming latches on and at the opposite ends of the rod for detachable engagement in said slots to anchor the rod on the frame in position to block balls, directed upon the upwardly inclined surface at excess speed, from clearing the upstanding walls, without preventing balls from rolling over the ridge and upon the downwardly inclined floor portion, and a signaling device mounted for rotary spinning movement on the rod in response to entry of a ball into a target zone.

3,306,620
THERMALLY STABLE LIP SEAL

Ernest J. Taschenberg, Baltimore, Md., assignor to Koppers Company, Inc., a corporation of Delaware
Filed Apr. 16, 1964, Ser. No. 360,337
9 Claims. (Cl. 277—26)

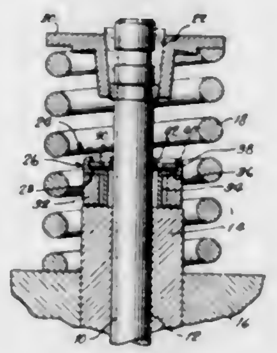
1. A fluid seal assembly adapted to provide a seal between a pair of relatively rotatable parts comprising,
an annular seal housing having an annular recessed portion with a radially extending planar surface,
an annular seal ring secured against rotation within said housing annular recessed portion and having
an axially extending seal lip portion with a conically shaped external surface adjacent one end,
a radially extending portion adjacent the other end portion,
a cylindrical external surface between said radially extending portion and said axially extending seal lip portion,
said annular seal ring radially extending portion positioned in sealing relation with said seal housing planar surface,



an annular support ring having a lower coefficient of thermal expansion than said annular seal ring positioned in overlying relation with said seal ring cylindrical external surface for limiting thermal expansion of said annular ring.
an annular wedge ring positioned in overlying relation with said seal lip portion,
means urging said wedge ring radially against said seal ring external conical surface to thereby urge said lip portion into sealing engagement with a cylindrical shaft extending therethrough, and
means uniformly urging said support ring axially to thereby maintain said seal ring radially extending portion in non-rotatable sealing engagement with said housing planar surface.

3,306,621
VALVE STEM SEAL

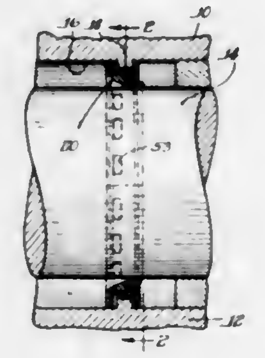
Edward W. Fisher, Palmyra, N.Y., assignor to Garlock Inc., Palmyra, N.Y., a corporation of New York
Filed Mar. 17, 1964, Ser. No. 352,559
14 Claims. (Cl. 277—80)



1. In combination, a relatively stationary cylindrical guide member comprising magnetic material, a valve stem reciprocable within and guided by said guide member with a projecting portion of the valve stem extending from an end thereof, an annular sealing element in sliding, sealing engagement about and with said projecting portion, and holding means opposing axial movement of said sealing element; said holding means comprising a magnet, and a connection, connecting said magnet to said sealing element; said magnet being in such magnetic relation to the magnetic material of the guide member as to hold the magnet against material movement relatively to the guide member and to hold the sealing element against material movement with the valve stem.

3,306,622
REINFORCED BEARING SEAL

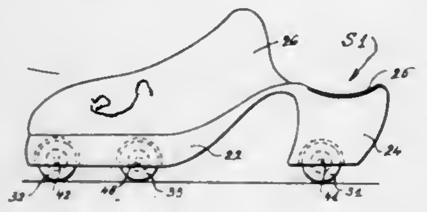
Joseph M. Liebig, Wheaton, Ill., assignor to Illinois Milling, Inc., Chicago, Ill., a corporation of Illinois
Filed Jan. 26, 1965, Ser. No. 428,054
5 Claims. (Cl. 277—178)



1. An oil seal comprising an arcuate body of elastomeric material, an integral sealing lip of elastomeric material extending substantially radially in from said body and having a sealing edge portion adapted to engage a rotating shaft, and a substantially rigid arcuate reinforcing member embedded in said elastomeric body and extending arcuately substantially from end-to-end thereof, said reinforcing member body being substantially U-shaped in cross section having a pair of spaced apart substantially parallel side walls and an interconnecting bight, said bight being joined to the radially inner edges of said sidewalls and being disposed relatively adjacent the radially inner portion of said elastomeric body, and adjacent said lip, said bight having an arcuate rib extending radially inwardly into said lip and reinforcing said lip in the vicinity of said sealing edge.

3,306,623
ROLLER SKATES FOR SHOES

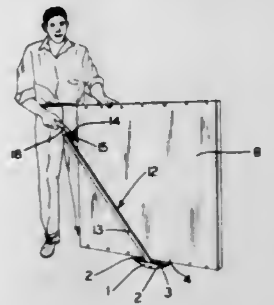
Dorothea M. Weitzner, 8 E. 62nd St., New York, N.Y. 10021
Filed Nov. 12, 1964, Ser. No. 410,401
7 Claims. (Cl. 280—11.2)



1. A convertible roller skate, comprising a shoe having a thick sole, a thick heel and an upper assembled together, said sole and heel having cylindrical recesses formed in the bottoms thereof, said recesses having laterally extending axial extensions, spring clips in the recess extensions, a plurality of rollers each having an axial shaft, said shafts extending axially of the rollers, said shafts being removably and rotatably engaged in the spring clips with the rollers extending out of the bottoms of the heel and sole, whereby the skate is convertible to a walking shoe by removing the shafts from the spring clips and the rollers from said recesses.

3,306,624
DOLLY FOR MOVING BOXES OF GLASS

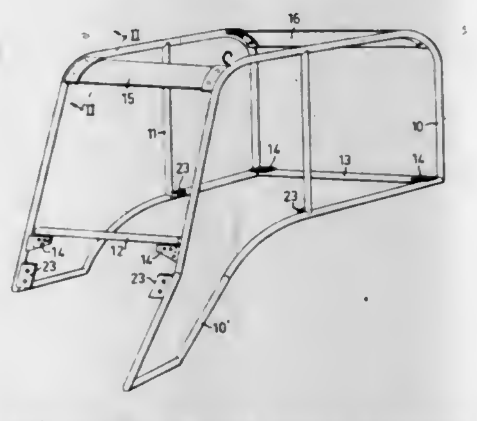
James W. Goss, 410 South St. SW., Warren, Ohio 43609
Filed May 19, 1965, Ser. No. 456,989
5 Claims. (Cl. 280—47.34)



1. A dolly for moving flat rectangular objects of relatively large length and width and relatively small thickness, said dolly having a relatively long narrow body portion comprising spaced longitudinally disposed side members, transversely disposed top means rigidly connected to the side members and unobstructed over the length thereof, transversely disposed axle means carried by the side members, roller means journalled upon the axle means, and an upwardly and rearwardly inclined substantially inverted long narrow U-shaped handle, said handle being formed of a steel bar comprising two straight parallel legs, the lower ends of which are connected to the side members, the upper ends of said legs being connected by a relatively short transversely disposed portion such that a vertical plane passed through the transversely disposed portion is spaced a substantial distance rearwardly of the rear edge of the top means, and an upwardly and rearwardly disposed hand grip connected to said transversely disposed portion.

3,306,625
CABIN-LIKE PROTECTING GUARD STRUCTURE FOR TRACTORS

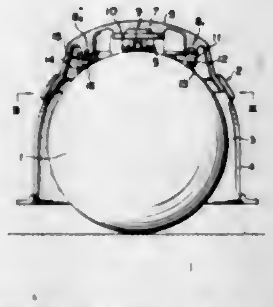
John Evald Ottosson, Klippan, Sweden, assignor to AB Broderna Ottosson & Co., Klippan, Sweden, a corporation of Sweden
Filed July 20, 1965, Ser. No. 473,366
Claims priority, application Sweden, July 30, 1964, 9,245/64
3 Claims. (Cl. 280—150)



1. A cabin-like protecting guard structure for tractors comprising two transversely spaced side frames, means interconnecting said side frames, said means including two connecting members delimiting a roof portion of the guard structure from respectively front and rear end wall portions thereof and each consisting of a sheet metal plate the opposite broad sides thereof forming a smooth transition between the roof portion and the respective end wall portion. a pair of flanges for each end of said sheet metal plates on the respective adjacent side frame, said flanges receiving the associated sheet metal plate end portion therebetween, and means detachably connecting each metal plate to the flanges at each end thereof.

3,306,626
OCCUPANT-PROPELLED PLAYTHING HAVING A SINGLE WHEEL

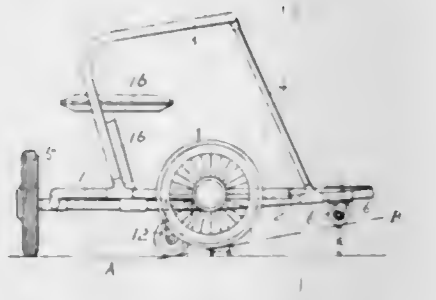
Tadao Kawada, 4610 Naejima Fukunomachi, Higashi Tonami-gun, Toyama-ken, Japan
Filed July 9, 1965, Ser. No. 470,796
4 Claims. (Cl. 280—205)



1. A playing device comprising a rolling body and an inverted cup-shaped member adapted to support a rider, said member including a roller assembly adapated to engage said rolling body to support said member, a roller or rollers normally spaced from said rolling body by a small gap and at least one braking member normally spaced from said rolling body by a small gap but brought into contact with said rolling body when said member is tilted with respect to said rolling member to cause said member and said rolling body to move in unison.

3,306,627
RIDER-PROPELLED EXERCISING VEHICLE

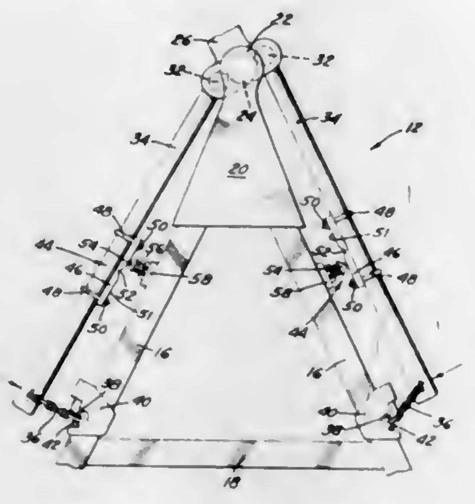
Yoshio Goto, 27 Sugiyama Odawara, Hara-machi, Japan
Filed Feb. 1, 1965, Ser. No. 429,344
1 Claim. (Cl. 280—259)



A vehicle comprising a symmetrical base frame having median longitudinal and transverse axes, a front castor mounted to said frame adjacent to the front end thereof on an axis in the vertical plane through said longitudinal axis, a rear wheel rigidly mounted to said frame adjacent to the rear end thereof on an axis in the vertical plane through said longitudinal axis to rotate in a plane perpendicular to said longitudinal axis, a transverse crankshaft mounted to said frame substantially coincident with said transverse axis, side wheels mounted on the ends of said crank shaft for rotation in planes perpendicular to said transverse axis, a pedal on said crankshaft on each side of said longitudinal axis, a seat supported on said frame in the vertical plane through said longitudinal axis and behind the vertical plane through said transverse axis, a hand rail mounted on said frame and extending around the sides and front of said seat, a support extending from the front end of said hand rail to the front end of said frame and an adjustable center castor mounted to said frame in the vertical plane through said longitudinal axis between said seat and said crankshaft, said front castor, center castor and side wheels being positioned to engage a plane extending downwardly and rearwardly relative to the plane through said longitudinal and transverse axes of said frame, said rear wheel and said center castor being positioned to engage a plane parallel to the plane through said longitudinal and transverse axes of said frame.

3,306,628
NON-SWAY ATTACHMENT FOR TRAILER HITCH

Thomas P. Haxton, 25277 Girard St., Hemet, Calif. 92343
Filed July 16, 1965, Ser. No. 472,542
2 Claims. (Cl. 280—406)



1. A stabilizing device for use with a hitch connecting the draft frame of a trailer to a draft member on an automobile, said hitch including a ball-and-socket connection between said draft frame and said draft member, comprising:

a pair of generally fore-and-aft extending bars disposed on opposite sides of said trailer draft frame, said bars being connected at their front ends to said automobile draft member at laterally spaced points on opposite sides of said ball-and-socket connection;

said bars being horizontally swingable with respect to said automobile draft member, but rigid with respect thereto in the vertical direction;

tension means connected to the rear ends of said bars and exerting a force thereon tending to pull the bars inwardly toward the centerline of the trailer draft frame;

a plate fixed to the inner side of each of said bars intermediate the ends thereof, said plate having a flat, substantially vertical surface, with a V-shaped notch formed therein;

a pair of pivot members fixed to opposite sides of said trailer draft frame and projecting laterally outwardly therefrom;

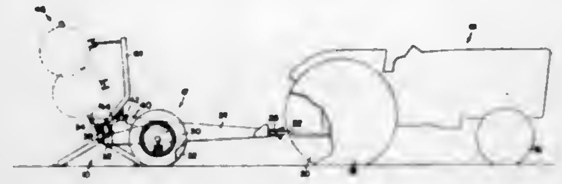
each of said pivot members normally seating in the notch of its respective plate when the trailer and automobile are in a straight line, and said pivot member being cause to ride up out of said notch and to slide forwardly or rearwardly with respect thereto over said flat vertical surface when the automobile is turned with respect to the trailer;

each of said members acting as a fulcrum for its respective bar, whereby inward tension exerted against the rear end of the bar causes the front end thereof to exert a lateral outward force on said automobile draft member, tending to center the trailer directlv behind the automobile and in a straight line with respect thereto.

3,306,629
PARKING STAND FOR WHEELED IMPLEMENT CARRIER

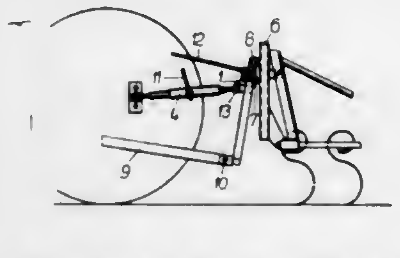
Orey W. Oerman, Moline, Ill., and William V. Lohrman, Davenport, Iowa, assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Sept. 10, 1965, Ser. No. 486,340
3 Claims. (Cl. 280—475)

1. In combination with an implement carrier having a transversely extending tool bar, a forwardly extending draft frame secured at its rear end to said tool bar, ground-engaging wheel means carried by an intermediate portion of said draft means, and means on the forward end of said draft means securable to a tractor drawbar; a parking stand comprising spaced apart ground-engaging means, means hingedly interconnecting said spaced apart ground-engaging means with said tool bar, and means operable to cause said spaced apart ground-engaging means to move towards each other to raise said tool bar.



3,306,630
ARRANGEMENT FOR COUPLING A TOWED VEHICLE TO A TOWING VEHICLE

Heinrich Weiste, 4771 Sieningsen, Sost, Westphalia, Germany
Filed Mar. 4, 1965, Ser. No. 437,054
Claims priority, application Germany, Mar. 9, 1964, W 36,346; June 1, 1964, W 36,894
9 Claims. (Cl. 280—479)

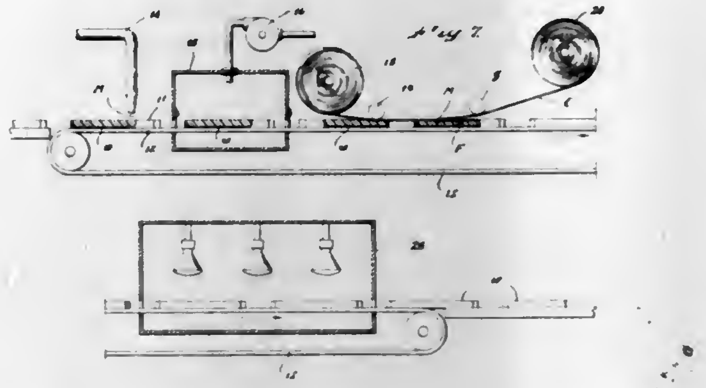


1. In an arrangement for coupling a towed vehicle to a towing vehicle in which the towing vehicle has a three-point power lift, and wherein a coupling member on the towing vehicle comprises a pair of converging members fixed relative to each other and movable on the three-point power lift, the improvement comprising a coupling member on the towed vehicle having two converging members fixed relative to each other to receive the coupling member of the towing vehicle, the converging members of said towed vehicle having channels with open sides and with the open sides of the channels facing each other, and said coupling member of the towing vehicle further having a roller means carried at the apex of the converging members, said roller means being of such a size as to be receivable in one of said channels for guiding said coupling members into engagement, the arrangement being such that the converging members of the coupling member of the towing vehicle are movable in the direction of the convergence of the converging members, to be engaged by the channels of the coupling member on the towed vehicle.

3,306,631
METHOD AND APPARATUS FOR FORMING A TWO-PLY COMPOSITE MATERIAL WITH A PROFILED FACE AND A PRODUCT MADE THEREWITH

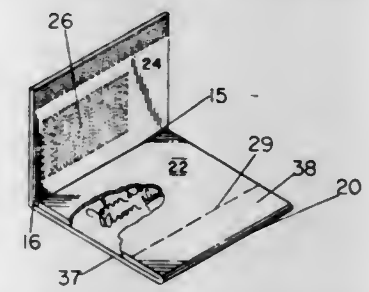
Eugene B. Bernson, 10 East Ave., Norwalk, Conn. 06851
Filed July 2, 1965, Ser. No. 469,169
6 Claims. (Cl. 281—29)

1. The method of making a composite material comprising a flexible thickness of plastic and a layer of cloth which comprises, supplying a charge of resin to be cast into an uncovered mold, covering the mold with a layer of cloth, bringing the mold with the resin therein, and with the cloth stretched out over the mold and the resin therein, into contact with a pressure member, utilizing the edges of the mold as cutting edges to trim the cloth to the shape and size of the mold while pressing the cloth onto the surface of the plastic within the mold, and hardening the layer of resin within the mold while the layer of cloth is in contact with one surface of the layer of resin.



3,306,632
STATIONERY ARTICLE AND METHOD

Bernhardt Stahmer, 1509 Chicago St., Omaha, Nebr. 68102
Filed Dec. 30, 1965, Ser. No. 517,634
5 Claims. (Cl. 282—25)



1. An article of writing stationery that is readily foldable and sealable into a confidential dispatch envelope, said writing stationery comprising: A rectangular sheet material having two parallel elongate sideward edges and two parallel transverse edges including a leading free edge and a trailing free edge, said rectangular sheet material having a permanent transverse first crease located nearer to and in parallelism with the leading transverse edge of the sheet so as to provide two vertically disposed abutting panels, the upper panel being of shorter length than and superimposed upon the longer lower panel, said transverse first crease providing the anterior end of the dual-panel stationery article, said rectangular sheet trailing edge providing the posterior end of the dual-panel stationery article, integral adhesive means for attaching the lower surface of the upper panel along the leading edge of the rectangular sheet to the lower panel lower surface, the upper panel having means to transmit graphic matter directed upon the stationery onto upper surfaces of the lower panel vertically disposed with respect to the upper panel, the lower side of the lower panel having a transversely disposed linear indicator that is parallel to and disposed between the first crease leading end and the stationery trailing end, said transverse linear indicator being disposed nearer to the stationery posterior end than to the first crease.

3,306,633
QUICK DISCONNECT COUPLING

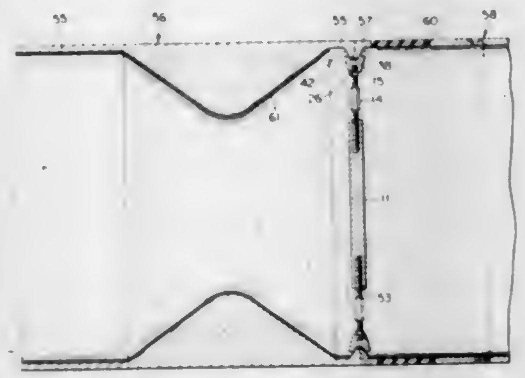
Frederick L. Haake, 1519 Little Farms Road, Oxnard, Calif. 93030
Filed Mar. 30, 1965, Ser. No. 444,088
10 Claims. (Cl. 285—2)

1. A coupling device for releasably securing together two adjoining sections of an object, the sections having

interfitting interior ridges or flanges which register with each other comprising:

a structural member centrally disposed with respect to the flanges to be releasably secured;

a plurality of movable wedging members spaced about the interfitting flanges and adapted to exert a binding force thereupon; and

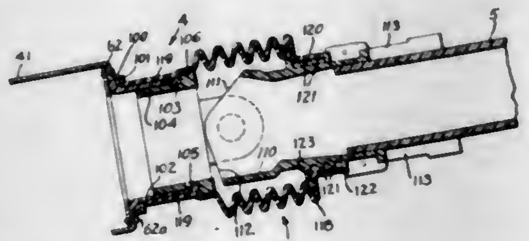


a plurality of connectors interposed between the central structural member and the wedging members for maintaining an outward force against said wedging members;

whereby displacement of said central structural member a selected amount will dislodge said wedging members and permit separation of said sections.

3,306,634
ARTICULATE JOINT

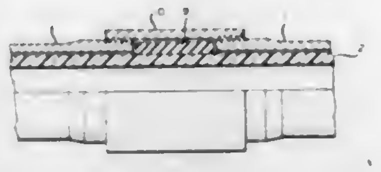
Martin V. Groves, Greenwood Lake, and Michael Mastromatteo, Hartsdale, N.Y., assignors to Pul-Vac, Inc., New York, N.Y., a corporation of New York
Original application Feb. 7, 1963, Ser. No. 256,915, now Patent No. 3,204,282, dated Sept. 7, 1965. Divided and this application Mar. 8, 1965, Ser. No. 438,014
2 Claims. (Cl. 285—7)



1. An articulate joint for connecting a pair of air conduits comprising, a first tubular member having an outer rear end for substantially airtight interfitting engagement with an end of one of said conduits and having adjacent its inner front end a pair of diametrically opposed outwardly extending trunnions defining an articulate axis, the inner end of said first tubular member on one side of said axis being tapered outwardly and rearwardly toward the rear end of said tubular member along a plane parallel with said trunnion axis and intersecting the axis of said tubular member forwardly of said trunnions, a second tubular member in axial alignment with said first tubular member and having an inner rear end spaced therefrom and an outer forward end for substantially airtight attachment to an end of the other of said conduits, a pair of semi-circular tubular sleeves provided with rearwardly extending trunnion lugs in pivotal engagement with said trunnions, said semi-circular sleeves when assembled providing a forward external diameter having a snug interfitting engagement within the second tubular member, means for locking said semi-circular sleeve and second tubular member in assembled relationship and a flexible tubular boot having a rear end surrounding and in sealing engagement with said rear tubular member and a forward end surrounding and in sealing engagement with said front tubular member.

3,306,635
CONDUIT LINING

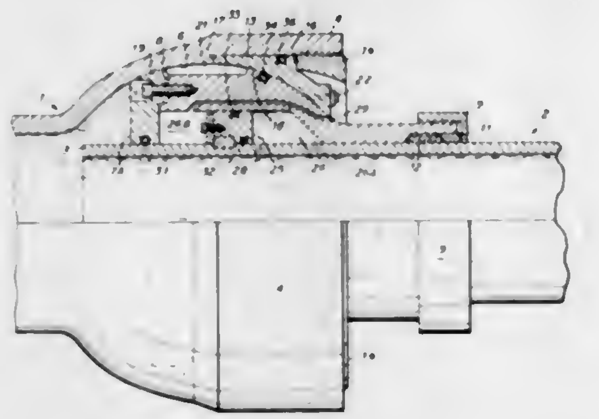
Robert B. Ferguson, Alvin, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Jan. 12, 1962, Ser. No. 165,883
7 Claims. (Cl. 285—55)



1. A plastic-lined rigid conduit comprising two sections of rigid conduit, a coupling joint restraining said two sections against axial movement relative to each other, a continuous plastic liner fitted relatively loosely within said two sections, and an annular ring substantially filling the space bounded by said two sections, said joint, and said liner.

3,306,636
FLEXIBLE PRESSURE-COMPENSATED PIPE COUPLING

Ralph F. Hereth, Port Orchard, Wash., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 12, 1964, Ser. No. 403,416
2 Claims. (Cl. 285—94)



1. Flexible pressure-compensated apparatus for coupling together lengths of fluid-carrying piping, said apparatus comprising,

a tubular bell-shaped member having a small diameter rear end portion and a radially-enlarged forward end portion, the interior wall of said forward end portion being formed with a forward cylindrical section and an arcuate rear section having a smooth radius of curvature,

a tubular piston member adapted to be coupled to the other of said pipe lengths and having its free end telescopically received within and in spaced relationship with said radially-enlarged portion of the bell-shaped member,

a tubular ball-joint member slidably mounted on said piston member,

a collar member detachably and adjustably mounted in flush engagement with the forward end of said interior cylindrical wall section of the bell-shaped member, said collar also having an arcuately-formed interior wall providing an uninterrupted continuation of the radius of curvature of said arcuate section of the bell-shaped member,

a sealing member disposed between said collar member and said bell-shaped member for sealing said flush engagement,

said ball-joint member having an arcuate external wall section fitted to and slidable on said arcuate sections of both the bell-shaped and the collar members,

a second sealing member disposed between said interior arcuate wall of the collar member and said arcuate external wall section of the ball-joint member,

said ball-joint member also being recessed for forming with said piston member a pressure-compensating cylinder,

a piston flange carried by and projecting radially-outwardly of said piston member into said pressure-compensating cylinder for partitioning said cylinder into two chambers,

said tubular piston member being provided with aperture means admitting pipe fluid into one of said chambers,

vent means for said other chamber, said vent means extending from said other chamber through the ball-joint member to the atmosphere forwardly of said second sealing member, and

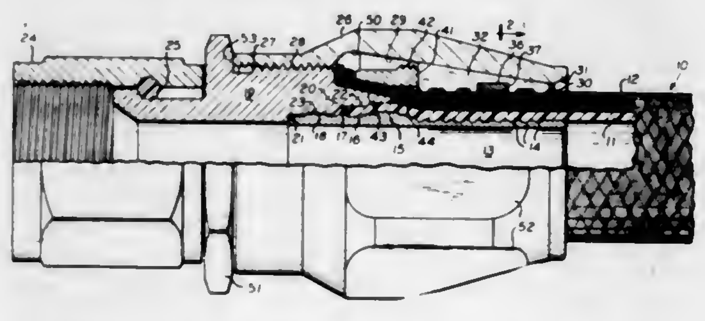
sealing means for said chambers,

said arcuate external wall of the ball-joint member being formed with an elongate circumferentially-continuous groove rearwardly of said second sealing member providing in conjunction with said bell-shaped member and said collar a liquid reservoir,

the slidable fitting of said ball-joint member on said bell-shaped member being unsealed for permitting friction-reducing fluid seepage into said reservoir thereby providing a fluid friction reducing film between the sliding fitting of said ball-joint member and bell-shaped member.

3,306,637
REUSEABLE HOSE END FITTING

Irving D. Press, West Orange, and Harvey R. Nickerson, Roseland, N.J., assignors to Resistoflex Corporation, Roseland, N.J., a corporation of New York
Filed Sept. 4, 1964, Ser. No. 394,426
4 Claims. (Cl. 285—149)



1. A reusable end fitting for a hose whose wall is divisible into a fluid tight non-metallic interior layer surrounded by a reinforcing layer, said fitting comprising:

a tubular nipple for insertion within the interior layer of said hose adjacent an end thereof;

a tubular body member carrying at one end coupling means and having at its other end an annular portion for radially expanding the end of said reinforcing layer adjacent said end of the hose;

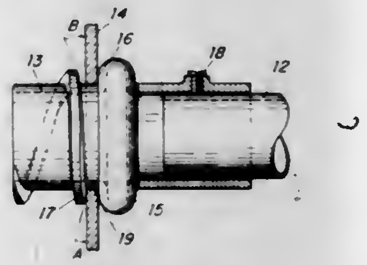
a reaction ring for surrounding said end of the reinforcing layer for clamping it to said portion of the body member upon urging of the reaction ring toward said body member;

a plurality of circumferentially distributed wedges for surrounding said reinforcing layer at a point beyond both said reaction ring and the end of said body member but overlying said nipple, each wedge having a conical outer surface;

and a socket member for surrounding both said wedges and said reaction ring and having an internally tapered portion of greater axial length than the axial length of said wedges for engaging the conical outer surfaces of said wedges, said wedges being provided with spring means for urging the wedges radially outwardly into contact with the wall of the tapered portion of said socket member, said socket member and said body member being provided with means for cooperatively drawing said socket member toward said body member, the arrangement being such as to confine said wedges between the tapered portion of said socket member and said reaction ring and to cause, upon drawing said socket member toward said body member, said reaction ring to be urged by contact with said wedges toward said body member until its movement is resisted whereupon said wedges are caused to move toward the smaller end of the tapered portion of said socket member and to contract about said hose, the total circumferential extent of said wedges when in edge to edge abutting relationship being such as to permit them to occupy the space adjacent the reduced diameter end of the tapered portion of the socket member, means being provided for retaining said reaction ring and said wedges within the tapered portion of said socket member irrespective of assembly with said nipple and said body member.

3,306,638
ELECTRICAL CONNECTION ELEMENT FOR WIRING CONDUIT

Morton S. Rubin, 6 Risley Road,
West Newton, Mass. 02165
Filed Jan. 23, 1964, Ser. No. 339,635
1 Claim. (Cl. 285—158)



A unitary electrical conduit connector adapted to engage a junction box wall from outside said box with a simple insertion and twist motion, comprising:

a one piece integral metallic tube member of substantially constant wall thickness;

an outwardly radially extending flange stop bulge intermediate the ends of said member, said bulge being formed with one face substantially normal to the axis of the tube;

a tapered box thread integrally formed in the outer surface of the tube starting at one end with a high pitch, the pitch gradually diminishing until the flank of the thread becomes substantially parallel to said normal face, said thread terminating at a distance from said normal face of said flange stop bulge substantially less than the thickness of said junction box wall whereby a secure mechanical and electrical connection may be effected for holes in said junction box wall of varying diameter and varying junction box wall thicknesses; and

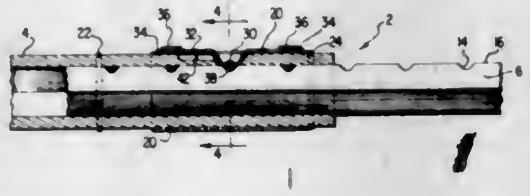
a set screw carried in the other end of said tube and extensible through the tube wall for securing said connector to an electrical wiring conduit.

3,306,639
EXTENSIBLE TORQUE ROD

Chester S. Lyon, 1108 Leadville, Boise, Idaho 83706
Filed Oct. 2, 1964, Ser. No. 401,040
3 Claims. (Cl. 287—58)

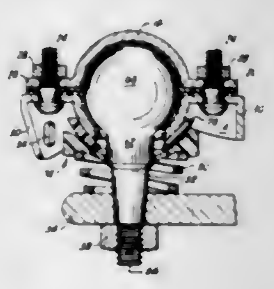
1. An extensible torque rod comprising: a rod member of polygonal cross-section having a series of longitudinally-spaced transverse grooves along one flat face

thereof, a tube member having an interior of polygonal cross-section complementary with the rod member and telescopically engaging thereover in non-rotative relationship therewith, said members having surfaces on free ends thereof adapted respectively to engage driving and driven tools, said tube member having an aperture therethrough and having the material adjacent a side of said aperture which is disposed towards one end of said tube cut-away whereby to provide a ledge, a longitudinally slidable sleeve disposed around said tube in the region of said aperture, said sleeve having an opening therethrough and being longitudinally slidable on said tube between two positions, in the first of which positions said opening overlies said aperture and in the second of said positions said opening overlies said ledge, a spring strip having its length disposed axially on the exterior of said sleeve, means securing the ends of said spring strip to said sleeve, said strip having a substantially W-shape bend intermediate the ends thereof extending downwardly through the opening in said sleeve, and a roller engaged beneath said bend, said roller being biased by said spring strip to snap into one of the transverse grooves in the rod when said sleeve is in said first position and to ride up upon said ledge when said sleeve is moved to said second position.



3,306,640
BALL AND SOCKET JOINT

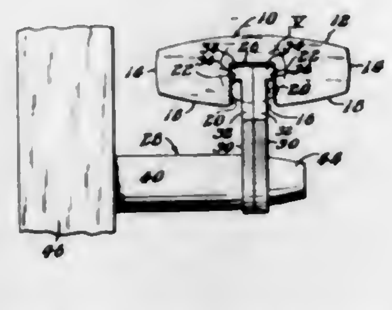
James O. Melton, 1208 Cruce St., Norman, Okla. 73069; Thomas B. Wilkinson, 5925 S. Eggleston, Oklahoma City, Okla. 73109; and James H. Jackson, 1730 N. Shawnee, Oklahoma City, Okla. 73107
Filed Jan. 21, 1963, Ser. No. 252,669
10 Claims. (Cl. 287—90)



10. A ball and socket joint comprising:
- (a) a generally spherical metallic socket having an aperture in one side thereof;
- (b) a high density synthetic resin lining in said socket and lining the generally spherical internal walls thereof and at least partially lining said aperture;
- (c) a spherical metallic ball member in said generally spherical metallic socket;
- (d) a spindle projecting from said spherical metallic ball member through the aperture in said spherical metallic socket; and
- (e) a high density synthetic resin sheath of spherical configuration molded around said spherical metallic member and in contact at all points therewith, said high density synthetic resin sheath further having a portion extending along and surrounding a portion of said spindle.

3,306,641
HANDRAIL

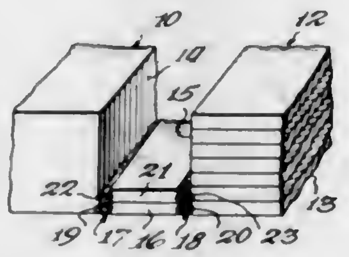
Louis Blum and William J. Horgan, Jr., Pittsburgh, Pa., assignors to Blumcraft of Pittsburgh, Pittsburgh, Pa., a firm
Filed Sept. 1, 1964, Ser. No. 393,655
5 Claims. (Cl. 287—189.36)



1. In a handrail and supporting structure therefor, the combination comprising a handrail uniform in transverse section and having a longitudinally extending slot with parallel opposite side walls in the undersurface thereof, a support bracket including two separable parts disposed back to back with their upper end portions in said slot and respectively adjacent the opposite side walls of said slot, longitudinally extending serrations on both side walls of the slot, and serrations on the remote faces of the bracket parts selectively interengaged with opposed ones of the serrations on the side walls of the slot whereby to support said railing without tilting the same to one side, and selectively interengageable with positionally offset serrations respectively on the side walls of the slot whereby to tilt said railing to one side.

3,306,642
WELDED JOINT OF LAMINAR CONSTRUCTION AND APPARATUS USING SAME

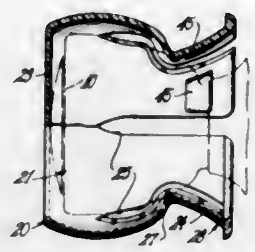
Perry C. Arnold, Western Springs, Herman A. Stanick, Blue Island, and Lyle V. Larsen, Elmhurst, Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill., a corporation of Illinois
Filed June 2, 1964, Ser. No. 372,021
7 Claims. (Cl. 287—189.36)



6. A joint connecting thick walled metal objects which comprises two opposing spaced apart wall edge face surfaces in parallel planes of thick walled metal objects, a plurality of thin metal strips in stacked relationship to one another positioned laterally to and between the wall edge face surfaces, said strips being of less width than the distance between the edge faces to provide a gap between each longitudinal side edge of the strip and the wall edge face adjacent thereto, and fusion deposited weld metal between adjacent wall edge faces and the strip edges bonding the strips to the wall edge faces and the edge of each strip to the edge of adjacent strips, said fusion deposited weld metal being continuous for the thickness of the stack of strips but made up of a plurality of individual weld passes none of which goes above the upper surface of the strip it bonds to the adjacent wall edge face and any lower strip.

3,306,643
DOORKNOB COVER

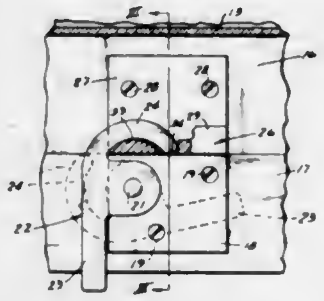
Clifton W. Reed, 5016 Calvin Ave., Tarzana, Calif. 91356
Filed June 18, 1964, Ser. No. 376,013
4 Claims. (Cl. 292—1)



1. A doorknob cover comprising:
a hollow body having a stiff annular wall and having an opening to admit a doorknob inside the body,
an elastic retaining means integral with the body and surrounding said opening,
said retaining means comprising a plurality of finger segments expandable to pass over the doorknob but normally occupying a contracted position engageable with the doorknob to yieldingly resist removal of the cover from the doorknob,
said finger segments extending angularly outwardly to form bends in said retaining means engageable with the doorknob and to provide free end portions on said finger segments bendable into frictional engagement with the doorknob,
said cover being of a material of sufficient stiffness to retain substantially its original size and shape under external manual pressure.

3,306,644
WINDOW LOCK

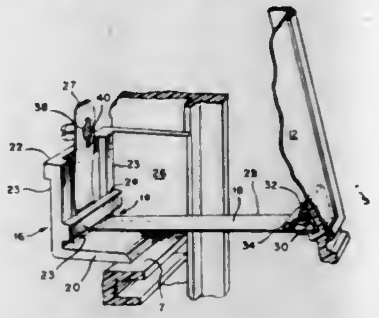
Trygve Larsen, 865 W. Roscoe St., Chicago, Ill. 60613
Filed Nov. 23, 1964, Ser. No. 413,269
1 Claim. (Cl. 292—241)



A latching means for securing double hung window sash to their meeting rails comprising a substantially flat latch element formed with an elongated handle portion which curves at one end to form an elongated arcuate camming edge portion, and a laterally extending portion adjacent said camming edge portion provided with pivot means therethrough and mountable on one such sash; and a keeper mountable on the other sash and formed with a pair of superposed substantially flat portions spaced to receive said camming edge portion and joined along adjacent edges by a web; said web forming at one end a curved inner surface engageable in a camming relationship with said camming edge portion, and at the other end with a separate, spaced web portion having an edge surface forming a stop for the end of said camming edge portion, a surface of said camming edge portion and an adjacent surface of one of said superposed portions of said keeper being matingly inclined to provide, with the aforementioned camming, a tightening of said sash in two directions during engagement of said latch element and keeper.

3,306,645
ADJUSTABLE CLOSURE MEANS

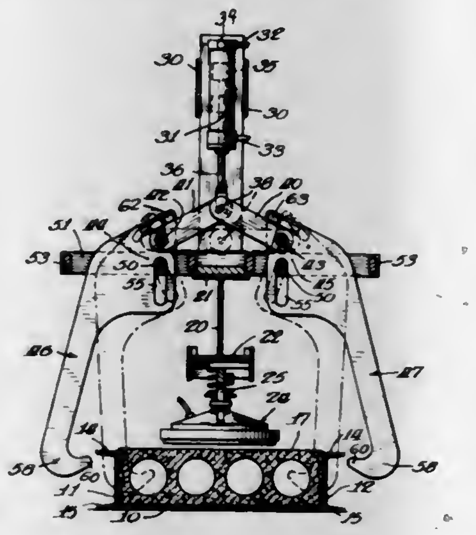
Le Roy R. Maleck, Galesburg, Ill., assignor to Admiral Corporation, Chicago, Ill., a corporation of Delaware
Filed Aug. 2, 1965, Ser. No. 476,557
5 Claims. (Cl. 292—275)



1. In combination: a panel hinged to and supported by a frame; a substantially right angle guide track including a first friction surface, a second friction surface at substantially a right angle to said first friction surface, and a retaining bar; a resilient and deformable friction member threaded for movement through said guide track; said friction member having an upper side in frictional contact with said retaining bar and a lower side in frictional contact with said first and second friction surfaces; means limiting movement of said friction member in one direction, and further means securing an end of said friction member to said panel, whereby said panel may be selectively retained in any position.

3,306,646
LIFTING HOOK ASSEMBLY

Russell T. Flora, Jr., Tipp City, Ohio, assignor to The Flexicore Company, Inc., Dayton, Ohio, a corporation of New York
Filed July 30 1965, Ser. No. 475,930
3 Claims. (Cl. 294—2)

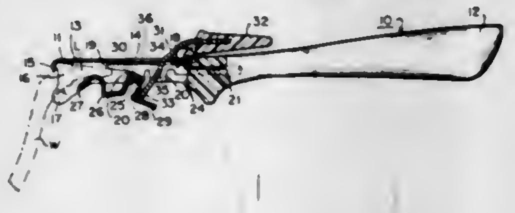


1. A lifting hook assembly for use on casting forms whose widths lie within a substantial range, said assembly comprising a supporting beam, a pair of opposed hooks, each hook having a base portion and an elongated curved body portion terminating in a claw, means supported by said beam for pivotally supporting said hooks at the bases thereof for permitting movement of said hooks so that the distance between opposed claws can be varied, a pair of links pivotally secured to said hooks at regions spaced from the hook pivots, said links extending generally toward each other and having their ends pivotally secured to provide a toggle joint, power means including a rod coupled to said links for operating said toggle joint to control the hook positions, said rod being movable over a range along a line which is substantially normal to a line extending between the centers of the link pivots to provide normal toggle joint action, means for limiting the relative turning movement of a toggle link and hook base portion whereby said toggle joint can break from one end position where said toggle links are along a substantially straight line to another position where the knee of the toggle joint is bent to provide a certain angle, said range of rod movement being substantially greater than is required for operating said toggle joint over its range, said pivotal hook supporting means including means for permitting said hooks to move linearly independently of pivotal motion of hooks about the hook pivots, said linear movement of said hooks being in a direction generally parallel to said rod movement whereby rod movement tending to turn said toggle joint lengths beyond the toggle limits results in movement of said hooks linearly.

3,306,647
DETACHABLE HANDLE

Theodore K. Imhoff, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York

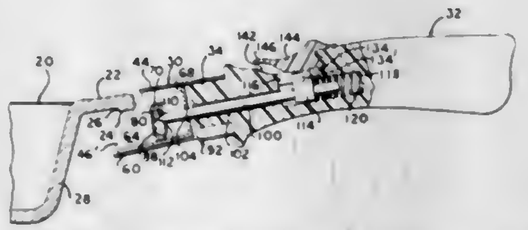
Filed Mar. 4, 1965, Ser. No. 437,247
7 Claims. (Cl. 294—16)



1. An improved detachable handle construction comprising, a forward shroud portion secured to a contoured handle portion, a clamping member pivotally suspended from within said shroud portion, an operating lever pivotally mounted rearwardly of the pivotal suspension of said clamping member, a locking cam portion formed on the lower end of said lever wedgedly engageable with said clamping member forwardly of the pivotal mounting of said lever, said operating lever extending upwardly through an opening in the top of said shroud, and thumb-operated actuator means on said operating lever for pivoting said locking cam portion about said pivotal mounting into and out of a locking engagement with said clamping member provided by said cam portion and said pivotal mounting.

3,306,648
DETACHABLE HANDLE APPARATUS

Anthony W. Serio, Hillcrest Road, Elmira, N.Y. 14903
Filed Mar. 17, 1965, Ser. No. 446,461
24 Claims. (Cl. 294—16)

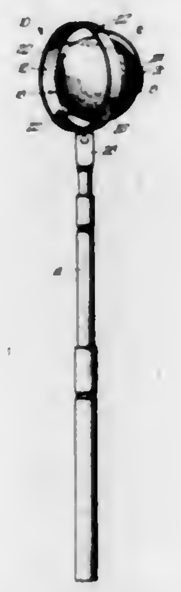


1. Detachable handle apparatus comprising a body means, clamping means of non-circular cross sectional configuration movably supported by said body means, said body means including spaced guide means for engaging and guiding movement of said clamping means into clamping position, actuating means movably supported for engagement with said clamping means to move the clamping means into clamping position, and means permitting tilting movement of said clamping means with respect to the guide means in a direction transverse to said guided movement in order to provide for positive clamping of an article to be clamped in the apparatus.

3,306,649
GOLF BALL RETRIEVER

Anthony T. Zagwyn, Delavan, Wis., assignor to A J Industries Corporation, Delavan, Wis., a corporation of Wisconsin

Filed Apr. 28, 1965, Ser. No. 451,494
5 Claims. (Cl. 294—19)

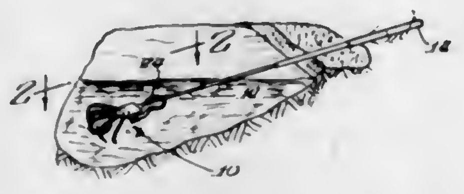


1. A retrieving device for a golf ball, said retrieving device comprising: an elongate telescoping handle; a thin cylindrical band secured to one end of said handle, said band providing an opening therethrough somewhat larger than said golf ball; a pair of elongate semi-circular bails independently rotatably secured to said band at right angles to one another, the ends of each bail being secured at diametrically opposite positions on said band, said bails being rotatable into flush alignment with said band and rotatable out of alignment with said band to define a golf ball retaining mesh basket.

3,306,650
GOLF BALL RAKE-RETRIEVER

Anthony T. Zagwyn, Delavan, Wis., assignor to A J Industries Corporation, Delavan, Wis., a corporation of Wisconsin

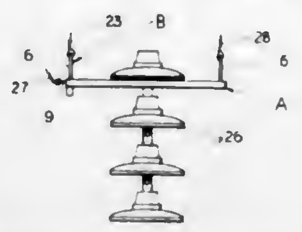
Filed July 28, 1965, Ser. No. 475,497
3 Claims. (Cl. 294—24)



1. A golf ball retrieving device, said device comprising:
an elongated handle;
base means mounted to said handle;
a plurality of rake tine means extending from said base means, said rake tine means being movable between a mutually furcate rake position and a mutually closely spaced position;
and operating means on said base means operable between a first position and a second position;
said operating means when operated into said first position moving said rake tine means into said rake position and when operated into said second position moving said rake tine means into said mutually closely spaced position;
said operating means defining a golf ball retaining basket with said rake tines in said position.

3,306,651
APPARATUS FOR HANDLING STRAIN INSULATORS

Ivan S. Brown, 115 W. Piedmont Ave., Phoenix, Ariz. 85041
Filed Aug. 24, 1964, Ser. No. 391,588
2 Claims. (Cl. 294—67)



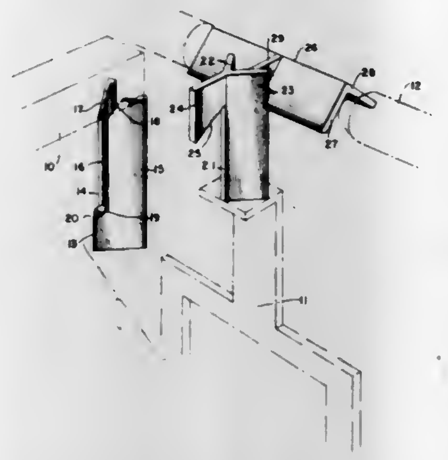
1. A strain insulator pickup device of the character described, comprising: a first main support member including a disc-like central body portion, a pair of arms extending oppositely outwardly therefrom, the first arm of said pair including at its peripheral end mechanical attachment means adapted to be attached to tension means for positioning said first main support member and the second arm of said pair including a straight slot extending from the peripheral end of said second arm to the center of said disc-like central body portion, said second arm having at its peripheral end a pair of mechanical attachment means, one on either side of said straight slot, adapted to be attached to tension means for positioning said first main support member, second arm including a pair of holes, one on either side of said straight slot at its peripheral end, said holes being perpendicular to the plane of said disc-like central body portion, and a truncated cone-like protuberance extending perpendicularly from the plane of said disc-like central body portion and from the center of said disc-like central body portion, said protuberance having an annular bearing surface at its end adapted to bear against the center underside of the skirt portion of a strain insulator; and a second floating support member including a rectangular base portion having parallel prong-like protuberances extending one from either end thereof and adapted to mate with said pair of holes on either side of said slot of said first main support member and a perpendicular portion extending perpendicular to said base portion and from the center portion of said base portion and in the same direction as said prong-like protuberances, said perpendicular portion including mechanical attachment means adapted to be attached to tension means for positioning said second floating support member.

3,306,652
RACK HOOK AND CARRIER YOKE WITH ANTISWING FEATURE

Willard J. Harper, Colts Neck, N.J., assignor to Hanson-Van Winkle-Munning Co., Matawan, N.J., a corporation of New Jersey

Filed Apr. 10, 1964, Ser. No. 358,876
5 Claims. (Cl. 294—82)

1. For use with an article treatment machine having a side arm movable up and down over and along a line of treatment stations for conveying articles to be treated carried by a work carrier, a device for detachably supporting the carrier from the side arm comprising
(a) a first support member affixed to the side arm,
(b) a second support member affixed to the work carrier,
(c) complemental interengaging means having at least two parts, one of said parts being carried by the first support member and the other part being attached to the second support member arranged to permit relative sliding movement of the second support member downwardly relative to the first support member, incident to imposition of load of the work carrier,
(d) interlocking means associated with the interengaging means for automatically shifting the second support member tightly against the first support member incident to said downward sliding movement of the second support member for wedging the members into tight interlocking engagement resisting

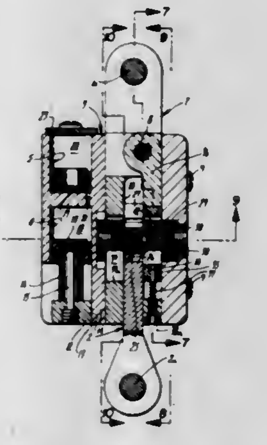


rocking movement of the work carrier in the treatment stations incident to liquid swirl and eddy currents, and
(e) loader means carried by said second support member positioned to automatically present and remove the second support member from interengagement with the first support member.

3,306,653
GROUND RELEASE FOR PARACHUTES

John A. Gaylord, San Rafael, Calif., assignor to H. Koch & Sons, Corte Madera, Calif., a corporation of California

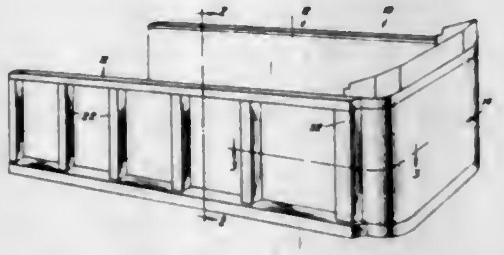
Filed Oct. 22, 1965, Ser. No. 501,940
7 Claims. (Cl. 294—83)



1. A ground release for a parachute borne load comprising:
a first yoke adapted to be engaged by said parachute;
a second yoke adapted to be engaged by said load;
a housing engaging said first yoke and said second yoke in interlocking slideable relation with each other;
a rotating key positioned in said housing and engaging axially aligned holes through said first yoke and said second yoke;
a shear pin positioned axially through said key and engaging said first yoke;
said shear pin being disposed to shear at a predetermined time;
dashpot means interposed between said first yoke and second yoke whereby the rate of said relative outward motion between said yokes may be controlled;

spring means interposed between said first yoke and said second yoke,
  said spring means being disposed to be compressed by said relative outward motion of said yokes;
  said spring means being further disposed to expand and cause relative inward motion of said yokes when said load reaches the ground;
means for preventing rotation of said key until said yokes reach a predetermined relative position of inward motion;
means for rotating said key;
means cooperating with said key for unlocking said first yoke from said second yoke.

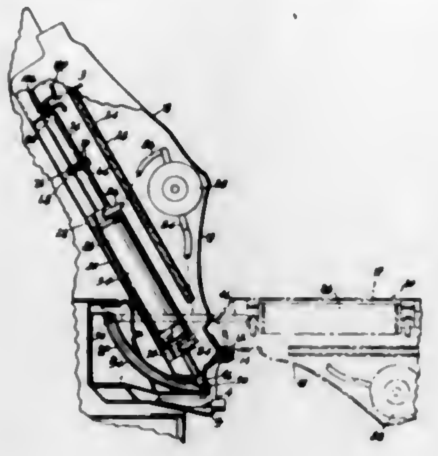
3,306,654
DUMP BODY SIDE WALL CONSTRUCTION
John B. Curcio, 855 N. Laurel St.,
Hazleton, Pa. 18201
Filed Sept. 24, 1964, Ser. No. 398,982
8 Claims. (Cl. 296—28)



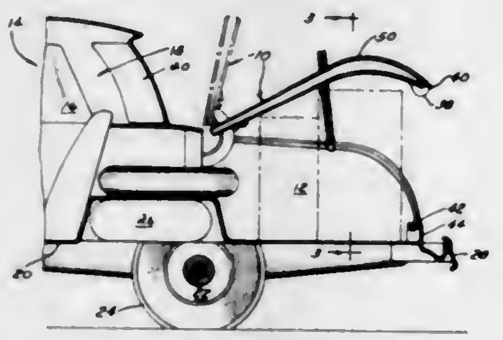
1. A load body construction comprising a plurality of stationarily interconnected elongated transversely spaced metal brace members, a metal bottom wall disposed over said brace members and secured thereto, said bottom wall including opposite side marginal edge portions between which said brace members extend, upstanding side wall panels extending along and having their lower edge portions secured to said opposite side marginal edge portions inwardly of the marginal edges thereof, at least the lower portions of said side wall panels being spaced inwardly of vertical planes containing said marginal edges, an elongated structural member extending along each of said marginal edge portions, said structural members each including an upstanding flange portion disposed immediately outwardly of and opposing the corresponding ends of said brace members and said marginal edges of said bottom wall terminating at its lower edge portion in an inturned lower flange underlying and secured to said corresponding ends and terminating at its upper edge portion in an inwardly and upwardly inclined upper flange whose free edge intersects with and is welded to the corresponding side wall panel above said bottom wall, said structural members closely embracing the corresponding marginal edges of said bottom wall and the ends of said brace members.

3,306,655
VEHICLE TAILGATE ACTUATOR
Carl Voehringer, Rochester, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 17, 1964, Ser. No. 375,813
5 Claims. (Cl. 296—57)

1. In a vehicle having a body with a tailgate swingable about a horizontal axis between open and closed positions, latch means carried by said tailgate and engageable with said body for retaining said tailgate in its closed position, latch operating means to release said latch means, hydraulically operated actuator means for swinging said tailgate between its open and closed positions comprising a cylinder attached to said tailgate, a reciprocable piston disposed in said cylinder and dividing said cylinder into an opening chamber and a closing chamber, a rod attached to said piston extending outside of said cylinder, a latch operating piston in said opening chamber and operatively connected with said latch operating means, and an arcuate cam attached to said body and offset from the axis of said tailgate, said piston rod being engageable with said arcuate cam whereby pressurization of said opening chamber of said actuator concurrently causes actuation of said latch piston to actuate said latch operating means and release said latch means and thereafter actuate said reciprocable piston to extend said rod and develop a torque to swing said tailgate from its closed position to its open position.

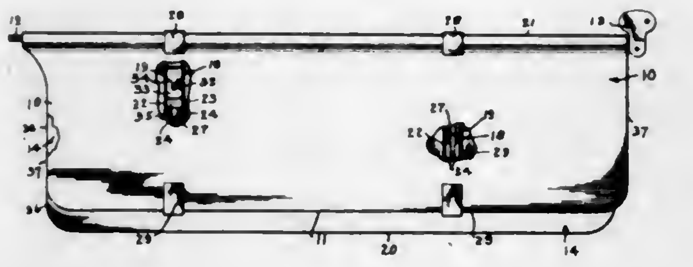


3,306,656
AUTOMOTIVE TRUNK LID SUPPORT
Dennis R. Hughes, 10606 S. Campbell Ave.,
Chicago, Ill. 60655
Filed July 28, 1965, Ser. No. 475,398
6 Claims. (Cl. 296—76)



1. In an automotive trunk lid support, in combination, two substantially identical elongated thrust members adapted to extend in approximately vertical directions between the overhang strips on the trunk portion of an automobile body and the adjacent sides of the trunk lid with the two members straddling the trunk lid on opposite sides thereof and with their lower ends being supported on the overhang strips, each thrust member being formed with an elongated longitudinally extending slot therein and with a series of longitudinally spaced notches in one side thereof for selective reception therein of one side edge of the trunk lid in supporting relationship, the other side of the thrust member being formed with a series of longitudinally spaced recesses therein, a draw-string for drawing the two thrust members toward each other while at the same time applying downward thrust to the members to maintain their lower ends seated upon the overhang strips, said draw-string having loop portions doubled through the slots in the thrust members and having a connecting portion extending between the loop portions and adapted to overlie the trunk lid, seating members for the draw string selectively receivable in said recesses and adapted to project transversely through the loop portions, hook members secured to the opposite end regions of the draw-string and adapted to be hooked beneath the overhang strips, and draw-string tightening means carried by said connecting portion for taking up slack in the draw-string to tension the same against the trunk lid, the seating members and the overhang strips.

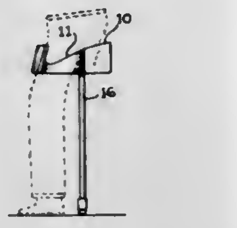
3,306,657
AUXILIARY VISOR ATTACHMENT
Earl W. Turner, 906 W. Superior St.,
Kokomo, Ind. 46901
Filed June 3, 1965, Ser. No. 460,971
5 Claims. (Cl. 296—97)



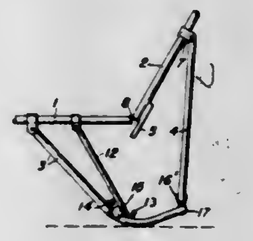
4. The combination with a vehicle visor, of an auxiliary visor comprising
  a sheet of at least partial light interception;
  said sheet having a pair of slots therethrough spaced one from the other, elongated along a common, approximately horizontal line;
  a pair of brackets carrying said sheet, one bracket at each of said slots;
  each bracket comprising a major channel length having a leg extending from each side of a central web, the web being centrally slotted longitudinally of said web to leave a web portion along each side of the slot therethrough; and a bendable finger extending from the web at each end thereof;
  a screw having a head member and extending through each of said sheet slots and through each of the bracket web slots;
  a friction shoe being shiftably movable over said web portions between the bracket legs;
  said shoe having an elastic foot on each end bridging said web slot and bearing on said web portions;
  said screw screw-threadedly engaging said shoe between said feet and pulling the screw head member against said sheet across the sheet slot through which the screw passes;
  said brackets being spaced along said vehicle visor and spaced apart parallel one with the other; and
  said tongues being bent over top and bottom edges of said vehicle visor firmly retaining the brackets on the vehicle visor permitting shifting of the sheet over the brackets overcoming frictional resistance, said shifting being selectively vertically, horizontally and angularly therebetween.

3,306,658
CONTOURED BODY REST
Charles T. Roberts, 1705 W. 6th St.,
Little Rock, Ark. 72201
Filed Mar. 8, 1966, Ser. No. 534,980
4 Claims. (Cl. 297—4)

1. A single leg body rest for occupancy by the user in a semi-standing position comprising a generally I-shaped saddle and a single leg attached to said saddle for carrying a weight imposed thereon, said saddle having a posterior buttocks-engaging forwardly and downwardly sloping shelf portion, an anterior upstanding body-engaging plate portion spaced forwardly therefrom, a centrally positioned neck portion having a downwardly sloping upper surface joining said posterior portion to said anterior portion, said upstanding body-engaging anterior portion extending outwardly at and from the forward end of the downwardly sloping neck portion and having substantially the same height as said posterior shelf portion, the rearwardly facing surface of said body-engaging portion inclining rearwardly from its lower edge and having a pair of spaced rearwardly facing concavities and a pair of spaced upwardly and divergently extending rearwardly facing ridges positioned between said concavities for registering respectively with the upper thigh and trunk inguinal portions of an occupant astride said saddle.



3,306,659
DECK CHAIR WITH SWINGABLE BACK REGULATED BY THE SUPPORTS
Otto Greiner, Brunnenstrasse 9, Neustadt, near Coburg, Bavaria, Germany
Filed Jan. 27, 1964, Ser. No. 341,836
1 Claim. (Cl. 297—19)

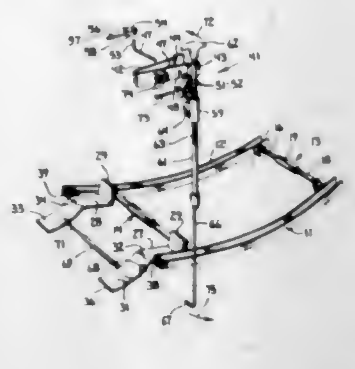


A deck chair comprising a seat, a back, a hinge swingably connecting one end of the seat with one end of the back, a front support pivotally connected to another end of the seat, a pair of similar supports having ends pivotally connected to opposite sides of the seat intermediate the ends thereof, a pair of similar supports having ends pivotally connected to opposite sides of the back intermediate the ends thereof, each of the supports connected to the seat having a main straight portion and another end portion extending in a different direction from said main straight portion and toward an adjacent back-connected support, and means hingedly connecting said end portion of each seat-connected support with the other end of the adjacent back-connected support, whereby the weight of a user is transmitted from the seat to the back in a manner providing a balance between the transmitted pressure and the pressure of the user against the back of the chair, wherein the main straight portion and said other end portion of each seat-connected support are joined by a curved portion constituting the ground-engaging portion of the deck chair.

3,306,660
ROCKING WHEEL CHAIR APPARATUS
Jeffry L. Williams, 1060 N. Alber St.,
Wabash, Ind. 46992
Filed Mar. 28, 1966, Ser. No. 537,770
10 Claims. (Cl. 297—133)

1. Chair rocking means comprising:
first and second arcuate members;
spanning means connected to said members and securing them in parallel horizontally spaced relation,

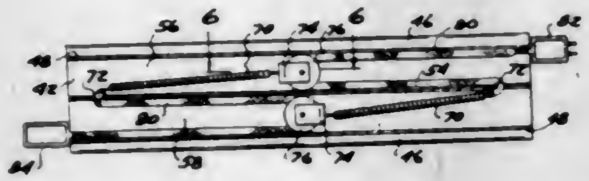
at least one of said arcuate members having upwardly projecting guide means thereon and extending therealong,



said chair means being arranged such that when freely resting on a flat supporting surface, certain ends of said arcuate members are normally disposed to enable the large rear wheels of a wheel chair to roll over said ends and thereby onto said arcuate members and be supported by said arcuate members for converting the wheel chair to a rocking chair.

3,306,661
SAFETY RETAINING BELT FOR SHOPPING CARTS

David L. Allen, Livonia, Mich., assignor to Able Building Company, Livonia, Mich.
Filed May 13, 1965, Ser. No. 455,537
4 Claims. (Cl. 297—385)

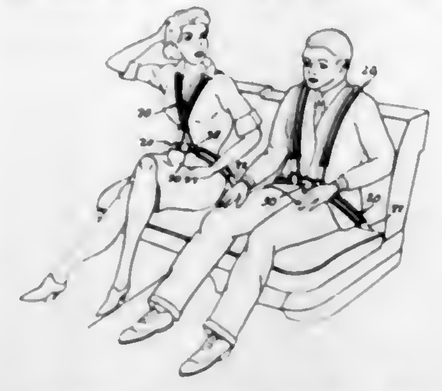


1. A retractable seat belt assembly, comprising: an elongated housing; a pair of belt members each having one end fixed with respect to the housing and the other end freely extendable out of the housing; a pair of elongated spring members each having one end fixed within said housing; a pair of rotatable pulley members each attached to the other end of each of said spring members, each of said belt members being passed over one of said pulley members so that the pulley member tends to draw the free end of the belt member into the housing under the pull of the spring connected to that pulley member; and buckle means disposed at the free ends of the belt members and operative to be passed over an occupant of the seat and attached to one another; wherein the elongated housing is divided longitudinally into an upper compartment and a lower compartment and one of said belt members, spring members and pulley members are disposed in each compartment.

3,306,662
ATTACHMENT FOR VEHICLE SAFETY BELTS AND SHOULDER HARNESS

Joseph C. Finnigan, 2644 N. Ohio St., Arlington, Va. 22207
Filed Jan. 15, 1965, Ser. No. 425,909
11 Claims. (Cl. 297—389)

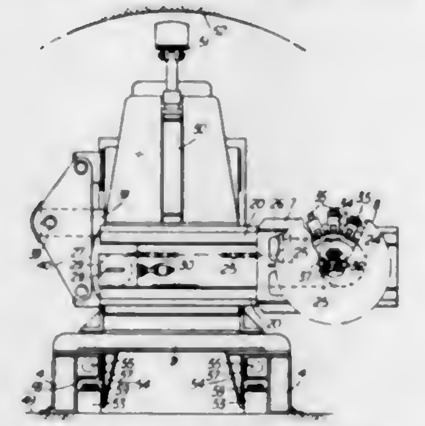
11. An attachment for a safety belt of a vehicle, said attachment comprising a strip of flexible air-pervious material connected with said belt and extending longitudinally thereof, substantially rigid means extending transversely of said belt and strip at longitudinally spaced intervals, said rigid means having a plurality of air passage means formed therein, and said rigid means being interposed



between said belt and said strip to space said belt from the body of the user.

3,306,663
HEADING AND RIPPING MACHINES FOR MINING

Frederick Webster, Chapeltown, Sheffield, England, assignor to Greenside Machine Company Limited
Filed Sept. 24, 1964, Ser. No. 398,954
Claims priority, application Great Britain, Oct. 2, 1963, 38,801/63
10 Claims. (Cl. 299—31)

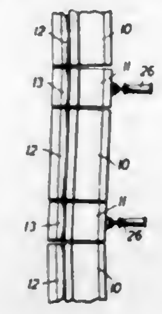


1. A mining machine comprising a frame, a torque shaft located inside the frame extending lengthwise of and protruding at one end from the front end of the frame, a torque arm secured to the protruding end of the torque shaft and extending radially from the shaft, a slideway lengthwise of the radial arm, a carrier slidably mounted on the slideway, a rotary cutting head mounted on the carrier for rotation about an axis parallel to that of the torque shaft, means for advancing and retracting the torque shaft with respect to the frame, means for rotating the torque shaft and the radial arm about the axis of the torque shaft, and means for moving the carrier and the cutting head along the radial arm.

3,306,664
ARTICULATABLE PLANER GUIDE ARRANGEMENT

Günther Dommann, Wethmar, near Lunen, Helmut Temme, Lunen, Armin Löbbe, Oberaden, Post Kamen, and Christoph Rassmann, Lunen, Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westphalia, Germany, a corporation of Germany
Filed Oct. 22, 1963, Ser. No. 317,955
Claims priority, application Germany, Oct. 26, 1962, G 36,235; Mar. 27, 1963, G 37,368
21 Claims. (Cl. 299—34)

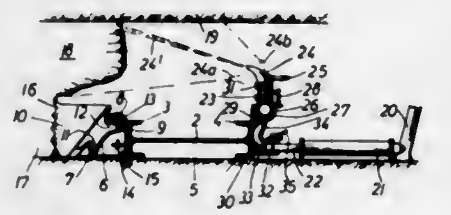
1. Planer guide link which comprises a guide link member adapted to be extended in a predetermined longitudinal direction and having a shorter dimension in said longitudinal direction than the dimension thereof in the corresponding transverse direction to said longitudinal direction, said member having a planer guide surface extending in said longitudinal direction on one lateral side thereof and channel means extending in said longitudinal direction on the other lateral side thereof, the upper portion of said channel means having a slit therealong extending in said longitudinal direction, linking edge means extending in said longitudinal direction being



provided on each end of said member in said longitudinal direction for linking the ends of said member in said longitudinal direction with corresponding ends of planer guide members to form thereby an articulatable planer guide arrangement.

3,306,665
WATER GUN REMOTELY MOUNTED ON PLANER CUTTER GUIDE

Armin Löbbe, Oberaden, near Kamen, Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Westphalia, Germany, a corporation of Germany
Filed May 18, 1964, Ser. No. 367,999
Claims priority, application Germany, May 24, 1963, G 37,815
6 Claims. (Cl. 299—34)



1. Mining equipment for the extraction of mineral from the upper portion of a mine face, in conjunction with a mining planer which is conducted back and forth along the lower portion of such mine face on logitudinally extending guide means adjacent the mine face being worked for the extraction of mineral from such lower portion of the mine face, which comprises at least two longitudinally spaced apart high pressure water guns articulatedly mounted on such guide means and being spaced remotely from such mining planer, for limited pivoting about both a horizontal axis and a vertical axis to direct high pressure water jets against the upper portion of the mine face to loosen the mineral sufficiently to cause such loosened mineral to fall away from such upper mine face portion, said water guns being spaced apart on such guide means a linear distance in the longitudinal direction of said guide means permitting at least slight overlap in the range of the water jets of correspondingly adjacent water guns.

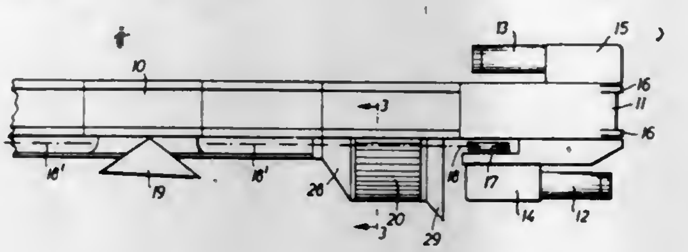
3,306,666
PLANER ARRANGEMENT WITH TRANSVERSE CONVEYOR CLEARING ACCUMULATION AT END OF FACE CONVEYOR

Armin Löbbe, Oberaden, Post Kamen, Germany, assignor to Fa. Gewerkschaft Eisenhutte Westfalia, Westphalia, Germany, a corporation of Germany
Filed July 17, 1964, Ser. No. 383,336
Claims priority, application Germany, Aug. 1, 1963, G 38,371
7 Claims. (Cl. 299—34)

1. In apparatus for mining of material from a deposit having a vertically extending face disposed at the deposit end of the mine floor, comprising:

(a) a plane having cutters for engagement with the deposit to break material therefrom in the form of lumps;

(b) means for moving the plane horizontally along the said vertically extending face of the deposit to force the plane cutter into extracting engagement with said face from floor upward for said breaking of material from the deposit, and depositing said lumps in the path of the plane;



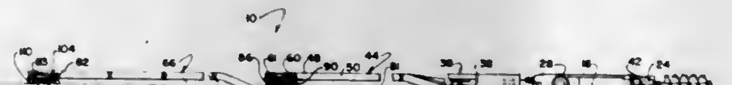
(c)) a principal conveyor disposed along said face behind the plane for receiving said lumps and fines and carrying them away from the locus of their extraction;

the improvement which comprises:

(d) an auxiliary conveyor fixedly positioned relative to the principal conveyor at one end of the principal conveyor on the deposit working side of the principal conveyor for receiving lumps accumulating at said one end of the conveyor and transferring them to the principal conveyor.

3,306,667
COAL MINING APPARATUS INCLUDING CONVEYOR SYSTEM HAVING TOGGLE-LIKE ARTICULATION

Terrill G. Todd, Beaver, W. Va., assignor to Wilcox Manufacturing Company, Raleigh, W. Va., a corporation of West Virginia
Continuation of application Ser. No. 159,636, Dec. 15, 1961. This application Sept. 10, 1965, Ser. No. 486,368
7 Claims. (Cl. 299—57)



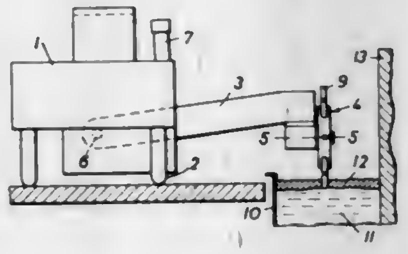
1. Apparatus for use in conveying coal from the conveyor of a machine working at a mine face to a spaced floor conveyor arranged to convey the coal away from the face comprising first and second cooperating elongated conveying means each having a coal receiving end and a coal discharging end, means for connecting the receiving end of said first conveying means with the machine for limited tilting movement and for generally horizontal swinging movement with respect thereto in a position to receive the coal discharging from the conveyor of the machine, means supporting the receiving end of said second conveying means for longitudinal and transverse movement along the mine floor, means mounting the discharge end of said first conveying means on the receiving end of said second conveying means for longitudinal movement thereabove for limited tilting movement with respect thereto and for generally horizontal swinging movement with respect thereto so as to discharge the coal from the discharge end of said first conveying means onto the second conveying means in any position of movement with respect thereto, and means for mounting the discharge end of said second conveying means on the floor conveyor for longitudinal movement thereabove, for limited tilting movement with respect thereto and for generally horizontal swinging movement with respect thereto so as to discharge the coal from

the discharge end of said second conveying means onto the floor conveyor in any position of movement with respect thereto.

3,306,668
APPARATUS FOR CRUST BREAKING

Knut Ellingsaeter, Sunndalsora, Ole Georg Gjøsteen, Ardalstangen, and Ole Naess Rørtveit, Haslum, Norway, assignors to A/S Ardal og Sunndal Verk, Oslo, Norway

Filed Sept. 3, 1963, Ser. No. 306,033
Claims priority, application Norway, Sept. 14, 1962, 145,722
6 Claims. (Cl. 299—70)

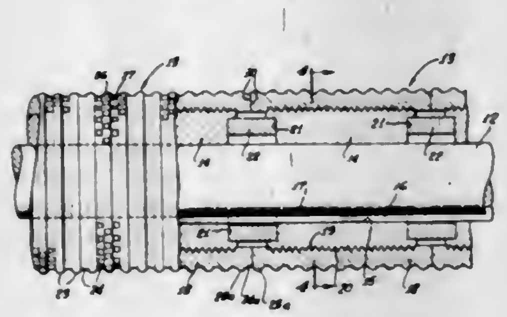


1. Apparatus for breaking the crust in a metal-producing electrolytic cell containing a suspended electrode, comprising a support movable along the cell, a crust-breaking tool carried by said support, means for pressing the tool down against the crust to a position in which the lowermost point of the tool is situated a distance below a plane generally flush with the upper surface of the crust, means for moving said support along the cell, means for maintaining the tool in its lowered position during the movement of the support and the tool, said tool comprising a hub having a plurality of radially extending elements, a substantially horizontal axis on said support substantially perpendicular to the direction of movement of said support on which said hub is rotatably mounted, whereby said hub and radially extending elements may roll on the surface of said crust and said elements are forced down through said crust.

3,306,669
DIAMOND MILLING CUTTERS

Frank L. Christensen and Donald H. Mabey, Salt Lake City, Utah, assignors to Christensen Diamond Products Company, Salt Lake City, Utah, a corporation of Utah

Filed Feb. 17, 1964, Ser. No. 345,425
16 Claims. (Cl. 299—89)

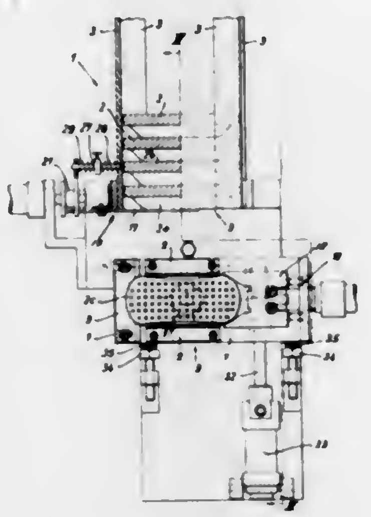


15. In a milling cutter: a generally cylindrical unitary matrix body adapted to be rotated about its axis and having axially spaced circumferential ridges of matrix material of substantially the same radius extending around its periphery in parallel relation to each other and disposed normal to the body axis; and individual diamond cutting elements embedded in each ridge and spaced circumferentially from each other around each ridge.

3,306,670
BRUSH DRILLING AND/OR FILLING MACHINE WITH WORKPIECE HOLDER AND STORAGE RECEPTACLE FOR THE WORKPIECES

Heinz Zahoransky, Todtnau, Black Forest, Germany

Filed Oct. 11, 1963, Ser. No. 315,474
Claims priority, application Germany, Jan. 12, 1963, Z 9,850
4 Claims. (Cl. 300—11)

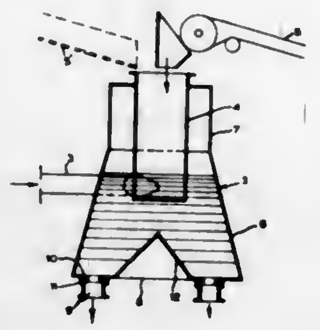


1. A clamping and positioning mechanism for brush bodies comprising, in combination, at least one substantially vertical elongated magazine having a delivery opening at one end and adapted to contain a plurality of superimposed brush bodies; a workpiece holder downwardly spaced from said delivery opening of said magazine, said workpiece holder including a plate member having a supporting face adapted to support a brush body thereon; pivot means supporting said workpiece holder tiltable in one direction about a tilting axis substantially normal to the elongation of said magazine from a receiving position in which said supporting face faces said delivery opening of said magazine to a working position in which said supporting face is tilted about said axis through substantially 90° from said receiving position, and in a direction opposite to said one direction from said working position back to said receiving position; supporting means at said delivery opening and including a pair of opposite elongated members each pivotally mounted intermediate its ends for turning movement about a pivot axis extending in direction of the elongation of said magazine, said members being turnable about their respective pivot axis between a supporting position in which ends of said members extend from opposite sides at least partly across said delivery opening and engage the lowermost of said brush bodies in said magazine, and a releasing position in which said ends of said members are withdrawn from said delivery opening, freeing thereby the lowermost of the brush bodies to move onto said supporting face of said workpiece holder; means cooperating with said members for moving the latter from said supporting position to said releasing position when said workpiece holder is in said receiving position; moving means cooperating with said workpiece holder for moving the latter between said positions thereof; and combined clamping and position adjusting means on said workpiece holder movable between a clamping position for clamping the brush body located on said support face and simultaneously adjusting the position thereof while said brush body is spaced from said superimposed brush bodies by said support means in said operative position thereof, and a releasing position in which said brush body, the position of which has been adjusted, may be removed from between said clamping means in properly adjusted position.

3,306,671
METHOD AND APPARATUS FOR FEEDING MATERIAL HANDLING DEVICES

Jan N. J. Leeman, Heerlen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

Filed Apr. 19, 1965, Ser. No. 448,962
8 Claims. (Cl. 302—14)

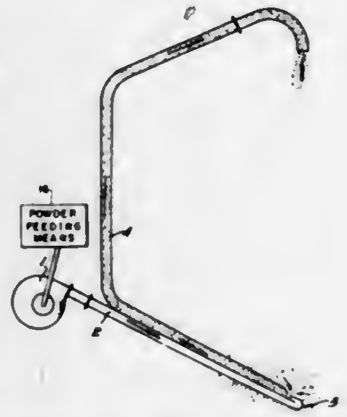


1. Apparatus for dividing a stream of particulate material feed into a plurality of particle feed streams which comprise a chamber having a central axis, conduit means for feeding the said stream of particulate material axially into said chamber, feed pipe means for introducing a liquid medium into said chamber and to cause rotation thereof about said central axis, and a plurality of egress means arranged on a common radial distance from said axis and to permit egress of a plurality of said particle feed streams.

3,306,672
PNEUMATIC PROCESS FOR CONVEYING BULK MATERIAL AND A DEVICE FOR ITS APPLICATION

Juan E. Kleiner and Szabolcs Bartha, both of Sarmiento 459, 4^{c} Piso, Ofi. 35, Buenos Aires, Argentina

Filed July 27, 1964, Ser. No. 385,240
12 Claims. (Cl. 302—17)

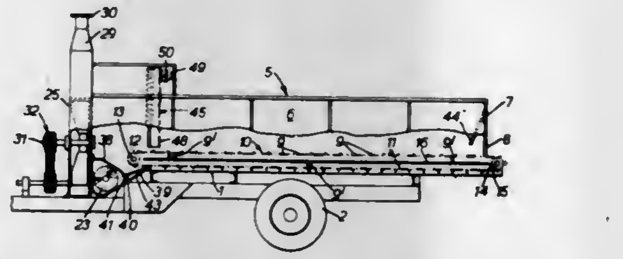


1. An apparatus for conveying granular and pulverized bulk material, loosely deposited on the ground and in bins, for easy manual handling for variegated jobs, comprising a blower; an elongated light-weight pressure-pipe having a circumference less than the grip of the human hand, flexibly connected to said blower; an elongated light-weight feed pipe having a diameter larger than that of said pressure pipe; the pressure pipe and the feed pipe assembled in counterflow parallel alignment; an intake head including at least the following five sections, a pressure inlet section connected to said pressure pipe, a pressure outlet section having a cross-sectional area diminishing away from the pressure inlet section, a feed inlet section, a feed outlet section connected to said feed pipe, and an intermediate section between the pressure outlet section and the feed inlet section, said pressure outlet section spaced from said feed inlet section and aligned therewith, a flow guiding member narrow at one end and wide at its other end attached with its narrow end to said feed outlet section and directed with its wide end toward said pressure outlet section to bound with said pressure inlet section laterally said feed inlet section, its wide end spaced from said pressure outlet section, thereby forming said intermediate section, said intermediate section thus providing a suction means for the material whereby the material may be reached closely adjacent to the ground and distant from the operator; the pressure outlet section having a longitudinal cross-sectional shape of at least one narrowing, hollow hook.

3,306,673
CROP-HANDLING VEHICLES

Nigel Finch, Pinswell, Chedworth, England (Woodlands, Chedworth, Cheltenham, England)

Filed July 6, 1965, Ser. No. 469,489
Claims priority, application Great Britain, July 6, 1964, 27,702/64
10 Claims. (Cl. 302—37)

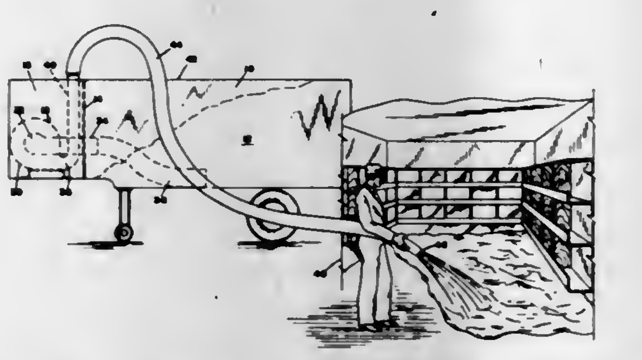


1. A vehicle for handling granular material comprising a body for containing a mass of material, a floor conveyor for moving the material longitudinally of the vehicle, transverse conveying means to which the floor conveyor moves the material, a blower to which the transverse conveying means delivers the material and which acts to discharge the material from the vehicle in an air blast, a fairing disposed over the transverse conveyor and blower inlet and between the forward end of the floor conveyor and the blower for preventing material from being blown back into the vehicle and comprising two panels defining therebetween a throat in the form of a slit extending laterally of the vehicle body and through which material flows to the transverse conveying means, both panels being downwardly inclined to said throat, and adjustable flow control means disposed adjacent the forward end of the floor conveyor for controlling the flow of material from the body of the transverse conveying means.

3,306,674
LITTER CONVEYOR AND DISTRIBUTOR

Earl H. Diehm, 109 N. Main St., Manheim, Pa. 17545

Filed July 13, 1965, Ser. No. 471,591
2 Claims. (Cl. 302—37)



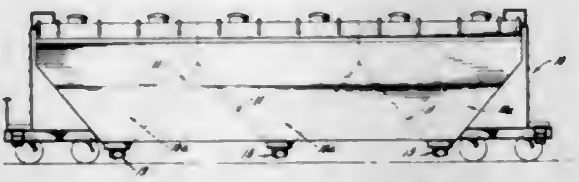
1. Portable mechanism to distribute bulk litter material evenly over a floor surface comprising in combination, a wheeled vehicle having a large enclosed body to contain a bulk supply of said material, a blower mounted on said vehicle adjacent one end thereof and having an inlet and a discharge outlet, power means carried by said vehicle and connected to said blower to drive it, a large diameter

flexible suction conduit connected at one end to said blower inlet and the other end thereof extending toward said enclosed body and into the bulk material within said body, a discharge conduit extending upwardly from said blower outlet to serve as plenum means to render the discharge of material from said blower smooth and even, and a relatively long and flexible distributing hose of a diameter of at least 8" connected at the inlet end thereof to the upper end of said discharge conduit and the discharge end thereof being manually and flexibly movable by an attendant to distribute litter material to an even depth over a floor surface without subsequent leveling or smoothing operations.

3,306,675
HOPPER CAR DISCHARGE APPARATUS

William E. Fritz, Hinsdale, Ill., assignor to Union Tank Car Company, Chicago, Ill., a corporation of New Jersey

Filed Mar. 26, 1964, Ser. No. 354,843
9 Claims. (Cl. 302—52)

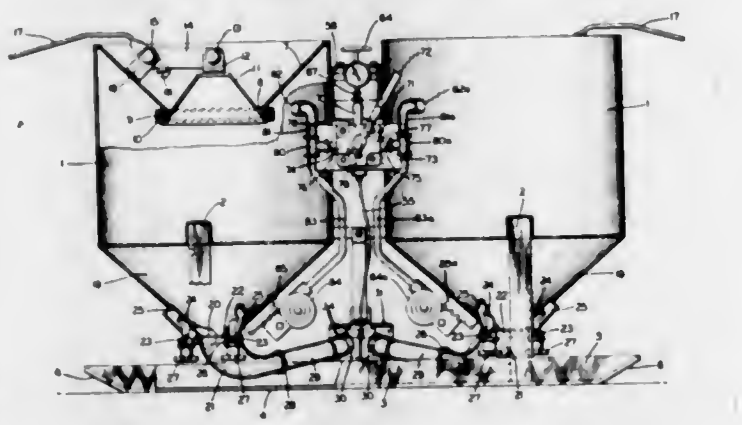


6. Apparatus for effecting the controlled discharge of granular materials from a hopper-type storage compartment of a railroad hopper car and through a generally rectangular hopper discharge port that is defined by suitably apertured wall segments of the hopper adjacent a lower extremity thereof; which apparatus comprises a support structure; said support structure including generally tubular mounting members adapted to be secured to the apertured hopper discharge port defining wall segments on oppositely disposed sides of the discharge port and being apertured so as to communicate with the apertured portions of the wall segments; a valve member mounted within said support structure for selective angular displacement relative thereto and into and out of obstructing relationship with said discharge port, said valve member having a central generally V-shaped valve segment proportioned to fit within said discharge port so as to effect the complete obstruction thereof when in a normal position; said central generally V-shaped valve segment being in an inverted position with the apex thereof extending into the hopper when said valve segment is in obstructing relationship relative to said discharge port; said valve member also having oppositely disposed tubular ends joined to said valve segment; said tubular ends of said valve member being positioned within and extending through said apertured portions of said mounting members and said discharge port defining wall segments; means movably secured to at least one of said tubular ends of said valve member for maintaining said valve member within said support structure and for facilitating the selective angular displacement thereof from said normal position to an alternate position whereat controlled material discharge openings are defined between said valve segment and the discharge port defining wall segments; and a selectively positionable wall member secured to said support structure and adapted to be mounted on the discharge port defining wall segments; said selectively positionable means having a normal position in sealing engagement with the hopper discharge port defining wall segments and in spaced relation to said central valve segment so that a mixing chamber is defined by said central valve segment, said selectively positionable means and the discharge port defining wall segments; said tubular ends of said valve member defining conduit means communicating with said defined mixing chamber so that an air circulation path can be established therethrough and whereby the suction discharge of material passing through said controlled discharge openings and into said mixing chamber can be effected with said selectively positionable means in said normal position; said selectively positionable means having an alternate position that allows material passing through said controlled material discharge openings and into said chamber to be discharged from the hopper-type storage compartment.

3,306,676
TWIN TANK ROCK DUSTER

Glenn D. Gurney, Canton, Ohio, assignor to The American Mine Door Company, Canton, Ohio, a corporation of Ohio

Filed Sept. 27, 1965, Ser. No. 490,528
8 Claims. (Cl. 302—53)



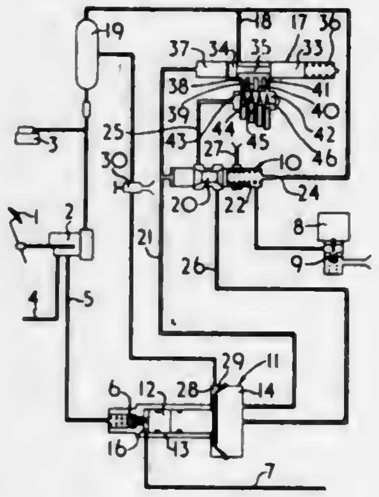
1. A rock duster comprising a pair of similar tanks for containing rock dust and the like, each tank having a charging opening and a closure therefor, an outlet for each tank, an outlet junction, means connecting the outlets of both tanks to said outlet junction, means for selectively admitting air under pressure to either tank to discharge dust from the outlet thereof through said outlet junction, a flipper valve in said outlet junction and having a bearing portion journalled therein, there being a bore in a wall of the outlet junction, jet passage means communicating with said bore and directed longitudinally of said bearing portion of the flipper valve, and means for supplying air under pressure to said bore, said flipper valve being arranged to be operated by the pressure of the discharge from either tank to close the outlet from the other tank.

3,306,677
VEHICLE ANTI-SKID BRAKING SYSTEM

Douglas Dewar, Wolston, near Coventry, and John Walter Davis, Balsall Common, England, assignors to Dunlop Rubber Company Limited, Birmingham, England, a corporation of Great Britain

Filed Apr. 28, 1966, Ser. No. 546,024
Claims priority, application Great Britain, May 4, 1965, 18,850/65
8 Claims. (Cl. 303—21)

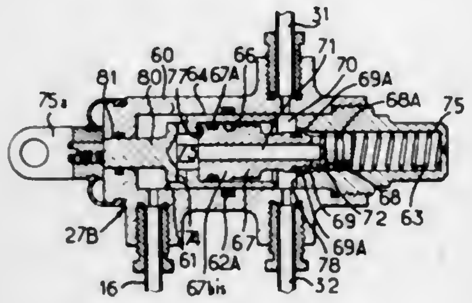
1. A vehicle braking system comprising a hydraulic brake operating mechanism associated with the brake of at least one wheel of the vehicle and connected to a source of hydraulic pressure, a cut-off valve for interrupting the connection between the source of hydraulic pressure and the brake operating mechanism, a plunger movable in a cylinder connected to the brake operating mechanism and arranged to control the hydraulic pressure therein after the cut-off valve has interrupted the connection between the source of hydraulic pressure and the brake operating mechanism, means for controlling the position of the plunger comprising a pneumatically operated servo device arranged to apply a thrust to the plunger, a skid-sensing device associated with the vehicle wheel and arranged to change the air pressure in the servo device so as to cause a reduction in the thrust exerted on the plunger by the servo device and thereby to release the brake whenever the wheel tends to lock and to change the air pressure in the servo device so as to cause an increase in the thrust exerted on the plunger by the servo device and thereby to effect re-application of the brake when the tendency for the wheel to lock has been overcome, a flow-restricting device arranged to reduce the rate at which the air pressure is changed in the servo device to effect re-application of the brake, and means for varying the restriction offered by the flow-restricting device in accordance with the thrust generated by the servo device so as to provide a relatively restricted flow of air when the thrust generated is low and a relatively less restricted flow of air when the thrust generated is high.



3,306,678
LOAD BRAKE PROPORTIONING FOR AN AUTOMOBILE VEHICLE

Pierre André Georges Lepelletier, Chatou, France, assignor to Societe anonyme Francaise du Ferodo, a corporation of France

Filed July 30, 1965, Ser. No. 476,025
Claims priority, application France, Aug. 8, 1964, 984,649
10 Claims. (Cl. 303—22)

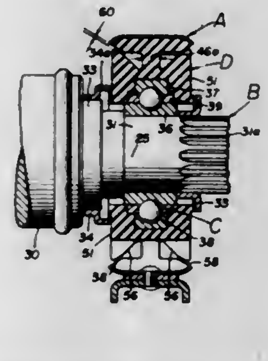


1. A braking device for an automobile vehicle comprising a front axle and a rear axle each provided with brakes, said device comprising a master cylinder for driving a hydraulic fluid to actuate said brakes, and pressure-correcting means associated with said rear brakes so as to take into account more precisely the conditions of distribution of load and of transfers of weight during braking, said correction means comprising: a hollow body pierced with at least one first bore and a second bore, said second bore being coaxial with the first but of larger diameter, and said first bore terminating opposite said second bore in a conical coupling surface convergent in a direction opposite to said second bore; a piston disposed in said body in the axis of the first bore of said body and provided with an annular transverse groove; an annular sealing joint disposed in said groove of said piston; means for axially moving said piston in said body between a first position in which said joint is not engaged in said first bore of the body, so that said bores communicate with each other, and a second position in which said joint is engaged in said first bore with a fluid-tight contact, so that said bores do not communicate with each other; a second piston arranged in said hollow body, said first and second pistons being each provided internally with at least one passage; a spring, and a control means, at least said first piston comprising at least two bearing surfaces of different diameters, the first and second pistons defining with said hollow body, a transfer chamber location between the two bearing surfaces of the first piston and one side of the second piston, said chamber being connected to the rear brakes; a pressure-input chamber located on the other side of said second piston; and a chamber in communication with the atmosphere located on the side of the bearing surface of the first piston which has the smaller diameter, said passage in the first and second pistons causing said intake chamber to communicate with said transfer chamber and being open or closed, depending on the position of the first piston; said second piston being adapted to move under the actions of the intake pressure and said control means, the pressure in said transfer chamber; the first piston being subjected to the intake pressure and to said spring, to atmospheric pressure and to the pressure in said transfer chamber.

3,306,679
RESILIENT DRIVELINE BEARING

Raymond E. Stokely, Rockford, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Dec. 31, 1964, Ser. No. 422,578
11 Claims. (Cl. 308—26)

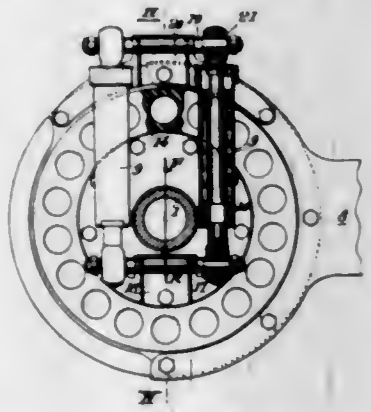


1. A resilient mounting effective to support an annular bearing assembly within an annular fixed bracket, the mounting comprising: an annular body of resilient material having an axis and an annular groove defined in its interior periphery effective to snugly receive said annular bearing, a plurality of columns extending radially outwardly from said body effective to resiliently and yieldably engage said annular fixed bracket, each of said support columns comprising a radially extending neck having a head portion extending transversely to said neck, said head portion interengaging with said fixed bracket, and wings independent of said columns extending radially outwardly from said body on opposite sides of each column, said wings having a shoulder adjacent to but slightly spaced from the axial extremities of said head whereby upon bending of said neck resulting from displacement of said bracket relative to said bearing, said head will progressively bear against one of said wings thereby maintaining the transmissibility of said mounting generally uniform.

8

3,306,680
BEARINGS FOR A BENT FLEXIBLE TRANSMISSION SHAFT

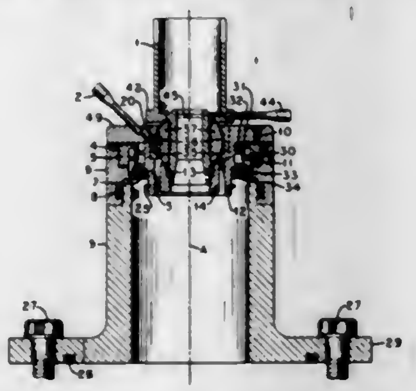
Marcel Martin Francois Bruyere, Bois-Colombes, France, assignor to Societe d'Exploitation des Materiels Hispano-Suiza, Bois-Colombes (Seine), France, a society of France
Filed Oct. 30, 1963, Ser. No. 320,114
Claims priority, application France, Nov. 2, 1962, 914,263
3 Claims. (Cl. 308—27)



1. In a system comprising a supporting structure, at least two bearings mounted on said structure so that their respective axes make an angle with each other and a curved flexible shaft journalled in said bearings, the combination, to constitute each of said bearings, of a first bearing portion fixed to said structure, a second bearing portion having said shaft journalled therein, resilient means for interconnecting said two bearing portions with each other, and resilient compensating means interposed between said second bearing portion and said structure for exerting on said second bearing portion a force of a direction opposed to the load supported in operation by said second bearing portion due to the bending of said shaft, said compensating means including at least one pair of stretching resilient links disposed on each side respectively of said bearing.

3,306,681
DAMPED BEARING FOR CENTRIFUGES

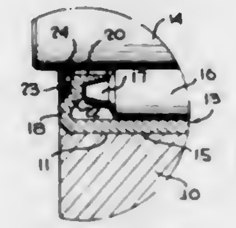
Hubert P. Barringer, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 7, 1964, Ser. No. 388,336
4 Claims. (Cl. 308—140)



1. A damped bearing system for supporting the upper vertically oriented shaft of a liquid-centrifuge rotor comprising in combination: a rigid support member; a journal bearing rotatably engaging said upper shaft; a spherical bearing having an inner and an outer race, said inner race being affixed to said journal bearing; means for preventing rotation of said inner race of said spherical bearing about the vertical axis of said shaft while permitting partial rotation about two mutually perpendicular, horizontally oriented axes; a damping ring having inner and outer portions, said inner portion being affixed to said outer race of said spherical bearing and provided with a plurality of lateral projections extending away from said bearing, said outer portion of said damping ring being affixed to said rigid support member and provided with a plurality of lateral projections extending between the lateral projections of said inner portion of said damping ring with a small axial clearance being provided between said respective projections, said outer portion of said damping ring further provided with a lower flange spaced from and vertically opposed to the lowermost lateral projection of said inner damping ring portion; a first elastomeric sealing means disposed between said lower flange of said outer damping ring portion and said lowermost lateral projection of said inner damping ring portion to effect a resilient seal therebetween; said inner damping ring portion further provided with an uppermost and outwardly extending flange, said outer damping ring portion being provided with an upper vertical recess vertically opposed to the outermost portion of said outwardly extending flange of said inner damping ring portion; a second elastomeric sealing means disposed within and between said recess of said outer damping ring portion and said outwardly extending flange of said inner damping ring portion to effect a resilient seal therebetween; said inner and outer portions of said damping ring together with said respective sealing means defining a leak-tight annular cavity therebetween, said cavity enclosing said lateral projections, and a viscous oil disposed within said annular cavity and between the overlapping lateral projections of said inner and outer portions of said damping ring to thus provide linear damping by a shearing action of the oil layer disposed between the cooperating, overlapping lateral projections.

3,306,682
SEAL FOR A ROLLER BEARING HAVING THIN WALLED RACE

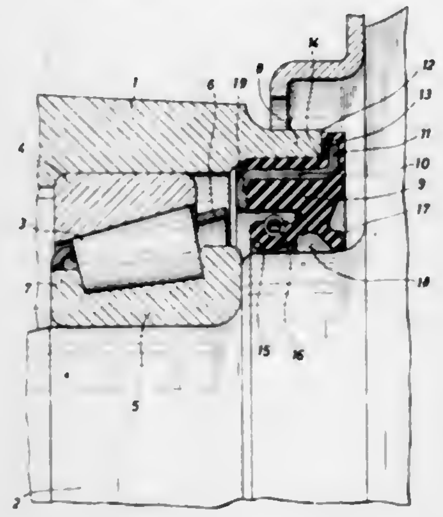
John H. Cowles, Forestville, Conn., assignor to The Torrington Company, Torrington, Conn., a corporation of Maine
Filed Dec. 10, 1963, Ser. No. 329,555
3 Claims. (Cl. 308—187.2)



2. In a shaft assembly of the type including a housing, a bearing of the roller and needle type, and a shaft, said housing having a bearing receiving bore therein, said bearing including a bearing race and anti-friction rolling elements in rolling engagement with said bearing race and said shaft, said bearing race being of a drawn sheet metal construction having radially inwardly directed flanges at the opposite ends thereof, said bearing race having a press fit within said housing with one of said flanges being an outer flange in an axial direction and having an outer portion in a radial direction for engagement by an installing tool: the improvement residing in an inner portion of said outer flange being axially inwardly bent and defining an annular seal receiving recess, and a shaft engageable seal carried by said outer flange, said seal being seated in said recess in axially recessed relation relative to the outer surface of said outer flange outer portion and projecting radially inwardly of said outer flange for sealing engagement with said shaft.

3,306,683
SEAL FOR ROLLER BEARINGS IN MOTOR VEHICLES

Hans Deuring, Burscheid, Cologne, Germany, assignor to Goetzewerke Friedrich Goetze Aktiengesellschaft, Burscheid, Cologne, Germany, a German corporation
Filed Apr. 3, 1964, Ser. No. 357,326
Claims priority, application Germany, Apr. 5, 1963, G 37,462
7 Claims. (Cl. 308—187.2)

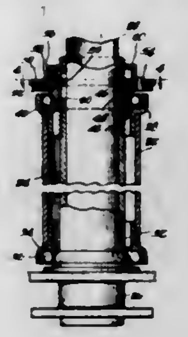


1. An assembly comprising; a wheel hub, a shaft, a roller bearing, and a seal for said roller bearing, said bearing having an outer race and a grooved inner race and tapered rollers between said races seated in the groove in said inner race and a roller cage intermediate said races retaining said rollers, said outer race being mounted in said wheel hub and said inner race being mounted on said shaft, said seal being arranged between said wheel hub and said shaft and at that end of the outer race through which the inner race and rollers and cage are withdrawn as a unit from said outer race when the bearing is disassembled by withdrawing of said wheel hub together with said outer race from said shaft, said seal comprising an annular collar of resilient material having in the radially inner region on the shaft side a pair of axially spaced annular sealing lips slidably engaging said shaft and adapted to retain a body of lubricant around the shaft and between said lips, a cylindrical metal stiffening ring imbedded in said collar in a radially outer region thereof having a first radially outwardly extending flange at one end and a second radially inwardly extending flange at the other end, the outer surface of said collar being cylindrical in the region of the cylindrical stiffening ring, said collar being press fitted into a cylindrical bore in said wheel hub with the said other end thereof foremost following the insertion into the wheel hub of the outer race of the bearing, the inner diameter of said second flange being smaller than the outer diameter of said cage, so that upon withdrawal of said hub and outer race, the said second flange will engage said cage and prevent the inner race from being drawn through and thereby damaging the seal lips.

3,306,684
BEARING CONSTRUCTION FOR BICYCLES AND THE LIKE

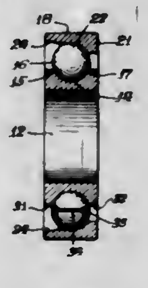
Frank F. Klein, Jr., 2049 W. 63rd St., Chicago, Ill. 60636
Filed July 6, 1964, Ser. No. 380,383
9 Claims. (Cl. 308—187)

1. A bearing construction for use as in bicycles comprising a first part and a second part to be rotatably journalled in said first part, a bearing race mounted on said first part, a plurality of bearing balls in said race, a bearing cone threaded on said second part and engaging said balls, a locking washer, one of said bearing cone and washer having a pin extending axially therefrom toward the other and the other thereof having a plurality of holes any one of which is capable of receiving said pin, said bearing cone and washer thereby being capable of relative axial movement and locked against relative rotation with said pin received in one of said holes, means coacting between said washer and said bearing cone upon relative axial movement toward one another to prevent relative rotation, said bearing cone thereby being locked to said second part against rotation relative thereto, and nut means threaded on said second part to clamp said locking washer against said bearing cone, both said washer and said bearing cone being provided with a plurality of axially extending holes, at least some of which line up with said pin received in a hole whereby to permit oiling of said bearing balls.



3,306,685
ANGULAR CONTACT BALL BEARING ASSEMBLY

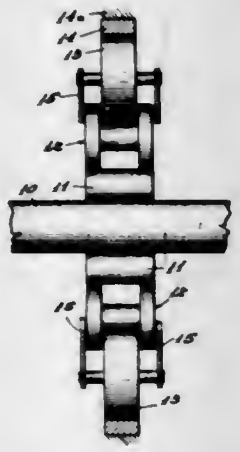
Thomas G. Bixby, Valparaiso, Ind., assignor to McGill Manufacturing Company, Inc., Valparaiso, Ind., a corporation of Indiana
Continuation of application Ser. No. 298,156, July 29, 1963. This application July 19, 1965, Ser. No. 477,343
1 Claim. (Cl. 308—201)



In an angular contact ball bearing device having an inner race ring and an outer race ring with a raceway for ball bearings in each race ring, and a plurality of ball bearings in the raceway formed in said two race rings, means positioned between the race rings and over the ball bearings to separate the same in the raceway and guide said ball bearings during operation, said means comprising a one-piece sheet metal separator for said ball bearings having a thin cross-section of the same thickness throughout, said separator having first and second annular rim portions of said thin cross-section which are in slidable engagement with the oppositely axially disposed annular portions of one of said race rings during an operation of the ball bearing device and a plurality of circumferentially spaced raised cross-pieces integral with and extending between said rim portions, said cross-pieces each having an axially extending central portion and two tapered radially-extending intermediate portions with each one extending at an acute angle from its corresponding rim and joining the central portion to form an arch between said rim portions, said central portions each having an edge on each circumferential face thereof which is shaped to correspond to the surface of an adjacent ball bearing, and with each two circumferentially adjacent cross-pieces at their respective central portions being of such a length and in such a circumferential plane as to position a ball bearing therebetween as in a pocket, with a circumferential face-edge of each engaging the ball bearing and providing guidance therefor at the pitch diameter thereof, and with the configuration and dimensions of said cross-pieces and said flat rimmed portions which cooperate to form the pockets limiting contact between a ball bearing and said separator to said central portion of said separator.

3,306,686
MULTI-ROLLER HIGH SPEED BEARINGS

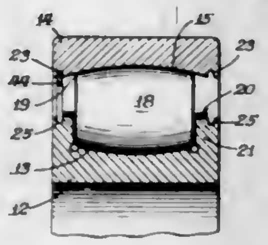
Algirdas L. Nasvytis, Cleveland, Ohio, assignor to TRW Inc., a corporation of Ohio
Filed May 19, 1964, Ser. No. 368,595
7 Claims. (Cl. 308—202)



1. A high-speed roller bearing providing high speed rotational support between shaft and housing members rotatable relative to each other, means providing a radially outwardly facing bearing race surface on the shaft member, means providing a radially inwardly facing bearing race surface in said housing member, three sets of planet rollers in free-wheeling support engagement between said race surfaces, means maintaining the rollers of the intermediate set of said three sets in fixed relative peripheral and radial position and said intermediate set being in direct rolling engagement between the inner and outer sets of said three sets.

3,306,687
SINGLE ROW SPHERICAL BEARING

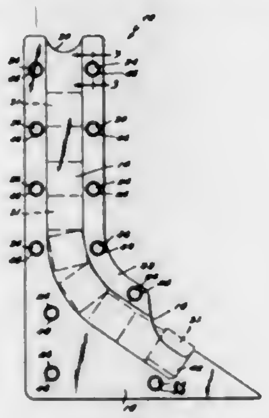
Richard J. Smith, Valparaiso, Ind., assignor to McGill Manufacturing Company, Inc., Valparaiso, Ind., a corporation of Indiana
Filed May 6, 1964, Ser. No. 365,386
5 Claims. (Cl. 308—213)



1. In a single row self-aligning bearing having inner and outer race rings and a plurality of rollers therebetween making up a bearing capable of accommodating a radial load and a thrust load impressed thereon and capable of operating with the rollers and inner race ring thereof misaligned relative to the outer race ring, said plurality of rollers each having a radius of curvature for its outer circumferential surface providing an axially convex contour, and with said outer race ring having an axially concave spherical raceway but having no flanges at the sides of said ring to define a raceway and having a radius of curvature with the origin thereof at the axial center of the assembled bearing, said radius of curvature of said outer race ring raceway being substantially the same as the radius of curvature of each roller surface, the means in said bearing to produce said load capability for said bearing comprising said inner race ring having an axially concave raceway with a radius of curvature substantially the same as the radius of curvature of the surface of each of said rollers and having a guide flange at each side thereof defining a raceway in said inner race ring, said inner race ring having an axial center, said guide flanges on said inner race ring being spaced apart a dimension greater than the axial length of the rollers and being within a dimensional range wherein the minimum allowable total of the end clearances between a roller and said two guide flanges is one-tenth of an axial movement of said roller in said bearing in a direction relative to the axial center of said inner race ring if there were no guide flanges on the inner race ring and the axially concave extended the full width of the inner race ring multiplied by the roller diameter to roller length ratio, and wherein the maximum allowable total of the end clearances between said roller and said two guide flanges on said inner race ring permits only a maximum angle of roller-skew of 1 degree for said roller in the inner raceway between said two guide flanges.

3,306,688
ARTICLE DISPENSING RACK

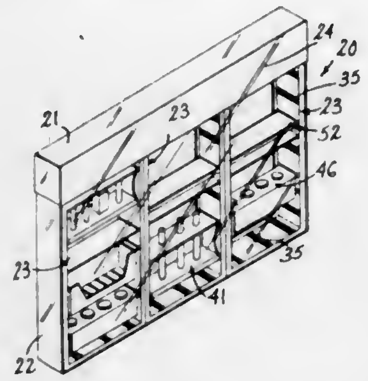
Joseph Di Domenico, 575 Mount Pleasant Ave., Providence, R.I. 02886
Filed Apr. 5, 1965, Ser. No. 445,391
6 Claims. (Cl. 312—42)



1. In a dispensing device, spaced side walls disposed in parallel, vertical planes, means interconnected to said side walls for locating them in their spaced-apart position, an article holding magazine located between said side walls and including an upper magazine portion that is located substantially vertical and directing an article deposited at a loading station at the upper end thereof in a generally vertical downward direction, a lower magazine portion communicating with said upper magazine portion and being generally inclined so as to direct the articles received thereon from said upper magazine portion in a downwardly inclined direction to a dispensing station, said magazine being defined by a first pair of spaced parallel inner plates that are also inwardly spaced from and parallel to said side walls, and a second pair of spaced parallel inner plates that are inwardly spaced from and parallel to said side walls and that are further located in alignment with said first pair of inner plates but are spaced rearwardly therefrom to define said magazine portions.

3,306,689
RECEPTACLE

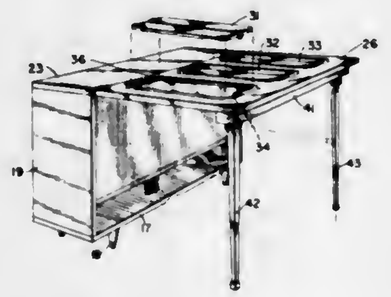
Anson Isaacson, Great Neck, Long Island, N.Y., and Marshall H. Frisble, Branford, Conn., assignors, by mesne assignments, to Walter E. Heller & Company (Inc.), New York, N.Y., a corporation of Delaware
Filed July 21, 1965, Ser. No. 473,756
4 Claims. (Cl. 312—199)



1. A receptacle arranged to be displayed in an upright position, comprising a plurality of quadrilateral modular sections, each section having top and bottom walls in substantially parallel planes and side walls in substantially parallel planes joining said top and bottom walls, a facing member extending outwardly and substantially perpendicular to all of said walls, said facing member being of substantially rectangular configuration and continuous about the opening defined by said walls, a plurality of feet extending outwardly from said walls substantially mutually perpendicular to said walls and said facing member in predetermined position, said feet having edges terminating in substantial alignment with the edges of said facing member, whereby each section may be free-standing on any edge of the facing member and some of said feet.

3,306,690
SEWING MACHINE CABINETS

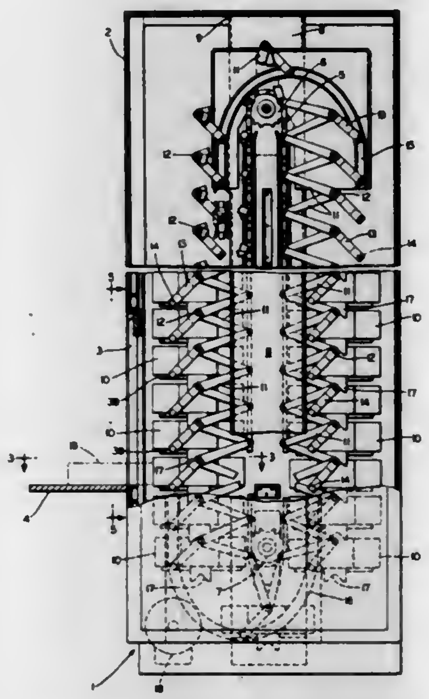
James P. Gibson, Trumann, Ark., Robert L. Hart, Dallas, Tex., and Elbert J. Stanley, Istanbul, Turkey, assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 31, 1964, Ser. No. 386,573
2 Claims. (Cl. 312—208)



1. A sewing machine cabinet having a bottom wall, a rear wall, a left side wall, a right side wall, said right side wall being apertured, a top wall, and an open front; a substantially flat member hinged to the front of said top wall and swingable to either of two selected positions, one of said positions being such as to cause said member to close the open front of said cabinet and the other of said positions being such as to cause said member to act as a table top for receiving a sewing machine, said member being formed with an elongated aperture located in that part of the member which is nearest to the left side wall; a pair of folding legs carried by the free end of said member, said legs being swingable to either of two selected positions, one of said positions being such as to position the legs to support the free ends of the member and the other of said positions being such as to fold the legs below the surface of said member; a sewing machine supporting platform, means for slidably mounting said platform for movement to either of two selected positions, one of said positions being a storage position entirely within the cabinet and the other of said positions being a position extending partly through the aperture in the right side wall such that a sewing machine can easily be placed on and removed from said platform; a door, means for hingedly mounting said door on said right side wall for movement to either of two selected positions, one of said positions being a position for closing the aperture in said right side walls, and the other being a position for exposing said slidably mounted platform; and a pair of links opposite ends of which are respectively connected to said door and to said platform, the connection between said door and said platform being so constructed and arranged as to cause said platform to slide out of said cabinet when said door is opened and to cause said platform to move to the stored position within said cabinet when said door is closed.

3,306,691
POWER FILE SAFETY CONSTRUCTION

Carl D. Graber, Orrville, Leo J. Grosswiller, Jr., East Canton, Thomas H. Kenny, Navarre, and Herbert C. Obermiller, Canton, Ohio, assignors to Diebold, Incorporated, Canton, Ohio, a corporation of Ohio
Filed Aug. 20, 1965, Ser. No. 481,259
10 Claims. (Cl. 312—223)

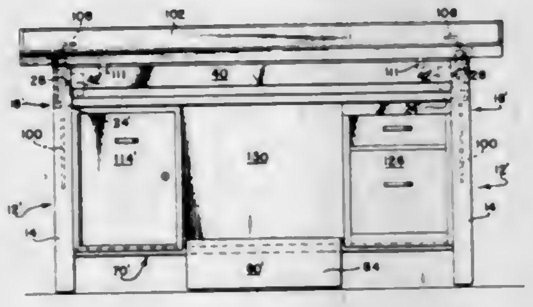


1. Safety construction for a power file of a type in which a plurality of pans are mounted on an endless conveyer mechanism for movement in either direction in a continuous orbit of travel and any selected pan is delivered by conveyer drive power means at a work station, and in which a drawer which may be latched in retracted position is supported on each pan as a pan-drawer assembly on suspension mechanism which permits the drawer to be moved between retracted and extended positions through a file access opening provided in the file case at the work station; including drawer latch mechanism mounted on each pan-drawer assembly; safety actuator rod means operatively connected with the latch mechanism mounted on each pan-drawer assembly movable from retracted to extended position upon unlatching the latch mechanism for such pan-drawer assembly; the safety

rod means for each pan-drawer assembly when in extended position being located in a zone at one end of the pan-drawer assemblies parallel with the path of travel of the file conveyer mechanism; trip-bar means mounted for movement on the file between normal and actuated positions adjacent the work station access opening and extending parallel with the path transversed in said zone by said safety rod means during movement of the conveyer past said access opening; said trip-bar means being spring-biased to normal position and when in normal position being adapted to be engaged and moved to actuated position upon movement to extended position of the safety rod means of any pan-drawer assembly when the latter is located at an accessible position at the work station; a single safety switch means mounted adjacent the trip-bar means and held in normally closed position by said trip-bar means when the latter is in normal position; said safety switch means being released by said trip-bar means to open whenever the trip-bar means is moved from normal to actuated position; and electrical control circuitry connecting said safety switch means and the conveyer drive power means; whereby when any drawer located at an accessible position at the work station is unlatched, opening of said switch by the extended safety rod means and actuated trip-bar means prevents operation of the conveyer drive power means.

3,306,692
KNOCK-DOWN TABLE AND DESK CONSTRUCTION

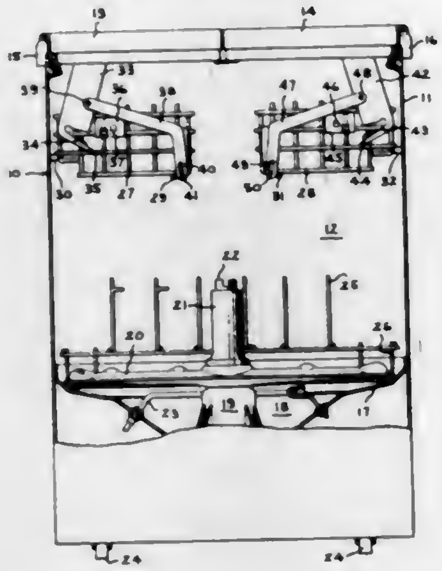
Leonard A. Timmerman, 8723 Talbot Road, Edmonds, Wash. 98020
Filed Feb. 24, 1966, Ser. No. 540,120
19 Claims. (Cl. 312—231)



1. A desk or table capable of rapid assembly and disassembly, and comprising: a pair of rigid end units, each having inwardly facing upper front, upper rear, and lower joint stations, each joint station including a planar joint surface positionable opposite the planar joint surface of the corresponding joint station on the other end unit, and a hook support adjacent such planar joint surface; and separate upper front, upper rear and lower cross members, each cross member having two squared ends and a hook at each end, with the upper front cross member being independently interconnectable between the upper front joint stations of the end units merely by hooking the end hooks of such cross member over the hook supports at such stations, with the upper rear cross member being interconnectable between the upper rear joint stations of the end units merely by hooking the end hooks of such cross member over the hook supports at such stations, with the lower cross member being independently interconnectable between the lower joint stations of the end supports merely by hooking the end hooks of such cross member over the hook supports at such stations, and with the squared ends of the cross members making substantially tight abutting contact with the planar joint surfaces at the joint stations when the hooks are in place, resulting in the joints so formed being substantially fixed and the assembled desk or table being a substantially rigid structure.

3,306,693
RACK SYSTEM FOR DISHWASHER

Melvin R. Kauffman, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed May 24, 1965, Ser. No. 458,269
6 Claims. (Cl. 312—269)



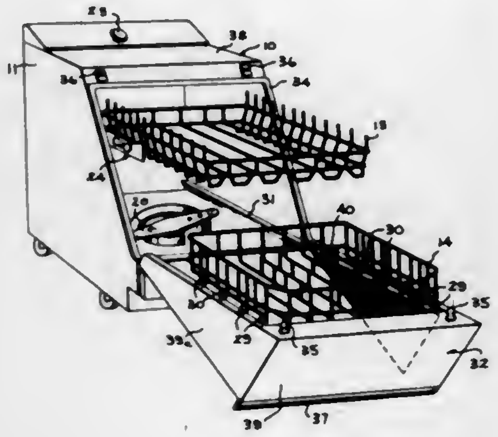
1. An automatic dishwasher comprising:
(a) a cabinet having an open top,
(b) a closure member pivotally secured to said cabinet adjacent its open top and serving to close at least a portion of the open top,
(c) said closure member being pivotal through an angle substantially greater than 90°,
(d) a wash chamber within said cabinet,
(e) a rack adapted to support articles to be washed,
(f) means within said wash chamber to normally support said rack within the upper portion of said wash chamber, and
(g) an arm secured to said closure member and depending into said wash chamber when said closure member is closed,
(h) said arm having an elongated finger near its distal end defining an open-end slot,
(i) said rack having means extending therefrom and positioned to be engaged by said finger as said arm is moved upon opening of said closure member,
(j) said finger imparting a lifting movement to said rack through said means extending from said rack as said closure member is opened,
(k) said rack being completely withdrawn from said wash chamber as said closure member moves to its fully opened position,
(l) the edge of said slot supporting said rack when said closure member is in its fully opened position.

3,306,694
DOOR AND RACK STRUCTURE FOR AUTOMATIC DISHWASHER

Charles E. Hauser, Jeffersonville, Ind., assignor to General Electric Company, a corporation of New York
Filed June 24, 1965, Ser. No. 466,745
6 Claims. (Cl. 312—311)

1. An automatic dishwasher adapted to rest upon a floor and comprising:
(a) a cabinet,
(b) a wash chamber within said cabinet,
(c) a rack to support dishes to be washed within said wash chamber,
(d) a door secured to said cabinet for rotation about a horizontal axis through an angle greater than 90° between an upwardly closed position and a downwardly open position,

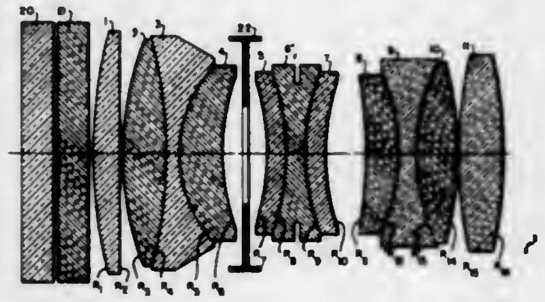
(e) first track means carried by said cabinet and extending into said wash chamber,
(f) rollers rotatably secured to said rack and resting upon said first track means when said rack is disposed within said wash chamber, and
(g) second track means on the inner surface of said door,



(h) said door being adapted to rest directly upon the floor when in said open position,
(i) said second track means being substantially aligned with said first track means when said door is in said open position whereupon said rack may be withdrawn from said wash chamber onto said second track means.

3,306,695
RELATIVELY WIDE-ANGLE APOCHROMATIC OBJECTIVE LENS SYSTEM

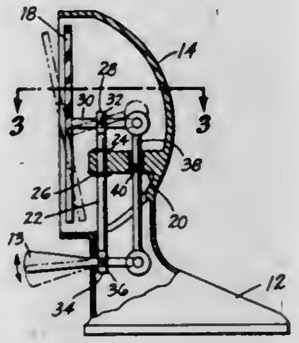
James G. Baker, Winchester, Mass., assignor to Fairchild Camera and Instrument Corporation, a corporation of Delaware
Filed May 22, 1963, Ser. No. 282,382
10 Claims. (Cl. 350—189)



1. A relatively wide angle apochromatic substantially symmetrical obective lens system comprising:
(a) a first front lens component of net collective effect;
(b) a fifth rear lens compenent of net collective effect;
(c) second, third, and fourth spaced lens components disposed between said first and fifth lens components, each comprising at least three closely associated lens elements;
(d) said second lens component having a net positive dioptric power and having index of refraction differences between adacent lens elements lying within the range 0.03 to 0.09 and including at least one element of negative dioptric power and a dispersive power for the blue-violet end of the spectrum characteristic of crown glass and having a concave exterior surface on the short conugate side of a curvature lying within the range 3 to 5 relative to the equivalent focal length of the system;
(e) said third lens component being of generally biconcave form and having a net negative dioptric power and having index of refraction differences between adacent lens elements within the range of 0.02 to 0.12 and comprising two lens elements of positive dioptric power enclosing a third lens element of negative dioptric power;
(f) said fourth lens component having a net positive dioptric power, having an over-all meniscus form with a convex exterior surface on the short conjugate side, having its interior surface on the short conjugate side convex to the long conjugate side of the system, and having index of refraction differences between adjacent lens elements within the range of 0.01 to 0.09 comprising at least one lens element of a dispersive power for the blue-violet end of the spectrum characteristic of crown glass;
(g) the two outer lens elements of each of said second, third, and fourth lens components having higher indices of refraction and higher indices of dispersion *v* than the central lens element thereof and at least one of the exterior surfaces and at least one of the interior surfaces of said third lens component being aspheric and effective substantially to correct respectively axial aberration and at least one type of off-axis aberration;
(h) and each of said second and fourth lens components comprising two lens elements of positive dioptric power enclosing a third lens element of negative dioptric power, the two outer lens elements of each of said second, third, and fourth lens components having higher indices of refraction and higher indices or dispersion *v* than the central lens element thereof and at least one of the exterior surfaces and at least one of the interior surfaces of said third lens component being aspheric and effective substantially to correct respectively axial aberration and at least one type of off-axis aberration.

3,306,696
REMOTE CONTROL SIDE VIEW MIRROR

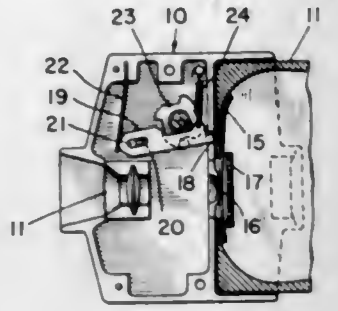
David Tann, 333 Covington Road, Detroit, Mich. 48203
Filed June 14, 1963, Ser. No. 287,852
16 Claims. (Cl. 350—288)



1. A side view mirror comprising a base, a housing rigidly mounted on said base having an enlarged opening therein facing away from the base, a support fixed within said housing adjacent to said opening, a mirror positioned within said opening, means for mounting said mirror on said support for limited universal movement relative to the housing and actuating means operatively connected to said mirror mounting means for swiveling the mirror to a desired position, a portion of said actuating means extending through the wall of said base to an exposed position immediately adjacent thereto so that it can be conveniently actuated by an operator to position the mirror without touching the mirror surface.

3,306,697
PORTABLE MOVIE FILM VIEWER

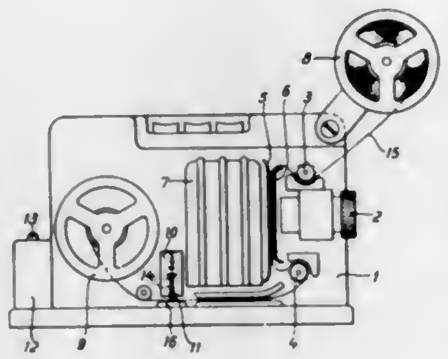
Otto R. Nemeth, 11907 San Vicente Blvd., Los Angeles, Calif. 90049
Filed Feb. 23, 1965, Ser. No. 434,241
7 Claims. (Cl. 352—129)



1. A portable movie film viewer comprising, in combination: a casing defining a viewing opening and means for holding a film in position to be viewed through said viewing opening; a claw means in said casing having a driving claw in a position to engage a sprocket hole in said film; and means for moving said claw means in successive rearward, downward, forward, and upward directions to thereby effect a successive positioning of pictures on said film for viewing through said viewing means, said means for moving said claw means including a cam wheel rotatably mounted in said casing above said claw means and including a cam surface having a steep leading edge, and a rearward sloping portion terminating in a shoulder, said claw means including a single cam follower projection; means mounting said claw means for forward and rearward movement and for up and down movement; and spring means urging said claw means forwardly and upwardly to effect engagement of said cam follower projection with said cam surface, said shoulder on said cam surface urging said claw means rearwardly to disengage said claw means from a sprocket hole in said film upon rotation of said cam wheel and said steep leading edge releasing said claw means upon further rotation of said wheel so that said spring means snaps said claw means forwardly and upwardly to drive said film.

3,306,698
MARKING DEVICE FOR MOTION PICTURE FILM

Robert Mees, Wissmar, Kreis Wetzlar, and Heribert Lussem and Werner Holle, Wetzlar, Germany, assignors to Ernst Leitz G.m.b.H., Wetzlar, Germany
Filed June 25, 1964, Ser. No. 377,935
Claims priority, application Germany, July 19, 1963, L 45,405
19 Claims. (Cl. 352—130)



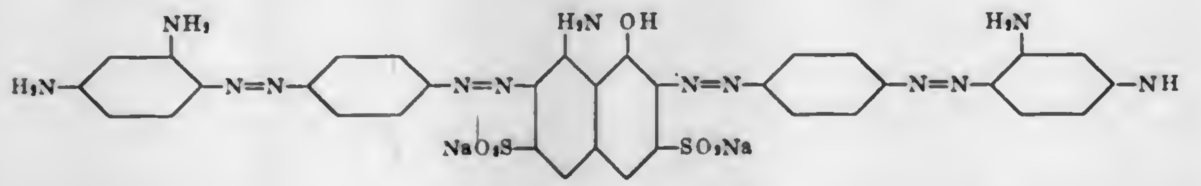
1. In combination; a motion picture projector having a lens system through which the film passes and film take up means spaced from said lens system and operable for receiving the film after it passes through said lens system, and a film marking device for the film supported between said lens system and said take up means and through which the film passes in traveling from said lens system to said take up means, said marking device for the film comprising; a support plate over which the film is movable, a marking punch adjacent said plate and normally retracted from the plate to leave a space through which a film is movable, drive means for driving said punch toward a film on said plate to mark the said film, and means for actuating said drive means including a manually operable element and time delay means operatively connecting said manually operable element with said drive means whereby the marking of a film occurs a predetermined time after operation of said manually operable element.

CHEMICAL

3,306,699
PROCESS FOR THE PRODUCTION OF FAST DYEINGS ON CELLULOSE FABRICS

Bernhard Kramer, Cologne-Braunsfeld, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Oct. 9, 1964, Ser. No. 402,927
Claims priority, application Germany, Oct. 10, 1963, F 40,956
4 Claims. (Cl. 8—26)

1. Process for the production of fast dyeings on cellulose fabrics, which comprises treating with a copper discharging agent a dyeing with the dyestuff of the formula



on cellulosic fabric.

2. Process according to claim 1, wherein said dyeing is prepared in the presence of a toning dyestuff.

3,306,700
METHOD OF LITHIUM RECOVERY

Marshall P. Neipert and Charles K. Bon, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Mar. 6, 1964, Ser. No. 350,123
7 Claims. (Cl. 23—25)

1. In a process for the recovery of lithium values from an aqueous brine solution containing dissolved lithium values, by treating said solution with a hydrated aluminum oxide thereby to precipitate a lithium aluminate complex the improvement which comprises:

(a) treating and agitating said aqueous brine solution containing said lithium values in a reactor with a hydrated aluminum oxide to react with the lithium present in the resulting reaction mixture, said solution having a pH value in the range of from about 4.5 to about 5.4 and a temperature in the range of from about 45° C. to about 100° C. thereby to precipitate as a lithium aluminate complex a major portion of the lithium values present in said solution without concomitantly precipitating substantial quantities of other salts present in said solution;

(b) recirculating the resulting aqueous slurry of said lithium aluminate complex precipitate in said brine in the reactor;

(c) continuing to recirculate said lithium aluminate precipitate slurry while intermixing and agitating said slurry with additional quantities of said brine and hydrated aluminum oxide to provide a final product slurry having said lithium aluminate complex precipitate in granular form, said final product slurry having a filtering rate of at least 0.5 gallon per minute per square foot or filter area; and

(d) removing said precipitate of lithium aluminate complex from said final product slurry.

3,306,701
PREPARATION OF SELENIDES AND TELLURIDES

James Thomson Anderson and Ronald Shepherd, Rugby, England, assignors to Associated Electrical Industries Limited, London, England, a British company
No Drawing. Filed May 23, 1963, Ser. No. 282,575
Claims priority, application Great Britain, May 31, 1962, 21,062/62
8 Claims. (Cl. 23—50)

1. A method of preparing selenides and tellurides of lead and bismuth which comprises contacting a first solution comprising a first solute selected from the group consisting of the oxides and salts of lead and bismuth dissolved in a first solvent selected from the group consisting of ethylene diamine derivatives of acetic acid, alkylene amines and alkanol amines, and a second solution comprising a reactant selected from the group consisting of ammonium selenides and ammonium tellurides to precipitate the required product selected from the group consisting of lead selenide, lead telluride, bismuth selenide, and bismuth telluride.

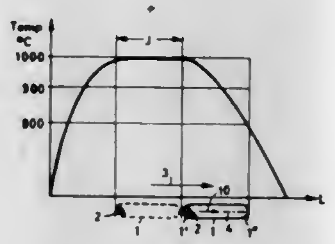
3,306,702
REMOVAL OF METAL SALT CONTAMINANTS FROM ACIDIC AQUEOUS LIQUIDS

Karsten Odland, La Grange, and Reed S. Robertson, Glen Ellyn, Ill., assignors to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed June 18, 1962, Ser. No. 202,991
5 Claims. (Cl. 23—165)

1. In a process for the separation of dissolved salts selected from the group consisting of iron and aluminum salts from solutions of strong acids selected from the group consisting of sulfuric and phosphoric acids by sequentially contacting said solutions with a strong base ion exchange resin converted to the phosphate form when phosphoric acid is to be purified and the sulfate form when sulfuric acid is to be purified, and then with water to regenerate said resin and provide at least one salt-rich, acid-lean fraction, and at least one acid-rich, salt-lean fraction, said salts being characterized as tending to form insoluble precipitates when subjected to non-acidic media, the improvement which comprises contacting said strong base anion exchange resin with the solutions in the presence of a complexing agent selected from the group consisting of hydroxy carboxylic acid complexing agents and condensed phosphates.

3,306,703
METHOD FOR THE PRODUCTION OF SEMICONDUCTOR DENDRITES

Hansjürgen Dersin, Ottobrunn, near Munich, and Erhard Sirtl, Munich, Germany, assignors to Siemens & Halske Aktiengesellschaft, Berlin, Germany, a German corporation
Filed Aug. 13 1962, Ser. No. 216,501
Claims priority, application Germany, Aug. 14, 1961, S 75,288
3 Claims. (Cl. 23—204)



1. A method of producing a gallium arsenide dendrite which comprises producing an equilibrium reaction gas mixture from gallium arsenide and iodine over a solid supply of gallium arsenide at a temperature above 1000° C., within a reaction vessel, by placing the reaction vessel within an isothermal furnace area, thereafter rapidly and intensely cooling one end of the reaction vessel at least 100° C. by displacing the reaction vessel to an area with a steep temperature gradient and maintaining said one end at this temperature while maintaining the solid supply within the reaction vessel at the equilibrium temperature.

3,306,704
MANUFACTURE OF DIBORANE AND RELATED BORON-CONTAINING SUBSTANCES

Ramsey G. Campbell, Berkeley, and Loren J. Hov, Richmond, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 14, 1958, Ser. No. 728,492
9 Claims. (Cl. 23—204)

1. A process for the production of diborane comprising: passing a gaseous stream containing feed hydrogen, recycle hydrogen, hydrogen chloride and boron trichloride into a reaction zone maintained at a temperature between about 700° C. and 1500° C.; passing a source of boron values selected from the class consisting of elemental boron, boron carbide, unsubstituted boron hydrides with a hydrogen-to-boron ratio of less than 3:1 and mixtures thereof into said zone; withdrawing a mixture of gases and vapors therefrom; disproportionating the contained boron-hydrogen bonded chlorinated boranes in said mixture to produce diborane; separating and recovering said diborane as product; recycling the remaining hydrogen, hydrogen chloride and boron trichloride; and adding fresh feed hydrogen to said recycle.

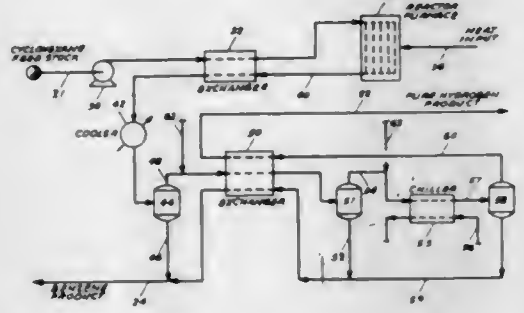
3,306,705
PROCESS FOR MAKING SILICON CARBIDE

Günter Leineweber and Walter Neugebauer, Constance, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Germany
No Drawing. Filed Sept. 6, 1962, Ser. No. 221,861
Claims priority, application Germany, Sept. 8, 1961, D 36,989
12 Claims. (Cl. 23—208)

1. A process for the production of finely divided silicon carbide which comprises reacting an intimate turbulent mixture of a vapor phase silicon oxide and a vapor phase carbon compound selected from the group consisting of hydrocarbons and carbon compounds containing only atoms of carbon, hydrogen and oxygen wherein the ratio of carbon to oxygen atoms is at least 1:1.

3,306,706
PROCESS FOR PRODUCING HYDROGEN AND HYDROGEN CARRIER THEREFOR

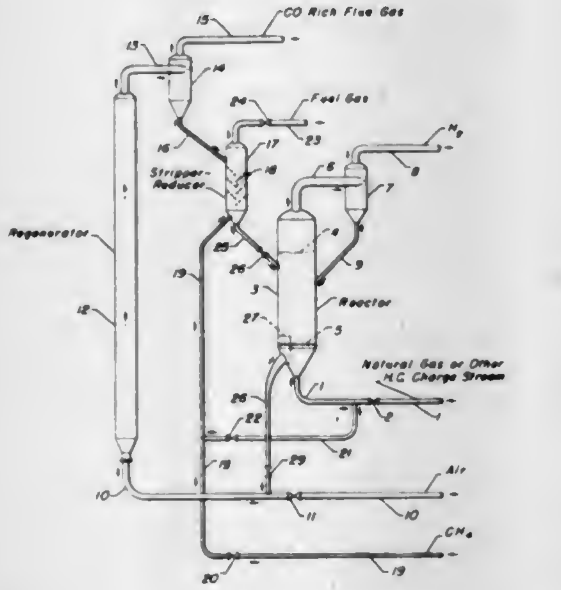
Seymour C. Schuman, Princeton, N.J., assignor to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed Oct. 17, 1962, Ser. No. 231,247
8 Claims. (Cl. 23—212)



1. The process of dehydrogenation of cyclohexane to produce benzene and hydrogen which comprises contacting the cyclohexane with a suitable catalyst at substantially atmospheric pressure and below 1000° F. to release hydrogen, cooling and condensing the effluent to produce benzene and liquefiable constituents as a liquefied product and relatively pure hydrogen as a second product and returning the liquefied product to a rehydrogenation step, said cooling being accomplished to a temperature in the order of 0° F. to condense in the order of 97% of the benzene and produce hydrogen of about 99% purity.

3,306,707
HYDROGEN PRODUCING SYSTEM WITH HYDROCARBON STRIPPING OF REGENERATED CATALYST

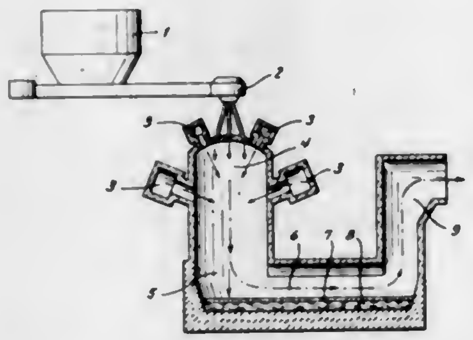
Leslie C. Hardison, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed July 1, 1963, Ser. No. 291,610
2 Claims. (Cl. 23—212)



1. In a hydrogen producing system wherein a hydrocarbon charge stream is catalytically decomposed in a reaction zone to hydrogen and carbon in the presence of heated subdivided catalyst particles and resulting carbonized catalyst particles are passed from the reaction zone to a regeneration zone and contacted therein with an oxygen containing stream to provide for the burning of the carbon from the particles and the reheating thereof, the improved method of operation to prevent contamination of the hydrogen product stream and to provide a high yield which comprises, passing the heated and reduced carbon content catalyst particles from the regeneration zone to a stripping zone and therein contacting them with a low molecular weight hydrocarbon stream to effect the stripping of entrained carbon oxides and nitrogen therefrom, withdrawing the stripped carbon oxides and nitrogen from the process to preclude transfer thereof to the reaction zone, and introducing the resulting stripped, heated and reduced catalyst particles into the reaction zone for the high temperature decomposition of the hydrocarbon charge stream to hydrogen with a minimum of contamination.

3,306,708
METHOD FOR OBTAINING ELEMENTAL SULPHUR FROM PYRITE OR PYRITE CONCENTRATES

Petri Baldur Bryk, I. Kalvopuisto 3, and Jorma Bruno Honkasalo, Pohjoiskaari 39, both of Helsinki, Finland
Filed Feb. 10, 1965, Ser. No. 431,595
Claims priority, application Finland, Oct. 1, 1959, 1,584/59
13 Claims. (Cl. 23—224)



1. The method of obtaining elemental sulphur and molten iron sulfide from pyrite, FeS_2, which comprises finely dividing said pyrite to form gas suspendable particles, directing a stream of substantially non-oxidizing gas containing at most only traces of SO_2 and O_2 heated to a temperature markedly above 1200° C. downwardly in a confined path in a reaction chamber, feeding said thus formed particles of finely divided pyrite into said stream of heated substantially non-oxidizing gas so as to form a downwardly flowing suspension of said finely divided pyrite in said gas, whereby the particles are heated by the gas and decompose under non-oxidizing conditions into FeS and volatilized elemental S, separating the volatilized elemental sulphur from the thus produced FeS, maintaining the temperature of the gas at least slightly above the melting point of FeS throughout said downward path, including the lower end thereof, and collecting the thus produced FeS in molten form as a matte at the lower end of said downward path of the gas in the reaction chamber.

3,306,709
APPARATUS FOR THE PURIFICATION AND TREATMENT OF FEED WATER OR OTHER LIQUIDS

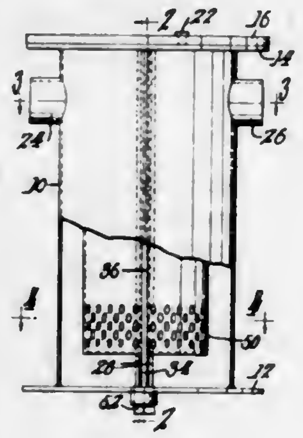
Herbert J. Atkinson, ℅ Sudbury Laboratory, Sudbury, Mass. 01776
Filed Apr. 13, 1965, Ser. No. 447,801
1 Claim. (Cl. 23—272)

Liquid treatment apparatus comprising a vertical cylindrical container with intake and outlet passages to admit and remove liquids at separated points in the upper part of the apparatus,

an inner generally upright basket spaced from the interior surface of the container and extending to the top of said container, said basket having perforations in the bottom and lower portion only thereof,

a vertical baffle extending transversely through said basket, said baffle being wider than the basket providing a pair of diametrically disposed vertical longitudinal edge portions for the baffle, said baffle extending below the bottom of the basket to the bottom of the container thereby spacing the basket from the bottom of the container and forming a waste storage area at the bottom of the container, the baffle dividing the basket into two compartments, said baffle being imperforate except for a cut-out portion near the top of said baffle providing liquid communication between the two compartments formed between the baffle and basket,

two pairs of fixed vertical guides attached on the interior surface of the container providing two vertical recesses arranged at opposite sides of said container between the intake and outlet passages, said vertical recesses being adapted to slidably receive the edge portions of said baffle, the pair of guides providing one of said recesses extending from the bottom to the top edge of said container, and the pair of guides providing the opposite recess extending from the bottom and terminating short of the top edge thereby providing an overflow by-pass,

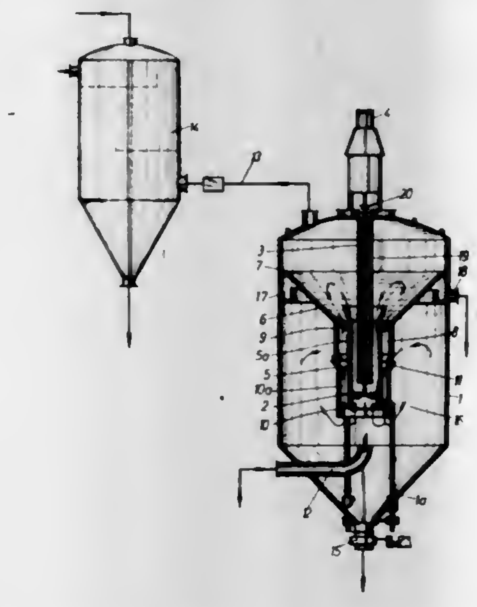


the basket and baffle forming inlet and outlet chambers between the container and the basket, said inlet chamber being in communication with the inlet passage and said outlet chamber being in communication with the outlet passage, the performations in the lower portion of the basket on the inlet side of the baffle forming liquid flow apertures for the passage of liquid from the inlet chamber into the adjacent compartment formed between the basket and the baffle, the perforations in the lower portion of the basket on the outlet side of the baffle forming liquid flow apertures for the passage of liquid from the compartment formed between the basket and baffle on the outlet side and the outlet chamber.

3,306,710
APPARATUS FOR CRYSTALLIZING SALTS AND SALT SOLUTIONS

Theodor Messing, Mulheim-Speldorf, Germany, assignor to Standard-Messo Duisburg Gesellschaft fur Chemietechnik m.b.H. & Co., Duisburg, Germany
Filed Nov. 2, 1964, Ser. No. 407,987
Claims priority, application Germany, Oct. 31, 1963, St 21,261
6 Claims. (Cl. 23—273)

1. An apparatus for producing crystals from salt solution comprising a container means, a rotatable substantially vertical shaft in said container means, funnel shaped wall means connected to and extending downwardly from the sides of said container thereby subdividing said container means into an upper chamber and a lower chamber, said wall means being provided with a circular opening at its bottom concentric with said shaft, said lower chamber being provided with a solution inlet for admitting solution to be crystallized, first tubular means surrounding said shaft in spaced relation thereto and forming a first annular passage establishing liquid communication between said upper and lower chambers, blade means rotatably connected to said shaft and located within said first annular passage for drawing solution from said lower chamber and conveying the solution through the first annular passage to said upper chamber, second tubular means arranged within said lower chamber and surrounding said first tubular means in spaced concentric relation thereto, said second tubular means being connected to said wall means at the circular opening at the bottom of said wall means and defining with said first tubular means a second annular passage in liquid communication between said upper and lower chambers, said second tubular means being provided with an inwardly converging bottom end for directing downward flowing solution in the second annular passage inwardly toward said first tubular means, third tubular means located directly below said second tubular means and concentric with said first tubular means, said third tubular means being provided with an outwardly flaring top end spaced slightly below said inwardly flaring end of said second tubular means thereby providing a suction gap establishing communication between said lower chamber and said second annular passage.

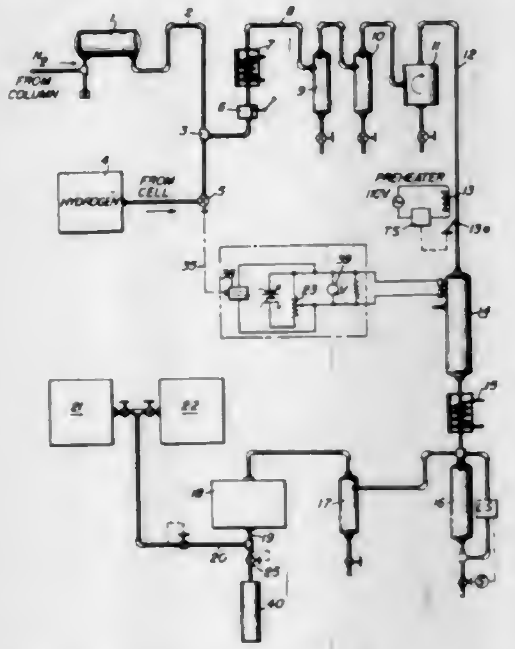


3,306,711
APPARATUS FOR THE PURIFICATION OF GASES

Alvin W. Angerhofer, Edison, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Original application Feb. 27, 1961, Ser. No. 91,950, now Patent No. 3,240,554, dated Mar. 15, 1966. Divided and this application Apr. 30, 1965, Ser. No. 461,223
3 Claims. (Cl. 23—289)

1. An apparatus for removing oxygen impurity from a stream of relatively inert crude gas flowing in a conduit system which comprises in combination: valve means connected to said conduit system for admitting a quantity of hydrogen to said stream of crude gas, a catalytic chamber having an inlet and an outlet and including a bed of subdivided catalytic material adapted to adsorb free hydrogen onto its surface and to induce an exothermic reaction between oxygen and hydrogen to form water, said chamber connected to said conduit system to receive a substantially unidirectional flow of said stream through said bed, a control zone in said bed wherein the maximum temperature area generated by said exothermic reaction is in a substantially central position of said bed

whenever the hydrogen adsorbed in said zone substantially equals the stoichiometric requirement for converting all of the oxygen impurity in said zone to water, thermoelectric sensing means disposed at opposite ends in said control zone in substantial symmetry to said central position in said direction of flow, and means comprising a servo system connected to said thermoelectric sensing means and responsive to assume a rest position whenever said maximum temperature area is substantially coincident with said central position and to respond to variation of a temperature differential created between said thermoelectric sensing means by displacement of said maximum temperature area in the direction of flow or in an opposite direction, said response actuating said valve means to decrease the quantity of hydrogen admitted to said stream whenever the maximum temperature area moves substantially toward the inlet and to increase the quantity of hydrogen added to said stream whenever the maximum temperature area moves substantially toward the outlet.



3,306,712
EXTRACTION OF LITHIUM HALIDES FROM CALCIUM-CONTAINING BRINES IN THE PRESENCE OF UREA AND ALCOHOL-KETONE

Robert D. Goodenough and Remigius A. Gaska, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 30, 1963, Ser. No. 334,604

5 Claims. (Cl. 23—312)

1. The process of recovering lithium values from an aqueous brine containing lithium salts, selected from the group consisting of lithium chloride, lithium bromide, lithium iodide and mixtures thereof, and other salts dissolved therein including calcium salts, which comprises:

(a) admixing with said brine an organic solvent selected from the group consisting of aliphatic monoalcohols containing from 3 to 6 carbon atoms per molecule and aliphatic ketones containing from 4 to 7 carbon atoms per molecule in a ratio of the organic solvent to the brine within the range of from about 0.5 to about 10 by volume in the presence of urea, said urea being provided in a mole ratio with calcium salts present in the brine within the range of from about 0.5 to about 2.5 and being between from about 10 and about 40 weight percent of the weight of the brine;

(b) agitating the mixture at a temperature within the range of from about 0° to about 70° C. for a period of time sufficient such that the organic solvent extracts a substantial portion of the lithium values from the brine;

(c) stopping said agitation and separating said mixture into a lighter organic phase containing a substantial portion of the lithium values and a heavier aqueous phase containing a substantial portion of the calcium values; and

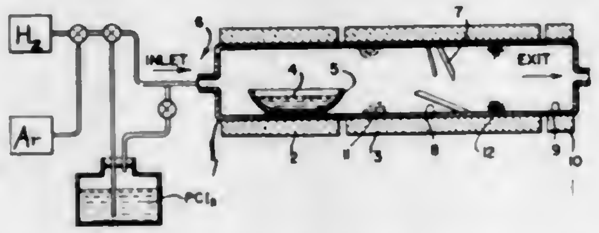
(d) separating the organic phase from the aqueous phase.

3,306,713
SEMICONDUCTOR PROCESS AND PRODUCTS PRODUCED THEREBY

Henry R. Barkemeyer, North Plainfield, William J. McAleer, Madison Township, and Peter Immanuel Pollak, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

Filed Sept. 18, 1962, Ser. No. 224,486

6 Claims. (Cl. 23—315)



1. The method of forming crystal blades of gallium phosphide in a continuous manner which comprises charging an open elongated reaction chamber with about 2 grams of elemental gallium, heating said gallium to a temperature of about 1025° C., contacting said gallium with phosphorous trichloride in a helium gas stream formed by passing helium gas over liquid phosphorous trichloride maintained at 0° C. at a flow rate of 170 ml./min., thereby to effect formation of gallium phosphide within the cooler regions of the tube at about 850° C., and removing the side products of the formation of gallium phosphide by heating the exit region of the chamber to about 1000° C.

3,306,714
TREATMENT OF AQUEOUS MEDIA TO REMOVE SOLUBILIZED HUMATES IN THE PRESENCE OR ABSENCE OF SOLUBILIZED SILICA

Mayer B. Goren, Golden, Colo., assignor to Kerr-McGee Oil Industries, Inc., a corporation of Delaware

No Drawing. Filed Feb. 20, 1964, Ser. No. 346,090

20 Claims. (Cl. 23—321)

1. A process for treating an acidic aqueous medium containing an impurity consisting essentially of solubilized humates dissolved therein comprising precipitating the humates by dispersing in the acidic aqueous medium at least one substance selected from the group consisting of water soluble organic compounds having a molecular weight of at least 4,000 and containing a plurality of oxyalkylene groups of the formula $(—O—R)_n$, wherein R is an alkylene radical containing 2 through 8 carbon atoms and *n* is an integer having a value of at least 2 water dispersible collagen derived colloidal proteinaceous substances selected from the group consisting of glue and gelatin, water dispersible poly (N-vinyl pyrrolidone) having a molecular weight of at least 4,000, and mixtures thereof.

16. In a process for the recovery of dissolved metal values by liquid-liquid solvent extraction with a water immiscible liquid organic solvent extractant from an acidic aqueous medium containing initially an impurity consisting essentially of solubilized humates dissolved therein, the organic solvent extractant and aqueous medium being intermixed and the solubilized humates normally retarding separation of the organic solvent extractant and aqueous phases, the improvement comprising precipitating the humates by dispersing in the acidic aqueous medium at least one substance selected from the group consisting of water soluble organic compounds

having a molecular weight of at least 4,000 and containing a plurality of oxyalkylene groups, of the formula $(—O—R—)_n$, wherein R is an alkylene radical containing 2 through 8 carbon atoms and *n* is an integer having a value of at least 2, water dispersible collagen derived colloidal proteinaceous substances selected from the group consisting of glue and gelatin, water dispersible poly (N-vinyl pyrrolidone) having a molecular weight of at least 4,000, and mixtures thereof, and thereafter recovering the metal values from the aqueous medium by liquid-liquid solvent extraction with the water immiscible liquid organic solvent extractant.

3,306,715
FRICTION MATERIAL COMPOSITION

Josef Schlömer, Kuchen, and Günter Gerloff, Reinbek, Germany, assignors to Jurid Werke G.m.b.H., Reinbek, Germany

Filed July 7, 1965, Ser. No. 470,178

Claims priority, application Germany, July 9, 1964, J 26,180

4 Claims. (Cl. 29—182.5)

1. A composition adapted for the preparation of a sintered friction material consisting essentially of:

	Percent by weight
Iron power	40–60
Copper powder	25–35
Metal sulfide	1–5
Aluminum silicate	3–10
Metal carbide	1–5
Dry lubricants	5–10
Soldering metal melting between 100° and 500° C.	2–6

3,306,716
ALUMINUM CLAD ELECTRIC CONDUCTOR WIRE

Orville E. Adler, Niles, Mich., assignor to National-Standard Company, a corporation of Delaware

No Drawing. Continuation of application Ser. No. 19,488, Apr. 4, 1960. This application Feb. 14, 1963, Ser. No. 258,635

6 Claims. (Cl. 29—196.2)

1. A composite wire comprising: a ferrous metal core of unbroken spool length and of predetermined tensile strength; a thin, discrete, effectively continuous coating in direct and uninterrupted contact with said core, said coating being of a metal selected from the group consisting of copper and nickel; and a smooth relatively thick, substantially concentric discrete sheath of high electrical conductivity aluminum firmly bonded in direct and uninterrupted contact with said entire coating, said entire sheath being of substantially uniform composition throughout, and being effectively free of contaminants from said core and effectively free of contaminants from said coating, said sheath having an electrical conductivity in the composite wire which is substantially equal to that of the sheath material before bonding, and said composite wire being capable of being drawn in a conventional manner without damaging the bond between the core and the coating and without damaging the bond between the coating and the sheath.

3,306,717
FILLER METAL FOR WELDING ALUMINUM-BASED ALLOYS

Nils Erik Lindstrand and Per-Olof Aronson, Finspang, Sweden, assignors to Aktiebolaget Svenska Metallverken, Vasteras, Sweden, a joint-stock company limited of Sweden

No Drawing. Filed Feb. 14, 1964, Ser. No. 344,837

8 Claims. (Cl. 29—197)

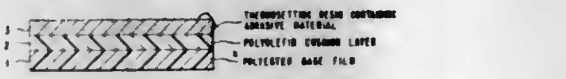
7. A filler metal for welding aluminum base alloys, said filler metal consisting essentially of 2–8% Mg, Si in effective amount up to 8%, at least one element in effective amount selected from the group consisting of Cu, Mn, Cr, Zr, B, Ti, V and Li in a combined quantity of up to 5%, the remainder being Al and the impurities normally present therein, said filler metal having a coat of Ag in such amount that on melting the composite will have a homogeneous silver content between 0.10 and 10% Ag.

3,306,718
ABRASIVE PRODUCT

Aurelius Franklin Chapin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Mar. 16, 1964, Ser. No. 352,057

6 Claims. (Cl. 51—297)



1. An abrasive product comprising: a base layer of a polymeric linear terephthalic acid ester film; an intermediate coating on said surface of a polyolefin cushion layer having a thickness of one to three mils; and a thin layer of a thermosetting resin coated on said intermediate coating, said resin containing an abrasive material.

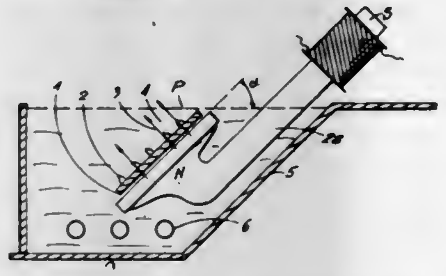
3,306,719
METHOD FOR PRODUCING RUGOUS AND ABRASIVE SURFACES AND PRODUCT THEREOF

Bahram Fringhian, 36 Blvd. Suchet, Paris, France

Filed Nov. 7, 1961, Ser. No. 150,684

Claims priority, application France, Nov. 8, 1960, 843,351

11 Claims. (Cl. 51—309)



1. A method for preparing a rugous surface, comprising a plurality of discrete ferromagnetic weldable particles of hard metal selected from the group consisting of cast hematite, tungsten-carbide, molybdenum carbide and cobalt coated diamond having sharp, and contingently cutting, edges and welded metallurgically to a steel plate by means of a metal in a permanently fluid state of melt selected from the group consisting of pure metals and alloys of tin, lead, zinc, copper and silver having melting points between 180 and 1100° C., which method comprises the successive steps of:

submitting said steel plate both to flooding by the bath of metal in a permanently fluid state of melt, and to the magnetic field of at least one magnet which firmly and provisionally holds said ferromagnetic particles spread on the portions of said plate to be made rugous and which orientates said spread particles substantially perpendicularly to said plate with respect to their major dimension, the temperature of said bath being lower than the Curie-point of the metal of said particles and greater than 180° C.,

clearing said thus prepared support from said bath of fluid metal,

and, maintaining the field of said magnet until said orientated metal particles are permanetly fixed to said plate, to obtain a rugous surface with the required amount of alloy metal at the point of contact between each particle and said plate.

11. Rugous, anti-slip and contingently abrasive, articles coated with metal particles selected from the group consisting of cast hematite, tungsten-carbide, molybdenum carbide and cobalt coated diamond the orientation of which is substantially perpendicular to the coated portions of said articles, with respect to their major dimension, each metal particle being integral with said coated portions due to the amount of metal located at the point of contact between the lower end of the metal particle and a minute region of the coated portion, said articles being formed in accordance with the process of claim **1**.

3,306,720

METHOD FOR THE PRODUCTION OF DIAMOND COMPACT ABRASIVES

Kenneth A. Darrow, Sprakers, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed May 28, 1964, Ser. No. 371,104

3 Claims. (Cl. 51—309)

2. A method of bonding together diamond particles by the use of a metallic bonding medium to provide a tough, coherent high strength diamond compact abrasive which comprises:

(a) heating a mixture of diamond crystals and bonding medium to an operating temperature in the range of from about 750° C. to about 800° C.,
  (1) said metallic bonding medium having a melting point substantially in excess of the operating temperature but being flowable at the operating temperature under the application of pressure in excess of about 10 kilobars,
(b) applying a pressure of over about 10 kilobars to said mixture after operating temperature has been reached to urge said diamond crystals into close contact with each other and to force said metallic bonding medium to flow over the surfaces of said diamond crystals and conform to the shape of the diamond surfaces,
(c) ceasing the heating when the operating pressure has been reached and allowing said mixture to cool to ambient temperature,
(d) reducing the pressure to ambient pressure, and
(e) removing the conglomerate of diamond and metallic bonding medium,
  (1) said conglomerate containing a maximum of about 50 percent diamond by volume.

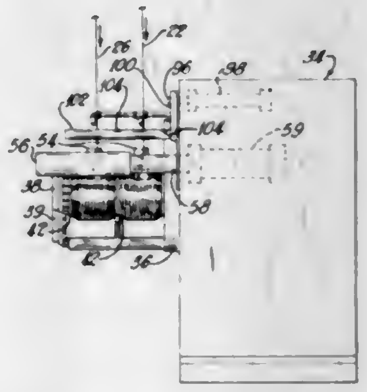
3,306,721

APPARATUS FOR COLLECTING FILAMENTARY MATERIALS

Frederick E. Rollins and Clarence L. Lowe, Jr., Aikens, S.C., assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Continuation of application Ser. No. 347,550, Feb. 26, 1964. This application May 12, 1966, Ser. No. 550,884

7 Claims. (Cl. 65—11)



1. Apparatus of the character disclosed, in combination, a feeder containing heat-softened glass, the floor of said feeder having orifices through which flow streams of glass, a winding instrumentality including a winding collet mounting a collector tube, motive means for rotating the collet and tube to wind a strand of filaments attenuated from the streams into a package on the tube, means disposed between the feeder and the winding collet engaging and gathering the filaments into a strand, a rotatable and reciprocable traverse oscillator engageable with the strand at a region spaced from the collector tube for traversing the strand to distribute the strand lengthwise of the package with individual wraps of strand in overlapping relation, means for rotating and reciprocating said oscillator, said traverse oscillator comprising a member having a circumferential strand guiding recess, the median plane of the recess being angularly disposed relative to the axis of rotation of the member, said member having noncylindrical peripheral surface areas converging at a zone of least diameter intermediate the ends of the member and engageable with the strand for directing the strand into the strand guiding recess.

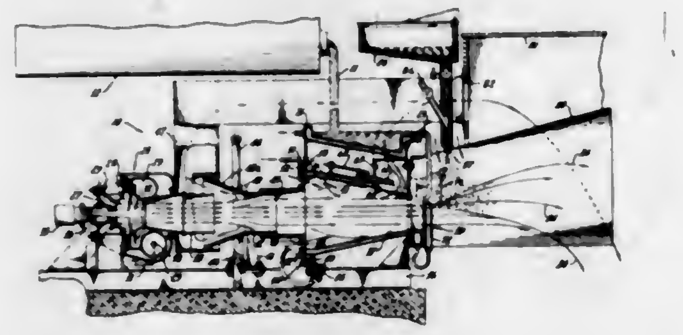
3,306,722

APPARATUS FOR PRECISION FIBERIZATION

James K. Duncan, Park Ridge, Ill., assignor to Elmer K. Zitzewitz, Robert Gurley, Edward W. O'Shaughnessy, Timothy G. Lowry, and James K. Duncan, co-partners doing business as Duncan Research

Filed Nov. 16, 1964, Ser. No. 413,391

12 Claims. (Cl. 65—12)



8. An apparatus for making filaments from a stream of plastic material comprising, in combination, a blowmember having an orifice, a spillway for directing the stream across said orifice, means defining a chamber behind said blowmember, a gas turbine prior to said chamber for delivering hot burned gases to said chamber, means for adjusting the temperature of said gases at said blowmember to a point substantially equal to the incipient solidification temperature of said material, and means for adjusting the discharge velocity of said gases from such orifice to smoothly strip substantially all of said stream into continuous filaments.

3,306,723

APPARATUS FOR THE MOULDING OF GLASS ARTICLES

William Edward Forber, Rhyl, Wales, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain

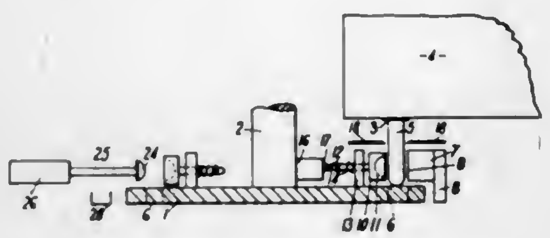
Filed June 28, 1963, Ser. No. 291,402

Claims priority, application Great Britain, July 11, 1962, 26,704/62

3 Claims. (Cl. 65—184)

1. Apparatus for moulding glass articles, comprising means for forming a descending body of molten glass, a fixed anvil mounted beneath and to one side of the forming means, a rotatable table mounted beneath and on the other side of said forming means, a plurality of displaceable moulds mounted on said table, means for

rotating the table step-wise through a number of stations including a moulding station at which the moulds are successively located opposite the anvil and a take-out station at which moulded articles are removed from the moulds, actuating means operable to thrust each mould when it is at the moulding station towards the anvil whereby the mould intercepts horizontally a predetermined volume of said descending body of molten glass and imprisons that volume against the anvil and shears mounted above the anvil and operable to sever the intercepted glass from the descending body, said actuating means being further operable to withdraw the mould from the anvil when the moulded glass has stiffened sufficiently to hold its shape.



3,306,724

COMPOSITION AND METHOD FOR CONTROLLING AQUATIC PLANTS CONTAINING METHYL POLYCHLOROCYCLOHEXADIENES

Eugene P. Di Bella, Rochelle Park, and Adolph J. Deinet, Woodcliff Lake, N.J., assignors, by mesne assignments, to Tenneco Chemicals, Inc., a corporation of Delaware

No Drawing. Filed May 14, 1963, Ser. No. 280,427

7 Claims. (Cl. 71—2.3)

1. A method for controlling the growth of aquatic plants which comprises introducing into water in contact with aquatic plants a phytotoxic concentration of a methyl polychlorocyclohexadiene selected from the group consisting of methyl trichlorocyclohexadiene, methyl tetrachlorocyclohexadiene, methyl pentachlorocyclohexadiene and mixtures thereof.

3,306,725

METHOD FOR CONTROLLING ANNUAL WEEDS IN TOMATO FIELDS

Enrico Knüsli, Riehen, and Hans Gysin, Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,581

Claims priority, application Switzerland, Nov. 5, 1958, 65,809, 65,811, 65,814; Dec. 29, 1958, 67,783

1 Claim. (Cl. 71—2.5)

A method for controlling annual weeds in tomato fields which comprises applying to each square meter of a tomato-planted area to be controlled, at least about 0.1 gram of up to about 1 gram of 2-chloro-4-isopropylamino-6-(γ-methoxy-propylamino)-s-triazine, as exclusive herbicidal agent, thereby killing the major portion of the annual weeds in said area while leaving tomato plants therein substantially undamaged.

3,306,726

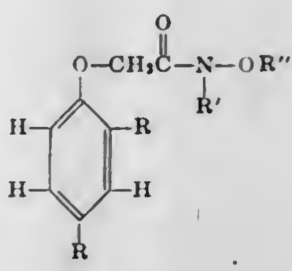
METHOD FOR THE CONTROL OF WEEDS

Jordan P. Berliner and Sidney B. Richter, both of Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Illinois

No Drawing. Filed Dec. 20, 1965, Ser. No. 515,167

9 Claims. (Cl. 71—2.6)

1. The method for the control of weeds which comprises applying to the locus of said weeds a herbicidal composition comprising an inert carrier and as the essential active ingredient, in a quantity which is herbicidally toxic to said weeds, a compound of the formula



wherein R'' is selected from the group consisting of unsubstituted lower alkyl and unsubstituted lower alkenyl, each R and R' are selected from the group consisting of hydrogen, unsubstituted lower alkyl and unsubstituted lower alkenyl provided that a maximum of one of the R substituents is hydrogen.

3,306,727

WEED CONTROL METHOD AND COMPOSITIONS THEREFOR

Ralph P. Neighbors, Olathe, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Original application Nov. 13, 1964, Ser. No. 411,147. Divided and this application Nov. 19, 1965, Ser. No. 515,801

6 Claims. (Cl. 71—2.6)

1. The method of controlling plant growth which comprises applying to the locus of the plant a herbicidal amount of a compound selected from the group:

3',4'-dichlorocyclopropanecarboxanilide
4'-cyanocyclopropanecarboxanilide
3'-methoxycyclopropanecarboxanilide
N-(2-thiazolyl)cyclopropanecarboxamide
3',4'-dichlorocyclopropanethiocarboxanilide
3',4'-dichloro-N-hydroxycyclopropanecarboxanilide
N-(4-chloro-2-butynyl)cyclopropanecarboxamide

3,306,728

SLOW RELEASE FERTILIZER COMPRISING UREA AND PETROLEUM WAXES, AND METHOD OF MAKING

Robert H. Campbell, Brookhaven, Del., and Herbert L. Johnson, Media, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Apr. 17, 1964, Ser. No. 360,728

10 Claims. (Cl. 71—28)

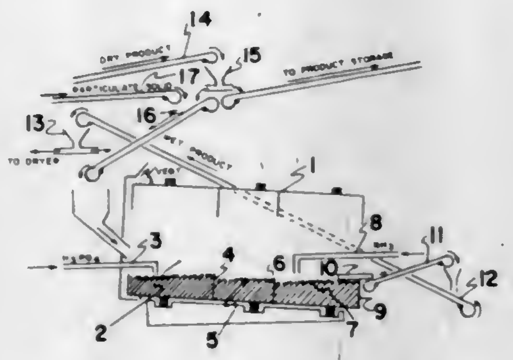
1. Method of forming a stable dispersion of solid urea in molten paraffin wax from which dispersion a slow release fertilizer can be prepared, said dispersion being stable in that the urea and paraffin wax components thereof do not react to form an adduct, which comprises mixing solid urea, molten paraffin wax, and a stabilizing amount in the range of 0.1–100% by weight of said paraffin wax, of molten microcrystalline wax.

6. A particulate slow release urea-wax fertilizer of improved storage stability which comprises a dispersion of solid urea in solid wax, substantially all the particles of said solid urea being surrounded by and encased in said solid wax, said solid wax being a substantially homogeneous mixture of (I) a paraffin wax having a melting point in the range of 110° to 140° F. and (II) a wax selected from the group consisting of (a) microcrystalline wax, and (b) paraffin wax having a melting point of at least 145° F., the amount of Wax II being 10–50% of the total amount of Wax I and Wax II.

3,306,729

PROCESS FOR PRODUCTION OF PARTICULATE FERTILIZER HAVING A SHELL OF AN AMMONIUM SALT OF PHOSPHORIC ACID

Wilbur A. McPherson, Baxter Springs, Kans., and Robert W. Hamilton, Joplin, Mo., assignors to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 1, 1964, Ser. No. 379,662
2 Claims. (Cl. 71—41)



1. A process for manufacturing nitrogen and phosphorus containing mixed fertilizer comprising the steps carried out in the following sequence:

(a) Wetting with phosphoric acid containing from about 10 to 30 percent water a moving bed of discrete solid particles of controlled size within the range of about 6 to 24 mesh (U.S. Standard) of at least one water-soluble fertilizer composition with the provision that one-fourth to three-fourths of the particles in the moving bed are recycled from steps (c) and (d) and that particles of differing chemical composition possess substantially identical particle size distribution;

(b) Mixing the discrete solid particles after wetting with acid in step (a) to yield a free-flowing bed of acid-wet particles;

(c) Reacting ammonia with the free-flowing bed of acid wet particles of step (b) at a temperature below about 200° F. (93° C.) while subjecting said particles to a rolling motion to yield a free-flowing bed of particles of substantially spherical shape;

(d) Drying the particles of substantially spherical shape produced in step (c) to yield a uniform, free-flowing, storage stable fertilizer composition consisting predominantly of particles possessing a core of water-soluble fertilizer composition and an intimately bonded shell of an ammonium salt of phosphoric acid; and

(e) Recycling to step (a) a portion of the particles produced by steps (c) and (d).

3,306,730

METHOD OF PREPARING A NON-CAKING SLOW RELEASE FERTILIZER

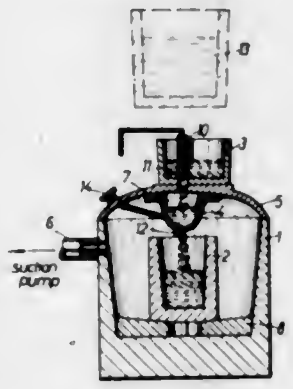
Earl W. Malmberg, Wilmington, Del., and Wesley R. Cherry, Prospect Park, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed May 8, 1964, Ser. No. 366,162
6 Claims. (Cl. 71—64)

1. Method of rendering discrete solid fertilizer particles non-caking, said fertilizer particles comprising a dispersion of a solid fertilizer in a solid wax phase, said fertilizer particles containing 50–75% solid fertilizer and 25–50% solid wax phase, the percentages being by weight of said fertilizer particles, said solid wax phase containing at least 50% wax by weight of said wax phase, which comprises tumbling a mixture of said fertilizer particles and an inert finely divided solid, softening the wax phase of said fertilizer particles by conducting said tumbling at an elevated temperature below the melting point of said wax phase, whereby particles of said inert solid are embedded in the wax phase at the surface of said fertilizer particles, continuing said tumbling until essentially the entire surface of said fertilizer particles is covered by particles of said inert solid embedded in the wax phase thereof, whereby non-caking fertilizer particles are obtained, said particles containing a core of solid fertilizer dispersed in a solid wax phase, said core being overlaid with a thin continuous adherent film of said inert finely divided solid.

3,306,731

METHOD OF DEGASSING STEEL

Theodor Messing, Mulheim (Ruhr), Speldorf, Germany, assignor to Standard-Messo Gesellschaft für Chemietechnik m.b.H. & Co., Duisburg, Germany
Filed Nov. 18, 1964, Ser. No. 412,206
Claims priority, application Germany, Nov. 20, 1963, St 21,343
2 Claims. (Cl. 75—49)



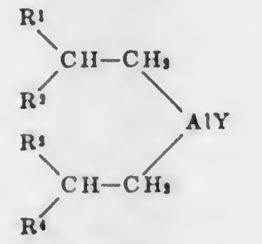
1. A method of stepwise degasifying molten metal, especially molten steel, by pouring the metal to be degasified successively into a first chamber for pre-degasification in a vacuum and from said first chamber into a second chamber for post-degasification in a vacuum, which includes the steps of: introducing the molten metal into said first chamber so that the stream of metal will be torn apart into droplets while maintaining the vacuum in said first chamber lower than that in said second chamber and within desired limits by introducing a gas from the outside into said first chamber, and subsequently passing the thus pre-degasified metal in a continuous and coherent stream into said second chamber for post-degasification at the higher vacuum prevailing therein.

3,306,732

PROCESS FOR PRODUCING ALUMINUM

Kiyoshi Toyoshima, Eiichi Ichiki, Hirosuke Ryu, and Yasuhiko Inoue, all of Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Jan. 20, 1964, Ser. No. 338,614
Claims priority, application Japan, Jan. 24, 1963, 38/3,427
4 Claims. (Cl. 75—68)

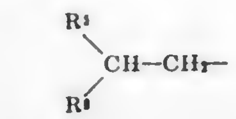
1. A process for producing aluminum which comprises heating an alkylaluminum compound of the general formula:



$$(R^1)(R^2)CH{-}CH_2{-}AlY{-}CH_2{-}CH(R^3)(R^4)$$

wherein R¹, R², R³ and R⁴ are respectively selected from the group consisting of alkyl radicals and hydrogen atom,

and Y is selected from the group consisting of hydrogen atom and



$$(R^5)(R^6)CH{-}CH_2{-}$$

radical, R⁵ and R⁶ being respectively selected from the group consisting of alkyl radicals and hydrogen atom, in a liquid phase in the presence of at least one member selected from the group consisting of the halides, oxyhalides, carboxylates, acetylacetonates and alkoxy compounds of metals of groups I–B, IV–A, V–A, VI–A, VII–A and VIII in the Mendeleev periodic table, in an amount of 2–0.0001 mole percent based upon the amount of the alkylaluminum compound, in a heating zone to a temperature at which said alkylaluminum compound is decomposed to give aluminum, olefin and hydrogen gas, and separating the resulting aluminum from the reaction mass in the heating zone.

3,306,733

URANIUM-MOLYBDENUM ALLOY CONTAINING SMALL AMOUNTS OF OTHER METALS

Pierre Blanchard, Jeanne Lehmann, and André Virot, Gif-sur-Yvette, France, assignors to Commissariat à l'Energie Atomique, Paris, France, a corporation of France
No Drawing. Filed July 15, 1965, Ser. No. 472,303
Claims priority, application France, July 21, 1964, 982,442
2 Claims. (Cl. 75—122.7)

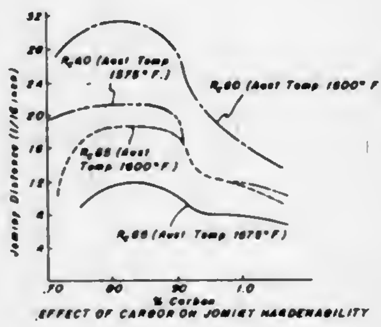
1. A uranium alloy containing 0.8 to 1.5% by weight of molybdenum, 0.02 to 0.08% by weight of aluminium, 0.02 to 0.08% by weight of a metal selected from the following elements: silicon, tin and chromium, the remainder being uranium.

2. A uranium alloy containing 0.8 to 1.5% by weight of molybdenum, 0.02 to 0.08% by weight of silicon, 0.02 to 0.08% by weight of a metal selected from the following elements: tin and chromium, the remainder being uranium.

3,306,734

LOW-ALLOY BEARING STEEL

Alaettin M. Aksoy, Camillus, and Peter Lillys, Liverpool, N.Y., and Frederick G. Jones, Jr., Pittsburgh, Pa., assignors to Crucible Steel Company of America, Pittsburgh, Pa., a corporation of New Jersey
Filed May 28, 1963, Ser. No. 283,747
2 Claims. (Cl. 75—126)

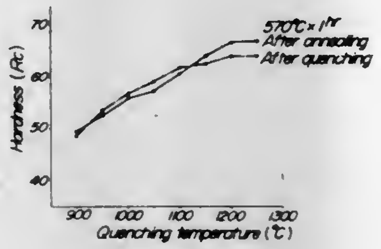


1. An ingot of bearing steel having good hardenability, resistance to tempering, hot-hardness retention, and dimensional stability, said steel consisting essentially of 0.78 to 0.90 percent carbon, 0.60 to 0.90 percent silicon, 0.20 to 0.60 percent manganese, 0.55 to 1.00 percent molybdenum, 0.60 to 1.60 percent chromium, balance iron.

3,306,735

HARDENABLE FORGED-STEEL ROLL MATERIAL

Tadashi Nemoto, Takahagi-shi, and Toshio Yaegashi, Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Aug. 25, 1964, Ser. No. 391,954
Claims priority, application Japan, Aug. 28, 1963, 38/45,231
2 Claims. (Cl. 75—126)



1. In a process of cold-rolling metals by means of a rolling mill having rolls which contact the metal, the improvement in said process comprising contacting said metals with said rolls, said rolls consisting essentially of 1.3 to 1.6% by weight of carbon, 4 to 6% by weight of chromium, 4 to 6% by weight of molybdenum, 4 to 6% by weight of tungsten, 3.5 to 6% by weight of vanadium, 3.5 to 6% by weight of cobalt, not more than 0.6% by weight of silicon, not more than 0.6% by weight of manganese, the balance being substantially iron and a small amount of impurities.

3,306,736

AUSTENITIC STAINLESS STEEL

Gene R. Rundell, Pittsburgh, Pa., assignor to Crucible Steel Company of America, Pittsburgh, Pa., a corporation of New Jersey
No Drawing. Filed Aug. 30, 1963, Ser. No. 305,873
1 Claim. (Cl. 75—128)

Completely and stably austenitic stainless steel exhibiting good weldability, as evidenced by a value of more than 3,000 in the G.E. hot crack test, in combination with high elevated-temperature creep strength, as evidenced by a 1000-hour 1100° F. rupture strength of over 34,000 p.s.i., said steel consisting essentially of about:

	Percent
Chromium	17.41
Nickel	9.23
Manganese	1.98
Carbon	0.05
Silicon	0.27
Nitrogen	0.075
Boron	0.003
Columbium	0.012

Balance iron and incidental impurities.

3,306,737

MAGNESIUM AND RARE EARTH METAL CONTAINING PREALLOY FOR THE TREATMENT OF IRON AND STEEL MELTS

Horst Mühlberger, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany, and Suddeutsche-Kalkstickstoff-Werke Aktiengesellschaft, Trostberg, Upper Bavaria, Germany
No Drawing. Filed Sept. 4, 1963, Ser. No. 306,628
Claims priority, application Germany, Sept. 20, 1962, M 54,273
1 Claim. (Cl. 75—134)

A prealloy adapted for the treatment of iron and steel melts essentially consisting of 30–32% of magnesium, 5–7% of iron, 3–4% of calcium, 9–10% of rare earth metals and the remainder silicon.

3,306,738
ALUMINIUM ALLOYS

George MacDonald Young, Montreal, Quebec, and David C. Sunnucks, Como, Quebec, Canada, assignors to Aluminium Laboratories Limited, Montreal, Quebec, Canada, a corporation of Canada
No Drawing. Filed Feb. 3, 1964, Ser. No. 342,285
Claims priority, application Great Britain, Feb. 5, 1963, 4,616/63
4 Claims. (Cl. 75—143)

1. An aluminium alloy consisting essentially of:
(a) silicon, about 10–17%;
(b) cobalt, about 0.01–5%;
(c) copper, about 0.5–5%;
(d) manganese, up to 1%;
(e) chromium, up to 1%;
(f) magnesium, up to 2%;
(g) nickel, up to 10%;
(h) aluminium and incidental impurities, the balance;
(i) said alloy being characterized by the primary silicon particles being below 50 microns in size.

3,306,739
TITANIUM ALLOYS

Evan William Evans, Hagley, and Peter Hall, Great Barr, England, assignors to Imperial Metal Industries (Kynoch) Limited, London, England, a corporation of Great Britain
No Drawing. Filed May 8, 1964, Ser. No. 366,138
Claims priority, application Great Britain, May 9, 1963, 18,407/63
3 Claims. (Cl. 75—175.5)

1. A beta titanium base alloy having an improved combination of weldability, rollability, good strength-to-weight ratio and a density of not more than 5.3 gms./cc. consisting essentially of 5–20 wt. percent vanadium, 16–30 wt. percent molybdenum and 2–6 wt. percent aluminum balance titanium apart from impurities.

3,306,740
HIGH-TEMPERATURE CORROSION-RESISTANT ALLOYS

Le Roy Wyman, Bethesda, Md., and John J. Park, Springfield, Va., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Nov. 23, 1964, Ser. No. 413,379
1 Claim. (Cl. 75—176)

A ternary alloy consisting essentially of about 60% Cr, about 40% Ni and an alloy element selected in an amount from the group consisting of:

3,306,741
FRICTION LININGS AND PROCESSES FOR THE PRODUCTION OF SUCH LININGS

Pierre Martin Joseph Lallemant, Port-Marly, France, assignor to Societe Hispano-Suiza Lallemant, Bois-Colombes, Seine, France
Filed June 21, 1965, Ser. No. 465,696
Claims priority, application France, Sept. 12, 1962, 909,295; July 31, 1963, 943,374
10 Claims. (Cl. 75—204)

1. A method of manufacturing a lining for brakes, clutches and the like, comprising the steps of:
(a) forming a mixture consisting essentially of 30% to 90% by weight boron carbide powder and a powder of at least one metal selected from the group consisting of cobalt, chromium and nickel,
(b) forming the mixture into the shape desired for the lining, and
(c) sintering said mixture at a temperature of at most 1250° C. in a non-oxidizing atmosphere adapted to prevent decomposition of boron carbide under the action of heat.

3,306,742
METHOD OF MAKING A MAGNETIC SHEET

Edmond Adams and Horace H. Helms, Jr., Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Aug. 31, 1964, Ser. No. 393,448
12 Claims. (Cl. 75—211)

1. The method of making a ternary magnetic alloy containing about 4–9% Al, 6–12% Si, and the remainder essentially Fe comprising the steps of
pulverizing into a powder a master alloy containing the total predetermined amounts of Al and Si desired in the final alloy and only 75% of the total predetermined amount of Fe desired in the final alloy,
adding Fe powder to the powdered master alloy in an amount which, when added to the amount of Fe present in the powdered master alloy, equals a predetermined amount of Fe desired in the final alloy, and thoroughly mixing said powders,
compacting or rolling the powdered mixture into a sheet, and
sintering said sheet at a temperature of 1000 C. to 1400° C. for 1 to 16 hours in an inert gas atmosphere.

3,306,743
ELECTROPHOTOGRAPHIC COMPOSITIONS, RECORDING ELEMENTS AND PROCESS EMPLOYING SHELLAC

Frederick W. Sanders, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio, a corporation of Ohio
Filed Dec. 12, 1962, Ser. No. 244,213
12 Claims. (Cl. 96—1.8)

5. A photoconductive layer comprising discrete particles of an inorganic photoconductive pigment, an electrically insulating film-forming binder therefor and 0.25 to 10.0% of shellac based on the combined weight of said pigment and said binder.

3,306,744
COPYING PROCESS USING DITHIOXAMIDES, HEAVY METAL SALTS AND PHOTOPOLYMERIZABLE MONOMERS AND PHOTOCROSS LINKABLE POLYMERS

Howard C. Haas, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
No Drawing. Filed Dec. 17, 1962, Ser. No. 244,912
17 Claims. (Cl. 96—29)

1. A copy process comprising contacting a printed page with a copy sheet comprising a support, a layer of a dithioxamide compound and a photosensitive layer consisting essentially of at least one member selected from the group consisting of photopolymerizable monomers and polymers capable of being cross-linked by actinic radiation, exposing said photosensitive layer through said printed page to actinic radiation whereby the exposed portions of said layer are rendered more impervious to extraction by a solvent for said dithioxamide compound than are the non-exposed portions, removing said printed page, applying a processing composition comprising a solvent for said dithioxamide compound to said copy sheet whereby said dithioxamide compound is extracted from said non-exposed portions and transferred to a superposed receiving sheet comprising a layer of a heavy metal salt to form an image of said printed page on said receiving sheet, and removing said receiving sheet.

3,306,745
PHOTOPOLYMERIZABLE COMPOSITIONS, ELEMENTS AND PROCESSES

Vincent Joseph Webers, Red Bank, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Aug. 19, 1963, Ser. No. 303,134
7 Claims. (Cl. 96—35.1)

1. A photopolymerizable composition comprising:
(a) a preformed compatible macromolecular polymer binding agent that forms coherent, solid films in an amount of 97 to 3 parts by weight,
(b) a non-gaseous, addition polymerizable ethylenically unsaturated compound containing at least one terminal ethylenic group capable of forming a high polymer by photoinitiated addition polymerization, in the presence of an addition polymerization initiator therefor activatable by actinic light, in an amount of 97 to 3 parts by weight,
(c) from 0.0001 to 6% by weight of the total composition of such an initiator, and
(d) from 0.0001 to .01% by weight of the total composition of a chalcogen selected from the group consisting of sulfur and selenium.

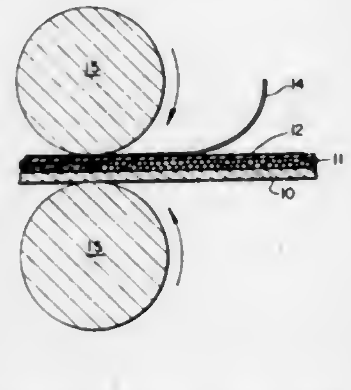
3,306,746
PHOTOGRAPHIC DEVELOPERS CONTAINING SULFA COMPOUNDS

Moses A. Schwartz, 1674 Townsend Ave., Bronx, N.Y. 10453; Harriet S. Schwartz, executrix of said Moses A. Schwartz, deceased
No Drawing. Filed Aug. 20, 1965, Ser. No. 481,413
13 Claims. (Cl. 96—66.5)

1. A process for the development of gelatino silver halide emulsion which comprises developing such an emulsion in a developing solution containing a sulfa compound selected from the group consisting of sulfamethylthiadiazole, sulfanilamide, sulfapyridine and sulfathiazole or mixtures thereof, in an amount of at least about 0.1 gram per gallon of said developing solution.

3,306,747
DIFFUSION TRANSFER PRODUCT WITH MICROCAPSULES CONTAINING GLYCERIN-WATER SOLUTIONS

Howard C. Haas, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Dec. 26, 1962, Ser. No. 246,930
6 Claims. (Cl. 96—76)

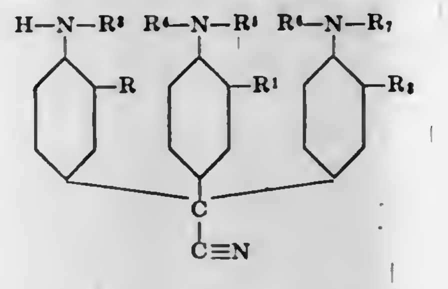


1. A photographic product comprising a plurality of layers including a support, a layer on said support comprising microscopic pressure-rupturable capsules containing a photographic processing composition including a glycerin-water solution containing a silver halide processing reagent selected from the group consisting of a silver halide photographic developing agent and a silver halide solvent, a layer on said support comprising a silver halide emulsion.

3,306,748
PHOTOSENSITIVE SYSTEM BASED ON HYDROPHOBIC DYE CYANIDES AND POLYVINYLPYRROLIDONE

Lyman Chalkley, Prince Georges County, Md.
(5320 Middleton Lane, Washington, D.C. 20022)
No Drawing. Filed Mar. 5, 1963, Ser. No. 263,070
14 Claims. (Cl. 96—90)

2. A film photosensitive only to ultraviolet and shorter wave lengths, consisting of a solid solution in polyvinylpyrrolidone of a colorless dye cyanide having the general formula



wherein R, R^1 and R^2 are each selected from the group consisting of a hydrogen atom and a methyl group, and R^3, R^4, R^5, R^6 and R^7 are each selected from the group consisting of a hydrogen atom and an alkyl group.

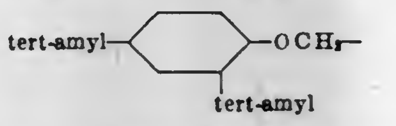
3,306,749
GELATIN COATING COMPOSITIONS

William J. Knox, John F. Stenberg, and Charles V. Wilson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Original application Sept. 20, 1962, Ser. No. 225,108. Divided and this application Mar. 4, 1965, Ser. No. 437,273
10 Claims. (Cl. 96—94)

1. A coating composition comprising an aqueous solution of a protein containing therein about 0.2 to 2.7 parts per 100 parts of the protein of coating aid represented by the formula:

$$RCON[(CH_2)_xCOOM]_2$$

in which $x=1–2$, R is a member selected from the group consisting of an open chain hydrocarbon radical having 11–17 carbon atoms, dodecyloxyphenyl and



and M is a cation contributing to water solubility of the coating aid.

3,306,750
POLYMERIC HARDENERS FOR GELATIN

Louis M. Minsk and Hyman L. Cohen, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Jan. 17, 1966, Ser. No. 520,866
13 Claims. (Cl. 96—111)

1. A composition of matter comprising gelatin containing an effective amount of a hardener comprising a compound composed of a polymeric linear chain having appended thereto at least 3% of carboxyl in amount to insure water solubility and compatibility with gelatin and at least 2% of GHO connected to said chain by a hetero linkage consisting of at least 2 atoms at least one of which is carbon and the other is nitrogen or oxygen.

5. The composition of claim 1 in which the hardener is copoly[ethylene-(4-formylbutyl) acid maleate].

3,306,751
METHOD OF IMPROVING PRETZEL PRODUCTS

John Appleby, Bay City, Mich., assignor to Quality Food Products, Incorporated, Bay City, Mich., a corporation of Michigan

No Drawing. Filed Feb. 27, 1964, Ser. No. 347,669
8 Claims. (Cl. 99—86)

1. The method of preparing a pretzel type product comprising: cooking a pretzel, baked from pretzel dough and having a relatively hard texture core with a skin crust thereon formed in baking, in an edible cooking oil for a sufficient time and at a sufficient temperature to permit the oil to fully penetrate substantially only the crust to render it impermeable to moisture vapor while reducing the hardness of the core and rendering it softer, yet crisp; and cooling and drying the pretzel, whereby it is substantially impermeable to the entrance of moisture to the core.

3,306,752
PROCESS FOR PRODUCING FRUCTOSE BY FERMENTATION

Kiyomoto Ueda, 3—1411 Ikebukuro, Tokyo, Japan

No Drawing. Filed May 15, 1964, Ser. No. 367,865
Claims priority, application Japan, May 20, 1963, 38/25,309; Nov. 2, 1963, 38/58,574
17 Claims. (Cl. 99—142)

1. A process for producing fructose by fermentation, which comprises inoculating and culturing a fructose-producing microorganism in a medium containing sorbitol as a carbon source, a nitrogen source and inorganic salts, thereby producing and accumulating fructose in the medium, and then separating the so-accumulated fructose, the said microorganism belonging to one of the genera Bacillus and Pseudomonas.

6. A process for preparing a fructose-containing sweetening composition by fermentation, which comprises inoculating and culturing fructose-producing microorganism in a medium containing sorbitol as a carbon source, an inorganic nitrogen source and inorganic salts, discontinuing the culture when the fructose produced amounts to about 20–50% based on the sorbitol, then filtering the culture medium, treating with a member selected from the group consisting of activated carbon and ion-exchange resin, and concentrating the resulting liquid to form a colorless transparent viscous fructose-containing liquid sweetening agent having a sorbitol concentration of about 30%, the said microorganism belonging to one of the genera Bacillus and Pseudomonas.

3,306,753
POTASSIUM-ENRICHED CONDITIONING AGENT FOR SALT AND PROCESS THEREFOR

Henry N. Norsen, 30 Bellevue Ave., Dobbs Ferry, N.Y. 10522

No Drawing. Filed Mar. 10, 1964, Ser. No. 350,697
9 Claims. (Cl. 99—143)

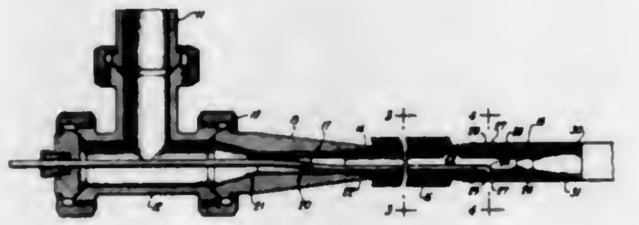
1. A potassium-enriched conditioning agent for salt comprising a mixture of potassium chloride, monopotassium phosphate and tricalcium phosphate, wherein the mixture has a ratio of potassium chloride to monopotassium phosphate between 1:5 and 1:7 and calcium to phosphorus ratio of from 1.05 to 1.27.

9. The process for preparing a nutritively-balanced composition for salt, comprising the steps of: forming a conditioning agent by blending potassium chloride, monopotassium phosphate and tricalcium phosphate with water to form a paste; said combination having a potassium chloride to monopotassium phosphate ratio of from 1:5 to 1:7 and a calcium to phosphorus ratio of 1.15; drying the paste to form a solid residue and grinding the residue to substantially the particle size of the original tricalcium phosphate; thereafter combining the residue with sodium chloride to form a composition having from 0.40 to 1.00 percent by weight of conditioning agent.

3,306,754
METHOD OF PREPARING A COLLAGEN-COATED SAUSAGE PRODUCT

Elwood W. Kielsmeier and William D. Paynter, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill., a corporation of Illinois

Filed Oct. 5, 1965, Ser. No. 497,592
16 Claims. (Cl. 99—169)



1. The method of preparing a collagen encased sausage-type product comprising extruding product emulsion into a confining preformed water permeable mold, injecting a fibrous collagen dispersion between said emulsion and mold, the collagen injection being carried out to provide said product with a continuous outer surface fibrous collagen coating confined within said water permeable mold, drying the intermediate product thus formed to an extent that said collagen coating forms a product confining skin cover, and therefater removing said mold.

3,306,755
ANTI-FOGGING COATING AND NON-FOGGING COATED POLYSTYRENE ARTICLE

Thomas F. Sincock, Simsbury, Lewis F. Bogle, Enfield, and Howard A. Scopp, Suffield, Conn., assignors, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed Sept. 25, 1962, Ser. No. 226,165
4 Claims. (Cl. 99—171)

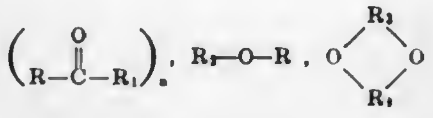
4. A non-fogging transparent polystyrene film for packagnig food products, said film having applied to at least one side thereof a coating in a thickness of about 25 to 125 micrograms per square inch, said coating consisting essentially of 30–40% of nitrocellulose, 35–45% of a modifying resin capable of forming a transparent, flexible, tenacious composition when admixed with nitrocellulose and selected from the group consisting essentially of resins made by reacting maleic anhydride and rosin acid, alkyd resins, coumarone-indene resins, urea-formaldehyde resins, gum damar and polyacrylate esters, 10 to 15% of a dialkyl phthalate of 4 to 8 carbon atoms per alkyl group as a plasticizer for the nitrocellulose, and 8 to 20% of an ammonium or alkali metal salt of a sulfated fatty alcohol of about 10 to 22 carbon atoms per molecule as a moisture-spreading surfactant.

3,306,756
COMPOSITION AND METHOD FOR STABILIZING SOIL

George A. Miller, Painesville, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed July 1, 1963, Ser. No. 292,073
28 Claims. (Cl. 106—84)

28. Soil stabilized by admixture with a composition consisting essentially of about 35 to 75 percent, by volume, aqueous sodium silicate containing 35 to 45 percent solids by weight and having an $Na_2O:SiO_2$ weight ratio of about 1:3.0 to 4.0; about 5 to 30 percent, by volume, of a compound selected from the group consisting of formamide, calcium chloride solution containing 50 grams calcium chloride per liter and mixtures thereof, about 1 to 30 percent, by volume, of at least one compound selected from the group consisting of the following structures:



$$\left(R-\overset{\overset{O}{\|}}{C}-R_1\right)_n,\quad R_2-O-R$$

mixtures thereof, and mixtures of formaldehyde with at least one of the above compounds, wherein R is a member selected from the group consisting of hydrogen and a hydrocarbon radical of from 1 to 22 carbon atoms; R_1 is a member selected from the group consisting of a hydrocarbon radical of from 1 to 22 carbon atoms and —O—R; *n* is an integer from 1 to 100, inclusive; R_2 is a hydrocarbon radical of from 1 to 22 carbon atoms; R_3 is a lower alkyl radical of from 1 to 4 carbon atoms and R_4 is a member selected from the group consisting of R_3, $R_3—O—R_3$ and $R_3—O—R_3—O—R_3—$, and the balance being added water.

3,306,757
HIGH ALKALI EARTH OXIDE GLASS BEAD COMPOSITION

Vincent L. Duval d'Adrian, 7823 Kenridge Lane, Shrewsbury, Mo. 63019

No Drawing. Original application June 18, 1957, Ser. No. 666,471. Divided and this application Feb. 18, 1963, Ser. No. 284,275
5 Claims. (Cl. 106—54)

1. A substantially perfectly spherical high refractive index glass bead for use in reflective paints and being of a size from about 20 mesh to 230 mesh having a refractive index of about 1.60 to 1.75 prepared from a charge characterized by a low viscosity at 2200° F. to 2800° F. and consisting essentially of at least two members of the group consisting of silica, titanium dioxide and zircon, at least one of said members being silica, a flux in a lesser amount than said first named component and consisting of at least one member of the group consisting of borax and boric acid and a barium compound which is convertible at high temperature to an oxide, said barium compound being present in the charge in the amount of at least about one-half the weight of the charge, and said charge being fusible to a low viscosity.

3,306,758
COMPOSITION AND METHOD FOR STABILIZING SOIL

George A. Miller, Painesville, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed July 1, 1963, Ser. No. 292,124
19 Claims. (Cl. 106—84)

19. Soil stabilized by admixture with a composition consisting essentially of about 35 to 75 percent by volume aqueous sodium silicate containing about 35 to 45 percent by weight solids and having an $Na_2O:SiO_2$ weight ratio of about 1:3.0 to 4.0, about 5 to 20 percent by volume calcium chloride solution, containing 50 g. calcium chloride per liter, about 2 to 15 percent by volume formamide, about 1 to 30 percent by volume of at least one compound selected from the group consisting of formaldehyde, linear polymers of formaldehyde and carbohydrate-formaldehyde resins; and the balance being added water.

3,306,759
ALKYL-HYDROGEN-POLYSILOXANE EMULSIONS

Hans-Horst Steinbach, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Dec. 12, 1962, Ser. No. 244,002
Claims priority, application Germany, Dec. 23, 1961, F 35,646
6 Claims. (Cl. 106—287)

1. A process for the production of stable aqueous emulsions containing alkyl-hydrogen-polysiloxanes which comprises incorporating 0.04 to 2 percent by weight of a primary aminocarboxylic acid selected from the group consisting of glycine, 6-amino-capronic acid and glutamic acid into a mixture of (1) about 40 percent by weight of methylpolysiloxane having a viscosity of between 500 and 1,000 cst. at 20° C. selected from the group consisting of a methyl-hydrogen-polysiloxane and a mixture of methyl-hydrogen-polysiloxane and polydimethylsiloxanes, said methylpolysiloxane being modified by the addition of a halogen-alkane so that a density of slightly more than 1 g./cc. has been obtained, (2) 0.5 to 3 percent by weight of an emulsifying agent selected from the group consisting of a quaternary alkylammonium salt and a long-chain alkylamine, and (3) water as the remainder, and adjusting the pH of the resulting aqueous emulsion to a value of between 2.5 and 5.0 with hydrochloric acid.

3,306,760
PROCESS FOR CARRYING OUT GAS PHASE REACTIONS

Hans Zirngibl, Duisburg, Karl Brändle and Peter Beumer, Krefeld, and Walter Weidmann, Duisburg-Mundelheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 29, 1964, Ser. No. 421,862
Claims priority, application Germany, Jan. 4, 1964, F 41,672
12 Claims. (Cl. 106—288)

1. In the process for thermal decomposition of halides of elements selected from the group consisting of aluminum, silicon, titanium, zirconium, iron and zinc with an oxygen containing gas in the vapor phase at temperatures substantially between about 800 and 1300° C., whereby to transform said halides into the corresponding solid finely divided oxides, in which such halides and gas reaction components are introduced into a combustion zone having a fluidized bed of abrasive granules maintained therein, the improvement which comprises maintaining such bed of abrasive granules in fluidized condition in a peripherally outwardly confined vertical lower sub-zone of given flow cross-section by introducing one of said reaction components upwardly through such bed of fluidized granules and into a peripherally outwardly confined vertical upper sub-zone contiguous with and flow connected with the upper end of said lower sub-zone and upwardly and outwardly flaring from a lower end flow cross-section corresponding to that of the lower sub-zone to an upper end flow cross-section correspondingly larger than the lower end flow cross-section at a velocity substantially at least as high as the fluidizing velocity for the bed granules yet below the velocity at which such bed granules become upwardly entrained thereby, introducing the other of said reaction components substantially tangentially inwardly into the upper sub-zone from the periphery of said upper sub-zone near the lower end thereof yet above the bed of granules in said lower sub-zone and in cross direction to the upwardly introduced reaction component at a velocity to provide a velocity within the upper sub-zone and reaction zone of at least five times that of the velocity required to entrain said bed granules, whereby to produce an environment of high turbulence immediately above said bed and within said upper sub-zone up into which a portion of said bed granules is drawn by the suction resulting from the attendant turbulent flow and within which said granules rotate helically predominantly along the confining peripheral portions of said upper subzone, for intimate contact and homogeneous intermixing of said one reaction component with said other reaction component in the presence of said portion of granules in said upper sub-zone in said environment of high turbulence, and recovering the resultant solid finely divided oxide thereby produced.

3,306,761
CONTROLLED PARTIAL OXIDATION OF CARBON BLACK WITH AMMONIUM NITRATE, PREFERABLY IN THE PRESENCE OF AMMONIUM, ALKALI METAL, AND ALKALINE EARTH METAL HALIDES

Marvin M. Johnson, Burlington, Mass., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Apr. 26, 1963, Ser. No. 275,853
14 Claims. (Cl. 106—307)

1. The process of reducing the pH of a furnace carbon black having an alkaline pH above 7 to an acid pH below 7 by mixing the original carbon black with a minor proportion of from 1 to 25 weight percent based on the carbon black of ammonium nitrate and heating the mixture to about 155 to 400° C. for a period of time of 0.01 minute to 24 hours sufficient to cause the partial oxidation of said carbon black.

3,306,762
MANUFACTURE OF CARBON BLACK

Theodore A. Ruble, Houston, Tex., assignor to Continental Carbon Company, Houston, Tex., a corporation of Delaware
No Drawing. Filed Feb. 25, 1965, Ser. No. 435,366
12 Claims. (Cl. 106—307)

1. A process for producing low structure carbon black which comprises injecting a vaporous hydrocarbon feedstock into a reaction zone continuously maintained at a temperature sufficient to instantaneously crack a major portion of the injected said stock into carbon black while concomitantly and proportionally introducing into said reaction zone from about 50 to 100,000 p.p.m. based on the weight of the carbon black yield of a metal selected from the group consisting of gallium, indium, aluminum and mixtures thereof, cooling the effluent from the reaction zone and recovering the carbon content thereof.

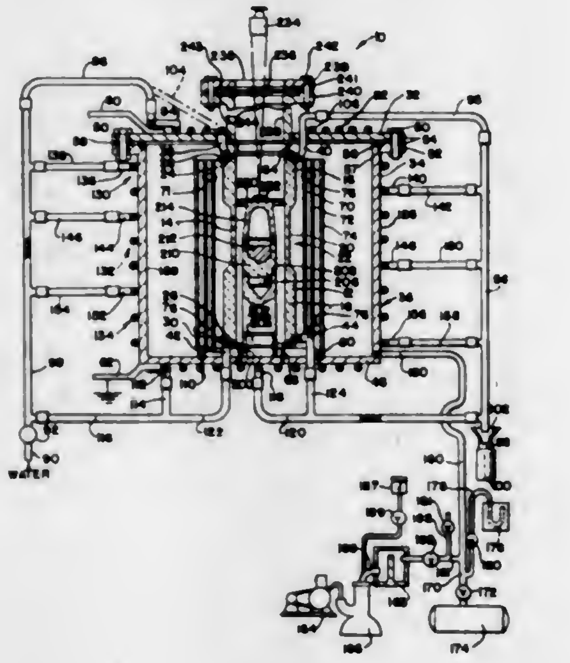
3,306,763
METHOD OF MAKING HEAT SENSITIVE RECORDING SHEET

William H. Hoge, Rumford, Maine, assignor to Oxford Paper Company, Rumford, Maine, a corporation of Maine
No Drawing. Filed Sept. 3, 1963, Ser. No. 306,358
3 Claims. (Cl. 117—36.7)

1. The method of preparing a heat sensitive recording material suitable for receiving inscriptions from a heated stylus which comprises providing a backing, applying thereto an aqueous coating composition comprising (a) non-film forming thermoplastic resinous particles and (b) at least about 5% by dry weight, of an organic, resinous adhesive, said particles characterized in that the particles are not film forming and are retained in particulate form under coating conditions, said adhesive characterized in that the adhesive forms a film under coating conditions and possesses sufficient binding ability to bind the particles when used in amounts substantially smaller than the volume needed to completely fill the voids between the resinous particles, said composition characterized in that it remains opaque due to the air-particle and/or air-adhesive interfaces when coated and dried at temperaturse below the fusion of the thermoplastic particles and that the resin particles flow at and above their fusion point to fill the voids and form a transparent mass that remains transparent on cooling, and drying the coating on the backing, said coating being applied at a coating weight equivalent to above about 7 pounds per ream of paper.

3,306,764
METHOD FOR FORMING A REFRACTORY METAL OR CARBIDE COATING ON REFRACTORY MATERIALS AND ARTICLE

John G. Lewis and Harold A. Ohlgren, Ann Arbor, Mich., assignors, by mesne assignments, to Nuclear Technical Service Corporation, Ann Arbor, Mich., a corporation of Michigan
Filed Aug. 19, 1959, Ser. No. 834,686
33 Claims. (Cl. 117—61)



1. The method of coating a base refractory material which comprises heating said material to an elevated temperature in a substantially closed vacuum chamber with a metal which has a vapor pressure of less than about ten microns of mercury at about 2000° F., reducing the pressure in said chamber to a pressure less than ten microns of mercury, continuing said heating at a sufficiently high temperature for a period of time sufficient to provide for a buildup of pressure of metal vapor in said chamber to substantially saturation conditions at said high temperature to thereby provide for condensation of said metal on said material.

3,306,765
METHOD FOR FIREPROOFING WOOD AND THE TREATED WOOD

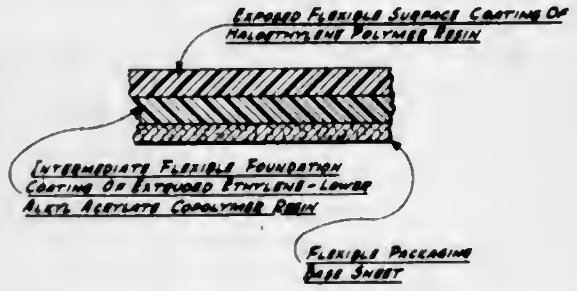
Eugene R. Du Fresne and Donald L. Campbell, Chicago, Ill., assignors to General Dynamics Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Sept. 3, 1963, Ser. No. 306,294
11 Claims. (Cl. 117—62)

1. A fire-resistant wood comprising wood having dispersed therein the reaction product of carbon dioxide and a solution containing a soluble crystalline silicate and a soluble borate.

10. A method of fireproofing wood comprising impregnating the wood with a solution containing a soluble crystalline silicate and a soluble borate in a ratio of about one-quarter to one-half mole borate per mole of silicate and treating the impregnated wood with sufficient carbon dioxide under super-atmospheric pressure to form a silicon dioxide polymer therein that is insoluble and noncombustible.

3,306,766
PACKAGING PRODUCT WITH COMPOSITE RESIN COATINGS AND METHOD OF PRODUCING SAME

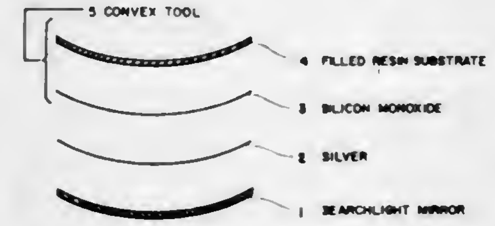
Charles T. Hathaway, Danville, and Raymond K. Cohen, San Leandro, Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada
Filed July 10, 1963, Ser. No. 293,979
9 Claims. (Cl. 117—76)


EXPOSED FLEXIBLE SURFACE COATING OF HALOETHYLENE POLYMER RESIN
INTERMEDIATE FLEXIBLE FOUNDATION COATING OF EXTRUDED ETHYLENE-LOWER ALKYL ACRYLATE COPOLYMER RESIN
FLEXIBLE PACKAGING BASE SHEET

1. A packaging base sheet coated with an exposed continuous surface layer of a haloethylene polymer, and an intermediate continuous foundation layer of an ethylene-lower alkyl acrylate copolymer; the haloethylene polymer comprising a halogen selected from the group consisting of chlorine, fluorine and bromine, and being selected from the group consisting of vinyl halide polymers containing in the polymer molecule at least about 80 percent by weight of a polymerized vinyl halide, and vinylidene halide polymers containing in the polymer molecule at least about 60 percent by weight of polymerized vinylidene halide; and the ethylene-lower alkyl acrylate copolymer being the reaction product under heat and pressure of about 0.2 to 1.5 moles of a lower alkyl acrylate per 100 moles of ethylene, the lower-alkyl acrylate containing about 1 to 12 carbon atoms in the alkyl radical.

3,306,767
METHOD OF APPLYING A RESIN LAMINAR SUBSTRATE TO A SURFACE

Howard E. Snyder, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Sept. 20, 1962, Ser. No. 225,054
2 Claims. (Cl. 117—102)



1. A method of applying a resin laminar substrate to a pressure sensitive surface comprising the steps of:

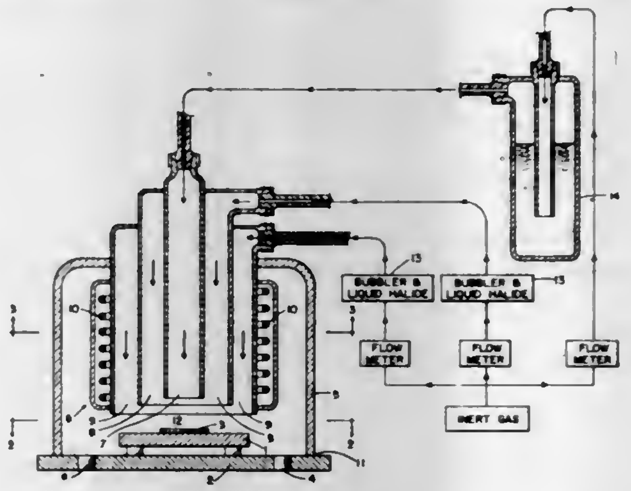
(a) applying resin in a substantially liquid state to said surface to form a layer of resin thereon;
(b) laying screen material having means defining spaced openings therein over said layer of resin;
(c) allowing any excess resin creating areas of excess thickness in said layer of resin to seep through the openings in said screen material; and
(d) removing the screen material and any excess resin thereon from said layer of resin.

3,306,768
METHOD OF FORMING THIN OXIDE FILMS

David Ralph Peterson, Phoenix, Ariz., assignor to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Jan. 8, 1964, Ser. No. 339,060
6 Claims. (Cl. 117—106)

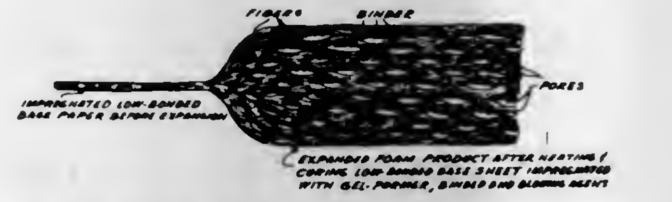
1. A process for coating a solid substrate with a substantially anhydrous oxide film while keeping the substrate at a relatively low temperature, said process including the steps of

(a) forming first and second gas streams of specifically non-reactive gas selected from the group consisting or argon, helium, nitrogen, carbon dioxide and air,
(b) introducing vapor phase water into said first gas stream to form a first gaseous mixture,
(c) introducing into said second gas stream vapors of a hydrolysable halide of at least one element selected from the group consisting of titanium, silicon and aluminum to form a second gaseous mixture,
(d) mixing said first and second gaseous mixtures with each other to form a third gaseous mixture having an excess of halide vapor to water vapor in the minimum molecular ratio of 5:1 for titanium halides, and 10:1 for others of said halides, said excess halide vapor promoting the formation of a substantially anhydrous oxide film,
(e) and exposing said substrate to said third mixture while maintaining the substrate at a selected temperature no greater than 200° C. at which temperature water supplied from said mixed gases becomes adsorbed on the surface of the substrate and hydrolyzes said halide vapors supplied from said mixed gases at said substrate to form a film on said substrate comprised of an oxide of said selected element.



3,306,769
PROCESS FOR MANUFACTURING A LOW DENSITY, FOAM-FIBER PRODUCT

John F. Hechtman, Munising, Mich., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Aug. 2, 1962, Ser. No. 214,246
7 Claims. (Cl. 117—119.6)


FIBERS
BINDER
PORES
IMPREGNATED LOW-BONDED BASE PAPER BEFORE EXPANSION
EXPANDED FOAM PRODUCT AFTER HEATING / CURING LOW-BONDED BASE SHEET IMPREGNATED WITH GEL-FORMER, BINDER AND BLOWING AGENT

1. A process for manufacturing a low density, foam-fiber product which comprises forming a low-bonded fiber sheet, said sheet having an apparent density in the range of about 1.0 to 2.3, a dry tensile sum per pound in the range of about 0.04 to 0.23, and a wet tensile sum per pound of about 0.0005 to 0.0060; saturating said sheet with an aqueous dispersion to substantially release the fiber-to-fiber bonds in said sheet, said saturant containing minor amounts of a wet gel-forming material, a heat-activatable gas-forming agent, and a heat-activatable insolubilization agent for said wet gel-forming material;

gradually heating said saturated sheet in a moist atmosphere first to a temperature sufficient to activate said gas-forming agent and thereby form with said gel-forming agent a foam during which formation the individual fibers in said sheet are caused to separate from each other and become suspended in the wall of the cells comprising said foam; then further increasing the temperature of said foam-fiber suspension to about 190° F. to 260° F. to activate said insolubilization agent to cause said foamed gel-forming agent to insolubilize and retain said separated fibers embedded within the walls of the foamed structure; and subsequently drying said foam-fiber combination to set the foamed structure in its expanded condition.

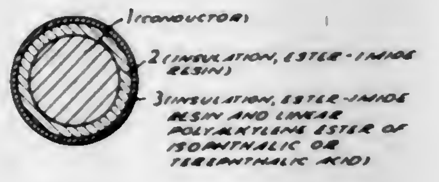
3,306,770
ELECTROLUMINESCENT PANEL

Eugene D. Klug and Richard A. Leonard, Wilmington, Del., assignors to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed June 25, 1963, Ser. No. 290,327
4 Claims. (Cl. 117—215)

1. An electroluminescent panel comprising (a) a light transmitting electrically conductive layer, (b) a layer over layer (a) of a field responsive phosphor in cyanoethyl starch and (c) an electrically conductive layer over layer (b).

3,306,771
PLURAL ESTER-IMIDE RESINS ON AN ELECTRICAL CONDUCTOR

Karl Schmidt, Hamburg, Ferdinand Hansch, Hamburg-Osdorf, and Hans-Malte Rombrecht, Hamburg-Altona, Germany, assignors to Dr. Beck & Co., G.m.b.H., Hamburg, Germany
Filed Nov. 13, 1964, Ser. No. 410,900
Claims priority, application Germany, Nov. 18, 1963, B 74,306
5 Claims. (Cl. 117—218)


1 (CONDUCTOR)
2 (INSULATION, ESTER-IMIDE RESIN)
3 (INSULATION, ESTER-IMIDE RESIN AND LINEAR POLYALKYLENE ESTER OF ISOPHTHALIC OR TEREPHTHALIC ACID)

1. An electrical conductor provided with an electrically insulating coating comprising an inner insulating layer consisting essentially of an ester-imide resin and superimposed thereon an outer insulating layer imparting increased abrasion resistance to the conductor insulation and consisting essentially of a combination of a cross-linked ester-imide resin with a linear polyalkylene ester of at least one dibasic acid selected from the group consisting of isophthalic acid and terephthalic acid, the proportion in said combination of ester-imide resin to linear polyalkylene being about 20:80 to 60:40 by weight.

3,306,772
SOLVENT AND PROCESS FOR OBTAINING UNDEPOLYMERIZED AMYLOSES

Stig R. Erlander and Robert Tobin, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Apr. 3, 1964, Ser. No. 357,329
4 Claims. (Cl. 127—70)

1. A process for obtaining undepolymerized amyloses that are characterized by greatly improved molecular weights comprising:

(a) thoroughly hydrating an amylose-containing material selected from the group consisting of amylomaize starch, potato starch, dent corn starch, and corn meal;
(b) adding thereto an amount of an aqueous solvent mixture containing per liter 5 moles of lithium thiocyanate and about 2.5 moles of guanidinium thiocyanate to provide a dispersion containing between about 10 percent and about 15 percent (dry basis) of said amylose-containing material;
(c) adjusting the pH to 7.0;
(d) stirring at room temperature for about 3 hours to completely dissolve said material;
(e) adding absolute ethanol to provide a 23 percent by weight concentration thereof;
(f) warming to about 45° C. to provide a homogenous dispersion;
(g) allowing warmed solution to cool at room temperature;
(h) centrifuging at about 39,000 × gravity;
(i) dissolving the precipitate in water and reprecipitating with excess 95 percent ethanol;
(j) subjecting the precipitate to complex formation at 45° C. with mixed amyl alcohols and slowly cooling with stirring to obtain the pure undepolymerized amylose.

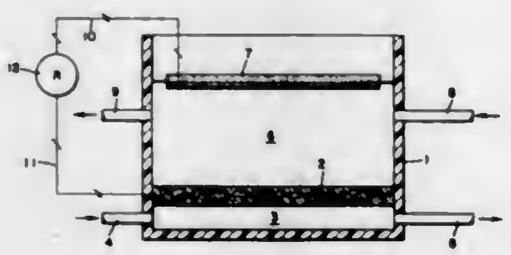
3,306,773
PROTECTION OF SINTERED ALUMINUM FROM ALTERATION IN ORGANIC LIQUIDS

Jean Laporte and Francois Giolito, Lyon, France, and Hans-Walter Schleicher, Leggiuno-Sangiano, Italy, assignors to Societe Progil, Paris, France
No Drawing. Filed May 31, 1963, Ser. No. 284,308
Claims priority, application France, June 7, 1962, 900,012
4 Claims. (Cl. 134—2)

1. A process for forming a surface resistant to corrosion by diphenyl and terphenyl heat exchange fluids on the surface of a sintered aluminum article obtained by sintering aluminum oxide powder comprising preliminarly subjecting said surface before contact with said heat exchange fluid to an aqueous alkaline solution selected from the group consisting of an alkali meal hydroxide and a salt thereof with a weak acid selected from the group consisting of carbonic, acetic, propionic and tartaric acids, said solution being at a concentration of about one normal at ambient temperature for a period of from 1 to 30 minutes, rinsing said solution from said surface with water and drying said surface.

3,306,774
FUEL CELL WITH HORIZONTAL ELECTRODES

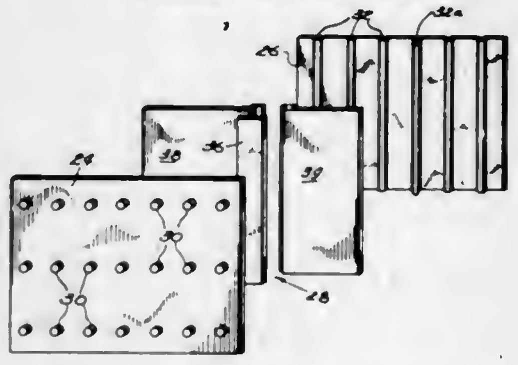
Herbert P. Dengler, Fair Haven, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed June 21, 1962, Ser. No. 204,093
1 Claim. (Cl. 136—86)



In a fuel cell comprising an electrolyte compartment adapted to retain an aqueous electrolyte, an anode and a cathode spaced apart and communicating with said compartment so as to be in contact with said electrolyte when said compartment is partially charged therewith, conduction means establishing electrical connection between said anode and said cathode external to said electrolyte, fueling means for passing an electrolyte immiscible normally liquid organic fuel into dual contact with said anode and said electrolyte, and oxidant transfer means for passing a fluid oxidant selected from the group consisting of air and gaseous oxygen into dual contact with said cathode and said electrolyte, the improvement in combination therewith wherein said anode contains pores of suitable size and number to allow substantially unimpeded escape of carbon dioxide formed during the anodic oxidation of said fuel and said porous anode is located in said electrolyte compartment such that said porous anode floats at the interface existing between said aqueous electrolyte and said immiscible fuel so that said anode's upper surface extends above the upper level of the electrolyte-fuel mixture thereby allowing said carbon dioxide formed during said anodic oxidation to escape from said porous anode into the upper portion of said electrolyte chamber, said portion being substantially free of electrolyte and fuel.

3,306,775
CELL PARTITION FOR BATTERIES

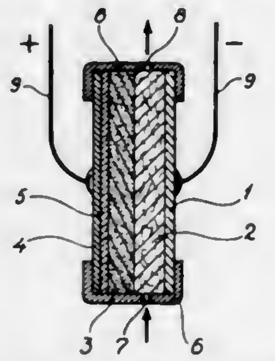
Leonard J. Burant, Milwaukee, Kenneth R. Jones, Mequon, and Donald R. Wolter, Brown Deer, Wis., assignors to Globe-Union Inc., Milwaukee, Wis., a corporation of Delaware
Filed Oct. 16, 1963, Ser. No. 316,664
7 Claims. (Cl. 136—90)



1. In a deferred action battery having a plurality of cells, each with a sheet-like anode electrode, a sheet-like cathode electrode and spacer means therebetween to provide a reactive space, a liquid impervious partition separating adjacent ones of said cells, said partition completely separating said electrodes of adjacent cells and including a web of electrically conductive foil covering a minor area of said electrodes and an electrically nonconductive material covering a major area of said electrodes, said nonconductive material having edge portions overlapping adjacent edge portions of said foil and being sealed thereto along said adjacent edges and said foil being in electrical contact with the cathode electrode of one cell and the anode electrode of an adjacent cell.

3,306,776
GALVANIC PRIMARY CELL

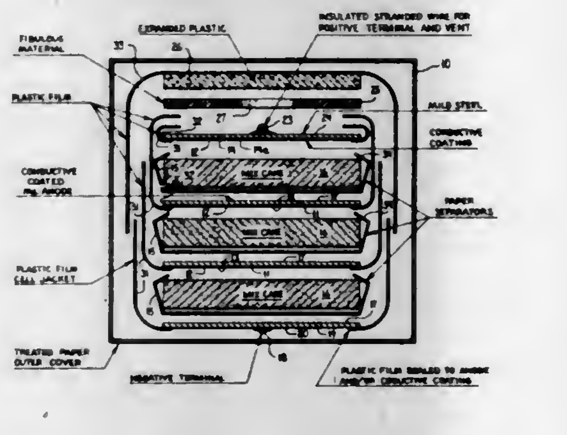
Pentti J. Tamminen, Otakallio, Otaniemi, Finland
Filed Feb. 27, 1964, Ser. No. 347,834
4 Claims. (Cl. 136—107)



1. A galvanic primary cell for wet deferred action batteries comprising a metal cathode coated with a layer consisting of powdered carbon, powdered manganese dioxide, and a plastic binder material, an electrolyte consisting of water, at least 15% of hydrochloric acid, and lithium chloride, said lithium chloride being in an amount not more than 10%, and a soluble metal anode selected from the group consisting of zinc, magnesium, aluminum, and alloys of said metals.

3,306,777
FLAT CELL PACK BATTERY HAVING A CUSHIONING MEANS

Raymond W. Reid, Sanford, and Wright R. Feneley, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Jan. 14, 1965, Ser. No. 425,543
5 Claims. (Cl. 136—111)


FIBROUS MATERIAL
EXPANDED PLASTIC
INSULATED STRANDED WIRE FOR POSITIVE TERMINAL AND VENT
PLASTIC FILM
MILD STEEL
CONDUCTIVE COATING
CONDUCTIVE COATED Mg ANODE
MIX CAKE
PAPER SEPARATORS
PLASTIC FILM CELL JACKET
TREATED PAPER OUTER COVER
NEGATIVE TERMINAL
PLASTIC FILM SEALED TO ANODE AND/OR CONDUCTIVE COATING
10
33
26
25
27
23
24
15
31
18

1. The improved flat cell pack battery which comprises in assembly an array of plates disposed in parallel juxtaposed spaced apart relation and consisting of an uppermost plate, a lowest plate and at least one intermediate plate; said uppermost plate being a cathode collector plate formed of an electrically conductive material; said intermediate and lowest plates being anodes formed of magnesium metal; each said plate having an upper and a lower surface; each said plate except the lowest having a moisture-impervious, conductive, carbonaceous coating bonded to the entire lower surface thereof;

a cathode-depolarizer mix cake disposed between each metal plate in the array; each said mix cake being surrounded by a porous envelope on all sides except the side contacting the immediately adjacent conductive coated metal plate, each said envelope and mix cake being moistened with an aqueous electrolyte;
a sheet of bibulous material overlying the upper surface of said cathode collector plate and being substantially coextensive therewith;
cushioning means at least ⅛-inch thick and having substantially the length and width of said cathode collector plate superposed on said sheet of bibulous material;
flexible gas directing means sealingly attached to the conductive coated side of each metal plate adjacent each edge of such plate, each said gas directing means having the form of a moisture impervious plastic film of larger dimensions than the metal plate to which the film is attached and having an opening formed therethrough smaller than said metal plate, each cathode-depolarizer mix cake being permitted to contact the adjacent conductive coated surface of a metal plate, the edge portions of each said plastic film being folded upwardly around the edges of the metal plate to which said film is attached and said edge portions extending upwardly at least past the next adjacent spaced apart metal plate, the edges of the plastic films of said cathode collector plate

and of the next adjacent anode being tucked in between said sheet of of bibulous material and the cathode collector plate;

additional gas directing means in the form of a moisture impervious plastic film coextensive with and surrounding the top of said assembly, said additional gas directing means outwardly overlapping in an opposite direction the gas directing means attached to said lowest plate;

a substantially water and gas impervious envelope completely enclosing said assembly;

a stranded electrical lead surrounded by a gas-impervious electrically insulating envelope conductively attached to said cathode collector plate, said stranded electrical lead extending through an opening in said sheet of bibulous material and further being disposed between said sheet of bibulous material and said cushioning means and extending through said enclosing water and gas impervious envelope to the outside of the battery, said lead being the positive terminal and a gas vent;

and a second electrical lead conductively attached to the lower surface of said lowest plate and being substantially disposed between said lowest plate and the enclosing water and gas impervious envelope and extending therethrough said envelope to the outside of the battery, said second lead being the negative terminal.

3,306,778

SECONDARY BATTERY ELECTRODE AND METHODS OF MAKING

Edwin R. Bowerman, Flushing, and Irving Sheinhartz, Bayside, N.Y., assignors to General Telephone and Electronics Laboratories, Inc., a corporation of Delaware

Filed Dec. 21, 1964, Ser. No. 419,772

10 Claims. (Cl. 136—120)

3. A method of making a positive electrode comprising the steps of

(a) forming a coating of an aluminide on a metallic substrate,
(b) dissolving the aluminum from said coating, and
(c) anodically charging said electrode.

3,306,779

FUEL CELL ELECTRODE AND A PROCESS FOR MAKING THE SAME

Robert J. Flannery, Olympia Fields, Ill., and Ahmad Sam, Hammond, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed July 1, 1965, Ser. No. 468,976

12 Claims. (Cl. 136—120)

1. A multi-layer fuel cell electrode suitable for use in conjunction with an electrolyte in the direct oxidation of hydrocarbons at low temperatures below about 300° C., said electrode exhibiting controlled wettability and improved performance at low catalyst loadings below about 20 g./ft.^{2}, and comprising at least two adjacent layers containing a current collector, each layer being composed of a compressed combination of particles of a non-wettable, inert, insoluble, acid resistant, polymeric thermoplastic and particles of wettable carbon having a size in the range of 10 m.^{2}/g.–200 m.^{2}/g., at least one of said layers being wettable by the electrolyte but having pores of sufficient size to prevent total flooding of the layer and having a weight ratio of thermoplastic to carbon of about 5–30:100, said electrode also including a catalyst supported on at least a portion of the carbon particles in said layers.

3,306,780

SINTERED NICKEL-CARBON GAS DIFFUSION ELECTRODE FOR FUEL CELLS

Rolf Dieberg, Dortmund-Aplerbeck, Germany, assignor to Varta Aktiengesellschaft, Hagen, Westphalia, Germany, a corporation of Germany

Filed Dec. 28, 1960, Ser. No. 78,993

Claims priority, application Germany, Dec. 31, 1959, A 33,647

10 Claims. (Cl. 136—121)

1. A gas diffusion electrode comprising essentially a sintered porous nickel matrix having up to about 30%, by volume of the electrode mass, of carbon powder of a grain size of less than 60μ sintered into the matrix, said carbon powder carrying a metal catalyst.

3,306,781

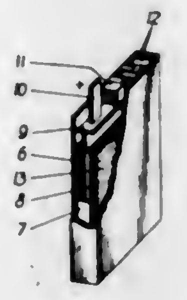
DEPOLARIZER MIXTURE AND MOLDED BODIES

Bruno Siller, Ellwangen (Jagst), Germany, assignor to Varta Pertrix-Union Gesellschaft mit beschraenkter Haftung, Ellwangen (Jagst), Germany, a corporation of Germany

Filed June 19, 1964, Ser. No. 376,332

Claims priority, application Germany, June 28, 1963, V 24,238

18 Claims. (Cl. 136—138)



1. Depolarizer mixture for primary elements comprising manganese dioxide, carbon black, and a binding agent selected from the group consisting of polyisobutylene and rubber, the manganese dioxide particles in said mixture being bound by said binding agent, at least the predominant part of said carbon black being present in said mixture in the free state and not bound by said binding agent.

3,306,782

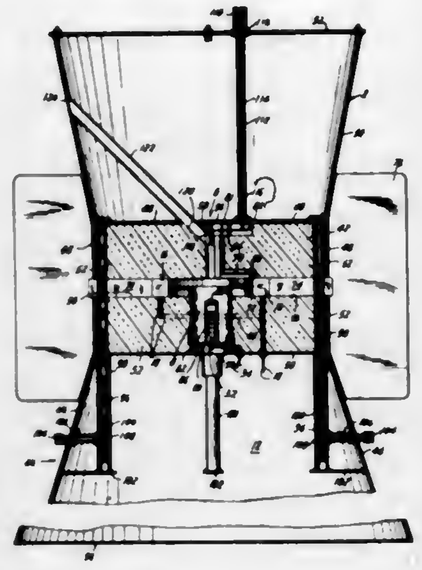
CHEMICALLY FUELED THERMO-ELECTRIC GENERATOR ASSEMBLY

Howard Hagler, Westfield, and Ralph L. Fryer, East Orange, N.J., assignors to General Instrument Corporation, Newark, N.J., a corporation of New Jersey

Filed Feb. 23, 1961, Ser. No. 91,070

8 Claims. (Cl. 136—208)

1. A thermoelectric generator assembly comprising a base having a closed inner space therein, a heat-insulated body mounted on said base and having an inner combustion chamber, a plurality of thermoelectric generating devices in said body in thermal communication with said chamber, heat-transmissive elements extending from said generating devices to the exterior of said body, a member in said chamber for receiving and supporting fuel thereon, a fuel storage container mounted on said body in gravity feed relation to said member, said body having a fuel passage communicating between said fuel storage container and said chamber, means for controlling the flow of fuel from said fuel contianer to said member, said assembly having a second passage between said inner space and said chamber through which the combustion products of said fuel are adapted to pass, said chamber, said second passage and said inner space being in gravity feed relation.



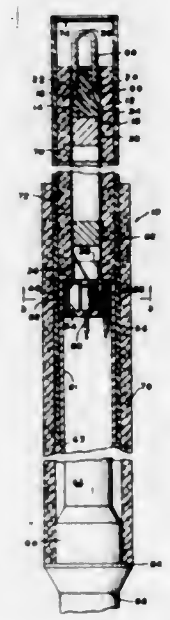
3,306,783

DISPOSABLE THERMOCOUPLE LANCE

Bernard Silver, North Hills, Pa., assignor to Electro-Nite Engineering Co., Philadelphia, Pa., a corporation of Pennsylvania

Filed Dec. 20, 1961, Ser. No. 160,837

7 Claims. (Cl. 136—234)



1. An immersion thermocouple lance extension comprising a first expendable tube having a first end which is not intended to be immersed in a molten bath and a second end which is intended to be immersed in a molten bath, said tube being made from a low temperature resistant material which will be consumed by a molten bath whose temperature is to be ascertained, a second expendable cardboard tube surrounding said first tube, said second tube extending beyond said first end of said first tube, means securing said tubes together, an expendable thermocouple temperature sensing means supported by the second end of said first tube, a first contact holder disposed at and supported by the first end of said first tube, said contact holder having a diameter at least as large as the internal diameter of said first tube, two conductors extending from said thermocouple means through said first tube to said contact holder, one of said conductors extending through an axially extending hole in a central portion of said contact holder, and the other conductor extending to an outer peripheral portion of said contact holder.

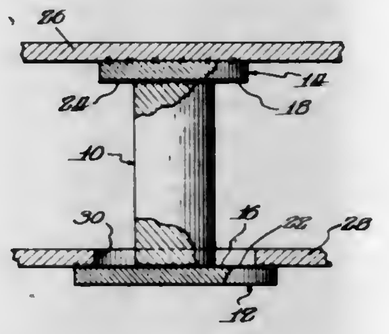
3,306,784

EPITAXIALLY BONDED THERMOELECTRIC DEVICE AND METHOD OF FORMING SAME

John B. Roes, San Diego, Calif., assignor to General Dynamics Corporation, New York, N.Y., a corporation of Delaware

Filed Aug. 14, 1961, Ser. No. 131,415

6 Claims. (Cl. 136—237)



1. In a thermoelectric device, an n-type lead telluride semiconductor, an electrode of a material which is insoluble in the semiconductor, and a layer of copper disposed between said electrode and said semiconductor, said copper layer being epitaxially bonded at one side to said electrode and alloyed at the other side with said semiconductor, the amount of said copper alloyed with said semiconductor being less than 0.1 percent by volume of the semiconductor.

3,306,785

PHOSPHATIZING COMPOSITIONS AND PROCESSES

John B. Hitchcock, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 4, 1963, Ser. No. 285,214

12 Claims. (Cl. 148—6.15)

1. An anhydrous and substantially homogeneous liquid composition comprising as the predominant ingredient a chlorhydrocarbon solvent from the group consisting of trichlorethylene and perchlorethylene; from about 1% to about 10% by weight of an oxygen-containing solvent consisting essentially of at least one member from the group consisting of alcohol compounds containing from 3 to 8 carbon atoms inclusive and acid alkyl phosphates having at least one alkyl group containing from 3 to 8 carbon atoms inclusive; from about 0.001% to about 1% by weight of zinc in the form of a substantially solubilized divalent zinc compound; and from about 0.05% to about 5% by weight of a phosphatizing phosphate compound; the foregoing ingredients constituting at least 98% by weight of the total composition.

3,306,786

METHOD OF WORKING PC STEEL BARS WHILE SUBHEATED

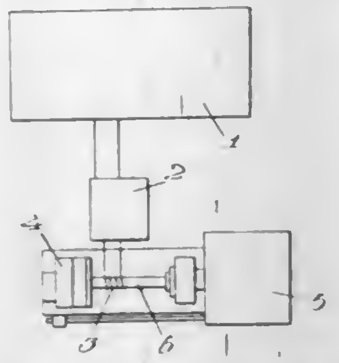
Katuhisa Mizuma, Fujisawa, Japan, assignor to Koshuha Netsuren Kabushiki Kaisha, Tokyo, Japan, a corporationn of Japan

Filed Apr. 3, 1964, Ser. No. 357,041

5 Claims. (Cl. 148—12.4)

1. The method of forming a prestressable reinforcing bar for use in a concrete structure which comprises the steps of: hardening a steel bar having a carbon content of about 0.30% to 0.50%; tempering the hardened bar at

a temperature of about 400° C.; surface heating end portions of said bar to temperature of at least 400° C. while maintaining the end portions located inwardly of said surface heated portions at a temperature materially lower than 400° C. whereby said inwardly located portions remain effectively unchanged in their mechanical properties by said surface heating; and working said surface heated portions while surface heated to form coupling surfaces for prestressing said bar.



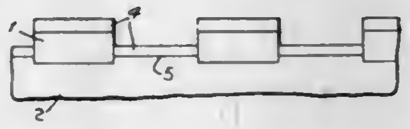
3,306,787
FORGED METAL SHAPES, THEIR PRODUCTION, AND ARTICLES MADE THEREFROM

Kurt Dies, Bad Homburg vor der Hohe, Germany, assignor to Vereinigte Deutsche Metallwerke A.G., Frankfurt am Main-Heddernheim, Zellweg, Germany, a corporation of Germany
No Drawing. Filed Oct. 29, 1963, Ser. No. 319,638
Claims priority, application Germany, Nov. 6, 1962,
V 23,249
6 Claims. (Cl. 148—32)

1. An aluminum base alloy selected from the group consisting of aluminum alloys of zinc and magnesium and of magnesium and silicon, in forged and solution annealed condition having a two fold fiber texture in at least two predominating orientations selected from the group consisting of (533), (100), and (111), and small random orientations.

3,306,788
METHOD OF MASKING MAKING SEMICONDUCTOR AND ETCHING BENEATH MASK

Henley F. Sterling and Cyril F. Drake, Harlow, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 27, 1964, Ser. No. 340,443
Claims priority, application Great Britain, Feb. 8, 1963,
5,232/63, 5,233/63
14 Claims. (Cl. 148—175)



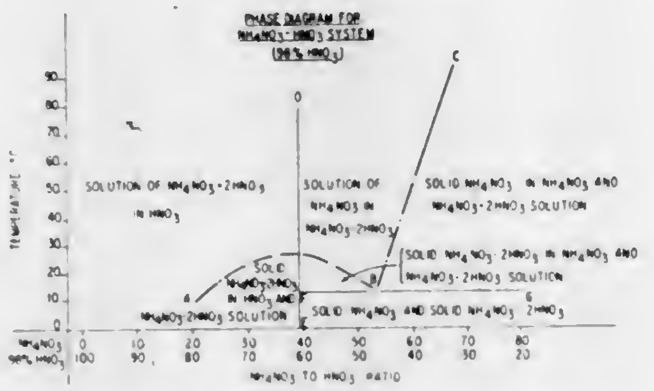
7. A process for manufacturing a semiconductor device, including the steps of:

placing an apertured mask on a major surface of a silicon semiconductor wafer of one conductivity type, the interface between said mask and said major surface being penetrable by a gaseous silicon etchant;

epitaxially depositing silicon of opposite conductivity type on said major surface through said aperture by the vapor phase reaction of hydrogen with a halogen compound of silicon, said reaction simultaneously producing a volatile hydrogen halide capable of etching silicon, whereby during said deposition step said hydrogen halide penetrates said interface to etch the portion of said major surface beneath said mask; and removing said mask from said surface.

3,306,789
NITRIC ACID EXPLOSIVE COMPOSITION CONTAINING INORGANIC NITRATE OXIDIZER AND NITRATED AROMATIC COMPOUND

Hector Andrew Logan, Beloeil, Quebec, and Robert F. Knott, St. Hilaire, Quebec, Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada
Filed Apr. 13, 1966, Ser. No. 542,247
Claims priority, application Canada, Apr. 21, 1965,
928,749
7 Claims. (Cl. 149—56)



1. An explosive composition comprising essentially at least one inorganic nitrate selected from the group consisting of ammonium nitrate and potassium nitrate, concentrated nitric acid and an organic fuel selected from the group consisting of nitrotoluenes and nitrobenzenes, which is miscible with and does not react with nitric acid.

3. An explosive composition as claimed in claim 1 wherein the organic fuel contains a gas-generating substance selected from the group consisting of naphthylamine, methylene bis-(monomethylnaphthylene sodium sulphonate), diphenylamine, analine cresote, o-toluidine, p-cresol and acetone.

3,306,790
SLOW BURNING PLASTISOL CELLULOSE ACETATE PROPELLANT COMPOSITION CONTAINING RESORCINOL

Frank G. Crescenzo, Robert L. Dow, and Benjamin Y. S. Lee, all of China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Apr. 20, 1965, Ser. No. 450,270
4 Claims. (Cl. 149—93)

1. A slow burning rate propellant composition consisting essentially of the following

Ingredients:	Percent by weight
Cellulose acetate	37–50
Pentaerythritol trinitrate	35–48
Dibutyl phthalate	5–15
Resorcinol	1

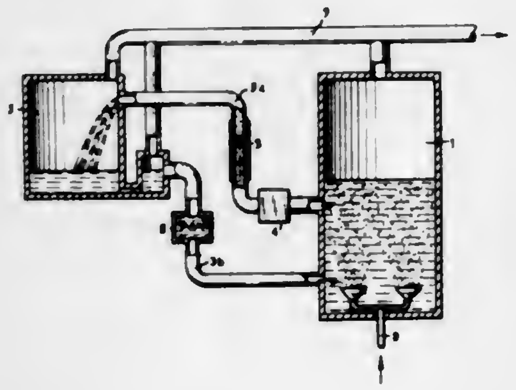
3,306,791
BONDING OF EPOXY RESINS TO POLYOLEFIN PLASTIC MATERIALS

John D. Nye, Gananoque, Ontario, Canada, assignor to Gulton Industries, Inc., Metuchen, N.J., a corporation of New Jersey
No Drawing. Filed Oct. 8, 1962, Ser. No. 229,184
5 Claims. (Cl. 156—3)

1. In a method of bonding a polyethylene plastic material to an epoxy resin, the steps comprising contacting a polyethylene plastic material with at least a 90% solution of sulfuric acid containing from about 0.05% to about 2%, by weight, of a compound selected from the group consisting of chromic acid and compounds of chromium capable of forming chromic acid in the presence of sulfuric acid, washing and drying the said treated polyethylene plastic material, and then applying an epoxy resin containing a curing agent to the dried material and allowing the said resin to cure on the material at room temperature.

3,306,792
CONTINUOUSLY REGENERATING COPPER-CONTAINING ETCHING SOLUTIONS

Werner Thürmel, Rudolf Voh, and Eftimios Konstantouros, Munich, Germany, assignors to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed Aug. 5, 1963, Ser. No. 299,839
8 Claims. (Cl. 156—19)



1. A method of continuously etching copper or copper alloys with an aqueous copper-II-etching (cupric) solution containing hydrochloric acid and ammonium chloride, which solution becomes enriched with copper-I-ions (cuprious ions) incident to the etching, and continuously regenerating the etching solution, whereby the regeneration is effected by an oxygen-containing gas and an amount of the solution containing the excess of copper ions, produced in the etching operation is removed from the etching solution and is replaced by a like amount of an aqueous solution containing hydrochloric acid corresponding to the amount consumed in the regeneration and withdrawn with the removed amount, and also containing ammonium chloride corresponding to the amount withdrawn with the removed amount of etching solution, comprising the steps of carrying out the etching and the regeneration, respectively, in separate devices through which the etching solution is caused to flow, injecting the oxygen-containing gas effecting the regeneration in finely dispersed form to maintain large boundary areas between the etching solution and the oxygen-containing gas and to secure extended retention of the gas in the etching solution, for the regeneration of the latter, thereby adjusting an equilibrium between the etching operation and the regeneration of the etching solution with the oxygen-containing gas.

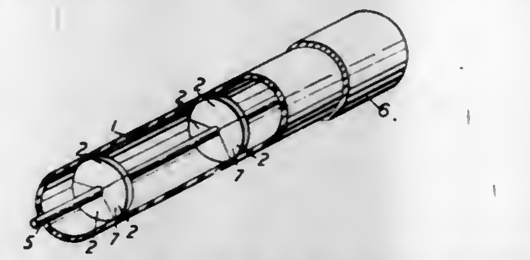
3,306,793
METHOD OF MAKING COAXIAL CABLES

Ronald Yaxley Gill and Gerald Alan Morel, both of London, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 7, 1964, Ser. No. 343,240
Claims priority, application Great Britain, Mar. 15, 1963,
10,367/63
3 Claims. (Cl. 156—54)

1. A method of manufacturing a coaxial cable comprising a continuous longitudinal strip of electrical insulating material which includes the steps of:

forming on a continuous longitudinal strip of electrical insulating material groups of relatively thin contiguous triangulated projections of the same insulating material joined at their base and arrayed thereon transverse to the longitudinal axis thereof;

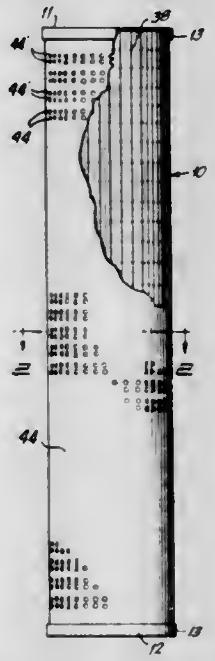
folding said strip longitudinally about an inner conductor to form a continuous tube so that said projections extend inwardly therefrom and the edges of adjacent projections meet to surround and support said inner conductor centrally and form a plurality of supports at spaced intervals along the length thereof; and



applying an outer tubular conductor to the outer surface of said tube.

3,306,794
METHOD OF MAKING A FILTER ELEMENT

Kingsley E. Humbert, Jr., Gastonia, N.C., assignor to Wix Corporation, Gastonia, N.C., a corporation of North Carolina
Filed Feb. 12, 1963, Ser. No. 257,916
5 Claims. (Cl. 156—69)



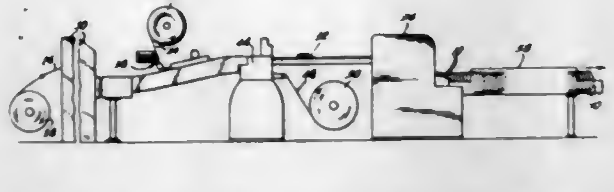
1. The method of forming a filter element into pleats with peaks comprising pleating a sheet of filter paper, depositing a plurality of spaced apart spots of adhesive material along the peaks of said pleats, forming the pleats into an elongated annulus, assembling a foraminous center tube of substantially the length of said annulus with said annulus, placing a foraminous body wrapper of substantially the length of said annulus around the outside of said annulus in contact with said spots of adhesive and bonding the two together, securing end caps on the opposite ends of said filter element, and thus forming a unitary throw-away type filter element.

3,306,795
METHOD OF MAKING NON-PLANAR FIBROUS ARTICLES

Edward A. Morse, Fanwood, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Original application Sept. 13, 1962, Ser. No. 223,488, now Patent No. 3,262,451, dated July 26, 1966. Divided and this application Nov. 12, 1965, Ser. No. 507,503
8 Claims. (Cl. 156—85)

1. The method of making a preformed, non-planar fibrous body comprising securing a heat shrinkable, axially-oriented layer of plastic to a surface of a relatively thick

layer of fibrous material with the direction of axial orientation of said plastic layer being in the direction that said fibrous body is to be made non-planar, and heating



said plastic layer while so secured to said fibrous layer to shrink said plastic layer and thereby form and hold said fibrous layer in a non-planar configuration.

3,306,796

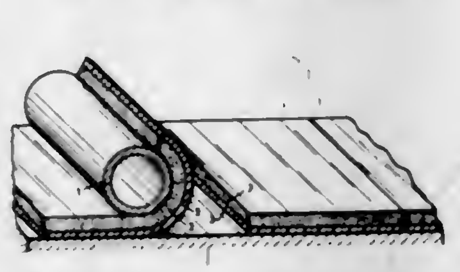
METHOD OF AND A DEVICE FOR PROVIDING UPON CATHODE CARRIERS EMISSION LAYERS AND A CATHODE PREPARED THEREBY FOR THE OPERATION THEREOF

Robert Lauter, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany

Filed May 15, 1962, Ser. No. 194,908

Claims priority, application Germany, May 16, 1961, S 73,979

6 Claims. (Cl. 156—155)



1. A method of forming thin emission layers upon carriers for directly or indirectly heated cathodes of electrical discharge vessels, comprising placing upon the smooth surface of a very thin pliable support film, substantially made of dinitrocellulose of a thickness from 8–10 microns, an emission layer in the form of a paste consisting substantially of an alkaline earth carbonate intermixed with a binder of dinitrocellulose and softener agents, with the binder facilitating adhesion of said paste to said film to produce a compound foil formed of said film and layer, bonding said compound foil to said cathode member with the emission layer thereof in engagement with such member, and upon operation of the cathode, incident to decomposing action of the emission layer, effecting decomposition of said film without leaving any disturbing residue or liberating aggressive gas.

3,306,797

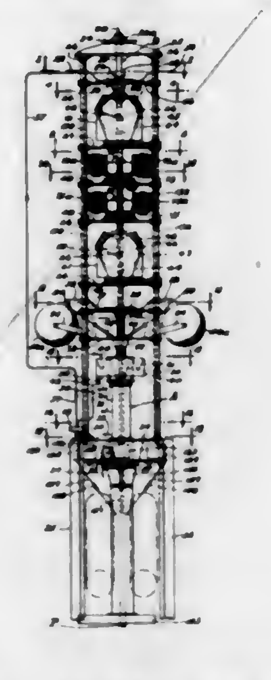
METHOD AND APPARATUS FOR MAKING ELONGATED ARTICLES OF FIBER REINFORCED RESIN MATERIAL

Le Roy R. Boggs, Bristol, Tenn., assignor to Universal Moulded Fiber Glass Corp., Bristol, Va., a corporation of Delaware

Filed Aug. 2, 1963, Ser. No. 299,636

34 Claims. (Cl. 156—171)

21. In the making of fiber reinforced resin articles by hardening the resin in a generally vertical forming passage, the method which comprises establishing a stream of liquid heat hardenable resin material flowing downwardly on the outside surface of a core element extended from a point spaced above the upper end of the forming passage downwardly into the forming passage, feeding fiber reinforcements to the resin carrying surface of the core element to effect impregnation of the reinforcements with the resin material, the reinforcements fed to the core comprising at least three plies the innermost and outermost of which comprise elongated reinforcement elements extended substantially longitudinally of the direction of feed through the forming passage and an intermediate ply of which includes at least one elongated element helically wound around the core, feeding the impregnated reinforcements downwardly into and through the forming passage in contact therewith, heating the resin material to harden it while it is in the forming passage, and pulling on the hardened article beyond the lower end of the forming passage to draw the materials into and through the forming passage.



3,306,798

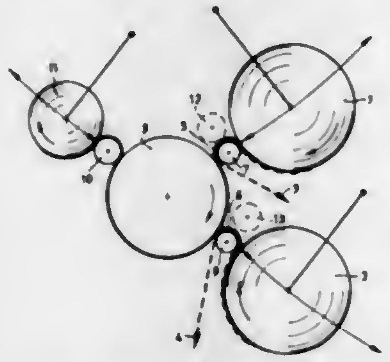
METHOD AND DEVICE FOR PRODUCING ELECTRICAL THIN-FOIL CAPACITORS

Fritz Gaenge, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a German corporation

Filed Oct. 30, 1962, Ser. No. 234,103

Claims priority, application Germany, Nov. 7, 1961, S 76,583

11 Claims. (Cl. 156—192)



1. In the art of making wrapped electrical thin-foil capacitors employing a plurality of thin foil bands which are produced by placing upon auxiliary carrier foils varnish layers on which are vaporized metal coatings and from which coatings the carrier foils are removed prior to the wrapping operation, the method of preparing said thin foil bands for wrapping comprising the steps of supporting at least two thin foil bands while in unwrapped strip form with a face of the respective varnish layer of one band in contacting relation with a face of another such band, and applying heat to at least one of said bands while in such unwound contacting relation to effect a bonding between the contacting faces of said bands prior to the winding thereof to form a capacitor.

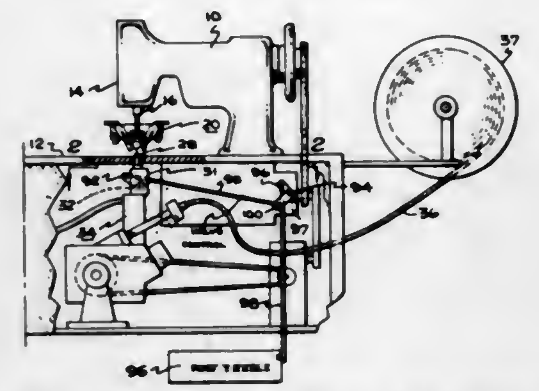
3,306,799

METHOD AND APPARATUS FOR THE ADHESIVE JOINING OF BRAIDS FOR BRAIDED RUGS

Francis A. Egert, Philadelphia, Pa., assignor to The Wool "O" Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed July 29, 1963, Ser. No. 298,192

7 Claims. (Cl. 156—304)



6. The method of joining together the braids of a braided rug which includes placing the braids on a table in juxtaposition to each other but partially separated by an elongated nozzle and an elongated central presser foot, emitting from said nozzle a predetermined quantity of adhesive so related to the rate of movement of the braids past the nozzle as to result in no excess adhesive coating on the braids, and setting said adhesive in its proper location between and spaced from the bearing surfaces of the rug to prevent the adhesive from running to or near parts of the braid which provide the bearing surfaces.

3,306,800

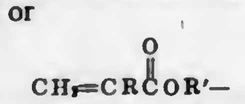
BONDING THERMOPLASTIC RESINS TO INORGANIC MATERIALS

Edwin P. Plueddemann, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Apr. 27, 1964, Ser. No. 362,923

18 Claims. (Cl. 156—329)

1. The method of bonding (1) a thermoplastic resin to (2) a material selected from the group consisting of solid siliceous materials, metals, and metal oxides comprising (a) applying to the surface of at least one of (1) and (2), (A) a copolymer which is compatible with (1), of at least one type of organic, unsaturated monomer and an organosilicon compound containing at least one silicon-bonded vinyl, allyl, or



$$CH_2{=}CR\overset{\overset{O}{\|}}{C}OR'{-}$$

group, where R is methyl or hydrogen and R′ is lower alkylene, the remaining valence bonds of the silicon of said organosilicon compound being satisfied with oxygen, hydrolyzable groups, hydroxyl groups, hydrocarbon radicals, or halohydrocarbon radicals, each containing less than 10 carbon atoms, there being an average of at least 3 silicon-bonded hydrolyzable or hydroxyl groups per molecule of (A), and (A) having an average molecular weight of at least 2000; (b) bringing (1) and (2) in contact with each other under conditions where at least one of them is in a plastic condition, and (c) thereafter allowing the plastic material to solidify whereby an improved bond is obtained.

3,306,801

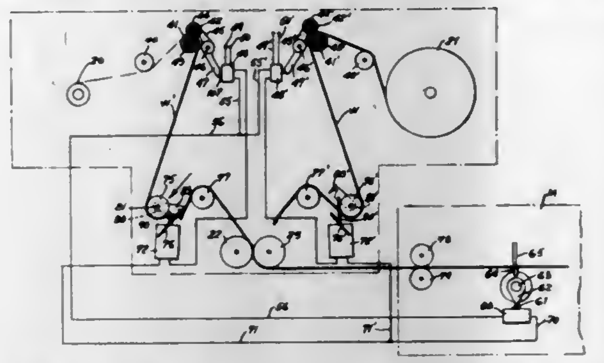
WEB SEVERING MEANS FOR WEB SPLICING MACHINES

William H. Giles, Brooklyn, N.Y., assignor to Nu-Roll Corp., Mineola, N.Y., a corporation of New York

Filed Sept. 14, 1962, Ser. No. 223,709

2 Claims. (Cl. 156—353)

1. In combination, a web splicing machine, means in the splicing machine for splicing a new web supply to the trailing end of an exhausted web supply, a wrapping machine, means for feeding the web from the splicing machine to the wrapping machine, a cutter in the wrapping machine for cutting the web into sheets, means in the splicing machine for clamping the trailing end of the exhausted web, a tear blade in the splicing machine against which the web can be torn, detector means in the splicing machine for controlling the operation of the clamp and tear blade, and means including electric circuits controlled by the operation of the knife in the wrapping machine operatively coupled to the operation of the detector means for coordinating the operation of the clamp and tear blade to the operation of the wrapping machine knife.



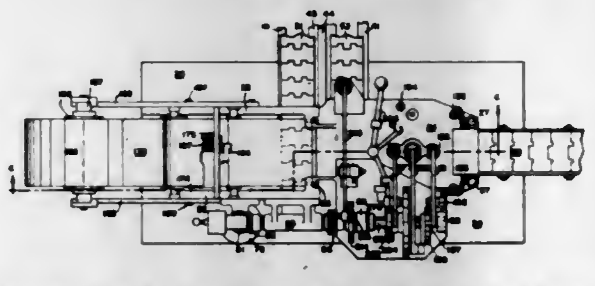
3,306,802

HANDLE APPLYING MACHINE

Isaac L. Wilcox and Anthony John Columbus, Jr., Fulton, N.Y., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed July 16, 1963, Ser. No. 295,562

13 Claims. (Cl. 156—355)



1. A machine for applying a handle band of heat sealable sheet material to a pair of containers rectangular in cross section and arranged in upstanding side by side abutting relation, including web feed means operable to feed a web of sheet heat sealable material to position the end portion of the web transversely of the pair of containers above the junction thereof and parallel thereto, a shear extending transversely of the web and operable to severe said end portion of the web, a support means for supporting the central portion of the severed piece, a pair of heat sealing jaws positioned above the ends of said severed piece, jaw actuating means operable to move said jaws downwardly into engagement with the ends of the severed piece and press the same into heat-sealing engagement with opposite sides of the pair of containers at the junction thereof, and cycling mechanism for operating said web feed means, shear and jaw actuating means in timed relation.

3,306,803

LABEL APPLYING MACHINE

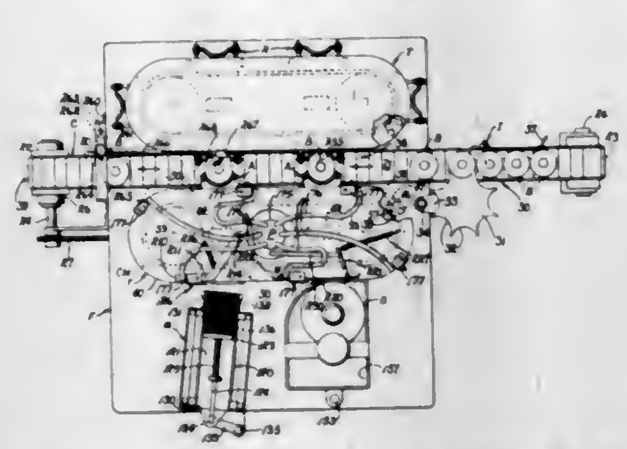
John H. Holstein, 404 E. Sussex Way, Fresno, Calif. 93704

Filed Feb. 25, 1963, Ser. No. 260,801

26 Claims. (Cl. 156—357)

1. In a label applying machine, the combination of means to advance an article along a rectilinear path of travel at a predetermined rate; applicator means for applying a label to said article during movement thereof along a portion of said path; means for motivating said

applicator means along a path of travel adjacent to said portion at the predetermined rate and synchronized with said article, including a pair of elevationally spaced upper and lower deck members having juxtapositioned races therein, a plurality of linearly spaced pairs of upright carrier masts, means supporting the masts for guided movement about a circuitous path of travel defined by said races, and power means for driving the masts about said path; and means for effecting relative movement between the article and the applicator means to apply a label to the article.

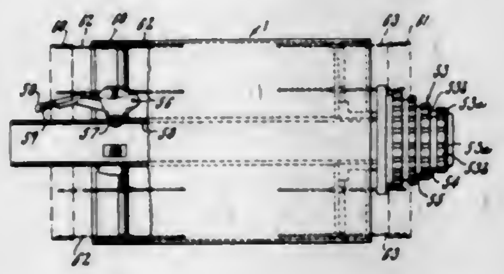


3,306,804
TIRE CARCASS BUILDING DRUM

Sheppard A. Black, Wayne, John D. Heide, Ramsey, and Thomas J. Rhodes, Kinnelon, N.J., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey

Original application Dec. 4, 1962, Ser. No. 242,197. Divided and this application Feb. 1, 1966, Ser. No. 524,124

4 Claims. (Cl. 156—417)



1. A drum for supporting tire carcass plies comprising: a cylinder having a pair of bases and having at one base thereof a generally tapered device with a plurality of grooves spaced axially of said cylinder and having at the other base thereof a plurality of fingers pivotally mounted on one of said bases and disposed to couple the drum selectively to a groove on the tapered device of a like drum to substantially prevent axial and rotational relative movement between said drums.

3,306,805
APPARATUS FOR MAKING PRINTED CORRUGATED PAPER BOARD

Charles H. Klein, James K. Haley, and Alfred C. Sides, all of Cincinnati, Ohio, assignors to Novelart Manufacturing Company, Cincinnati, Ohio, a corporation of Ohio

Filed May 20, 1963, Ser. No. 281,600

7 Claims. (Cl. 156—470)

1. Apparatus for making double-face corrugated paper having one face formed of discrete sheets of printed paper, said apparatus comprising,

means forming a supply of a single-face web having a corrugated surface,

means for applying adhesive to the corrugated surface of said web,

a set of rolls for adhesively joining said printed sheets sequentially to the corrugated surface of said single-face web,

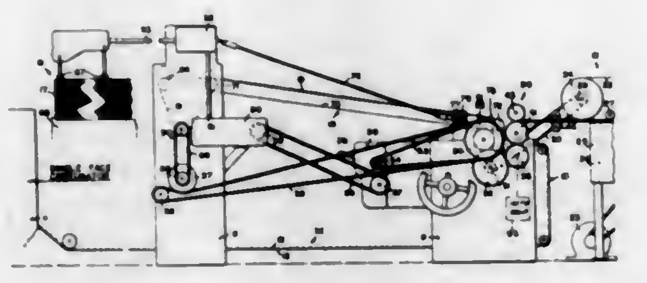
means for feeding said web into said rolls with said corrugated surface facing upwardly,

means for feeding printed sheets sequentially into said rolls with said sheets overlying said corrugated surface,

a stop mounted adjacent said rolls for movement in and out of the path of said sheets to time the entry of said sheets into said rolls,

drive means for rotating said rolls, and

means including a variable speed transmission connecting said drive means to said sheet feeding means and said movable stop.

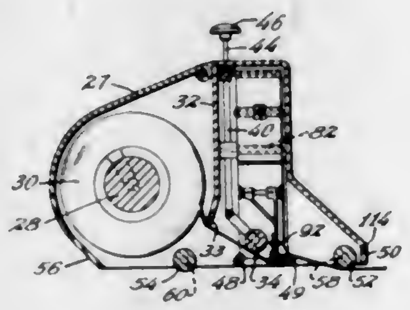


3,306,806
TAPE DISPENSER WITH COORDINATED DISPENSING, SEALING AND CUTTING MECHANISM

Edward S. Seropian, 1471–F Timberlake Road, St. Paul, Minn. 55117

Filed July 20, 1964, Ser. No. 383,831

12 Claims. (Cl. 156—523)



1. An elongated tape dispenser for use in combination with a roll of tape comprising:

(a) an elongated hollow body having generally upstanding spaced apart sides and a top secured to marginal edges of said sides,

(b) said body having a forward end portion and a rearward end portion,

(c) a spindle extending generally perpendicular to said sides in said rearward end portion of said body rotatably carrying a roll of tape,

(d) said forward end portion of said body including an outlet through which tape carried on said spindle is adapted to be dispensed,

(e) lift means carrying the free end of tape from said roll within said body in spaced above relation to a surface to be covered by tape,

(f) pressure foot means to urge the free end of said tape into contacting relation to a said surface to be taped,

(g) shear means in said body including blade pivotally mounted in spaced above shearing relation to tape being dispensed whereby tape being dispensed is adapted to be sheared at any desired point by pivotal motion of said blade, and

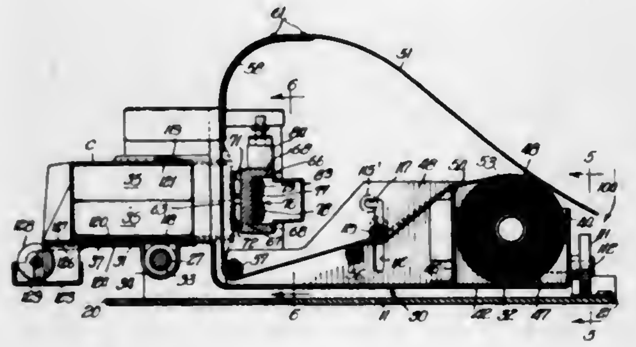
(h) actuating means including a plunger whereby said pressure foot means is moved in coordinated relation to said lift means and said shear means.

3,306,807
TRANSFER APPLYING MACHINE

Herman E. Schlotthauer, Des Plaines, Ill., assignor to The Meyercord Co., Chicago, Ill., a corporation of Illinois

Filed Apr. 18, 1966, Ser. No. 549,111

20 Claims. (Cl. 156—541)



1. A manually operable machine for simultaneously applying a group of heat releasable indicia to a plurality of side-by-side articles from an elongated web having said indicia arranged on one side thereof in transverse rows, said machine comprising elongated transfer means including a plurality of discrete aligned heating areas, the number of indicia in a row being a small multiple of the number of said heating areas, web support means for mounting a web supply roll and positioning a deflectable portion of the web across said transfer means with the opposite side of the web facing said heating areas, and a carriage mounted for manual shifting movement to different indicia-applying positions longitudinally of said transfer means, said carriage including an article support adapted to hold articles in position to be moved manually along said support into engagement with said deflectable web portion at said one side of said web for deflecting the web against said heating areas and thereby effecting heat release application of selected indicia from the web to the articles, and one of said transfer means and said web support means being mounted on said carriage for unitary movement with said article support relative to the other of said means whereby to effect alignment of different groups of indicia with said heating areas in the different positions of said carriage.

3,306,808
CURL RESISTANT DUST COLLECTING MATS

Dewey T. Thompson and William T. Fincher, La Grange, Ga., assignors to Callaway Mills Company, La Grange, Ga., a corporation of Georgia

No Drawing. Filed Nov. 22, 1963, Ser. No. 325,750

30 Claims. (Cl. 161—66)

1. A dust collecting mat comprising a plurality of cellulosic yarns tufted to one side of a cellulosic fabric having a potential shrinkage from 0 to about 12.5%, the other side of said fabric having an elastomeric backing comprising about 20% to 60% acrylonitrile copolymerized with about 40% to 80% of a conjugated diene having from 4 to 6 carbon atoms per molecule of diene monomer, said tufted yarns having absorbed thereon a petroleum dust collecting oil having an aniline point above about 230° F., a specific gravity between about 0.85 and about 0.95, and a boiling point above about 500° F.

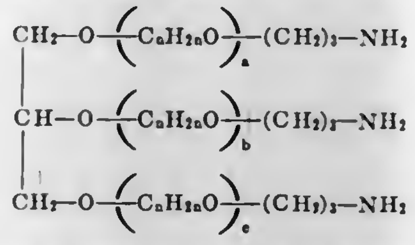
3,306,809
CURABLE POLYEPOXIDE AND GLYCOL POLYAMINE COMPOSITIONS

Frank L. Williamson, South Plainfield, and Richard J. Burns, Somerville, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Aug. 21, 1961, Ser. No. 132,577

27 Claims. (Cl. 161—185)

1. Curable composition comprising a polyepoxide having an epoxy equivalency of greater than one, and a glycol polyamine of the formula:



$$\begin{array}{l} CH_2-O-(C_nH_{2n}O)_a-(CH_2)_3-NH_2 \\ | \\ CH-O-(C_nH_{2n}O)_b-(CH_2)_3-NH_2 \\ | \\ CH_2-O-(C_nH_{2n}O)_c-(CH_2)_3-NH_2 \end{array}$$

wherein: *n* has a value of 2 to 10 inclusive and the sum of *a*, *b* and *c* has a value of 3 to 100 inclusive, said glycol polyamine being present in said composition in an amount of about 75 percent of stoichiometric to about 15 percent in excess of stoichiometric.

3,306,810
COMPOSITIONS CONTAINING METHYLENE BISTHIOCYANATE, DISPERSANT AND A DIMETHYLAMIDE AND PROCESSES OF INHIBITING MICROBIOLOGICAL DETERIORATION UTILIZING SAID COMPOSITION

Stanley J. Buckman and John D. Pera, both of Memphis, Tenn., assignors to Buckman Laboratories, Inc., Memphis, Tenn., a corporation of Tennessee

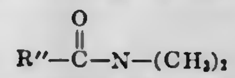
No Drawing. Filed June 8, 1964, Ser. No. 373,491

8 Claims. (Cl. 162—161)

1. A water-dispersible microbicidal composition of matter comprising methylene bisthiocyanate, a dispersant having the formula

$$R—O—(R'C_2H_3O)_xH$$

wherein *x* is an integer varying from 1 to 20, R is selected from the group consisting of straight and branched chain alkyl substituted benzenes and straight and branched chain alkyl radicals containing from 6 to 20 carbon atoms and R' is selected from the group consisting of hydrogen and methyl, and a dimethylamide having the formula



$$R''-\overset{\overset{\displaystyle O}{\|}}{C}-N-(CH_3)_2$$

wherein R'' is selected from the group consisting of hydrogen, saturated, unsaturated, and hydroxy substituted alkyl radicals containing from 1 to 22 carbon atoms characterized in that the methylene bisthiocyanate content varies from 5 to 50, that of the dispersant varies from 5 to 40, and that of the dimethyl amide varies from 10 to 90, all in percent by weight of the composition.

7. A method of inhibiting the microbiological deterioration of a cellulosic material that is susceptible to deterioration by the action of microorganisms in the presence of moisture, which comprises adding to said cellulosic material the composition of claim 1 in an amount sufficient to provide a concentration of the methylene bisthiocyanate of from 0.1 to 500 parts per million parts of water.

3,306,811
METHOD AND APPARATUS FOR FORMING MULTI-LAYER, PAPER TEST SHEETS

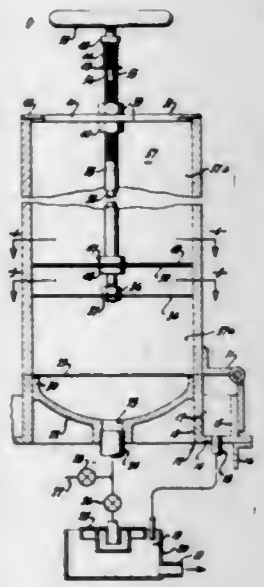
Gordon F. Sylvester, 191 Mariposa Drive, Pittsburg, Calif. 94565

Filed Apr. 7, 1964, Ser. No. 358,031

12 Claims. (Cl. 162—123)

1. In a method of making laminated paper test sheets, the steps of filtering a pulp slurry through a relatively flat filter medium to collect a layer thereon of solid materials

from said slurry to form one lamination of such sheet, forming a second lamination in super-position along said first lamination by flowing additional pulp slurry through such filter medium and through said first lamination thereon while maintaining said first lamination in a wetted condition prior to and during the flow of said additional slurry therethrough and while also confining such first laminatoin to prevent lateral flow thereof, and removing from such filter medium the composite laminations comprising said multiple-laminate sheet preparatory to drying the same.



7. In apparatus for making multiple-laminated sheets, a container defining a chamber and being provided with a valve-equipped discharge outlet, a collection screen within said chamber and being disposed with respect to said discharge outlet so that substantially all of the fluid contained within said chamber flows through said screen in being discharged from said outlet, container-dividing structure including valve structure located intermediate the ends of said container on the side of said screen opposite said discharge outlet, said valve structure being effective to divide said chamber into two compartments and being selectively movable between open and closed positions to substantially flow-isolate such two compartments when in the closed position, and means for moving said valve structure between its open and closed positions.

3,306,812
PROCESS OF SIZING SHAPED FIBROUS ARTICLES WITH POWDERED FATTY ACIDS OF 18 TO 24 C ATOMS

Gordon D. Sinclair and Henry R. Sallans, both of Saskatoon, Saskatchewan, Canada, assignors to National Research Council, Ottawa, Ontario, Canada, a body corporate

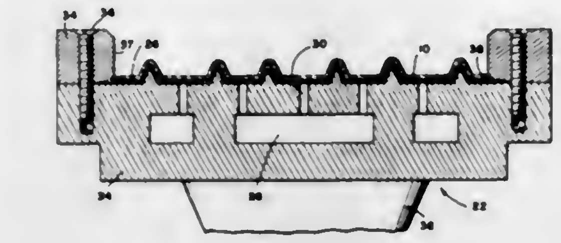
No Drawing. Filed Feb. 10, 1964, Ser. No. 343,484
7 Claims. (Cl. 162—165)

1. A process for sizing relatively rigid shaped fibrous articles such as hardboards, prepared from a slurry of fibrous pulp stock comprising mixing into said slurry while at a pH of from about 4 to about 10, about 0.5 to 2% by weight of the total solids content of the slurry of a sizing agent consisting of a dry powdered, free, saturated, long chain fatty acid having from 18 to 24 straight chain carbon atoms in its molecule, forming the pulp into a shaped article and hot pressing said shaped article at a temperature sufficient to cause said fatty acid to vaporize within the shaped article.

3,306,813
PULP MOLDING, METHOD AND APPARATUS

Richard F. Reifers, New Canaan, Conn., assignor to Diamond International Corporation, a corporation of Delaware

Filed June 16, 1964, Ser. No. 375,512
14 Claims. (Cl. 162—223)



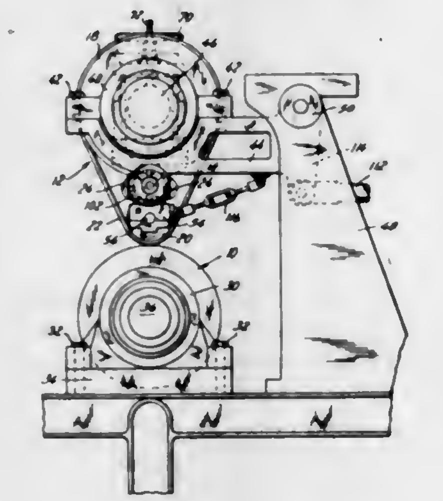
1. In a method of pulp molding comprising contacting a molding surface with a pulp slurry, depositing the pulp on the molding surface, removing the deposit and mold from the slurry, and removing the deposit from the mold, the improvement comprising depositing a portion of pulp in a plurality of undercut positions of said mold at peripheral sections of said deposit during the deposition to form a plurality of projections and removing the deposit from the mold by applying differential pressure to said deposit to deform said projections at said peripheral sections and to force said projections at said peripheral sections out of said undercut portions and provide an edge essentially free of flash.

5. In a mold for use in pulp molding comprising a permeable molding surface and a hollow interior adjacent said molding surface to transmit fluid pressure, the improvement comprising means to define the periphery of said article, said periphery defining means having a plurality of undercut portions into which the material to be molded deposits as discrete projections.

3,306,814
PAPER MAKING MACHINE WRINGER APPARATUS

Charles P. McHugh, Ridgewood, N.J., assignor to Raybestos-Manhattan, Inc., Passaic, N.J., a corporation of New Jersey

Filed Mar. 27, 1964, Ser. No. 355,182
10 Claims. (Cl. 162—358)

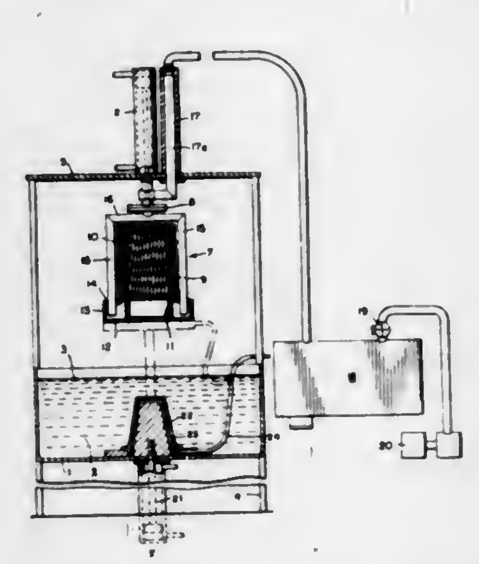


1. A paper making machine wringer apparatus having a bottom press roll and a mating top press mechanism between which a wet carrier holding a web of paper is adapted to be moved and pressed for expelling water from the carrier and paper web, said top press mechanism comprising an upper roll, a lower roll mounted for movement relatively to the upper roll, a rubber blanket trained over the said upper and lower rolls, means for positively lowering and elevating the lower roll relatively to the upper roll to effect movement of the lower roll toward and away from the bottom press roll for respectively press-engaging the rubber blanket with and disengaging the rubber blanket from the bottom press roll, movement of the lower roll away from the bottom press roll freeing said rubber blanket for removal from said top press mechanism, and means for applying compression between and to the upper and lower rolls when the lower roll is in a press-engaging position with respect to the rubber blanket and to relieve compression from between said upper and lower rolls when the lower roll is in a position for disengaging the rubber blanket.

3,306,815
APPARATUS FOR ACCRETION OF FIBROUS ARTICLES ON A MOLD FROM A SLURRY OF FIBERS

Charles H. Mayne, Swindon, Wilts, England, assignor to Hawley Products Company, St. Charles, Ill., a corporation of Delaware

Filed July 14, 1964, Ser. No. 382,531
5 Claims. (Cl. 162—393)



1. Apparatus for moulding shaped fibre articles from a slurry of liquid containing fibres in suspension comprising a mould assembly including a liquid pervious form mounted within a bell which has an impervious top, impervious side walls and is open at the bottom, said form being disposed within said bell wholly above the bottom edge thereof and said bell defining a chamber around the form communicating with the reverse side thereof, means supporting the mould assembly above a bath of slurry and providing for movement thereof between an upper position where the bottom end of the bell is above the surface of the slurry and a lower position where said bottom end of the bell is immersed in the slurry, and pipe means formed as a part of said supporting means connected to a source of suction communicating with said chamber adjacent the bottom thereof.

3,306,816
METHOD OF DESTROYING SOIL PATHOGENS

Edward D. Weil, Lewiston, Keith J. Smith, Lockport, and Emil J. Geering, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Aug. 19, 1965, Ser. No. 481,076
3 Claims. (Cl. 167—22)

1. A method of destroying soil pathogens which comprises treating the loci of said pathogens with an effective amount of a compound of the formula C_2X_5SX, where the X's are selected from the group consisting of chlorine, bromine and mixtures thereof.

3,306,817
METHOD OF REPELLING BIRDS

Andrew J. Reinert, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Jan. 3, 1966, Ser. No. 517,906
4 Claims. (Cl. 167—46)

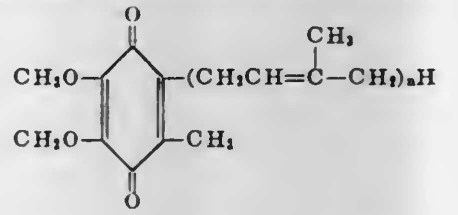
1. A method of repelling birds from a locus which comprises applying to said locus amorphous polypropylene in an amount sufficient to render said locus repellent to birds.

3,306,818
PRESERVATION OF SPERM

Karl Folkers, Menlo Park, and Atwood C. Page, Jr., Modesto, Calif., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 4, 1963, Ser. No. 306,623
5 Claims. (Cl. 167—53.2)

1. A stabilized sperm preparation which comprises live motile sperm cells intimately dispersed in an aqueous medium including assimilable sources of carbon and nitrogen, inorganic salts essential to the cells and a minor amount of a compound from the group consisting of 1,4-benzoquinone compounds of the formula:



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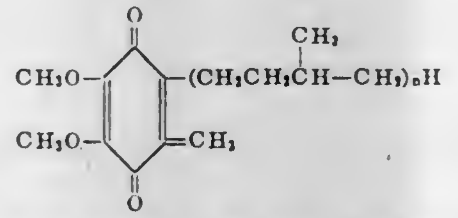
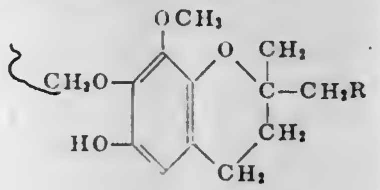
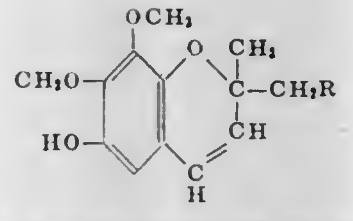


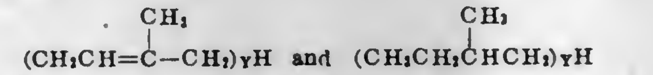
wherein *n* is an integer from two to ten, and the chromanols and chromenols having the formulas



and



wherein R is a member from the group consisting of hydrogen,



$$(CH_2CH{=}\overset{CH_3}{\overset{|}{C}}{-}CH_2)_YH \quad \text{and} \quad (CH_2CH_2\overset{CH_3}{\overset{|}{C}}HCH_2)_YH$$

where Y is an integer from one to nine.

3,306,819
DERIVATIVE OF PECTIN, ITS PROCESS OF PREPARATION AND ITS METHOD OF USE

Jean Marie Farthouat, Romainville, and François Clemence, Sarcelles-Locheres, France, assignors to Roussel-UCLAF, S.A., Paris, France, a corporation of France

No Drawing. Filed Oct. 2, 1962, Ser. No. 227,704
Claims priority, application France, Oct. 9, 1961, 875,377; July 20, 1962, 904,635
14 Claims. (Cl. 167—55)

1. The pectinate of bismuth containing between 10% and 30% of bismuth by weight and having a specific rota-

tion, in dilute hydrochloric acid, of between about +140° and about +150°.

12. A cosmetic product comprising an aqueous gel of the pectinate of bismuth, said pectinate of bismuth containing between 10% and 30% of bismuth by weight and having a specific rotation, in dilute hydrochloric acid, of between about +140° and about +150°, in a solution of a strong electrolyte.

13. A therapeutic product comprising a major amount of the pectinate of bismuth, said pectinate of bismuth containing between 10% and 30% of bismuth by weight and having a specific rotation, in dilute hydrochloric acid, of between about +140° and about +150°, and an inert non-toxic pharmaceutical carrier.

3,306,820
OPHTHALMIC COMPOSITION CONTAINING AN ANESTHETIC AND FLUORESCEIN SODIUM

Joseph Z. Krezanoski, Sunnyvale, Calif., assignor to Barnes-Hind Pharmaceuticals, Inc., a corporation of California

No Drawing. Filed Mar. 18, 1966, Ser. No. 535,365

4 Claims. (Cl. 167—59)

1. A combination ophthalmic local anesthetic and disclosing agent comprising a local anesthetic selected from proparacaine, parethoxycaine, benoxinate or tetracaine, fluorescein sodium, and polyvinylpyrrolidone wherein the local anesthetic is present in a concentration of from 0.1% to 2.0%, the fluorescein sodium is present in a concentration of from 0.05% to 0.3% and the polyvinylpyrrolidone is present in a concentration of from 5% to 15%, the balance of the composition consisting essentially of distilled water and having a pH of about 5.0.

3,306,821
PORFIROMYCIN DERIVATIVES AND METHOD OF MAKING SAME

William Schroeder, Scotts, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Sept. 4, 1962, Ser. No. 221,310

28 Claims. (Cl. 167—65)

1. A composition of matter, x-methoxy-x-desaminoporfiromycin, which

(a) is effective in inhibiting the growth of Gram-positive and Gram-negative bacteria and its essentially pure crystalline form;
(b) is deep carmine red in color;
(c) has characteristic infrared absorption in mineral oil mull at the following wave lengths expressed in reciprocal centimeters:

3450	1706	1600	1303	810
3320	1665	1485	1070	760
3220	1642	1340	1005	715
1732	1625	1316	815	695;

(d) has an ultraviolet maximum in 5 percent ethanol of 320 mμ;
(e) has the following elemental analysis: C, 56.53; H, 6.07; N, 11.71; O, 25.83;
(f) has a melting point of 170–171° C.;
(g) and has a molecular formula $CH_3O(C_{18}H_{18}N_3O_5)$.

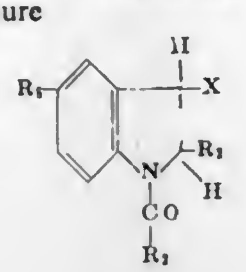
3,306,822
ANTI-INFLAMMATORY THERAPY WITH 3-INDOLINYL COMPOUNDS

Tsung-Ying Shen, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed May 20, 1963, Ser. No. 281,813

4 Claims. (Cl. 167—65)

1. A method of treating inflammation and fever due to inflammation, in patients, which comprises orally administering, to said patients, 1.0–4000 mg. per day of a compound of the structure



wherein:

R_1 is halophenyl;
R_2 is selected from the group consisting of hydrogen and lower alkyl;
X is selected from the group consisting of α-propionic acid, β-propionic acid and acetic acid;
R_8 is selected from the group consisting of hydrogen and lower alkoxy.

3,306,823
SOMATOTROPIC HORMONE

Jean Choay, Neuilly, and Maurice Thely and Edmond Vairel, Paris, France, assignors to "Laboratoire Choay," Paris, France, a corporation of France

No Drawing. Filed Jan. 18, 1963, Ser. No. 252,286

Claims priority application France, Jan. 22, 1962, 885,443, Patent 1,320,784

6 Claims. (Cl. 167—74)

1. The process for the preparation of a stable somatotropic hormone having activity on human beings comprising subjecting animal somatotropic hormone having no activity on human beings to the enzymatic action of alpha-chymotrypsin and permanently arresting the enzyme action by adding to the reaction mixture a non-toxic alpha-chymotrypsin enzyme inhibitor of vegetable origin at such time that the hormone has activity on human beings.

3,306,824
DIETARY FLUORIDE AND VITAMIN PREPARATIONS

Perttu V. Laasko and James R. Mellberg, Barrington, Ill., assignors to The Kendall Company, Boston, Mass., a corporation of Massachusetts

No Drawing. Filed Dec. 31, 1963, Ser. No. 334,910

5 Claims. (Cl. 167—81)

1. A liquid dietary fluoride and vitamin supplement having a pH of about 3.0 to 4.5 comprising an aqueous vehicle containing dietary amounts of water-soluble fluoride and a vitamin component comprising at least one vitamin selected from the group consisting of ascorbic acid and a riboflavin ester soluble in said vehicle, and containing a salt selected from the group consisting of water-soluble aluminum and zirconium chloride, sulfate, acetate and citrate salts in an amount to provide a mol ratio of salt to fluoride of from about 0.33 to 2 to thereby provide metal cations of said salts to prevent reaction of fluoride with glass when said supplement is in contact therewith and a compound selected from the group consisting of acetic acid N-substituted and acetic acid and hydroxyethyl N-substituted ethylenediamine and diethylenetriamine and water soluble salts thereof in an amount to provide a mol ratio of said compound to said salt of from about 0.5 to 1 to chelate with said metal ions.

3,306,825
RADIOACTIVE SPHEROIDS COATED WITH PYROLYTIC GRAPHITE

Robert L. Finicle, Rocky River, Ohio, assignor to Union Carbide Corporation, a corporation of New York

Original application Dec. 18, 1962, Ser. No. 245,512, now Patent No. 3,247,008, dated Apr. 19, 1966. Divided and this application Dec. 28, 1965, Ser. No. 516,862

3 Claims. (Cl. 176—67)

1. A radioactive particle having an inner uncracked coating of laminar pyrolytic graphite and an outer coating of columnar pyrolytic graphite, the interior volume enclosed by said inner coating being greater than the volume of the radioactive particle at all temperatures below the surface sintering temperature of the particle.

3,306,826
PROCESS FOR PREPARING D-ARABITOL

Helen M. Fett, Minneapolis, Minn., and Milton H. Fischer, Harmony, Pa., assignors to The Pillsbury Company, Minneapolis, Minn., a corporation of Delaware

Filed Nov. 12, 1964, Ser. No. 410,553

7 Claims. (Cl. 195—35)

1. A process for producing D-arabitol from sclarotium forming microorganisms selected from the group consisting of the genera Sclerotium, Corticium, Stromatina, and Sclerotinia comprising

(a) innoculating an aqueous solution containing the microorganisms
(b) allowing the solution to ferment
(c) removing the mycillia from the solution, isolating and removing polysaccharide gum present in said solution, thereafter adding a suitable water-miscible solvent material adapted to precipitate additional carbohydrates, neutralizing the solution, removing precipitates present in the solution, isolating and removing glucose from a solution and isolating and removing D-arabitol from the solution.

3,306,827
ASSAY FOR BACITRACIN IN FEED

George H. Craig, Terre Haute, Ind., assignor to Commercial Solvents Corporation, a corporation of Maryland

Filed Sept. 27, 1963, Ser. No. 312,231

3 Claims. (Cl. 195—103.5)

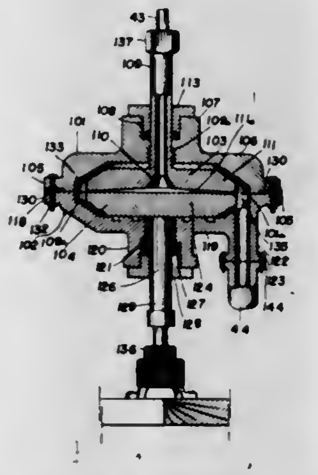
1. A process for determination of small quantitative amounts of bacitracin in animal feeds which consists essentially of dehydrating the bacitracin-containing feed with acetone, adjusting the pH of the acetone-treated feed to about 2.0 with weak hydrochloric acid, substantially completely extracting bacitracin from the feed with a 40% aqueous pyridine solution containing about 1 to 3% of a buffer having the following composition: 22.1 to 22.2 parts of K_2HPO_4, 27.8 to 27.9 parts of KH_2PO_4 and about 1,000 parts of water, all parts by weight, to form a bacitracin-containing pyridine extract, separating the bacitracin-containing extract from the feed, further separating a measured portion of extract from the already feed-separated extract, treating the measured amount of separated extract with methanol to coagulate protein material, separating the methanol-treated extract from said coagulated material, drying the resultant extract material by aeration, dissolving the dried material in a phosphate ion buffer material, adjusting the pH of the buffered material to 6.5 (±0.05) and determining the amount of bacitracin therein.

3,306,828
METHOD AND APPARATUS FOR IMPROVING THE QUALITY OF LOW GRADE FUEL OILS

Sakon Mori, 2394 Kugenuma, Fujisawa-shi, Kanagawa-ken, Japan

Filed Dec. 4, 1963, Ser. No. 327,976

3 Claims. (Cl. 196—46)



1. In an apparatus for supplying improved fuel oil from low grade fuel oil wherein oil in an oil tank is pumped through an oil heater to an oil crusher and delivered to a precipitation tank, the water and impurities being separated therein and drained out by precipitation from the main body of fuel oil, while the improved fuel oil is supplied to utilization means, the improvement therein wherein said oil crusher comprises, first conduit means leading to said oil heater; upper and lower dish-shaped outwardly flanged casing halves, fastened together at the flanges forming a crushing chamber; an upper stationary disc in said chamber with a slightly recessed center, said recess decreasing towards the periphery thereof; a vertically disposed inlet pipe leading from said conduit means to said upper stationary disc recessed center; a lower rotating disc in said chamber in crushing engagement with said upper stationary disc, including means to rotate said lower disc; a peripheral outlet from said upper and lower discs including second conduit means leading to the upper portion of said precipitation tank; and, said precipitation tank including an elongated main chamber with a conical bottom with a heating coil towards the lower portion of said main chamber and an outlet feed pipe to said utilization means from said main chamber.

3,306,829
MAGNETIC STIRRER IN A STILL

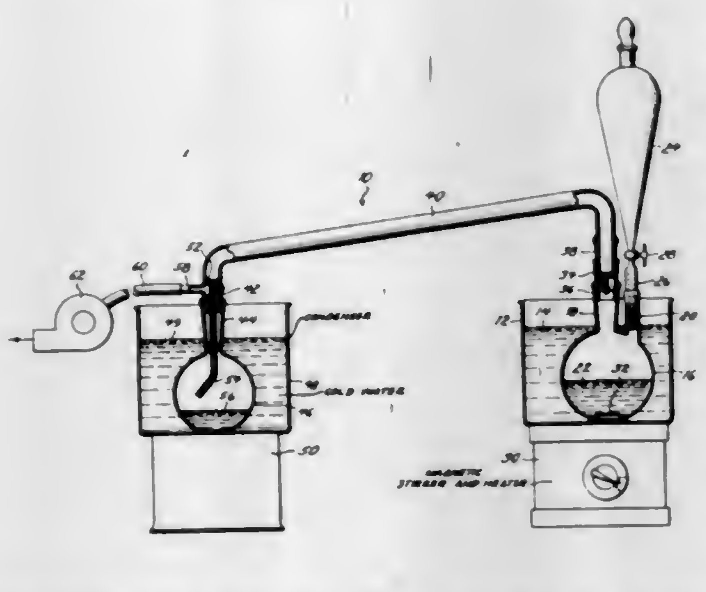
Edward B. Patterson, Haddonfield, N.J., and John Y. Steel, Abington, and John Stanley Bibie, Philadelphia, Pa., assignors to Arthur H. Thomas Company, Philadelphia, Pa., a corporation of Pennsylvania

Continuation of abandoned application Ser. No. 298,362, July 29, 1963. This application Apr. 27, 1966, Ser. No. 554,615

2 Claims. (Cl. 202—175)

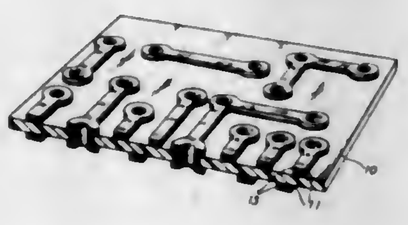
1. Apparatus comprising a flask adapted to contain a liquid for distillation, a magnetic member disposed in said flask, unitary means for heating liquid in the flask and causing said member to agitate the liquid in the flask, a receiver, elongated conduit means for conveying vapors of said liquid being distilled from the flask to said receiver, means in association with the receiver for cooling the receiver, and means for evacuating the receiver to assist transfer of vapors from the flask to the receiver,

said flask being provided with first and second neck portions, a vessel having an integral depending discharge portion, said depending discharge portion being telescoped into said second neck portion and sealed therebetween by a ground glass joint, means for selectively controlling flow from said vessel through said second neck portion into said flask, said last mentioned means comprising valve means in said depending discharge portion, and said conduit means for conveying vapors of the liquid from the flask to the receiver being coupled to said first neck portion by a ground glass joint.



3,306,830
PRINTED CIRCUIT BOARDS AND THEIR FABRICATION

Gustav Bittrich and Robert A. Ehrhardt, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed June 13, 1963, Ser. No. 287,552
6 Claims. (Cl. 204—15)



1. A method for fabricating a printed circuit on an insulating surface comprising the steps of depositing an initial conductive film of cobalt on the insulating surface by the application to the surface of an electroless cobalt solution having the composition:

Cobalt: 1 gram/liter to saturation at room temperature
Alkali metal citrate: 3 grams/liter to saturation at room temperature
Alkali metal hypophosphite: 10 grams/liter to saturation at room temperature
Triethanolamine: 5 to 50 milliliters/liter

said solution having a molal ratio of citrate to cobalt within the range of 1:1 to 3:1 and maintaining the solution at a temperature in the range of 60° C. to the boiling point, and at a pH value in the range of 6.6 to 8.2 as measured at 100° C. while depositing cobalt to the desired thickness, applying a negative resist pattern of the desired circuit configuration, electrolytically depositing a conductive layer of copper onto the exposed regions of the cobalt film, removing the resist and etching away the cobalt film from the exposed regions.

3,306,831
ELECTROPLATING ELECTROLYTES

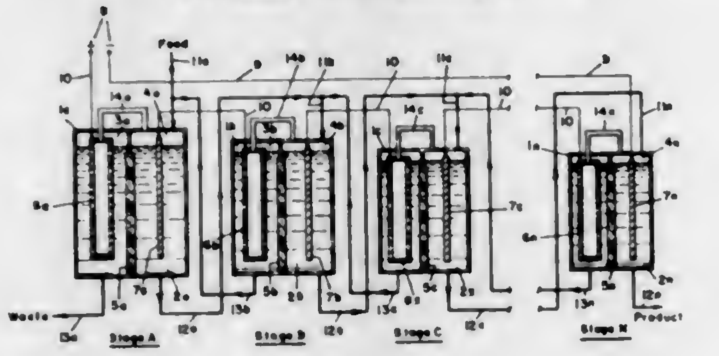
Richard P. Cope, Jr., Wilkinsburg, Pa., assignor, by mesne assignments, to Cowles Chemical Company, Shaker Heights, Ohio, a corporation of Ohio
No Drawing. Filed Oct. 30, 1963, Ser. No. 319,982
18 Claims. (Cl. 204—43)

1. An aqueous acidic solution for electrodepositing a metal selected from the group consisting of nickel, cobalt and nickel-cobalt alloys containing a soluble salt of said metal and as brightener an effective amount of the product of the reaction of (A) a substituted aliphatic carboxylic acid having from 2 to 4 carbon atoms and at least one substituent selected from the group consisting of hydroxyl and amino groups and (B) an acetylenic dibasic alcohol having not more than 8 carbon atoms, not more than two triple bonds, and a structure in which the hydroxyl groups are attached to the terminal carbon atoms and the acetylenic bond is not associated with the terminal carbon atoms.

8. An aqueous acid solution for electrodepositing copper containing a soluble salt of copper and from about 0.002 to 0.07 ounce per gallon of solution of the product of the reaction of (A) glycine and (B) butynediol.

3,306,832
MULTISTAGE PROCESS FOR THE CONCENTRATION OF HEAVY WATER IN FEED WATER COMPRISING A MIXTURE OF WATER AND HEAVY WATER

Gerald P. Lewis, Indianapolis, Ind., and Paul Ruetschi, Yardley, Pa., assignors to The Electric Storage Battery Company, a corporation of New Jersey
Filed June 12, 1962, Ser. No. 201,978
6 Claims. (Cl. 204—101)



1. A process for the concentration of heavy water by successive stages, the process of each stage comprising the evolution of a hydrogen and deuterium gas mixture by electrolysis at the cathode of an electrolytic cell from an electrolyte containing mixtures of water and heavy water and consuming said gas mixture by electrochemical oxidization at the anode of said cell, said cathode being separated from said anode by a diffusion barrier which prevents the instantaneous mixing of the electrolyte surrounding said electrodes, an enrichment of the electrolyte taking place at said cathode by a preferential evolution of hydrogen, said enriched electrolyte being fed to the cathode compartment of the next stage of concentration for further enrichment.

3,306,833
METHOD OF MAKING A PHOTOTROPIC GLASS ARTICLE

Thomas G. O'Leary, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
No Drawing. Filed Mar. 8, 1963, Ser. No. 263,747
8 Claims. (Cl. 204—157.1)

1. A method of making a phototropic glass body comprising the steps of melting a glass-forming batch containing at least one halogen in the indicated minimum effective proportion of 0.2% chlorine, 0.1% bromine, and

0.08% iodine and a minimum of silver in the indicated proportion of 0.2% in a glass wherein the effective halogen consists of chlorine, 0.05% in a glass containing at least 0.1% bromine but less than 0.08% iodine, and 0.03% in a glass containing at least 0.08% iodine, simultaneously cooling the melt below the transformation point thereof and shaping a glass body therefrom, thereafter irradiating at least a portion of said glass body with X-rays and subjecting said body to a temperature of at least 400° C., but not over about 1000° C., for a time sufficient to precipitate submicroscopic crystals of radiation-sensitive material, and finally cooling said body to room temperature.

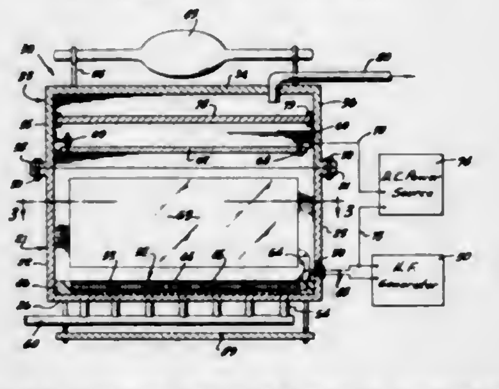
3,306,834
FLUORINE COMPOUND MANUFACTURE

William B. Fox, Jefferson Township, Morris County, James S. MacKenzie, Parsippany Troy Hills, and Richard K. Vitek, Florham Park, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Apr. 26, 1963, Ser. No. 276,107
6 Claims. (Cl. 204—157.1)

1. The process for making trifluoroamine oxide which comprises introducing gaseous NOF and gaseous elemental fluorine into a reaction zone, subjecting the material in said zone to ultraviolet light irradiation sufficient to effect reaction of NOF with fluorine to form trifluoroamine oxide.

3,306,835
TREATMENT OF SUBSTANCES WITH ULTRASONIC VIBRATIONS AND ELECTRO-MAGNETIC RADIATIONS

Agatha C. Magnus, 430 La Loma Road, Pasadena, Calif. 91105
Filed Feb. 4, 1965, Ser. No. 430,793
7 Claims. (Cl. 204—157.1)



1. Process for treating materials which comprises subjecting said materials to a space lattice of waves from at least two planar sources of ultrasonic radiations being equal in frequency and crossing each other at their nodes, simultaneously subjecting said materials to a second space lattice of intersecting electromagnetic waves fitted into said first mentioned space lattice with some crossing points thereof coinciding with said crossing points of said ultrasonic radiations.

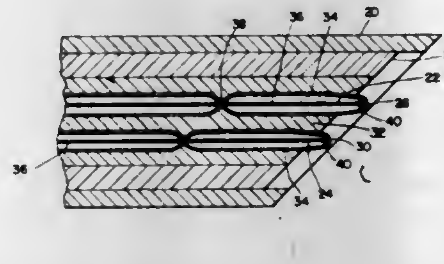
3,306,836
PROCESS FOR THE ELECTROLYTIC PRODUCTION OF MAGNESIUM DIALKYLS AND ALUMINIUM TRIALKYLS

Karl Ziegler, Kaiser Wilhelm-Platz 1, Mulheim an der Ruhr, Germany, and Herbert Lehmkuhl, Mulheim an der Ruhr, Germany; said Lehmkuhl assignor to said Ziegler
Continuation of application Ser. No. 27,218, May 5, 1960. This application Feb. 4, 1963, Ser. No. 258,102
Claims priority, application Germany, May 6, 1959, Z 7,316
15 Claims. (Cl. 204—62)

1. In the process for the electrolytic production of a compound selected from the group consisting of magnesium dialkyls and aluminium trialkyls in which an electrolysis current is passed between a cathode and an anode selected from the group consisting of magnesium and aluminium anodes through an electrolyte in the form of a complex compound of the general formula $MeAlR_4$ in which Me is a metal selected from the group consisting of sodium and mixtures of sodium and potassium and R is an alkyl radical to thereby form an alkyl compound of the anode metal and deposit sodium at the cathode, the improvement for depositing sodium uncontaminated with aluminium at the cathode which comprises maintaining the content of free aluminium trialkyl in the electrolyte at the cathode below 3%.

3,306,837
GLASS ELECTRODE APPARATUS AND PROCESS FOR MAKING SAME

John H. Riseman, Cambridge, and Robert A. Wall, Wakefield, Mass., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 9, 1963, Ser. No. 279,069
13 Claims. (Cl. 204—195)



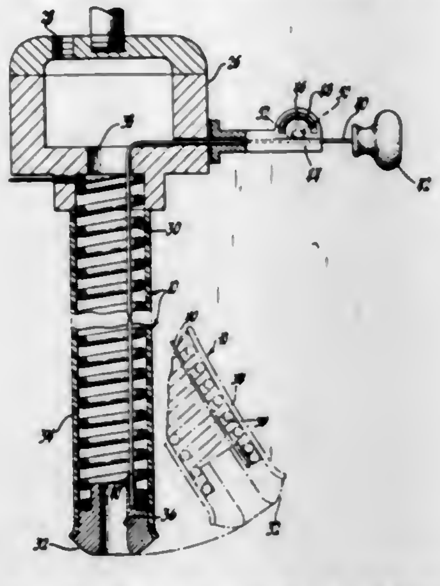
1. An electrode assembly for determining concentrations of a first species of ion in an environment having a concentration of a second ionic species, said assembly comprising, in combination;
- a first electrode comprising a membrane of glass preferentially sensitive to said first species and having in intimate physical and electrical contact with one surface thereof a solid, fused, electrically-conductive, integral mass of an ionic material;
- a second electrode comprising a membrane of glass preferentially sensitive to said second species, and having in intimate physical and electrical contact with one surface thereof a solid, fused, electrically-conductive, integral mass of an ionic material;
- means for disposing said electrodes so that at least portions of opposite surfaces of said membrane are adapted to contact said environment; and
- metallic, electrically-conductive leads of a metal selected from the group consisting of silver and thallium in intimate physical and electrical contact with each of said masses of ionic material, said materials being substantially a halide of the metal; and means for electrically connecting said electrodes to one another through a measuring device.

3,306,838
APPARATUS FOR ELECTRICAL STOCK REMOVAL

Roger W. Johnson, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 11, 1963, Ser. No. 329,691
9 Claims. (Cl. 204—224)

1. A cutting tool electrode for electrically removing stock from the workpiece comprising an elongated flexible body having a conductive machining end thereon and extending predominantly in a one-direction position and means carried within the body and adjustable externally of the body for deflecting the body from the position a

predetermined angular amount for generating a curved surface in the workpiece, the body being rotatable so as



to establish the direction the body is deflected and also having a through passage therein for machining fluid.

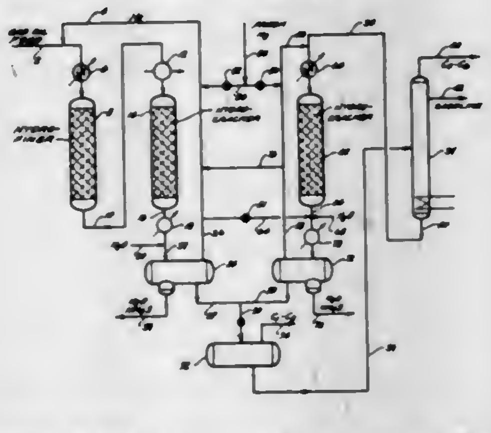
3,306,839

HYDROCRACKING PROCESS IN SEVERAL STAGES AND REGULATING THE HYDROCRACKING BY VARYING THE AMOUNT OF HYDROGEN SULFIDE IN THE REACTION ZONES

Raoul P. Vaell, Los Angeles, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California

Filed Mar. 18, 1963, Ser. No. 265,628

14 Claims. (Cl. 208—59)



10. A multi-stage hydrocracking process for converting a hydrocarbon feedstock containing sulfur compounds and at least about 20% by volume of aromatic hydrocarbons and boiling above the gasoline range to relatively high-octane aromatic gasoline, which comprises:

(1) subjecting said feedstock plus added hydrogen to catalytic hydrofining without substantial cracking of hydrocarbons;

(2) subjecting total hydrogen sulfide-containing effluent from said hydrofining to a first stage of catalytic hydrocracking;

(3) separating the effluent from said first-stage hydrocracking into a gasoline product, a substantially sulfur-free unconverted gas oil, and a sour recycle gas which is at least in part recycled to said hydrofining step;

(4) subjecting said unconverted gas oil plus added hydrogen to a second stage of catalytic hydrocracking over a fixed bed of catalyst, initially at a temperature between about 525° and 650° F., and continuing for an extended run period and at incrementally rising hydrocracking temperature within the range of about 525–750° F., said hydrocracking catalyst comprising a solid refractory cracking base having an activity greater than that corresponding to a cat.-A activity index of 40, and combined therewith a minor proportion of a Group VIII noble metal hydrogenating component;

(5) separating the effluent from said second-stage hydrocracking into a gasoline product, a second-stage recycle oil, and a second-stage recycle gas having a relatively low concentration of hydrogen sulfide which is recycled to said second hydrocracking stage;

(6) during a first part of said second-stage hydrocracking run, blending a portion of said sour recycle gas with said second-stage recycle gas so as to maintain a relatively high concentration of hydrogen sulfide in said second-stage recycle gas;

(7) reducing said sour recycle gas portion during a later portion of said second-stage hydrocracking run so as to maintain a relatively low concentration of hydrogen sulfide therein, and thereafter continuing said run until a terminal temperature between about 675° and 750° F. is reached; and

(8) controlling and correlating the hydrocracking temperature with the hydrogen sulfide concentration so as to obtain throughout said second-stage run at least about 40% by volume conversion to an aromatic gasoline product, said gasoline product containing at least about 10% by volume of aromatic hydrocarbons in the C_7—400° F. fraction at all hydrocracking temperatures above about 600° F.

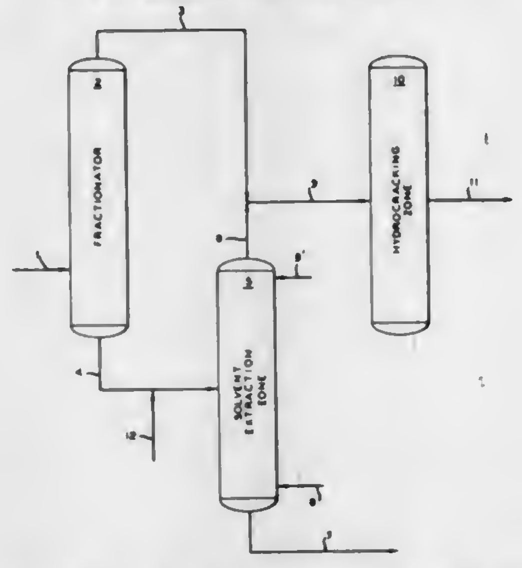
3,306,840

HYDROCRACKING OF CYCLE OILS WITH PRELIMINARY SOLVENT EXTRACTION TO REMOVE COKE FORMING CONSTITUENTS

John W. Myers and Lewis E. Drehman, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 18, 1964, Ser. No. 419,338

6 Claims. (Cl. 208—87)



1. A process for the hydrocracking of a heavy cycle oil produced by cracking which comprises dividing said cycle oil into two portions, a low boiling portion and a high boiling portion, solvent extracting the high boiling portion to remove coke forming constituents therefrom, combining the thus treated high boiling portion and the low boiling portion and subjecting the combined material thus obtained to hydrocracking.

3,306,841

GAS SEPARATION PROCESS

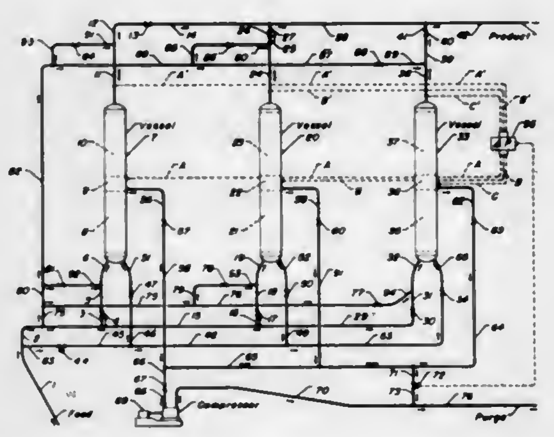
Dennis J. Ward, Lombard, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Dec. 28, 1964, Ser. No. 421,461

19 Claims. (Cl. 208—108)

16 In a continuous hydrocarbon conversion process wherein a hydrocarbon feed is passed, in admixture with

recycle hydrogen purified as hereinafter defined, through a reactor containing a catalyst, at least a portion of the reactor effluent normally gaseous material being recycled to the reactor, the improvement which comprises continuously introducing at least a portion of said gaseous material at a substantially constant rate into one end of a first elongated bed of active adsorbent and continuously withdrawing a stream of enriched hydrogen purity at a substantially constant rate from the other end of the first bed of adsorbent and returning said enriched stream to supply said purified hydrogen; continually passing the gaseous material through said first bed thereby deactivating the adsorbent, thereupon stopping the flow of gaseous material to the first bed while introducing the gaseous material at said first-mentioned constant rate into one end of a second elongated bed of active adsorbent and continuously withdrawing a stream of enriched hydrogen purity at said second-mentioned constant rate from the other end of said second bed and returning said last-mentioned enriched stream to supply said purified hydrogen; and, during passage of said gaseous material through said second bed, lowering the pressure of said first bed by withdrawing gas from a point approximately midway between said one end and said other end thereby reactivating the adsorbent of said first bed.



17. The process of claim **16** wherein said hydrocarbon conversion process is a hydrocracking process.

3,306,842

HYDROCATALYTIC TREATMENT OF WAX CONTAINING HYDROCARBON DISTILLATES

Kenneth Tupman, Anthony George Goble, and Paul Anthony Lawrence, all of Sunbury-on-Thames, Middlesex, England, assignors to The British Petroleum Company Limited, London, England, a company of England

No Drawing. Filed May 26, 1964, Ser. No. 370,353

Claims priority, application Great Britain, June 7, 1963, 22,790/63

2 Claims. (Cl. 208—111)

1. A process for the hydrocracking of wax distillate having a low sulphur content to gas oil and gasoline comprising contacting a wax distillate feedstock boiling in the range 350 to 600° C. and containing not more than 50 p.p.m. by weight of nitrogen and not more than 20 p.p.m. of sulphur with a substantially unsulphided catalyst consisting essentially of 2 to 15% wt. of tungsten, calculated as weight of elemental metal by weight of total catalyst, on a support consisting essentially of 50 to 95% wt. of silica and 50 to 5% wt. of alumina at a temperature of from 600 to 850° F., a pressure of 1250 to 1750 p.s.i.g., a total space velocity of 1.0 to 2.0 v./v./hr and a gas rate of 7500 to 15,000 s.c.f of hydrogen/B., said contacting operation being carried out in the absence of added sulphur to the contacting zone thereby insuring no substantial sulphiding of the catalyst, separating the product into gas, gasoline, gas oil and wax distillate, the cut point between gasoline and gas oil being within the range 150–210° C. and the cut point between gas oil and wax distillate being within the range 350–400° C., and recycling the wax distillate to the hydrocracking zone, the conversion per pass to gas oil and lower being maintained at 45 to 65% vol. on total feed by increasing temperature during the reaction as necessary and the amount of fresh feedstock in the total feedstock being maintained substantially equal to the conversion per pass.

3,306,843

PROCESS AND COMPOSITION FOR THE HYDROCRACKING OF HYDROCARBON OILS

Harold Beuther, Gibsonia, Bruce K. Schmid, McCandless Township, Allegheny County, and Meredith M. Stewart, Penn Hills Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Aug. 20, 1964, Ser. No. 391,014

20 Claims. (Cl. 208—111)

1. A process for hydrocracking a petroleum distillate at least 90 percent of which boils above 400° F., said process comprising contacting the said distillate with hydrogen at a partial pressure between 750 and 2000 p.s.i. at a temperature between 625° and 850° F., the hydrogen being fed at a rate between 4000 and 10,000 s.c.f./bbl. of said distillate in the presence of a catalytic composition comprising a hydrogenating component composited with a dried and calcined refractory carrier having cracking activity and having been prepared from a gelled mixture of a freshly prepared, cation-free silica sol obtained by ion exchange of a water glass solution with a solid, water insoluble, cation exchange material in acid form, and an aqueous solution of a compound yielding aluminum cations in aqueous solution, said refractory carrier containing the equivalent of between 25 and 55 percent Al_2O_3 and between 75 and 45 percent SiO_2, at a liquid hourly space velocity lying between 0.5 and 10.0 volumes, as liquid, of said petroleum distillate per volume of said catalytic composition per hour, to form a liquid product composed chiefly of hydrocarbons boiling in the gasoline range.

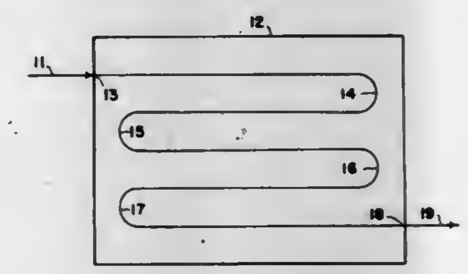
3,306,844

HYDROCARBON THERMAL CRACKING IN A TUBULAR REACTOR

Ronald H. Brierley, La Puente, Calif., and Clarence L. Dulaney, Texas City, and Gordon E. Davenport, Alvin, Tex., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed July 27, 1964, Ser. No. 385,209

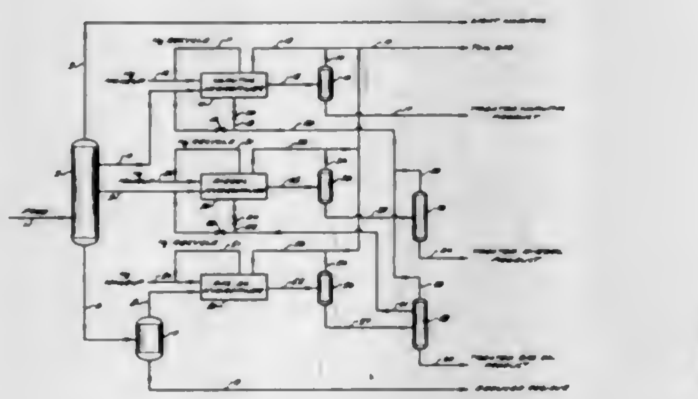
16 Claims. (Cl. 208—132)



1. A process for the non-catalytic thermal cracking of hydrocarbons which comprises passing a hydrocarbon cracking stock through a tubular reactor at a pressure of from substantially atmospheric to 150 p.s.i.g. and while maintaining said reactor with an inlet temperature of 450 to 750° C., and an outlet temperature of 700 to 950° C., the temperature difference between said inlet temperature and said outlet temperature of at least 50° C. and the temperature profile within said tubular reactor being such that at ⅕ the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount

equivalent to 4 to 10 percent of said temperature difference, at $2/5$ the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 10 to 25 percent of said temperature difference, at $3/5$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 20 to 42 percent of said temperature difference, at $4/5$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 40 to 64 percent of said temperature difference and at $9/10$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 58 to 80 percent of said temperature difference, said hydrocarbon cracking stock being a petroleum condensate having a boiling range within the temperature range of 20 to 600° C.

3,306,845
MULTISTAGE HYDROFINING PROCESS
Harry F. Poll, North Hollywood, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed Aug. 4, 1964, Ser. No. 387,417
17 Claims. (Cl. 208—254)

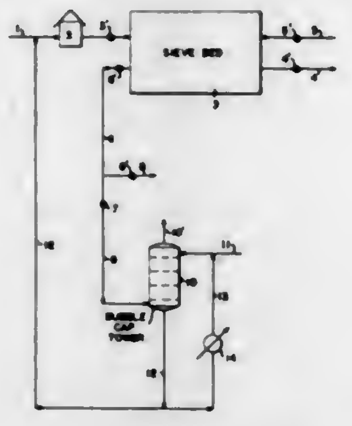


1. A method of refining nitrogen-containing naphtha, diesel and gas oil feed fractions which require different degrees of refining comprising:
- catalytically hydrofining a raw gas oil feed in a gas oil hydrofiner operated under relatively mild hydrofining conditions to yield a gas oil effluent;
- fractionating said gas oil effluent to recover a partially refined first synthetic naphtha fraction, a partially refined synthetic diesel fraction and a gas oil fraction, and withdrawing said gas oil fraction as a treated gas oil product of reduced nitrogen content;
- catalytically hydrofining a raw diesel feed in admixture with said partially refined synthetic diesel fraction in a separate diesel hydrofiner operated under hydrofining conditions relatively more severe than employed in said gas oil hydrofining to yield a diesel effluent;
- fractionating said diesel effluent to recover a second partially refined synthetic naphtha fraction and a diesel effluent fraction, and withdrawing said diesel effluent fraction as a treated diesel product of reduced nitrogen content;
- catalytically hydrofining a raw naphtha feed in admixture with said first and said second synthetic naphtha fractions in a separate naphtha hydrofiner operated under relatively more severe hydrofining conditions than employed in said diesel hydrofining to yield a naphtha effluent; and
- recovering a treated naphtha product of reduced nitrogen content from said naphtha effluent.

3,306,846
PEROXIDE REMOVAL USING LEAD DIOXIDE OR MANGANESE DIOXIDE
Kailash C. Salooja, Wirral, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 29, 1964, Ser. No. 422,010
Claims priority, application Great Britain, Jan. 3, 1964, 337/64
4 Claims. (Cl. 208—295)

1. A method of removing peroxides from a refined hydrocarbon substantially free from acidic sulfur-containing constituents which comprises contacting the hydrocarbon with a treating agent selected from the group consisting of lead dioxide, manganese dioxide, and mixtures thereof.

3,306,847
MOLECULAR SIEVE PROCESS
William H. Mueller, Morristown, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed May 13, 1964, Ser. No. 367,107
11 Claims. (Cl. 208—310)



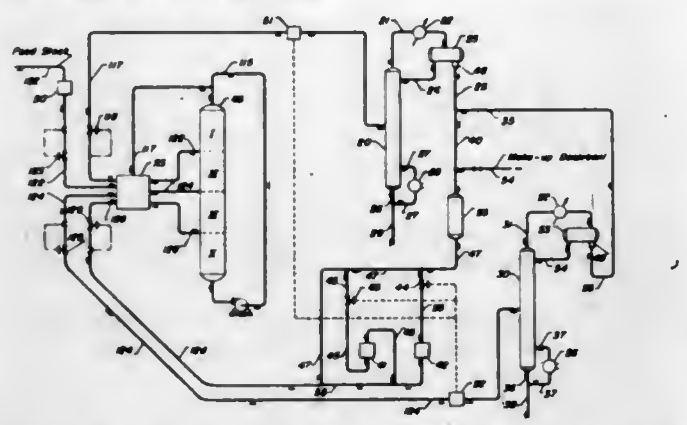
1. A molecular sieve separation process wherein a preheated hydrocarbon feed is contacted with a molecular sieve under circumstances wherein at least a portion of said hydrocarbons is adsorbable on said sieve, and periodically displacing said adsorbed portion from said sieve with a displacing agent at elevated temperatures to obtain a hot displaced hydrocarbon stream, the improvement which comprises passing at least a portion of the said hot displaced hydrocarbon stream into a tower zone containing spaced contacting trays, passing fresh hydrocarbon feed at a temperature lower than said hot hydrocarbon stream into the said tower zone, whereby a mixture of said hydrocarbon stream and said hydrocarbon feed is formed, removing the said mixture from said tower zone, said mixture being at a higher temperature than said feed temperature, passing said heated mixture into said molecular sieve separation zone.

3,306,848
ZEOLITE AND ZEOLITE SEPARATION PROCESS
Richard C. Wackher, Palatine, and Donald B. Broughton, Evanston, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed May 27, 1964, Ser. No. 370,624
22 Claims. (Cl. 208—310)

1. A method for improving the selective extraction of a zeolite selective for normal aliphatic hydrocarbons which comprises maintaining within the porous structure of said zeolite during the extraction from about 0.5 to about 4 weight percent of water.

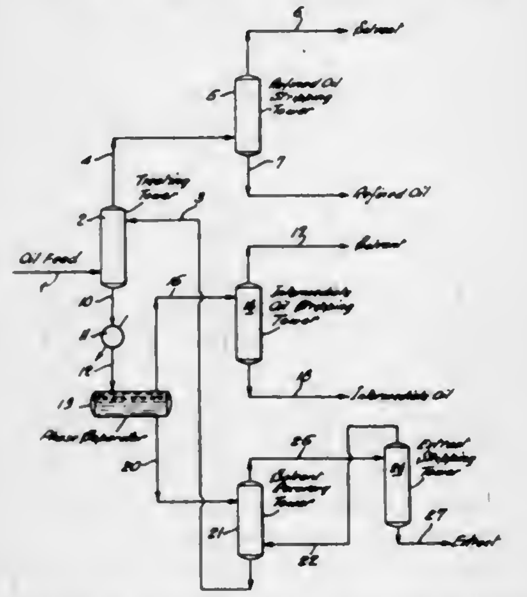
2. A process for the separation of components of a fluid mixture, at least one of which is selectively sorbed by contact with a solid sorbent, said process comprising the steps:
- introducing said fluid mixture into contact with a bed of solid sorbent particles,

- withdrawing from said bed a first effluent comprising relatively less sorbed component of said fluid mixture,
- introducing a desorbing fluid comprising another selectively sorbed component into contact with said bed of solid sorbent particles,



- withdrawing from said bed a second effluent comprising selectively sorbed component of said fluid mixture,
- and maintaining on said sorbent from about 0.5 to about 4 weight percent of water.

3,306,849
HYDROCARBON SOLVENT REFINING PROCESS
Paul P. Bozeman, Jr., Groves, and Robert A. Woodle, Nederland, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 27, 1964, Ser. No. 392,416
6 Claims. (Cl. 208—314)



1. A method of treating a hydrocarbon oil wherein said oil is contacted with a selective solvent comprising furfural in a first solvent extraction zone under conditions forming a first raffinate phase and a first extract-mix phase, which comprises withdrawing said first extract-mix phase at a temperature within the range of about 140 to 240° F.,
- cooling said first extract-mix phase to a temperature within the range of about 90 to 120° F., separating a second raffinate comprising hydrocarbon oil extract and dissolved solvent and a second extract-mix phase comprising solvent and remaining hydrocarbon extract oil,
- contacting said second extract-mix phase with a liquid paraffin hydrocarbon fraction boiling within the range of about —44 to 500° F. and having an end point of least 100° F. below the initial boiling point of said hydrocarbon oil in a second extraction zone forming a third raffinate phase comprising said selective solvent and a third extract-mix phase comprising said remaining hydrocarbon oil and said low boiling hydrocarbon,
- recycling at least a part of said third raffinate phase to said first solvent extraction zone as at least a portion of said selective solvent,
- separating hydrocarbon extract oil from said secondary raffinate, and
- separating remaining hydrocarbon oil extract from said third extract-mix.

3,306,850
COMPOSITION
John Sylvester Olsen, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Dec. 17, 1964, Ser. No. 419,207
2 Claims. (Cl. 252—8.7)

1. A self-emulsifiable yarn-lubricating composition having a viscosity of 30 centipoises over the range of 10 to 100 percent relative humidity at 35° C. and consisting essentially of a blend of about 65 parts by weight of isobutyl palmitate, about 10 parts by weight of sodium di-(2-ethylhexyl) sulfosuccinate, about 10 parts by weight of the condensate of one mol of lauric acid with 13 mols of ethylene oxide, and about 15 parts by weight of the potassium salt of a mixture consisting essentially of mono- and dioleyl orthophosphates.

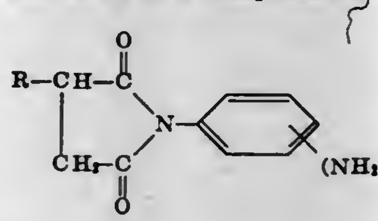
3,306,851
LUBRICATING COMPOSITION
Paul R. McCarthy, Allison Park, and Chester S. Tempalski, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Dec. 11, 1964, Ser. No. 417,796
16 Claims. (Cl. 252—28)

1. A lubricating composition consisting essentially of a lubricating oil selected from the group consisting of the liquid polyorgano siloxanes and polyaryl ethers normally tending to volatilize and solidify when heated at 600° F. in the presence of air and a small amount, sufficient to decrease the volatilization and solidification tendencies of the lubricating oil, a siloxanylferrocene selected from the group consisting of symmetrical and unsymmetrical siloxanylferrocenes.

15. A lubricating composition consisting essentially of a dispersion in a liquid polyorgano siloxane of a sufficient amount of ammeline to thicken the polyorgano siloxane to a grease consistency, about 0.2 to about 2 percent by weight of 1,1′-bis(5-phenylhexamethyltrisiloxanyl) ferrocene and about 0.5 to about 5 percent by weight of finely-divided silica.

3,306,852
IMIDES OF ARENE POLYAMINES USED AS LUBRICATING OIL ADDITIVES
Yngve G. Hendrickson, El Cerrito, Calif., assignor to Chevron Research Company, a corporation of Delaware
No Drawing. Filed June 18, 1964, Ser. No. 376,222
5 Claims. (Cl. 252—32.7)

1. The bis-derivative of a compound of the formula



wherein R is an alkenyl group of from 400 to 3000 molecular weight, and i' is an integer of from 1 to 3,
- formed by reacting said compound with a hydrocarbon polycarboxylic compound of from 2 to 4 carboxyl groups and from 2 to 16 carbon atoms thereby forming amide or imide linkages.

equivalent to 4 to 10 percent of said temperature difference, at $\frac{2}{5}$ the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 10 to 25 percent of said temperature difference, at $\frac{3}{5}$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 20 to 42 percent of said temperature difference, at $\frac{4}{5}$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 40 to 64 percent of said temperature difference and at $\frac{9}{10}$ of the distance from the inlet end of said reactor the temperature within said reactor is increased above the inlet temperature by an amount equivalent to 58 to 80 percent of said temperature difference, said hydrocarbon cracking stock being a petroleum condensate having a boiling range within the temperature range of 20 to 600° C.

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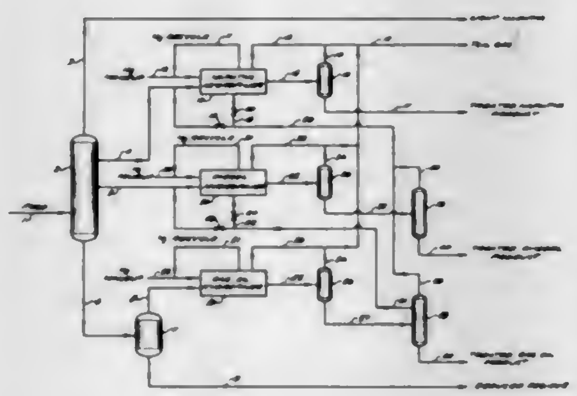
Filed Aug. 4, 1964, Ser. No. 387,417

17 Claims. (Cl. 208—254)



1. A method of refining nitrogen-containing naphtha, diesel and gas oil feed fractions which require different degrees of refining comprising:

catalytically hydrofining a raw gas oil feed in a gas oil hydrofiner operated under relatively mild hydrofining conditions to yield a gas oil effluent;

fractionating said gas oil effluent to recover a partially refined first synthetic naphtha fraction, a partially refined synthetic diesel fraction and a gas oil fraction, and withdrawing said gas oil fraction as a treated gas oil product of reduced nitrogen content;

catalytically hydrofining a raw diesel feed in admixture with said partially refined synthetic diesel fraction in a separate diesel hydrofiner operated under hydrofining conditions relatively more severe than employed in said gas oil hydrofining to yield a diesel effluent;

fractionating said diesel effluent to recover a second partially refined synthetic naphtha fraction and a diesel effluent fraction, and withdrawing said diesel effluent fraction as a treated diesel product of reduced nitrogen content;

catalytically hydrofining a raw naphtha feed in admixture with said first and said second synthetic naphtha fractions in a separate naphtha hydrofiner operated under relatively more severe hydrofining conditions than employed in said diesel hydrofining to yield a naphtha effluent; and

recovering a treated naphtha product of reduced nitrogen content from said naphtha effluent.

3,306,846
PEROXIDE REMOVAL USING LEAD DIOXIDE OR MANGANESE DIOXIDE

Kailash C. Salooja, Wirral, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

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Claims priority, application Great Britain, Jan. 3, 1964, 337/64

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William H. Mueller, Morristown, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

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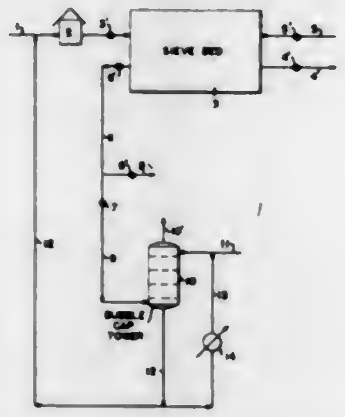

1. A molecular sieve separation process wherein a preheated hydrocarbon feed is contacted with a molecular sieve under circumstances wherein at least a portion of said hydrocarbons is adsorbable on said sieve, and periodically displacing said adsorbed portion from said sieve with a displacing agent at elevated temperatures to obtain a hot displaced hydrocarbon stream, the improvement which comprises passing at least a portion of the said hot displaced hydrocarbon stream into a tower zone containing spaced contacting trays, passing fresh hydrocarbon feed at a temperature lower than said hot hydrocarbon stream into the said tower zone, whereby a mixture of said hydrocarbon stream and said hydrocarbon feed is formed, removing the said mixture from said tower zone, said mixture being at a higher temperature than said feed temperature, passing said heated mixture into said molecular sieve separation zone.

3,306,848
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Richard C. Wackher, Palatine, and Donald B. Broughton, Evanston, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed May 27, 1964, Ser. No. 370,624

22 Claims. (Cl. 208—310)

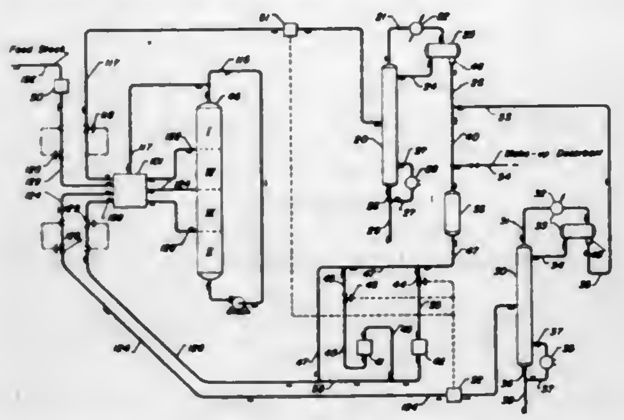
1. A method for improving the selective extraction of a zeolite selective for normal aliphatic hydrocarbons which comprises maintaining within the porous structure of said zeolite during the extraction from about 0.5 to about 4 weight percent of water.

2. A process for the separation of components of a fluid mixture, at least one of which is selectively sorbed by contact with a solid sorbent, said process comprising the steps:

introducing said fluid mixture into contact with a bed of solid sorbent particles,

withdrawing from said bed a first effluent comprising relatively less sorbed component of said fluid mixture,

introducing a desorbing fluid comprising another selectively sorbed component into contact with said bed of solid sorbent particles,



withdrawing from said bed a second effluent comprising selectively sorbed component of said fluid mixture,

and maintaining on said sorbent from about 0.5 to about 4 weight percent of water.

3,306,849
HYDROCARBON SOLVENT REFINING PROCESS

Paul P. Bozeman, Jr., Groves, and Robert A. Woodle, Nederland, Tex., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

Filed Aug. 27, 1964, Ser. No. 392,416

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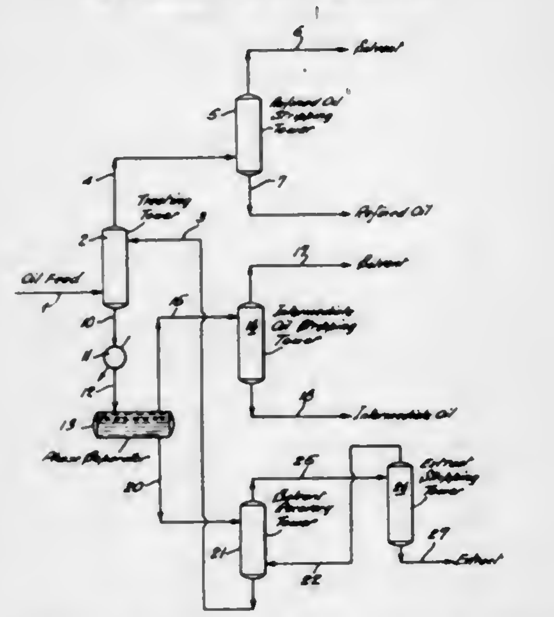

1. A method of treating a hydrocarbon oil wherein said oil is contacted with a selective solvent comprising furfural in a first solvent extraction zone under conditions forming a first raffinate phase and a first extract-mix phase, which comprises withdrawing said first extract-mix phase at a temperature within the range of about 140 to 240° F.,

cooling said first extract-mix phase to a temperature within the range of about 90 to 120° F., separating a second raffinate comprising hydrocarbon oil extract and dissolved solvent and a second extract-mix phase comprising solvent and remaining hydrocarbon extract oil,

contacting said second extract-mix phase with a liquid paraffin hydrocarbon fraction boiling within the range of about —44 to 500° F. and having an end point of least 100° F. below the initial boiling point of said hydrocarbon oil in a second extraction zone forming a third raffinate phase comprising said selective solvent and a third extract-mix phase comprising said remaining hydrocarbon oil and said low boiling hydrocarbon,

recycling at least a part of said third raffinate phase to said first solvent extraction zone as at least a portion of said selective solvent,

separating hydrocarbon extract oil from said secondary raffinate, and

separating remaining hydrocarbon oil extract from said third extract-mix.

3,306,850
COMPOSITION

John Sylvester Olsen, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 17, 1964, Ser. No. 419,207

2 Claims. (Cl. 252—8.7)

1. A self-emulsifiable yarn-lubricating composition having a viscosity of 30 centipoises over the range of 10 to 100 percent relative humidity at 35° C. and consisting essentially of a blend of about 65 parts by weight of isobutyl palmitate, about 10 parts by weight of sodium di-(2-ethylhexyl) sulfosuccinate, about 10 parts by weight of the condensate of one mol of lauric acid with 13 mols of ethylene oxide, and about 15 parts by weight of the potassium salt of a mixture consisting essentially of mono- and dioleyl orthophosphates.

3,306,851
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No Drawing. Filed Dec. 11, 1964, Ser. No. 417,796

16 Claims. (Cl. 252—28)

1. A lubricating composition consisting essentially of a lubricating oil selected from the group consisting of the liquid polyorgano siloxanes and polyaryl ethers normally tending to volatilize and solidify when heated at 600° F. in the presence of air and a small amount, sufficient to decrease the volatilization and solidification tendencies of the lubricating oil, a siloxanylferrocene selected from the group consisting of symmetrical and unsymmetrical siloxanylferrocenes.

15. A lubricating composition consisting essentially of a dispersion in a liquid polyorgano siloxane of a sufficient amount of ammeline to thicken the polyorgano siloxane to a grease consistency, about 0.2 to about 2 percent by weight of 1,1′-bis(5-phenylhexamethyltrisiloxanyl) ferrocene and about 0.5 to about 5 percent by weight of finely-divided silica.

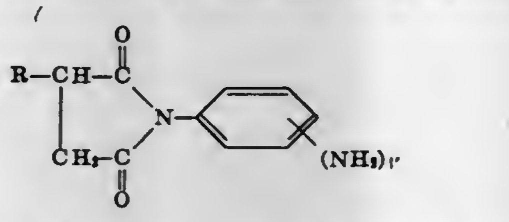
3,306,852
IMIDES OF ARENE POLYAMINES USED AS LUBRICATING OIL ADDITIVES

Yngve G. Hendrickson, El Cerrito, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed June 18, 1964, Ser. No. 376,222

5 Claims. (Cl. 252—32.7)

1. The bis-derivative of a compound of the formula



wherein R is an alkenyl group of from 400 to 3000 molecular weight, and *i*′ is an integer of from 1 to 3,

formed by reacting said compound with a hydrocarbon polycarboxylic compound of from 2 to 4 carboxyl groups and from 2 to 16 carbon atoms thereby forming amide or imide linkages.

4. A lubricating oil composition comprising an oil of lubricating viscosity, from 0.1 to 80 weight percent of a compound as described in claim **1** and from about 6 to 50 mM./kg. of zinc O,O-dihydrocarbyl dithiophosphoroate, wherein said hydrocarbyl groups are from 4 to 20 carbon atoms.

3,306,853

CORROSION INHIBITED POLY(HEXAFLUOROPROPYLENE OXIDE) OIL COMPOSITIONS

Edward T. Fogg, Salem County, N.J., and William H. Gumprecht, New Castle County, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 24, 1966, Ser. No. 536,975

5 Claims. (Cl. 252—48.4)

1. A poly(hexafluoropropylene oxide) oil composition which comprises a major amount of base oil selected from the group consisting of poly(hexafluoropropylene oxide) oils of the structure

$$R_fO\{CF(CF_3)CF_2O\}_nCF_2CF_3$$

and

$$R_fO\{CF(CF_3)CF_2O\}_pCF(CF_3)CF(CF_3)\{OCF_2CF(CF_3)\}_rOR_f$$

where *n, p* and *r* are integers indicating the degree of polymerization and R_f is a perfluoroalkyl group having 1 to 6 carbon atoms, said poly(hexafluoropropylene oxide) oil having an average molecular weight of at least 3,000 and a pour point not in excess of 50° F. and, as corrosion inhibitor, an effective amount of a polychlorotrifluoroethylene oil of the structure $Cl(CF_2CFCl)_sCl$, where *s* indicates the degree of polymerization, said polychlorotrifluoroethylene oil having an average molecular weight of 500 to 1,000.

2. The composition of claim **1** in which the poly(hexafluoropropylene oxide) oil is of the structure

$$R_fO\{CF(CF_3)CF_2O\}_nCF_2CF_3$$

and 0.1 to 2% by weight of polychlorotrifluoroethylene oil and a rust inhibiting amount of a perfluoroalkanesulfonic acid in which the alkyl group has 1 to 18 carbon atoms is present.

3,306,854

CORROSION INHIBITED POLY(HEXAFLUOROPROPYLENE OXIDE) OIL COMPOSITIONS

William H. Gumprecht, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 24, 1966, Ser. No. 536,969

7 Claims. (Cl. 252—49.9)

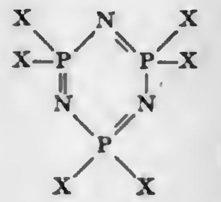
1. A poly(hexafluoropropylene oxide) oil composition which comprises a major amount of base oil selected from the group consisting of poly(hexafluoropropylene oxide) oils of the structure

$$R_fO\{CF(CF_3)CF_2O\}_nCF_2CF_3$$

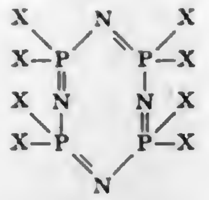
and

$$R_fO\{CF(CF_3)CF_2O\}_pCF(CF_3)CF(CF_3)\{OCF_2CF(CF_3)\}_rOR_f$$

where *n, p* and *r* are integers indicating the degree of polymerization and R_f is a perfluoroalkyl group having 1 to 6 carbon atoms, said oil having an average molecular weight of at least 3,000 and a pour point not in excess of 50° F. and an effective amount of corrosion inhibitor selected from the group consisting of cyclic phosphonitrilate esters of the structure



and



where X is $R_fO\{CF(CF_3)CF_2O\}_mCF(CF_3)CH_2O—$ in which *m* is 0 to 12 and R_f is as previously stated.

3,306,855

CORROSION AND RUST INHIBITED POLY (HEXAFLUOROPROPYLENE OXIDE) OIL COMPOSITIONS

William J. Borecki, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 24, 1966, Ser. No. 537,012

5 Claims. (Cl. 252—49.9)

1. A poly(hexafluoropropylene oxide) oil composition which comprises a major amount of base oil selected from the group consisting of poly(hexafluoropropylene oxide) oils of the formula

$$R_fO\{CF(CF_3)CF_2O\}_nCF_2CF_3$$

and

$$R_fO\{CF(CF_3)CF_2O\}_pCF(CF_3)CF(CF_3)\{OCF_2CF(CF_3)\}_rOR_f$$

where *n, p* and *r* are integers indicating the degree of polymerization and R_f is a perfluoroalkyl group having 1 to 6 carbon atoms, said oil having an average molecular weight of at least 3,000 and a pour point not in excess of 50° F. and, as corrosion and rust inhibitor, an effective amount of perfluoroalkylether phosphate ester of the formula

$$[R_fO\{CF(CF_3)CF_2O\}_mCF(CF_3)CH_2O]_w\ P_1O)(OH)_{3-w}$$

in which *m* is 0 to 12, *w* is 1 to 2 and R_f is as previously stated.

3,306,856

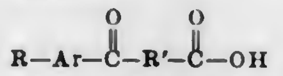
ARYL KETO ACID POUR-POINT DEPRESSANTS AND DISPERSANTS FOR OLEAGINOUS COMPOSITIONS

Shih-En Hu, Linden, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed July 31, 1964, Ser. No. 386,767

18 Claims. (Cl. 252—51.5)

1. A method for preparing an oil-soluble additive for an oleaginous composition which comprises reacting from 1 to 2 moles of an alkaryl keto acid with 1 mole of a polyhydroxy compound under conditions forming an ester of said acid, said polyhydroxy compound being selected from the group consisting of: polyhydric alcohols having from 2 to 10 carbon atoms and from 2 to 6 hydroxy groups; polyalkylene glycols of from 100 to 600 molecular weight; and polyhydroxy alkyl amines having from 5 to about 30 carbon atoms, from 2 to 6 hydroxy groups and from 1 to 4 tertiary amino groups, said aryl keto acid having the general formula:



$$R—Ar—\overset{\overset{\large O}{\|}}{C}—R'—\overset{\overset{\large O}{\|}}{C}—OH$$

wherein Ar is an aromatic radical having in the range of 6 to 16 carbon atoms, R is at least 1 aliphatic hydrocarbon radical having in the range of from 12 to 30 carbon atoms, and R′ is a hydrocarbon linkage having in the range of from about 2 to 18 carbon atoms.

16. An oleaginous composition comprising a major proportion of an oil selected from the class consisting of gasoline, middle distillate fuels, mineral lubricating oils and synthetic lubricating oils to which has been added from about 0.002 to about 10 weight percent of the product of claim **1**.

3,306,857

SOLID SOLUTION OF $W_{1-x}V_xSe_2$ AND THERMOELECTRIC ELEMENT CONSISTING OF SAME

Lothar H. Brixner, Brandywine Hills, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 28, 1962, Ser. No. 183,057

The portion of the term of the patent subsequent to July 27, 1982, has been disclaimed

2 Claims. (Cl. 252—62.3)

1. A solid solution of vanadium selenide and tungsten selenide having the empirical formula $W_{1-x}V_xSe_2$, where *x* may be any number between 0.01 and 0.05.

3,306,858

PROCESS FOR THE PREPARATION OF STORAGE STABLE DETERGENT COMPOSITION

Thomas M. Oberle, St. Paul, Minn., assignor to Economics Laboratory, Inc., St. Paul, Minn., a corporation of Delaware

No Drawing. Filed June 17, 1965, Ser. No. 464,821

3 Claims. (Cl. 252—99)

1. A process for preparing a storage-stable detergent composition which process comprises absorbing a liquid organic non-ionic surface active agent on a solid carrier material selected from the group consisting of tetrasodium pyrophosphate, tetrapotassium pyrophosphate, disodium orthophosphate, trisodium orthophosphate, sodium carbonate, sodium bicarbonate, alkali metal silicates, alkali metal borates, sodium tripolyphosphate and sodium hexametaphosphate, and then with agitation contacting said carrier material on which the said organic surface active gent is absorbed with an aqueous solution of a compound selected from the group consisting of tetrasodium pyrophosphate, tetra-potassium pyrophosphate, sodium tripolyphosphate and sodium hexametaphosphate to form thereon an encapsulating coating, drying said encapsulated material and thereafter mixing said encapsulated material with a chlorine releasing agent.

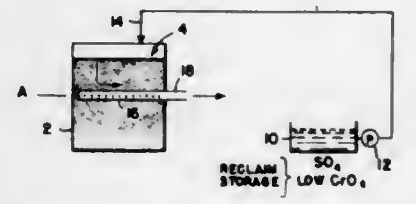
3,306,859

METHOD AND APPARATUS FOR FLUID TREATMENT

Louis Sloan and Nicholas J. Nitti, Philadelphia, Pa., and Jack B. Pratt, Millside Heights, N.J., assignors to Crane Co., Chicago, Ill., a corporation of Illinois

Filed Dec. 31, 1963, Ser. No. 338,554

14 Claims. (Cl. 252—387)



1. The method of recovering absorbed ionic material from an ion exchange bed in which there are at least two zones, a first of which contains a high concentration of the absorbed ionic material, and a second of which contains a lower concentration of the same absorbed ionic material, said method comprising the steps of at least partially regenerating the second zone with a liquid having a low concentration of the ionic material of the type absorbed, and of at least partially regenerating the first zone with a liquid having a higher concentration of the ionic material of the type absorbed resulting from the at least partial regeneration of a second zone of the type specified.

2. The method according to claim **1** in which said ionic material is chromate and phosphate ions.

3,306,860

LIQUID BORIC ACID SUSPENSION, METHOD AND PRODUCTS

Victor M. Rowell, Bay Village, Ohio, and Vernon L. Guyer, Minneapolis, Minn., assignors to Archer-Daniels-Midland Company, Minneapolis, Minn., a corporation of Delaware

No Drawing. Filed May 3, 1962, Ser. No. 192,066

7 Claims. (Cl. 252—432)

4. A composition comprising a liquid carrier, a boron material selected from the group consisting of boric acid, boron oxide and mixtures thereof, said boron material being suspended in said carrier in a concentration in excess of the solubility of said boron material in said carrier, 0.25 to 2.0% surfactant, and 0.1 to 1.0% thickening agent, said percents being based on the total weight of said composition.

3,306,861

PROCESS FOR PRODUCING UREA-FORMALDEHYDE FOAMS

Ged H. Justice, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Sept. 10, 1962, Ser. No. 222,664

4 Claims. (Cl. 260—2.5)

1. In a process for preparing a partially resinified urea-formaldehyde resin solution adapted to be converted into a resinous foam substantially free of odor, the step of substantially eliminating the methylol content of the resin, which comprises heating an aqueous solution of urea-formaldehyde reaction product in the form of polymethylolurea containing between about 50% and about 65% urea-formaldehyde solids in the ratio of formaldehyde to urea of between about 1.5 and about 2.0 to a temperature between about 110° C. and about 135° C. at pH between about 4 and about 5 for a time sufficient to substantially reduce methylol groups, but insufficient to increase the viscosity of the solution above about 55 centipoises measured at 25° C.

3,306,862

GAS-PRODUCING COMPOSITIONS AND METHOD OF MAKING CELLULAR BODIES

Orville L. Magell and Chester S. Sheppard, Kenmore, and Harry Norman Schack, Buffalo, N.Y., assignors to Wallace & Tiernan Inc., Belleville, N.J., a corporation of Delaware

No Drawing. Filed July 7, 1964, Ser. No. 380,939

30 Claims. (Cl. 260—2.5)

1. A gas-producing composition, consisting essentially of: a diester of azodiformic acid represented by the structural formula $R^1.OCO.N{:}N.COO.R^2$; the radical $—R^1$ being selected from the group consisting of (a) alkyl, haloalkyl, aralkyl, cycloalkyl, alkenyl, alkynyl, phenyl, halophenyl, and alkylphenyl radicals having not more than 12 carbon atoms, and (b) the radical

$$R^2.OCO.N{:}N.COO.R^3—$$

in which $—R^3—$ is selected from the group consisting of the radical $—(C_mH_{2m})—$ where *m* is a number from 2 to 10, and of the radical $—CH_2.CH_2(Y.CH_2.CH_2)_n—$ where *n* is a number from 1 to 3 and Y is selected from the group consisting of oxygen and sulfur; the radical $—R^2$ being selected from the group consisting of the said radicals (a); and an activator for promoting gas-releasing decomposition of said diester of azodiformic acid at elevated temperatures, in the form of at least one metallic compound having unneutralized Lewis acid properties and distributed throughout said composition in an amount by weight equal to at least 1% of the weight of said diester.

3,306,863

NON-IONIC POLYOXYETHYLENE SURFACTANT-ETHYLENE-MALEIC ANHYDRIDE COPOLYMER PRINTING COMPOSITIONS

George J. Leitner, Peekskill, N.Y., assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 2, 1964, Ser. No. 335,415

14 Claims. (Cl. 260—8)

1. A composition comprising a salt selected from the group consisting of the alkali metal and volatile amine salts of the reaction product at a temperature of about 50° C. to about 90° C. of

(a) from about 0.5 to about 5 parts of a non-ionic polyoxyethylene surfactant derived from a lipophile and about 3 to about 40 molar equivalents of ethylene oxide and

(b) about 5 parts of a solid unhydrolyzed ethylene-maleic anhydride copoylmer, wherein said ethylene and maleic anhydride are present in approximately a 1 to 1 molar ratio.

4. A printing extender concentrate comprising water and from about 1 to about 40% of a member selected from the group consisting of the alkali metal and volatile amine salts of the reaction product at a temperature of about 50° C. to about 90° C. of

(a) from about 0.5 to about 5 parts of a non-ionic polyoxyethylene surfactant derived from a lipophile and from about 3 to about 40 molar equivalents of ethylene oxide and

(b) about 5 parts of a solid unhydrolyzed ethylene-maleic anhydride copolymer, wherein said ethylene and maleic anhydride are present in approximately a 1 to 1 molar ratio.

3,306,864

PHENOL FORMALDEHYDE-UREA RESIN COMPONENT BINDER

Edward J. Lang, Grand Island, Frank S. Grazen, North Tonawanda, and Frank W. Less, Kenmore, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Nov. 29, 1962, Ser. No. 241,021

20 Claims. (Cl. 260—17.2)

1. A binder composition comprising a liquid one-step phenol formaldehyde resin, a urea resin component selected from the group consisting of urea formaldehyde and thiourea formaldehyde, and an acid salt curing accelerator, wherein the molar ratio of formaldehyde to phenol in the phenol-formaldehyde resin is between about 1.5:1 and about 2.5:1, and the molar ratio of urea and/or thiourea to formaldehyde in the urea resin component is between about 1:1 and about 1:5.

3,306,865

COMPOSITIONS PREPARED FROM CERTAIN SUBSTITUTED MELAMINES AND POLYAMIDES DERIVED FROM POLYMERIC FAT ACIDS

Donald H. Wheeler, Minneapolis, and Don E. Floyd, Robbinsdale, Minn., assignors to General Mills, Inc., a corporation of Delaware

No Drawing. Filed Sept. 6, 1962, Ser. No. 221,874

22 Claims. (Cl. 260—21)

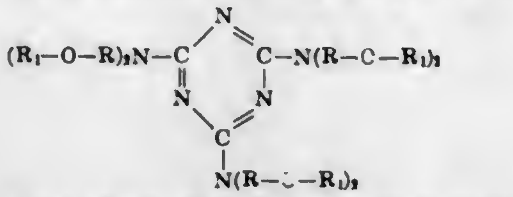
1. A curable composition consisting essentially of:

(1) a polyamide having a molecular weight of about 1000 to 10,000, said polyamide having been prepared by reacting under amidizing conditions (a) a polyamine having the formula

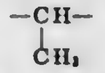
$$H_2NR'(NHR')_nNH_2$$

where R′ is selected from the group consisting of aromatic and aliphatic radicals and *n* is an integer of from 0 to about 5 and (b) a polymeric fat acid having at least two carboxyl groups, said acid having been prepared by polymerizing monobasic aliphatic carboxylic acids of about 8–24 carbon atoms; and

(2) at least one melamine having the general formula



where R is a radical selected from the group consisting of the —CH_2— radical and the



$$\underset{CH_3}{-\underset{|}{C}H-}$$

radical and R_1 is an aliphatic radical having up to about 8 carbon atoms, said melamine being present in an amount sufficient to cure the said polyamide to a hard, tough polymer.

3,306,866

STABLE EMULSION OF COPOLYMERIZED ALKYD RESINS AND ADDITION POLYMERIZABLE MONOMERS

Douglas F. Percival, Martinez, Wolfgang K. Seifert, Berkeley, and Arne H. Traaen, Oakland, Calif., assignors to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Sept. 21, 1962, Ser. No. 225,359

4 Claims. (Cl. 260—22)

1. A method of preparing an oil-in-water emulsion of an addition polymer-modified, oil-modified alkyd resin, said addition polymer-modified resin being at least 30% by weight of said emusion, which comprises:

(a) polymerizing an addition polymerizable monomer containing the group $CH_2{=}C<$ in the presence of an oil-modified ethylenically unsaturated alkyd resin and an oil-soluble free-radical catalyst until about 40 to 70% of the monomer has polymerized, wherein the weight ratio of said alkyd resin to said monomer is in the range of about 3:1 to 1:2, said alkyd resin having: (i) an acid number in the range of about 5 to 25, (ii) a Gardner-Holdt viscosity in the range of A to X, and (iii) an oil length of about 40 to 80%;

(b) adding water in an amount of about 25 to 70 weight percent based on combined weight of alkyd resin, monomer and water; an hydroxylic base in an amount sufficient to provide a pH of from about 6 to 8; and a nonionic emulsifying agent in an amount of 1 to 10% by weight based on water present to form a water-in-oil emulsion;

(c) continuing polymerization until about 60 to 85% of said monomer has reacted;

(d) lowering the temperature to form an oil-in-water emulsion;

(e) continuing polymerization until the desired amount of monomer has reacted,

to yield a stable oil-in-water emulsion having particles of not more than about 3 microns in size.

3,306,867

TRANSFER MEDIA COMPRISING RESIN, CARRIER FLUID AND QUATERNARY AMMONIUM COMPOUND

Wladislas Popiolek, Harlow, Essex, England, assignor to Kores Manufacturing Company Limited, London, England, a British company

No Drawing. Filed Feb. 12, 1964, Ser. No. 344,231

7 Claims. (Cl. 260—23)

1. In a pressure transferable ink composition for pressure operative transfer media comprising 20–40 percent of a polymer base material, 10–35 percent coloring matter, and 30–60 percent of a non-volatile, non-drying carrier fluid for the coloring matter, the improvement of incorporating from 0.5–5 percent of a quaternary ammonium compound in said ink, whereby the coloring matter is more readily released.

3,306,868

DICYCLOPENTADIENE - DICARBOXYLIC ACID REACTION PRODUCTS AND POLYESTERS THEREOF

Herbert M. Adrian, Jr., St. Paul, Minn., assignor to Archer-Daniels-Midland Company, Minneapolis, Minn., a corporation of Delaware

No Drawing. Filed July 29, 1963, Ser. No. 298,448

5 Claims. (Cl. 260—23.7)

1. A process comprising providing a reaction mixture of (1) an unsaturated compound selected from the group consisting of unsaturated fatty acids, unsaturated fatty acid esters of polyhydric alcohols, and petroleum-derived olefins, said unsaturated compound having an unsaturated aliphatic chain with 8–26 carbon atoms, (2) dicyclopentadiene, and (3) a catalyst comprising 0.02 to 0.35% boron trifluoride and 1 to 10% of a carboxylic acid component having 2–8 carbon atoms per molecule and selected from the group consisting of dicarboxylic acids and their anhydrides, said percents being based on the total weight of said reaction mixture, and heating said reaction mixture at a temperature of 130–340° F. to effect copolymerization.

3,306,869

FLOOR POLISHES CONTAINING SILOXANE-OXYALKYLENE BLOCK COPOLYMER LEVELING AGENTS

Paul H. Lahr, South Salem, and Lewis M. Shepard, Yorktown Heights, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Sept. 22, 1965, Ser. No. 489,394

5 Claims. (Cl. 260—24)

1. A floor polish formulation comprising a basic aqueous emulsion of an emulsifiable wax, at least 80 percent of which is a modified polyolefin wax having a molecular weight in the range from about 1000 to about 5000, said polyolefin wax being modified by reaction with a compound containing at least one carboxyl group selected from the group consisting of alpha-beta-unsaturated monocarboxylic acids having from 3 to 6 carbon atoms, ethylenically unsaturated dicarboxylic acids having from 4 to 18 carbon atoms, mercapto carboxylic acids having from 2 to 10 carbon atoms, anhydrides of the foregoing acids and esters of the foregoing acids, a modified rosin insoluble in water but soluble in basic aqueous solutions, said rosin being modified by reaction with a compound selected from the group consisting of alcohols, polyols and maleic anhydride, a compatible emulsifying agent selected from the group consisting of non-ionic surfactants containing 4 to about 80 moles of an alkylene oxy group and anionic surfactants of amine soaps, and a polysiloxane-oxyalkylene polymer having a molecular weight below about 25,000, a polysiloxane content in the range from about 30 to about 60 percent by weight and being insoluble in water in concentrations greater than one percent at 25° C.

3,306,870

FLUID GELABLE COMPOSITION OF ACRYLAMIDE POLYMERS AND AQUEOUS SOLUTIONS OF INORGANIC HYDROXIDES AND SALTS

Louis H. Eilers and Christ F. Parks, Tulsa, Okla., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed June 1, 1964, Ser. No. 371,665

42 Claims. (Cl. 260—29.6)

1. A fluid, gelable composition prepared by reacting an intimate mixture of: component (A) an anhydrous particulated acrylamide polymer selected from the class consisting of (1) linear and cross-linked polymerized acrylamide, (2) copolymers prepared by polymerizing at least about 90 percent by weight acrylamide and balance an ethylenically unsaturated monomer copolymerizable therewith, to make a water-dispersible copolymer, selected from the class consisting of acrylic acid, methacrylic acid, vinylsulfonic acid, vinylbenzyltrimethylammonium chloride, vinylbenzylsulfonic acid, vinylbenzenesulfonic acid, and alkali and alkaline earth metal salts of said acids, and (3) mixtures of (1) and (2) and component (B) an aqueous solution of an inorganic compound selected from the class consisting of inorganic water-soluble hydroxides and salts in an amount sufficient to reduce the aqueous tension of pure water to a positive final aqueous tension value at the temperature employed, which is between the freezing point and the boiling point of said solution, of not greater than about 10 millimeters of mercury, wherein the linear and cross-linked polyacrylamide polymer and copolymer is about 90% unhydrolyzed and to not greater than about 20 millimeters of mercury in polyvalent cation solutions where the polyacrylamide is about 60% unhydrolyzed, and not in excess of the amount of the inorganic compound necessary to saturate the water at the temperature employed, component A being employed in an amount of between about 0.5 and about 5.0 pounds per gallon of total slurry.

3,306,871

SYNTHETIC LATEXES COMPRISING ar-MONOVINYL AROMATIC SULFONIC ACID SALT-STYRENE-BUTADIENE TERPOLYMERS

Frederick A. Miller, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 26, 1964, Ser. No. 355,092

2 Claims. (Cl. 260—29.7)

1. An emulsion polymerization method for making a synthetic aqueous latex which is non-foaming, mechanically stable, and non-sensitive to coagulation by electrolytes and which, when dried in a thin layer, deposits a coherent solid film which is resistant to water and has a low moisture vapor transmission rate, which method is carried out by agitating and heating at a polymerization temperature in the substantial absence of air a mixture of from 0.5 to 3 parts by weight of a sodium ar-monovinyl aromatic sulfonate and from 99.5 to 97 parts by weight of a mixture of from 10 to 70 percent by weight of styrene and from 90 to 30 percent by weight of 1,3-butadiene, together with water and a free-radical-generating catalyst and less than 5 weight percent of water-soluble non-polymerizable non-cationic surfactant based on the combined weight of the polymerizable monomers, there being from 0.5 to 1.5 parts by weight of the said sodium monovinyl aromatic sulfonate when there is no water-soluble non-polymerizable surfactant present in the polymerization reaction mixture.

3,306,872

METHOD FOR PRODUCING A POLYETHER RESIN

Russel L. Maycock, Houston, and Alton J. Landua, Seabrook, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

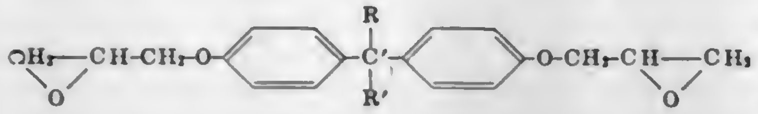
No Drawing. Filed Oct. 16, 1961, Ser. No. 145,486

10 Claims. (Cl. 260—32.8)

1. A method for producing a polyether resin characterized by high impact resistance when in molded form, which comprises preparing a solution in an inert solvent defined below, of

(a) a dihydric phenol having its phenolic hydroxyl groups in other than ortho position on a single ring, said phenolic hydroxyl groups being the sole groups thereof reactive with a vic-epoxy group,

(b) a diepoxide selected from the group consisting of
  (i) terminal-di-vic-epoxyalkanes
  (ii) terminal aliphatic di-vic-epoxy ethers
  (iii) diglycidyl ethers having the general formula



in which R and R′ are taken from the group consisting of hydrogen, alkyl and phenyl, the the total number of carbon atoms attached to said atom C′ does not exceed eighteen, and the benzene rings are selected from the group consisting of unsubstituted and halogen substituted 4-glycidyl-phenyl groups, and

  (iv) reaction products of 2,2-bis(4-hydroxyphenyl)-propane and epichlorohydrin having a number average molecular weight between 340 and about 2,000, in the ratio of from 1.000:0.98 to 1.000:1.025 phenolic hydroxyl groups to vic-epoxy groups, and

(c) a catalytic amount, not in excess of 0.1 mole per mole of dihydric phenol, of a basic condensation catalyst selected from the group consisting of hydroxides and phenolates of alkali metals and benzlytrimethyl-ammonium,

said inert solvent being an organic solvent for both the reactants and the reaction products which is free of groups reactive with said epoxide and phenolic hydroxyl groups, the proportion of reactants being selected to produce a solution of from 20 to 60 percent by weight thereof in said solvent, said solution containing less than one percent by weight of water, maintaining the solution at a temperature in the range from 75° to 150° C. until a linear reaction product having a weight average molecular weight of at least about 40,000 has been formed, and thereafter stopping the reaction.

3,306,873
PROCESS FOR THE PRODUCTION OF FILAMENTS OR FILMS BY SHAPING LINEAR POLYCARBONATES OF HIGH MOLECULAR WEIGHT

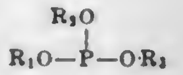
Béla von Falkai, Artur Prietzschk, Wolfgang Rellensmann, Alfred Reichle, and Horst Wieden, all of Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Mar. 31, 1964, Ser. No. 356,076

Claims priority, application Germany, Apr. 11, 1963, F 39,470

6 Claims. (Cl. 260—47)

1. In the process of producing shaped articles by shaping a linear polycarbonate of di-(4-hydroxy phenyl)-2,2-propane from its solution, the improvement which comprises mixing with said polycarbonate solution, prior to the shaping thereof, a phosphorous acid ester of the formula



$$R_3O-\underset{\textstyle\ }{P}\!\!\!\!\!\quad \qquad R_1O-P(-OR_3)-OR_2$$

wherein R_1 and R_2 are selected from the group consisting of alkyl, aryl and aralkyl and R_3 is selected from the group consisting of hydrogen, alkyl, aryl and aralkyl, in an amount between 10 and 100% by weight based on the weight of said polycarbonate in solution, and then producing a shaped article from said mixed solution containing said phosphoric acid ester.

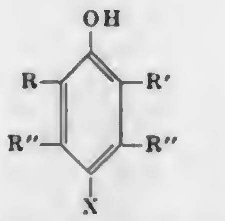
3,306,874
OXIDATION OF PHENOLS

Allan S. Hay, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed July 24, 1962, Ser. No. 212,127

10 Claims. (Cl. 260—47)

1. The process of forming self-condensation products of phenols selected from the group consisting of polyphenylene ethers and diphenoquinones which comprises reacting oxygen with a phenol having the structural formula



where X is selected from the group consisting of hydrogen, chlorine, bromine and iodine, R is a monovalent substituent selected from the group consisting of hydrocarbon radicals, hydrocarbonoxy radicals, haloaryl radicals where in all halogens are bonded to aromatic carbon atoms, and haloaryloxy radicals wherein all halogens are bonded to aromatic carbon atoms, R′ is the same as R and in addition halogen, R″ is the same as R and in addition hydrogen and halogen, using as the oxygen-carrying intermediate a solution of an amine-basic cupric salt complex in which the said phenol is soluble, said amine being selected from the group consisting of monoamines, diamines and triamines whose amine nitrogen atoms are directly bonded to an aliphatic carbon atom and at least one of said nitrogen atoms has at least one directly bonded hydrogen atom.

3,306,875
OXIDATION OF PHENOLS AND RESULTING PRODUCTS

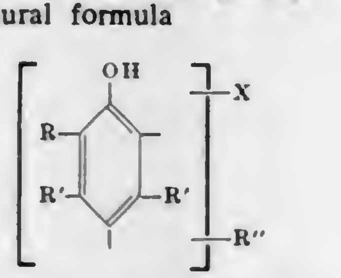
Allan S. Hay, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed July 24, 1962, Ser. No. 212,128

The portion of the term of the patent subsequent to May 26, 1981, has been disclaimed

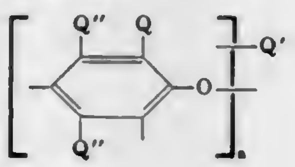
38 Claims. (Cl. 260—47)

1. The process of forming self-condensation products of phenols which comprises reacting oxygen with a phenol having the structural formula



where X is a substituent selected from the group consisting of hydrogen, chlorine, bromine and iodine; R is a monovalent substituent selected from the group consisting of hydrogen, hydrocarbon radicals, halohydrocarbon radicals having at least two carbon atoms between the halogen atoms and phenol nucleus, hydrocarbonoxy radicals, and halohydrocarbonoxy radicals having at least two carbon atoms between the halogen atom and phenol nucleus, R′ and R″ are the same as R and in addition, halogen, using as the oxygen-carrying intermediate, a solution of a tertiary amine-basic cupric salt complex in which the said phenol is soluble.

24. A polyphenylene ether having a repeating structural unit of the formula



wherein the oxygen atom of one unit is connected to the benzene nucleus of the adjoining unit, *n* is a positive integer and is at least 100, Q is a monovalent substituent selected from the group consisting of hydrogen, hydrocarbon radicals free of a tertiary α-carbon atom, halohydrocarbon radicals having at least two carbon atoms between the halogen atom and phenol nucleus and being free of a tertiary α-carbon atom, hydrocarbonoxy radicals being free of a tertiary α-carbon atom, and halohydrocarbonoxy radicals having at least two carbon atoms between the halogen atom and phenol nucleus and being free of a tertiary α-carbon atom, Q′ and Q″ are both monovalent substituents which are the same as Q and in addition, halogen.

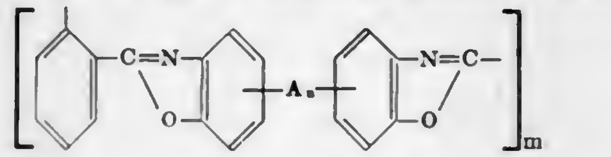
3,306,876
HEAT-FUSIBLE POLYBENZOXAZOLES

Simon W. Kantor and Joseph Sonnenberg, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

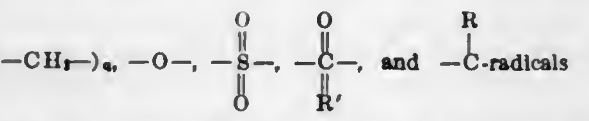
No Drawing. Filed Feb. 9, 1965, Ser. No. 431,465

5 Claims. (Cl. 260—47)

1. A heat-fusible, cresol-soluble composition of matter composed of recurring units of the structural formula



where A is a member selected from the class consisting of



$$(-CH_2-)_q,\ -O-,\ -\overset{O}{\underset{O}{\overset{\|}{\underset{\|}{S}}}}-,\ -\overset{O}{\underset{R'}{\overset{\|}{\underset{\|}{C}}}}-,\ \text{and}\ -\overset{R}{\overset{|}{C}}\text{-radicals}$$

R and R′ are monovalent hydrocarbon radicals, *m* is a whole number in excess of 30, *n* is a whole number from 0 to 1, inclusive, and *q* is a whole number equal to from 1 to 8, inclusive, and the bonds of A are para to either of the oxygen and nitrogen atoms.

3,306,877
PROCESS FOR THE MANUFACTURE OF COPOLYACETALS

Claus Schott, Hofheim, Taunus, Edgar Fischer and Günther Roos, Frankfurt am Main, and Gerhard Bier, Troisdorf, near Cologne, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed June 24, 1963, Ser. No. 290,193

Claims priority, application Germany, June 28, 1962, F 37,179

9 Claims. (Cl. 260—67)

1. A process for the manufacture of three-dimensionally cross-linked copolymers, which comprises polymerizing, within a temperature range of from —50° C. to +100° C. and in admixture with a cationically active catalyst, 99.9 to 80 percent by weight, calculated on the total monomer mixture, of trioxane and 0.1 to 20 percent by weight, calculated on the total monomer mixture, of a bifunctional dimethylol acetal of a member selected from the group consisting of a saturated aldehyde containing 1 to 4 carbon atoms, an olefinically unsaturated aldehyde and a halogen-substituted saturated aldehyde containing 1 to 4 carbon atoms, the methylol groups of said bifunctional dimethylol acetal being substituted by an epoxide group-containing radical, selected from the group consisting of an aliphatic hydrocarbon radical containing 2 to 8 carbon atoms and a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms.

8. A three-dimensionally cross-linked copolymer prepared from trioxane and a bifunctional dimethylol acetal by the process of claim **1**.

3,306,878
TRIOXANE POLYMERIZATION PROCESS

John Michael Barton, Gainesville, Fla., and Alaric Louis Jeffrey Raum, Effingham, Surrey, England, assignors to The Distillers Company Limited, Edinburgh, Scotland, a British company

No Drawing. Filed Dec. 3, 1963, Ser. No. 327,822

Claims priority, application Great Britain, Dec. 15, 1962, 47,407/62

4 Claims. (Cl. 260—67)

1. A process for the production of trioxane polymers which comprises polymerising trioxane at a temperature of from —20° C. to 120° C. in the presence of a polymerisation catalyst comprising a complex formed from ferric acetylacetonate and an organic acid halide selected from the group consisting of acetyl chloride, acetyl bromide and benzoyl chloride, the molar ratio of organic acid halide to ferric acetylacetonate being in the range of from 1:1 to 4:1, and recovering the polymers formed.

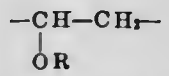
3,306,879
CURABLE COPOLYMERS OF TETRAFLUOROETHYLENE

Dexter B. Pattison, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 25, 1962, Ser. No. 205,112

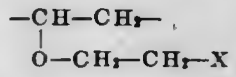
18 Claims. (Cl. 260—77.5)

1. A curable elastomeric copolymer comprising (a) about 45 to 55 mole percent of $-CF_2-CF_2-$ units, (b) about 54.8 to 35 mole percent of units selected from the group consisting of



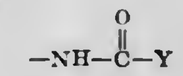
$$-\underset{OR}{\underset{|}{C}}H-CH_2-$$

units and mixtures of said units bearing different R radicals as defined hereinafter, wherein R is a member of the group consisting of a saturated aliphatic hydrocarbon radical containing 1 to 18 carbon atoms and the $R'OCH_2CH_2-$ radical where R′ is a saturated aliphatic hydrocarbon radical containing 1 to 4 carbon atoms and (c) about 0.2 to 10 mole percent of



$$-\underset{O-CH_2-CH_2-X}{\underset{|}{C}}H-CH_2-$$

units where X is a member of the group consisting of a halogen radical of an atomic number of 17 to 53, the hydroxyl group and a



$$-NH-\overset{O}{\overset{\|}{C}}-Y$$

radical where Y is a member of the group consisting of hydrogen and a saturated aliphatic hydrocarbon radical containing 1 to 8 carbon atoms.

11. A cured elastomeric copolymer obtained by mixing an organic polyisocyanate and the curable copolymer of claim **1** wherein X is the hydroxyl group and heating said mixture.

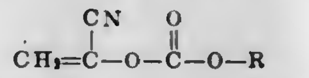
3,306,880
1-CYANOVINYL ALKYL CARBONATES, PROCESS FOR THEIR PRODUCTION AND POLYMERS THEREOF

Lieng-Huang Lee, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Feb. 14, 1964, Ser. No. 344,819

14 Claims. (Cl. 260—77.5)

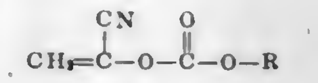
1. A compound having the general formula



$$CH_2=\overset{CN}{\overset{|}{C}}-O-\overset{O}{\overset{\|}{C}}-O-R$$

in which R is an alkyl group having from 1 to 20 carbon atoms.

10. A polymer of a monomeric material having the general formula



$$CH_2{=}\overset{CN}{\overset{|}{C}}{-}O{-}\overset{O}{\overset{\|}{C}}{-}O{-}R$$

in which R is an alkyl group having from 1 to 20 carbon atoms.

3,306,881

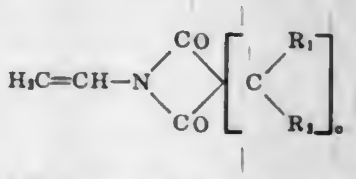
METHOD OF MAKING INSOLUBLE POLYMERS OF N-VINYL IMIDES

Frederick Grosser, Midland Park, and Marvin R. Leibowitz, Edison, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 6, 1963, Ser. No. 285,870

19 Claims. (Cl. 260—78)

1. A method for the production of polyvinyl imides which are not soluble in water which comprises heating an N-vinyl imide corresponding to the formula:



wherein R_1 and R_2 represent hydrogen and alkyl groups and *n* represents a whole positive integer of 1 through 4 and wherein all carbon atoms are tetravalent, at an elevated temperature in the presence of a catalytic amount of a catalyst selected from the group consisting of

(a) M and (b) MX

wherein M represents a metal selected from the group consisting of alkali and alkaline earth metals, and X represents a member selected from the group consisting of oxygen, hydroxyl and alkoxy radicals containing up to four carbon atoms.

3,306,882

WAX-RESIN COMPOSITIONS

Edward A. Pullen, Fullerton, and Irving D. Webb, Yorba Linda, Calif., assignors to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Nov. 12, 1963, Ser. No. 323,133

8 Claims. (Cl. 260—28.5)

1. A composition of matter essentially comprising: (a) between about 50 and about 80 percent by weight of a petroleum wax, (b) between about 15 and about 40 percent by weight of a copolymer of ethylene and vinyl acetate containing between about 5 and about 75 percent by weight of vinyl acetate and between about 25 and about 95 percent by weight of ethylene, and (c) between about 2 and about 10 percent by weight of a copolymer of alpha-methyl styrene and vinyl toluene containing between about 25 and about 35 percent by weight of alpha-methyl styrene and between about 65 and about 75 percent by weight of vinyl toluene.

3,306,883

COATING COMPOSITION

Abraham Ravve, Chicago, and Joseph T. Khamis, Brookfield, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed June 3, 1964, Ser. No. 372,352

14 Claims. (Cl. 260—78.5)

1. A curable coating composition having a long pot life which comprises an effective amount of an interpolymer and a dispersion of a cross-linking agent in a volatile-inert organic solvent;

said interpolymer consisting essentially of the reaction product of 50 to 85 parts by weight of at least one ethylenically unsaturated compound selected from the group consisting of methyl methacrylate, ethyl methacrylate, propyl methacrylate, isopropyl methacrylate, butyl methacrylate, isobutyl methacrylate, vinylbenzene and hydrocarbon-substituted vinylbenzenes;

about 5 to 35 parts by weight of at least one unsaturated ester selected from the group consisting of vinyl esters of saturated monocarboxylic acids containing 2 to 18 carbon atoms per molecule, alkyl esters of acrylic and methacrylic acids wherein the alkyl group is saturated and contains from 2 to 18 carbon atoms, and dialkyl esters of unsaturated dicarboxylic acids wherein the alkyl groups contain from 2 to 10 carbon atoms; and

about 1 to 20 parts by weight of a glycidyl compound selected from the group consisting of glycidyl ethers of unsaturated alcohols having 2 to 3 carbon atoms, and glycidyl esters of methacrylic and acrylic acid;

said cross-linking agent being present as a dispersion in a stoichiometric amount based on the epirane oxygen groups present in the glycidyl compound and selected from the group consisting of citric acid, aconitic acid, tartaric acid, citraconic acid, itaconic acid, maleic acid and fumaric acid; said cross-linking agent being insoluble in the inert organic solvent and substantially non-reactive at about room temperatures.

3,306,884

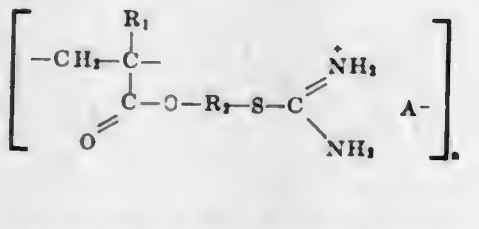
ISOTHIURONIUM SALTS

Thomas K. Dykstra and Donald A. Smith, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Feb. 10, 1965, Ser. No. 431,702

15 Claims. (Cl. 260—79.7)

6. Polymers having the following repeating unit:



wherein R_1 is selected from the group consisting of hydrogen and alkyl, R_2 is alkylene, *n* is a whole number, and A is an anion.

3,306,885

MOLECULAR WEIGHT CONTROL IN POLYMERIZATION OF VINYLIDENE MONOMERS USING A 1,2-CARBOXY-5-METHYLCYCLOHEXENE-4 REGULATOR

Speros P. Nemphos, Springfield, Mass., and Richard Emile Delacretaz, Cincinnati, Ohio, assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 25, 1966, Ser. No. 529,925

4 Claims. (Cl. 260—85.5)

1. In a process for polymerizing a free radical polymerizable material consisting essentially of 90.0 to 10.0 percent by weight of at least one monovinylidene aromatic hydrocarbon and 10.0 to 90.0 percent by weight of a nitrile selected from the group consisting of acrylonitrile and methacrylonitrile in the presence of a free radical polymerization initiator, the improvement which comprises conducting the polymerization in the presence of 0.05 to 5.0 percent of 1,2-dicarboxy-5-methylcyclohexene-4, based on the weight of the free radical polymerizable material.

3,306,886

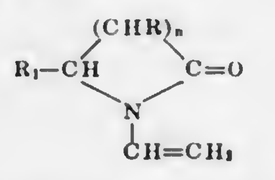
POLYMERIZATION OF N-VINYL LACTAMS USING PLURAL STAGE HEATING IN THE PRESENCE OF CATALYST COMPOSITIONS OF HYDRIDES OR BOROHYDRIDES OF ALKALI METALS AND WATER

Frederick Grosser, Midland Park, and Eugene V. Hort and Arthur Schwartz, Metuchen, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 23, 1963, Ser. No. 318,195

12 Claims. (Cl. 260—88.3)

1. An improved method for the polymerization of N-vinyl lactams to produce insoluble polymers thereof which comprises heating a mixture comprising an N-vinyl lactam corresponding to the formula:



wherein each R independently represents a member selected from the group consisting of hydrogen, methyl and ethyl and R_1 represents a member of the group consisting of hydrogen and alkyl groups containing from 1 to 4 carbon atoms and *n* represents a whole positive integer of from 2 through 4 in the presence of from about .05 to about 10 weight percent based upon monomer of a catalyst selected from the group consisting of hydrides and borohydrides of alkali metals and water in an amount of from about 1.0 to about 70 weight percent based on the weight of N-vinyl lactam at a first elevated temperature of from about 125° C. to about 200° C. for a period of time sufficient to induce incipient polymerization and forthwith cooling said mixture to a second temperature of from about 75° C. to about 100° C. and maintaining said mixture at said second temperature until polymerization is complete.

3,306,887

HOMOPOLYMERS OF AROMATIC AMINE ESTERS OF DIHYDROPYRANS

Roy T. Holm and Paul H. Williams, Orinda, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 22, 1963, Ser. No. 296,488

19 Claims. (Cl. 260—88.3)

1. A homopolymer of an ester monomer selected from the group consisting of aminoaromatic carboxylate ester of a 2-methylol-3,4-dihydro-2H-pyran, aminoaromatic carboxylate diester of a 2,2-dimethylol-3,4-dihydropyran, and a 3,4-dihydro-2H-pyran-2-carboxylate ester of aminoaromatic hydroxylic compound, wherein each of said aminoaromatic moieties has from 0 to 4 alkyl substituents and from 1 to 3 primary amino groups, and each of said dihydropyran moieties has from 0 to 4 alkyl substituents.

3,306,888

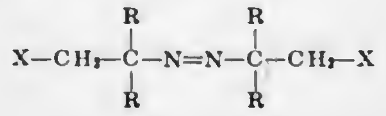
AZO COMPOUNDS

George A. Mortimer, La Marque, Tex., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Dec. 9, 1963, Ser. No. 329,280

7 Claims. (Cl. 260—94.9)

5. The method of polymerizing ethylene which comprises bringing ethylene under polymerization conditions including a temperature in the range from about 150° to about 300° C. in contact with a catalytic amount of an azo compound of the formula



$$X{-}CH_2{-}\underset{R}{\overset{R}{C}}{-}N{=}N{-}\underset{R}{\overset{R}{C}}{-}CH_2{-}X$$

wherein R is an alkyl group having from 1 to 8 carbon atoms and X is chosen from the group consisting of the —OH radical and the —OCOR′ radical wherein R′ is chosen from the group consisting of alkyl, cycloalkyl, aryl, aralkyl, and alkaryl radicals.

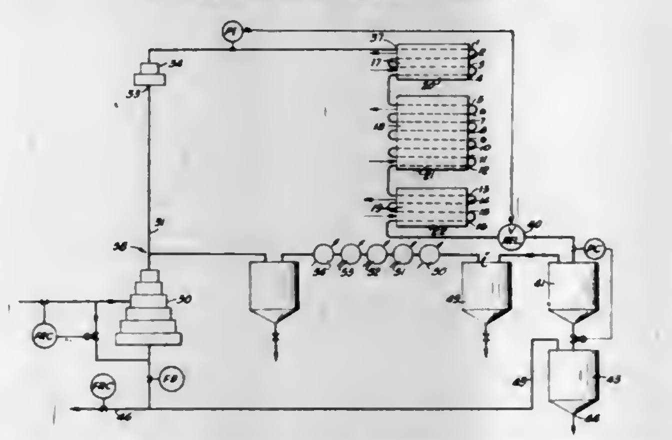
3,306,889

ETHYLENE POLYMERIZATION

Hans M. Schappert, Bethel Park, Pa., assignor to Koppers Company, Inc., a corporation of Delaware

Filed May 15, 1963, Ser. No. 280,527

1 Claim. (Cl. 260—94.9)



In a process for polymerizing ethylene to polyethylene by compressing ethylene in low and high pressure compressors and introducing said compressed ethylene containing a free radical yielding catalyst into one end of a reaction zone which has a substantial length and which is at a pressure range from 17,000 p.s.i.–40,000 p.s.i. and a temperature of at least 180° C. whereupon a substantial amount of the ethylene polymerizes to polyethylene and whereafter the ethylene which did not polymerize is separated from the polyethylene in two stages and two ethylene gas streams are produced, one of high pressure and the other of lower pressure for recycle to said reaction zone, cooling said streams adding fresh ethylene to the stream of lower pressure and compressing said stream of lower pressure containing said fresh ethylene to the pressure of the stream of high pressure and subsequently mixing said streams prior to compression in said high pressure compressor; the improvement which comprises subjecting the mixed stream, which is at the pressure of said stream of high pressure, to further cooling prior to compressing said stream to reaction zone pressure whereby said mixed stream is maintained at a constant temperature to thereby provide a constant ethylene gas capacity to said high pressure compressor.

3,306,890

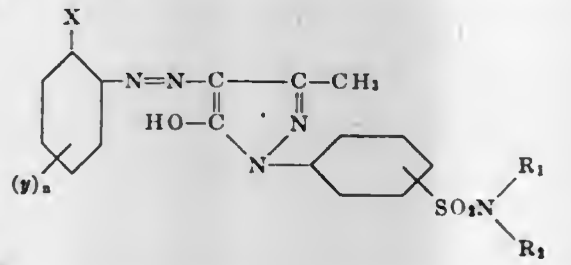
COPPER COMPLEXES OF SULFAMYLPHENYL-PYRAZOLONE MONOAZO DYESTUFFS

Herman A. Bergstrom, Hamburg, N.Y., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Apr. 29, 1963, Ser. No. 276,180

3 Claims. (Cl. 260—147)

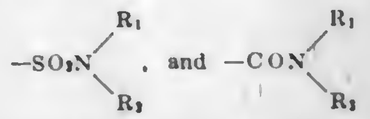
1. A copper complex of a monoazo dyestuff having the formula:



wherein

x is selected from the group consisting of the hydroxyl and carboxyl groups;

y is selected from the group consisting of hydrogen, nitro, chlorine, bromine, lower hydrocarbon alkyl, lower hydrocarbon alkoxy,



$$-SO_2N\begin{matrix}R_1\\R_2\end{matrix}, \text{ and } -CON\begin{matrix}R_1\\R_2\end{matrix}$$

n is a whole number not exceeding two when *y* is other than hydrogen; and

R_1 is selected from the group consisting of hydrogen and lower hydrocarbon alkyl and R_2 is selected from the group consisting of hydrogen and lower hydrocarbon alkyl.

3,306,891

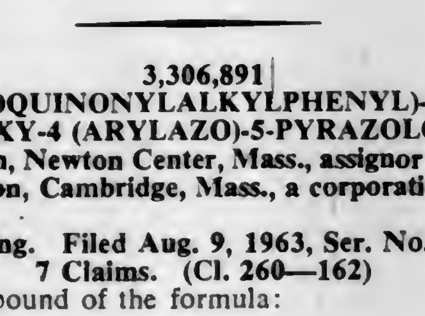
1-(HYDROQUINONYLALKYLPHENYL)-3 CARBALKOXY-4 (ARYLAZO)-5-PYRAZOLONES

Milton Green, Newton Center, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

No Drawing. Filed Aug. 9, 1963, Ser. No. 301,198

7 Claims. (Cl. 260—162)

1. A compound of the formula:



wherein R^1 is selected from the group consisting of lower alkyl, lower alkoxy, chlorine, sulfonamido, and trifluoromethyl radicals; *p* is an integer from 0 to 4, inclusive; X is a radical selected from the group consisting of hydrogen, chlorine, lower alkyl, lower alkoxy, sulfonamido, and trifluoromethyl radicals, said X being located ortho to said —N═N— group; Q^1 is a radical selected from the group consisting of phenyl and naphthyl radicals; Ar is a phenylene radical; M is a lower alkylene radical; N is an integer from 0 to 1, inclusive; Y is a radical selected from the group consisting of ortho- and para-dihydroxyphenyl radicals and lower alkyl and chlorine derivatives thereof; and Z is a lower alkyl radical.

3,306,892

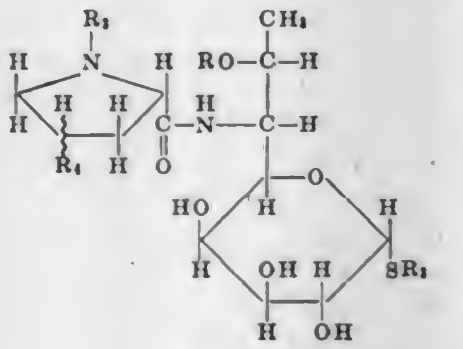
PROCESS FOR THE PRODUCTION OF 6,8-DIDEOXY - 6 - (1,4-DIALKYL-L-2-PYRROLIDINE-CARBOXAMIDO) - 1 - THIO-D-ERYTHRO-α-D-GALACTO-OCTOPYRANOSIDES

Barney J. Magerlein, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Dec. 21, 1964, Ser. No. 420,099

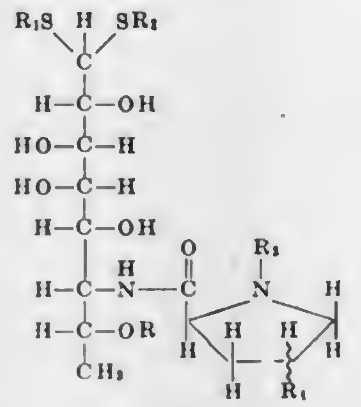
8 Claims. (Cl. 260—210)

1. A process for the production of a 6,8-dideoxy-6-(1,4 - dialkyl - L - 2 - pyrrolidinecarboxamido) - 1 - thio-D-erythro-α-D-galacto-octopyranoside of Formula I below:



(I)

wherein R is selected from the group consisting of hydrogen and methyl, wherein R_3 is selected from the group consisting of alkyl radicals having from 1 to 18 carbon atoms, inclusive, and benzyl and 2-thenyl, wherein R_4 and R_5 are alkyl radicals having from 1 to 12 carbon atoms, inclusive, which comprises: heating above the melting point and not higher than to 350° C. a compound of Formula II below:



(II)

wherein R, R_4 and R_5 have the significance of above and wherein R_1 and R_2 are selected from the same group as R_3 with the proviso that at least one of the parameters R_1 and R_2 is identical with R_3, to obtain the corresponding compounds of Formula I above.

3,306,893

PHENOXYMETHYLPENICILLIN CARBO-TER-BUTOXYMETHOXYAMIDE

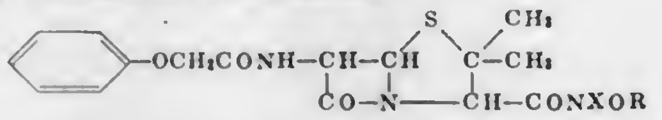
Piero Sensi and Carolina Coronelli, both of Milan, Italy, assignors to Lepetit S.p.A., Milan, Italy

No Drawing. Filed Nov. 26, 1963, Ser. No. 326,251

Claims priority, application Great Britain, Dec. 4, 1962, 45,817/62

2 Claims. (Cl. 260—239.1)

2. A compound of the formula



wherein X is a member of the class consisting of hydrogen and a lower alkyl radical, R is a member of the class consisting of 1-carbethoxypropyl, 2-phenyl-1-carboxyethyl, 2 - phenyl - 1-carbo-ter-butoxy-ethyl, α-carbo-ter-butoxybenzyl, m-carboxy-benzyl, carbo-ter-butoxymethyl, 1-carbo-ter-butoxyethyl, p-carboxy-phenylpropyl, 3-carboxy-3-phenylpropyl, 1-p-carboxyphenyl-ethyl, and p-carboxyphenethyl.

3,306,894

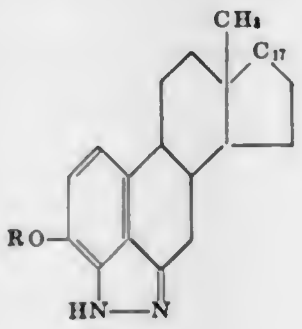
4,6-INDAZOLE DERIVATIVES OF ESTRONE AND ESTRADIOL-17β

Edward Warren Cantrall and Seymour Bernstein, New City, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

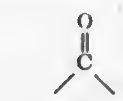
No Drawing. Filed May 10, 1965, Ser. No. 454,670

4 Claims. (Cl. 260—239.5)

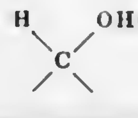
1. A compound of the formula:



wherein R is a member of the group consisting of hydrogen and lower alkyl and C_{17} is a member of the group consisting of



and



3,306,895

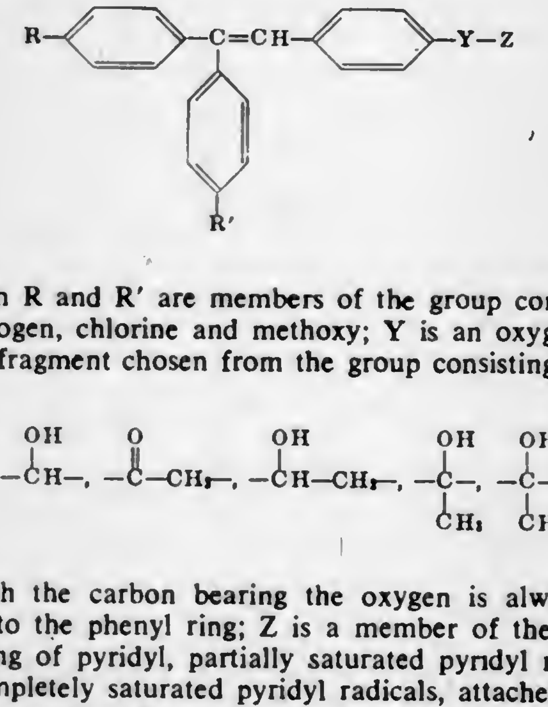
HETEROCYCLIC DERIVATIVES OF TRIPHENYLETHYLENES, TRIPHENYLETHANES AND TRIPHENYLETHANOLS

Edward McCreery Roberts, George Philip Claxton, and Frances Gertrude Fallon, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y., a corporation of Delaware

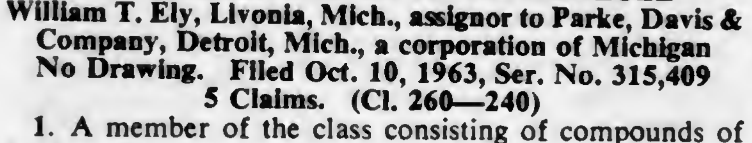
No Drawing. Filed June 27, 1962, Ser. No. 205,551

10 Claims. (Cl. 260—240)

1. Compounds of the group consisting of those having the general formula:



in which R and R′ are members of the group consisting of hydrogen, chlorine and methoxy; Y is an oxygenated carbon fragment chosen from the group consisting of:



$$-\overset{O}{\overset{\|}{C}}-,\ -\overset{OH}{\overset{|}{C}}H-,\ -\overset{O}{\overset{\|}{C}}-CH_2-,\ -\overset{OH}{\overset{|}{C}}H-CH_2-,\ -\underset{CH_3}{\underset{|}{\overset{OH}{\overset{|}{C}}}}-,\ -\underset{CH_3}{\underset{|}{\overset{OH}{\overset{|}{C}}}}-CH_2-$$

in which the carbon bearing the oxygen is always attached to the phenyl ring; Z is a member of the group consisting of pyridyl, partially saturated pyridyl radicals and completely saturated pyridyl radicals, attached to Y through a ring-carbon atom, the nitrogen atom of said partially saturated and completely saturated pyridyl ring bearing a member of the group consisting of hydrogen and lower alkyl radicals.

3,306,896

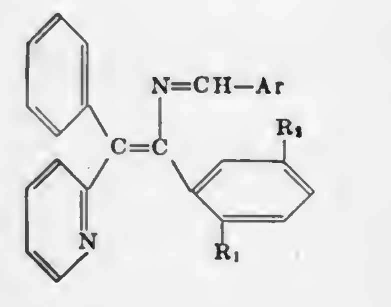
AMINO DERIVATIVES OF 2-STILBAZOLE

William T. Ely, Livonia, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed Oct. 10, 1963, Ser. No. 315,409

5 Claims. (Cl. 260—240)

1. A member of the class consisting of compounds of the formula



and acid-addition salts thereof; where Ar is a member of the class consisting of phenyl, o-hydroxyphenyl, benzyl, and 2-hydroxy-1-naphthyl; R_1 is a member of the class consisting of methyl and methylthio; and R_2 is a member of the class consisting of hydrogen and methyl.

3,306,897

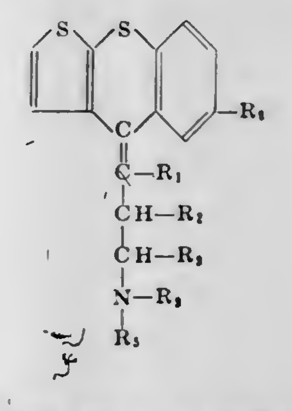
THIENO-BENZOTHIOPYRAN DERIVATIVES

Jany Renz and Jean-Pierre Bourquin, Basel, Gustav Schwarb, Neuallschwil, Basel-Land, and Leo Ruesch, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed June 8, 1964, Ser. No. 373,503

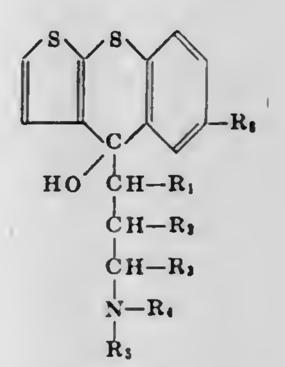
17 Claims. (Cl. 260—240)

1. A compound of the formula:



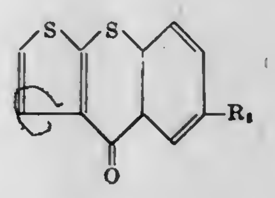
wherein R_1, R_2, R_3, R_4 and R_5 are selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms, R_4 and R_5 can form together a ring selected from the group consisting of pyrrolidine, piperidine, lower-4-alkylpiperazine and morpholine, R_4 can form together with R_1, R_2, R_3 a ring selected from the group consisting of pyrrolidine and piperidine and R_6 is a member selected from the group consisting of hydrogen, chlorine, lower alkoxy and lower alkylmercapto.

2. A compound of the formula



wherein R_1, R_2, R_3, R_4 and R_5 are selected from the group consisting of hydrogen and alkyl of 1 to 4 carbon atoms, R_4 and R_5 can form together a ring selected from the group consisting of pyrrolidine, piperidine, 4-lower-alkylpiperazine and morpholine, R_4 can form together with R_1, R_2, R_3 a ring selected from the group consisting of pyrrolidine and piperidine, and R_6 is a member selected from the group consisting of hydrogen, chlorine, lower alkoxy, and lower alkylmercapto.

3. A compound of the formula



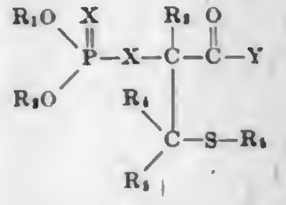
wherein R_6 is a member selected from the class consisting of hydrogen, chlorine, lower alkoxy and lower alkylmercapto.

5. 4-[3′-(1″ - methyl-piperazyl-4″) - propylidene-1′]-thieno[2,3-b][1]-benzothiopyran.

3,306,898
ALPHA (PHOSPHORYL, PHOSPHORYTHIO, THIOPHOSPHORYL AND DITHIOPHOSPHORYL)-ALPHA (HYDROCARBON MERCAPTOMETHYL) PROPIONATE ESTERS AND AMIDES

Richard Sehring and Karl Zeile, Ingelheim (Rhine), Germany, assignors to C. H. Boehringer Sohn, Ingelheim (Rhine), Germany, a limited partnership of Germany
No Drawing. Filed July 31, 1963, Ser. No. 299,088
Claims priority, application Germany, Aug. 3, 1962, B 68,304
18 Claims. (Cl. 260—247.1)

1. A compound of the formula



wherein

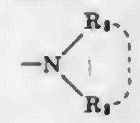
R_1, R_2 and R_3 are each selected from the group consisting of alkyl of 1 to 3 carbon atoms,

R_4 and R_5 are each selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, phenyl and halophenyl,

R_6 is selected from the group consisting of alkyl of 1 to 3 carbon atoms, phenyl and substituted phenyl, the phenyl substituents being selected from the group consisting of lower alkyl, halogen and nitro,

X is selected from the group consisting of oxygen and sulfur, and

Y is selected from the group consisting of alkoxy of 1 to 6 carbon atoms and



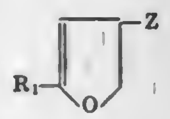
where R_8 and R_9 are each selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms and, together with each other and the adjacent nitrogen atom, morpholino.

9. α - (O,O - diethyl - dithiophosphoryl) - α - (ethylmercaptomethyl)-propionic acid morpholide.

3,306,899
4-AMINO-2-HALO AND ALKYL-4,5-DIHYDROFURANS AND PROCESS FOR THEIR PREPARATION

Rostyslaw Dowbenko, Gibsonia, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed July 8, 1964, Ser. No. 381,241
13 Claims. (Cl. 260—247.7)

1. A compound corresponding to the formula:



where R_1 is selected from the group consisting of chlorine, bromine, fluorine and lower alkyl radicals having 1 to 10 carbon atoms, and where Z is an amino group selected from the group consisting of heterocyclic amino groups selected from the group consisting of morpholino, piperidino, pyrrolidino, N-methyl-piperizino, hexamethylene imino, and thiomorpholino, monoalkylamino groups and dialkylamino groups having 1 to 20 carbon atoms.

9. 2-chloro-4-morpholino-4,5-dihydrofuran.

3,306,900
METHOD FOR PRODUCING 4,6-DIHYDROXYPYRIMIDINE

Yasuo Fujimoto, Machida-shi, Japan, assignor to Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan, a corporation of Japan
No Drawing. Filed Feb. 17, 1965, Ser. No. 433,477
Claims priority, application Japan, Feb. 21, 1964, 39/9,044; Feb. 22, 1964, 39/9,137
13 Claims. (Cl. 260—251)

1. In the production of 4,6-dihydroxypyrimidine, the steps of admixing amidating agent selected from the group consisting of ammonia and formamide with di(lower)alkyl malonate in a reaction medium containing a catalyst selected from the group consisting of alkali metal and alkali metal (lower)alkoxide and allowing the ensuing amidation reaction to proceed until completion of the formation of malonic acid diamide, adding formamide up to a total amount of about one mole of unreacted foramide to function as ring-closing agent, and heating the thus-formed reaction mixture to a temperature above about 50° C. to effect pyrimidine ring-closure, said amidation and pyrimidine ring formation being effected successively and without isolation of intermediately formed amidation product, whereby a high yield of 4,6-dihydroxypyrimidine product is obtained in a one-stage single through-put process, the molar sum of ammonia and total formamide per mole of malonate being about three moles or more, of which at least one is formamide.

3,306,901
4-HYDROXY-5,6,7,8-TETRAHYDRO-PYRIDO-[4,3-d]-PYRIMIDINE SUBSTITUTION PRODUCTS

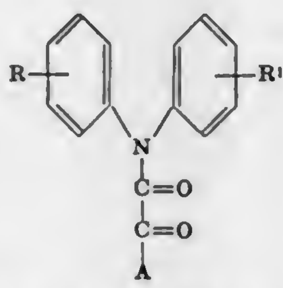
Gerhard Ohnacker, Biberach an der Riss, Germany, assignor, by mesne assignments, to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany, a corporation of Germany
No Drawing. Filed Mar. 14, 1963, Ser. No. 265,051
Claims priority, application Germany, Mar. 22, 1962, T 21,812
10 Claims. (Cl. 260—256.4)

1. 2-n-butyl-4-hydroxy-6,8-dimethyl - 5,6,7,8 - tetrahydro-pyrido-[4,3-d]-pyrimidine.

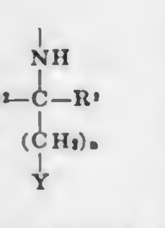
3,306,902
DIPHENYLOXAMIC ACID DERIVATIVES

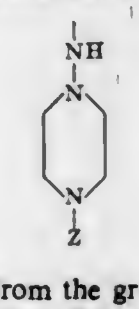
Milton Wolf, 1208 Lotus Lane, West Chester, Pa. 19380, and Francis Greek, 73—34 Valley Ave., Philadelphia, Pa. 19128
No Drawing. Filed July 15, 1964, Ser. No. 382,945
9 Claims. (Cl. 260—268)

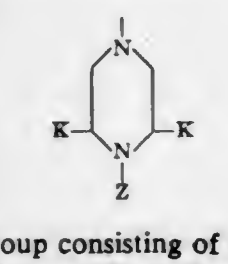
1. A member selected from the group consisting of a compound of the formula:



wherein A is selected from the group consisting of







wherein Y is selected from the group consisting of amino and di(lower alkyl)amino; Z is selected from the group

consisting of hydrogen, lower alkyl and phenyl; K is selected from the group consisting of hydrogen and lower alkyl; R and R^1 are each selected from the group consisting of hydrogen, lower alkyl, phenyl lower alkyl, halogen, lower alkoxy, lower alkyl thio, sulfamyl, lower alkylsulfamyl, lower carbalkoxy, lower alkanoyl, anilino, cyano, nitro and halo lower alkyl; R^2 and R^3 are each selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and phenyl, and *n* is an integer from one to four; and the pharmaceutically acceptable acid addition salts thereof.

3,306,903
1-AMINOPYRIDYL-4-(PHENYL OR PYRIDYL)-PIPERAZINES AND INTERMEDIATES

Padam Chand Jain and Nitya Anand, Lucknow, India, assignors to Council of Scientific and Industrial Research, New Delhi, India
No Drawing. Filed Oct. 7, 1965, Ser. No. 493,910
25 Claims. (Cl. 260—268)

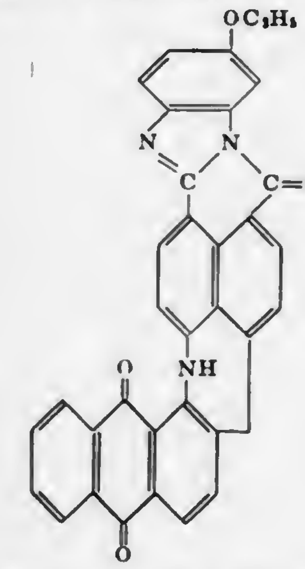
1. 1-phenyl-4-(nitropyridyl)piperazine.

13. 1-phenyl-4-(aminopyridyl)piperazine.

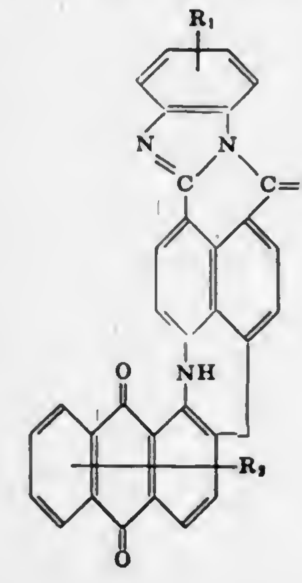
3,306,904
VAT DYESTUFFS OF THE ANTHRAQUINONE SERIES AND PROCESS FOR THEIR MANUFACTURE

Heinrich Sieber, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Oct. 23, 1964, Ser. No. 406,143
Claims priority, application Germany, Oct. 26, 1963, F 41,108
3 Claims. (Cl. 260—274)

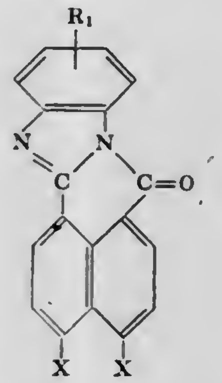
1. The dyestuff of the formula



3. A process for preparing a dyestuff of the formula



in which R_1 represents a member selected from the group consisting of a hydrogen atom, a lower alkyl group and a lower alkoxy group and R_2 represents a member selected from the group consisting of a hydrogen atom, a chlorine atom and a benzoylamino group, which comprises condensing a 4′,5′-dihalogen-1′,8′-naphthoylene-benzimidazole of the formula

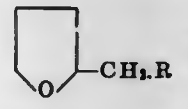


in which R_1 has the meaning given above and X represents a member selected from the group consisting of chlorine and bromine atoms in the presence of an organic solvent with an alkali metal phenolate and then with an aminoanthraquinone selected from the group consisting of 1-amino-anthraquinone, 1 - amino-benzoylamino-anthraquinone, and 1-amino-chloroanthraquinone in the presence of an acid-binding agent and a copper salt and treating the intermediates in an aqueous alkaline solution with sodium dithionite in the presence of an organic acid amide at a temperature between 30° and 120° C.

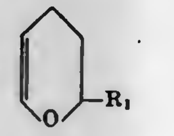
3,306,905
PRODUCTION OF PYRIDINE

Reginald Harold Hall, Carshalton, and Antony Harold Patrick Hall, New Malden, England, assignors to The Distillers Company Limited, Edinburgh, Scotland, a British company
No Drawing. Filed July 6, 1964, Ser. No. 380,613
Claims priority, application Great Britain, Aug. 8, 1963, 31,263/63; Oct. 23, 1963, 41,753/63; Oct. 30, 1963, 42,768/63; Nov. 30, 1963, 47,370/63; Jan. 24, 1964, 3,072/64; May 13, 1964, 19,904/64, 19,905/64
31 Claims. (Cl. 260—290)

1. The process for the production of pyridine by the catalytic reaction in the vapour phase and at an elevated temperature, of ammonia and at least one compound selected from the compounds:



and

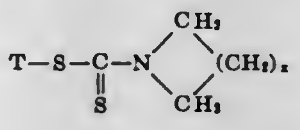


wherein R is selected from the group consisting a hydroxyl group and an amino group, and R_1 is selected from the group consisting of an alkoxy group, an acyloxy group and the hydrogen atom, characterized in that oxygen is included in the reaction mixture.

3,306,906
POLYMETHYLENE 2-BENZOTHIAZOLYL CARBODITHIOATES

John J. D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed Jan. 7, 1966, Ser. No. 519,300
4 Claims. (Cl. 260—306.6)

1. A compound of the formula



where T is selected from the group consisting of benzothiazolyl, nitro-, chloro-, lower alkyl-, and lower alkoxy-substituted benzothiazolyl, and *x* is an integer at least 5 but less than 7.

3,306,907
PROCESS FOR PREPARING N_1,N_5-DI(POLYBUTENYLSUCCINIMIDE)

Herbert A. McNinch, Portage, and Robert E. Karll, Munster, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
No Drawing. Filed Apr. 29, 1963, Ser. No. 276,217
3 Claims. (Cl. 260—326.3)

1. A process for the preparation of a lubricant oil detergent additive comprising a solution of about 45 to 50 weight percent N_1,N_5 - di(polybutenylsuccinimide) of tetraethylene pentamine whose polybutenyl group is derived from polybutene having an average molecular weight of about 860 dissolved in from 55 to 50 weight percent of a solvent comprising a light hydrocarbon oil and polybutene having an average molecular weight of 860 and a viscosity of 1,000 SSU at 210° F., which comprises reacting in an inert gas atmosphere said polybutene with maleic anhydride in a ratio of 0.7 to 0.9 mole maleic anhydride per mole polybutene by heating said polybutene to a temperature in the range of 400 to 475° F., adding molten maleic anhydride at a temperature of from 170 to 425° F. slowly to said polybutene at the rate of from 0.1 to 0.4 mole per hour, maintaining the resulting reaction mixture at a temperature of from 400 to 475° F. for a total of 10 to 24 hours reaction time, thereafter removing unreacted maleic anhydride by distillation and removing maleic anhydride decomposition products having a vapor pressure greater than maleic anhydride by filtration, and diluting said reaction product with a light mineral oil to a concentration of 45 to 60% of the resulting 3 polybutenylsuccinic anhydride, thereafter cooling said solution of polybutenylsuccinic anhydride to a temperature in the range of 200 to 250° F., reacting in an inert gas atmosphere tetraethylene pentamine with said dissolved polybutenylsuccinic anhydride in the ratio of 0.4 to 0.6 mole of said pentamine per mole of polybutenylsuccinic anhydride in solution by the slow addition of said pentamine at a temperature in the range of 200 to 300° F., and removing water of reaction, whereby the product of reaction between said polybutenylsuccinic anhydride and tetraethylene pentamine consists essentially of said N_1,N_5-di(polybutenyl succinimide) of tetraethylene pentamine and diluting said reaction product with light mineral oil to a concentration of from 45 to 50 weight percent, said polybutenyl succinic anhydridetetraethyl pentamine reaction product is characterized by being substantially free from reaction products containing amide groups.

3,306,908
REACTION PRODUCTS OF HIGH MOLECULAR WEIGHT HYDROCARBON SUCCINIC COMPOUNDS, AMINES AND HEAVY METAL COMPOUNDS

William M. Le Suer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio, a corporation of Ohio
No Drawing. Filed Dec. 26, 1963, Ser. No. 333,616
10 Claims. (Cl. 260—326.3)

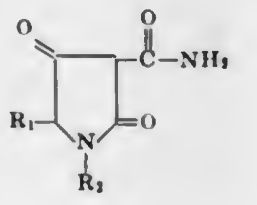
1. A metal complex prepared by the process comprising forming a non-acidic, acylated nitrogen intermediate by the reaction of 1 equivalent of a hydrocarbon-substituted succinic acid or anhydride having at least about 50 aliphatic carbon atoms in the hydrocarbon substituent with from about 1 equivalent to about two moles of an amine selected from the class consisting of alkylene amines, piperazines and imidazolines and reacting said acylated nitrogen intermediate with from about 0.1 equivalent to about 2 equivalents, per equivalent of the amine, of a complex-forming metal compound selected from the class consisting of nitrates, nitriles, halides, carboxylates, phosphates, phosphites, sulfates, sulfites, carbonates, borates, and oxides of cadmium and metals having atomic numbers from 24 to 30 at a temperature above about 25° C. and below the decomposition point of the reaction mixture.

3. A metal complex prepared by the process comprising forming a non-acidic, acylated nitrogen intermediate by the reaction of 1 equivalent of an olefin polymer-substituted succinic acid or anhydride having at least about 50 aliphatic carbon atoms in the olefin polymer substituent with from about 1 equivalent to about two moles of an ethylene amine and reacting said acylated nitrogen intermediate with from about 0.1 equivalent to about 2 equivalents, per equivalent of the amine, of a complex-forming metal halide in which the metal has an atomic number from 24 to 30 at a temperature above about 25° C. and below the decomposition point of the reaction mixture.

3,306,909
3-CARBAMOYL-1,5-DIPHENYL-2,4-PYRROLIDINEDIONES

Robert H. Uloth, Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind., a corporation of Indiana
No Drawing. Filed May 5, 1964, Ser. No. 365,192
4 Claims. (Cl. 260—326.3)

1. A composition of the formula

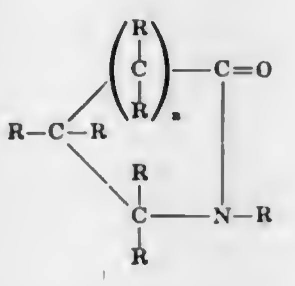


wherein R_1 and R_2 are independently selected from the group consisting of phenyl, halophenyl, alkoxyphenyl, alkylphenyl and hydroxyphenyl wherein the alkyl and alkoxy substituents of the phenyl groups contain up to 4 carbon atoms.

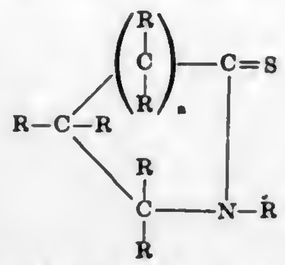
3,306,910
PRODUCTION OF THIOLACTAM COMPOUNDS

Rector P. Louthan, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Sept. 14, 1964, Ser. No. 396,408
8 Claims. (Cl. 260—326.83)

1. A method for producing thiolactams comprising reacting at an elevated temperature a lactam represented by the formula:



wherein each R is selected from the group consisting of hydrogen, alkyl and cycloalkyl of from 1 to 6 carbon atoms, inclusive, wherein *n* is a whole integer selected from the group consisting of 0 to 10, inclusive, and wherein the total number of carbon atoms in said lactams does not exceed 20, with hydrogen sulfide in a quantity sufficient to form at least one compound represented by the formula:



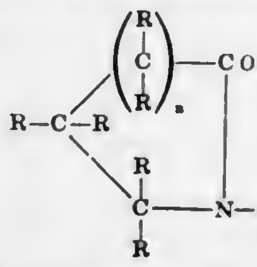
wherein R and *n* are as defined above, provided that during the above reacting step at least one of the group consisting of alkali metal hydroxides and ammonium hydroxide in an amount in the range of 0–20 weight percent based on the H_2S charged is present and recovering the product thiolactam.

7. A method for making N-methylpyrrolidine-2-thione comprising reacting N-methyl-2-pyrrolidinone with H_2S in the presence of NaOH at an elevated temperature and pressure for a period of time sufficient to produce said thione.

3,306,911
METHOD FOR PREPARING THIOLACTAMS

Richard C. Doss, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Aug. 30, 1965, Ser. No. 483,777
6 Claims. (Cl. 260—326.83)

1. A method for producing a thiolactam comprising reacting at elevated temperatures, elemental sulfur with a lactam represented by the formula



wherein each R is selected from the group consisting of hydrogen, alkyl and cycloalkyl containing from 1 to 6 carbon atoms, inclusive, wherein *n* is a whole integer from 0 to 10, inclusive, and wherein the total number of carbon atoms in said lactam does not exceed 20.

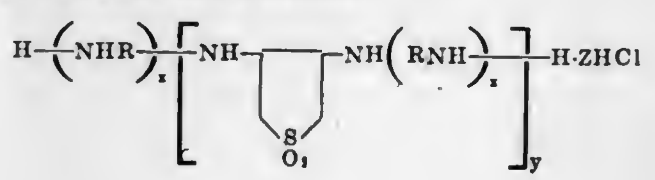
5. A method for making a thiolactam comprising reacting 1-methyl-2-pyrrolidinone with an effective amount of elemental sulfur and at an elevated temperature and pressure both sufficient to produce the desired thiolactam.

3,306,912
SULFOLANYL POLYAMINES AND METHOD FOR THEIR PRODUCTION

Henry E. Fritz, Charleston, W. Va., and Robert P. Yunick, Schenectady, N.Y., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Sept. 14, 1964, Ser. No. 396,405
19 Claims. (Cl. 260—332.1)

1. The process for producing a polyamine which comprises contacting in a basic medium a 3,4-dihalotetrahydrothiophene-1,1-dioxide with an alkylene polyamine of the formula $H(NHR)_xNH_2$, wherein x is an integer having a value of from 1 to 10 and R is a divalent saturated aliphatic radical of from 2 to 10 carbons whose valence bonds are from different carbon atoms, at a temperature of from room temperature to 100° C. for a period of time sufficient to form said polymer.

18. Polyamine of the formula:

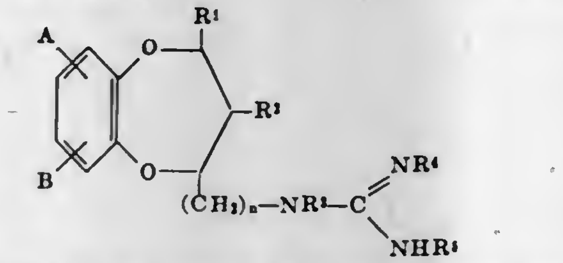


wherein R is a divalent saturated aliphatic radical of from 2 to 10 carbons whose valence bonds are from different carbons; *x* is an integer having a value of from 1 to 10; *y* is a positive integer and Z is an integer having a value of from 0 to 2*y*; said polymer having a reduced viscosity of from 0.005 to 0.5 as determined at room temperature from a 0.2 weight percent solution of said polymer in water.

3,306,913
2-GUANIDINOALKYL-3,4-DIHYDRO-2H-1,5-BENZODIOXEPINES

Joachim Augstein and Alastair Monro, Canterbury, Geoffrey W. H. Potter, Ramsgate, and Thomas I. Wrigley, Canterbury, England, assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 12, 1965, Ser. No. 432,396
Claims priority, application Great Britain, Feb. 14, 1964, 6,225/64
10 Claims. (Cl. 260—340.3)

1. A compound selected from the class consisting of 2-guanidinoalkyl - 3,4-dihydro-2H - 1,5 - benzodioxepine bases of the formula:

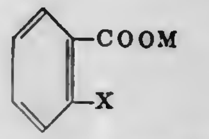


and the mineral and organic acid salts thereof, wherein each of A and B is a member selected from the group consisting of hydrogen, chlorine, bromine, lower alkyl and lower alkoxy; *n* is an integer of from one to four, and each of R^1, R^2, R^3, R^4 and R^5 is a member selected from the group consisting of hydrogen and lower alkyl.

3,306,914
PREPARATION OF 3,4-BENZOCOUMARIN AND POLYSALICYLATES BY PYROLYSIS OF METAL SALTS OF HALOGEN SUBSTITUTED AROMATIC CARBOXYLIC ACIDS

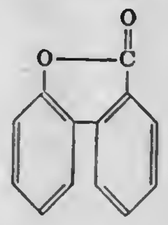
Edward J. McNelis, Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Apr. 19, 1963, Ser. No. 274,324
15 Claims. (Cl. 260—343.2)

1. Method which comprises heating a compound having the structural formula



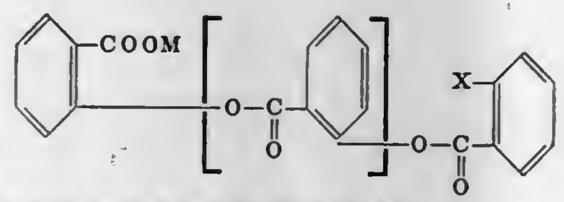
wherein M is a univalent metal and X is selected from the group consisting of chlorine, bromine, and iodine, to a temperature in the range of 125° to 375° C., and separating from the reaction product mixture a compound selected from the group consisting of

I)



and

II)



wherein *n* is in the range of 2 to 81.

3,306,915
OXIDATION OF AROMATIC COMPOUNDS

Theodore Vrbaski, Harvey, Ill., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 3, 1963, Ser. No. 270,165

7 Claims. (Cl. 260—346.7)

1. A process for the catalytic vapor phase oxidation of an ortho-(di-lower alkyl)benzene to the corresponding anhydride which comprises reacting said ortho(di-lower alkyl)benzene in the vapor phase at a temperature from about 300 to 600° C. with molecular oxygen in the presence of a fused vanadium pentoxide oxidation catalyst, said catalyst being provided with promotional amounts of zirconium oxide and a lanthanide series metal oxide.

3,306,916
PROCESS FOR PREPARING VINYLCYCLOPENTADIENYL MANGANESE TRICARBONYL

John Kozikowski, Walled Lake, Mich., and Michael Cais, Haifa, Israel, assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Dec. 28, 1960, Ser. No. 78,820. Divided and this application May 3, 1965, Ser. No. 463,423

3 Claims. (Cl. 260—429)

1. Process comprising reacting a (1-hydroxyethyl) cyclopentadienyl manganese tricarbonyl compound with a dehydration catalyst, said process being carried out at about 170° C. and in the presence of a polymerization inhibitor.

3,306,917
PROCESS FOR PREPARING GROUP VIII METAL CYCLOPENTADIENYL COMPOUNDS

Hymin Shapiro, Earl G. De Witt, and Jerome E. Brown, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Aug. 2, 1965, Ser. No. 476,698

5 Claims. (Cl. 260—429)

1. A process for the manufacture of Group VIII metallic cyclopentadienyl moiety-containing compounds comprising reacting a cyclopentadienyl alkali metal compound with a halide salt of a metal of Group VIII.

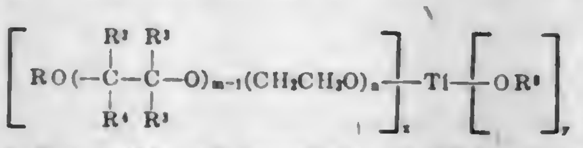
3,306,918
ORGANIC TITANATES

Leslie M. Schenck, Mountainside, N.J., and Leslie G. Nunn, Jr., New York, N.Y., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 13, 1964, Ser. No. 337,123

9 Claims. (Cl. 260—429.5)

1. An organic titanate that is represented by the formula



$$\left[RO(-\overset{R^2}{\underset{R^4}{C}}-\overset{R^3}{\underset{R^5}{C}}-O)_{m-1}(CH_2CH_2O)_n-\right]_x Ti\left[-OR^6\right]_y$$

wherein R represents a member selected from the class consisting of alkyl radicals containing from 6 to 28 carbon atoms, aryl radicals containing from 6 to 14 carbon atoms, alkylaryl radicals containing from 7 to 42 carbon atoms, arylmethylene and alkylarylmethylene radicals containing from 7 to 43 carbon atoms, R^2, R^3, R^4 and R^5 individually represent members selected from the class consisting of hydrogen, alkyl, alkenyl, chloroalkyl, bromoalkyl, chloroalkenyl, phenoxyalkyl, and two of the members R^2–R^5 taken together to form a cycloalkyl, *m* is an integer of at least 1, *n* is an integer of at least 1, R^6 represents a member selected from the class consisting of aryl radicals, alkylated aryl radicals and halogenated aryl radicals containing from 6 to 24 carbon atoms, *x* is an integer of from 1 to 4, *y* is an integer of from 0 to 3 and the sum of *x* and *y* is 4.

3,306,919
CYCLOPENTADIENYL TITANIUM COMPOUNDS

John C. Brantley, Amherst, Edward L. Morehouse, Snyder, and Leo Parts, Buffalo, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Jan. 15, 1958, Ser. No. 708,994

12 Claims. (Cl. 260—429.5)

2. As compositions of matter the organometallic compounds having the general formula

$$Z[RTiOZ]_nH$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono lower alkyl-substituted cyclopentadienyl, mono lower alkylene-substituted cyclopentadienyl, mono lower alkenyl-substituted cyclopentadienyl and indenyl; Z is a group selected from the class consisting of halogens having atomic weight less than about 128 and hydroxyl; and *n* is an integer greater than 3 and less than about 20.

5. Process for the production of organometallic compounds having the general formula

$$RTiX_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono lower alkyl-substituted cyclopentadienyl, mono lower alkylene-substituted cyclopentadienyl, mono lower alkenyl-substituted cyclopentadienyl, and indenyl; and X is a halogen having an atomic weight less than about 128, which process comprises reacting an organo-titanium dihalide having the general formula R_2TiX_2, wherein R and X have the meanings defined hereinabove, with a titanium tetrahalide having the general formula TiX_4, wherein X has the meaning defined hereinabove.

7. As compositions of matter, the organometallic compounds having the general formula

$$RTiY_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono-lower-alkyl-substituted cyclopentadienyl, mono-lower-alkylene-substituted cyclopentadienyl, mono-lower-alkenyl-substituted cyclopentadienyl and indenyl, and Y is a lower alkoxy group.

8. A process for the production of organometallic compounds having the general formula

$$RTiY_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono-lower-alkyl-substituted cyclopentadienyl, mono-lower-alkylene-substituted cyclopentadienyl, mono-lower-alkenyl-substituted cyclopentadienyl and indenyl, and Y is a lower alkoxy group, which process comprises the disproportion of an organometallic compound having the general formula

$$R_2TiY_2$$

wherein R and Y have the meanings defined hereinabove at a temperature between about —30° C. and about 100° C. with the exclusion of air and moisture.

3,306,920
DIALKYLTIN SALTS OF THE POLYESTER CONDENSATION PRODUCTS OF BICYCLO-(2.2.1)-5-HEPTENE - 2,3 - DICARBOXYLIC ACID AND A GLYCOL

John W. Tamblyn and John R. Caldwell, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed June 5, 1963, Ser. No. 285,577

4 Claims. (Cl. 260—429.7)

1. As a novel heat stabilizer the dialkyltin salt of a low molecular weight polyester obtained by condensing bicyclo - (2.2.1) - 5 - heptene - 2,3 - dicarboxylic acid with a glycol.

3,306,921
PROCESS FOR PREPARING SODIUM ANTIMONYLGLUCONATE

Arnold Axon, Harold Malcolm Hood, and Sally Burningham Gander, London, England, assignors to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

No Drawing. Filed Mar. 21, 1963, Ser. No. 266,801

Claims priority, application Great Britain, Mar. 29, 1962, 12,145/62, 12,146/62

5 Claims. (Cl. 260—446)

1. A process for the manufacture of sodium antimonyl gluconate, which comprises reacting at a pH maintained below 6.3 a compound selected from the class consisting of sodium carbonate, sodium bicarbonate, sodium hydroxide and sodium alkoxide in a mixture of a compound selected from the class of antimony trichloride and antimony oxyhydrate and a compound selected from the class consisting of gluconic acid, sodium gluconate and gluconic lactone to form sodium antimonyl gluconate, adding to the reaction a mixture of methanol, which preferentially precipitates the sodium antimonylgluconate, dissolving the precipitated antimonylgluconate to form a solution thereof, adding an alkali material to the solution to reverse the pH of about 6.0 to between 6.3 and 6.4, and adding methanol which preferentially precipitates the sodium antimonylgluconate.

3,306,922
MOLECULAR SIEVE ADSORBENTS

Richard M. Barrer, Bromley, Kent, and Patrick J. Denny, Caversham, Reading, England, and Edith M. Flanigen, Buffalo, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Mar. 22, 1961, Ser. No. 97,474

20 Claims. (Cl. 260—448)

2. A synthetic, crystalline zeolite having a composition expressed in terms of moles of oxides as follows:

$$1.0\pm0.1[(1-x)[(CH_3)_4N]_2O+xM_2O]:Al_2O_3:4.25\pm1.75\,SiO_2:yH_2O$$

wherein M represents an alkali metal cation, *x* represents the fraction of M in the zeolite crystal and having values from 0 to about 0.9, and *y* is any value from 0 to about 7, and the tetramethylammonium cation content of said zeolite having been introduced thereinto as an incident of the formation of the crystal lattice thereof.

3,306,923
DIALKYL-ALKALI ALUMINATES AND THEIR PREPARATION

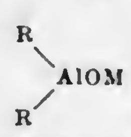
Georges Wetroff, Le Thillay, and Emile Trebillon and Jean Pierre Sassoulas, Paris, France, assignors to Pechiney Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France

No Drawing. Filed Nov. 14, 1962, Ser. No. 237,725

Claims priority, application France, Nov. 15, 1961, 879,005

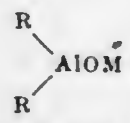
9 Claims. (Cl. 260—448)

1. An organo-metallic compound having the general formula



in which R is a radical selected from the group consisting of alkyl, arylalkyl and cycloalkyl, and M is an alkali metal.

2. A process for the preparation of the compound having the general formula



in which R is a radical selected from the group consisting of alkyl, arylalkyl and cycloalkyl, and M is an alkali metal comprising reacting a dialkyl aluminum monohydried with the hydroxide of an alkali metal.

3,306,924
METHOD OF PREPARING ALUMINUM ALKYL HALIDES

Giorgio Moretti, Milan, and Alfredo Turchi, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed May 21, 1963, Ser. No. 282,131

Claims priority, application Italy, May 25, 1962, 10,517/62

10 Claims. (Cl. 260—448)

1. A method of preparing aluminum alkyl halides of the formula $R_mAl_pX_n$ wherein R is an alkyl group containing from about 2 to 10 carbon atoms; X is a halogen; *m*, *n*, and *p* are integers, $p=1$ or 2, $m+n=3$ when $p=1$, and $m=n=3$ when $p=2$, which method comprises reacting under anhydrous conditions an aluminum dialkyl monohydride, R_2AlH, wherein R is as defined above, with a hydrohalic acid.

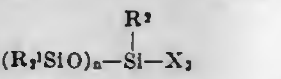
3,306,925
PROCESS FOR BRANCHED CYCLIC SILOXANES

George M. Omietanski, Tonawanda, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Apr. 29, 1963, Ser. No. 276,174

5 Claims. (Cl. 260—448.2)

1. A process for producing branched cyclic organopolysiloxanes having non-random, ordered structure which comprises reacting an organosiloxane having the formula:



$$R_3SiO(R_2^1SiO)_n-\overset{R^2}{\overset{|}{Si}}-X_2$$

with water in the presence of an inert organic solvent and an amine acid acceptor, wherein R, R^1 and R^2 are monovalent hydrocarbyl radicals, *n* is an integer having a value of 1 to 6 inclusive, and X is selected from the class consisting of halogen radicals and acyloxy radicals.

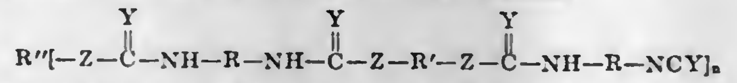
3,306,926
PROCESS FOR PREPARATION OF LEATHER-TREATING COMPOUNDS

Maynard B. Neher, Columbus, and Victor G. Vely, Hilliards, Ohio, assignors to Battelle Memorial Institute, Columbus, Ohio, a corporation of Ohio

No Drawing. Filed Mar. 23, 1962, Ser. No. 182,079

2 Claims. (Cl. 260—471)

1. A process for preparation of a substantially monomeric modified organic isocyanate leather-treating composition characterized by a structural formula



$$R''[-Z-\overset{Y}{\overset{\|}{C}}-NH-R-NH-\overset{Y}{\overset{\|}{C}}-Z-R'-Z-\overset{Y}{\overset{\|}{C}}-NH-R-NCY]_n$$

where *n* is an integer greater than 2, R is a divalent organic radical selected from the group consisting of alkylene, arylene, and alkarylene radicals having a molecular weight of up to about 194, R′ is a divalent organic radical selected from the group consisting of polyoxyalkylene, polyalkylene, polyalkylene carbonate, and alkylene polyamide radicals having a molecular weight in the range of 200 to 4000, R″ is a polyvalent organic radical derived from a compound selected from the group of compounds consisting of polyhydroxylglycerides, aliphatic polyols, polyalkylene oxide condensation products of polyhydroxylglycerides, and polyalkylene oxide condensation products of aliphatic polyols having a molecular weight in the range of 400 to 2000, Z is a radical selected from the group consisting of —O— and —NH— radicals, and Y is an atom selected from the group consisting of oxygen and sulfur, which process comprises: reacting in the presence of an organotin catalyst a compound of the formula

YCN—R—NCY

3,306,915

OXIDATION OF AROMATIC COMPOUNDS

Theodore Vrbaski, Harvey, Ill., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 3, 1963, Ser. No. 270,165

7 Claims. (Cl. 260—346.7)

1. A process for the catalytic vapor phase oxidation of an ortho-(di-lower alkyl)benzene to the corresponding anhydride which comprises reacting said ortho(di-lower alkyl)benzene in the vapor phase at a temperature from about 300 to 600° C. with molecular oxygen in the presence of a fused vanadium pentoxide oxidation catalyst, said catalyst being provided with promotional amounts of zirconium oxide and a lanthanide series metal oxide.

3,306,916

PROCESS FOR PREPARING VINYLCYCLOPENTADIENYL MANGANESE TRICARBONYL

John Kozikowski, Walled Lake, Mich., and Michael Cais, Haifa, Israel, assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Dec. 28, 1960, Ser. No. 78,820. Divided and this application May 3, 1965, Ser. No. 463,423

3 Claims. (Cl. 260—429)

1. Process comprising reacting a (1-hydroxyethyl) cyclopentadienyl manganese tricarbonyl compound with a dehydration catalyst, said process being carried out at about 170° C. and in the presence of a polymerization inhibitor.

3,306,917

PROCESS FOR PREPARING GROUP VIII METAL CYCLOPENTADIENYL COMPOUNDS

Hymin Shapiro, Earl G. De Witt, and Jerome E. Brown, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Aug. 2, 1965, Ser. No. 476,698

5 Claims. (Cl. 260—429)

1. A process for the manufacture of Group VIII metallic cyclopentadienyl moiety-containing compounds comprising reacting a cyclopentadienyl alkali metal compound with a halide salt of a metal of Group VIII.

3,306,918

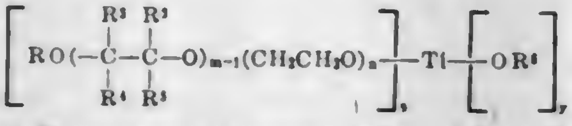
ORGANIC TITANATES

Leslie M. Schenck, Mountainside, N.J., and Leslie G. Nunn, Jr., New York, N.Y., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 13, 1964, Ser. No. 337,123

9 Claims. (Cl. 260—429.5)

1. An organic titanate that is represented by the formula



$$\left[RO\left(-\underset{R^4}{\overset{R^2}{C}}-\underset{R^5}{\overset{R^3}{C}}-O\right)_{m-1}(CH_2CH_2O)_n\right]-Ti-\left[OR^6\right],$$

wherein R represents a member selected from the class consisting of alkyl radicals containing from 6 to 28 carbon atoms, aryl radicals containing from 6 to 14 carbon atoms, alkylaryl radicals containing from 7 to 42 carbon atoms, arylmethylene and alkylarylmethylene radicals containing from 7 to 43 carbon atoms, R^2, R^3, R^4 and R^5 individually represent members selected from the class consisting of hydrogen, alkyl, alkenyl, chloroalkyl, bromoalkyl, chloroalkenyl, phenoxyalkyl, and two of the members R^2–R^5 taken together to form a cycloalkyl, *m* is an integer of at least 1, *n* is an integer of at least 1, R^6

3,306,919

CYCLOPENTADIENYL TITANIUM COMPOUNDS

John C. Brantley, Amherst, Edward L. Morehouse, Snyder, and Leo Parts, Buffalo, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Jan. 15, 1958, Ser. No. 708,994

12 Claims. (Cl. 260—429.5)

2. As compositions of matter the organometallic compounds having the general formula

$$Z[RTiOZ]_nH$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono lower alkyl-substituted cyclopentadienyl, mono lower alkylene-substituted cyclopentadienyl, mono lower alkenyl-substituted cyclopentadienyl and indenyl; Z is a group selected from the class consisting of halogens having atomic weight less than about 128 and hydroxyl; and *n* is an integer greater than 3 and less than about 20.

5. Process for the production of organometallic compounds having the general formula

$$RTiX_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono lower alkyl-substituted cyclopentadienyl, mono lower alkylene-substituted cyclopentadienyl, mono lower alkenyl-substituted cyclopentadienyl, and indenyl; and X is a halogen having an atomic weight less than about 128, which process comprises reacting an organo-titanium dihalide having the general formula R_2TiX_2, wherein R and X have the meanings defined hereinabove, with a titanium tetrahalide having the general formula TiX_4, wherein X has the meaning defined hereinabove.

7. As compositions of matter, the organometallic compounds having the general formula

$$RTiY_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono-lower-alkyl-substituted cyclopentadienyl, mono-lower-alkylene-substituted cyclopentadienyl, mono-lower-alkenyl-substituted cyclopentadienyl and indenyl, and Y is a lower alkoxy group.

8. A process for the production of organometallic compounds having the general formula

$$RTiY_3$$

wherein R is a group selected from the class consisting of cyclopentadienyl, mono-lower-alkyl-substituted cyclopentadienyl, mono-lower-alkylene-substituted cyclopentadienyl, mono-lower-alkenyl-substituted cyclopentadienyl and indenyl, and Y is a lower alkoxy group, which process comprises the disproportion of an organometallic compound having the general formula

$$R_2TiY_2$$

wherein R and Y have the meanings defined hereinabove at a temperature between about —30° C. and about 100° C. with the exclusion of air and moisture.

3,306,920

DIALKYLTIN SALTS OF THE POLYESTER CONDENSATION PRODUCTS OF BICYCLO-(2.2.1)-5-HEPTENE - 2,3 - DICARBOXYLIC ACID AND A GLYCOL

John W. Tamblyn and John R. Caldwell, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

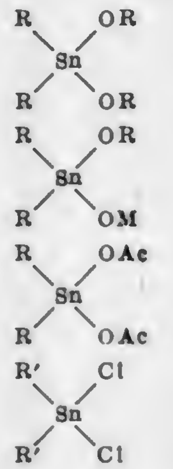
No Drawing. Filed June 5, 1963, Ser. No. 285,577

wherein R and Y are as aforestated, with a difunctional compound selected from the group consisting of a difunctional alcohol, amine, and amino alcohol having its two functional groups connected to the divalent organic radical R′, wherein R′ is as aforestated, and with a polyfunctional compound of the formula

$$R''(OH)_n$$

wherein *n* is greater than two and the latter said compound is selected from the group consisting of polyhydroxyglycerides, aliphatic hydrocarbon polyols, polyalkylene oxide condensation products of polyhydroxyglycerides, and polyalkylene oxide condensation products of aliphatic hydrocarbon polyols having a molecular weight in the range of 400 to 2000, and said organotin catalyst is selected from the group consisting of the formulas

$$Sn(OR)_2$$
$$Sn\ R'_2$$
$$R'_2SnO$$
$$Sn(OR)_4$$
$$Sn\ R'_4$$
$$M_2(Sn(OR)_4)$$
$$MH(Sn(OR)_4)$$
$$M_2(Sn(OR)_6)$$
$$MH(Sn(OR)_6)$$
$$M'(Sn(OR)_4$$
$$M'(HSn(OR)_4)_2$$
$$M'(Sn(OR)_6)$$
$$M'(HSn(OR)_6)_2$$



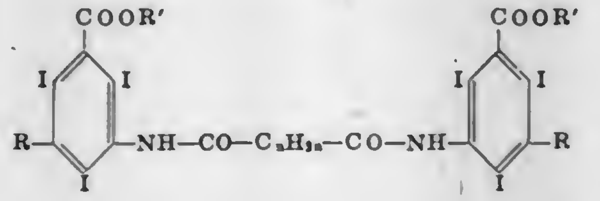
wherein each R represents an alkyl radical containing from 1 to 8 carbon atoms, each R′ radical represents a substituent selected from those consisting of alkyl radicals containing from 1 to 8 carbon atoms and aryl radicals of the benzene series containing from 6 to 9 carbon atoms, M represents an alkali metal, M′ represents an alkaline earth metal, and Ac represents an acyl radical derived from a monobasic carboxylic acid containing from 2 to 18 carbon atoms.

3,306,927

N,N'-BIS(3 - AMINO - 5 - CARBOXY-2,4,6-TRIIODOPHENYL)-LOWER-ALKANEDIOIC ACID AMIDES AND DERIVATIVES

Aubrey A. Larsen, Evansville, Ind., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed June 6, 1963, Ser. No. 285,865
14 Claims. (Cl. 260—471)

3. A compound of the formula

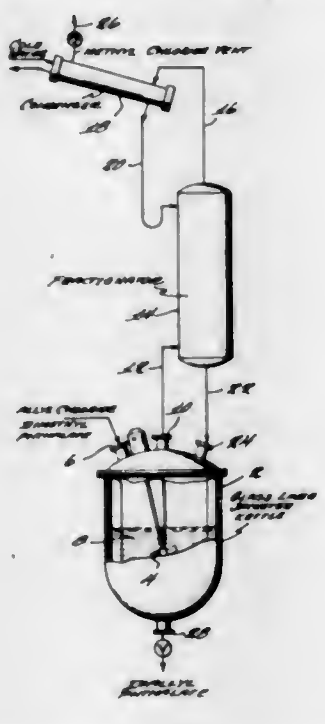


wherein *n* is an integer from 0 to 8, inclusive; R is a member of the group consisting of amino, lower-alkanoylamino, lower-alkanoyl(lower-alkyl)amino and bis(lower-alkanoyl)amino; and R′ is a member of the group consisting of hydrogen, lower-alkyl and phenyl-lower-alkyl.

3,306,928

PROCESS OF PREPARING DIALKENYL ESTERS OF BENZENE POLYCARBOXYLIC ACIDS

John H. Lux, Charlestown, Md., and Ernest O. Ohsol, Wilmington, Del., assignors to Haveg Industries, Inc., New Castle, Del., a wholly-owned subsidiary of Hercules Powder Company, a corporation of Delaware
Filed Nov. 27, 1962, Ser. No. 240,295
23 Claims. (Cl. 260—475)



1. A process of preparing a dialkenyl ester of a benzene polycarboxylic acid comprising heating reactants consisting of (1) an alkenyl chloride selected from the group consisting of allyl chloride, methallyl chloride and crotyl chloride with (2) a carboxy compound of the group consisting of benzene polycarboxylic acids and anhydrides of such acids and (3) water, there also being added at the start of the process a poly lower alkyl ester of said benzene polycarboxylic acid.

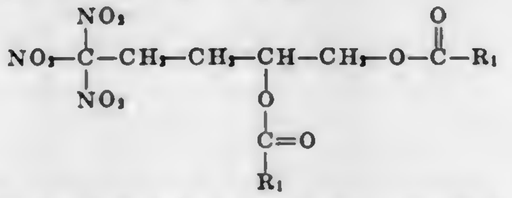
3. A process of preparing a dialkenyl ester of a benzene polycarboxylic acid comprising heating reactants consisting of an alkenyl chloride selected from the group consisting of allyl chloride, methallyl chloride and crotyl chloride with a lower alkyl ester of a benzene polycarboxylic acid.

3,306,929

DIESTERS OF 5,5,5-TRINITRO-1,2-PENTANEDIOL

Gustave B. Linden, Short Hills, N.J., assignor to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio.
No Drawing. Filed Nov. 26, 1963, Ser. No. 326,288
4 Claims. (Cl. 260—488)

1. Compounds of the formula:



$$NO_2-\underset{NO_2}{\overset{NO_2}{\overset{|}{\underset{|}{C}}}}-CH_2-CH_2-\underset{\substack{|\\ O\\ |\\ C=O\\ |\\ R_1}}{CH}-CH_2-O-\overset{O}{\overset{\|}{C}}-R_1$$

wherein R_1 is selected from the group consisting of alkyl, aryl, aralkyl and alkaryl, and contains from 1 to about 20 carbon atoms.

3,306,930

CYCLIC METHOD OF PREPARING VINYL ACETATE

Harry B. Copelin, Niagara Falls, and Melvin J. Freamo, North Tonawanda, N.Y., and Owen B. Mathre, Memphis, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Aug. 17, 1964, Ser. No. 390,223
2 Claims. (Cl. 260—497)

1. In a cyclic method for producing vinyl acetate which includes the steps of

(a) reacting ethylene at a temperature of 50 to 160° C. and an ethylene pressure of 50 to 2000 p.s.i.g. with an acetic acid working solution of a palladium II salt, an ionizable metal acetate and a cupric salt oxididing agent to produce vinyl acetate product and by-product glycol acetates and yield a reduced working solution;
(b) removing said vinyl acetate product from the reduced working solution;
(c) reacting the resulting residual reduced working solution with oxygen, whereby the same is reoxidized for reuse; and
(d) recycling said reoxidized working solution to said step (a) for reaction with further amounts of ethylene,

the improvement comprising recycling said reoxidized working solution with said by-product glycol acetates therein to step (a) whereby said glycol acetates are converted at least partially to acetaldehyde simultaneously with the reaction of said reoxidized working solution with ethylene in step (a).

3,306,931

PRODUCTION OF ALKALI METAL ALKYL SULFONATES

Robert T. Adams, Lafayette, and Elmer E. Johnson and John M. Salmela, San Rafael, Calif., assignors to Chevron Research Company, a corporation of Delaware
No Drawing. Filed Feb. 17, 1965, Ser. No. 433,485
5 Claims. (Cl. 260—513)

1. Process for preparing alkali metal sulfonates, which comprises continuously feeding terminal olefins having 10 to 20 carbon atoms, aqueous alkali metal bisulfite, and 2-propanol-water solvent to a reaction zone at such rates as to maintain in the feed a bisulfite to olefin mol ratio above 4:5 and below about 2:1 and a 2-propanol-water solvent to olefin weight ratio between about 4:1 to 5:3, the weight ratio of 2-propanol to water being between about 1:4 to 9:4, passing a free oxygen-containing gas through the reaction mixture, adjusting the pH between about 5 and 8, maintaining a temperature between about 80° F. and 200° F., intimately admixing the reaction mixture to provide a homogeneous reaction system, and continuously withdrawing alkali metal alkyl sulfonate product from the reaction zone.

3,306,932

PROCESS FOR THE PREPARATION OF DICARBOXYLIC ACIDS

Darwin Darrell Davis, Orange, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Oct. 29, 1963, Ser. No. 319,809
15 Claims. (Cl. 260—533)

1. In a process for the production of dicarboxylic acids by oxidation of a cycloalkane in the liquid state at a temperature in the range of 75° to 130° C. with aqueous nitric acid having a concentration of 35% to 80% by weight, on an aqueous basis, and containing a vanadium salt as catalyst, the improvement of conducting the oxidation in the presence of at least 10% by weight, based on the organic phase, of an added solvent for the cycloalkane consisting of at least one organic nitro-compound selected from the group consisting of aliphatic, cycloaliphatic and aromatic mono- and dinitrohydrocarbons and aliphatic, cycloaliphatic, and aromatic nitrocarboxylic acids.

3,306,933

BIS(HYDROXYALKYL AND CARBOXYALKYL CARBORANYLALKYL) ETHERS

Daniel Grafstein, Morristown, Calvin Vogel, Lake Hiawatha, Sidney I. Karlan, Nutley, and Marvin M. Fein, Westfield, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.
No Drawing. Filed Mar. 28, 1963, Ser. No. 269,838
6 Claims. (Cl. 260—535)

1. A carboranyl compound of the formula

$$[HO(CH_2)_mC_2B_{10}H_{10}(CH_2)_n]_2O$$

where *m* is an integer from 2 to 5 inclusive and *n* is an integer from 1 to 4 inclusive.

4. A carboranyl compound of the formula.

$$[LiO(CH_2)_mC_2B_{10}H_{10}(CH_2)_n]_2O$$

where *m* is an integer from 2 to 5 inclusive and *n* is an integer from 1 to 4 inclusive.

5. A carboranyl compound of the formula

$$[HO_2C(CH_2)_mC_2B_{10}H_{10}(CH_2)_n]_2O$$

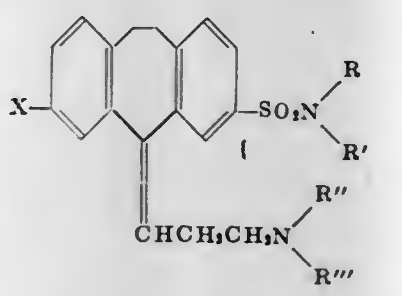
where *m* and *n* are integers from 1 to 4 inclusive.

3,306,934

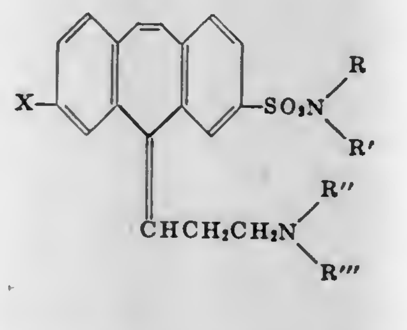
5 - (AMINOPROPYLIDENE)- AND 5 - HYDROXY-5-(AMINOPROPYL) - 3 - DIALKYLSULFAMOYL-5H-DIBENZO[a,d]CYCLOHEPTENES

Edward L. Engelhardt, Gwynedd Valley, and Marcia E. Christy, Colmar, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Sept. 24, 1962, Ser. No. 225,864
5 Claims. (Cl. 260—556)

1. A compound selected from the group consisting of compounds having the structural formulae:



and

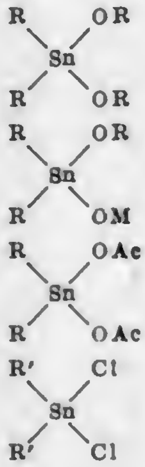


and non-toxic salts thereof; wherein R and R′ are lower alkyl radicals, X is selected from the group consisting of hydrogen and halogen and R″ and R‴ are selected from the group consisting of lower alkyl radicals and lower alkyl radicals linked together through an atom selected wherein R and Y are as aforestated, with a difunctional compound selected from the group consisting of a difunctional alcohol, amine, and amino alcohol having its two functional groups connected to the divalent organic radical R', wherein R' is as aforestated, and with a polyfunctional compound of the formula

$$R''(OH)_n$$

wherein n is greater than two and the latter said compound is selected from the group consisting of polyhydroxyglycerides, aliphatic hydrocarbon polyols, polyalkylene oxide condensation products of polyhydroxyglycerides, and polyalkylene oxide condensation products of aliphatic hydrocarbon polyols having a molecular weight in the range of 400 to 2000, and said organotin catalyst is selected from the group consisting of the formulas

$Sn(OR)_2$
$Sn\ R'_2$
R'_2SnO
$Sn(OR)_4$
$Sn\ R'_4$
$M_2(Sn(OR)_4)$
$MH(Sn(OR)_4)$
$M_2(Sn(OR)_6)$
$MH(Sn(OR)_6)$
$M'(Sn(OR)_4$
$M'(HSn(OR)_4)_2$
$M'(Sn(OR)_6)$
$M'(HSn(OR)_6)_2$



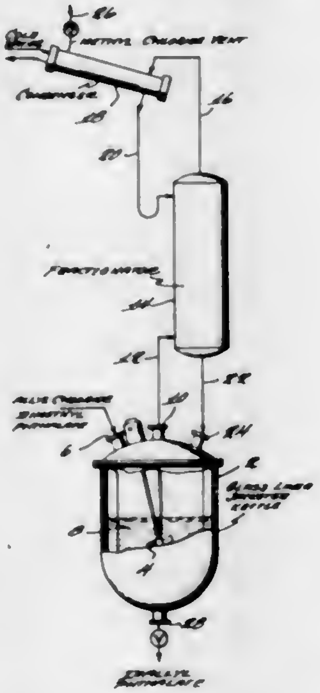
wherein each R represents an alkyl radical containing from 1 to 8 carbon atoms, each R' radical represents a substituent selected from those consisting of alkyl radicals containing from 1 to 8 carbon atoms and aryl radicals of the benzene series containing from 6 to 9 carbon atoms, M represents an alkali metal, M' represents an alkaline earth metal, and Ac represents an acyl radical derived from a monobasic carboxylic acid containing from 2 to 18 carbon atoms.

wherein n is an integer from 0 to 8, inclusive; R is a member of the group consisting of amino, lower-alkanoylamino, lower-alkanoyl(lower-alkyl)amino and bis(lower-alkanoyl)amino; and R' is a member of the group consisting of hydrogen, lower-alkyl and phenyl-lower-alkyl.

3,306,928

PROCESS OF PREPARING DIALKENYL ESTERS OF BENZENE POLYCARBOXYLIC ACIDS

John H. Lux, Charlestown, Md., and Ernest O. Ohsol, Wilmington, Del., assignors to Haveg Industries, Inc., New Castle, Del., a wholly-owned subsidiary of Hercules Powder Company, a corporation of Delaware
Filed Nov. 27, 1962, Ser. No. 240,295
23 Claims. (Cl. 260—475)



1. A process of preparing a dialkenyl ester of a benzene polycarboxylic acid comprising heating reactants consisting of (1) an alkenyl chloride selected from the group consisting of allyl chloride, methallyl chloride and crotyl chloride with (2) a carboxy compound of the group consisting of benzene polycarboxylic acids and anhydrides of such acids and (3) water, there also being added at the start of the process a poly lower alkyl ester of said benzene polycarboxylic acid.

3. A process of preparing a dialkenyl ester of a benzene polycarboxylic acid comprising heating reactants consisting of an alkenyl chloride selected from the group consisting of allyl chloride, methallyl chloride and crotyl chloride with a lower alkyl ester of a benzene polycarboxylic acid.

3,306,929

from the group consisting of carbon, nitrogen and oxygen to form a heterocyclic ring selected from the group consisting of 1-piperidyl, 1-pyrrolidyl, 4-morpholinyl and 1-lower alkyl-4-piperazinyl.

3,306,935

TRICHLOROACETIC ACID DICHLOROETHYLIDENE HYDRAZIDE AND PROCESS THEREFOR

Christ N. Yiannios, North Haven, and Joseph V. Karabinos, Orange, Conn., assignors to Olin Mathieson Chemical Corporation, New Haven, Conn., a corporation of Virginia

No Drawing. Filed July 30, 1965, Ser. No. 476,150

4 Claims. (Cl. 260—561)

1. Trichloroacetic acid dichloroethylidene hydrazide.

2. A process for preparing trichloroacetic acid dichloroethylidene hydrazide which comprises forming chloralhydrazine by the reaction of substantially equimolar amounts of chloral and hydrazine, reacting said chloralhydrazine with chloral and a liquid carboxylic acid at a temperature of about 25° C. to about 80° C., said carboxylic acid having 1–4 carbon atoms and having a dissociation constant of at least 1.0×10^{-5} in water at 25° C.

3,306,936

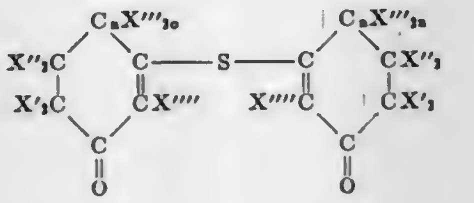
NOVEL HALOGENATED SULFIDES

Louis G. Anello, Basking Ridge, and Richard F. Sweeney, Dover, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

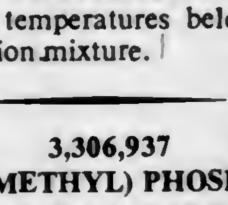
No Drawing. Filed Mar. 2, 1965, Ser. No. 436,684

19 Claims. (Cl. 260—586)

11. The process for preparing a compound of the formula:



wherein X′–X′′′′ may be F or Cl and *n* may be 0 or 1, there being at least two fluorine atoms and two chlorine atoms present in the molecule, which comprises reacting a compound of the formula:



wherein X–X′′′′ may be F or Cl and may be the same or different provided that there is present at least one fluorine atom and one chlorine atom within X′–X′′′′ and *n* may be 0 or 1, with an alkali metal hydrosulfide or a hydrate thereof, at temperatures below the reflux temperature of the reaction mixture.

3,306,937

TRIS (BROMOMOMETHYL) PHOSPHINE OXIDE

Rodney B. Clampitt, St. Louis, Gail H. Birum, Kirkwood, and Richard M. Anderson, St. Louis, Mo., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed May 29, 1963, Ser. No. 283,964

1 Claim. (Cl. 260—606.5)

Tris(bromomethyl)phosphine oxide.

3,306,938

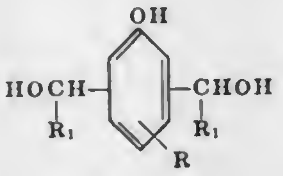
DIALKYLOL ALKYLPHENOL PROCESS

Eldred Welch and David E. Graham, Westfield, N.J., and Abdul Munim Nashu, New Haven, Conn., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 8, 1963, Ser. No. 314,620

9 Claims. (Cl. 260—624)

1. A process for decolorizing dialkylol alkylphenols of the formula:



wherein

R is an alkyl radical having of from 1 to 30 carbon atoms, and R_1 is a member selected from the group consisting of hydrogen and an alkyl radical of 1 to 7 carbon atoms and produced by the reaction of 2 moles of an aliphatic aldehyde of from 1 to 8 carbon atoms with an alkylphenol having from 1 to 30 alkyl carbon atoms which comprises

adding a small amount of oxalic acid after reaction of the aldehyde with the alkylphenol to decolorize the dialkylol alkylphenol.

3,306,939

ORTHOESTERS OF 2,2,2-TRINITROETHANOL

Marion E. Hill, Kensington, Md., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Dec. 5, 1956, Ser. No. 626,549

9 Claims. (Cl. 260—644)

1. An orthoester of 2,2,2-trinitroethanol selected from the group consisting of trinitroethyl orthocarbonate, trinitroethyl orthoformate, and trinitroethyl orthobenzoate.

5. The process for preparing orthoesters of 2,2,2-trinitroethanol comprising reacting the 2,2,2-trinitroethanol in the presence of ferric chloride with a compound taken from a group consisting of carbon tetrachloride, chloroform and benzotrichloride.

3,306,940

PROCESS FOR THE MANUFACTURE OF PERFLUOROOLEFINS

Ronald Harry Halliwell, Parkersburg, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 28, 1960, Ser. No. 58,895

7 Claims. (Cl. 260—653.3)

1. A process for the co-synthesis of hexafluoropropylene and tetrafluoroethylene which comprises pyrolysing chlorodifluoromethane at a temperature in the range between 700° C. and 900° C. at a partial pressure between 0.1 and 2.0 atmospheres and at a conversion level between 86% and 94% based on the chlorodifluoromethane charged, cooling the reaction product and thereafter separating tetrafluoroethylene and hexafluoropropylene from the reaction product.

3,306,941

CYCLOALKENE PROCESS

Jared Abell, Pleasant Hill, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed July 16, 1965, Ser. No. 472,670

11 Claims. (Cl. 260—666)

1. Process for the production of C_5–C_{12} cycloalkene hydrocarbons which comprises heating to a temperature in the range from about 250 to 500° C. a compound of the general formula

$$RSO_3M$$

wherein R is a cycloalkane hydrocarbon radical having from 5 to 12 carbon atoms, inclusive and M is hydrogen, ammonuim, copper ion or a conjugate hydrogen acid of a lower mono-basic nitrogen compound composed of carbon, hydrogen and nitrogen.

3,306,942

DEHYDROGENATION CATALYST AND PROCESS

Emerson H. Lee, Texas City, Tex., assignor to Monsanto Company, a corporation of Delaware
No Drawing. Filed Aug. 15, 1963, Ser. No. 302,473
7 Claims. (Cl. 260—669)

1. A process for the dehydrogenation of alkyl aromatic hydrocarbons which comprises contacting an alkyl aromatic hydrocarbon and steam under dehydrogenation conditions with a catalyst comprising iron oxide as the active catalytic agent, an alkali promotor which is a compound other than the chloride of a metal chosen from the group consisting of the alkali metals and the alkaline earth metals, and a minor amount of chemically combined chlorine.

3,306,943

PROCESS FOR THE PREPARATION OF p-DIISOPROPYLBENZENE

Jozef Sulo, Castrop-Rauxel, and Hans Binder, Frankfurt am Main-Sud, Germany, assignors to Rutgerswerke-Aktiengesellschaft, Frankfurt am Main, Germany
No Drawing. Filed June 9, 1964, Ser. No. 373,868
Claims priority, application Germany, July 9, 1963, R 35,632
1 Claim. (Cl. 260—671)

A process for preparing p-diisopropylbenzene by alkylation of cumene with propylene in the presence of aluminum chloride as catalyst, essentially consisting of forming an alkylation mixture from 2 gram-mol of cumene, one gram-mol of propylene, and 7–12 g. of aluminum chloride, carrying out alkylation in said mixture at a temperature in the range of −10 to +10° C., during a reaction period of about 25 minutes, separating the diisopropylbenzene formed by treating the alkylation mixture with ice water to form an aqueous and an oily layer separating and neutralizing the latter and then subjecting it to fractional distillation.

3,306,944

PROCESS FOR THE HYDRODEALKYLATION OF ALKYL AROMATIC HYDROCARBONS

Ernest L. Pollitzer, Hinsdale, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Dec. 27, 1965, Ser. No. 516,667
8 Claims. (Cl. 260—672)

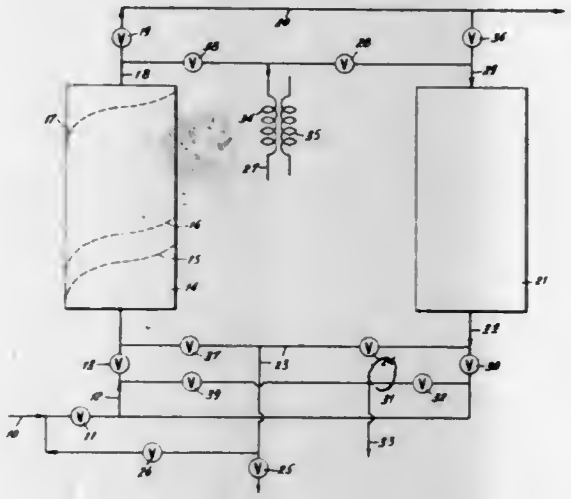
1. A process for the demethylation of an alkyl-substituted aromatic compound having an alkyl side-chain of at least 2 carbon atoms which comprises treating said compound with hydrogen in the presence of rhodium composited on an alkali metal promoted metal oxide support at dealkylation conditions effective for the demethylation of said alkyl side-chain, and recovering the resultant dealkylated compounds including an alkyl aromatic having a smaller alkyl group than said side-chain.

3,306,945

PURIFICATION OF UNSATURATED HYDROCARBONS BY ADSORPTION USING A MOLECULAR SIEVE ADSORBENT

Stephen A. Conviser, Houston, Tex., assignor to Union Carbide Corporation, a corporation of New York
Filed Mar. 11, 1964, Ser. No. 351,251
11 Claims. (Cl. 260—677)

1. A process for purifying unsaturated hydrocarbon compounds having two to five carbon atoms per molecule in a liquid feed mixture also containing an impurity constituent being more strongly adsorbable than the unsaturate by activated crystalline zeolitic molecular sieve of sufficient pore size to receive the unsaturate and impurity constituents, which process comprises the steps of providing at least one bed of said molecular sieve and passing said liquid feed mixture through said bed at substantially ambient temperature and coadsorbing the preferentially adsorbed impurity and the less strongly adsorbed unsaturate; discharging a liquid effluent from the exit end of the bed being depleted of the impurity and unsaturate, and continuing the coadsorption and discharge steps thereby progressively displacing the less strongly adsorbed unsaturate by the more strongly adsorbed impurity from the inlet end toward the exit end until the bed is loaded with impurity to a desired extent; removing the holdup liquid through the inlet end of said bed; flowing aliphatic hydrocarbon purge gas having two to five carbon atoms per molecule from the exit end through said bed at temperature below 250° F. thereby desorbing said unsaturate and impurity, said purge gas being itself adsorbed less strongly by the molecular sieve than the unsaturate; discharging the unsaturate-impurity-purge gas of said purge gas mixture from the inlet end of said bed, and continuing the flow of said purge gas through said bed in sufficient quantity to preload the bed; thereafter resuming the flow of liquid feed mixture to the inlet end through the cleaned preloaded bed thereby coadsorbing said impurity and unsaturate, and displacing the less strongly adsorbed purge gas for discharge through the exit end of the bed.



3,306,946

PROCESS FOR PURIFYING A NORMAL ALPHA OLEFIN MIXTURE OF ITS VINYLIDENE CONTENT

Robert E. Snyder, Oakmont, and Joseph Charles Sautoni, Arnold, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Apr. 7, 1964, Ser. No. 358,073
17 Claims. (Cl. 260—677)

1. A purification procedure which comprises contacting a mixture containing at least one normal alpha olefin having at least 10 carbon atoms and at least one vinylidene-type olefin having at least 10 carbon atoms with a perfluorocarboxylic acid, thereby obtaining a hydrocarbon phase containing said normal alpha olefin and an acid phase containing said perfluorocarboxylic acid and ester resulting from the reaction of said vinylidene-type olefin with said perfluorocarboxylic acid and thereafter separating said phases from each other by mechanical means to obtain a hydrocarbon phase containing reduced amounts of said vinylidene-type olefin.

3,306,947
ISOPRENE PRODUCTION FROM 2-METHYLPENTENE-2

Laimonis Bajars, Princeton, Louis J. Croce, East Brunswick, and Maigonis Gabliks, Highland Park, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware

No Drawing. Filed Sept. 18, 1962, Ser. No. 224,542
7 Claims. (Cl. 260—680)

1. A process for the preparation of isoprene which comprises contacting at a temperature between about 500° C. to 850° C. a mixture consisting essentially of 2-methylpentene-2 and chlorine atoms in the gaseous phase in a reaction zone containing a catalyst comprising a material selected from the group consisting vanadium, chromium, molybdenum, manganese, iron cobalt, and nickel; compounds of vanadium, chromium, molybdenum, manganese, iron, cobalt, and nickel; and mixtures thereof, and activated with a material selected from the group consisting of metals of Periodic Table Groups I–A, II–A; compounds of the metal of Periodic Table Groups I–A and II–A; and mixtures thereof in amount of at least on weight percent of the catalyst, the partial pressure of the said 2-methylpentene-2 being not greater than one-quarter of the total pressure when the total pressure is one atmosphere or greater, and being less than one-quarter atmosphere when the total pressure is less than one atmosphere, the gram atom to gram mol ratio of said chlorine atoms to said 2-methylpentene-2 being greater than 0.05 gram atoms of chlorine per gram mol of 2-methylpentene-2.

3,306,948
PROCESS FOR THE PREPARATION OF 1,4-DIENES

Thomas Joseph Kealy, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Jan. 17, 1964, Ser. No. 338,285
28 Claims. (Cl. 260—680)

1. A process for the preparation of 1,4-dienes, comprising contacting and reacting an alpha-monoolefin of the formula $R''—CH=CH_2$, wherein R″ is a radical selected from the group consisting of H and C_1–C_4 alkyl, and a conjugated diene which is co-dimerizable therewith to form a product free of allylic halide, said diene containing up to 16 carbon atoms, in contact with a catalytic amount of a catalyst made by combining (a) at least two molar proportions of at least one organo metallic compound of the formula RMX_n, wherein R is a radical selected from the group consisting of alkyl, aryl, and aralkyl, M is a metal selected from the group consistinig of aluminum, zinc, cadmium, and magnesium, *n* is an integer representing the number of X groups required for valence satisfaction, and X is independently selected from the group consisting of alkyl, aryl, aralkyl, chlorine, and bromine, with (b) a molar proportion of at least one nickel compound containing at least one monodendate phosphorous III ligand, said nickel compound being selected from the group consisting of nickel halide, nitrate, and carbonyl, and obtaining a 1,4-diene as a result thereof.

3,306,949
ALKALI METAL POLYMERIZATION OF DIOLEFINS

Joseph Kern Mertzweiller, George Guttner, and Horace Marion Tenney, all of Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Oct. 12, 1964, Ser. No. 403,385
5 Claims. (Cl. 260—680)

1. In a process for polymerizing diolefins of 4 to 8 carbon atoms in which the diolefin is contacted with a catalyst chosen from the group consisting of alkali-metal and alkali-metal-hydrocarbon complexes, deactivating the catalyst and recovering the polymer, the improvement the deactivating steps at temperatures between −110° which comprises carrying out the polymerization and and 0° F.

3,306,950
DEHYDROGENATION OF HYDROCARBONS IN THE PRESENCE OF OXYGEN, CHLORINE AND A GROUP VI–B CATALYST

Laimonis Bajars, Princeton, N.J., assignor to Petro-Tex Chemical Corporation, Houston, Tex., a corporation of Delaware

No Drawing. Filed June 11, 1965, Ser. No. 463,363
16 Claims. (Cl. 260—680)

1. The method for dehydrogenating aliphatic hydrocarbons of 4 to 6 carbon atoms which comprises heating in the vapor phase at a temperature of from about 450° C. to 850° C. an aliphatic hydrocarbon of 4 to 6 carbon atoms with oxygen in a molar ratio of at least one-fourth mol of oxygen per mol of said hydrocarbon and chlorine in a molar ratio of from at least 0.001 to less than 0.5 mol of chlorine per mol of said hydrocarbon, the partial pressure of said hydrocarbon being equivalent to less than about one-fifth atmosphere at a total pressure of one atmosphere, in the presence of a catalyst comprising a material selected from the group consisting of chromium, molybdenum, tungsten and mixtures thereof in an amount greater than fifty atomic weight percent of any cations in the catalyst surface exposed to the reaction gases, the ratio of the gram mols of the said oxygen to the gram atoms of said chlorine being at least 1.50.

3,306,951
ISOMERIZATION OF OLEFINIC HYDROCARBONS

Seymour J. Lapporte, Berkeley, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Aug. 5, 1963, Ser. No. 300,103
6 Claims. (Cl. 260—683.2)

1. Process of isomerizing olefins by shifting carbon-carbon double bonds, which comprises contacting for a period of from about 0.001 to 50 hours and at a temperature in the range from about 0° to 300° C. an isomerizable able olefinic hydrocarbon in the liquid phase with a catalytic amount of an isomerization catalyst consisting essentially of the interaction product of:

(a) one formula weight of an anhydrous reducible iron salt, and
(b) from about 0.5 to 6 mols of an iron salt reducing organometallic compound selected from Mendelyeev Groups I, II or III compounds.

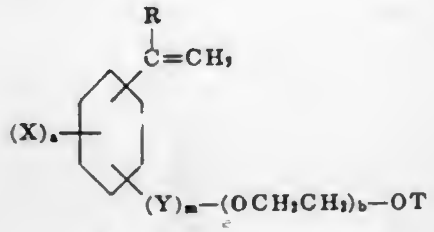
3,306,952
GRAFT COPOLYMER OF AN ALKENYL AROMATIC POLYGLYCOL ETHER ON A POLYMERIC CARBONAMIDE SUBSTRATE

George W. Stanton, Walnut Creek, and Teddy G. Traylor, Del Mar, Calif., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed June 22, 1962, Ser. No. 206,129
3 Claims. (Cl. 260—857)

1. Dye-receptive graft copolymer composition comprised of (1) a superpolymer substrate which is a fiber-forming, linear polymeric carbonamide that contains recurring carbonamide groups as an integral part of the main polymer chain separated by at least two carbon atoms having chemically attached thereto to carbon atoms in its chain, as graft copolymerized substituents thereon, a minor proportion of up to about 20 weight percent, based on the weight of the composition, of units consisting of

(2) a polymerized polyglycol ether of an alkenyl aromatic of the structural formula:



wherein *b* has an average numerical value between about 1 and 40, R is selected from the group consisting of hydrogen and methyl, X is individually selected from the group consisting of hydrogen, chlorine, bromine and alkyl radicals containing from 1 to 8 carbon atoms, Y is selected from the group consisting of bivalent and trivalent hydrocarbon radicals containing 1 to 4 carbon atoms, T is individually selected from the group consisting of hydrogen, alkyl radicals containing from 1 to 4 carbon atoms and hydroxyethyl radicals, *a* is an integer from 1 to 4, and *m* has a numerical value in whole units of 0 to 1.

3,306,953

STABILIZATION OF POLYOXYMETHYLENES WITH A POLYAMIDE PREPARED BY THE REACTION OF A DIMER OR TRIMER OF AN UNSATURATED FATTY ACID WITH A POLYAMINE

Robert Fourcade, Gosnay, Thérèse Van De Walle, Labuissiere, and Henri Sack, Creil, France, assignors to Houilleres du Bassin du Nord & du Pas-de-Calais, Douai, Nord, France, a French public establishment

No Drawing. Filed Jan. 7, 1964, Ser. No. 336,115
Claims priority, application France, Jan. 10, 1963, 921,044
5 Claims. (Cl. 260—857)

1. A process for the stabilization of polyoxymethylenes which comprises adding to a polyoxymethylene from 0.5 to 2.0% by weight thereof of a polyamide obtained by the condensation of a dimer or trimer of an unsaturated fatty acid containing at least 10 carbon atoms with at least the stoichiometric quantity of a diamine or triamine.

3,306,954

THERMOSETTABLE LIQUID RESIN SYSTEM

Eugene R. Moore, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 21, 1964, Ser. No. 339,118
13 Claims. (Cl. 260—886)

1. A thermosettable mixture having room temperature fluidity in the absence of non-reactive solvents consisting essentially of a resin solution containing 5–80 weight percent of an interpolymer of a vinyl compound and an α,β-unsaturated carboxylic acid wherein said interpolymer contains from 2 to 25 weight percent of said unsaturated acid, the viscosity of a ten percent solution of said interpolymer in methyl ethyl ketone at 25° C. being no greater than about 10 centipoise, said solution containing from 20 to 95 percent of a vinyl monomer, from 2 to 20 parts by weight of a monomeric α,β-unsaturated carboxylic acid per 100 parts of said solvent vinyl monomer dissolved therein, a cross-linking agent containing at least two functional groups selected from the group consisting of hydroxyl, epoxide and amine groups in an amount sufficient to provide 0.25–1.5 functional equivalents per equivalent of carboxyl functionality in said interpolymer solution, and 0.05 to 5.0 weight percent of a free radical catalyst and polymerization accelerator.

3,306,955

BACTERIOSTATIC ACRYLONITRILE POLYMERS

Fred J. Lowes, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 26, 1962, Ser. No. 182,622
9 Claims. (Cl. 260—895)

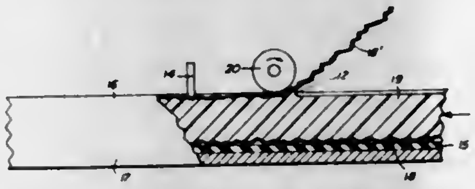
1. Composition of matter, the essential constituents of which are a fiber-forming acrylonitrile polymer which contains in the polymer molecule at least about 85 weight percent of acrylonitrile, the balance being another monoethylenically unsaturated monomeric material that is copolymerizable with acrylonitrile, having dispersed therein; (1) at least about 1 weight percent based on the weight of said fiber-forming polymer of polyvinylpyrrolidone; and (2) at least about 0.5 weight percent based on the weight of said fiber-forming polymer of dibutyl 2,4,6-trichlorophenoxytin hydroxide.

3,306,956

METHOD OF MAKING DECORATIVE PANELS

Stanley Ronald Barnette, 90 Cherokee St.,
Miami Springs, Fla. 33166

Filed Nov. 19, 1964, Ser. No. 412,516
23 Claims. (Cl. 264—1)



1. A method of preparing a light transmitting and light diffusing cast-plastic panel of a synthetic resin comprising the steps of casting a unitary layer of light transmitting liquid synthetic resin, including a reinforcing web therein; mechanically creasing a thin sheet of film; obtaining said sheet in partially spread form; said creasing step being performed in such a way that said partially spread sheet has a multiplicity of nonuniform elevated and depressed parts a large proportion of which are in the form of sharp creases presenting multiple, irregular, random jewel-like and prism-like facets in a view normal to said film; utilizing said sheet to provide at least the upper-most mold surface; placing said mold surface and the upper face of said layer of liquid resin in liquid-deforming contact with one another over their entire juxtaposed faces in a manner such that there are substantially no air bubbles between the two, said raised parts of substantial size and containing substantially only resin and being free of any part of said reinforcing web; said depressed parts resting upon said web; and curing said resin while maintaining said contact, whereby a panel is obtained having a face conforming in shape to said sheet of film, and said raised and depressed portions diffuse, refract, and diffract light passing through said panel.

3,306,957

PRODUCTION OF NUCLEAR FUEL MATERIALS

John Robert McLaren, Chieveley, near Newbury, England, assignor to United Kingdom Atomic Energy Authority, London, England

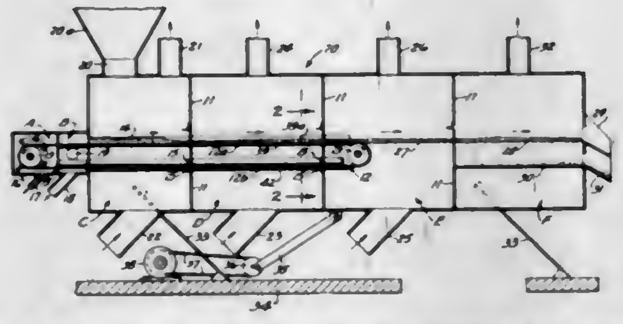
No Drawing. Filed May 21, 1965, Ser. No. 457,790
Claims priority, application Great Britain, June 12, 1964, 24,475/64
7 Claims. (Cl. 264—.5)

1. A process for the production of a fuel body for a nuclear reactor comprising taking a powdered uranium compound selected from the group consisting of uranium nitride and uranium carbonitride, wherein such powder has a particle size substantially in the range 0.1 to 5 microns, an oxygen content below 1 percent by weight, and 48 to 52 atomic percent of non-metallic elements selected

from the group consisting of nitrogen and nitrogen plus carbon, compacting such powder to form pellets and sintering such pellets in an inert atmosphere of high purity.

3,306,958
AGGLOMERATING PROCESS

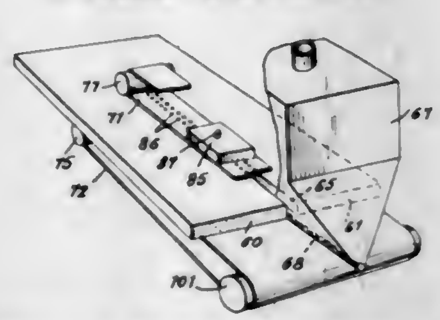
Rolf G. Gidlow, North St. Paul, Minn., assignor to The Pillsbury Company, Minneapolis, Minn., a corporation of Delaware
Original application July 8, 1960, Ser. No. 41,611, now Patent No. 3,220,054. Divided and this application Nov. 20, 1964, Ser. No. 420,475
14 Claims. (Cl. 264—39)



1. A process of agglomerating pulverulent material comprising moving an agitated bed of such material over an endless substantially continuously moving permeable supporting medium constantly providing a substantially completely pervious portion to said material as it makes its initial contact therewith, and treating said moving bed of agitated particles to form adhesive films thereon to effect agglomeration of said particles.

3,306,959
METHOD AND APPARATUS FOR JOINING ADJACENT PANELS OF THERMOPLASTIC MATERIAL

Erling Berner, New Castle, Pa., assignor to Isoleringsaktiebolaget WMB, Goteborg, Sweden, a corporation of Sweden
Filed Oct. 11, 1962, Ser. No. 229,917
Claims priority, application Sweden, Dec. 14, 1956, 11,397/56
3 Claims. (Cl. 264—46)



1. The method of sealing the adjacent edges of wall paneling wherein a pair of panel strips formed of expansible cellular granules are mounted on a support with the said adjacent edges of said strips in spaced relation, comprising the steps of

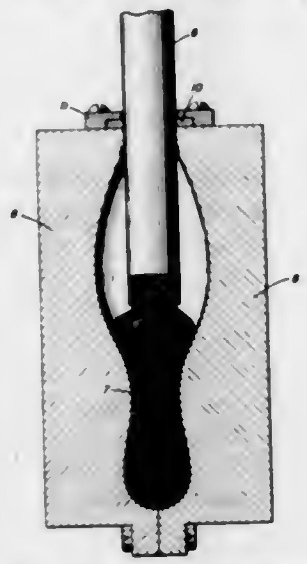
filling the space between the said edges of said strips with heat expansible granules containing an expanding agent which will cause expansion when subjected to heat, and

restraining said panel strips at the edges thereof against movement relative to each other and in a direction normal to said support and also restraining the granules which are in said space within a plane defined by the outer surfaces of said panels, while simultaneously applying heat concentrated at the areas adjacent to said spaced edges of said strips,

thereby expanding the granules of the strips and the granules in the space between said edges and joining said granules to form a cohesive, tight and substantially invisible joint between said panel strips.

3,306,960
METHOD OF MOLDING A FOAMED PLASTIC STRUCTURE HAVING A SMOOTH OUTSIDE SURFACE

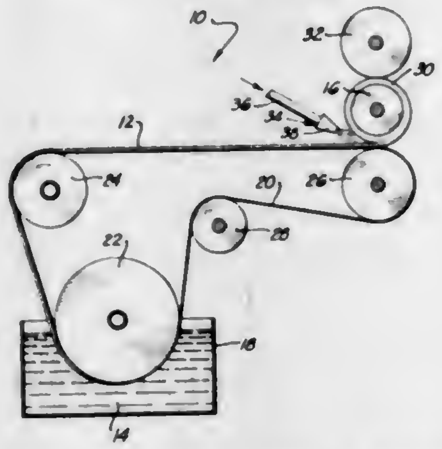
Stanley N. Weissman, Cedar Grove, and George L. Matthias, Belleville, N.J., assignors to W. R. Grace & Co., a corporation of Connecticut
Filed Aug. 13, 1963, Ser. No. 301,741
4 Claims. (Cl. 264—51)



1. A process for preparing a shaped structure having a foamed plastic core covered with an integral substantially unfoamed plastic layer having a smooth outside surface as molded, which comprises heating a composition containing a thermoplastic resin and a blowing agent to a temperature above both the softening point of the resin and the temperature at which the blowing agent forms bubbles, filling a constant-volume mold with said composition prior to complete formation of bubbles from the blowing agent, sealing the mold, maintaining the interior surface of the mold at a temperature above the softening point of the plastic and below the temperature at which the blowing agent forms bubbles until some pressure from the blowing agent builds up in the central portion of the mold cavity, cooling the plastic composition in the mold to solidify the plastic and removing the resulting shaped structure from the mold.

3,306,961
HARDENING CEMENT MIXTURES

Gerald M. Spence, Tehachapi, Calif., assignor to Monolith Portland Cement Co., Monolith, Calif., a corporation of Nevada
Filed June 14, 1965, Ser. No. 463,837
7 Claims. (Cl. 264—82)

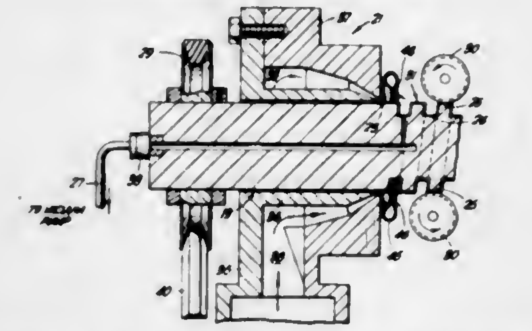


1. In a process of manufacturing a Portland cement product in which a layer of a Portland cement mixture containing water is located upon a supporting surface and is transferred from said supporting surface to a form having a shape corresponding to the shape of said product, the improvement which comprises:

applying hot gaseous products resulting from combustion of carbon-containing fuel to said mixture prior to the hydration of the cement in said mixture as said mixture is being handled so as to be located upon said form.

3,306,962
PLASTIC CORRUGATED PIPE

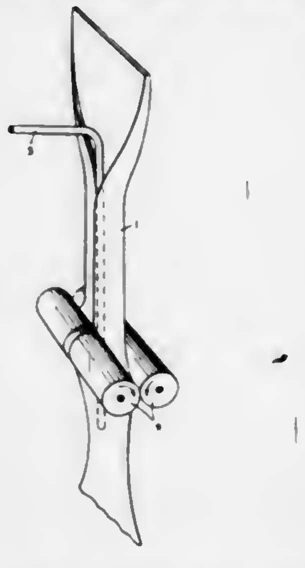
Kenneth V. Pepper, Beaconsfield, Quebec, Canada, assignor to Building Products of Canada Limited, Montreal, Quebec, Canada
Filed Mar. 29, 1965, Ser. No. 443,518
12 Claims. (Cl. 264—90)



1. A method for the manufacture of a helically corrugated tube comprising the steps of depositing settable plastic material in unset condition upon a surface of a mandrel having a helical thread form to conform to the thread form of said mandrel surface, securing said plastic material after setting thereof against rotation about the axis of said mandrel, and rotating said mandrel about its longitudinal axis to feed said plastic material from said mandrel.

3,306,963
PRODUCTION OF SHRINKABLE SHEETS AND FILMS

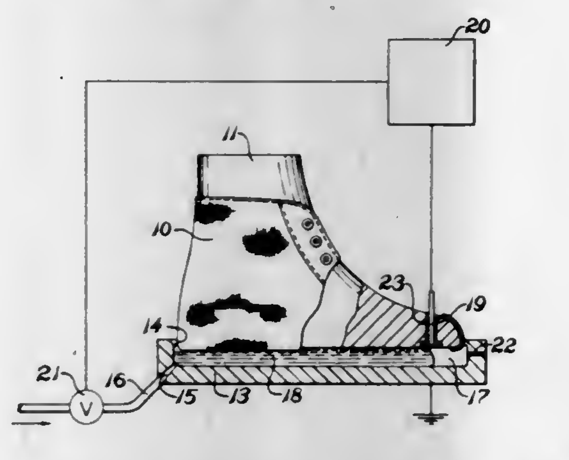
Karl Wisseroth, Ludwigshafen (Rhine), Dieter Volmer, Frankenthal, Pfalz, and Karl-Heinz Ambil, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed June 8, 1964, Ser. No. 373,208
Claims priority, application Germany, June 12, 1963, B 72,260
2 Claims. (Cl. 264—95)



1. A process for the production of shrinkable films from plastics which are crosslinkable by free radicals which comprises extruding a homogeneous mixture of an ethylene polymer and an organic peroxide in the form of a ribbon under conditions under which the peroxide does not decompose into free radicals, heating the ribbon on a support to a temperature of from 160° to 280° C. so that the ethylene polymer is crosslinked, said support being a wire netting formed as an endless belt and having a mesh width of from 0.1 to 1.0 millimeter which moves the extruded ribbon in the direction of extrusion at a speed which is at least as high as the speed of extrusion, pressing together the edges of the ribbon or crosslinked ethylene polymer at a temperature of from 180° to 280° C. in the presence of a gas containing oxygen with the formation of a tube having a longitudinal weld, converting this tube by inflation and simultaneous stretching in the longitudinal direction at temepratures of from about 50° to 150° C. into a tubular film having a thickness of from 10 to 1,000 microns and cooling the tubular film under tension.

3,306,964
METHOD OF INJECTION MOLDING AND APPARATUS THEREFOR

Richard J. Miller, Jr., Barrington, R.I., assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Nov. 27, 1963, Ser. No. 326,484
4 Claims. (Cl. 264—244)



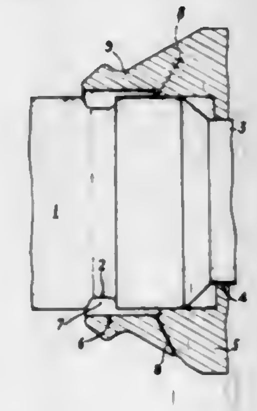
1. A method for molding a sole onto a shoe upper which comprises lasting a shoe upper onto a shoe last, inserting the lasted shoe upper into the cavity opening of a sole mold until the peripheral edge of the cavity opening of the sole mold along its entire extent engages the shoe upper a slight distance up the side of the shoe upper whereby the lasted shoe upper provides a closure for said sole mold and with said sole mold produces a mold cavity having the general shape of the sole desired to be molded onto said shoe upper, injecting a heat-settable flowable molding composition into the mold cavity formed between and by said sole mold and said lasted shoe upper, discontinuing the injection of the molding composition into the said mold cavity when a preselected proportion of the mold cavity has been filled with the molding composition by transmission of an electrical signal to an electrically-operated valve to close the said valve and thereby prevent the further injection of molding composition into the mold cavity, the transmission of said electrical signal having resulted because of the contact of said molding composition injected into the said mold cavity with an electrical-conductive sensing element housed in one of the said components which define the closed mold cavity having the general shape of the sole desired to be molded onto said shoe upper, said sensing element being electrically-insulated from said component in which it is housed and being exposed within the mold cavity which contact of the molding composition with the said sensing element completes an electrical circuit in which said electrically-operated valve is included and in which means for generating the said electrical signal is included, the unfilled portion of the mold cavity being slightly less in volume than the increase in volume resulting from thermal expansion of the molding composition in the mold cavity when it is heated to set it, and heating the molding composition in said mold cavity to a temperature and for a time sufficient to thermally expand and set the molding composition.

3,306,965

PROCESS FOR THE MANUFACTURE OF PARTS HAVING A COMPLEX BORDER OF AN ELASTOMER MATERIAL

Jean Marie Lucas and Jean Vertut, both of Paris, France, assignors to Commissariat à l'Energie Atomique, Paris, France

Filed Apr. 21, 1964, Ser. No. 361,486
Claims priority, application France, May 6, 1963, 933,843
3 Claims. (Cl. 264—303)



1. Process for the manufacture of parts having a complex border which is formed of an elastomer material, which comprises: mounting on a mandrel, provided with an annular channel which defines the shape of one of the faces of said border, a ring which forms an annular recess between the channel of said mandrel and the internal surface of said ring which defines the shape of the other face of said border; dipping said mandrel and said ring assembly in a bath comprising a coagulant; drying said assembly; immersing said assembly in a latex emulsion so as to permit the annular recess to be filled with the emulsion by capillarity by means of radial ducts formed through the ring disposed on the mandrel, said radial ducts being adapted to connect the internal face of said annular recess with the external face of said ring; removing said assembly from said latex emulsion; and drying and vulcanizing the assembly.

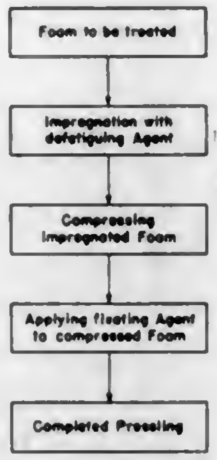
3,306,966

PROCESS FOR PREPARING COMPACT EXPANDABLE URETHANE FOAMS

Franz Matejcek, Pirkheimerstrasse 11, Nurnberg, Germany; Kurt Sponsel, Mauerstrasse 51, Dusseldorf, Germany; Helmut Pietsch, Elbingerstrasse 66, Nurnberg, Germany; and Curt Walter Leupold, Schilfstrasse 10, Nurnberg, Germany

Filed Apr. 8, 1963, Ser. No. 271,483
2 Claims. (Cl. 264—321)

1. Process for preparing compact, expandable polyurethane foams which comprises impregnating said foam with a defatiguing agent, compressing the thus impregnated foam, applying a fixating agent to said compressed foam whereby the foam retains its compressed form until said foam is brought into contact with a liquid which is capable of dissolving said fixating agent.

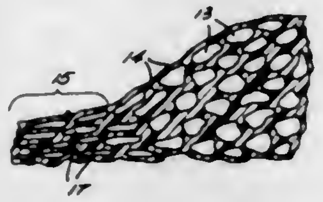

Foam to be treated
Impregnation with defatiguing Agent
Compressing Impregnated Foam
Applying fixating Agent to compressed Foam
Completed Pressing

3,306,967

MOLDING OF RESINOUS FOAMS

William Turkewitsch, Toronto, Ontario, Canada, assignor to The Scholl Mfg. Co., Inc., Chicago, Ill., a corporation of New York

Filed Aug. 12, 1963, Ser. No. 301,282
4 Claims. (Cl. 264—321)



1. The method of producing molded articles having a foamed resinous skeleton which comprises providing a flexible resinous foam in which the cell walls of the foam contain deposits of a thermoplastic resinous composition in an amount insufficient to close off the cells of said foam, said composition having a softening point below the softening point of the foam skeleton, heating said foam to a temperature sufficient to soften the deposits of said resinous composition, applying a shaping pressure to selected areas of said foam while said deposits are softened to thereby deform the selected areas of the foam into a desired configuration without destroying the cellular character of the foam, said shaping pressure reducing the thickness of the shaped areas to not less than 25% of their original thickness, and cooling the shaped foam while still under said pressure to thereby provide a structure in which the selected areas of the deformed foam are maintained in their deformed condition by the solidification of said deposits.

ELECTRICAL

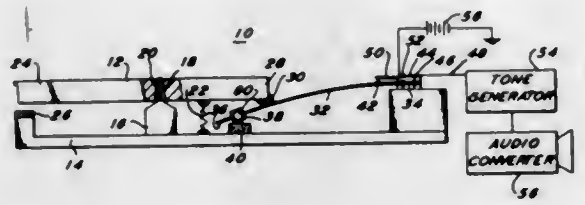
3,306,968

KEY BIASED REED SWITCH FOR ELECTRONIC MUSICAL INSTRUMENT

Jerome Markowitz, Allentown, Pa., assignor to Allen Organ Company, Inc., Macungie, Pa., a corporation of Pennsylvania

Filed Dec. 27, 1963, Ser. No. 333,883
18 Claims. (Cl. 84—1.04)

1. Musical apparatus comprising a key, an electrical tone generator for producing audio frequency electrical signals, an audio convertor connected to said tone generator to convert said tone generator audio frequency electrical signals into an audio output signal, reiteration means, said key being operative to control said reiteration means, said reiteration means including a contact and a mechanical actuator for alternately opening and closing said contact, said mechanical actuator including spring means for imparting periodic motion to said actuator, said contact being connected to control said audio output signal of said audio convertor.

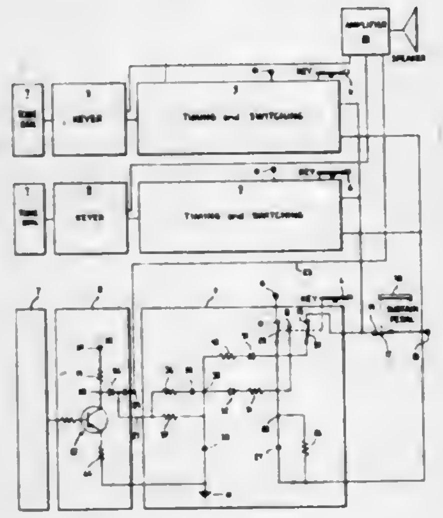


3,306,969

PERCUSSION TONE GENERATING DEVICE

Ronald O. Barber, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind., a corporation of Indiana

Filed Mar. 23, 1964, Ser. No. 353,905
12 Claims. (Cl. 84—1.24)



1. In an electrical musical instrument, the combination comprising:

a tone signal source having a tone signal output terminal;

a plurality of keys;

a plurality of switches;

means coupling said plurality of switches to one of said keys whereby switches of said plurality are operable in sequence by actuation of one of said keys;

first capacitance means coupled through a first switch of said plurality to a first terminal at substantially constant negative potential to charge said first capacitance means;

second capacitance means coupled through a second switch of said plurality of switches to a source of positive potential to establish an initial positive charge on said second capacitance means;

first resistance means coupling said tone signal source to said second capacitance means;

a third switch, said third switch being closable after said second switch is opened, and said third switch being operable, when closed, to couple said second capacitance means and said first resistance means to said first capacitance means to thereupon initiate reversal of the charge of said second capacitance means by said first capacitance and initiate the negative rise portion of an impulse voltage applied to said tone signal source;

third capacitance means and second resistance means coupled to said second capacitance means to partially discharge said second capacitance means and provide a decrease in the impulse voltage applied to said tone signal source, said third capacitance means having less capacitance than said second capacitance means;

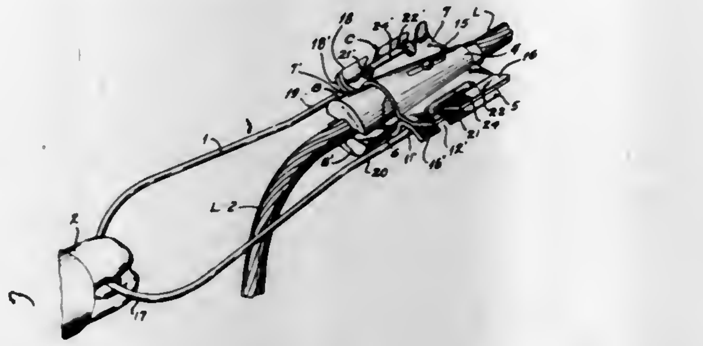
said third and second switches then being operable when again opened and closed, respectively, to provide a discharge path through said second switch to said source of positive potential to rapidly discharge the remaining negative potential from said second capacitance means and re-establish a positive charge thereon.

3,306,970

SERVICE DROP CLAMP FOR ELECTRIC CONDUCTOR FEEDER

Joseph W. Kowalski, St. Louis, Mo., assignor to James R. Kearney Corporation

Filed May 4, 1964, Ser. No. 364,467
7 Claims. (Cl. 174—79)



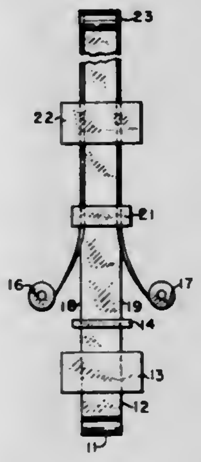
7. A service drop clamp for anchoring an end of an overhead electric conductor comprising, a conductor grip having relatively movable parts, two of said parts having eyes at opposite sides thereof, the eyes in one of said parts being registrable with eyes in the other of said parts, and a bail having portions interlockable with the registered eyes to bias said parts together about the conductor.

3,306,971

INSULATED ELECTRICAL STRIP CONDUCTOR AND METHOD OF MAKING SAME

Emil H. Olson, North Muskegon, and Ivan W. Wade, Jr. and Maurice V. Thierry, Muskegon, Mich., assignors to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Dec. 6, 1963, Ser. No. 328,676
12 Claims. (Cl. 174—119)



9. An insulated electric strip conductor comprising:

(A) a metallic strip,

(B) ribbons of insulating film bondingly folded over the edges only of said strip, and

(C) a baked insulating enamel, compatible with said film, covering said conductor.

3,306,972

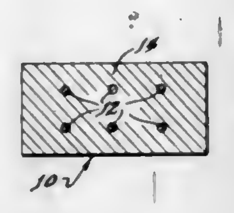
SUPERCONDUCTING CABLE

Charles Laverick, Downers Grove, Ill., Martyn H. Foss, Pittsburgh, Pa., and George M. Lobell, Oak Forest, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commision

Filed Oct. 29, 1964, Ser. No. 407,606
4 Claims. (Cl. 174—126)

1. A superconducting cable comprising a plurality of bare superconducting wires spatially mounted with respect to each other, each of said wires being formed of an alloy selected from the class consisting of niobium-zirconium, niobium-tin, and niobium-titanium, and a metal coating

disposed about said wires to form a superconducting cable essentially rectangular in cross section, said metal coating



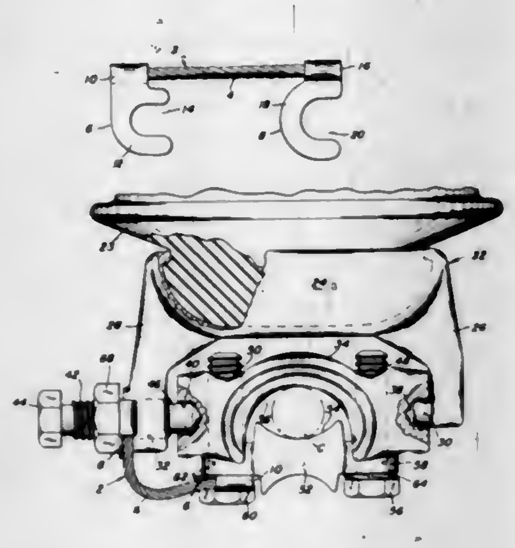
having high thermal and electrical conductivity at liquid helium temperatures.

3,306,973
LINE CABLE SUPPORT WITH SUPPRESSOR BOND

Ralph T. Lowerre, Ross Township, Allegheny County, Pa., assignor to United States Steel Corporation, a corporation of Delaware

Filed Mar. 30, 1965, Ser. No. 443,971

3 Claims. (Cl. 174—140)



1. A line cable support comprising a bracket, a support member having a cable receiving groove therein, means pivotally supporting said support member on said bracket, said last named means including a threaded member, a cable clamp having a cable receiving groove therein, means for fastening said clamp to said support member including a second threaded member having its axis generally normal to the axis of said first threaded member, and a suppressor bond extending between said screw members, said suppressor bond including a stranded conductor and a flat U-shaped fitting secured to each end of said stranded conductor, the first of said fittings having its opening facing toward the second of said fittings and the second fitting having its opening facing away from the first fitting, said first fitting receiving the second threaded member in its opening and being attached thereto, said second fitting receiving the first threaded member in its opening and being attached thereto.

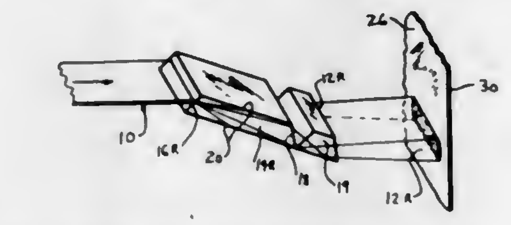
3. A suppressor bond adapted to extend between and to be attached to two members arranged with their axes generally normal to one another comprising a stranded wire conductor, and a flat U-shaped fitting secured to each end of said stranded wire conductor with the first of said fittings having its opening facing toward the second of said fittings and the second fitting having its opening facing away from the first fitting, each of said fittings including a sleeve surrounding the stranded wire conductor, and a portion extending tangentially therefrom, the last named portions being spaced around the periphery of the stranded conductor 180° from one another.

3,306,974
COLOR REPRODUCTION WITH A MONOCHROMATIC GRADIENT LINE IMAGE

William T. Cunnally, Morton Grove, Ill., assignor of fifty percent to Gilbert R. Johnson, Park Ridge, Ill.

Filed Mar. 8, 1963, Ser. No. 263,945

4 Claims. (Cl. 178—5.2)



1. The process of reproducing an original color image comprising refracting and focusing predetermined colors in the original image in separate narrow lines of a recurrent pattern of colors to form a secondary color image of the original image on a viewing surface and recording the gradients of the color in each line in related varying intensities of light to form an intelligible monochromatic gradient line image, and with respect to each other superposing the monochromatic image and a prepared color separation surface of corresponding color lines of said recurrent pattern of colors whose translucent intensity is varied by the monochromatic image lines in direct relation to the presence of the colors in the original image for the perception of color in the monochromatic image.

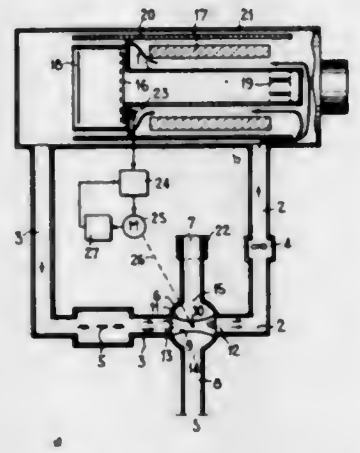
3,306,975
TELEVISION CAMERA SYSTEM HAVING IMPROVED TEMPERATURE CONTROL

Jacques Donnay, Paris France, assignor to Compagnie Francaise Thomson-Houston-Hotchkiss Brandt, a corporation of France

Filed Dec. 2, 1963, Ser. No. 327,184

Claims priority, application France, Dec. 7, 1962, 917,900

6 Claims. (Cl. 178—7.2)



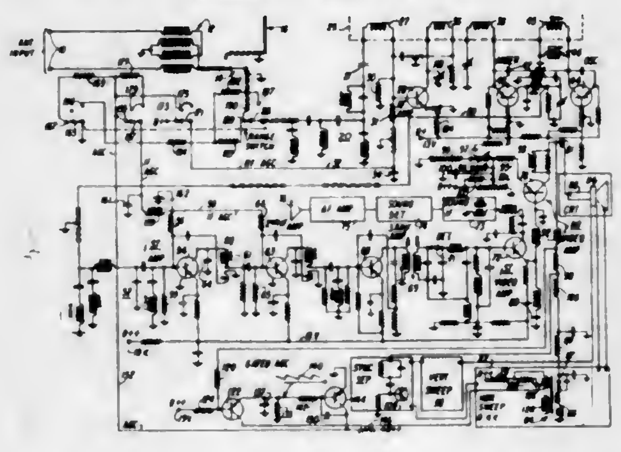
1. A television camera system comprising in combination a camera tube and a casing surrounding the tube, and temperature-control means comprising an inlet conduit and an outlet conduit connected with respective end parts of said casing; fluid circulating means associated with said inlet conduit and operable to circulate fluid therethrough into said casing; heating means associated with said outlet conduit and operable to heat fluid issuing therethrough out of said casing; valve means having a ported valve housing with a first port connected to said outlet conduit beyond an outlet end of said heating means, a second port connected to said inlet conduit ahead of an inlet of said fluid circulating means, and a third and a fourth ports connected to atmosphere; and a valve member displaceable in the valve housing between a first position in which said first and second ports are interconnected and sealed from said third and fourth ports and a second position in which said first and fourth ports are interconnected and said second and third ports are interconnected and sealed from said first and fourth ports, and through a range of intermediate positions in which said first port is connected partly to said second and partly to said fourth while said third port is connected to said second port, whereby to circulate air past the tube at a variable temperature determined by the position of the valve member.

3,306,976
RECEIVER SYSTEM COMPRISING A TRANSISTORIZED AGC CIRCUIT

Albert W. Massman, Wheaton, and Raymond Charles Voige, Chicago, Ill., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois

Continuation of application Ser. No. 96,874, Mar. 20, 1961. This application Mar. 13, 1964, Ser. No. 352,717

11 Claims. (Cl. 178—7.3)



1. In a receiver for wave signals, the combination of signal amplifier means for the received signal having an amplifier device and bias circuit means for establishing the gain thereof, detector means coupled to said amplifier means for demodulating the received signal, an automatic gain control transistor having input, common and output electrodes, circuit means direct current coupling said input electrode to said detector for changing the conduction level of said transistor in accordance with changes in the level of the received signal, circuit means coupling said output electrode to said bias circuit means for changing the bias of said signal amplifier means and controlling the gain thereof in indirect relation to the level of the received signal, means connected to said common electrode for energizing said transistor, and filter capacitor means connected between said input and output electrodes of said transistor for degenerative feedback between said input and output electrodes to provide a filtered direct current potential for said bias circuit means at said output electrode.

3,306,977
LINE SCAN DEVICE UTILIZING CAVITATION PHENOMENA PRODUCED IN AN ULTRASONIC CELL

Harry P. Brueggemann, San Marino, Calif., assignor to The Marquardt Corporation, Van Nuys, Calif., a corporation of California

Filed Dec. 6, 1963, Ser. No. 328,708

7 Claims. (Cl. 178—7.6)

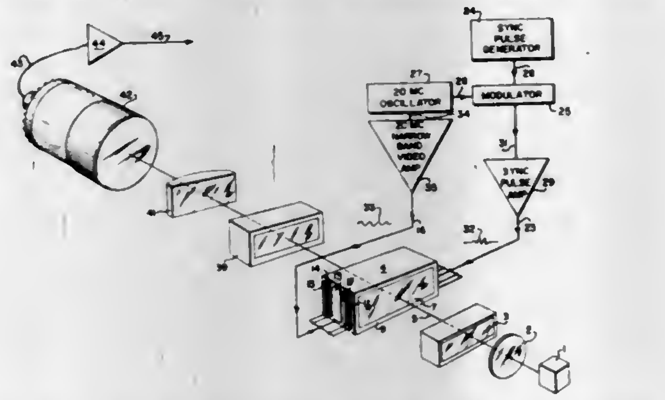
1. A line scan apparatus comprising:

means for projecting a line element of an image along a given path;

a transparent liquid body located transversely of said path;

first means for continuously propagating acoustical energy into one end of said liquid body in a direction transverse to said path, said acoustical energy having an energy level below that capable of producing cavitation in said liquid body; and

second means located at the opposite end of said liquid body for cyclically propagating bursts of acoustical energy transversely to said path and in the opposite direction to said continuously propagated acoustical energy, the summation of said continuously propagated and said cyclically propagated energy from



said first and second means, respectively, producing cavitation within said body at their meeting points when the summation of said energies equals or exceeds that required for cavitation, the cavitation producing a localized diffraction grating in said body which sweeps transversely across said path.

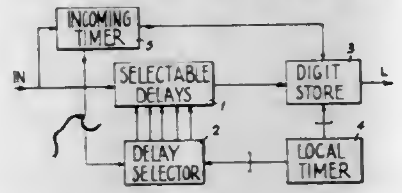
3,306,978
SYNCHRONISATION OF PULSE CODE MODULATION TRANSMISSION SYSTEMS

Brian Desmond Simmons, Chislenhurst, Kent, and Winston Theodore Duerdoth, London, England, assignors to Associated Electrical Industries Limited, London, England, a British company, and Her Majesty's Postmaster General, London, England

Filed Jan. 22, 1963, Ser. No. 253,165

Claims priority, application Great Britain, Feb. 9, 1962, 5,119/62

11 Claims. (Cl. 179—15)



1. A transmission receiver for a pulse code modulation transmission system in which digitally coded information is transmitted in successive time frames in time slots each consistituted by a plurality of digit periods, said receiver comprising, for bringing the time slots of a received transmission into time alignment with locally demarcated time slots, delay means affording a plurality of predetermined delays, delay selecting means for selectively connecting in series with an incoming transmission a selection from said delays of total magnitude sufficient to bring the time slots of said transmission into leading overlapping time relationship with respective locally demarcated time slots, storage means following said delay means for temporarily storing digits contained in the digit periods of a received time slot, and means for abstracting said digits from the storage means coincidentally with locally demarcated digit periods.

3,306,979
PULSE CODE MODULATION SYSTEMS

Derek George Woodward Ingram, Wembley, England, assignor to The General Electric Company Limited, London, England

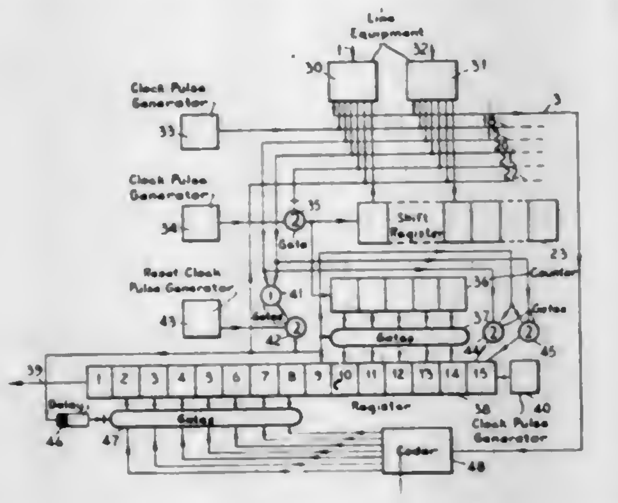
Filed Feb. 18, 1963, Ser. No. 259,219

Claims priority, application Great Britain, Feb. 20, 1962, 6,544/62

14 Claims. (Cl. 179—15)

1. Transmitting terminal equipment for a pulse code modulation system having a plurality of communication

channels, wherein there are provided a plurality of channel inputs one for each communication channel, means to examine the channel inputs in rotation, channel detector means to indicate the presence and absence of signals on said inputs at each examination, channel register means to indicate the presence and absence of signals at the last preceding examination of said inputs, sampling means for sampling the signal amplitude on a channel input when said detector and register means both indicate the presence of a signal on that input, coding means to code each sample provided by said sampling means, counting means for registering the position of any channel in the examination cycle, discriminating means to discriminate between channels that become active and channels that become quiescent by signifying which of said detector means and said register means indicates the presence of a signal on a channel input when one only thereof so indicates at the examination of that input, and signalling means which is connected to said coding means to supply as an output signal a code group of pulses defining the amplitude of each signal sample coded by said coding means and which further is connected to both said counting means and said discriminating means to supply as an output signal a code group of pulses defining both the signification provided in respect of any channel by said discriminating means and the position of that channel in the examination cycle as registered by said counting means whereby as the channel inputs are examined in rotation code groups of pulses combined in time division multiplex are supplied by said signalling means only in respect of those channels which are in active use, which become active and which become quiescent as indicated by said input detector means and said input register means.

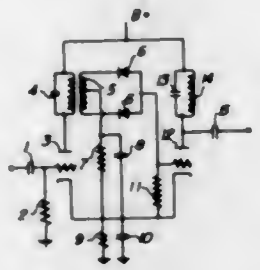


3,306,980
NOISE-LIMITED TYPE FREQUENCY MULTIPLIER FOR FM STEREOPHONIC RECEIVERS

Shoichi Nakamura, Tondabayashi-shi, Osaka, and Tsuneo Okubo, Moriguchi-shi, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Dec. 19, 1963, Ser. No. 331,728
Claims priority, application Japan, Dec. 21, 1962, 37/58,477
6 Claims. (Cl. 179—15)

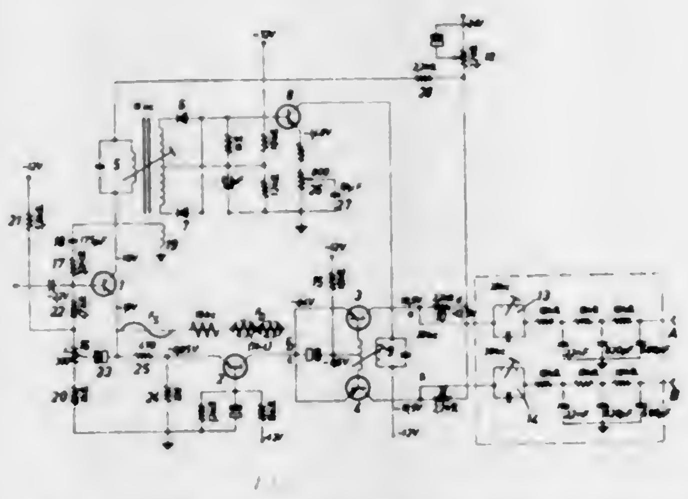
1. A noise-limited type frequency multiplier for FM stereophonic receivers comprising a first amplifier, a second amplifier, each of said amplifiers having at least an active element having a plurality of electrodes, the controlling electrodes of said amplifiers being so biased that under no signal condition the first amplifier is made nonconductive and the second amplifier is made conductive, a resonance circuit connected to the anode electrode of said first amplifier, a full-wave rectifier circuit through which an ouput signal across the terminals of said resonance circuit is fed to the controlling electrode of said second amplifier, said resonance circuit being tuned at the pilot signal frequency, the sense of said full-wave rectifier circuit being such that it renders said second amplifier less conductive, the cathodes of said first and second amplifiers being resistance coupled to each other to form a D.C. positive feedback loop, whereby the frequency multiplier is operative to substantially reverse the conducting states of said amplifiers only in response to an input pilot signal which exceeds a predetermined level.



3,306,981
CODING AND RECEIVING CIRCUITS FOR COMPATIBLE STEREOPHONIC BROADCAST SYSTEMS

Gerhard Hecht, Hannover, and Heinz Wellhausen, Hannover-Linden, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

Filed Sept. 4, 1964, Ser. No. 394,531
Claims priority, application Germany, Sept. 5, 1963, T 24,653; Nov. 20, 1963, T 25,102; Apr. 4, 1964, T 25,931
16 Claims. (Cl. 179—15)



1. In a circuit arrangement for receiving compatible broadcast multiplexed stereophonic signals, in which the main carrier is modulated with (1) a sum signal, (2) an intermediate carrier frequency on which the low frequency difference signal is amplitude modulated with carrier suppression, and (3) a pilot frequency equal to half the intermediate carrier frequency, all of which comprise the whole stereophonic signal, said circuit arrangement comprising, in combination:

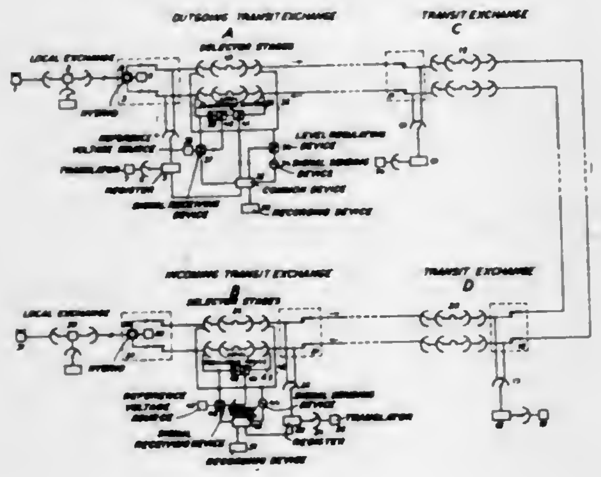
- (a) an input for providing the whole stereophonic signal;
- (b) frequency doubling means connected to said input for deriving from the whole stereophonic signal an intermediate carrier signal of twice the pilot frequency and in phase therewith;
- (c) an electronic switch, including
  - (1) first and second switching transistors each having input, output and control terminals,

  - (2) circuit means for feeding the whole stereophonic signal from the input to the input terminals of each of the switching transistors, and
  - (3) further circuit means feeding the output of the frequency doubling means to the control terminals of the switching transistors for alternately turning the switching transistors on and off, in phase opposition to each other, at a rate equal to the intermediate carrier frequency;
- (d) left and right audio output channels connected to receive signals respectively from the first and second switching transistor output terminals; and
- (e) means connected to the input for feeding a portion of the sum signal to each audio output channel to equalize the amplitude of the sum and difference signals.

3,306,982
LEVEL CONTROL DEVICE

Eric Arvid Ericsson, Stockholm, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden, a corporation of Sweden

Filed Mar. 15, 1963, Ser. No. 265,546
Claims priority, application Sweden, Mar. 30, 1962, 3,577/62
4 Claims. (Cl. 179—16)

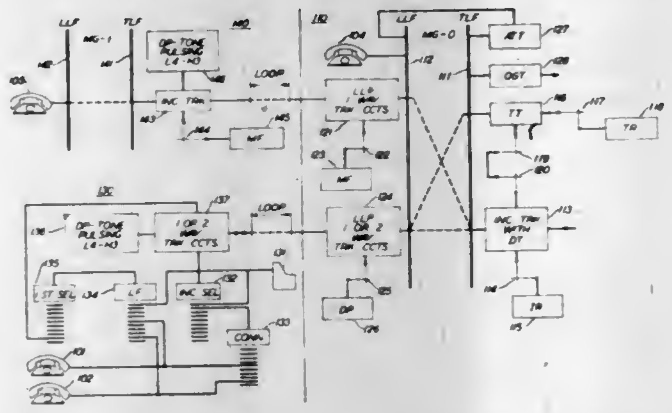


1. An arrangement in a telecommunication system, said system comprising an outgoing and an incoming transit exchange, a four-wire connection including two speech directions adapted to be automatically connected between said outgoing and incoming exchanges and local two-wire connections adapted to be automatically connected to said outgoing and incoming exchanges, said exchanges comprising a register for receiving and storing digital information, means connected to said register for determining a nominal overall attenuation of said four-wire connection by means of the received digital information, and selector stages, said selector stages comprising special links including measuring and regulating devices for measuring and regulating the overall attenuation of the two speech directions of said four-wire connection, said measuring and regualting devices in said incoming exchange comprising a signal receiving device, a regulating device connecting said signal receiving device to the line pair in the forward direction of said four-wire connection seen from the outgoing exchange and a signal sending device connected to the line pair in the backward direction for sending a signal with a reference level fixed for the backward direction, and in said outgoing exchange comprising a signal receiving device, a regultaing device connecting said signal receiving device to the line pair in the backward direction of said four-wire connection and a signal sending device, a regulating device connecting said signal sending device to the line pair in the forward direction of said four-wire connection for sending a signal with a reference level fixed for the forward direction increased with said nominal overall attenuation value determined by said attenuation determining means; and in the respective exchanges a common device connected to said register, said signal sending device, said signal receiving device and said regulating device, for operating said sending, receiving and regulating devices.

3,306,983
CALL TRANSFER SYSTEM

James M. Goodwin, Holmdel, Richard L. Hayes, Red Bank, and John W. Loofbourrow, Westfield, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 20, 1963, Ser. No. 332,003
15 Claims. (Cl. 179—26)

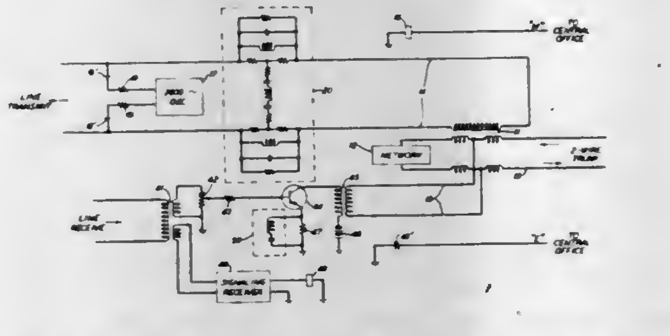


1. In a telephone switching system in combination a first switching center, a second switching center connected to said first switching center, a first and a second subscriber station connected to said second switching center, an incoming trunk connected to said first switching center, means responsive to calling signals to establish a communication path from said incoming trunk to said first subscriber station through both of said switching centers, means controlled from said first subscriber station for transmitting voice frequency signals back through said second switching center to said first switching center, and means at said first switching center responsive to said voice frequency signals to establish a path from said incoming trunk to said second subscriber station.

3,306,984
ELIMINATION OF TALK-OFF IN IN-BAND SIGNALING SYSTEMS

Donald J. Leonard, Hillsborough Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 16, 1963, Ser. No. 330,698
4 Claims. (Cl. 179—84)



1. In a telephone system for sending complex voice-frequency message waves occupying a predetermined frequency band over a telephone trunk from a transmitting terminal to a receiving terminal, means at said transmitting terminal to transmit a substantially single-frequency tone

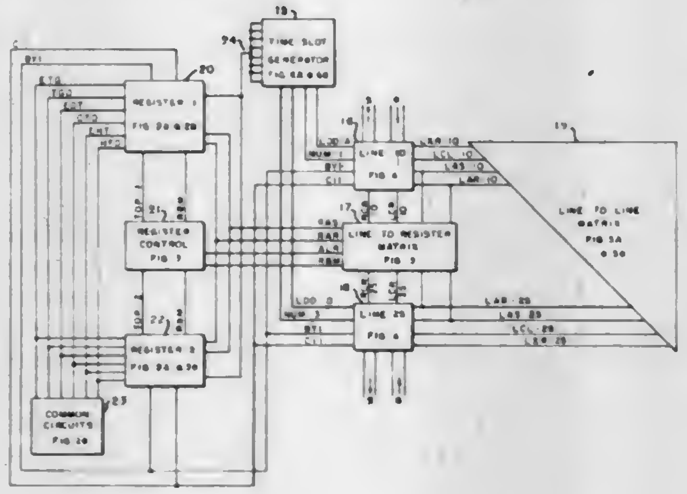
within said frequency band over said trunk to said receiving terminal to signal that the trunk is idle, means at said receiving terminal to detect said tone, a filter at said transmitting terminal to reduce relative to energy at other frequencies in said frequency band any energy in said message waves at the frequency of said tone, and a complementary tuned amplifier at said receiving terminal to increase by a corresponding amount relative to the energy at other frequencies in said frequency band any energy in the received message waves at the frequency of said tone, whereby any energy in said message waves at the frequency of said tone is prevented from generating a false trunk-idle indication at said receiving terminal and disturbance of the substantially smooth transmission characteristic of the trunk is avoided.

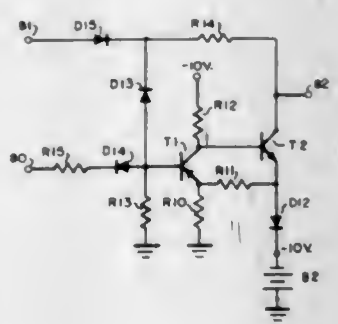
3,306,985
SMALL AUTOMATIC SWITCHBOARD FOR FOUR-WIRE TELEPHONE SYSTEM

Loren D. Diedrichsen, Long Branch, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 23, 1963, Ser. No. 332,982

14 Claims. (Cl. 179—91)





1. A compact automatic switchboard for use in a four-wire electronic telephone system, comprising; a plurality of line circuits, the send and receive pairs of each connected four-wire telephone being connected to a different one of said line circuits, each line circuit containing means to detect seize and release tone sent by said connected telephones, each of said line circuits being connected to a line-to-register matrix, to a line-to-line matrix and to the output of a time slot generator, said line-to-register matrix being connected to a register control circuit and to a primary register and a duplicate register, common circuits connected to both of said registers, the output of said time slot generator also being connected to each of said registers, means responsive to the detection of seize tone in a calling line circuit to connect the send and receive pairs of said calling line to both of said registers by closing a crosspoint corresponding to said calling line circuit in said line-to-register matrix, means in said register control circuit to apply operating power to said primary register in response to the closing of any crosspoint of said line-to-register matrix, means to prevent any other line circuit from seizing said registers while said calling line circuit is connected thereto, a busy lead connected to all of said line circuits and to both of said registers, said time slot generator defining a unique time slot for each of said line circuits, said time slots being used to identify said line circuits on a time division multiplex basis, means to produce a pulse on said busy lead during a calling line circuit's time slot in response to the closure of the calling line's crosspoint in said line-to-register matrix, decoding means within both of said registers for decoding combinations of dialing tones sent from a calling telephone, said decoding means producing a pulse during the time slot of the called line circuit, means to send a busy signal back to said calling telephone if the called telephone is busy, means controlled by the output of said decoding means to apply a pulse to all of said line circuits during the time slot of said called line circuit if said called telephone is idle, means responsive to said last-named pulse to send a "line crosspoint request" pulse to said line-to-line matrix from the calling line circuit and called line circuit, means responsive to said "line crosspoint request" pulses to close the line-to-line crosspoint corresponding to the calling and called lines, thus connecting the said pair of each party to the receive pair of the other party, means to send ringing signal from said common circuits to said called telephone and ringback signal to said calling telephone, means responsive to the detection of seize tone from said called telephone to release said calling line circuit from said register by opening said line-to-register crosspoint, and means to release said line-to-line crosspoint connection upon the receipt of release tone from either said calling or called telephones.

13. A logic circuit having two stable states of operation, comprising first and second transistors, means to reverse bias the base-emitter junction of said first transistor, a first resistor connected between the collector of said first transistor and one terminal of a source of bias potential, the base of said second transistor connected to the collector of said first transistor, the emitter of said second transistor connected to said terminal of a source of bias potential via a first diode; a second resistor, a second diode, and a third resistor serially connected from the collector of said second transistor to the other terminal of said source of bias potential, the junction of said second diode and said third resistor connected to the base of said first transistor, a set input terminal connected to the base of said first transistor, a set output terminal connected to the collector of said second transistor and a reset input terminal connected to the junction of said second resistor and said second diode.

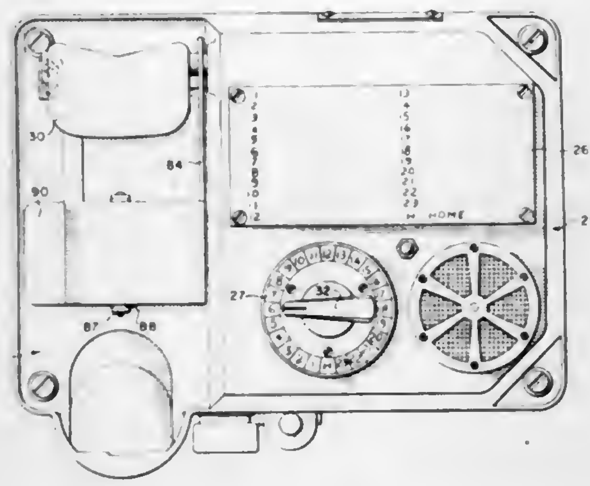
3,306,986
STATION-TO-STATION TELEPHONE SET FOR EXTREME SHOCK CONDITIONS UTILIZING AN AUTOMATIC STATION SELECTOR SWITCH RETURN MECHANISM

Dietrich J. Klein, Charlottesville, Va., assignor to Stromberg-Carlson Corporation, a corporation of Delaware

Filed Oct. 1, 1963, Ser. No. 312,965

3 Claims. (Cl. 179—100)

1. A station-to-station telephone set comprising in combination, a handset, a receptacle for retaining the handset when not in use, a pivotable hookswitch operating assembly for establishing appropriate connections responsive to the position of the handset both when in use and when returned to the receptacle, a station selector switch having a plurality of manually selectable connection positions and a home position for conditioning the station to receive calls from other stations, means coupled to the station selector switch to return it to the home position upon actuation of a lever, a coupling between the hookswitch operating assembly and the lever to cause the switch to return to the home position when the handset is returned to the receptacle after use, locking means comprising a further lever engaging mating structure on the hookswitch operating assembly to lock the handset in position in said receptacle only in the pivoted position of the hookswitch when the handset is returned to the receptacle after use, and a manually operable release lever positioned to unlock the handset responsive to pressure from an operator's hand when the handset is grasped for removal from the receptacle.

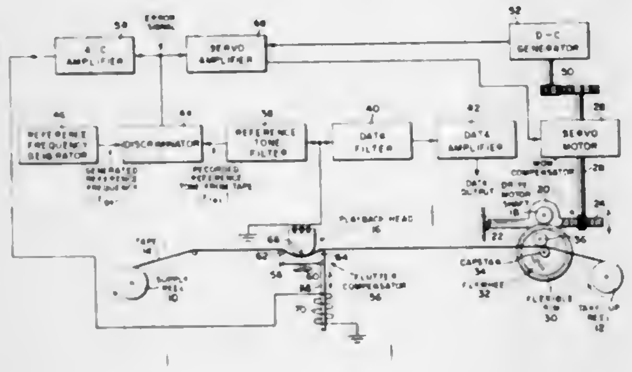


3,306,987
APPARATUS FOR COMPENSATING FOR MAGNETIC TAPE SPEED VARIATIONS DURING PLAYBACK

Fritz A. Guerth, Camarillo, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed June 22, 1959, Ser. No. 822,168

2 Claims. (Cl. 179—100.2)



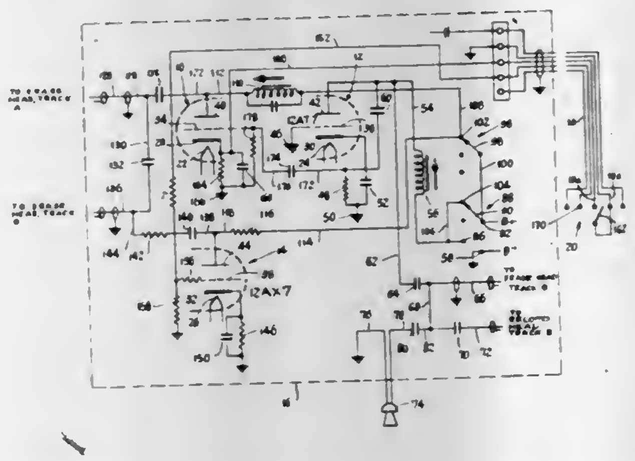
1. Apparatus for reproducing data from a movable storage medium on which has been recorded a timing signal of predetermined frequency, said apparatus comprising: means for imparting an over-all movement to said storage medium; means, including a playback head, for reproducing from said storage medium the timing signal recorded thereon; means for generating a reference signal of a frequency identical to that of said timing signal; means for comparing the reference signal so generated with the timing signal reproduced from said storage medium to develop a fluctuating error voltage the magnitude of which is indicative of the extent of any variation in the speed of movement of said storage medium during reproduction from its speed of movement during the recording of said timing signal thereon; and means for applying a characteristic of said error voltage to control the movement of said storage medium only in the immediate vicinity of said playback head, said last-mentioned means including a frame formed with a re-entrant portion and having mounted thereon a pair of spaced-apart rollers over which said storage medium successively passes, said playback head being disposed at least partially within the re-entrant portion of said frame so that said storage medium describes a loop in moving past said head, said frame being pivotally mounted for limited angular rotation about a single axis lying intermediate said rollers insofar as the over-all direction of movement of said storage medium is concerned, said axis being equidistant from said rollers, said axis also extending essentially transverse to the direction of movement of said medium past said playback head.

3,306,988
RECORDING UNIT FOR AUDIO TEACHING EQUIPMENT

Anthony F. Erff, Guilford, Conn., assignor to J-B-T Instruments, Inc., New Haven, Conn., a corporation of Connecticut

Filed Jan. 9, 1963, Ser. No. 250,419

7 Claims. (Cl. 179—100.2)



1. In a student instruction station of an audio teaching apparatus, a recording unit comprising, in combination:
- (a) a first electronic oscillator,
- (b) said oscillator having an energizing circuit,
- (c) a control switch means located at said oscillator and adapted for operation by the student, said switch means being connected in series in the said energizing circuit to control energization of said oscillator,
- (d) a control cable having two wires respectively connected to two different points of said circuit,
- (e) a switch disposed at a location remote from said oscillator and connected to said two wires,
- (f) a current-modifying means at the oscillator connected to said two different points to be in series in said energizing circuit, for conditioning the oscillator to be inoperative, said switch at the remote point being capable of effecting a short circuit of said current-modifying means so as to place the oscillator either in operating condition or else in non-operating condition while the same is connected for energization by said control switch means.

3,306,989
MAGNETIC RECORD BELT WITH MEANS FOR ALIGNING BELT

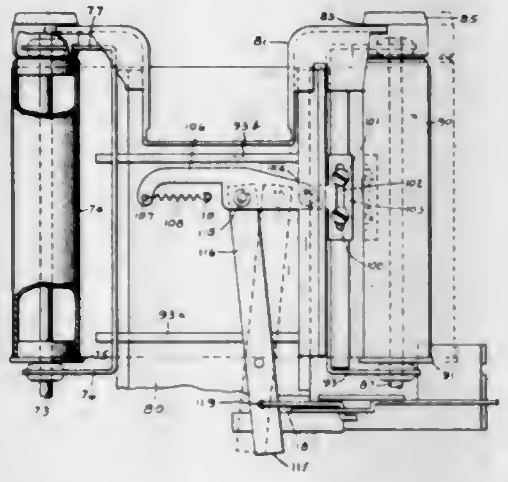
Floyd E. Smithberg and Michael C. Supitilov, St. Charles, Ill., assignors to Du Kane Corporation, St. Charles, Ill., a corporation of Delaware

Filed May 6, 1963, Ser. No. 278,093

2 Claims. (Cl. 179—100.2)

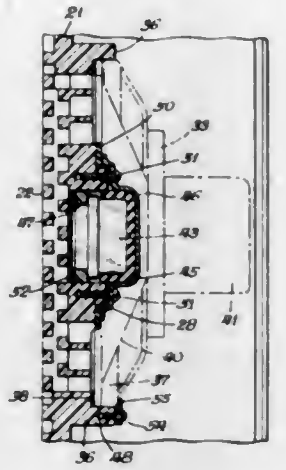
1. In a magnetic recording and reproducing machine for use with pre-grooved endless belts, the combination of a pair of cylindrical, laterally offset driver and follower mandrels having smooth surfaces upon which a belt bears, fixed means for supporting said driver mandrel for rotation about its axis, said driver mandrel having an inner end and an outer end, said driver mandrel supporting

means being disposed to accommodate the endwise replacement of a record belt from said other mandrel end, U shaped member for supporting said follower mandrel for rotation about its axis, bias applying means coupled to said follower mandrel support means, said bias applying means comprising a part coupled to said "U" shaped member at a central region thereof and being adjustable along a line parallel to the length of said mandrel and a link pivotally secured to said part and extending laterally toward the driver mandrel and spring means cooperating with the free end of said link for biasing said follower mandrel away from said driver mandrel, said bias applying means lying within the space between the unsupported portions of the record belt extending between the two mandrel surfaces so that said record belt can be replaced on the two mandrels, a coupling adjustment permitting an accurate adjustment of the effective line of biasing force to dispose the axis of the follower mandrel slightly out of parallelism with the axis of the driver mandrel, one end of the driver mandrel normally being somewhat closer to the corresponding one end of the follower mandrel, manual means for moving the follower mandrel against its bias toward the driver mandrel to permit belt replacement, power means coupled to said one end of said driver mandrel for rotating said mandrel to drive said belt by friction and cause said follower mandrel to rotate, a flange at the one end of said driver mandrel and at the corresponding one end of said follower mandrel for limiting the tendency of said record belt to travel toward said one end of each mandrel, due to lack of exact parallelism of the mandrel axes, a transducer for cooperation with said pre-grooved record belt, and means for supporting said transducer to be freely movable laterally of said belt for cooperation therewith.

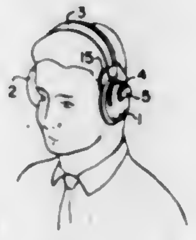


3,306,990
MICROPHONE AND SPEAKER STRUCTURE FOR MINIATURE RECEIVER AND TRANSMITTER
Robert H. Walker, Morton Grove, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Jan. 13, 1964, Ser. No. 337,348
2 Claims. (Cl. 179—102)

1. Apparatus for translating sound into electrical signals and for translating electrical signals into sound including in combination, housing means having an apertured wall, a speaker including a cone and a magnet mounted within said housing means with said cone positioned adjacent said wall, a microphone having a magnetic structure mounted on said wall between said speaker cone and said wall, resilient material means spacing one surface of said microphone from said wall and substantially surrounding the remaining surfaces of said microphone, and a cover plate of magnetic material supporting said microphone and fastened to said wall, said cover plate cooperating with said resilient material means and said microphone to mechanically support said microphone, to acoustically insulate said microphone from said speaker and said housing and to shield said magnetic structure of said microphone from said magnet of said speaker.



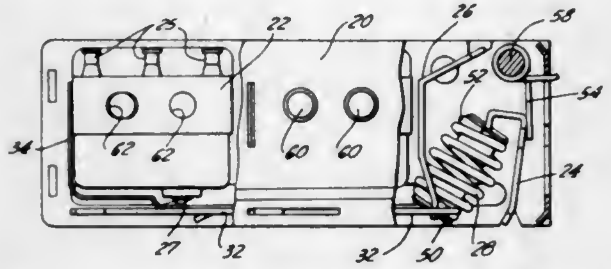
3,306,991
PROTECTIVE HEARING AID
Homer J. Wood, 14285 Valley Vista, Sherman Oaks, Calif. 91403
Filed June 4, 1963, Ser. No. 285,466
6 Claims. (Cl. 179—107)



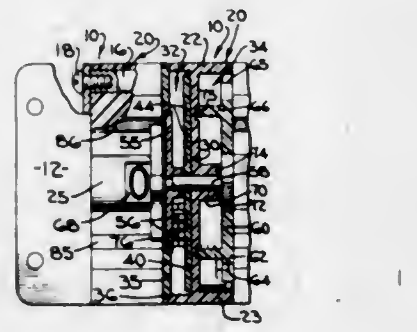
1. A protective hearing aid comprising in combination:
a headband adapted to be worn on the head;
a pair of sound excluding ear covers supported by said headband to enclose the outer ears of the wearer;
microphone means responsive to sounds originating exteriorly of said ear covers;
sound reproducing transducer means responsive to said microphone means to reproduce sounds picked up by said microphone means interiorly of at least one of said ear covers, a limiting amplifier to control said reproduced sounds within a finite dynamic range, the the upper limit of which is below the damage risk criteria for human hearing;
means on the external surface of one of said pair of ear covers for mounting said microphone means; and
means mounting said reproducing transducer means on the interior of said one ear cover.

3,306,992
PUSH-BUTTON SWITCH ACTUATING MECHANISM FOR INDICATOR
Herbert H. Ast, Pacific Palisades, Calif., assignor to Teledyne, Inc., Hawthorne, Calif., a corporation of Delaware
Filed Feb. 4, 1966, Ser. No. 525,231
9 Claims. (Cl. 200—5)

1. A switching assembly including: a bracket; a platelike first actuating means slidably mounted in said bracket for reciprocal linear, movement with respect thereto; at least one switching unit including a spring loaded push button; and a resilient second actuating means mounted in said bracket and having a portion thereof underlying said first actuating means and in position to engage said push button and to cause said push button to be actuated when said portion of said second actuating means is moved between a first position and a second position, said first actuating means including a portion overlying and engaging said second actuating means to cause said portion of said second actuating means to move essentially perpendicularly to the path of said first actuating means between said first and second positions as said first actuating means is slidably moved in said bracket from one position to another.

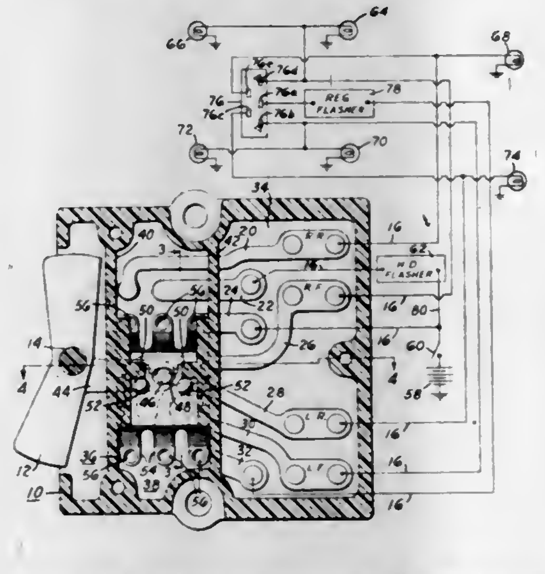


3,306,993
SEALED ELECTRONIC DIGITAL SWITCHING STRUCTURE
Wallace A. Lien, Palos Verdes Estates, Calif., assignor to Endevco Corporation, Pasadena, Calif., a corporation of California
Continuation of application Ser. No. 253,228, Jan. 22, 1963. This application Aug. 30, 1965, Ser. No. 483,430
12 Claims. (Cl. 200—11)



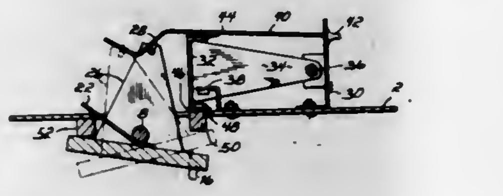
1. A digital switching unit including means defining a sealed electric parts chamber, relatively fixed first contact means mounted in said sealed chamber, relatively movable second contact means mounted in said sealed chamber in cooperative relation with said relatively fixed first contact means for making and breaking circuits, at least one of said first and second contact means including resilient contact means maintained in compression during said circuit making and breaking, a rotary switching wheel having finger engaging means to rotate the wheel, means defining an unsealed space adjoining said sealed chamber, rotatable shaft means journaled in a partition wall of said sealed chamber, said partition wall being located between said sealed chamber and said unsealed space, said wheel having a drum concentric with said shaft means and carrying indicia on the outer face thereof that is concentric with said shaft means, said unsealed space containing said rotary switching wheel and being partially defined by wall means providing an aperture through which said finger engaging means project and also providing a window for viewing a selected indicium in a radial direction relative to said shaft means, one end of said shaft means being coupled to said relatively movable second contact means for driving said second contact means in said sealed chamber with respect to said relatively fixed first contact means in said sealed chamber, said switching wheel being mounted in said unsealed space adjacent said partition wall and being attached to a portion of said shaft means protruding into said unsealed space for driving said shaft means and thereby said movable contact means, and seal means compressed about said shaft means and in engagement with the said partition wall for sealing said sealed chamber in the region of said shaft means journal.

3,306,994
SLIDE SWITCH WITH IMPROVED ACTUATING MEANS
Norman W. Bassett, Knightstown, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 21, 1964, Ser. No. 405,527
3 Claims. (Cl. 200—16)



1. An electrical switch comprising: a switch body; a series of fixed contacts carried on one wall of the switch body; a contact element having a plurality of contact points and slidably carried in another portion of the switch body; actuator means including a tiltable portion pivotally carried by the switch body and including an extending portion offset with respect to the pivot point of said actuator means arranged to engage said contact element to drive said contact element into several operative positions a greater distance than the pivoting distance of said actuator means; and latching means arranged to limit the sliding movement of said contact element in several positions wherein the contact points of said contact element align with several of the fixed contacts in a predetermined pattern to conductively bridge several of the fixed contacts.

3,306,995
INDEPENDENTLY OPERABLE SWITCHES WITH SECOND TOUCH RELEASE
Donald J. Campbell, 2971 Deckebach Ave., Cincinnati, Ohio 45220
Filed Sept. 14, 1965, Ser. No. 487,250
5 Claims. (Cl. 200—18)



1. A multiple switch comprising,
a frame,
a plurality of actuators,
means mounting each of said actuators on said frame for selective movement between a first position, a second position and an override position,
biasing means mounted on said frame and biasing said actuators to said first position,
holding means mounted on said frame,

said holding means being movable between a hold position for releasably maintaining said actuators in a selected one of said first and second positions and a release position to enable said biasing means to move said actuators to said first position,

release means movably mounted on said frame and normally in a position to be contacted by any one of said actuators when any one of said actuators is in said second position,

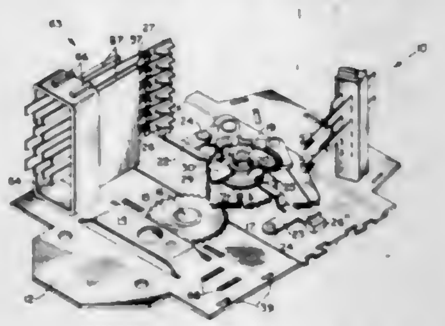
said release means movable with any one of said actuators upon movement of any one of said actuators into said override position, and

means associated with said release means to contact said holding means and move said holding means into said release position upon movement of any one of said actuators into said override position, whereby movement of any one actuator into its override position enables said biasing means to become effective to move all other actuators to said first position.

3,306,996
WRAP-AROUND PLUG-IN TIMER

Harold T. Simmons and Stephen F. Murray, Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware

Filed Mar. 22, 1965, Ser. No. 441,678
15 Claims. (Cl. 200—38)



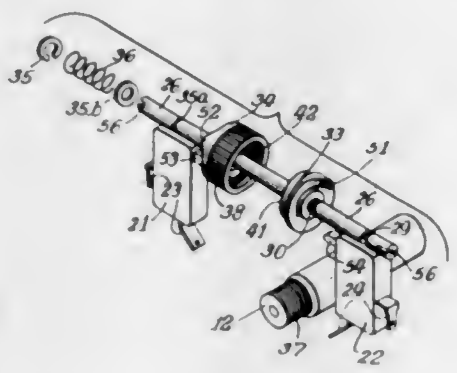
1. A plug-in control timer for sequentially engaging and disengaging contacts of a plurality of follower switches at selected intervals of time during a programmed cycle comprising: an intermittently driven drum-shaped switch actuating means including a plurality of circumferential channels in spaced parallel relationship, said channels including rise and fall contours; a plurality of module means, each of said module means including a plurality of follower switches including contacts, said follower switches riding in said channels and having said contacts biased to engagement or disengagement in accordance with said contours of said channel; sub-interval actuating means including cam means driven at a constant speed, said cam means including rise and fall contours, arm means including actuator block means riding on said contours of said cam means, said arm means displaced in accordance with said contours of said cam means causing said actuator block means to engage and disengage said contacts thereby reopening and delaying closure of said contacts in response to the rotation of said cam means so as to provide sub-interval programming; an axially positionable shaft rotatably coupled to said drum-shaped means; a line switch means; and a line switch actuating means operated by said shaft closing said line switch means as said shaft is depressed axially.

3,306,997
LIMIT SWITCH CONTROL FOR A MOTOR DRIVE

David R. Jacobs, Bluffton, Ind., assignor to Franklin Electric Co., Inc., Bluffton, Ind., a corporation of Indiana

Filed May 6, 1965, Ser. No. 453,587
12 Claims. (Cl. 200—47)

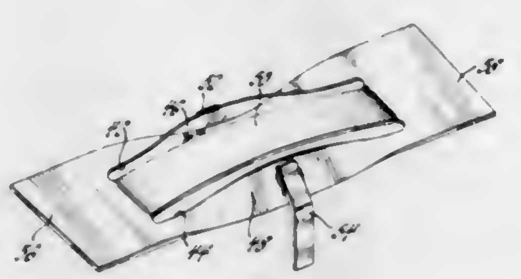
1. A limit switch control for a motor drive unit, comprising a rotatably mounted limit shaft, a pair of cam members on said limit shaft, a pair of limit switches positioned adjacent said members and adapted to be actuated by the respective cam members on rotation of the latter, one of said cam members being secured to said limit shaft for rotation therewith, one of said cam members including a worm wheel, a worm for driving said worm wheel, said cam members having adjacent end faces provided with interengaging teeth, and spring means tending to move one of said cam members axially toward the other to effect engagement of said teeth, said limit shaft having means on at least one end thereof for engagement by a tool for rotating said limit shaft, said teeth being formed to cam said cam members apart on rotation of said limit shaft by said tool and said spring means causing said teeth to produce an audible click when the teeth on the respective cam members pass each other, the number of teeth on said cam members having a predetermined relation to the rotation of said worm, whereby the number of clicks indicates the amount of adjustment of said worm.



3,306,998
SNAP ACTION DEVICE

William J. Russell, Malvern, Pa., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware

Filed Oct. 23, 1965, Ser. No. 503,303
4 Claims. (Cl. 200—67)

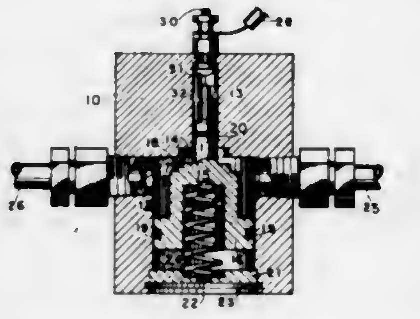


1. In a snap acting device, the combination comprising a housing including a base member and a cover member, said base member including a first contact means and a second contact means extending therethrough, said cover member including an actuating member and a third contact means extending therethrough, said first and third contact means being disposed in axial alignment with each other, an elongated snap switching mechanism mounted by its end portions within said housing members adjacent said actuating member and between said first and third contact means so as to bear against one of said contact means, said switching mechanism including a single sheet of resilient electrically conductive material having a plurality of elongated apertures therein and having means for applying lateral torque to portions thereof, and said lateral torque applying means being removably attached to said housing.

3,306,999
PRESSURE-RESPONSIVE SWITCH

Joe E. Goodwin, Houston, Tex., assignor to Sentinel Distributors, Inc., Denver, Colo., a corporation of Delaware

Filed Oct. 5, 1964, Ser. No. 401,429
5 Claims. (Cl. 200—82)

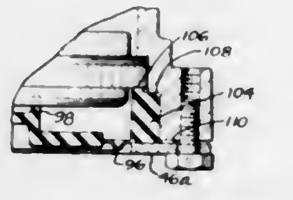


1. A pressure-responsive switch comprising a rigid body formed with a through bore defining a cylindrical chamber coaxially communicating with a tubular cavity of lesser diameter, an actuator having coaxial piston and stem components respectively slidably sealed in said chamber and cavity, a chamber end closure at the side of the piston remote from the stem, a spring expansively reactive between said end closure and the proximate side of the piston yieldably biasing the actuator in the direction of its stem, a fluid flow input line and a relatively restricted fluid flow output line serving said chamber between the piston and stem seals, whereby fluid pressure in said chamber opposes the influence of said spring and said actuator is moved axially in response to a differential in the opposed spring and fluid pressure factors, an electrical circuit operatively associated with said body, a closable break in said circuit normally open between said body and the end of the actuator stem component remote from the piston, and a pin extending from said end of the stem component adapted to engage said housing to close said break and complete the circuit upon shift of the actuator under dominance of spring pressure and to open said circuit upon shift of the actuator under dominance of fluid pressure.

3,307,000
SUMP PUMP SWITCH

William J. Ekey, Ashland, Ohio, assignor to The F. E. Myers & Bro., Co., Ashland, Ohio, a corporation of Ohio

Filed Oct. 15, 1965, Ser. No. 496,282
4 Claims. (Cl. 200—83)

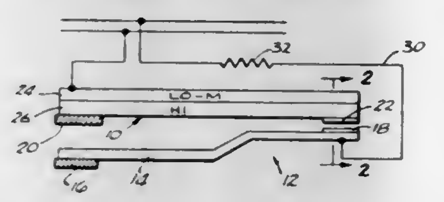


1. In combination; a switch housing in the form of an inverted cup-shaped member, a pressure switch mounted in the lower open end of said member and having a diaphragm on the bottom of which at least the center is exposed, a second diaphragm in spaced parallel relation to the switch diaphragm and therebeneath in the said lower open end of the housing, a shoulder in the housing engaging the upper side of said switch, said second diaphragm having a thin annular peripheral portion engaging the end of said housing, a clamp ring sealingly clamping said portion to the said end of said housing, a thickened annular region on said second diaphragm immediately inside said housing extending telescopically into said housing toward said switch and engaging the lower side of said switch to hold the switch against said shoulder, a thin flexible annular region in said second diaphragm immediately inside said thickened annular region, said second diaphragm inwardly of said flexible region being relatively stiff, and a post on top of said second diaphragm in the center thereof integral therewith and extending upwardly therefrom into engagement with the center of the switch diaphragm.

3,307,001
MAGNETIZED THERMOSTATIC ELEMENT

Clarence F. Alban, Detroit, Mich., assignor to W. M. Chace Company, Detroit, Mich., a corporation of Delaware

Filed Jan. 29, 1965, Ser. No. 428,990
10 Claims. (Cl. 200—113)

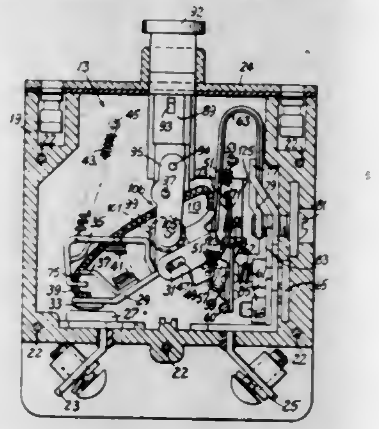


4. A switch comprising a pair of members, facing contacts on said members arranged in a closely spaced relation for engagement on movement of said members toward each other, one of said members comprising a thin laminated element having at least two laminations formed of materials having different coefficients of thermal expansion which are arranged in surface-to-surface contact and secured over substantially the entire area of their contiguous surfaces so that said laminated element acts as an integral whole, one of said two laminations being a permanently magnetized material so that it can perform both magnetic and thermal functions.

3,307,002
MULTIPOLE CIRCUIT BREAKER

Lawrence E. Cooper, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Feb. 4, 1965, Ser. No. 430,423
16 Claims. (Cl. 200—116)



1. A multipole circuit breaker comprising:

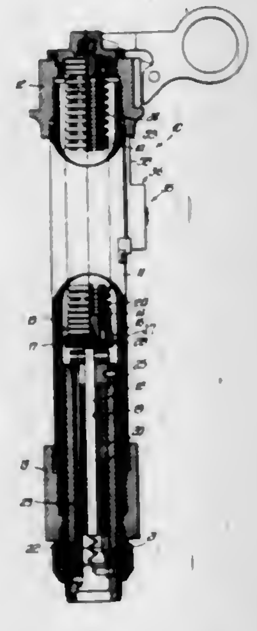
a plurality of trip-free circuit breaking mechanisms arranged side by side each of which includes

  a fixed contact, a movable contact member including a movable contact adapted for engagement with said fixed contact, said member being movable between a first position in which said contacts are separated and a second position in which said contacts are in conductive engagement, biasing means urging said contact member toward said first position, a displaceable reaction force bearing member, a latch for restraining movement of said reaction member, current responsive means for releasing said latch upon passage through said contacts of a current greater than a predetermined level, and a driving member adapted to be driven against said reaction member thereby to move said contact member to said second position when said reaction member is restrained by said latch, the force of said biasing means being transmitted through said driving member to said latch; and

a slide operative between each pair of adjacent breaker mechanisms, each being slidable generally transversely of the direction of movement of said driving members which moves said contact members to said second positions, each said slide having first surface means engageable by and responsive to movement of either of the respective driving members upon tripping of the respective mechanism and second surface means engageable with either of the respective latches for transmitting movement from the driving member of a tripped one of said mechanisms to the latch of any untripped adjacent mechanism thereby to trip such untripped mechanism, the position of the contact member which produces tripping of adjacent mechanisms constituting a point of cross tripping for the member, said biasing means having rate characteristics providing a contact opening force at said point which is greater than $^{18}/_{30}$ of the force exerted when the contacts are closed whereby, if said driving members are driven against the respective bearing members while one mechanism is still in tripped condition following an overload, the spring means of said one mechanism will possess sufficient force to permit the respective driving member to trip all adjacent mechanisms substantially simultaneously thereby preventing closing of any of the mechanisms until all of them can be closed.

3,307,003
INDICATOR MEANS

Sigurd I. Lindell, Northbrook, Ill., assignor to S & C Electric Company, Chicago, Ill., a corporation of Delaware
Filed Nov. 23, 1965, Ser. No. 509,368
12 Claims. (Cl. 200—121)



1. In a circuit interrupter for controlling current flow in an electric circuit, in combination a non-magnetic housing,

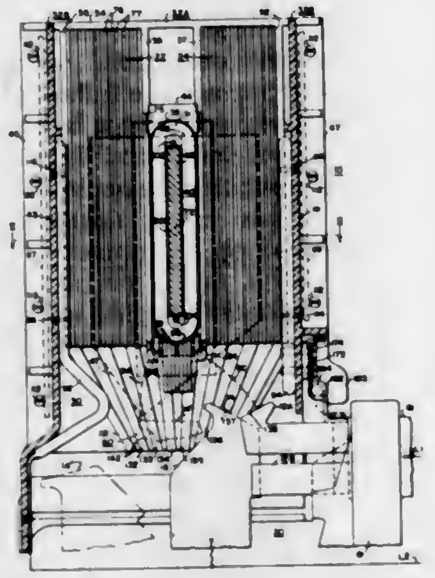
a conductor through which said current flows normally occupying one position in said housing when said circuit interrupter is closed and means for moving said conductor to an alternate position when said circuit interrupter is opened,

an annular permanent magnet surrounding said conductor, secured to and movable therewith and having its opposite faces magnetized to opposite polarities whereby current flow through said conductor has negligible effect on the magnetic field of said permanent magnet, and

an indicator permanent magnet, means movably mounting said second permanent magnet exteriorly of said housing effectively out of the magnetic field of said annular permanent magnet in said one position and within said magnetic field of said first permanent magnet in said alternate position whereby said indicator permanent magnet is shifted from one position corresponding to said one position of said conductor to an alternate position corresponding to said alternate position of said conductor.

3,307,004
ARC EXTINGUISHING STRUCTURES FOR CIRCUIT INTERRUPTERS

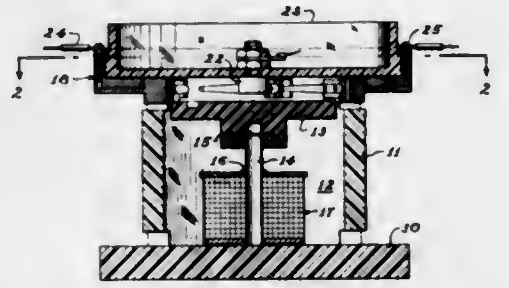
Samuel A. Bottonari, Wilkinsburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 6, 1964, Ser. No. 387,919
5 Claims. (Cl. 200—144)



1. A circuit interrupter comprising contact means actuable along a predetermined path between closed and open positions to establish an arc, an arc-chute having a housing in which the arc is extinguished, said housing including spaced side wall portions disposed on opposite sides of said contact means, and means for extinguishing said arc disposed inside said housing and spaced from and above said contact means, each of said side wall portions including a plurality of generally vertical, integral spaced rib portions projecting laterally toward said contact means and extending from immediately adjacent said contact means to said arc-extinguishing means to define a lengthened creepage path for the arc and a plurality of gas passages adjacent to each side wall portion and extending generally vertically away from said contact means, said rib portions being generally diverging with respect to one another in a direction away from said contact means, said rib portions being disposed generally transversely to the predetermined path of said contact means and at least along the initial portion of said path from the closed position of said contact means, the size of each of said gas passages between said spaced rib portions gradually increasing in a direction toward said arc extinguishing means to cause the gas pressure which results during interruption to increase the speed of the arc toward the arc extinguishing means.

3,307,005
CAM OPERATED MAGNETIC SWITCH

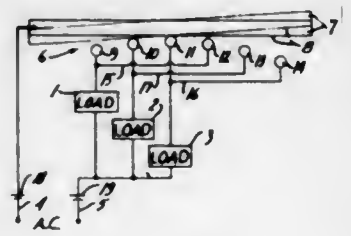
James W. Babb, Belmont, and Lewis Fussell, Jr., Concord, Mass., and Morrill P. Mims, Newton, Mass.; Leal R. Mims, executrix of said Morrill P. Mims, deceased; and Herbert E. Grier, Newton Center, Mass., assignors, by direct and mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 31, 1947, Ser. No. 795,114
14 Claims. (Cl. 200—153)



1. A circuit controlling device comprising in combination a supporting member defining a recess, contact arms pivotally mounted in said recess in association with said supporting member and provided with projecting portions, a rotatable member having at least one plane surface substantially perpendicular to the axis of rotation with a plurality of camming slots in the plane surface thereof cooperating with said projections to effect control of electrical circuits associated with said contact arms and a fixed contact supported in said recess and positioned to intercept the paths of all of said contact arms, rotation of said rotatable member in one direction causing said camming slots to effect rotation of said contact arms about their respective pivot points and into contact with said fixed contact.

3,307,006
CIRCUIT CONTROLLING MEANS

Richard H. Lawrence, 3341 Monterey Drive, New Berlin, Wis. 53151
Filed Oct. 22, 1965, Ser. No. 500,801
9 Claims. (Cl. 200—166)



1. In a circuit controlling means,

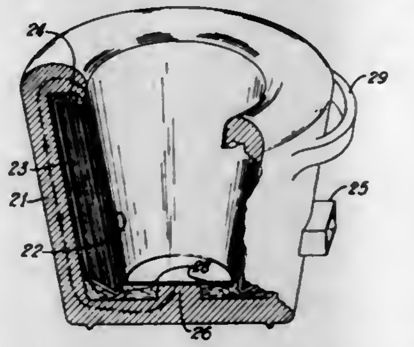
a plurality of contacts mounted in a generally convex array, and

a contact member having a contact surface aligned with the convex array and mounted to successively engage the several contacts and pivot about an engaged contact into engagement with an immediately adjacent contact.

3,307,007
ELECTROMAGNETIC HEATING UNIT

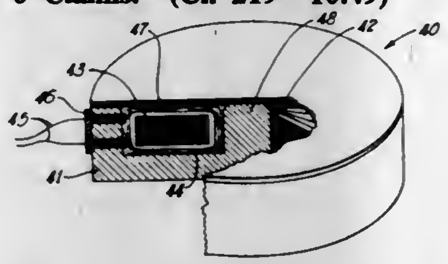
Charles F. Schroeder, 2317 Valleybrook Drive, Toledo, Ohio 43615
Original application Nov. 30, 1962, Ser. No. 241,208, now Patent No. 3,265,851, dated Aug. 9, 1966. Divided and this application Oct. 21, 1965, Ser. No. 499,895
6 Claims. (Cl. 219—10.49)

1. An electrically heated hollow container unit comprising a magnetic core forming a magnetic loop surrounding the confined space of the container, a primary circuit wound on said core, and a secondary circuit for supply of heat to said container surrounding the cross-section of said core as well as the primary wound thereon to form a closed conductive path thereabout and forming a wall surrounding the confined space region within said container, said closed secondary circuit extending over the full length of said magnetic core and back to itself to form a second loop thereof enclosing said magnetic loop as well as a source of heat for said confined space region.



3,307,008
ELECTROMAGNETIC HEATING UNIT

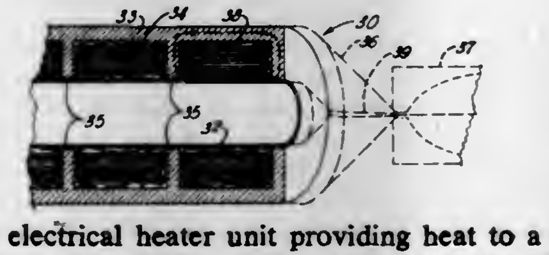
Charles F. Schroeder, 2317 Valleybrook Drive, Toledo, Ohio 43615
Original application Nov. 30, 1962, Ser. No. 241,208, now Patent No. 3,265,851. Divided and this application Oct. 23, 1965, Ser. No. 503,504
6 Claims. (Cl. 219—10.49)



1. An induction heating apparatus of the character disclosed comprising in combination, a magnetic core having length in the form of a loop closed upon itself, a primary winding wound upon said core, and an electrically conductive secondary loop closed about the cross-section of said core and extending over the full length of said core, the opposing side portions of said closed conductive loop within the space surrounded by said core forming a common portion of said conductive loop, and portions of said conductive loop along its length and located on one side of said core loop having a reduced cross-sectional dimension and providing a surface disposed generally in a common plane for selective concentration of heat at said surface upon energization of said core.

3,307,009
ELECTROMAGNETIC HEATING UNIT

Charles F. Schroeder, 2317 Valleybrook Drive, Toledo, Ohio 43615
Original application Nov. 30, 1962, Ser. No. 241,208. Divided and this application Oct. 21, 1965, Ser. No. 499,894
7 Claims. (Cl. 219—10.51)

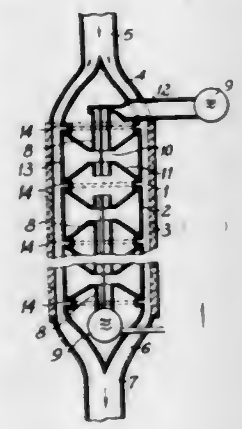


2. An electrical heater unit providing heat to a chamber space contained therein comprising a magnetic core forming a magnetic loop, a primary circuit wound on said core, and a single turn secondary circuit closed on itself

about the cross-section of said core as well as said primary circuit, said secondary circuit extending over the full length of said magnetic core loop and primary circuit and back to itself to form an enclosure for said magnetic loop and primary circuit, said single turn secondary circuit also forming a wall portion of said chamber and providing a source of heat for the interior of said chamber.

3,307,010
ARRANGEMENTS FOR THE TREATMENT OF GOODS BY MICROWAVES, ESPECIALLY IN A CONTINUOUS PROCESS

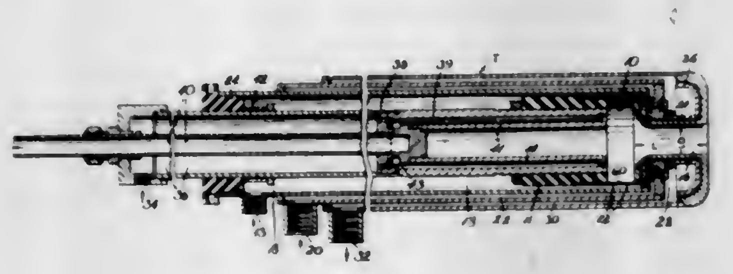
Herbert A. Püschner, Bremen-Lesum, Germany
(175 Osterholzer Heerstrasse, Bremen 2, Germany)
Filed Nov. 19, 1964, Ser. No. 412,522
20 Claims. (Cl. 219—10.55)



1. Microwave heating apparatus comprising,
outer and inner coaxial conducting surfaces defining an annular volume therebetween for receiving material for heating,
means defining a material inlet to said annular volume,
means defining a material outlet from said volume,
axial waveguide means inside said coaxial conducting surfaces embracing the common axis thereof,
and radial waveguide means intercoupling and disposed between said annular volume and said axial waveguide means for coupling energy from said axial waveguide means to said annular volume.

3,307,011
METHOD FOR INCREASING ELECTRODE LIFE

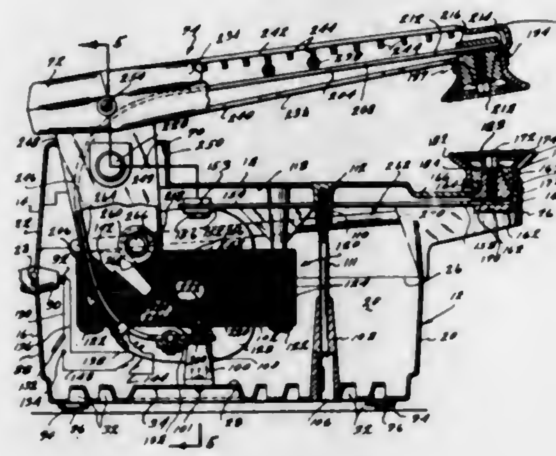
Robert J. Baird, Indianapolis, Ind., assignor to Union Carbide Corporation, a corporation of New York
Filed Aug. 29, 1963, Ser. No. 305,337
9 Claims. (Cl. 219—74)



1. A method for increasing operating life of an electrode in an arc device for generating an arc plasma which comprises establishing an arc between two electrodes at least one of which is in said arc device and is composed of at least one material taken from the class consisting of carbon, copper, silver, aluminum, zirconium, molybdenum and carbon steel, and passing into said arc a gas mixture consisting essentially of a gas inert to the electrode material and a carbon-containing gas capable of depositing carbon on said electrode.

3,307,012
MINIATURE SPOTWELDER

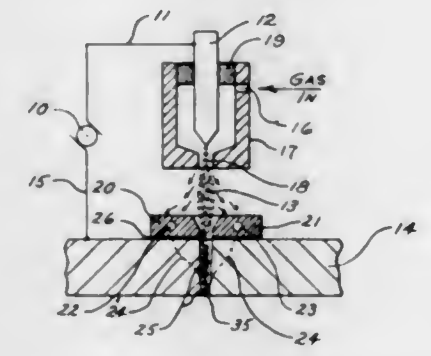
John W. Ryan, Bel-Air, Richard L. May, Manhattan Beach, and Manning Citron, Los Angeles, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of California
Filed Apr. 11, 1966, Ser. No. 541,621
10 Claims. (Cl. 219—86)



1. A miniature spotwelder, comprising:
a transformer having a primary winding and a secondary winding;
a fixed welding electrode connected to said secondary winding;
a swingable welding electrode;
a bus-bar connecting said swingable electrode to said secondary winding, said bus-bar having means comprising its physical properties and shape for biasing said swingable electrode to a predetermined position spaced sufficiently from said fixed electrode to admit workpieces therebetween; and
a swingable lever connected to said bus-bar for swinging said swingable electrode towards said fixed electrode clamping said workpieces therebetween.

3,307,013
ELECTRIC ARC TORCHES

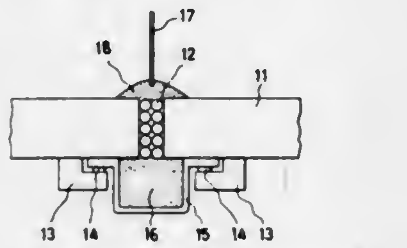
Chapin A. Pratt, Lebanon, N.H., assignor to Thermal Dynamics Corporation, Lebanon, N.H., a corporation of New Hampshire
Filed Aug. 10, 1966, Ser. No. 571,449
3 Claims. (Cl. 219—136)



1. A device for use in welding with a gas stabilized plasma generating electric arc torch comprising a pair of shield bars interposed between said torch and the workpiece, said bars lying on either side of the weld line and defining an arc passageway extending from the work surface toward said torch, and a coating on the work contacting surfaces of said bars to electrically isolate and thermally insulate said bars from said work.

3,307,014
ARC WELDING PROCESS

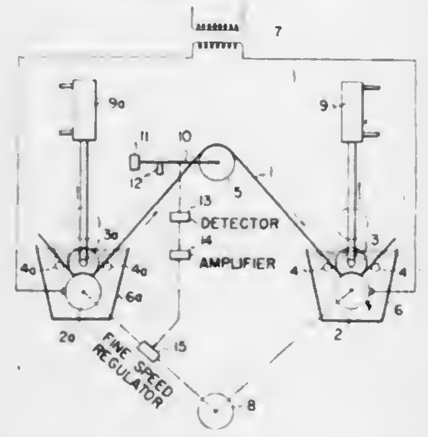
Toyoaki Bada, Tokyo, and Norio Tanaka and Masaharu Kabata, Kanagawa-ken, Japan, assignors to Fuji Iron and Steel Company Limited, Marunouchi, Chiyoda-ku, Tokyo, Japan
Filed Sept. 13, 1965, Ser. No. 486,925
Claims priority, application Japan, Sept. 14, 1964, 39/52,511; Apr. 14, 1965, 40/21,996; Aug. 3, 1965, 40/47,047
8 Claims. (Cl. 219—137)



1. A method of weld-uniting facing edges of metal workpieces, using the fusible metal arc welding process, comprising the steps of providing the workpieces with planar edges to be weld united, the planar edges being substantially normal to the surfaces of the workpieces; positioning the workpieces with planar facing edges in spaced substantially parallel relation to form a substantially rectangular cross section welding groove opening through both of the opposite surfaces of the workpieces; substantially filling the groove with flux-cored, metal-sheathed rods in substantially parallel relation and extending longitudinally of the welding groove, the cores of said rods including a deoxidizing agent, alloying material and basic slag-forming material; and electrically weld uniting the workpieces by an arc welding current flowing between a fusible metal wire as one electrode and the workpieces as the other electrode.

3,307,015
CONTINUOUS HEAT TREATING APPARATUS FOR METAL STRIPS

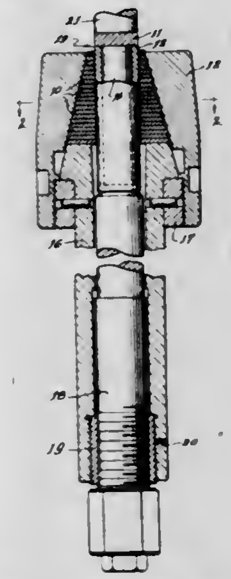
Hiroshi Hagiwara, Takaoka-shi, Japan, assignor to San-Etsu Kinzoku Kogyo Kabushiki Kaisha, Takaoka-shi, Japan, a joint-stock company of Japan
Filed June 10, 1964, Ser. No. 373,948
Claims priority, application Japan, June 17, 1963, 38/32,019
7 Claims. (Cl. 219—155)



1. A continuous heat treating apparatus for metal strips comprising: a first set of rolls; a second set of rolls spaced apart from said first set, guide roll means between each set, each of said first and second sets including a current carrying roll with a conductive strip-engaging surface, a resilient concave pressure shoe of a size corresponding about to the size of current carrying roll, means to apply an A.C. current across said strip-engaging surface so as to pass a heating current through said metal strip, means to drive said current carrying rolls, means to urge said shoes against said current carrying rolls to cause extended surface contact over a large arc therebetween, and a cooling liquid tank to immerse said current carrying roll and said shoe, means to move a metal strip to be heat treated between the shoe and the current carrying roll of said first set, around said guide roll means, and between the shoe and current carrying roll of said second set, and means to pass current through said metal strip via said current carrying rolls, so as to heat treat said metal strip while it is moving between said current carrying rolls.

3,307,016
COLLET FOR WORKPIECE IN ELECTRIC WELDING

Leonard R. Vancott, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 30, 1964, Ser. No. 422,470
3 Claims. (Cl. 219—158)



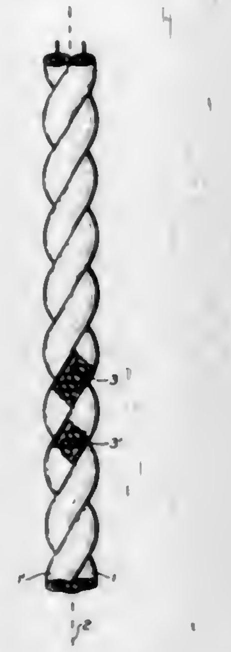
1. A welding collet comprising a stack of wafers having a central opening for gripping a part to be welded, the electrical resistance of the wafers increasing progressively from one end of the stack to the other and being higher at the said other end than that of the part to be welded, the wafers being segmented, having conical exteriors, and decreasing in diameter from said one end of the stack to said other end, a hollow member having a conical interior engageable with the conical exteriors of the wafers, a conducting sleeve engageable with the stack of wafers at the said one end for applying electrical current thereto, and a collar pinner to the conducting sleeve and having threaded engagement with the hollow member to adjust the conducting sleeve with respect to the hollow member and thereby press the sleeve firmly against the said one end of the stack of wafers and the hollow member firmly against the conical exterior of the stack of wafers for making the wafers grip the part to be welded.

3,307,017
ELECTRIC INFRARED EMITTER

Georg Horstmann, Bruchkobel, Germany, assignor to Heraeus Quarzschmelze G.m.b.H., Hanau am Main, Germany, a firm of Germany
Filed July 1, 1964, Ser. No. 379,646
Claims priority, application Germany, July 11, 1963, Reg. No. (utility model) H 45,500
5 Claims. (Cl. 219—553)

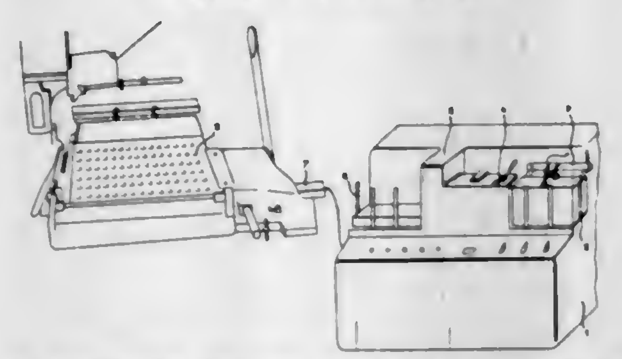
1. An electric infrared radiant heat emitter which comprises a plurality of elongated hollow tubes twisted together about a common longitudinal axis, said tubes being each made of a material selected from the group consisting of glass, quartz glass, and quartz ware, and a helically coiled electrical resistance heating element disposed

within each of said hollow tubes for support thereby and for connection to a source of electricity for energization thereby to generate and emit infrared radiant heat, said heating element having a helical coil outside diameter approximately equal to the inside diameter of its associated tube to minimize shifting of said heating element relative to the tube upon changes in attitude thereof.



3,307,018
CARD CONTROL APPARATUS

Pierre Jean-Baptiste Astier, 4 Rue Eugene Jumin, and Jean Gilbert Claude Mincel, 7 Rue Leon Vaudoyer, both of Paris, France
Filed July 31, 1962, Ser. No. 213,776
Claims priority, application France, Aug. 11, 1961, 870,738
5 Claims. (Cl. 235—61.6)

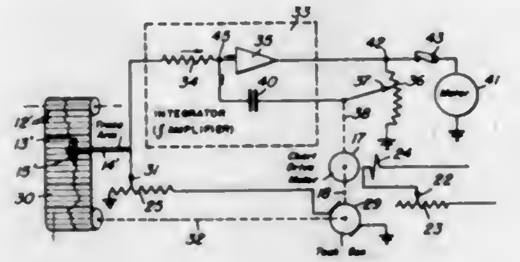


1. A typesetting machine operated by information fed to the machine from perforated cards comprising a typesetting machine having a keyboard; means for operating said keyboard from perforated cards including a feeding means for said perforated cards, means for reading the codified perforations, means for causing said cards to pass in front of said reading means, receiving means for said cards after reading, and means for bringing said cards to said receiving means, an electric circuit associated with said reading means, and an electromechanical device associated with said electric circuit adapted to reproduce mechanically the codified signs and to act on the keys of said keyboard.

3,307,019
ELECTRONIC ANALOG TRACE AVERAGER

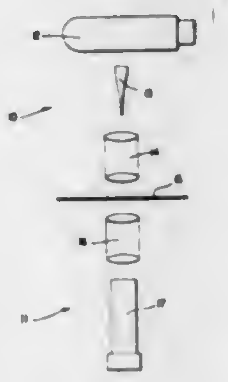
Tom A. Woodard, Shreveport, La., and Thomas S. McIntosh, Stanford, Calif., assignors to United Gas Corporation, a corporation of Delaware
Filed Sept. 19, 1963, Ser. No. 310,002
7 Claims. (Cl. 235—61.6)

2. A chart trace value averaging apparatus including means for advancing the chart along the coordinates representing a first chart variable, means responsive to the rate of said advance for providing a first voltage in accordance with such rate, means for modifying said first voltage according to another chart coordinate which is proportional to a trace variable, said modified voltage being continuously representative of said trace variable at the concurrent value of said first chart variable, means continuously representative of said first chart variable coordinate in accordance with the advance of the chart, an electronic integrator, means impressing said modified voltage as an input to said electronic integrator, means for continuously dividing the integration by said electronic integrator of said trace variable by the instantaneous value of said chart advance representative means, and means for measuring said divided output of said integrator thereby providing a measurement of the average of said trace variable.



3,307,020
HIGH INFORMATION DENSITY DATA RECORD AND READOUT DEVICE

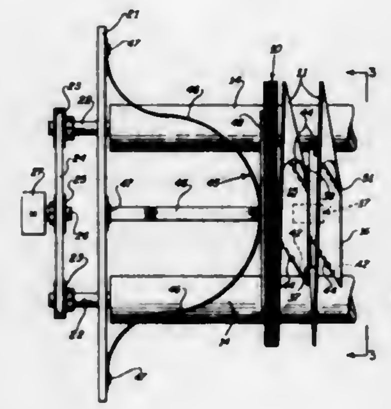
Lysle D. Cahill, Dayton, Ohio, assignor to Data Corporation, Dayton, Ohio, a corporation of Ohio
Filed Sept. 27, 1962, Ser. No. 226,543
20 Claims. (Cl. 235—61.11)



1. A high information density data record and readout device for the transcription and analysis of data upon a medium comprising a projection system, said projection system including a source of radiant energy, aperture means mounted to receive an input beam of radiant energy from said source and operating to filter radiant energy of the long wave lengths from said beam while retaining and substantially collimating radiant energy of the short wave lengths, said aperture means providing a sharply defined output beam constituting substantially collimated radiant energy of the short wave lengths and having a diameter greatly reduced from that of said input beam, and means positioned to focus said output beam upon said medium to establish a sharply defined spot of illumination at the point of interception between said beam and said medium, and electro-optical pickup means positioned adjacent said medium on a side opposite to said projection system, said electro-optical pickup means being aligned to receive radiant energy passing through said medium.

3,307,021
HELICAL DATA STORAGE RECORD AND SYSTEM FOR USING SAME

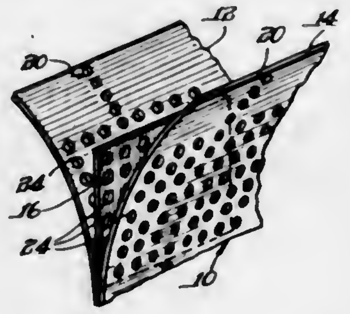
John H. Holland, West Hartford, Conn., assignor, by mesne assignments, to Royal Typewriter Company, Inc., a corporation of Delaware
Filed Mar. 5, 1963, Ser. No. 262,992
9 Claims. (Cl. 235—61.11)



1. In combination with a helical record having flat disc-like coils, said coils having serially recorded therein along an annular track adjacent the periphery thereof coded data,
- a pair of spaced drive rollers adapted to peripherally support and frictionally drive said helical record,
- means for driving said rollers in read and rewind direction,
- a read station between said drive rollers,
- transducer means located adjacent a slot defining said read station,
- electromagnet means mounted at said read station adapted when energized to clamp a disc-like coil positioned in said slot against rotation by said drive rollers,
- and means for leading the coils of said record through said slot whereby rotation of said record successively presents serially recorded codes to said transducer means.

3,307,022
PUNCH CARD

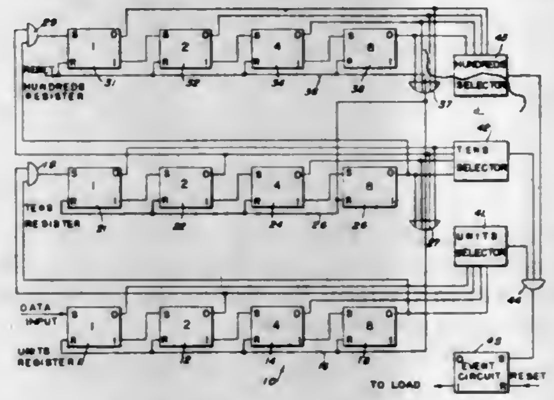
Ernest A. Dahl, Jr., 729 Greenwood Ave., Wilmette, Ill. 60091
Filed June 14, 1963, Ser. No. 288,047
8 Claims. (Cl. 235—61.12)



1. For use in a business machine of the card punching variety, a punch card adapted for magnetically assisted filing and retrieval, comprising: first and second layers of sheet material of generally rectangular outline and congruently arranged with a substantial area of bonded contact therebetween, said punch card having intermediate two parallel edges thereof a field adapted to be selectively punched in a card punching machine; and two magnetically susceptible metal elements extending into said field, one metal element from each of said parallel edges, each metal element being sandwiched between said first and second layers and each having an array of pre-punched holes arranged to accommodate in registration therethrough punch mechanism of such card punching machine to avoid the incidence of metal punchings in such card punching machine.

3,307,023
ELECTRONIC COUNTER

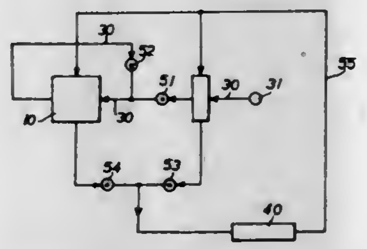
Jack E. Burger, Chagrin Falls, Ohio, assignor to Addressograph-Multigraph Corporation, Wilmington, Del., a corporation of Delaware
Filed Sept. 5, 1963, Ser. No. 306,789
6 Claims. (Cl. 235—92)



1. A combination decimal and minor base counter and storage apparatus comprising:
- a plurality of registers, each representative of a predetermined decimal order and each including a number of minor base storage stages, sufficient to record a decimal number, each stage having stable storage conditions equal in number to the base number, said registers each including a data input circuit connected to the first stage of the register and a reset circuit connected to all stages of the register;
- decimal-carry inter-register transfer means connecting the decimally significant stages of each lower order register to the data input circuit of the next higher order register to apply an input signal thereto whenever a full decimal count is recorded in the lower order register;
- reset transfer means connecting each stage of each higher order register to the reset circuits of all lower order registers to apply a reset signal thereto whenever any stage in the higher order register changes storage condition;
- and output circuits connected to each stage of each register to afford decimally ordered signals, encoded in accordance with the minor base, representative of the numerical data stored in said apparatus.

3,307,024
COUNTER FOR DATA PROCESSING CONTROL SYSTEM

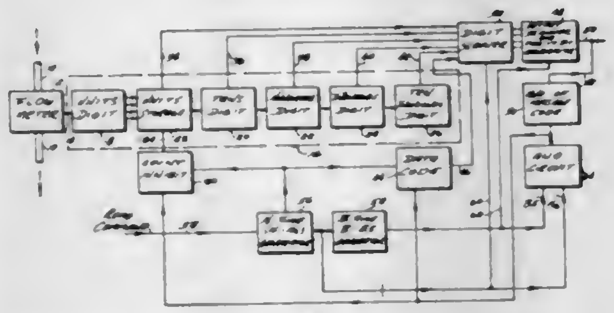
Václav Černý, Prague, Czechoslovakia, assignor to Vyzkumný ústav matematických strojů, Prague, Czechoslovakia
Filed Sept. 2, 1965, Ser. No. 484,710
1 Claim. (Cl. 235—92)



A counter register for a control for data processing apparatus operated with words containing two instructions, comprising a decimal counter, a binary counter connected in advance of the decade of said decimal counter for the lowest order digit to process data of the lowest order in binary system in advance of processing in the decimal system whereby the odd numbered and even numbered instructions comprising each instruction word are differentiated from each other, said decimal counter being a single stage counter having a feedback line interconnecting the output and input of said single stage counter, said counter register further comprising first gate means for connecting said binary counter to said single stage counter, second gate means through which said output and input of said single stage counter are interconnected through said feedback line, third gate means, and a circulation register, said circulation register being connected to said single stage counter through said third gate means to enable said single stage counter to operate as a series counter.

3,307,025
ENCODING APPARATUS

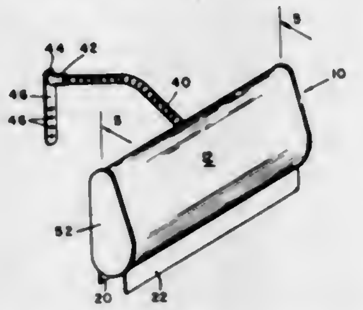
John Scarbrough, Palo Alto, and Harold E. Sweeney, Menlo Park, Calif., and Rolf D. Kahle, Chicago, Ill., assignors to General Precision, Inc., Binghamton, N.Y., a corporation of Delaware
Filed Sept. 4, 1963, Ser. No. 306,551
10 Claims. (Cl. 235—160)



9. An encoding apparatus comprising,
(a) a source of pulse signals representative of a measurement;
(b) a binary counter responsive to said source for counting and accumulating the number of pulse signals received from said source including first, second, third, fourth, and fifth serially connected decade counting stages and a storage stage serially connected intermediate said first and second counting stages, said storage stage normally operative to store the count accumulated in said first counting stage and to transmit to said second counting stage a carry signal generated by said first counting stage, each of said counting stages comprising four serially connected flip-flops, a first NOR circuit responsive to the seventh applied input pulse to advance the count in said stage by one and a second NOR circuit responsive to the tenth applied input pulse to reduce the count in said stage to zero and thereby provide a carry signal, said storage stage including four flip-flops whose state is normally determined by the state of corresponding flip-flops in said first counting stage and circuit means normally operable to couple said carry signal provided by said first counting stage to said second counting stage;
(c) a first timing generator for providing a first succession of time intervals;
(d) a second timing generator responsive to said first timing generator for providing a second succession of time intervals during each of said first succession of time intervals;
(e) first scanning means coupled to said storage stage and said second, third, fourth, and fifth counting stages responsive to said first timing generator for sequentially providing a plurality of parallel signals representative of the count in said storage stage and said second, third, fourth, and fifth counting stages;
(f) second scanning means coupled to said first scanning means and responsive to said second timing generator for sequentially providing in a predetermined binary code serial signals representative of each of said parallel signals;
(g) inhibiting means coupled to said storage stage and responsive to said first timing generator to prevent the count stored in said storage stage from changing and the transmittal of a carry signal during a time interval determined by said first timing generator, said storage stage operable after said time interval to transmit a carry signal generated by said first counting stage, if any, during said time interval.

3,307,026
ARTIFICIAL ILLUMINATING DEVICE

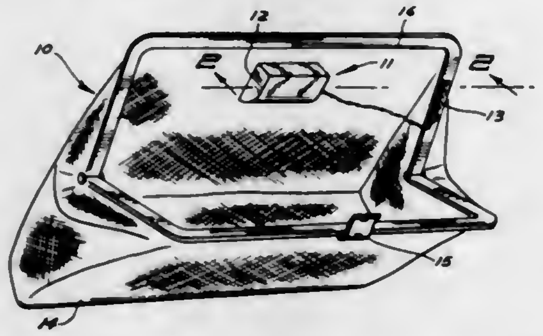
Rubin Kramer, 11 5th Ave., New York, N.Y. 10003
Filed Mar. 3, 1964, Ser. No. 349,061
14 Claims. (Cl. 240—4)



10. Apparatus for mounting a lamp assembly on a frame for a decorative or artistic object, comprising:
a supporting bracket adapted to be removably structurally associated with said housing for supporting the same, a flexible neck member having one end thereof connected with said supporting bracket, and a mounting plate removably connected to the other end of said flexible neck member and being adapted to be removably secured to said frame, enabling said housing to easily be associated with and dis-assembled from said neck member to permit periodic maintenance to be performed on said lamp assembly, wherein said housing is provided with support lugs secured thereto, and wherein
said supporting bracket comprises a pair of legs engageable with said support lugs, and a generally central U-shaped portion extending outwardly from said housing and having said one end of said neck member removably connected thereto.

3,307,027
APPARATUS FOR ILLUMINATING HANDBAGS

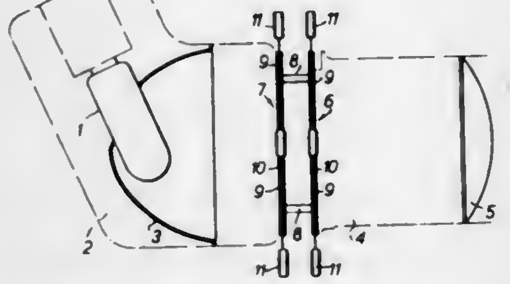
Stanley J. Lins and Raymond G. Lins, Minneapolis, Minn., assignors to Harry W. Grobe, Minneapolis, Minn.
Filed Sept. 29, 1964, Ser. No. 400,025
5 Claims. (Cl. 240—6.45)



1. An illuminating device for handbags having relatively movable and substantially rigid mating frame opening members supporting the handbag covering, said device comprising a lamp, a battery, conductor means linking said lamp and battery, and switch means disposed along said conductor means, an enclosure housing said lamp, battery, and a portion of said conductor means and having an adhesive layer secured to the under surface thereof for mounting said enclosure along the inner surface of said handbag covering, said switch being relatively thin in cross section, having two contacts including a fixed and a movable contact, and said switch being encapsulated within an electrically insulated enclosure fabricated from resilient material with a relatively flat major surface having a substantial surface area, with an adhesive film being disposed therealong, said adhesive film being arranged to secure said encapsulated switch along said frame opening, whereby said fixed and movable contacts are in engagement when the handbag is open and upon closing of the handbag, one of the frames thereof acts upon the switch and through pressure which compresses the resilient switch housing moves the movable contact out of engagement with the fixed switch contact, the arrangement being such that when the contacts are closed, the circuit between said battery and said lamp is closed.

3,307,028
SPOTLIGHTS

Frederick Percy Bentham, London, England, assignor to The Strand Electric and Engineering Company Limited, London, England, a British company
Filed Sept. 10, 1964, Ser. No. 395,436
Claims priority, application Great Britain, Sept. 13, 1963, 36,189/63
3 Claims. (Cl. 240—46.03)

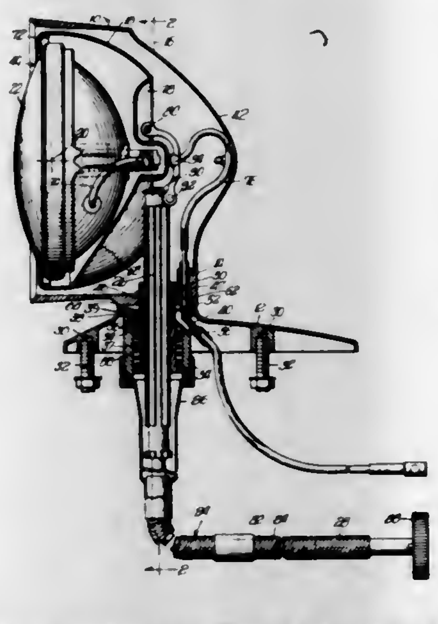


1. A spotlight comprising in combination:
(a) a housing,
(b) a lamp holder mounted in said housing and adapted to support a lamp,
(c) a projection lens spaced from said lamp housing and having its optic axis aligned with the position occupied by said lamp,
(d) a beam-defining gate positioned about said optic axis intermediate and spaced from said lamp holder and said lens,
and
(e) a beam-softening gate positioned about said optic axis spaced from said beam-defining gate, said beam-softening gate being constructed and adapted for movement in a plane normal to said optic axis into any one or more selected portions only of a beam passing through beam-defining gate.

3,307,029
REMOTE CONTROLLED SPOTLIGHT

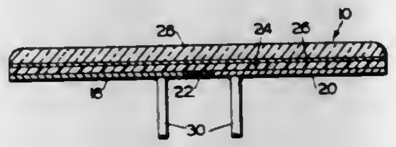
Louis E. Gross, Chicago, Ill., assignor to Unity Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed Sept. 30, 1964, Ser. No. 400,325
1 Claim. (Cl. 240—61.13)

A remotely controlled spotlight comprising: a base; an outer housing mounted upon said base and rotatably secured thereto for rotation only about a generally vertical first axis of rotation, said outer housing having a large light opening; a lightweight inner housing pivotally mounted to said outer housing for rotation within said outer housing only about a generally horizontal second axis of rotation substantially through the center of gravity of said inner housing; said inner housing having a spotlight bulb secured thereto for movement therewith and projection of light through said large light opening; electrical connecting means electrically connecting said spotlight bulb to said base and allowing unrestricted movement of said spotlight bulb with respect to said base; and remote control means for remotely positioning said spotlight bulb, said remote control means including drive means extending into said outer housing along said first axis and rotatably secured to said outer housing for mutual rotation about said first axis, said drive means being reciprocally axially movable with respect to said outer housing and pivotally secured to said inner housing for rotation of said inner housing about said second axis, and an elongate flexible driving cable with first and second extremities, said first extremity of said cable being secured to said drive means and said second extremity having an operating handle secured thereto, said cable being adapted for reversible rotation and axial movement by said operating handle, whereby rotation of said operating handle correspondingly rotates said drive means and axial movement of said operating handle axially moves said drive means.



3,307,030
PLUG-IN ELECTROLUMINESCENT DEVICE

Arthur De Francisco, 150 Chapman St., San Francisco, Calif. 94110
Filed June 15, 1964, Ser. No. 375,135
4 Claims. (Cl. 240—73)



1. An electroluminescent device in the form of a cover plate for an electric wall fixture comprising metallic electrode plates and a layer of electroluminescent material, and a pair of electrical plug-in prongs electrically connected to two of said electrode plates and extending at right angles to said electrode plates for plug-in engagement with a source of potential to illuminate the plate, said cover plate having an aperture extending therethrough parallel to said plug-in prongs and being arranged to receive a portion of the wall fixture when said prongs are plugged into the wall fixture.

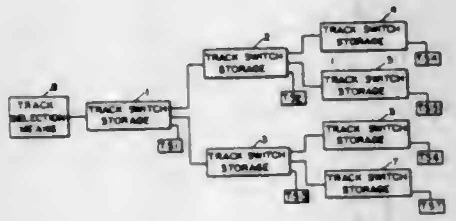
3,307,031

AUTOMATIC SWITCHING SYSTEM

Klaus H. Frielinghaus, Rochester, John L. Langdon, North Chili, and Arthur W. Wetmore, West Henrietta, N.Y., assignors to General Signal Corporation, Rochester, N.Y., a corporation of New York

Filed June 12, 1963, Ser. No. 287,236

18 Claims. (Cl. 246—4)



1. In control means for a railway car classification yard including a plurality of track switches, the combination comprising a plurality of storage means, each said storage means including apertured magnetic cores, means coupling a coded signal into a first of said storage means, means coupling the signal sequentially through each of said storage means, and means responsive to the remanent magnetic state of one core in at least one of said storage means for positioning a track switch associated with said storage means.

3,307,032

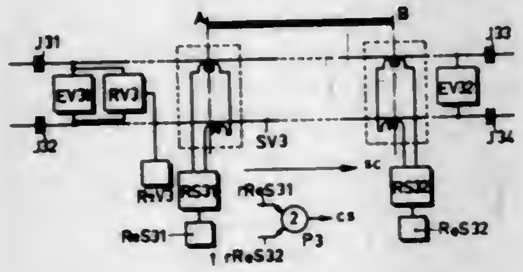
DEVICE FOR INDICATING THE PRESENCE OF A TRAIN

Henri Joseph Marie Delugeau, Montrouge, Seine, France, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Oct. 1, 1963, Ser. No. 312,940

Claims priority, application France, Oct. 3, 1962, 911,144

10 Claims. (Cl. 246—34)



1. In a track circuit of the type which is divided into a plurality of insulated sections, a system for detecting the presence of a train within a given segment of the track circuit for one given direction of train travel, said given segment being located within a given one of said insulated sections of the track circuit, comprising first and second signal transmitting means coupled to said given section of track circuit at first and second points, respectively, outside of said given segment and on opposite sides thereof, said first and second transmitting means supplying to said track circuit first and second signals, respectively, having different characteristics, first and second signal detecting means coupled to the track circuit at the end points of said given segment, each of said first and second signal detecting means being responsive only to the signals supplied to the track circuit by the corresponding signal transmitting means located at the other side of the other one of said first and second detecting means, each of said signal detecting means receiving the respective signal it is responsive to only if the portion of the track circuit between itself and its corresponding signal transmitting means is unoccupied by a train, train indicating means located along said track circuit, and means for supplying signals from said first and second detecting means to said train indicating means so as to actuate said indicating means only when respective track signals to both of said detecting means are simultaneously interrupted.

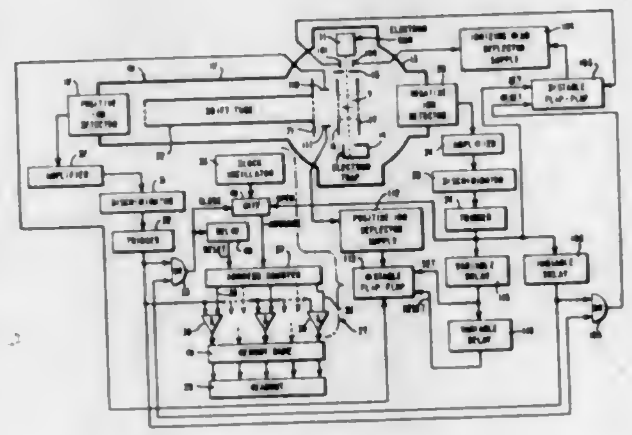
3,307,033

COINCIDENCE MASS SPECTROMETER WITH ELECTROSTATIC MEANS TO SEPARATE POSITIVE AND NEGATIVE IONS AND DETECTORS AND METHOD OF USE

Marvin L. Vestal, Baltimore, Md., assignor to William H. Johnston Laboratories, Inc., Baltimore, Md., a corporation of Maryland

Filed July 19, 1963, Ser. No. 296,236

26 Claims. (Cl. 250—41.9)



1. The method of investigating an ionization process which comprises

directing an ionizing beam upon a predetermined volume of a sample to ionize molecules thereof to form ion-pairs composed of positive and negative ions,

subjecting the ion-pairs to an electric field to urge the positive and negative ions thereof in different directions toward respective positive and negative ion detectors,

separately detecting the positive and negative ions of each ion-pair received from the said volume in accordance with the difference in transit times thereof between the said volume and the ion detectors,

and allowing positive ions to reach the positive ion detector only during a short time interval following detection of each negative ion, such time interval being not substantially longer than such difference in transit times.

13. Apparatus for investigating the ionization of a sample which comprises

an ionizing beam source operable to direct its beam upon said sample,

means forming an electric field adjacent the region of ionization for urging the positive and negative ions of each ion-pair formed by the ionizing beam in different directions away from said region,

means including separate positive and negative ion detectors spaced apart in said different directions from said region, said means being operable to furnish a response to formation of ions of a particular mass in a volume from the difference in transit times of the positive and negative ions formed with molecules of that mass, between said volume and the respective detectors,

and means connected to said negative ion detector for allowing positive ions to reach said positive ion detector only during a short time interval not substantially larger than said difference in transit times, after each detection of a negative ion.

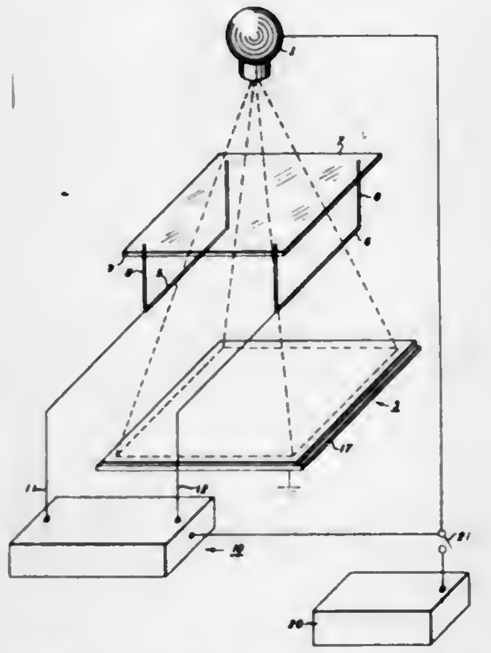
3,307,034

TWO-WIRE CORONA DISCHARGE SYSTEM FOR SINGLE-STEP ELECTROSTATIC IMAGE FORMATION

Lloyd F. Bean, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Dec. 9, 1963, Ser. No. 328,985

4 Claims. (Cl. 250—49.5)



1. Apparatus for electrostatically charging a xerographic plate in accordance with an optical image, including:

(a) two substantially parallel corona discharge electrodes positioned substantially parallel to and in charging relation with a xerographic plate, the distance between said electrodes and said plate being from about 0.81 to about 1.05 times the distance between said electrodes;

(b) electrically conductive shielding means for said electrodes adjacent said electrodes and substantially parallel thereto;

(c) a high voltage alternating current power source for raising said electrodes to corona discharge potential;

(d) control means including means to apply a predetermined direct current potential to said power source;

(e) projector means positioned to focus an optical image substantially unobstructed by said electrodes and said shielding means onto the xerographic plate; and

(f) means to energize said alternating current power source while said optical image is focused onto said surface.

3,307,035

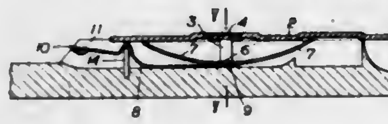
SPRING BIASED FIXING-CLIPS FOR MAINTAINING SPECIMEN CARRIERS FOR ELECTRON MICROSCOPY IN POSITION

Fritz Grasenick and Siegfried Gessner, both of 12 Rechbauerstrasse, Graz, Austria

Filed June 29, 1964, Ser. No. 378,870

Claims priority, application Austria, July 3, 1963, A 5,319/63

3 Claims. (Cl. 250—49.5)



1. A device for maintaining specimen carriers in position on a specimen plate in a treatment chamber, particularly for preparations used in electron microscopy, comprising a specimen plate, a clamp member detachably mounted on the said specimen plate and provided with a plurality of apertures, fixing clips partially located between the specimen plate and the clamp member and extending through the said apertures, a spring for each fixing clip located between the said specimen plate and the clamp member and bearing upon the said fixing clip in the direction of the specimen plate, and lever means for lifting the said fixing clips against the bias of the said springs, the said lever means being tiltably arranged between the said specimen plate and the said clamp member in such a manner as to be operated from outside.

3,307,036

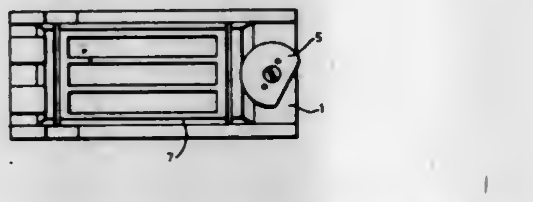
SAMPLE CARRIER WITH ADHESIVE TAPE FOR THE ANALYSIS OF POWDERS BY MEANS OF A GUINIER X-RAY CAMERA

Georges Bouvelle, Olginasio di Besozzo, Varese, Italy, assignor to European Atomic Energy Community—Euratom, Brussels, Belgium

Filed Nov. 26, 1963, Ser. No. 325,972

Claims priority, application Belgium, Dec. 11, 1962, 500,548

5 Claims. (Cl. 250—51.5)



3. In an apparatus for the X-ray diffraction analysis of powder samples, the combination comprising:

(I) a linear X-ray camera having a main body defining a film exposure chamber and an X-ray window leading into said chamber;

(II) an X-ray source to emit X-rays through said X-ray opening;

(III) a sample carrier mounted across said X-ray opening, said carrier comprising:

  (a) a rectangular base support having guiding and abutment shoulders along three edges thereof and a central opening therethrough for the passage of X-rays, said central opening corresponding to said camera X-ray window;

  (b) an experimentation frame for the reception of powders to be analyzed; said frame adapted to be slidably mounted over said support snugly between said shoulders and having a window adapted to register with the opening through said support when mounted thereover;

  (c) at least two substantially parallel bars mounted across said window to divide said window into three separate areas, and

  (d) means along the fourth edge of said base support to clamp said frame thereover and against said abutment flange, and

  (e) an adhesive strip glued over said frame.

3,307,037

FLUID PRESSURE ACTUATED RECIPROCATING FILM CARRIAGE FOR AN X-RAY SPOT FILM DEVICE

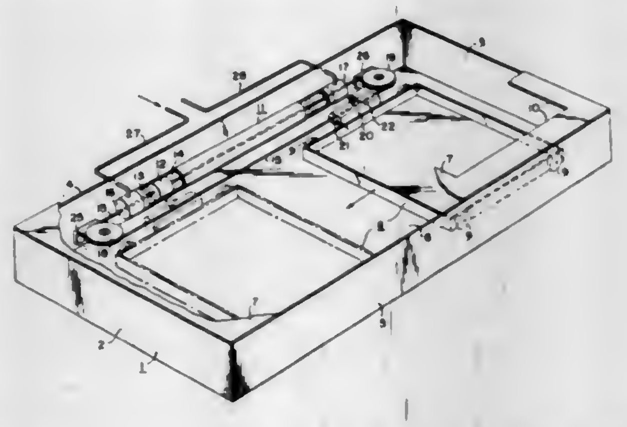
Eugene P. Thomas, Baltimore, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 22, 1964, Ser. No. 376,913

4 Claims. (Cl. 250—66)

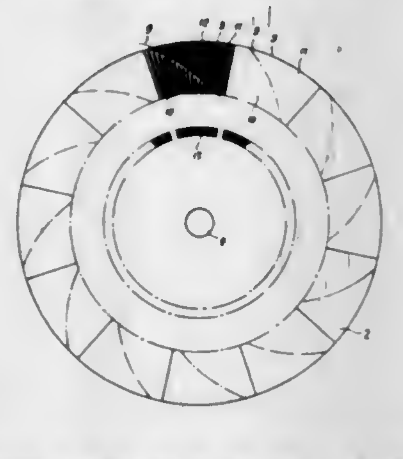
4. In an X-ray spotfilm device comprising a generally rectangular housing having side, back, front, top and bottom walls and a film carriage disposed within such housing and movable between front and back positions

along a path parallel to the side walls thereof, the combination therewith of a double-acting fixed-length cylinder mounted within said housing parallel to said path, said cylinder including closures at its opposite ends, respectively, and a piston slidably disposed therein subject opposingly to pressure of fluid on its opposite faces in chambers respectively to such closures, fluid pressure conveying means for selective supply and release of fluid under pressure to and from said chambers, a single-loop flexible tension-transmitting smooth-coated cable means secured to and extending in opposite directions from said piston outwardly in slidable fluid pressure sealed relationship through openings in the end closures of said cylinder and along an inversion path directed backwardly alongside of said cylinder to a point of attachment to said film carriage for actuating same along said path in both directions selectively, and guide means for directing the course of cable movement into and out of said closures and along said inversion path.



3,307,038
GAP PATTERN FOR CHOPPER OF RADIATION SEARCH SYSTEM

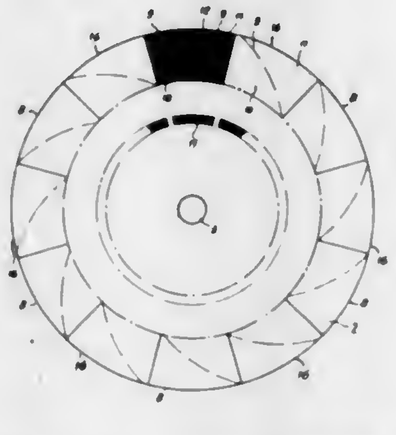
Karl Schmutz, Zurich, Switzerland, assignor to Albiswerk Zurich A.G., a Swiss corporation
Filed Feb. 5, 1964, Ser. No. 342,738
Claims priority, application Switzerland, Feb. 7, 1963, 1,538/63
4 Claims. (Cl. 250—83.3)



1. A chopper in the radiation path of the sensor of a radiation search system, said chopper comprising an annular track intersecting the radiation path, said track comprising a plurality of sections, each of said sections comprising a first gap pattern having gaps of a first width, a second gap pattern having gaps of a second width different from said first width, a border line between said first and second gap patterns extending diagonally to said gap patterns and a transfer zone comprising a first transfer gap pattern on one side of said border line having gaps of said first width extending parallel to said border line and a second transfer gap pattern on the other side of said border line having gaps of said second width extending parallel to said border line.

3,307,039
GAP PATTERN FOR CHOPPER OF RADIATION SEARCH SYSTEM

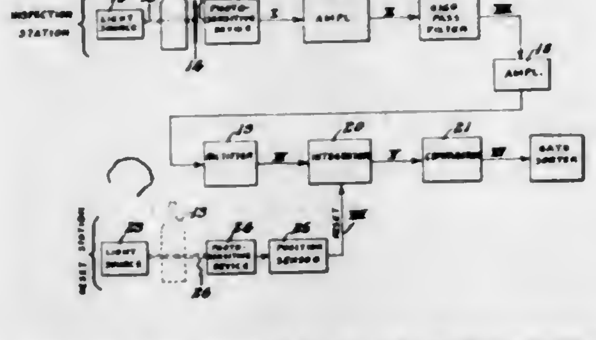
Peter Aemmer, Zurich, Switzerland, assignor to Albiswerk Zurich A.G., Zurich, Switzerland, a Swiss corporation
Filed Feb. 5, 1964, Ser. No. 342,743
Claims priority, application Switzerland, Mar. 4, 1963, 2,707/63
8 Claims. (Cl. 250—83.3)



1. A chopper disc comprising a circular track having a plurality of alternate radial spokes and gaps of different transparency, said track being divided into angular sections by radial lines, each of said sections being divided diagonally into two fields with spoke patterns having different gap widths and forming a border line angular to said track, the border line of every other section extending from a first point on said track relative to a corresponding one of said radial lines and the border line of every intermediate section extending from a second point on said track relative to said one of said radial lines and spaced from said first point, and a second circular coaxial track having one discontinuity in the section occupied by each of said sections, said discontinuities being located within their sectors in identical angular locations.

3,307,040
PHOTOELECTRIC FREQUENCY RESPONSIVE SPECKLED BOTTLE RECOGNITION APPARATUS

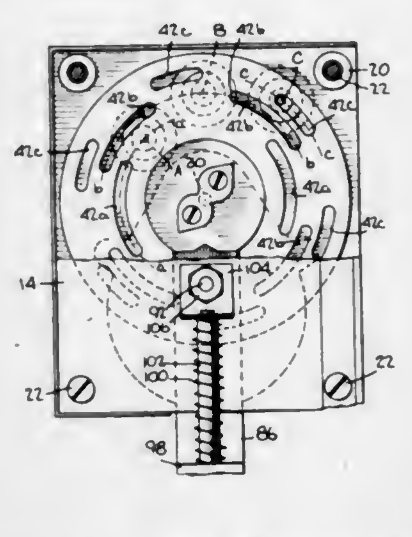
Paul J. Schneider, 18 9th Ave., Haddon Heights, N.J. 08035
Filed Oct. 3, 1963, Ser. No. 313,532
5 Claims. (Cl. 250—223)



1. Apparatus for recognizing and distinguishing between light transmissive unit articles according to whether the article has a rough or a smooth surface, said apparatus comprising; means for generating a light beam; a photosensitive device positioned to receive light from said light beam and to generate electrical signals in response thereto; means for moving said unit articles to be recognized one by one transversely through said light beam at a relatively constant speed to vary the light received by said photosensitive device at a frequency dependent upon whether said article has a rough or a smooth surface, said photosensitive device generating electrical signals at a frequency corresponding to the frequency of the light variations; high pass filter means adapted to pass with but little attenuation the high frequency signals generated by a rough surfaced bottle but adapted to attenuate heavily the low frequency signals generated by a smooth surfaced bottle; rectifier means; means, including said high pass filter means, for applying said generated electrical signals to said rectifier means; an integrating circuit; means for applying the output of said rectifier means to said integrating circuit to develop a signal having a ramp function characteristic; comparator means having a reference level; and means for applying said ramp function output signal from said integrating circuit to said comparator means to develop an output signal only when the ramp function signal exceeds said reference level, the development of an output signal by said comparator means indicating that a rough surfaced bottle has passed through said light beam.

3,307,041
PHOTOELECTRIC DEVICE FOR CYCLICALLY GENERATING CONTROL SIGNALS IN WHICH THE CYCLE MAY BE SHIFTED

Nelson G. Kling, Ringwood, N.J., assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Jan. 7, 1964, Ser. No. 336,291
8 Claims. (Cl. 250—236)



1. An automatic control device comprising: control means; detector means for providing signals responsive to the relationship between said control means and said detector means; motive means including slip clutch means coupled between said control means and said detector means for providing uniform relative movement therebetween; and reset means adapted to be coupled between said control means and said detector means for driving said control means and said detector means to a predetermined relationship, decoupling said motive means by causing said slip clutch means to slip, and then permitting said slip clutch to re-engage.

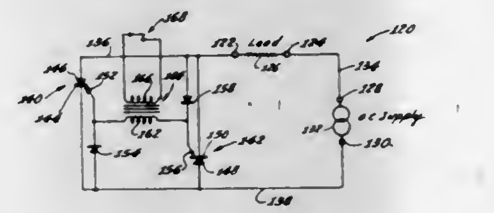
3,307,042
SWITCHING DEVICE

Harry F. Fogleman, San Diego, Calif., assignor to Aeromarine Electronics, Inc., San Diego, Calif., a corporation of California
Filed Apr. 30, 1962, Ser. No. 190,910
2 Claims. (Cl. 307—88.5)

1. An electrical circuit for controlling the interconnection of an electrical load with an electrical power source, said circuit including:

a pair of silicon controlled rectifiers, each of said rectifiers having an anode, a cathode and a gate, said gate having a forward voltage below which a gate current will not flow and above which a gate current will flow, said gate current when in excess of a predetermined amount being effective to forward bias the rectifier into conduction with a current flowing from said anode to said cathode, said rectifiers when conductive having a voltage between the anode and cathode that is less than said forward voltage,

means connecting the anode and cathode of the first rectifier in series with said load and power source such that current flowing through the load in a first direction will flow from the anode to the cathode of the first rectifier,

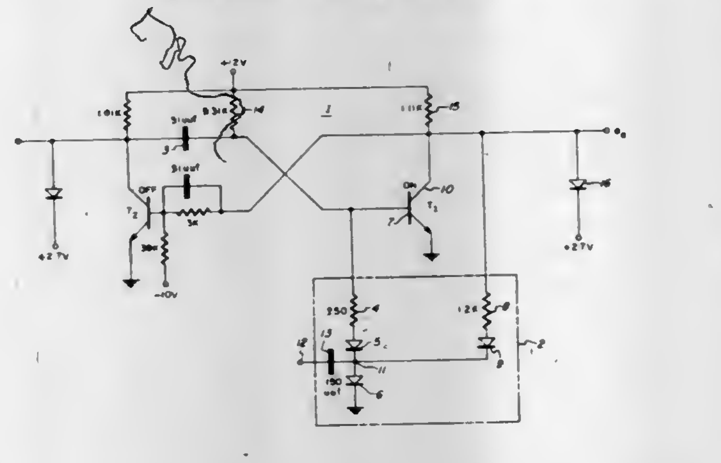


means for connecting the anode and cathode of the second rectifier in parallel to the first rectifier and in series with said load and power source such that current flowing through the load in a second direction will flow from the anode to the cathode of the second rectifier, and

a transformer having a primary winding and a secondary winding, said secondary winding being interconnected with said gates, said primary winding being interconnected with a control element effective to short circuit the primary winding.

3,307,043
FRACTIONAL MICROSECOND MONOSTABLE MULTIVIBRATOR

Robert Hong, Flushing, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed Aug. 8, 1963, Ser. No. 300,854
5 Claims. (Cl. 307—88.5)



1. A transistorized monostable multivibrator adapted for the production of output pulses having fractional microsecond duration, said multivibrator comprising

first and second transistors,

means for quiescently biasing said first transistor ON and said second transistor OFF,

an input triggering network connected to said ON transistor, said network comprising a resistor and two diodes connected in series circuit between the base and the emitter of said ON transistor,

a second resistor and a third diode connected in series circuit between the collector of said ON transistor and the junction point of said two diodes,

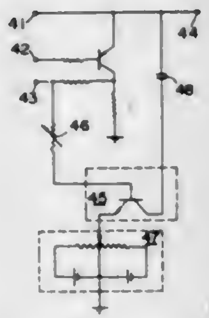
and means for coupling an input triggering pulse to said junction point.

3,307,044

APPARATUS FOR SUPPRESSING THE APPEARANCE OF TRANSIENT RESPONSES OR SPIKES

Tomozo Furukawa, Mito-shi, Ibaraki-ken, and Naoaki Wakayama, Naka-gun, Ibaraki-ken, Japan, assignors to Nihon Genshiryoku Kenkyu Sho, Minato-ku, Tokyo, Japan

Filed Jan. 20, 1964, Ser. No. 338,753
Claims priority, application Japan, Jan. 22, 1963, 38/2,024
6 Claims. (Cl. 307—88.5)



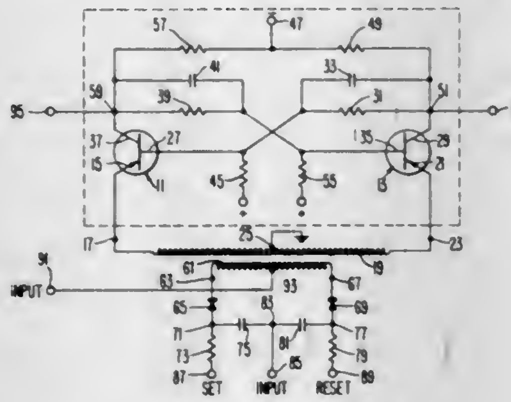
1. A semiconductor chopper circuit comprising:
(a) a transistor having a base, emitter and collector;
(b) first circuit means connected to the emitter of said transistor for applying thereto a signal to be chopped;
(c) second circuit means connected to the base of said transistor for applying a gating signal thereto;
(d) a compensating circuit means having a resistance-capacitance impedance characteristic comparable to that of the base-emitter circuit of said transistor and having an output terminal connected to the emitter of said transistor and an input terminal for receiving an input signal;
(e) a first gating signal source connected to said second circuit means; and
(f) a second gating signal source connected to the said compensating means input circuit, said second gating signal source having a signal output similar to the output of said first gating signal source but opposite in phase.

3,307,045

TRANSFORMER CONTROL CIRCUITS FOR FLIP-FLOPS

John O. Palvinen, Phoenix, Ariz., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Mar. 4, 1964, Ser. No. 349,294
12 Claims. (Cl. 307—88.5)



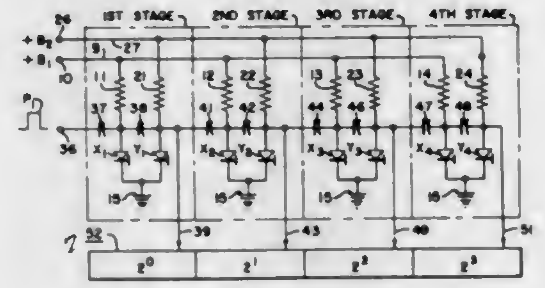
1. In a transistorized bistable multivibrator of the Eccles-Jordan type, having a pair of transistors each with two current-carrying electrodes and a control electrode, transformer driving means comprising
a primary winding having two end terminals and a center-tap terminal,
a pair of asymmetrically conductive means,
a pair of capacitive enabling networks coupled to individual ones of said end terminals through said asymmetrically conductive means,
a common junction between said capacitive enabling networks,
a secondary winding having two end terminals and a center-tap terminal, said end terminals of said secondary winding being connected to like electrodes of said transistors and said center-tap terminal of said secondary winding being connected to a reference potential, whereby the receipt of a conditioning pulse by one of said enabling networks conditions the asymmetrically conductive means coupled to said one enabling network for conduction upon the occurrence of an input pulse.

3,307,046

COUNTER EMPLOYING TUNNEL-DIODE MONOSTABLE CIRCUIT DRIVING TUNNEL-DIODE BISTABLE CIRCUIT FOR EACH STAGE

John M. Bentley, Glen Burnie, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 11, 1964, Ser. No. 350,986
7 Claims. (Cl. 307—88.5)



1. A digital counter comprising a plurality of nonlinear resistance devices operatively associated in pairs to form respective stages, each of said devices having a characteristic curve with two positive differential portions separated by a negative differential portion; means, including potential dropping resistors, for energizing said devices; symmetrical capacitive means for directly coupling said devices and said stages in cascade; the potential dropping resistors for the first and the alternate ones of said devices being so related to the power supply used to energize said devices and to the characteristics of said devices as to cause said first and alternate devices to operate as monostable multivibrators, said monostable multivibrators constituting the input sides for the respective stages, the potential dropping resistors for the even numbered devices being so related to the power supply and to the characteristics of said even numbered devices as to cause the latter to operate as bistable multivibrators, said monostable devices being poled so that a positive input pulse increases the voltage on the anodes in the forward direction.

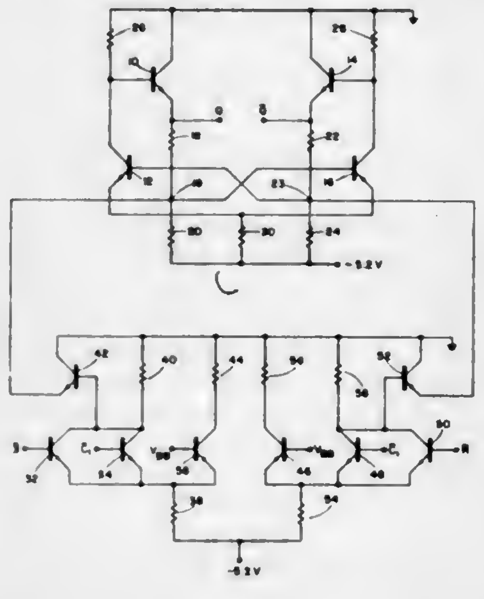
3,307,047

CLOCKED SET-RESET FLIP-FLOP

Jan A. Narud and Walter C. Seelbach, Scottsdale, Ariz., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois

Filed Apr. 30, 1964, Ser. No. 363,958
6 Claims. (Cl. 307—88.5)

1. A clocked bistable multivibrator circuit having set and reset conductive states, said circuit including in combination first and second emitter-follower transistors and first and second holding transistors, said first and second holding transistors connected to a common current output terminal, a common emitter resistance connected between said common current output terminal and a voltage supply means, means cross-coupling said first and second emitter-follower transistors to said second and first holding transistor, repectively, and providing a conductive path in said multivibrator during the alternate conduction of said first and second holding transistors, said bistable multivibrator having a first stable set state wherein said first holding transistor is conducting and said second holding transistor is non-conducting and a second stable reset state wherein said first holding transistor is non-conducting and said second holding transistor is conducting, said cross-coupling means including a first resistance means connected between said first emitter-follower transistor and said voltage supply means and a second resistance means connected between said second emitter-follower transistor and said voltage supply means, and current mode gating means including an output transistor conductively controlled by a source of clock signals, said output transistor having a current output electrode connected directly to one of said first and second resistance means in an emitter-follower configuration and enabling said one of said first and second resistance means to simultaneously serve as a common emitter-follower resistance for said output transistor and for one of said first and second emitter-follower transistors, thereby maintaining the overall power dissipation in said multivibrator circuit at a minimum.

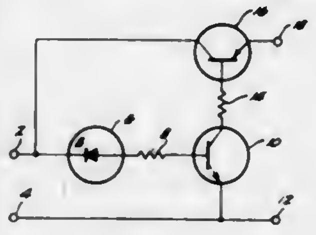


3,307,048

ELECTRONIC THRESHOLD SWITCH

Carl D. Todd, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Nov. 10, 1964, Ser. No. 410,063
5 Claims. (Cl. 307—88.5)



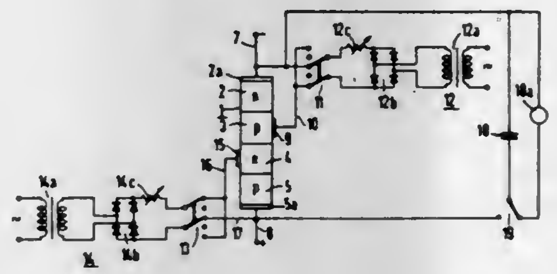
1. An electronic threshold switch for coupling a first circuit to a second circuit in response to a predetermined voltage in said first circuit, comprising:
a first pair of terminals for receiving said first circuit and a second pair of terminals for receiving said second circuit;
a control transistor having a base electrode, an emitter electrode and a collector electrode;
circuit means including a threshold voltage device, coupling said base and emitter electrode in a control circuit commonly coupled at one end to one terminal of said first pair of terminals and to one terminal of said second pair of terminals and coupled at the other end to the remaining terminal of said first pair of terminals, for providing a control current in the base-emitter portion of said control transistor after the voltage applied to said device exceeds the threshold voltage of said device;
a coupling transistor of a conductivity type opposite to that of said control transistor, having a base electrode and having two additional electrodes, the latter being coupled respectively to said remaining terminal of said first pair of terminals and to the remaining terminal of said second pair of terminals; and
circuit means coupling said base electrode of said coupling transistor to said collector electrode of said control transistor for causing said coupling transistor to conduct when said control transistor becomes conductive in the presence of said control current.

3,307,049

TURNOFF-CONTROLLABLE THYRISTOR AND METHOD OF ITS OPERATION

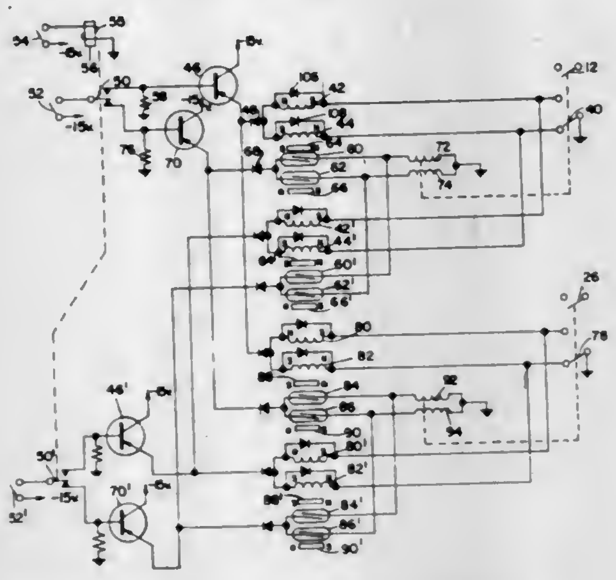
Götz von Bernuth, Munich, and Eberhard Spenke, Pretzfeld, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt and Erlangen. Germany, a corporation of Germany

Filed Dec. 18, 1964, Ser. No. 419,537
Claims priority, application Germany, Dec. 20, 1963, S 88,806
10 Claims. (Cl. 307—88.5)



1. A thyristor comprising a semiconductor body having opposite spaced surfaces and alternately opposed conductivity type layers formed therein, a first end layer of determined conductivity type forming a p-n junction with a second intermediate layer of opposite conductivity type and a third intermediate layer of said determining conductivity type forming a p-n junction with said second layer and another p-n junction with a fourth end layer of said opposite conductivity type; a conducting member in ohmic contact with one of the surfaces of said semiconductor body; a ring-shaped electrode positioned on and forming a p-n junction with the conductivity type layer at the other surface of said semiconductor body; a second electrode positioned inside and spaced from said ring-shaped electrode and forming an ohmic connection with a layer of said semiconductor body; a third electrode positioned inside and spaced from said ring-shaped electrode and spaced from said second electrode and forming an ohmic connection with a conductivity type layer of said semiconductor body different from the layers contacted by said ring-shaped electrode and said second electrode; an electrical conductor connected to each of said ring-shaped, second and third electrodes and to said conducting member; and circuit means connected to the conductors connected to said electrodes for applying a first control voltage of selectively reversible polarity between a first pair of said conductors and for applying a second control voltage of selectively reversible polarity to a second pair of said conductors.

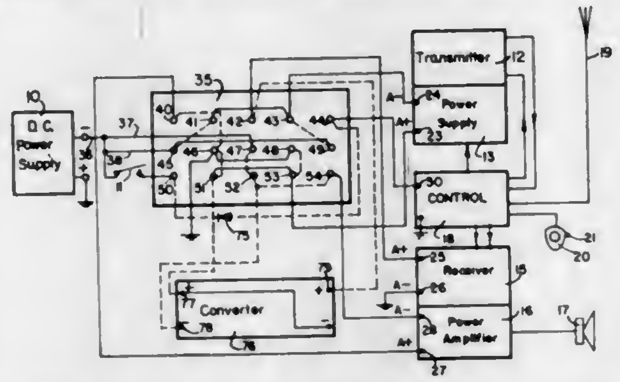
3,307,050
MEMORY SWITCHING CIRCUIT
Patrick M. Castle, Hillsboro, Oreg., assignor to Rodgers Organ Co., Hillsboro, Oreg., a corporation of Oregon
Filed Feb. 17, 1964, Ser. No. 345,159
8 Claims. (Cl. 307—112)



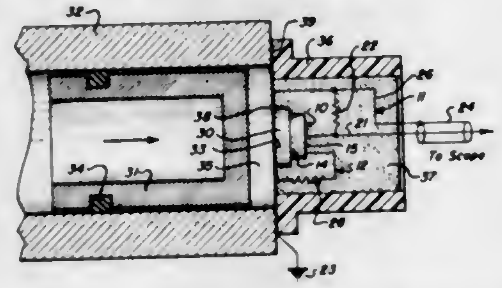
1. A memory switching circuit, comprising:
a source of current;
magnetic memory switch means having a pair of current paths;
a pair of operating coils supported adjacent to said memory switch means for closing one and opening the other of said current paths when one of said operating coils is energized;
a control switch means including a first portion connected between said current source and said memory switch means, and a second portion connected between said current source and said pair of operating coils, for transmitting current to either said memory switch means or to said operating coils depending upon the conductive condition of said portions of said control switch means;
an operating switch means for enabling a different one of said operating coils to be energized by said second portion of said control switch means in each of two switch positions of said operating switch means; and
a pair of actuating coils each connected to a different one of said current paths of said memory switch means for placing said operating switch means in the position set by said second portion of said control switch means, when said first portion of said control switch means is rendered conducting.

3,307,051
ENERGIZING SYSTEM
George M. Parsons, Rolling Meadows, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed May 15, 1964, Ser. No. 367,629
8 Claims. (Cl. 307—147)

1. A system for energizing equipment from direct current supply means having positive and negative terminals one of which is grounded, and wherein the equipment includes at least one component having positive and negative supply terminals which are isolated from ground and a second component having a negative supply terminal connected to ground and a positive supply terminal isolated from ground, said system including in combination, a socket having contacts for connection to the current supply means and to the supply terminals of the equipment, and a connector adapted to engage said socket and having contacts for engaging said contacts of said socket, said connector being engageable with said socket in one position to make proper connections from the current supply means to the supply terminals of the equipment when the negative supply terminal thereof is grounded, said connector being engageable with said socket in a second position to make proper connections from the current supply means to the supply terminals of the equipment when the positive supply terminal thereof is grounded, said connector including converter means energized from the current supply means when said converter is in said second position and having a negative output terminal connected to ground and a positive terminal isolated from ground, said positive output terminal of said converter means being connected to the positive supply terminal of the second component through said contacts of said connector and said socket when said connector is in the second position.

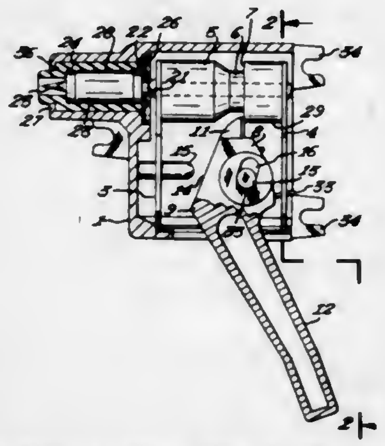


3,307,052
PIEZOELECTRIC STRESS GAGE
Frank W. Neilson, Robert A. Graham, and William B. Benedick, Albuquerque, N. Mex., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Apr. 6, 1964, Ser. No. 357,844
1 Claim. (Cl. 310—8)



In a piezoelectric stress gage for obtaining a stress time profile of known duration with given time resolution in a material specimen subjected dynamically to a one-dimensional compressive stress employing a right circular disk of preselected thickness of X-cut alpha quartz positively oriented with respect to the direction of said compressive stress in which said disk has a fully electroded input surface at ground potential and in stress receiving contact with said material specimen and an output surface having adherently coated thereon a centrally positioned inner circular gage electrode and an outer guard ring electrode extending to the periphery of said output surface, said guard ring electrode being concentric with and spaced radially outward of said gage electrode to form an insulating ring therebetween on said output surface, and in which circuit means are connected between said guard ring electrode and ground potential whereby an external field may be produced for said guard ring electrode approximately equal to that for said gage electrode, and in which additional circuit means are connected between said gage electrode and ground potential whereby a current pulse may be applied to an external circuit proportional to the compressive stress at said input surface, said external circuit having a relatively short time constant with respect to said time resolution, the improvement comprising the selection of said guard ring electrode such that its width (W_{18}) shall be not less than one and one-half times the thickness (T_{10}) of said disk and the surface area (A_{19}) of said insulating ring shall be not more than 3½ percent of the area (A_{17}) of said gage electrode.

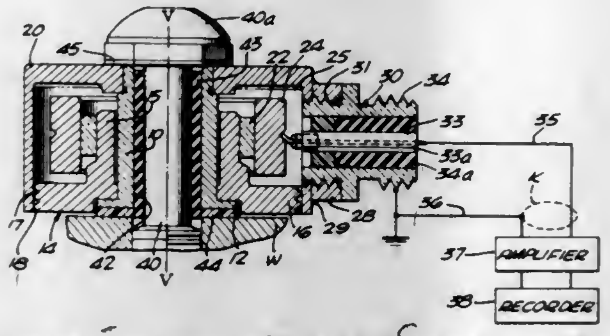
3,307,053
SPARK IGNITOR LOADING AND RELEASING APPARATUS
Benedictus Furth, Zandvoort, Netherlands, assignor to Honeywell G.m.b.H., Frankfurt am Main, Germany, a corporation of Germany
Filed Apr. 30, 1964, Ser. No. 363,694
Claims priority, application Germany, Nov. 20, 1963, H 50,893
4 Claims. (Cl. 310—8)



1. In a piezoelectric spark ignitor having a piezoelectric crystal which is struck by a hammer to generate a high voltage and to produce a spark adapted to ignite a gas burner or the like, the improvement comprising:
first means resiliently supporting the hammer for movement in a first direction, said first means being constructed such that movement of said hammer in said first direction stresses said first means and stores energy therein,
an axle spaced from the hammer,
a movable lever mounted on said axle by means of an elongated pivot hole, said pivot hole being elongated in a direction generally normal to said first direction,
second means resiliently biasing said lever in a direction toward the hammer to thus cause said lever to engage said hammer such that rotation of said lever about said axle moves said hammer in said first direction to store energy in said first means,
and a fixed stop member located to be engaged by said lever after said lever has been rotated a given angular distance about said axle, said given angular distance being such as to align said elongated pivot hole as a portion of an arc having its center of rotation generally at the point of engagement of said stop member and said lever so that further rotation of said lever is about said point of engagement and moves said lever with respect to said axle along said elongated hole and away from the hammer to release the hammer with no appreciable additional movement thereof in said first direction.

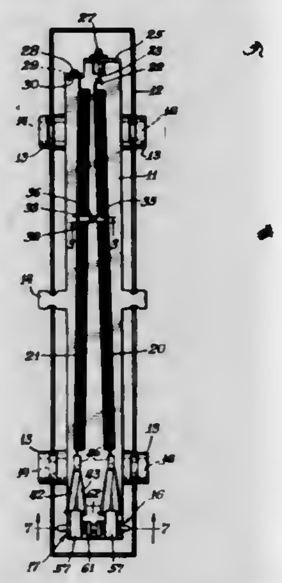
3,307,054
ACCELEROMETER
Bernard A. Shoor, Pasadena, Calif., assignor to Endevco Corporation, Pasadena, Calif., a corporation of California
Filed Feb. 12, 1960, Ser. No. 8,444
14 Claims. (Cl. 310—8.4)

1. In an accelerometer:
a housing having an annular holder member to be mounted on an accelerating object under investigation;
an annular piezoelectric element mounted on and in contact with said holder member;
an annular inertial mass member mounted on and in contact with said annular piezoelectric element, said annular members and element being concentric;



and means connected with said housing providing a central bore having a central axis and extending through said housing and holding member for rotatably receiving mounting screw means.

3,307,055
ELECTROMECHANICAL DEVICE
Hugo W. Schafft, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Original application Nov. 19, 1963, Ser. No. 324,638, now Patent No. 3,281,724. Divided and this application Dec. 2, 1965, Ser. No. 511,180
9 Claims. (Cl. 310—8.6)

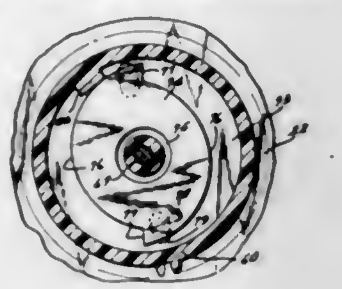


1. A transducer device adapted to transform between electrical signals and a vibrating body operating in the torsional mode, including in combination, a pair of spaced levers each with first and second ends and each having a fulcrum intermediate said ends thereof, said first ends each adapted to be joined to the vibrating body and to move about said respective fulcrums associated therewith in opposite directions relative to each other, and a bimorph joined to said second ends of said levers and adapted to be coupled to an electrical circuit for transforming in a bending mode between electrical signals and mechanical motion.

3,307,056
MOTOR CONSTRUCTION INCLUDING A SLIDING STOP MEMBER OF A UNIDIRECTIONAL DRIVE MECHANISM
Lee A. Woolley, Kokomo, Ind., assignor to Kingston Products Corporation, Kokomo, Ind., a corporation of Indiana
Filed Oct. 15, 1962, Ser. No. 231,325
7 Claims. (Cl. 310—41)

2. In a synchronous electric motor assembly having a rotor drivingly connected to a gear train therein sup-

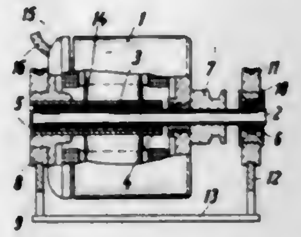
ported by a frame, the improvement comprising: a finger rotatably driven by a gear of the gear train and having an extent in a radially inward direction from said gear toward its axis of rotation; a stop member having means slidably guiding it for linear movement on the frame and having means restraining it against rotation about the rotational axis of said finger, said stop member having an external peripheral cam surface engageable by said finger during rotation of said gear in one direction by which said finger displaces a stop face on said stop member into the path of said finger for joint engagement and rebound in the event said gear is thereafter rotated in an opposite direction.



3,307,057

ELECTRIC MOTOR AND BEARING SUPPORT

Hermann Papst, St. Georgen, Black Forest, Germany
Filed May 19, 1964, Ser. No. 368,556
11 Claims. (Cl. 310—90)



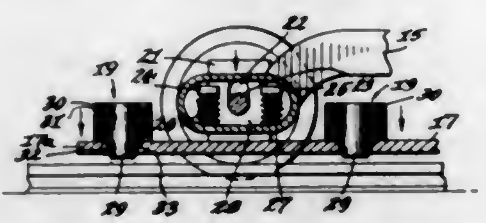
1. Electric motor drive apparatus comprising, in combination, an electric motor including a stator assembly having an axis of symmetry; a pair of axially spaced bearing means carried by said stator assembly coaxial with said axis; a shaft turnably mounted in said bearing means; support means; resilient stator mounting means connecting one end of said stator assembly to said support means, said shaft projecting with a portion thereof beyond the other end of said stator assembly; a rotor coaxially secured to said projecting shaft portion in a region thereof adjacent to the other end of said stator assembly and projecting into the region of said stator assembly at least partially surrounding the same; and a self-aligning bearing means carried by said support means and turnably supporting said projecting shaft portion in a region thereof located outwardly from said region in which said rotor is secured to said projecting shaft portion.

3,307,058

ELECTROMAGNETIC ADHESION MEANS FOR RAILROAD LOCOMOTIVES

Karel Kucera, 2nd and Adams, O'Neill, Nebr. 68763
Filed Jan. 20, 1964, Ser. No. 338,837
1 Claim. (Cl. 310—93)

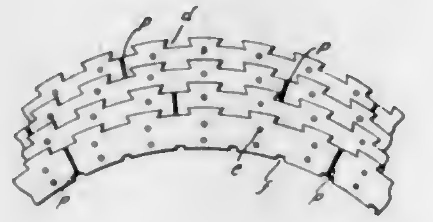
An electromagnetic braking system of the class described for locomotive engines, comprising in combination, a standard type locomotive, an electric power source, a locomotive engine chassis, a front group of wheels and a rear group of wheels under said locomotive chassis, wheel cages supporting said wheels, a plurality of mounting frames under said locomotive held to said wheel cages, and a group of electromagnets mounted in said mounting frames, said electromagnets having armatures vertically mounted thereto, the bottom of said armatures facing the railroad tracks, conduit wires connecting said electric source to said electromagnets and a switch to regulate the supply of current to said magnets the operation upon said switch energizing said magnets to produce a magnetic field to increase the traction of said locomotive for discontinuing the motion of said locomotive upon said railroad track, each of said electromagnets having armatures which are of horseshoe type and having a pair of poles, each of said poles facing an opposite vertical side of each of the rails of said track.



3,307,059

LAMINATED YOKES IN ROTARY ELECTRIC MACHINES

Yutaka Kitano and Shoji Isobe, Hitachi-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Sept. 3, 1963, Ser. No. 306,076
Claims priority, application Japan, Sept. 6, 1962, 37/38,012
1 Claim. (Cl. 310—216)



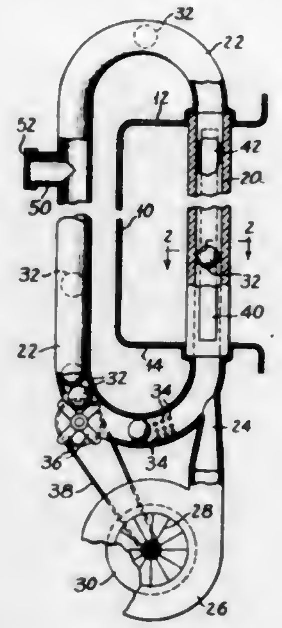
A laminated yoke for a rotary electric machine of salient-pole-type, comprising:
- a plurality of iron sheet segments each having a number Z of pole-mounting slots per segment and being abutted to form an annular yoke element thereby forming joints between said segments, a multiplicity of said yoke elements being axially stacked in continuous layers to form a laminated construction,
- the joints between said iron sheet segments in every layer being successively staggered from the joints in adjacent layers in one circumferential direction to form an overlap by an amount X which is expressed in terms of a number of pole-mounting slots per segment, wherein Z is equal to $X+Y$, Y being any integer,
- wherein Z is greater than 4, and X is as close in numerical relation to Y as possible and X is prime to Y.

3,307,060

HIGH FREQUENCY DISPLAY DEVICE WITH MOVABLE GAS FILLED BALL MOVING THROUGH A TRANSPARENT TUBE

Joseph L. Molider, 108 N. Lincoln, Round Lake, Ill. 60023
Filed Mar. 29, 1965, Ser. No. 443,538
6 Claims. (Cl. 313—1)

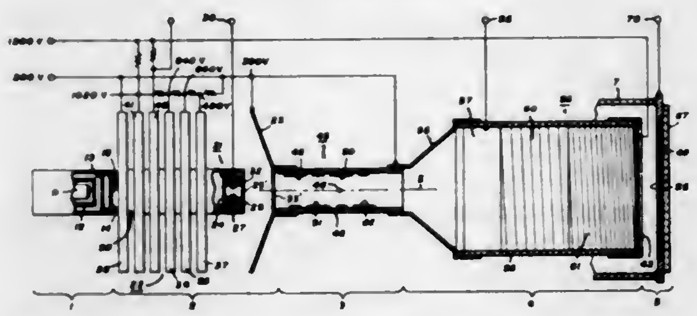
1. In a display device of the character disclosed, a transparent tube, a hollow transparent body movable longitudinally thereof, electrodes extending longitudinally of said tube and adapted to be charged with high tension current to create an electrical field between said electrodes, said hollow body being provided with a fill of gas which glows when in such electrical field, and means for discharging air into said tube to cause said hollow body to move along the tube.



3,307,061

ELECTROSTATIC RETURN BEAM CAMERA TUBE

Kurt Schlesinger, Fayetteville, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 16, 1963, Ser. No. 309,171
5 Claims. (Cl. 313—78)

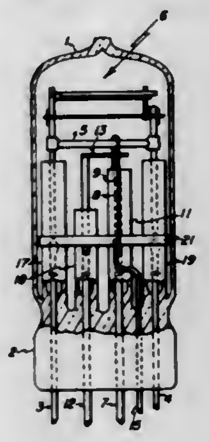


1. In an all-electrostatic camera tube including a target and an electron beam source for projecting a forward beam of electrons along the tube axis toward said target with a return beam progressing in the opposite direction along said axis,
- (a) electrostatic focusing means having an exit aperture therein and spaced from said electron beam source along said axis toward said target,
- (b) electrostatic deflection means positioned along said axis between said focusing means and said target and having a common center of deflection therein for both horizontal and vertical beam deflection,
- (c) electron multiplier means having at least a first dynode, said first dynode being positioned along said tube axis between said focusing means and said deflection means, the return beam impinging on said first dynode and producing an output signal in said electron multiplier means,
- (d) said deflection means comprising an electrostatic deflection yoke providing a relatively large diameter beam path therethrough as compared to the said exit aperture of said deflection means so that the return beam progresses from said target toward said first dynode without obstruction, and
- (e) electrostatic means positioned along said axis between said deflection means and said target for collimating the forward beam and controlling the perpendicularity of landing of the forward beam on said target.

3,307,062

TRIGGER TUBES

Paul W. Stutsman, Needham, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Feb. 26, 1963, Ser. No. 261,149
6 Claims. (Cl. 313—182)

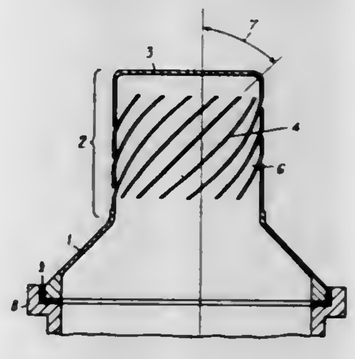


1. A gas-filled cold cathode trigger tube comprising an envelope having a longitudinal axis, a rod-like anode within the envelope having one end fixed thereto and extending parallel to the axis of the envelope, an insulating cylinder closely encircling said anode and having a projecting portion extending beyond the unsupported end of the anode, said projecting portion of the insulating cylinder having an aperture therein exposing the unsupported end of the anode, a cathode extending transversely of the envelope in predetermined spaced relation with the anode and overlying the aperture in said insulating cylinder, a trigger grid electrode mounted on the envelope at one side of the cylinder and having a portion extending transversely of the tube into the interelectrode space between anode and cathode, a keep-alive grid electrode comprising an inverted U-shaped wire having leg portions extending axially of the envelope on opposite sides of said interelectrode space and having a bight portion extending over the cathode and located at a predetermined spaced relation therewith, and leads extending through said envelope and connected to said anode, cathode, and grid electrodes.

3,307,063

GRID ELECTRODE MADE OF PYROLYTIC GRAPHITE

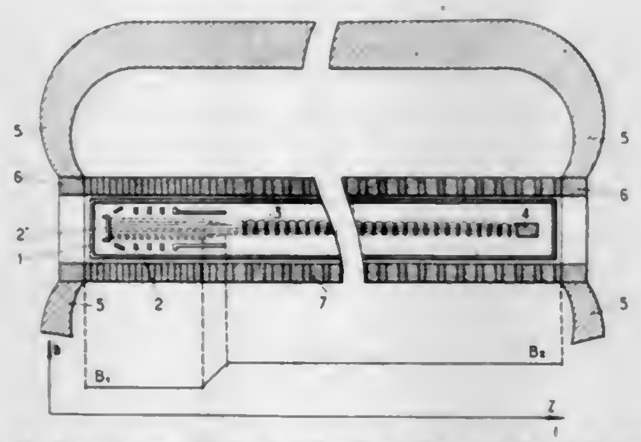
Jean Marcel Sarrois, Saint-Cloud, France, assignor to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, a French body corporate
Filed Apr. 2, 1963, Ser. No. 269,919
7 Claims. (Cl. 313—348)



1. A grid electrode having low secondary emission, said grid electrode having a configuration to define a surface and comprising at least in a surface area thereof, a layer of pyrolytic graphite having a direction of maximum thermal and electrical conductivity thereof directed substantially parallel to the general surface of said area.

3,307,064
TRAVELLING WAVE TUBE WITH TWO STAGE ELECTRON CONCENTRATING AND FOCUSING

Pierre Delphin, 79 Blvd. Haussmann, Paris, France
Filed Dec. 11, 1962, Ser. No. 243,940
Claims priority, application France, Jan. 11, 1962, 884,505, Patent 1,318,760
2 Claims. (Cl. 315—3.5)



1. A low-noise, O-type traveling wave tube for centimeter and millimeter waves, comprising:

an electron gun disposed within a first portion of the tube for emitting an electron beam having a predetermined initial cross section,

a substantially helicoidal wave delay line disposed within a second portion of the tube about the axis thereof,

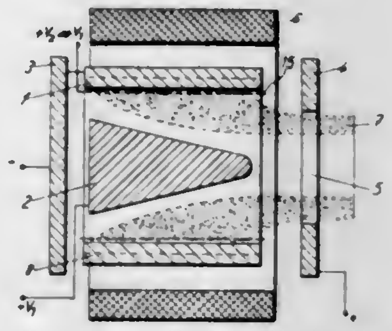
the diameter of the helix being less than the diameter of said initial cross section,

and focusing means operable to provide magnetic lines of force substantially parallel to the axis of the tube with such intensities that the initial cross section of the electron beam is maintained substantially along said first portion of the tube and is reduced within the second portion thereof to a diameter somewhat less than the diameter of the helix,

said focusing means including a magnet structure and field-straightener means composed of dielectric washers alternating with ferromagnetic washers, the distance between consecutive ferromagnetic washers being smaller in the said first portion of the tube than in the said second portion thereof.

3,307,065
LOW NOISE ELECTRON GUN WITH CROSSED ELECTRIC AND MAGNETIC FIELDS AND AUXILIARY AXIAL ELECTRIC FIELD

Jacques Arnaud and Georg Wendt, both of 79 Boulevard Haussmann, Paris 8, France
Filed Jan. 8, 1963, Ser. No. 250,051
Claims priority, application France, Jan. 19, 1962, 885,291, Patent 1,319,431
12 Claims. (Cl. 315—15)



1. A microwave electron discharge device, comprising: electron gun means for producing an electron beam including cathode means having a cylindrical surface about a predetermined axis and accelerating anode means substantially coaxial with said cathode means and facing the cylindrical surface thereof,

said cathode and anode means defining an electron gun space therebetween,

means for producing within said space a substantially radial electric field and a substantially axial magnetic field,

means for additionally producing within the space a further axial electric field component,

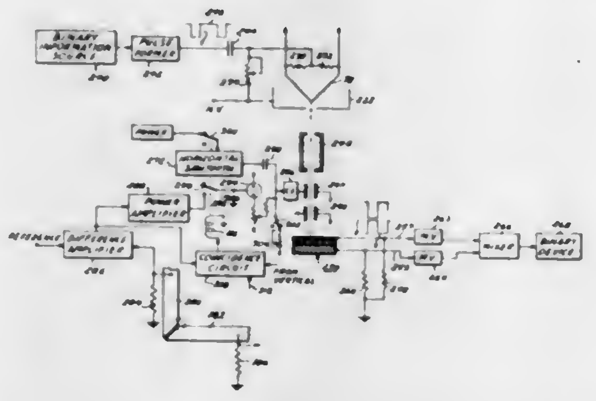
means for effectively heating said cathode means to produce cathode emission therefrom,

grid means extending close to the surface of said cathode means and having conducting elements thereof separated from each other by a distance comprised between ⅓ and ⅕ of the distance between said cathode and grid means,

and means for carrying said grid means at a potential intermediate the potentials of said anode and cathode means.

3,307,066
AFOCAL-BEAM PROBE SYSTEM AND APPARATUS

Louis Shapiro, Cherry Hill, and Herbert A. Ellon, Princeton, N.J., assignors, by mesne assignments, to The First Pennsylvania Banking and Trust Company, trustee
Continuation of application Ser. No. 123,065, July 10, 1961. This application Dec. 21, 1964, Ser. No. 420,030
17 Claims. (Cl. 315—24)

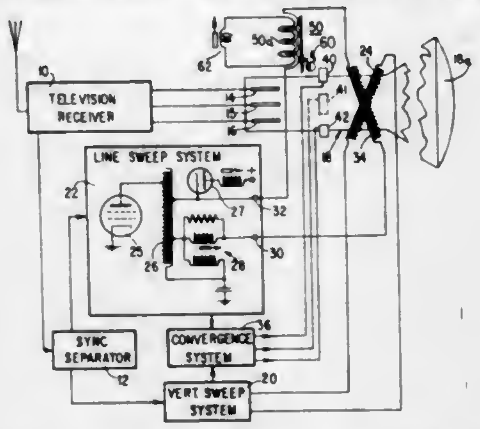


1. An information storage system comprising means for supplying a beam of charged particles and of different intensities along an axis, a beam-forming system effective along said axis, means for deflecting the formed beam transversely to said axis, means for supplying information signals to different values to said beam-supplying means so that respectively different beam intensities are supplied, an information storage medium for receiving said beam and for storing information in accordance with the different intensities thereof, and means for supplying deflection signals to said deflecting means to position said beam at different locations of said storage medium including means responsive to the impingement of the beam at said storage medium for controlling the supply of said deflection signals.

3,307,067
DYNAMIC BLUE LATERAL CORRECTION SYSTEM

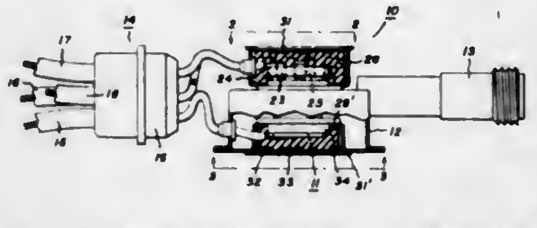
Paul L. Jachim, Franklin Park, and Robert B. Hansen, Arlington Heights, Ill., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Apr. 16, 1964, Ser. No. 360,240
7 Claims. (Cl. 315—27)

1. In a color television receiver having a cathode ray tube with means for producing electron beam components to be deflected to provide red, green and blue rasters, the combination of, a source of deflection signals, dynamic control means comprising first and second windings inductively coupled and mounted adjacent the pre-deflection path of the beam component associated with the blue raster, said first winding connected to said source of deflection signals, and variable impedance means connected across said second winding to form a control loop therewith, whereby adjustment of said impedance means regulates current in the control loop to establish the amplitude of the net flux produced by said dynamic control means.



3,307,068
MAGNETRON SHIELDING MEANS

Nelson A. Peek, Rotterdam, N.Y., assignor to General Electric Company, a corporation of New York
Filed Oct. 24, 1963, Ser. No. 318,562
5 Claims. (Cl. 315—39)



1. In a voltage tunable magnetron device having a grounded metal casing containing exposed terminal connections for connection of electrical leads thereto the improvement comprising in combination,

(a) dielectric encapsulating means encapsulating said terminals and the connecting portions of said leads in said casing,

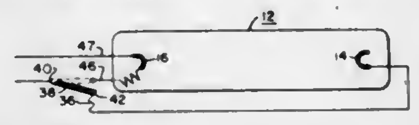
(b) said encapsulation means including electrically conducting metal strand means imbedded therein in spaced relationship to said casing,

(c) said electrical conducting strand means including an electrically conducting wire grid surrounding said terminals between said terminals and said casing and electrically connected to said casing, and

(d) said encapsulating means being effective to bleed off electrical discharges to stabilize output of said electrical device.

3,307,069
ELECTRIC DISCHARGE LAMP

Hugh D. Fraser, West Caldwell, and Melvin C. Unglert, Wyckoff, N.J., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 30, 1964, Ser. No. 379,109
10 Claims. (Cl. 315—60)



1. An arc-discharge device comprising:

(a) a sealed elongated radiation-transmitting envelope containing a predetermined amount of selected discharge-sustaining filling and having two spaced electrodes operatively disposed within said envelope, said electrodes defining therebetween an arc-discharge path through which the arc-discharge current flows during operation of said device;

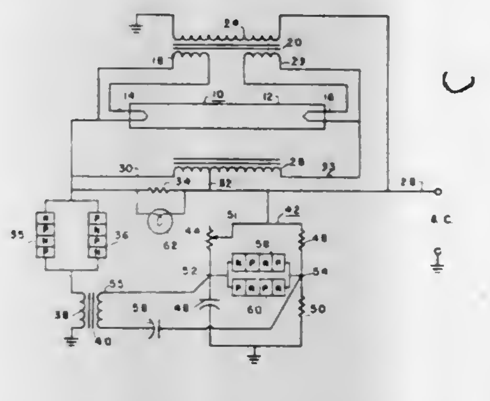
(b) a double-ended heating element adapted to be self-resistance heated and positioned within said envelope proximate an electrode of said device, and said heating element having one end permanently electrically connected to one of said electrodes;

(c) a double-ended switching means positioned exterior to said envelope and adapted to be self-resistance heated, said switching means having one movable end permanently electrically connected to the other electrode of said device, said one movable end of said switching means operable to move from an unheated rest position to a heated operating position, said one movable end of said switching means when in said rest position electrically connected to the other end of said heating element, and said one movable end of said switching means when in operating position electrically disconnected from the other end of said heating element; and

(d) the other end of said switching means and said one electrode adapted to have an energizing potential applied thereacross to place said switching means, when in heated operating position, in series relationship with said arc-discharging path defined by said electrodes to continuously self-resistance-heat said switching means during operation of said device.

3,307,070
POWER CONTROL SYSTEM

Jearld L. Hntson, Richardson, Tex., assignor to Hunt Electronics Company, Dallas, Tex., a corporation of Texas
Filed Nov. 7, 1963, Ser. No. 322,571
10 Claims. (Cl. 315—101)



1. A power control circuit that comprises:

(a) first diode switching means capable of being excited from a normally high impedance state to a low impedance state;

(b) means connecting said first diode switching means in a series with the load to be controlled and a source of alternating current supply voltage;

(c) means for exciting said first diode switching means to the low impedance state at a desired time in the cycle of the applied alternating current supply voltage to thereby control the power applied to the load;

(d) a resistive element:

(e) a second diode switching means capable of being excited from a normally high impedance state to a low impedance state; and

(f) means connecting said second diode switching means in series with said resistive element across said load for supplying holding current to said first diode switching means when said first and second diode switching means are switched to the low impedance state.

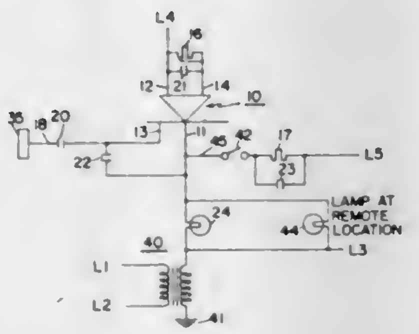
4. A system for dimming fluorescent lights that comprises:

(1) a ballast having a primary winding and a start winding;

(2) means connecting said primary winding in series with a source of alternating current supply voltage;
(3) first diode switching means capable of being excited from a normally high impedance state to a low impedance state;
(4) a load comprising said start winding and a fluorescent tube connected in series;
(5) means connecting said first diode switching means in series with said load and said source of alternating current supply voltage;
(6) means connecting a resistive element and a second diode switching means capable of being switched from a high impedance state to a low impedance state in parallel with said load; and
(7) means for exciting said first diode switching means and said second diode switching means to said low impedance state at a desired time in each half cycle of the applied alternating current supply voltage to thereby control the flow of current through said load.

3,307,071
TOUCH RESPONSIVE STATIC ELECTRIC CONTROL

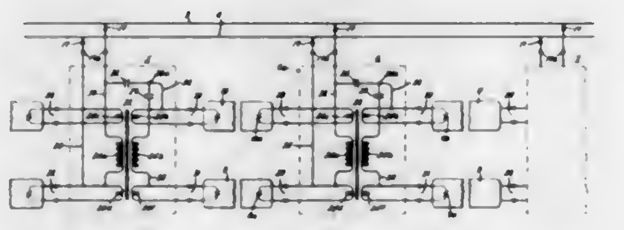
Lew H. Diamond, Massapequa, N.Y., assignor to Otis Elevator Company, New York, N.Y., a corporation of New Jersey
Filed Jan. 7, 1965, Ser. No. 423,907
4 Claims. (Cl. 315—160)



1. A control for electric circuits operable by the touch of a person and providing an illuminated indication of its operated condition comprising; a solid state semiconductive device having four terminals including an anode terminal, a cathode terminal, an anode gate terminal and a cathode gate terminal; a button of conductive material connected to said cathode gate terminal; a first current source connected between said anode terminal and said cathode terminal and applying a potential thereacross; a source of light located in proximity with said button and connected in series with said first current source and said device; means connected to said anode gate terminal for biasing said terminal with respect to the potential of said anode terminal; a periodic current source connected between ground and said cathode terminal, said periodic current source having sufficient potential magnitude to cause said semiconductive device to conduct between said cathode terminal and said cathode gate terminal when said button is touched by a person; said first current source having sufficient potential magnitude to cause said semiconductive device to conduct between its anode and cathode terminals when conduction occurs between its cathode and cathode gate terminals and to continue to conduct between said anode and cathode terminals after conducting ceases between said cathode and cathode gate terminals, the current flowing between said anode and cathode terminals when conduction occurs therebetween being sufficient to cause said light source to illuminate.

3,307,072
BUSWAY DISTRIBUTION SYSTEM FOR SUPPLYING A PLURALITY OF ELECTRIC DISCHARGE DEVICES THROUGH BALLAST DEVICES

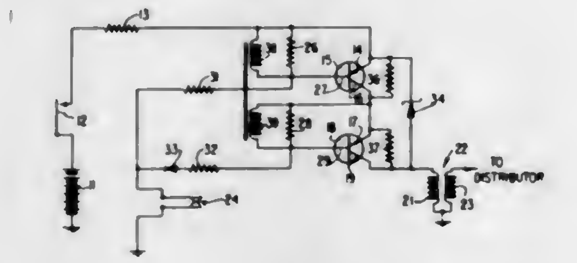
Howard D. Kurt, Media, Pa., and Herbert R. Gould, Danville, Ill., assignors to General Electric Company, a corporation of New York
Filed Apr. 3, 1964, Ser. No. 357,078
5 Claims. (Cl. 315—177)



1. In combination:
(a) a busway having a pair of alternating voltage supply conductors,
(b) a plurality of plug-in ballast units for connection to said busway at spaced apart points longitudinally along said busway.
(c) a plurality of elongated arc discharge devices mounted longitudinally along said busway in end to end spaced apart relationship, at least one discharge device for each interval between two successive ballast units thereby to provide a common ballast unit for each two longitudinally adjacent discharge devices, and each of said discharge devices having a terminal at either end,
(d) each of said ballast units having a pair of input terminals each connected to a corresponding one of said busway conductors and each of said units having first and second output terminals,
(e) each of said ballast units comprising a transformer having a primary winding connected to be supplied from said input terminals and a secondary winding included in a connection between said output terminals and
(f) electrical connections from the terminals of each of said discharge devices to corresponding output terminals of two corresponding successive ballast units.

3,307,073
IGNITION SYSTEM WITH SERIES CONNECTED TRANSISTOR AND COMMON CORE INDUCTORS TO SPEED SWITCHING

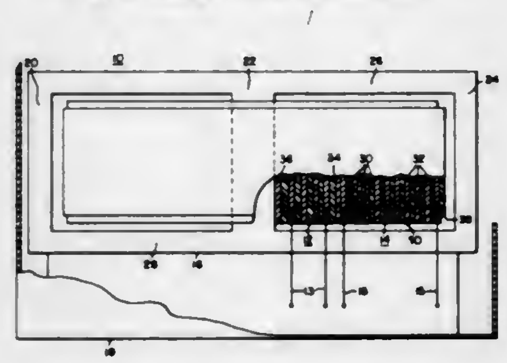
Robert C. McLaughlin, Bloomingdale, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Apr. 2, 1964, Ser. No. 356,830
3 Claims. (Cl. 315—219)



1. An ignition system for an internal combustion engine used with a vehicular electrical system incorporating an ignition coil, a voltage source, and a pair of intermittently opened breaker points operable in timed relation with the internal combustion engine, said ignition system including in combination, a plurality of switching transistors each having an output, a common and a control electrode, means connecting said common and output electrodes of said transistors in series with each other and with the ignition coil across the voltage source, and control circuit means connected to said control electrodes of said switching transistors for controlling the conductivity of said transistors, said control circuit including a plurality of inductance coils having a common core and being individually coupled between said common and control electrodes of respective ones of said plurality of switching transistors, said control circuit means having additional means connected to the breaker points and being intermittently energized in response to the operation of the breaker points for rendering said transistors conductive and non-conductive, with said inductance coils applying reverse bias to said switching transistors upon deenergization of said control circuit to speed switching of said transistors and to increase the reverse voltage breakdown capabilities thereof, said common core coupling said coils and causing said transistors to switch substantially simultaneously.

3,307,074
TRANSFORMER STRUCTURE WITH BUILT-IN OVERVOLTAGE PROTECTION

Arthur M. Lockie, Hickory Township, Sharpsville County, and Leonard L. Wright, Sharon, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 5, 1964, Ser. No. 409,243
6 Claims. (Cl. 317—15)

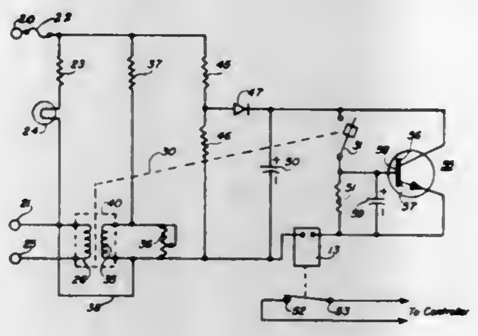


1. Electrical apparatus comprising first means having an electrical potential of a predetermined magnitude during normal operation of said electrical apparatus, second means having a voltage dependent resistivity which allows substantially no current flow at the predetermined potential of said first means, said second means allowing current to flow at potentials in excess of said predetermined voltage, said second means being disposed in contact with said first means to provide electrical insulation for said first means, said second means protecting itself by allowing current to flow when the potential of said first means exceeds its predetermined magnitude.

3,307,075
OVERCURRENT AND UNDERCURRENT CONTROL CIRCUIT

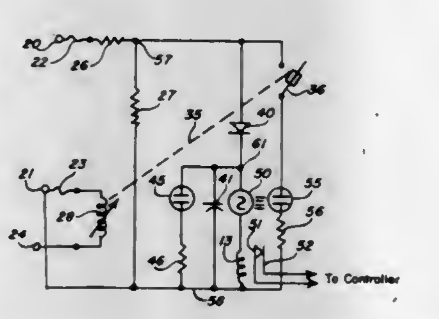
Donald M. Park, Raleigh, N.C., assignor, by mesne assignments, to Dur-Ral Electronics Company, Inc., Raleigh, N.C., a corporation of North Carolina
Filed July 19, 1963, Ser. No. 296,242
3 Claims. (Cl. 317—33)

1. In combination, an alternating voltage load circuit, means for supplying alternating voltage to the load circuit, a load circuit interrupter, a relay having a coil operative when energized to actuate the interrupter, a direct voltage supply energized from said alternating voltage supply, a substantially low impedance coil disposed to produce a magnetic field proportional to a line current in the load circuit, a normally open magnetic field operated switch disposed to be closed by some predetermined value of the low impedance coil field, means to vary the influence of said low impedance coil field on said magnetic field switch, a capacitor connected to be charged by said direct voltage supply when said switch is open and to be discharged through said switch when closed, an electron valve having a control gate electrode connected to be energized by current from said switch when closed, said valve being effective when said gate is energized to connect said relay coil with said direct voltage supply, whereby to actuate said interrupter upon the obtaining of said value.



3,307,076
PHOTOCELL ACTUATED CURRENT CONTROL CIRCUIT

Donald M. Park, Raleigh, N.C., assignor to Dur-Ral Electronics Co., Inc., Raleigh, N.C., a corporation of North Carolina
Filed June 10, 1964, Ser. No. 374,194
4 Claims. (Cl. 317—49)



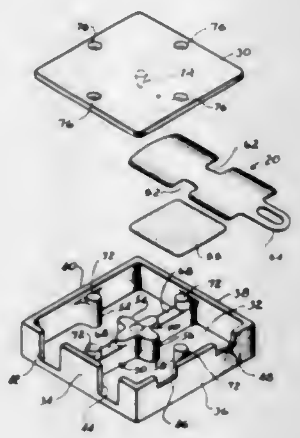
3. The combination with a load circuit; means for supplying power to the load circuit; an interrupter circuit adapted to interrupt the power at a predetermined line current value, said interrupter circuit including a direct voltage source; a control relay coil; a substantially low impedance coil disposed to produce a magnetic field proportional to said line current value; a normally open magnetic field operated switch disposed to be closed by the field produced by said low impedance coil at said predetermined line current value; a capacitor connected to be charged by the direct voltage source when said switch is open; a photocell tube connected in series with said relay coil and the series combination thereof being connected in parallel with said capacitor and furnishing a discharge path therefor when said photocell tube is conductive; an electric light source connected in series with said switch and arranged to be energized when said switch is closed upon the obtaining of said value whereby to actuate said photocell tube, discharge said capacitor through said relay coil and thereby actuate said interrupter.

3,307,077
FLAT PACKAGE BRIDGE RECTIFIER

Bernard Bernstein, 3900 Kings Highway, Brooklyn, N.Y. 11234
Filed Oct. 23, 1965, Ser. No. 502,958
9 Claims. (Cl. 317—99)

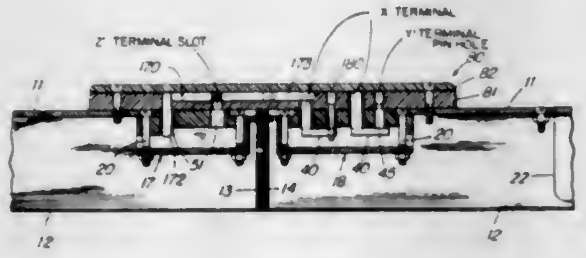
1. A flat package bridge rectifier comprising four stacks of imperforate rectifier cells, said stacks being arranged relative to one another in a square, two pairs of elongated

terminal strips, the two strips in each pair being collateral of one another, one pair being beneath the four stacks and the other pair being above the four stacks, one pair being disposed transversely of the other pair, said assembly of cells and terminal strips forming a bridge of four rectifiers with four terminal strips for external con-



nections, the terminal strips being made of resilient metal, and each being concavo convex at each stack, and a housing around the stacks and terminal strips, said housing being so dimensioned as to bear against the four terminal strips and to load the said terminal strips in order to apply resilient pressure to the stacks of cells.

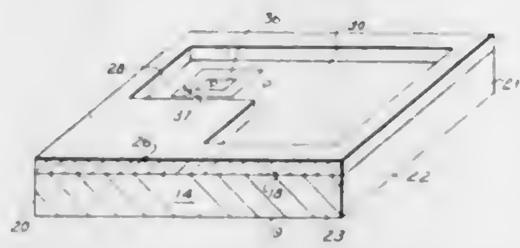
3,307,078
ELECTRICAL SYSTEM
Arthur E. Barchenko, 7 Bel Air Terrace,
Wayne, N.J. 07470
Filed Oct. 23, 1965, Ser. No. 503,922
8 Claims. (Cl. 317—99)



1. A system for connecting no more than "N" electrical loads from one power source comprising

- (a) a plurality of circuit chambers each having at least two leads adapted to be connected to one of the electrical loads,
- (b) a plurality of terminal plugs each adapted to interconnect electrically two of said circuit chambers to energize the second of said circuit chambers from the first of said circuit chambers,
- (c) each of said circuit chambers having therein a power input section and a power output section,
- (d) said power input section containing a source terminal and a common terminal, said common terminal being connected to one of the leads intended to be connected to the load, said source terminal being connected to the other of said leads, and a first series of effective electrical connection means disposed in an arrangement of mathematical progression, the number of said electrical connection means in said series being $N-1$, each one of said first series of electrical connection means comprising an X terminal,
- (e) said power output section of each circuit chamber having a common terminal connected to the common terminal of said power input section, and a second series of effective electrical connection means Z disposed in a like arrangement of mathematical progression, the number of said Z electrical connection means in said series being $N-1$,
- (f) said source terminal of said power input section being connected to the first Z terminal in the series of Z terminals of the second electrical connection means of said power output section, each X terminal of said first series of electrical connection means other than the last one thereof being connected to the Z terminal of said second series of electrical connection means which is the next higher order in the mathematical progression,
- (g) each of said terminal plugs having a neutral connector means, and additional connector means disposed therein, the additional connector means being disposed in each of said terminal plugs in a manner when said terminal plugs are operatively disposed, to connect a selected one of said Z terminals of the power output section of one circuit chamber to the corresponding one of said X terminals of the power input section of the next succeeding chamber, said additional connector means also connecting said X terminal with the source terminal of said succeeding chamber, said neutral conductor means connecting the common terminal of the power output section of said one circuit chamber to the common terminal of the power input section of said succeeding circuit chamber.

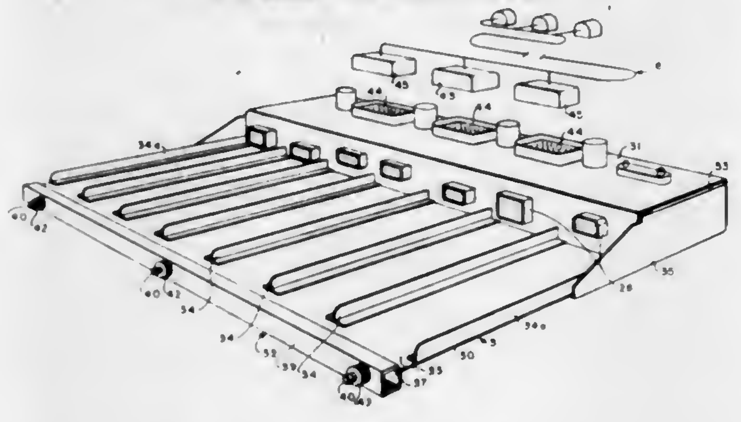
3,307,079
SEMICONDUCTOR SWITCH DEVICES
Walter D. Eisenhower, Jr., Millington, Walter S. Noll, Somerville, and Nelson E. Ake, Millington, N.J., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Oct. 20, 1964, Ser. No. 405,057
6 Claims. (Cl. 317—101)



1. A multiple-zone semiconductor device comprising
a crystal of semiconductor material of one type of conductivity having a surface adapted to receive impurity material to form P–N junctions,
a first relatively large-area region of semiconductor material of opposite conductivity type in said surface of said crystal,
a second region of said opposite conductivity type formed in said surface of said crystal inside the area defined by said first region and surrounded by a region of material of said first conductivity type,
a third region of said one conductivity type formed inside the area defined by said first region,
a fourth region of said one type of conductivity formed in said surface of said crystal,
said first, second, third, and fourth regions being shaped and oriented so that they, in effect, define the four corners of a rectangle on said surface of said crystal,
a layer of insulating material over the entire surface of said crystal and all of the regions of different types formed therein, and

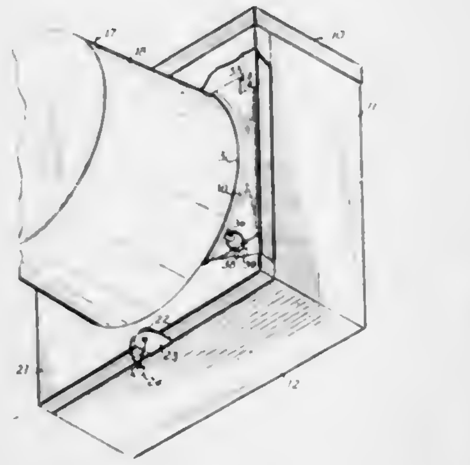
an ohmic electrical contact through said insulating layer to said first, second, third, and fourth regions, said contacts comprising relatively large masses of metal rising above said layer of insulating material whereby contact may be readily made thereto.

3,307,080
RACK ASSEMBLY FOR SUPPORTING A PLURALITY OF ELECTRICAL UNITS
Delbert A. Cody, 11140 Pinocchio St.,
Dallas, Tex. 75229
Filed Nov. 20, 1964, Ser. No. 412,793
3 Claims. (Cl. 317—101)



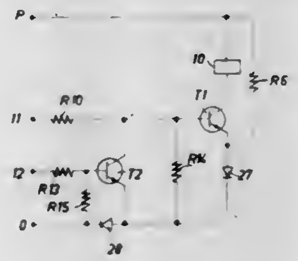
1. An aircraft communication equipment rack assembly for supporting a plurality of electrical functional components having output plugs comprising: a base member and a connectional, electrical gathering unit, said base member including a base plate and a plurality of guide rails, said gathering unit comprising a housing having a stationary portion and a pivoted cover, said stationary portion being rigidly attached to said base plate, a plurality of electrical component connector members on said stationary portion, said component connector members positioned between cooperating pairs of rails, a plurality of electrical transfer connector members on said pivoted cover, and a flexible wiring harness in said gathering unit electrically interconnecting said component connector members and said transfer connector members.

3,307,081
METER BOX ASSEMBLY WITH COVER SEAL AND INNER SEAL
Clifford E. Sloop, 2230 10th St., Columbus, Ga. 31906
Substituted for abandoned application Ser. No. 74,101, Dec. 6, 1960. This application May 17, 1965, Ser. No. 456,574
7 Claims. (Cl. 317—107)



4. In a meter socket of the type having a meter box provided with jaws for receiving a meter, a removable cover for closing said box, and sealable means for retaining said cover in place, the combination therewith of a plate along one edge of said box and beneath said cover, said plate being pivotally connected to said meter box at one end of said plate and having an aperture in the other end thereof, a lip on one edge of said plate adapted to overlie a portion of the base of said meter in said box for preventing the removal of said meter from the jaws of the meter box, a post fixed with respect to said box, said post being in the arcuate path of said aperture in said plate so as to project through said aperture when said edge overlies said base.

3,307,082
SWITCHING ARRANGEMENT
Georg Reidmayr, Munich, Germany, assignor to Carl Murth Maschinen- und Zahnradfabrik, Munich, Germany
Filed Dec. 1, 1964, Ser. No. 416,959
Claims priority, application Germany, Jan. 8, 1963, H 47,897; Dec. 4, 1963, H 51,024
9 Claims. (Cl. 317—148.5)

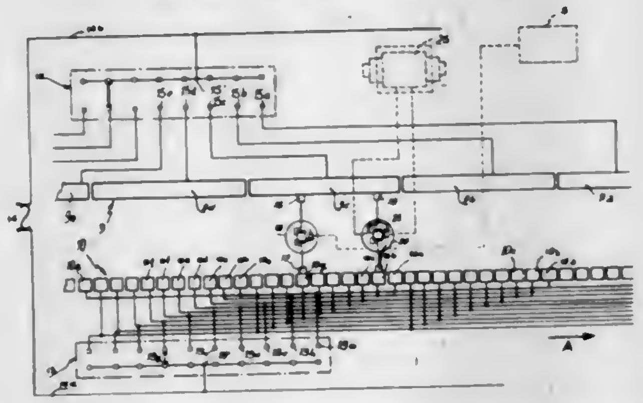


1. A switching arrangement comprising, in combination, electromagnetically operable switch means including an energizable coil and contact means changeable between predetermined circuit-closing and circuit-opening positions depending upon a change of energization of said coil; first electronic control means including a first transistor having emitter, collector and base electrodes and an emitter-base path and an emitter-collector path, said collector electrode being connected to one end of said coil of said electromagnetically operable switch means for energizing said coil when a predetermined control potential is applied to said base electrode; second electronic control means including a second transistor having emitter, collector and a base electrode, an emitter-base path and an emitter-collector path, the collector electrode of said second transistor being connected to the base electrode of said first transistor for causing said first transistor to discontinue energizing said coil as long as said predetermined potential is applied to the base electrodes of both of said first and second transistors; and circuit means for energizing said coil, for applying said control potential to said electronic control means, and connecting said first and second electronic control means with each other and with said coil in a manner whereby the emitter-base path of said first transistor and the emitter-collector path of said second transistor are connected in parallel, said circuit means including means for applying a direct current potential of predetermined polarity to the other end of said coil, a zero potential terminal having zero potential, first control potential means for applying a first control potential to the base electrode of said first transistor to cause said first transistor to become conductive, second control potential means for applying a second control potential to the base electrode of said second transistor to cause said second transistor to become conductive and thereby to cause the application of said first control potential to the base electrode of said first transistor to become ineffective thereby causing said first transistor to become non-conductive, a first biasing resistor connected between the base electrode of said first transistor and a biasing voltage supply for applying to said first transistor a biasing potential having a polarity opposite to that of said direct current potential, and a

second biasing resistor connected between the base electrode of said second transistor and a biasing voltage supply for applying to said second transistor a biasing potential having a polarity opposite to that of said direct current potential.

3,307,083
DEVICE FOR THE CONTROL OF THE DISPLACEMENT OF A MOVABLE ELEMENT APPLICABLE ESPECIALLY TO MACHINE TOOLS WITH NUMERICAL DEFINITION

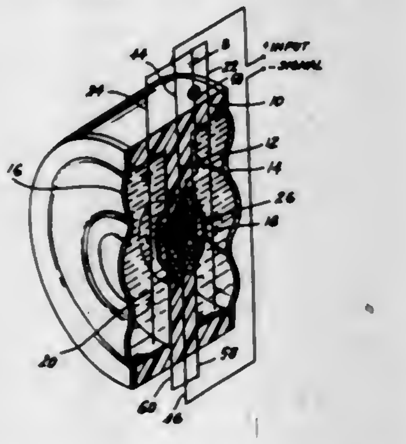
Pierre Pegard, Courbevoie, France, assignor to Societe Anonyme des Ateliers G.S.P. (Guillemin-Sergot-Pegard) Courbevoie (Seine), France, a French society
Filed May 23, 1963, Ser. No. 282,700
Claims priority, application France, May 25, 1962, 898,696
8 Claims. (Cl. 317—157)



1. Control apparatus comprising: a fixed member; a movable member movable relative to said fixed member; driving means for moving said movable member; a row of insulated electrical contacts on one of said members; means for selectively connecting any one of said contacts to a source of electric power; a brush carried by the other member and movable along said row of contacts upon movement of said movable member; a relay electrically connected to said brush; control means for said drive means, said relay being arranged to actuate said control means, whereby engagement of said brush with the selected contact connected to said source of electrical power actuates said relay to operate said control means.

3,307,084
CORRIDOR ASSEMBLY FOR AN ELECTROCHEMICAL DEVICE

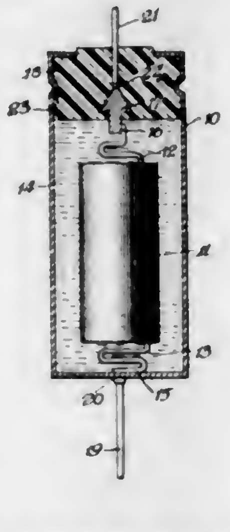
Edward J. Zeitz, Parma Heights, and Demetrios V. Louzos, Rocky River, Ohio, assignors to Union Carbide Corporation, a corporation of New York
Filed Feb. 25, 1964, Ser. No. 347,175
7 Claims. (Cl. 317—230)



1. A corridor assembly for use in an electrochemical device, which comprises a body and a pair of bar electrodes mounted within said body, the ends of which electrodes are separated by a corridor between them of a predetermined width, said body being composed of lime glass and being fused to and molded around said electrodes, said body having a cavity penetrating each of its sides with a surface of said glass adjacent each side of said electrodes forming the bottom wall thereof, and a hole through said surface communicating with said corridor, a sensing electrode mounted in one of said cavities and adjacent the hole in its bottom wall, and a scavenging electrode disposed in close proximity to the opening of each of said cavities.

3,307,085
CAPACITOR HAVING TWO ELECTROLYTES WITH DIFFERENT RESISTANCES

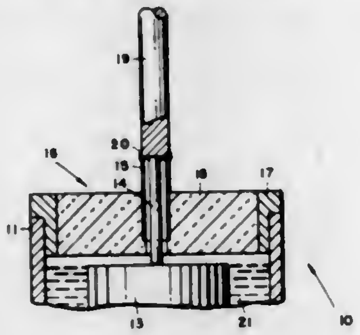
Sidney D. Ross, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed June 4, 1964, Ser. No. 372,567
1 Claim. (Cl. 317—230)



An aluminum electrolytic capacitor comprising an electrolytic capacitance section of convolutely wound aluminum foils separated by a spacer material, leads affixed to said foils and extending from said section; said section being impregnated with a first liquid electrolyte; a second electrolyte completely surrounding said impregnated section and said leads, said second electrolyte having a resistivity of at least five times that of said first electrolyte; and an outer protective container housing said section and said electrolytes.

3,307,086
SEALED CAPACITOR WITH FLUID PASSAGEWAY THROUGH ELECTRODE

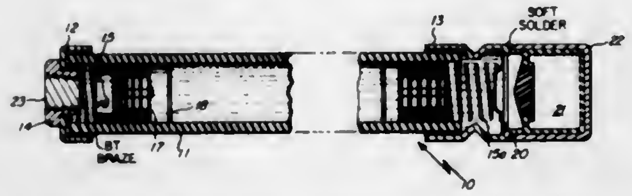
David J. Propps, Indianapolis, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware
Filed Sept. 9, 1964, Ser. No. 395,134
8 Claims. (Cl. 317—230)



1. An electrolytic capacitor comprising a container with a closed end and an open end, an electrolyte in said container, an anode of film-forming metal immersed in said electrolyte and having an integral hollow anode riser forming a passage therethrough, said anode riser including a terminal portion projecting from said anode through the open end of said container, and an insulative cap closing the open end of said container with said terminal portion extending through the cap, said cap being secured to said terminal portion and to the open end of said container forming a seal.

3,307,087
STACKED SOLID STATE RECTIFIER

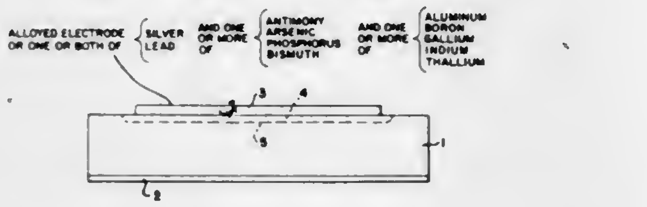
Thomas H. Rogers, New Canaan, and Frank E. Kapelewski, Stamford, Conn., assignors, by mesne assignments, to The Machlett Laboratories, Inc., Springdale, Conn., a corporation of Connecticut
Filed Jan. 3, 1963, Ser. No. 249,156
7 Claims. (Cl. 317—234)



1. A rectifier assembly comprising a hollow dielectric body, a stack of rectifier components contained within said body, each component comprising a disclike metal member and a semiconductor junction device disposed on said metal member and having a contact thereon which is in direct engagement with the next adjacent metal member in the stack, electrically resistive spacers having insulative and resistive properties interposed between said components, each spacer being of a thickness matching the thickness of a respective junction device and contact thereon whereby each spacer is engaged on one side by a respective metal member and on the other side by the metal member of the next adjacent component, and a medium having a dielectric constant greater than 1 surrounding said components and contained within said body, said spacers and said medium providing a resistive-capacitive network in parallel with said components.

3,307,088
SILVER-LEAD ALLOY CONTACTS CONTAINING DOPANTS FOR SEMICONDUCTORS

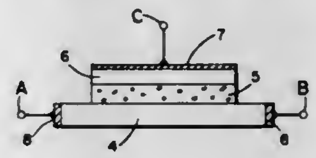
Kyoichi Fujikawa, 35–23 Kitayama; Tokuzo Sukegawa, 12 Otamayashita; and Jun-Ichi Nishizawa, 56 Komegafukuro-Nakacho, all of Sendai-shi, Japan
Filed Mar. 13, 1963, Ser. No. 265,591
Claims priority, application Japan, Mar. 13, 1962, 37/9,743
8 Claims. (Cl. 317—234)

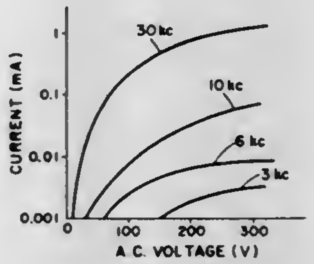


5. An electronic semiconductor device for high frequency use, comprising a crystalline body of silicon having a p-conductivity type region and an n-conductivity type region forming a p-n junction between them in said body; an electrode joined to said n-conductivity type region, said electrode comprising silver and lead, at least one donor impurity from the group consisting of antimony, arsenic and bismuth, and at least one acceptor substance from the group consisting of aluminum, boron, gallium, indium and thallium in a quantity smaller than that of said donor impurity, said n-conductivity type region containing donor impurity and acceptor substance from the electrode in diffused distribution and having a dopant concentration decreasing with increasing distance from said p-n junction.

3,307,089
SEMICONDUCTOR DEVICE SHOWING TH EFFECT OF STORING CHARGES OF SIN GLE POLARITY

Akio Yamashita, Ikeda-shi, Japan, assignor to Matsu Electric Industrial Co., Ltd., Osaka, Japan, a cor tion of Japan
Filed Mar. 10, 1964, Ser. No. 350,833
Claims priority, application Japan, Mar. 16, 19 38/14,538; May 2, 1963, 38/23,219, 38/23,2 June 17, 1963, 38/32,395; Sept. 21, 19 38/50,994, 38/50,995; Oct. 25, 1963, 38/57,7 Oct. 28, 1963, 38/58,709; Nov. 30, 19 38/64,963; Dec. 4, 1963, 38/65,971; Dec. 16, 19 38/68,418; Dec. 23, 1963, 38/70,259
6 Claims. (Cl. 317—234)



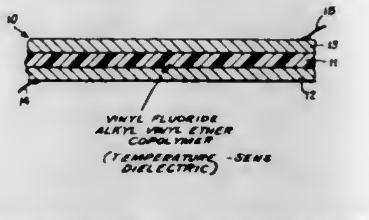


1. A semiconductor device composed of a mixtu at least a first semiconductor and a first electrical in tor, a second semiconductor brought into contact said mixture, a second electrical insulator directly posed over said mixture on the opposite side from second semiconductor, and an electrode in contact said second electrical insulator.

5. A semiconductor device according to claim which said mixture further includes a metal which g ates a photoelectromotive force in combination with first semiconductor.

3,307,090
ELECTRIC CAPACITOR

Milton H. Pintell, Bronx, N.Y., assignor to Intron national, Inc., Congers, N.Y., a corporation of York
Filed July 7, 1965, Ser. No. 470,058
10 Claims. (Cl. 317—258)


10
15
13
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12
VINYL FLUORIDE ALKYL VINYL ETHER COPOLYMER
(TEMPERATURE -SENS DIELECTRIC)

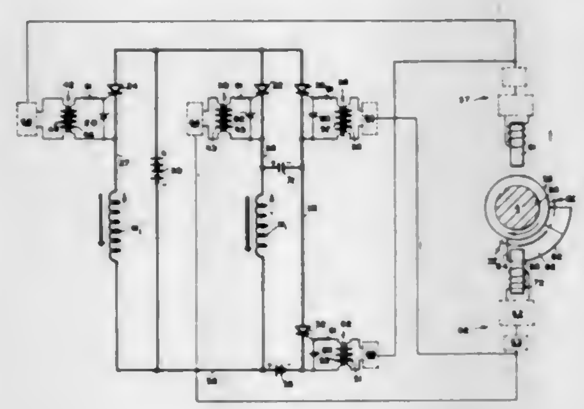
1. An electric capacitor comprising a pair of elect separated by a film of a copolymer of vinylfluorid an alkylvinyl ether, said copolymer consisting of 25 parts by weight of said alkylvinyl ether and 95 parts by weight of vinylfluoride.

3,307,091
ELECTRONICALLY COMMUTATED DYNAM ELECTRIC MACHINE

Virgil I. Johannes, Plainfield, N.J., assignor to C Corporation, Syracuse, N.Y., a corporation of Dela
Filed June 9, 1964, Ser. No. 373,654
8 Claims. (Cl. 318—138)

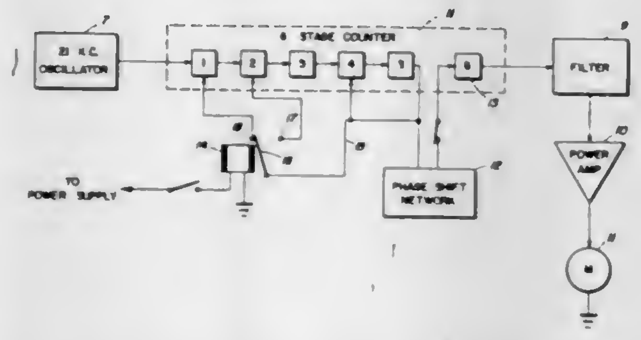
8. In a motor having a rotor and at least one p energizing windings inductively coupled one t other, the combination of means for energizing ea

said windings in a predetermined order to effect rotation of said rotor, said means including at least one solid state switching device associated with each of said windings, and means for deenergizing each of said windings including capacitance means dischargeable through one of said windings, said deenergizing means including at least one pair of series connected solid state switching devices, said capacitance means being connected between the junction of said pair of switching devices and the junction of one of said windings and its associated switching device.



3,307,092
SPEED CONTROL CIRCUIT FOR A SYNCHRONOUS MOTOR

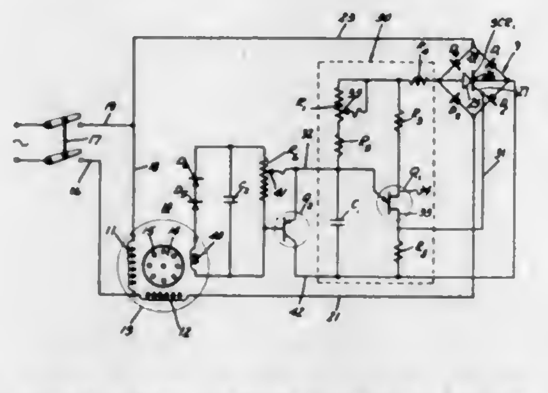
Robert V. Trocchio, Syosset, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Oct. 31, 1963, Ser. No. 320,591
6 Claims. (Cl. 318—171)



1. A speed control system for a synchronous motor comprising:
- a fixed frequency oscillator,
- a variable count multi-stage digital counter circuit having its input coupled to the output of said oscillator and providing an output pulse upon receiving a predetermined number of pulses at the input thereof,
- means coupled to said counter circuit for varying the number of input pulses required to produce an output pulse including a feedback control circuit having one end connected to the output of one stage in said counter and switching means for selectively connecting the other end of said feedback control circuit to one of a plurality of preceding counter stages for varying the output frequency of said counter circuit as said other end of said feedback control circuit is switched from one counter stage to another counter stage, and
- means coupling the output of said counter circuit to a synchronous motor whereby an increase in output frequency of said counter circuit may be employed to increase the speed of said synchronous motor to its synchronous speed.

3,307,093
INDUCTION MOTORS AND STARTING ARRANGEMENTS THEREFOR

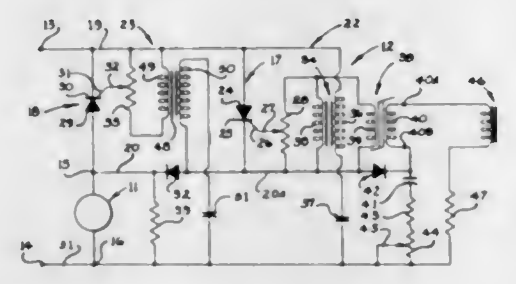
Floyd H. Wright, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Oct. 30, 1963, Ser. No. 320,063
6 Claims. (Cl. 318—221)



1. A single phase induction motor having a stator member, a main winding and a starting winding physically displaced from said main winding and disposed on said stator member, a squirrel cage rotor member supported for rotation relative to said stator member, input means including at least a pair of electrical leads for connecting the main winding in circuit with an alternating power source, phase control means for controlling the interval of current conduction to the start winding in each half cycle, said phase control means including a bilateral switching means, circuit means connecting said bilateral switching means in series circuit with said starting winding and connecting said bilateral switching means and starting winding in parallel circuit relation with the main winding, said phase control means controlling the interval of current conduction to said starting winding to provide a phase controlled current during the starting condition to cause said motor to start, and means responsive to the speed of said motor to cause said phase control means to reduce said interval of current conduction to the starting winding during the running condition of the motor.

3,307,094
A.-C. SWITCH SPEED CONTROL SYSTEM FOR A.-C. MOTORS

Hugh Malcolm Ogle, 70 Jordan Place, Palo Alto, Calif. 94303
Filed Dec. 30, 1963, Ser. No. 334,247
6 Claims. (Cl. 318—341)

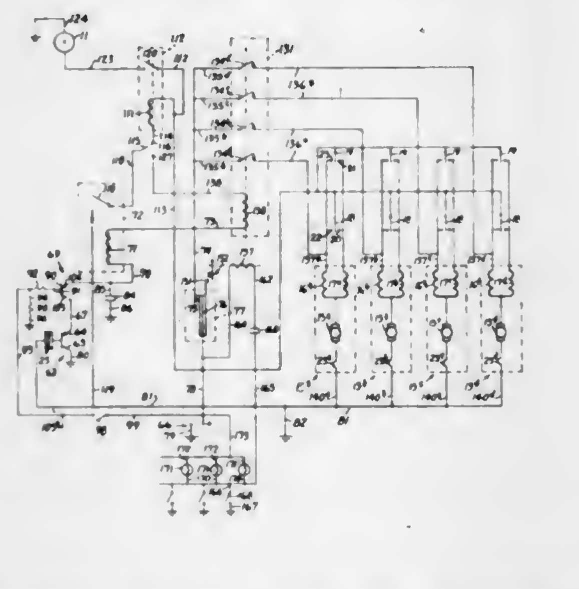


1. In a device for controlling the speed of motors of the induction and synchronous types, the combination of:
- a source of an A.-C. potential;
- a pair of input terminals to which said A.-C. potential is applied;
- a first silicon controlled rectifier having an anode, a cathode, and a gate electrode;
- a second silicon controlled rectifier having an anode, a cathode, and a gate electrode;
- means connecting the first silicon controlled rectifier anode and the second silicon controlled rectifier cathode to one of the A.-C. input terminals;

- means connecting the first silicon controlled rectifier cathode and the second silicon controlled rectifier anode to the motor;
- a first transformer having a primary winding and a secondary winding;
- means connecting the first transformer primary winding across the source of A.-C. potential;
- a first potentiometer having an output terminal;
- means connecting the potentiometer in parallel with the first transformer secondary winding;
- means connecting the first potentiometer output terminal to the first silicon controlled rectifier gate electrode;
- a second transformer having a primary winding and a secondary winding;
- means connecting the second transformer primary winding across the motor between the A.-C. potential source and the first silicon controlled rectifier cathode;
- a second potentiometer having an output arm;
- means connecting the second potentiometer across the second transformer secondary winding and to the second silicon controlled rectifier cathode;
- means connecting the second potentiometer output arm to the second silicon controlled rectifier gate electrode;
- a saturable reactor having a reactance winding and a control winding;
- means connecting the saturable reactor reactance winding across the first transformer secondary winding; and
- means for periodically passing a control current through the saturable reactor control winding to cyclically saturate for a selected variable period said saturable reactor.

3,307,095
MOISTURE CONTROLLED MOTORS SYSTEM FOR CLOSING AUTOMOBILE WINDOWS AND TOPS

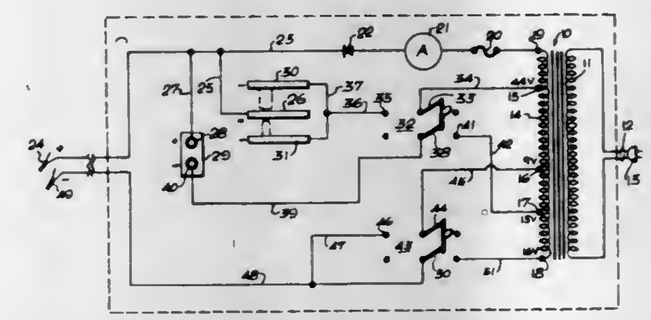
William G. Redmond, Jr., 2517 Plaza, Arlington, Tex. 76010
Filed Sept. 9, 1963, Ser. No. 307,548
12 Claims. (Cl. 318—483)



9. A control circuit for a convertible automobile having an ignition switch, a top movable between a raised closed position and a retracted open position by a moving means, a plurality of windows movable between open and closed position by individual moving means, each of said moving means comprising an electrically energizable prime mover, said control circuit including: an input circuit; a sensor device securable to the automobile in a position exposed to the atmosphere whose resistance decreases on the occurrence of precipitation; a sensor relay having a winding; an ignition switch transistor and a sensor transistor having emitter collector circuits connected in series with said sensor relay winding, said ignition transistor having its base emitter circuit connected in series with said ignition switch and said sensor transistor having its base emitter circuit connected in series with said sensor device; a top switch which is in a first operative position when the top is in its retracted position and a second operative position when the top is in its closed position; a top relay for connecting the top prime mover across said input circuit having a winding connected across said input circuit by said sensor relay and said top switch when said top switch is in said first operative position; a thermal timer switch, said sensor relay winding and said emitter collector circuits being connected across said input circuit by said timer switch when said timer switch is in closed position, the base emitter circuit of said ignition transistor being connected to said input circuit when said timer switch and the ignition switch of the automobile are in closed position to prevent conduction in the emitter collector circuits of the transistors, the base emitter circuit of the sensor transistor being connected across said input circuit by said sensor device and said timer switch when said timer switch is closed; and a window relay having a winding connected across said input circuit by said sensor relay and said timer switch when said top switch is in said second operative position and said timer switch is closed, said window relay when its winding is energized simultaneously connecting the window prime movers across said input circuit, said timer switch opening after the windows have been moved to their closed positions.

3,307,096
MULTI-PURPOSE BATTERY CHARGER

Emory Taylor Lyon, 107 Liberty St., Ridgewood, N.J. 07450
Filed May 19, 1964, Ser. No. 368,638
3 Claims. (Cl. 320—15)



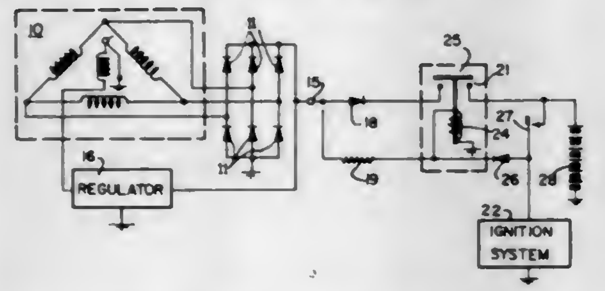
1. In a multi-purpose battery charger, the combination comprising: circuit means for converting a household alternating current electric supply service to a plurality of different direct current potentials, receptacle means for receiving dry cells for charging, a clip receptacle for receiving B batteries for charging, first switch means for connecting said receptacle means and said clip receptacle, selectively, with one each of two of said plurality of different direct current potentials, said receptacle means comprising three metal bars arranged in spaced parallel relationship, the spacing between the center bar and an outer one of said bars being such as to accommodate D type dry cells, and the spacing between said center bar and the other outer one of said bars being such as to accommodate C type dry cells, said center bar being selectively connectable with the positive terminal of its respective direct current potential, said outer bars being selectively connectable with the negative terminal thereof, and a pair of storage battery clips, and second switch means for connecting said storage battery clips, selectively, with two others of said plurality of different direct current potentials for the selective charging of three cell or six cell vehicle storage batteries.

3,307,097

POLARITY RESPONSIVE BATTERY CHARGER

Franklin C. Brewster, Franklin Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Apr. 29, 1964, Ser. No. 363,545
8 Claims. (Cl. 320—25)



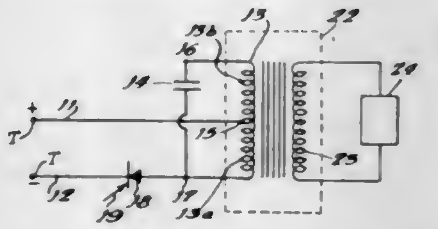
1. A protective circuit for use in a motor vehicle electrical system which includes a storage battery, an alternating current generator, a plurality of rectifying diodes coupled to the generator and poled to develop a potential of the proper polarity to charge the battery, and an isolation diode coupled to the plurality of rectifying diodes, the isolation diode being poled to pass current from the rectifying diodes to the storage battery, said protective circuit including in combination, relay means having normally open contacts and a relay coil, a circuit including said contacts coupling the isolation diode to the battery, blocking diode means coupling the battery to said relay coil, said relay coil and said blocking diode means being responsive to a correct polarity connection of the battery to close said contacts and couple the battery to the plurality of diodes, said relay coil and said blocking diode further being responsive to an incorrect polarity connection of the battery to open said contacts and uncouple the battery from the plurality of diodes, and resistance means coupling the rectifying diodes to said relay coil.

3,307,098

INVERTER HAVING A SINGLE SELF-COMMUTATING THYRISTOR

Andrew Byron Elliott, Jr., River Forest, Ill., assignor to Jefferson Electric Company, Bellwood, Ill., a corporation of Delaware

Filed July 12, 1963, Ser. No. 294,580
5 Claims. (Cl. 321—44)



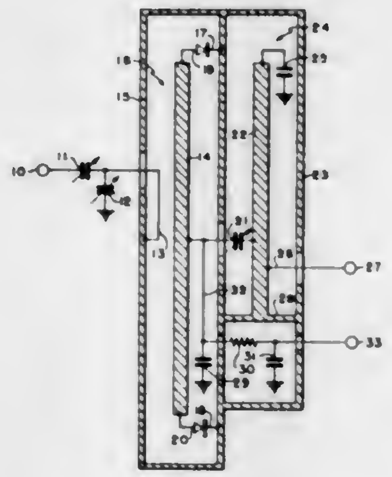
1. An inverter comprising a transformer having a primary winding and a secondary winding, said primary winding having a first end, a second end, and an intermediate tap, a positive D.C. lead connected to said intermediate tap, a negative D.C. lead connected to said first end, said positive and negative leads having terminals for connection to a D.C. source, an SCR interposed in said negative lead between said negative terminal and said first end, a junction point located in said negative lead between said SCR and said first end, a condenser connected across said primary winding between said junction point and said second end, said second end being connected to said negative terminal only through said condenser and said SCR, and a trigger device connected to the gate of said SCR whereby a series of pulses applied by said trigger device to said gate will cause a pulsating current to traverse said primary winding and will induce an alternating current in said secondary winding.

3,307,099

MICROWAVE FREQUENCY MULTIPLIER COMPRISING SIDE BY SIDE RESONATORS WITH VARACTORS CONTAINED IN ONE RESONATOR

Carroll E. Weller and Michael Radeke, both of Cincinnati, Ohio, assignors to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed Dec. 23, 1964, Ser. No. 420,574
4 Claims. (Cl. 321—69)



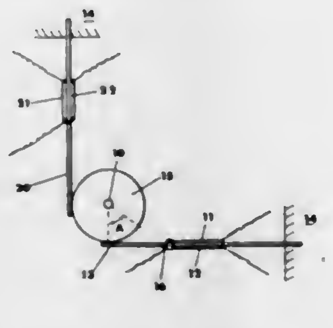
4. A frequency multiplier having distributed parameters, comprising:
- a first resonator consisting of a coaxial line having a first outer conductor and a first central conductor and a dielectric therebetween;
- varactors connected between the ends of said first central conductor and said first outer conductor;
- a second resonator comprising a second outer conductor and a second central conductor and a dielectric therebetween;
- means magnetically coupled to the first central conductor for exciting the first resonator at a fundamental frequency, thereby to establish standing waves and to cause the varactors to generate harmonics;
- and means electrostatically coupling a null point on the first central conductor to the second central conductor to excite said second resonator at the second harmonic of the fundamental excitation frequency, said outer conductors being portions of a common housing.

3,307,100

SINE-COSINE RESOLVER

Richard E. Reason, Leicester, and Brian Wilfred Barringer, Twickenham, England, assignors, by mesne assignments, to The Rank Organisation Limited, London, England, a British company

Filed Oct. 28, 1964, Ser. No. 407,254
5 Claims. (Cl. 323—75)



1. A sine-cosine resolver comprising
- a rotatable shaft,

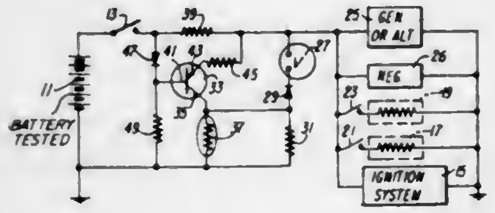
- a cam mounted on said shaft, said cam having a camming surface,
- first and second deformable beams,
- first and second means for fixedly supporting said first and second deformable beams, respectively, at one end thereof,
- said first and second beams extending to and engaging said camming surface at the other ends thereof at two points of contact which are displaced from each other on said camming surface by 90 degrees,
- first, second, third and fourth transducers having an electrical parameter that varies with the strain thereon,
- means mounting said first and second transducers on opposing sides of said first deformable beam whereby the electrical parameters of said first and second transducers vary in opposite directions as said first beam is deformed,
- means mounting said third and fourth transducers on opposing sides of said second deformable beam whereby the electrical parameters of said third and fourth transducers vary in opposite directions as said second beam is deformed,
- a source of electrical signals,
- means connecting said first and second transducers in series across said source of signals,
- means connecting said second and third transducers in series across said source of signals,
- and first and second output leads, said first output lead being connected at one end between said first and second transducers and said second output lead being connected at one end between said third and fourth transducers.

3,307,101

STORAGE BATTERY CONDITION INDICATOR WITH TEMPERATURE AND LOAD CURRENT COMPENSATION

Theodore A. Byles, Villa Park, Ill., assignor to Motorola, Inc., Chicago, Ill., a corporation of Illinois

Filed Dec. 10, 1962, Ser. No. 243,329
5 Claims. (Cl. 324—29.5)



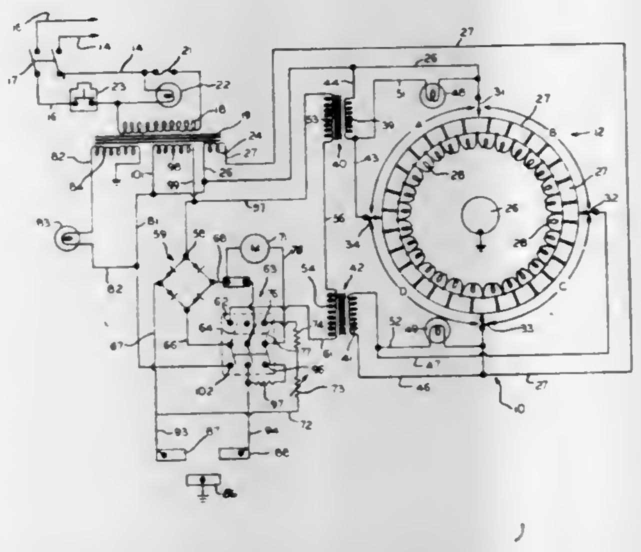
2. A device for indicating the condition of a storage battery which supplies current to a load, said device including in combination, first and second conductors adapted to be connected respectively to the positive and negative terminals of the battery, first resistance means connectable in series between the storage battery and the load, transistor means coupled to said first resistance means and having an output current responsive to changes in potential across said first resistance means, second resistance means coupled to said transistor means so that the drop in potential thereacross is responsive to the output current of said transistor means, and a voltmeter and a zener diode connected between said first and second conductors in series with said second resistance means, said voltage across said second resistance means compensating said voltmeter for the variation in potential across the storage battery produced by fluctuating load current flow, whereby said voltmeter will only be influenced by variations in potentials across the storage battery due to changes in the condition thereof.

3,307,102

ARMATURE TEST APPARATUS INCLUDING A PAIR OF TRANSFORMERS AND MEANS FOR COMBINING THE SECONDARY VOLTAGES THEREOF

Anthony B. Norkaitis, Oak Lawn, Ill., assignor, by mesne assignments, to Avnet, Inc., Chicago, Ill., a corporation of New York

Filed July 7, 1964, Ser. No. 380,768
9 Claims. (Cl. 324—51)



1. In armature test apparatus for an armature having a number of coils connected at each end to commutator means to define an armature winding, the combination comprising a fixture for rotatably supporting said armature, a pair of current carrying members for contacting said commutator means, means for supporting said current carrying members, said armature being adapted to be rotated during the testing thereof while supported on said fixture relatively with respect to said current carrying members, means for impressing an alternating voltage across the coils of said armature at a power level corresponding to actual operating conditions of said armature, said last named means including said current carrying members and being connected with the coils of said armature during the testing thereof to provide two identical current paths between said current carrying members through the coils of said armature, further contact members connected with the coils of said armature during testing thereof, said further contact members connecting identical current path portions of said coil current paths in parallel with circuits including a transformer having primary and secondary windings, the turns ratio of one of said transformers being different from the turns ratio of the other, means for combining the voltages impressed across the secondary windings of said transformers, and meter means adapted to have the combined voltages impressed thereacross as a measure of the condition of the windings in one of the said current paths.

3,307,103

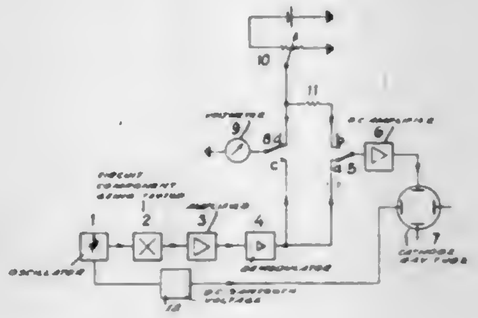
DEVICE FOR MEASURING AND INDICATING THE FREQUENCY DEPENDENT CHARACTERISTICS OF CIRCUIT ELEMENTS BY MEANS OF A CRO

Karl Heinz Heidenreich, Neuhausen, Erms, Germany, assignor to Firma Wandel u. Goltermann, Reutlingen, Germany

Filed June 29, 1964, Ser. No. 378,784
Claims priority, application Germany, July 3, 1963, W 34,818
2 Claims. (Cl. 324—57)

1. An electric circuit for effecting measurement of the frequency dependent characteristics of a circuit ele-

ment comprising; a source of constant amplitude variable frequency voltage for connection to the input side of said frequency dependent element, an oscilloscope member having vertical and horizontal deflecting plates, means for rectifying the output voltage of said circuit element for being supplied to said vertical deflecting plates, a potentiometer-controlled voltage source, a first two-pole switch for connecting the vertical plates to the output of said rectifying means through one of the first switch poles and to the output of said controlled source through the other of the first switch poles, a voltage-measuring instrument, and a second two-pole switch for connecting said instrument to the output of said rectifying means through one of the second switch poles and to the output of said control source through the other of the second switch poles, said source of constant amplitude variable frequency voltage comprising a second outlet for delivering a direct voltage dependent on the actual measuring frequency to the horizontal deflecting plates.

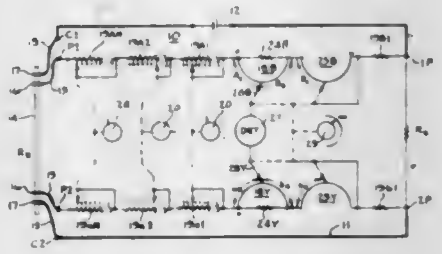


3,307,104
DIRECT READING KELVIN BRIDGE INCLUDING COMPENSATING SLIDEWIRES

Wesley H. Shirk, Jr., Ambler, Pa., assignor to Leeds and Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Oct. 4, 1963, Ser. No. 313,997

4 Claims. (Cl. 324—62)



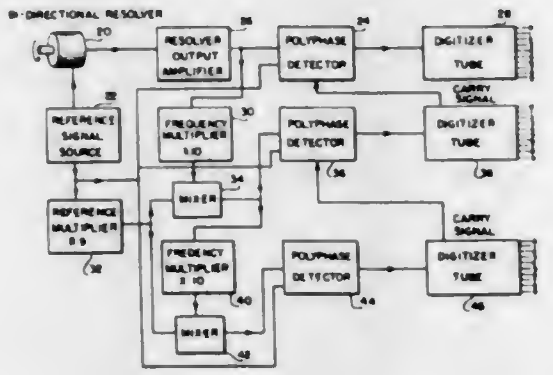
4. A Kelvin bridge having two measuring slidewires, each adjustable complementarily to vary its resistance values respectively included in a corresponding pair of ratio arms of the bridge, characterized in
  that the bridge includes two linear compensating slidewires, each included in one only of the ratio arms of the corresponding pair of ratio arms and having a maximum resistance equal to the maximum effective value of the measuring slidewire included in that pair of ratio arms, and
  that said compensating slidewires are ganged to said measuring slidewires for inverse adjustment so that each compensating slidewire maintains constancy of the total resistance of said one arm of the corresponding pair of ratio arms throughout the range for which the corresponding measuring slidewire is adjustable to vary the resistance of the other ratio arm of that pair of ratio arms.

3,307,105
PHASE DIGITIZING SYSTEM

Searle G. Nevius, Tujunga, Calif., assignor to Whittaker Corporation, a corporation of California

Original application Nov. 1, 1957, Ser. No. 693,930. Divided and this application May 28, 1962, Ser. No. 205,145

9 Claims. (Cl. 324—85)



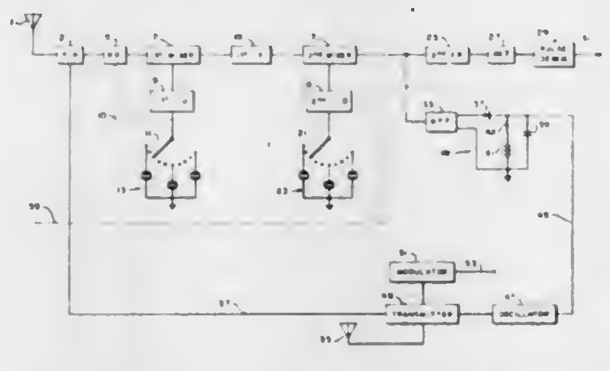
1. A system for measuring the phase difference between two electrical signals comprising a first signal channel having a phase detector responsive to said electrical signals to generate an output signal proportional to the phase difference between said electrical signals; a second channel containing means for multiplying the frequency of at least one of said electrical signals, means in said second channel responsive to the other of said electrical signals and to said multiplied electrical signal to generate a D.-C. voltage proportional to the phase difference therebetween and, means responsive to said D.-C. voltage, in conjunction with said output signal from said phase detector, to provide an accurate indication of the phase difference between said electrical signals.

3,307,106
PULSE MODULATED DUPLEX RADIO COMMUNICATION SYSTEM WITH INTERFERENCE PREVENTION MEANS

Adolf Reindl, Long Branch, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Aug. 26, 1964, Ser. No. 392,356

6 Claims. (Cl. 325—21)



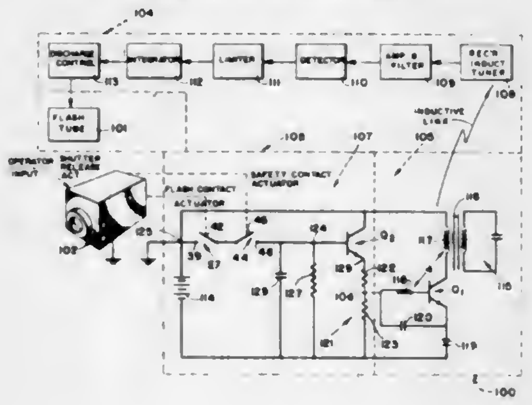
1. A communication system comprising a plurality of stations, each of said stations comprising a transceiver adapted for duplex operation, each said transceiver comprising a transmitter adapted to emit a train of modulated radio frequency pulses, each of said transmitters having a different carrier frequency each defining a different channel, the pulse repetition rate of each of said transmitters being determined by a normally free-running oscillator, each of said oscillators having a slightly different free-running frequency; each of said transceivers further comprising a receiver tunable to each of said different channels, means connected to said receiver to detect interference from nearby transmissions and means to synchronize said oscillator in frequency and phase with said nearby transmissions.

3,307,107
KEYED CAMERA TRANSMITTER AND CONTROL CIRCUIT THEREFOR

Sholly Kagan, Natick, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware

Filed Dec. 4, 1963, Ser. No. 328,068

1 Claim. (Cl. 325—102)



For use with a photographic camera having shutter-actuated flash contacts, a transmitter device for triggering by electromagnetic wave energy flash apparatus disposed remotely from the camera, comprising:
  (a) signal generating means for generating and radiating output signals in response to the application of a predetermined minimum control voltage;
  (b) a semiconductor device having emitter, base and collector electrodes;
  (c) network means connected in the emitter circuit of said device for developing said control voltage;
  (d) conductor means between said base and collector electrodes of said device for connecting said transmitter device to flash contacts of a photographic camera;
  (e) a source of potential connected across said network means and said semiconductor device to said collector electrode for providing forward bias voltage on said emitter electrode with respect to said base and collector electrodes; and
  (f) a capacitor connected across said network means and the emitter-base junction of said semiconductor device to said base electrode to sustain said forward bias voltage should jitter cause said contacts to intermittently separate, and to thus drive said semiconductor device as a current amplifier during the brief intervals of contact separation, whereby said predetermined minimum control voltage is maintained in said network means.

3,307,108
SPHERICAL DOUBLET ANTENNA WITH TRANSMISSION LINE FEED AT CURRENT NODAL POINTS

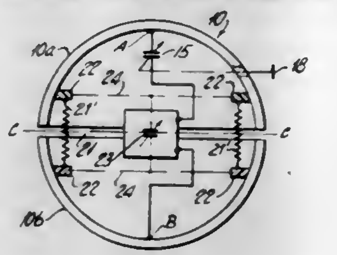
Giovanni Induni, Nussbaumen, Aargau, Switzerland, assignor to "Patelhold" Patentverwertungs- & Elektro-Holding A.G., Glarus, Switzerland

Filed Feb. 20, 1964, Ser. No. 346,154

Claims priority, application Switzerland, May 23, 1960, 5,903/60

12 Claims. (Cl. 325—119)

1. In a radio system, a high-frequency apparatus, a substantially closed hollow member consisting of electrically conducting material and being symmetrical in respect to at least one symmetry plane, said member arranged to enclose said apparatus on substantially all sides and being provided with an endless insulating gap coinciding with said plane, to provide a pair of separate radiating sections forming a doublet antenna, and a pair of feeding lines connecting said apparatus to central feeding points upon said sections on the opposite sides of said plane, said lines having an effective electrical length such as to cause said feeding points to substantially coincide with current nodal points on said lines during transmission of high-frequency energy between said apparatus and said antenna.

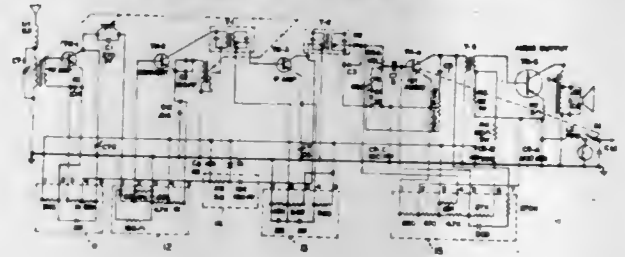


3,307,109
RADIO RECEIVER WITH CIRCUIT PLATES

Edward L. Hunter, Randolph, Mass., assignor to Automatic Radio Mfg. Co., Inc., Boston, Mass., a corporation of Massachusetts

Filed July 15, 1963, Ser. No. 295,088

5 Claims. (Cl. 325—357)



1. A radio receiver having radio frequency amplification stages each comprising,
  an amplifying device having a plurality of electrodes,
  means defining a common terminal,
  a flat plate of insulating material with conducting and resistive material thereon defining resistors and capacitors of values for connection to said amplifying device to coact therewith and comprise a said radio frequency amplification stage,
  conducting leads supporting said flat plate and electrically intercoupling said resistors, capacitors, electrodes and common terminal,
  each of said resistors and capacitors being circuit elements of only one of said radio frequency amplification stages,
  a flat conducting chassis plate electrically connected to said common terminal,
  means associated with a respective radio frequency amplification stage defining a row of spaced terminals supported on one side of said chassis plate beside a slot formed in said chassis plate,
  said flat plate being located in said slot with said conducting leads connected to respective ones of said terminals,
  said amplifying device being on said one side of said chassis plate with at least some of said device electrodes connected to respective ones of said terminals.

3,307,110
INSULATED GATE FIELD EFFECT TRANSISTOR TRANSLATING CIRCUIT

Leopold A. Harwood, Cherry Hill, N.J., assignor to Radio Corporation of America, a corporation of Delaware

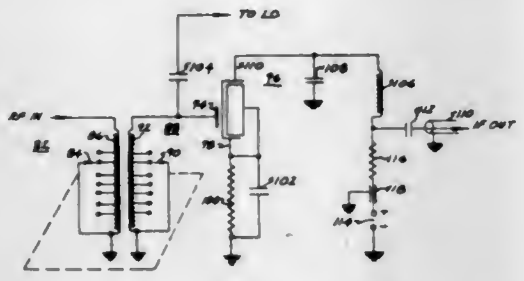
Filed July 19, 1963, Ser. No. 296,305

9 Claims. (Cl. 325—451)

1. An electrical circuit comprising,
  an insulated-gate field-effect transistor having source, drain and gate electrodes formed on a substrate of semiconductor material,

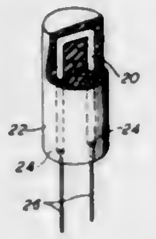
circuit means interconnecting said gate, source and drain electrodes so that said transistor operates as an active device in said electrical circuit, said circuit means including an impedance element connected to said source electrode, and

means connecting said substrate to said source electrode by a direct current path exclusive of said impedance means.



3,307,111
MOLDED COMPOSITION RESISTOR WITH PARALLEL LEADS

Marinus J. Braun, Bradford, Pa., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Nov. 22, 1963, Ser. No. 325,643
2 Claims. (Cl. 338—275)

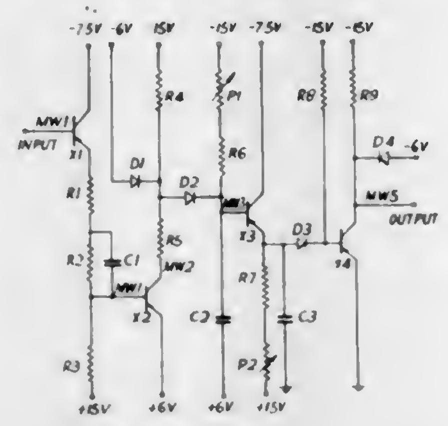


1. A molded insulated resistor comprising a filamentary U-shaped compacted powdered resistor body embedded in a shell of compacted molded powdered insulating mix, said resistor body comprising a molded mixture of a carbonaceous conductive material, an inorganic filler material, and a binder; and electrical conductors, one end of each of which is embedded in said compacted insulating mix in intimate electrical contact with the respective ends of said U-shaped resistor body and in intimate physical contact with said powdered insulating mix, said one end of each said electrical conductor having substantially the same cross section as said U-shaped resistor body, said electrical conductor extending along their entire length substantially parallel to each other and to the legs of said U-shaped resistor body.

3,307,112
DEMODULATOR CIRCUITS FOR FREQUENCY MODULATED ELECTRICAL SIGNALS

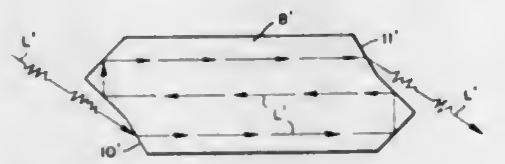
Adrian Percy Clark, Taplow, England, assignor to British Telecommunications Research Limited, Taplow, England, a British company
Filed Dec. 13, 1962, Ser. No. 244,314
Claims priority, application Great Britain, Dec. 12, 1961, 45,281/61; Mar. 16, 1962, 10,202/62
7 Claims. (Cl. 329—104)

1. In a demodulating arrangement for a signalling system having binary information transmitted by frequency modulation, a terminal for receiving an incoming signal waveform, means for slicing said incoming signal waveform so as to produce a squared waveform, a first capacitor means controlled by said squared waveform for charging said first capacitor at a substantially uniform rate for the period between successive transitions of said squared waveform and resetting it to its initial state of charge at the end of each such period, a second capacitor, means associated with said first capacitor for charging said second capacitor at a substantially uniform rate from the occurrence of one of said transitions for a period dependent on the state of charge of said first capacitor, means associated with said first capacitor for thereupon discharging said second capacitor at a substantially uniform rate until the occurrence of the succeeding transition, and a slicing circuit associated with said second capacitor for producing a waveform having one or other of two values in dependence on the state of charge of said second capacitor.



3,307,113
MULTIPASS NONREGENERATING LASER AMPLIFIER CRYSTAL

Richard Swart Hughes, Riverside, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 10, 1965, Ser. No. 478,776
2 Claims. (Cl. 330—4.3)



1. A multipass nonregenerating laser amplifier crystal comprising:

an elongated crystal body having exterior planar surfaces;

a first end for the body including means defining a first crystal-to-air interface perpendicular to the longitudinal axis of said crystal and adapted to serve as an ingress portion of the crystal for receiving laser light and directing the light in a first pass along a first longitudinal path extending parallel to said longitudinal axis of the body and terminating at a second end of the body;

a first total internal reflecting surface disposed at the second end of the crystal body arranged diagonally across said first longitudinal path for directing the light along a first transverse path at right angles to said first longitudinal path;

a second total internal reflecting surface disposed diagonally across said first transverse path for directing the laser light in a second pass through the body along a second longitudinal path parallel to said first longitudinal path and extending to said first end of the crystal body;

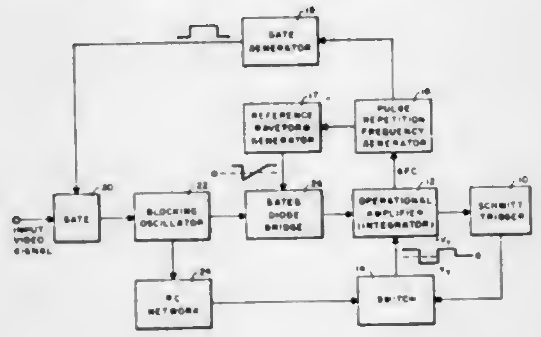
a third total internal reflecting surface disposed diagonally across said second longitudinal path for directing the laser light along a second transverse path at right angles to said first longitudinal path and extending in a common direction with said first transverse path;

at least a fourth total internal reflecting surface disposed diagonally across said second transverse path for directing the laser light in a third pass through the crystal body along a third longitudinal path extending parallel and in a common direction with said first longitudinal path to said second end of the body; and

a second crystal-to-air interface parallel to said first crystal-to-air interface disposed across the third longitudinal path adapted to serve as an egress portion of the crystal for passing laser light from the crystal body.

3,307,114
ELECTRONIC CIRCUIT TO SYNCHRONIZE AUTOMATICALLY THE FREQUENCY OF A PRF GENERATOR WITH THE PRF OF A VIDEO SIGNAL

Hans Staeudle, Heidenheim-Schnaitheim, and Klaus J. Hecker, Oberursel, Taunus, Germany, assignors to the United States of America as represented by the Secretary of the Navy
Filed Nov. 18, 1965, Ser. No. 508,604
2 Claims. (Cl. 331—4)

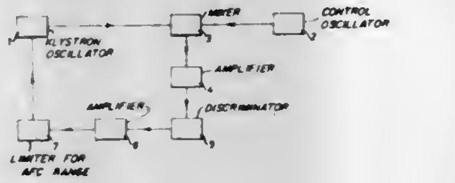


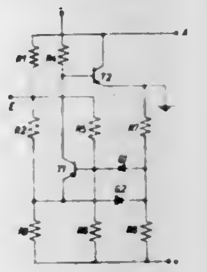
2. A system for automatically tuning and synchronizing a pulse repetition frequency generator to the pulse repetition frequency of a video signal, comprising:

(a) a trigger circuit whose output voltage polarity is reversible,
(b) an integrator means having an AFC output and an integrated output,
(c) a switching circuit means which is normally closed when no signal is applied to the system,
(d) the output of said trigger circuit being connected to the input of said integrator means via said switching circuit means; said integrator means causing said trigger circuit to reverse polarity and in turn causes said integrator means to reverse repeating the cycle,
(e) an input gate means,
(f) a pulse repetition frequency generator,
(g) the AFC output of said integrator means being fed to said pulse repetition frequency generator,
(h) gating pulses for operating said input gate and a reference waveform being derived from outputs of said pulse repetition frequency generator, said gate pulse,
(i) a blocking oscillator fed by the output from said input gate means,
(j) an RC-network for integrating the output of said blocking oscillator and whose output in turn is fed to said switching circuit means,
(k) an input video signal triggering said blocking oscillator when coinciding with said gating pulse and when their frequencies are nearly equal said blocking oscillator causing said RC-network to activate the switching circuit means and disconnect said trigger circuit output thus terminating the coarse tuning action,
(l) a gated bridge network to which said reference waveform is fed and sampled by pulses from said blocking oscillator, an error voltage output from said bridge network being fed to said integrator means for changing the AFC voltage to correct the frequency of said pulse repetition frequency generator until the error voltage is zero, and said switching means again connecting trigger circuit with said integrator means when the input video signal is interrupted.

3,307,115
MEANS FOR LIMITING THE RANGE OF FREQUENCY REGULATION OF OSCILLATORS

Gottfried Tschannen, Zurich, Switzerland, assignor to Albiswerk Zürich A.G., a corporation of Switzerland
Filed Dec. 15, 1964, Ser. No. 418,421
Claims priority, application Switzerland, Dec. 20, 1963, 15,756/63
13 Claims. (Cl. 331—6)





5. In an oscillator whose frequency is regulated responsive to an error voltage corresponding to the direction and magnitude of the oscillator frequency deviation from a preselected value, limiter means for limiting the range of action of the frequency regulation comprising, in combination, an input terminal to which the error voltage is applied; an output terminal connected to the oscillator; an electronic switch having a first common connection to said input and output terminals and a second connection to ground; and control means connected to said input terminal and to said electronic switch and effective, when the error voltage applied to said input terminal is within preselected limiting values, to condition said electronic switch effective for application of said error voltage as a control voltage to said output terminal and to the oscillator; said control means, when the error voltage applied to said input terminal exceeds said limiting values, conditioning said electronic switch means to connect said input and output terminals to ground to interrupt effective application of said control voltage to said output terminal.

3,307,116
AUTOMATIC DIGITAL LOCK-IN SYSTEM OF WIDE-BAND SIGNALS

Kenneth G. Williams, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 26, 1965, Ser. No. 510,452
6 Claims. (Cl. 331—12)

1. An automatic digital lock-in system comprising:

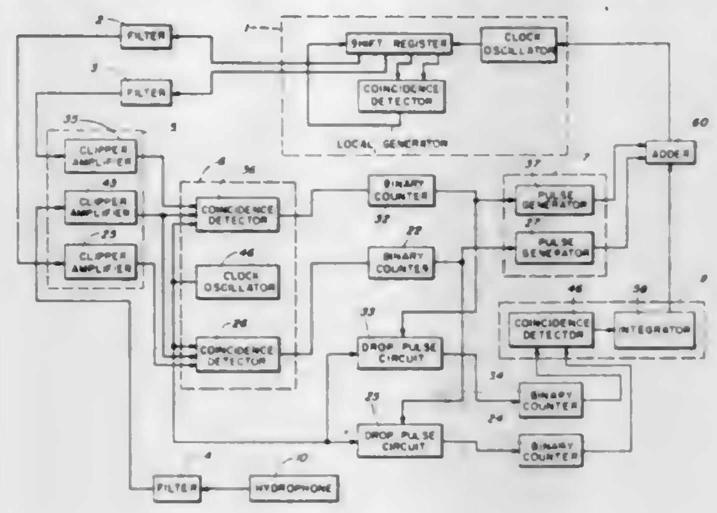
an input signal means;

a variable frequency oscillator;

correlation means for respectively comparing a signal from said input signal means, having a low signal-to-noise ratio, with each of a pair of time displaced reference signals produced by said variable frequency oscillator;

digital memory means responsive to the outputs of the correlation means for storing correlation data for a period of time, whereby the average trend of the correlated signals is obtained;

frequency control means whereby the resultant average of the correlated signals is further correlated and converted to a control voltage for synchronizing the frequency of the variable frequency oscillator with the frequency of the input signal.

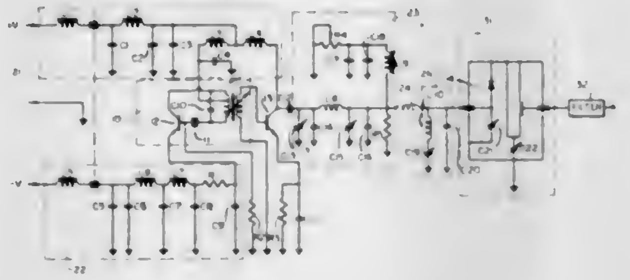


3,307,117
HIGH FREQUENCY GENERATOR EMPLOYING STEP RECOVERY DIODE

Ernest John Williams, Mountain View, Calif., assignor, by mesne assignments, to International Telephone and Telegraph Corporation, a corporation of Maryland

Filed Oct. 29, 1964, Ser. No. 407,364

3 Claims. (Cl. 331—42)



1. A high frequency generator comprising:
a resonant cavity;
a step recovery diode coupled to excite said cavity;
a resonant circuit tuned to a first frequency coupled to said step recovery diode;
means for exciting said step recovery diode and said resonant circuit with an alternating signal to turn on and off said step recovery diode, said diode generating a signal having high harmonic content as it is turned off; and
mixing means including said diode, coupled to said resonant circuit and to said resonant cavity for mixing said high harmonic content signal and said first frequency signal on said resonant circuit and for exciting said cavity when said diode is off, said cavity being tuned to the algebraic sum of said first frequency and at least one of the harmonics of said high harmonic content signal.

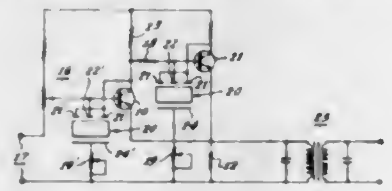
3,307,118
ELECTRONIC SWITCHING CIRCUIT WITH OSCILLATOR

Peter Svec, Munich, Germany, assignor to Schaltbau-Gesellschaft m.b.H., Munich, Germany, a corporation of Germany

Filed Jan. 18, 1965, Ser. No. 426,284

11 Claims. (Cl. 331—49)

1. An electronic switching circuit, comprising:
a first and a second electronic circuit element each having two main electrodes and a control electrode;
first circuit means for applying biasing potentials to said main electrodes permitting either of said circuit elements to conduct;
second circuit means for interconnecting the control electrode of said second electronic circuit element and one of the main electrodes of said first electronic circuit element to prevent stable concurrent states of conduction in the two electronic circuit elements;
input means operating independently from the two electronic circuit elements for applying a control signal between two of said electrodes of the first electronic circuit element, to change the state of conduction of the first electronic circuit element upon change in the level of the control signal; and
a bandpass filter having a characteristic resonant frequency and a plurality of terminals grouped in pairs and having characteristics that a variable voltage across a first pair of said pairs of terminals, results in a phase shifted, variable voltage across a second pair of said terminals, one of the first and second pairs of terminals being connected respectively to one of said main electrodes of one of said electronic circuit elements and to the control electrode thereof, the latter control electrode being connected to one of said input means and said second circuit means thereby being selectively controlled to permit and inhibit an oscillatory control at said resonant frequency of the one electronic circuit element by the filter, in dependence upon the level of said control signal, the other one of said first and second pairs of filter terminals being connected respectively to the main electrodes of said one electronic circuit element.



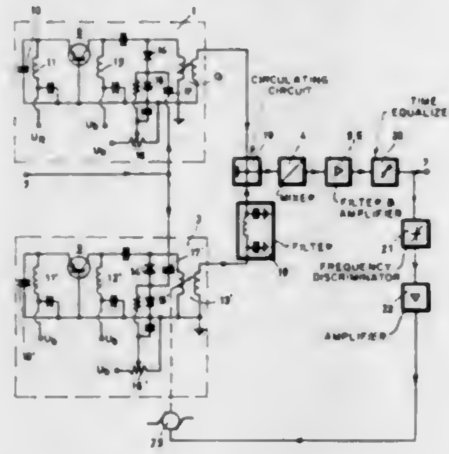
3,307,119
FREQUENCY MODULATOR HAVING TWO VARACTOR DIODE OSCILLATORS, ONE WEAKLY COUPLED, THE OTHER STRONGLY COUPLED, TO THE MIXING STAGE

Herbert Holzwarth, Stockdorf, Hans Leysieffer, Munich-Solln, and Egmont Gabler, Munich, Germany, assignors to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany

Filed May 1, 1963, Ser. No. 277,979

Claims priority, application Germany, May 4, 1962, S 79,299

6 Claims. (Cl. 332—18)



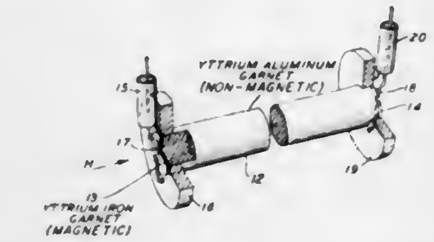
1. A modulation circuit for producing highly linear frequency modulated electromagnetic waves, comprising two oscillators, each having a frequency determining resonant circuit with inductance and capacitance, and a pair of oppositely poled varactor diodes connected in series circuit, with each of said series circuits connected in parallel with a respective one of the frequency determining resonant circuits thereof, for varying the frequency of the respective oscillator, a modulation signal connected to the common connecting points of the diodes of each series circuit, in opposite sense to one of said oscillators to the frequency variation of the other oscillator, the frequency of the respective oscillators being in the absence of modulation so different that the resulting frequency difference corresponds to a predetermined intermediate frequency value in the range of lower frequencies, means for establishing a frequency displacement for each of said oscillators which are different from one another, a mixing stage, a filter circuit, means for connecting the output of each oscillator with said mixing circuit, and means for connecting the output of said mixing circuit with said filter circuit for obtaining the oscillations with the difference frequency, the biasing of the varactor diodes of the two oscillators, and the different dimensioning of the ratio of inductance to capacitance of the two frequency determining resonance circuits, being so determined that the absolute frequency displacement of the respective oscillators is adjusted to compensate at the output of the mixing stage for distortions of even order.

3,307,120
ULTRASONIC WAVE DEVICE

Richard T. Denton, South Plainfield, and Edward G. Spencer, Berkeley Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Sept. 26, 1962, Ser. No. 226,381

10 Claims. (Cl. 333—30)


YTTRIUM ALUMINUM GARNET (NON-MAGNETIC)
YTTRIUM IRON GARNET (MAGNETIC)
20
15
18
19
12
13

1. An ultrasonic delay device comprising a member having a transducer portion formed of magnetic material and a delay line portion formed of nonmagnetic material, means including means for applying a radio frequency magnetic field to said magnetic portion for generating ultrasonic wave energy and means for utilizing ultrasonic wave energy connected to said nonmagnetic portion, said magnetic and nonmagnetic materials both being single crystal materials of given crystal lattice structure, the junction between said portions being formed as a continuous crystal lattice structure extending from and including the crystal lattice of said magnetic portion to and including the crystal lattice structure of said nonmagnetic portion so that no acoustical discontinuity is presented to said wave energy traversing said junction.

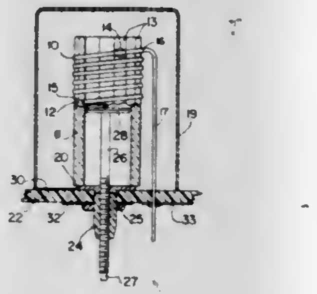
3,307,121
HELICAL RESONATOR WITH COIL, ADJUSTABLE CONDUCTING PLATE AND SHIELD FORMING A SERIES RESONANT CIRCUIT

Joseph Loos, Morton Grove, Ill., assignor to Motorola Inc., Franklin Park, Ill., a corporation of Illinois

Filed Aug. 28, 1964, Ser. No. 392,758

11 Claims. (Cl. 334—6)

1. A helical resonator for operating at a predetermined frequency including in combination, a helical coil having first and second ends, elongated connector means extending from said first end of said coil in the direction of said second end of said coil and beyond said second end, conductor means including a conducting plate positioned adjacent said second end of said coil and support means for said plate extending away from said first end of said coil and generally parallel to said elongated connector means, and conductive shield means about said helical coil electrically connected to said conductor means, said shield means and said conducting plate being capacitively coupled in parallel relation to said coil so that a series resonant circuit is formed between said conductor means and said connector means, said support means being adjustable for moving said plate with respect to said second end of said coil to control the capacity therebetween to thereby control the frequency of operation of said helical resonator.



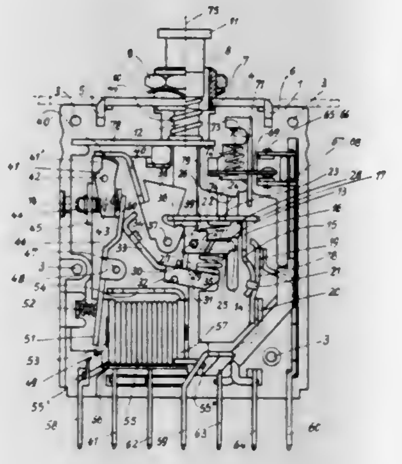
3,307,122
HIGH-SPEED PUSHBUTTON-CONTROLLED OVERLOAD CIRCUIT BREAKER

Jakob Ellenberger, Altdorf, near Nurnberg, Germany, assignor to Ellenberger & Poensgen G.m.b.H., Altdorf, near Nurnberg, a firm of Germany

Filed June 28, 1965, Ser. No. 467,630

Claims priority, application Germany, June 30, 1964, E 27,313

8 Claims. (Cl. 335—17)



1. A pushbutton-controlled overload circuit breaker having a housing, electromagnetic releasing means and trip-free releasing means within said housing, an abutment member in said housing having an inclined surface, a pushbutton guided in and projecting from said housing, a control rod rigidly secured to said pushbutton, a detent on the lower end of said control rod, an angular bracket pivotable and slidable within said housing and having two arms, a catch on the first bracket arm and associated with said detent, a pair of fixed contacts in said housing, a contact bridge mounted on said first arm so as to be slightly pivotable thereon and adapted to connect said contacts to each other, the second bracket arm being

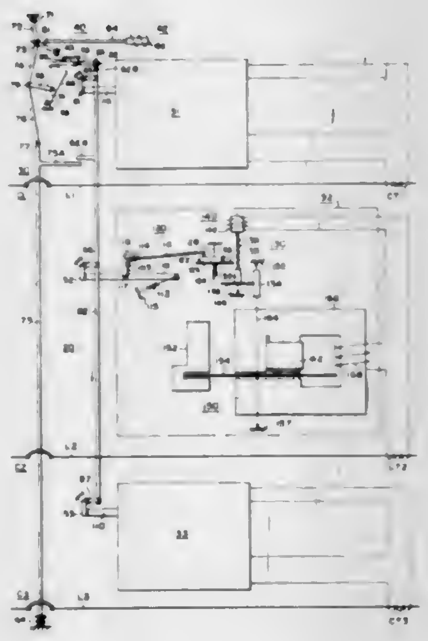
pressed against said inclined surface when the circuit breaker is being switched off, whereby said bracket and said contact bridge thereon are pivoted to an inclined position in which said detent is in alignment with said catch so that when said pushbutton is depressed, said detent will engage with said catch and take along said bracket and the contact bridge thereon, a locking pawl pivotably mounted in said housing and, when said pushbutton is being depressed, adapted to be engaged by said second bracket arm and thereby to be pivoted to a locking position in which said pawl locks said bracket in a fixed position, said electromagnetic releasing means comprising an electromagnet having a coil, and an armature pivotably mounted in said housing, a locking lever pivotably mounted in said housing, said armature when pulled up by said electromagnet adapted to pivot said locking lever from one position in which it holds said pawl in said locking position to another position in which it releases said pawl so as to permit said pawl to disengage from said second bracket arm, signal contacts in said housing for indicating when said contact bridge is located in its on off positions, and a control member guided in said housing and adapted to be moved by said second bracket arm for operating said signal contacts, and release means responsive to outward movement of the pushbutton to open the circuit breaker.

3,307,123
TRIPPING MEANS FOR CIRCUIT BREAKERS

William H. South, McKeesport, and Joseph D. Findley, Jr., Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 6, 1964, Ser. No. 380,276

22 Claims. (Cl. 335—18)



1. A circuit breaker comprising relatively movable contacts, operating means for opening said contacts, a movable member movable to actuate said operating means to effect automatic opening of said contacts, driving means responsive to an applied electrical quantity for providing an output having a speed which varies with the magnitude of the applied electrical quantity, driven means actuable by said driving means when coupled thereto to move said movable member after a predetermined time delay which varies with the speed of said driving means, and means for coupling the output of said driving means to said driven means only when the magnitude of the applied electrical quantity reaches a predetermined value to start said predetermined time delay.

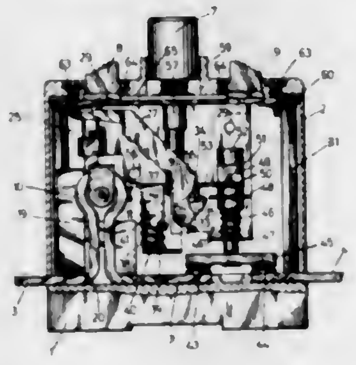
3,307,124
PUSHBUTTON-CONTROLLED OVERLOAD CIRCUIT BREAKER

Jakob Ellenberger, Altdorf, near Nurnberg, Germany, assignor to Ellenberger & Poensgen G.m.b.H., a German firm

Filed June 24, 1965, Ser. No. 466,533

Claims priority, application Germany, June 30, 1964, E 27,312

7 Claims. (Cl. 335—35)



1. A pushbutton-controlled overload circuit breaker for high rated currents having a housing, a pushbutton slidably mounted in said housing and projecting to the outside thereof thermal releasing means in said housing comprising a bimetal strip, electromagnetic releasing means in said housing comprising a magnet core and an armature, two current conductors adapted to be connected to an electric circuit and having contacts thereon within said housing and disposed within a common plane, one of said conductors being bent at a point spaced from its contact so as to form a substantially Ω-shaped loop, said magnet core being mounted within said loop and being connected in parallel to said bimetal strip, a contact bridge, means for moving said contact bridge within said housing in a direction vertical to said plane for connecting said contact bridge simultaneously with said contacts and for disconnecting the same simultaneously therefrom, and a two-armed lever located between said loop and said contact bridge, means for connecting said pushbutton to said lever when said pushbutton is being depressed, stationary supporting means within said housing having guide slots therein extending in the direction of movement of said pushbutton, said lever having a pivot pin pivotable within said slots and slidable therein in said direction of movement of said pushbutton, a spring acting upon the first arm of said lever at the side thereof facing said loop, and a pawl pivotably mounted in said housing and adapted to engage upon said pivot pin to arrest said lever in a position in which the second arm of said lever at the side thereof facing said contact bridge presses said contact bridge under the action of said spring against said two contacts.

3,307,125
OSCILLATING ARMATURE FOR ELECTRICALLY DRIVEN CHRONOMETERS

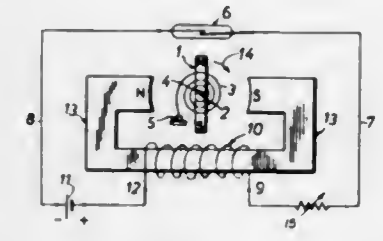
Gabriel Schwarzkopf, 1 Plattenweg, Biel, Bern, Switzerland

Filed Oct. 18, 1965, Ser. No. 496,938

Claims priority, application Switzerland, Oct. 23, 1964, 13,762/64

20 Claims. (Cl. 335—95)

1. Electromagnetic oscillating armature arrangement for the generation of periodic, mechanical oscillations which can be tapped off for controlling chronometers, comprising at least one stationary electromagnet, a permanent magnet armature located externally of said stationary electromagnet and under the effect of a restoring force tending to maintain the armature in a rest position, means mounting said armature for oscillatory motion in the magnetic field of and externally of said at least one stationary electromagnet, the field of said electromagnet producing a force on said armature in said rest position to move said armature therefrom, a current circuit provided for said at least one stationary electromagnet, at least one magnetic switch electrically coupled in said current circuit periodically actuated by the magnetic field of said armature extending into the response zone of said magnetic switch, said magnetic switch being situated such that it is not actuated by the magnetic field of said at least one stationary electromagnet.

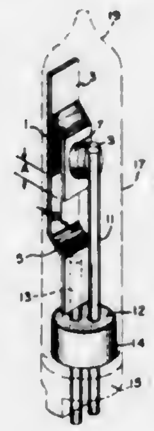


3,307,126
ENCAPSULATED MAGNETIC SWITCH

Robert E. Shaw, Beverly, and Marshall E. Kulberg, Woburn, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Aug. 20, 1963, Ser. No. 303,291

1 Claim. (Cl. 335—154)



A magnetic switch comprising: an hermetically sealed envelope; a pair of lead-in wires sealed in and extending from said envelope; a spring strip; a magnetic armature secured to said spring strip near one end thereof; a pole piece secured to said spring strip near the other end thereof, the adjacent ends of said armature and said pole piece overlying one another and being normally spaced from one another, said overlap being of the order of about one-half of the width of said armature and said pole piece, and said pole piece also being secured to one of said lead-in wires; an electrical contact secured to said armature; and an electrical contact secured to the other of said lead-in wires, said electrical contacts being normally closed with respect to one another.

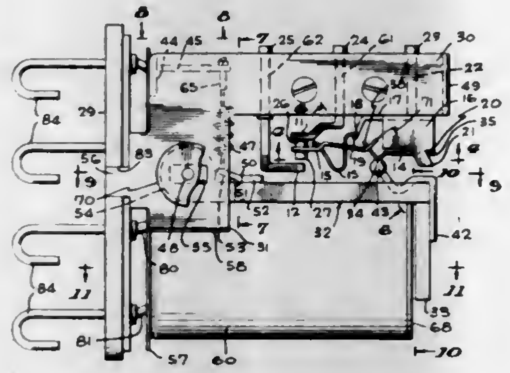
3,307,127
SUBMINIATURE SNAP ACTION RELAY

Nick F. Leo, 6058 Mary Ellen Ave., Van Nuys, Calif. 91401

Filed Oct. 22, 1965, Ser. No. 501,079

13 Claims. (Cl. 335—188)

1. In a relay, a combination including: a cylinder of ferrous material; a first closure of ferrous material extending across one end of said cylinder and integrally secured thereto; a second closure of ferrous material extending across the other end of said cylinder, said second closure having an opening therethrough; a core of ferrous material having one end secured to said first closure and extending through said cylinder; non-magnetic means supporting the other end of said core within said opening in spaced relationship thereto, said non-magnetic means at least indirectly carried by said cylinder; a coil of wire surrounding said core; an electrically non-conductive structure at least indirectly rigidly connected to said cylinder but spaced therefrom; first and second spaced stationary electrical contacts supported by said non-conductive structure; an elongated conducting element so supported by said non-conductive structure for pivotal movement that its free end may selectively engage said stationary contacts; a shaft disposed exteriorally of said cylinder and extending transversely thereof; means secured to said cylinder for supporting said shaft; a generally L-shaped structure pivoted on said shaft and so disposed that its short arm extends across said second closure with its long arm parallel to said elongated cylinder but paced therefrom, at least a part of the short arm of said L-shaped structure being formed of ferrous material; a rigid member secured to said L-shaped structure and extending therefrom in a direction generally away from the short arm; said member disposed in a first position when the second arm is attracted toward said second closure and core when said coil is energized; resilient means having one end connected to said L-shaped structure at a location displaced from said shaft and its other end so immobolized with respect to said cylinder that the resilient means urges said L-shaped structure in such direction that said rigid member is yieldingly held in a second position; and means for moving said elongated element from engagement with said first stationary contact into engagement with said second stationary contact in response to the movement of said member from said first position to said second position and for moving the elongated element from engagement with said second stationary contact into engagement with said first stationary contact in response to the movement of said member from said second position to said first position.



3,307,128
MAGNETIC COIL CONVERGENCE ASSEMBLY

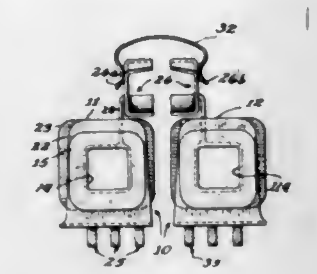
Nickolas Kriadis, Itasca, Ill., assignor to Bel-Tronics Corporation, Addison, Ill., a corporation of Illinois

Filed Dec. 11, 1964, Ser. No. 417,607

8 Claims. (Cl. 335—212)

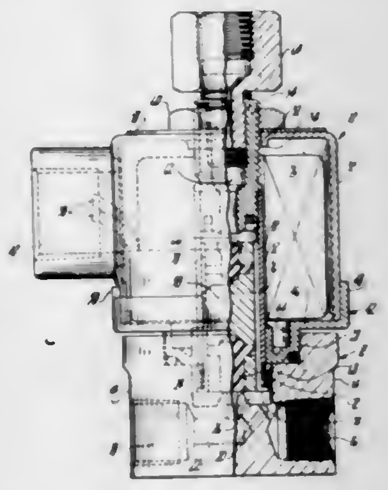
1. A magnetic assembly comprising, in combination, a pair of similar mating units, each unit including a hollow post for receiving a respective leg of a magnetic core, flanges formed at spaced points on said posts for defining spools on which coils are wound, an extension connecting selected ones of said flanges, a plurality of terminal pins mounted on said extension for receiving the ends of the wires of said coils, each unit having a guideway extending outwardly from said post, said guideway having an essentially C-shaped cross section and

having the open ends of said C-shaped guideway mateable with the open ends of the C-shaped guideway of the other unit for positioning and adjustably guiding a holder for a magnet to position said magnet in juxtaposition with the ends of said core, and means for fastening said mating units to one another.



3,307,129
SOLENOID OPERATOR FOR A VALVE OR THE LIKE

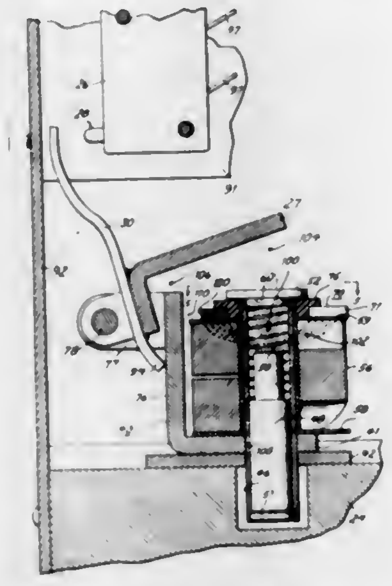
Paul Mangiafico, 142 Queen St., New Britain, Conn. 06053
Filed Mar. 23, 1964, Ser. No. 353,797
3 Claims. (Cl. 335—255)



1. A solenoid operator for a valve or the like comprising an inverted magnetic cup-shaped housing having a central opening in its top wall, an annular magnetic coil disposed in said housing, a combination housing base and connector having a central depending portion which is adapted for connection to the valve or the like and which has a vertical central bore, said base and connector also having a magnetic radially extending portion which is turned upwardly near its periphery to provide a seat for and to snugly embrace the bottom end portion of the housing, a non-magnetic sleeve fixedly secured in said bore and extending upwardly therefrom into the open center of the coil, a magnetic plug fixedly secured in the upper end of said sleeve and having an externally threaded upper end portion projecting outwardly through the said central opening in the top wall of the housing, a nut engaged with the threaded end of the plug and seated against the top wall of the housing to complete unitary assembly of the operator, a magnetic plunger freely slidable in said sleeve below the plug between an upper electrically energized position fixed by the plug and a lower position, said plunger being provided with a radially outwardly projecting flange on its bottom end, and a frusto-conical spring embracing said plunger with its larger diameter end seated on the plunger flange and with its smaller diameter end engaging the combination housing base and connector below the sleeve and embracing said plunger to dampen undesirable side-to-side movement thereof while permitting sliding movement in the sleeve.

3,307,130
ELECTROMAGNETIC DEVICE HAVING A SHUNT PLATE

William W. Camp, Lawrenceville, N.J., assignor to Heinemann Electric Company, Trenton, N.J., a corporation of New Jersey
Filed Jan. 13, 1965, Ser. No. 425,324
13 Claims. (Cl. 335—236)

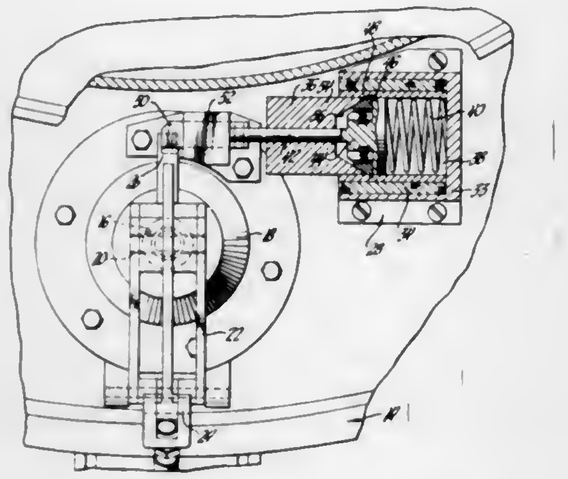


3. An electromagnetic device comprising an armature, a solenoid coil, a magnetizable frame carrying said armature and coil, a magnetizable core movable by the magnetic field of said coil, a tube housing said core and surrounded in part by said coil, said tube being of nonmagnetizable material, a magnetizable pole piece mounted at one end of said tube and toward which said core is attractable, said pole piece defining with said core a first magnetic gap, a magnetic shunting ring of magnetizable material placed intermediate said pole piece and said core and surrounding said first magnetic gap to define with said core a second magnetic gap, said shunting ring defining with said frame a third gap, and an insulating ring spacing said shunting ring from said pole piece along the longitudinal axis of said tube and spacing said shunting ring radially from said tube.

3,307,131
ELECTROMAGNETIC ACTUATOR WITH DETENT MEANS

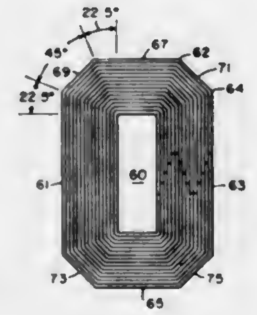
Gerald E. Hook, Indianapolis, Ind., and Albert J. Sobey, Bloomfield Hills, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Jan. 22, 1963, Ser. No. 253,087, now Patent No. 3,245,217, dated Apr. 12, 1966. Divided and this application May 6, 1965, Ser. No. 453,708
3 Claims. (Cl. 335—253)

3. An electromagnetic actuator comprising:
a fixed chamber open at one end, said chamber including a solenoid,
actuator means reciprocably mounted in said chamber and translatable between a first and a second position,
an abutment surface on said actuator means,
spring means disposed between said chamber and said actuator means resiliently urging said actuator means to said first position,
detent means on said actuator means, said detent means being extendable out of said abutment surface and engageable with said chamber to lock said actuator means in said first position,
an armature reciprocably mounted on said actuator means and engageable with said abutment surface to translate said actuator means in an opposite direction to said second position, and
cam means on said armature extending toward said abutment surface of the actuator means adapted to engage said detent means and cam it out of locking engagement with said chamber whereby said actuator means is unlocked and translated to said second position upon energization of said solenoid.



3,307,132
MAGNETIC CORE HAVING DISCRETE BENDS AT EACH CORNER

Belvin B. Ellis, Pulaski, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation of abandoned application Ser. No. 315,300, Oct. 10, 1963. This application May 13, 1966, Ser. No. 559,668
14 Claims. (Cl. 336—211)

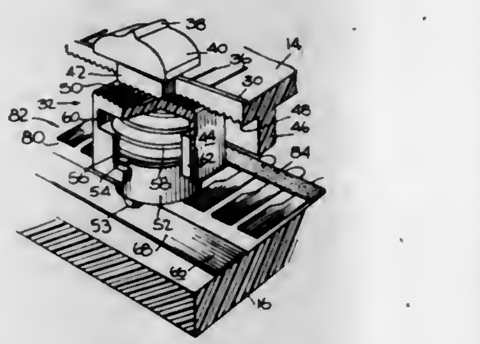


1. A magnetic core comprising a plurality of superposed turns of metallic laminations, said superposed turns of metallic laminations providing a laminated structure in which the outer turn defines a plurality of major outer sides separated by outer corners and the inner turn defines an opening in the structure, at least the outer corners of said structure each having a plurality of discrete bends which provide a plurality of additional outer sides.

3,307,133
PARALLEL GANGED MULTIPLE POTENTIOMETER

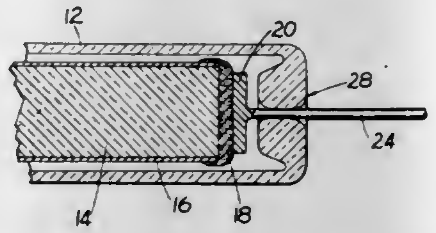
Frederick M. Wolff, Montclair, N.J., assignor, by mesne assignments, to Century Lighting, Inc., a corporation of New York
Filed Aug. 16, 1963, Ser. No. 302,595
3 Claims. (Cl. 338—194)

1. A parallel ganged multiple potentiometer comprising a casing including numerous elongated linear parallel narrow slots, numerous bridge contacts each mounted for parallel sliding movement in a different slot, a wall of said casing and a section of each bridge contact both having teeth of like contour, spring biasing means urging said teeth into disengageable interconnection so as to selectively lock any bridge contact along on its associated slot, and electrical printed circuit means carried by a wall of the casing, said printed circuit means comprising input busses, numerous ablatable resistance bands electrically connected in parallel between the busses so as to each induce a like voltage gradient, conductive abrasion-resistant tap segments disposed in rows parallel to the slots, each row being associated with a different resistance band and each tap segment being electrically joined to its affiliated resistance band at an axially spaced discrete point, numerous fixed contacts, and elongated linear collector strips each electrically connected to a different fixed contact, an electrically conductive portion of each bridge contact riding along and thereby electrically connecting a different collector strip and at least one tap segment of an associated row whereby to selectively variably pick off a desired voltage from along any single voltage gradient and to lead said voltage to its fixed contact, the electrically conductive portion of each bridge contact constituting a button mounted for sliding movement within the bridge contact, the spring biasing means urging the button into electrical contact with the printed circuit means.



3,307,134
ENCAPSULATED IMPEDANCE ELEMENT

Edward M. Griest, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Original application Dec. 14, 1959, Ser. No. 859,342. Divided and this application Apr. 2, 1963, Ser. No. 270,507
2 Claims. (Cl. 338—237)



1. An encapsulated impedance device comprising an impedance element, a pair of terminal leads each having a conductive frit at one end, said conductive frit comprising a mixture of about 68 parts by weight of finely divided silver and from about 10 to about 20 parts by weight of fritted glass, said leads being disposed with the frit coated ends adjacent the ends of said element, a sleeve of encapsulating material disposed about said element and a portion of said leads in a spaced relationship therewith, and a fusible end portion disposed about each said lead intermediate the ends thereof having a coefficient of thermal expansion compatible with that of the encapsulating material, said leads being fused to the ends of said

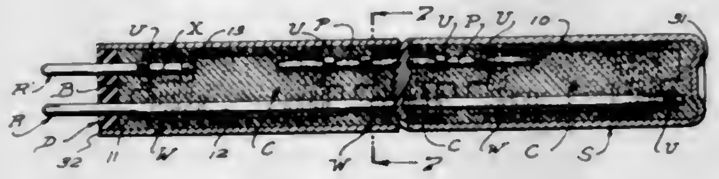
device, said fusible end portions being fused to said leads and said sleeve.

3,307,135
CARTRIDGE HEATER

Raymond L. Simmons, San Jacinto, Calif., assignor to Rama Corporation, San Jacinto, Calif., a corporation of California

Filed Feb. 1, 1966, Ser. No. 536,201

9 Claims. (Cl. 338—239)



1. An electric cartridge heater of the character referred to including, an elongate tubular metal sheath with a closed inner end and an open outer end, a plurality of sub-assemblies each comprising an elongate cylindrical core of granular magnesium oxide and a coil of resistance wire wound helically about the core and extending from one end thereof to the other, said sub-assemblies being arranged in axial alignment and centrally within the sheath, an elongate primary contact rod with an inner portion within the sheath, extending longitudinally through the several cores, a coupler unit securing the inner end of the coil on the innermost core to the inner end of the primary rod, a plurality of elongate connector pins extending longitudinally between and into the opposing end portions of adjacent cores, in lateral spaced parallel relationship with the primary contact rod and radially inwardly of the coils, coupling units connecting the ends of the coils at the said opposing ends of the cores to the pins, a secondary contact rod with an inner portion engaged in the outer end of the outermost core in axial alignment with the pins, a coupler unit connecting the outer end of the coil on the outermost core to the secondary contact rod, a plug dielectric material engaged in the outer end of the sheath and through which the outer portions of the rods extend and a filler of granular magnesium oxide in the sheath and about the parts arranged therein.

ERRATUM

For Class 338—275 see:
Patent No. 3,307,111

3,307,136
CONTACT LAYER FOR A SILICON-CONTAINING MATERIAL

Erich Fitzer, Karlsruhe, Ottmar Rubisch, Meitingen uber Augsburg, and Friedrich Selka, Augsburg, Germany, assignors to Siemens-Planiawerke Aktiengesellschaft für Kohlefabrikate, Meitingen uber Augsburg, Germany, a corporation of Germany

Original application July 19, 1962, Ser. No. 210,940, now Patent No. 3,279,042, dated Oct. 18, 1966. Divided and this application June 21, 1966, Ser. No. 559,309

Claims priority, application Germany, July 20, 1961, 74,922

2 Claims. (Cl. 338—322)

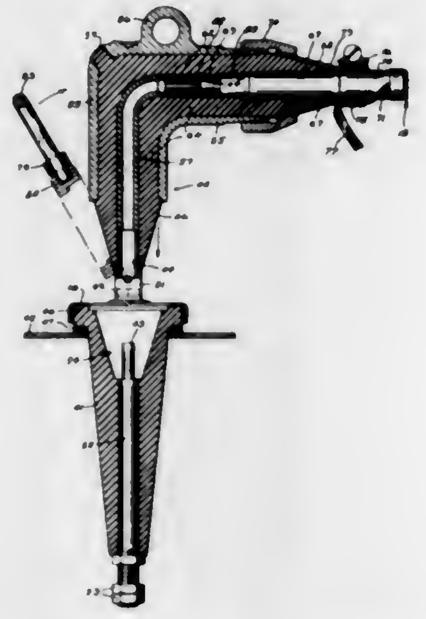
1. An electric resistance heater element comprising a rod-shaped resistor body of refractory metal-silicide having respective terminal contacts on the respective end portions of the body, said end portions having at least one inwardly concave recess, a metallization coating of aluminum on said end portions, said metallization coating forming an intimate and oxide-free area bond with the silicide surface of said body and having a thickness of about 0.1 to about 0.5 mm., a thicker outer cast coating of aluminum integral to said metallized coating, said coatings having inwardly projecting surfaces mating with said recess for providing mechanical resistance to axial shearing forces tending to pull said coatings from said body.

3,307,137
CONDUCTOR TERMINATION

Ledger J. Tordoff, South Milwaukee, and Max Rigert, West Allis, Wis., assignors to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed May 27, 1965, Ser. No. 459,215

11 Claims. (Cl. 339—61)



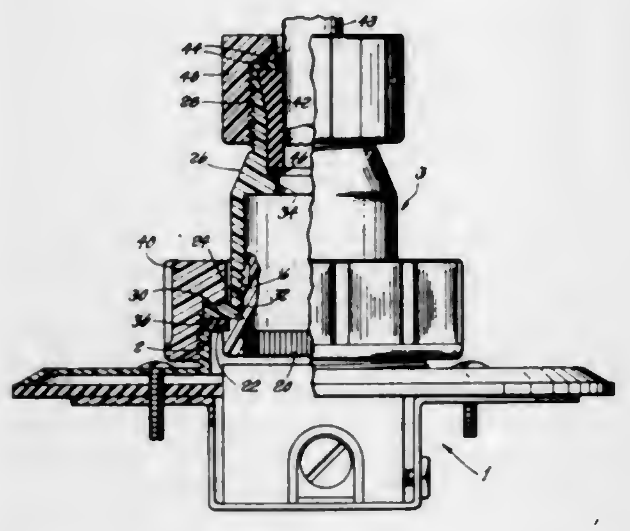
11. In combination, a metallic casing adapted to be connected to ground, an insulating bushing member extending through a wall of said casing, a conductive member extending axially through said bushing member and having a first connector portion at the end thereof exterior of said casing and being adapted to be connected to high voltage electrical apparatus interior of said casing, terminating means comprising an outer hollow conductive body member, an inner conductive member disposed within and radially spaced inwardly from said outer member and having a second connector portion at one end complementary to and normally releasably engaging said first connector portion, tubular insulating means disposed between said inner and outer members, said insulating bushing member and said tubular insulating means having complementary frustoconical surfaces defining a long creepage path between said outer conductive member and said normally engaged connector portions, one of said frustoconical surfaces being of a resilient material, and releasable means for urging said terminating means against said insulating bushing member, whereby said complementary frustoconical surfaces are compressed together and conform closely to each other and low dielectric strength air occlusions are prevented along said creepage path, said releasable means electrically connecting said outer member to said casing, the widest part of each of said frustoconical surfaces being in substantial registry with the outer surface of said tubular insulating means when said connector portions are normally engaged and the narrowest part of said surfaces being proximate to the surface of said inner conductive member, the continuous radial thickness of insulation at the axial transition between said conductive members and at the widest part of said surfaces being substantially equal to the radial thickness of said tubular insulating means.

3,307,138
WATERTIGHT REPAIRABLE ELECTRIC PLUG

Edward Swartz, 120 Fountain St., Haverhill, Mass. 01108

Filed Mar. 19, 1965, Ser. No. 441,391

2 Claims. (Cl. 339—89)



1. A plural blade type plug for a receptacle of the type having a threaded cylindrical shield and adapted to be sealed with a moisture sealing cap when the receptacle is not in use, said plug comprising:

(a) a molded plug blade support of dielectric material,

(b) a plurality of plug blades for engaging the receptacle terminals molded into said plug blade support and each extending through the plug blade support and formed for connection to respective conductors,

(c) said plug blade support including in longitudinal succession a finger gripping section beyond which extend the plug blades, a recessed circular step, and a threaded portion of lesser diameter than the circular step,

(d) a hollow cylindrical plug body terminating in a flange at one end and interiorly threaded at that end for assembly with the threaded portion of said blade support for shielding the blade to conductor connections,

(e) an elastomeric annulus surrounding the circular step of said blade support and confined between the flange of the plug body and the finger gripping section of the support,

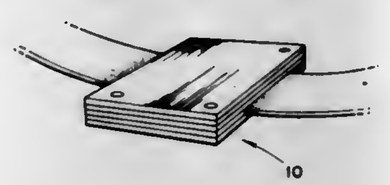
(f) a screw cap slidable along the exterior of said plug body for abutting the flange and for threaded engagement with the exterior of the receptacle shield for compressing the elastomeric annulus between the flange and the open end of the shield after the plug is in the receptacle.

3,307,139
FLAT CABLE CONNECTOR

Walter J. Prise, Sunnyvale, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 12, 1965, Ser. No. 455,167

4 Claims. (Cl. 339—176)



1. A multi-contact electrical connector for connecting flat cable, said flat cable having a multiplicity of conductors consisting of thin flat parallel metallic ribbons embedded in and extending longitudinally of a thin, flexible sheath of insulating material, having a portion of the insulating material adjacent the terminal removed exposing the metallic ribbons; said multi-contact electrical connector comprising a relatively flat, thin main body member, said body member having at least two receptacles for receiving the terminal ends of said flat cable, an inner portion of each of said receptacles disposed in a spaced, overlapping relationship; a plurality of housing cavities formed within said body member and positioned adjacent a single exposed metallic ribbon of each flat cable, an electrical interconnect secured within each housing cavity, each of said electrical interconnects being formed of a compressible resilient metal member adapted to be in electrical and mechanical contact with a single metallic ribbon of each of said flat cables inserted into said receptacles, whereby the electrical contact will form an electrical interconnection between pairs of said flat cable, and the mechanical contact acting under force from the compressible resilient metal will serve as a friction lock to secure each flat cable within the connector receptacles.

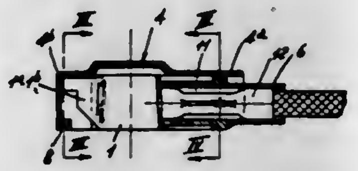
3,307,140
CLAMPS FOR THE FASTENING OF WIRES TO THE TERMINALS OF ELECTRIC BATTERIES

Michele Vallinotto and Luigi Villata, Moncalieri, Italy, assignors to Costruzioni Meccaniche Val-Ni S.p.A., Moncalieri, Italy

Filed Mar. 11, 1965, Ser. No. 439,014

Claims priority, application Italy, Mar. 20, 1964, 6,440/64

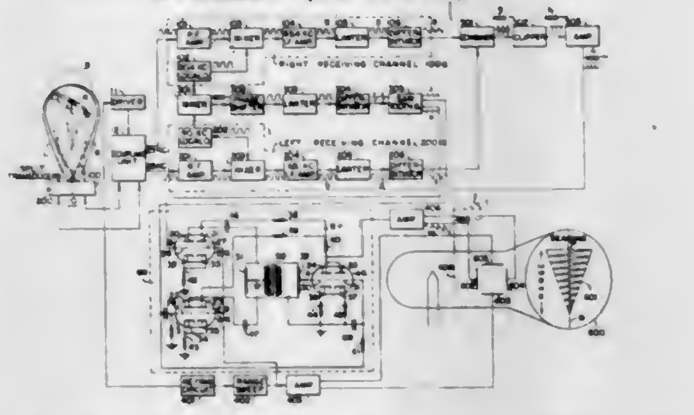
3 Claims. (Cl. 339—226)



1. A clamp for fastening the wires at the terminals of electrical batteries comprising a metal clamp comprising a circular ring portion for receipt of a battery terminal post and two winglets projecting therefrom, hub means attached to the clamp on the side opposite the winglets for receipt of electrical cable, and lid means for covering the metal clamp and hub portion adjacent thereto, the lid means having a first end pivotly attached to the hub means and a second end extending downward over the end of the two winglets, and downwardly diverging wedge-shaped frontal loophole cam means in the second end of the lid means receiving the two winglets, whereby the winglets are pressed together when the lid means is pivoted downwardly to a first position and are released when the lid means is pivoted upwardly to a second position.

3,307,141
WEDGE SCAN FOR ECHO LOCATING SYSTEM

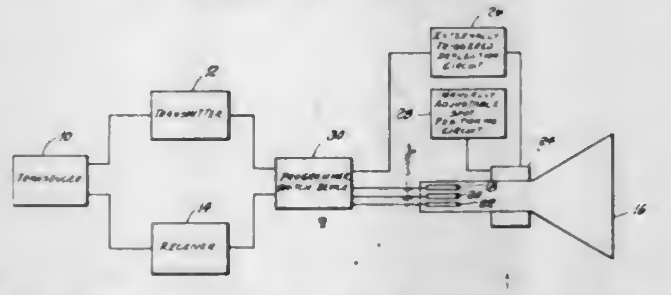
Harold L. Saxton, 7556 Broadview Road SE., Washington, D.C. 20022, and Melvin S. Wilson, Washington, D.C.
Filed Mar. 25, 1948, Ser. No. 16,894
6 claims. (Cl. 340—3)



1. In combination, a pulse echo locator system comprising means for transmitting periodic impulses to remote objects, receiver means for receiving reflections therefrom comprising apparatus for providing at least one pair of directional overlapping zones of reception disposed in opposing angular relation about an axis of directivity, a cathode ray tube indicator means coupled to the output of said receiver means to indicate the phase relationship of the signal energy received by said opposing zones of reception comprising a low frequency deflection circuit for deflecting the electron beam of said cathode ray tube in a first direction in response to the emission of said periodic impulses, and means including a high frequency deflection circuit for simultaneously deflecting said electron beam in a second direction substantially at right angles to said first direction, said last named means further including a modulator circuit connected to said low frequency deflection circuit to uniformly increase the amplitude of electron beam deflection in said second direction synchronously with the beam deflection in said first direction.

3,307,142
THREE-COLOR ECHO RANGING DISPLAY

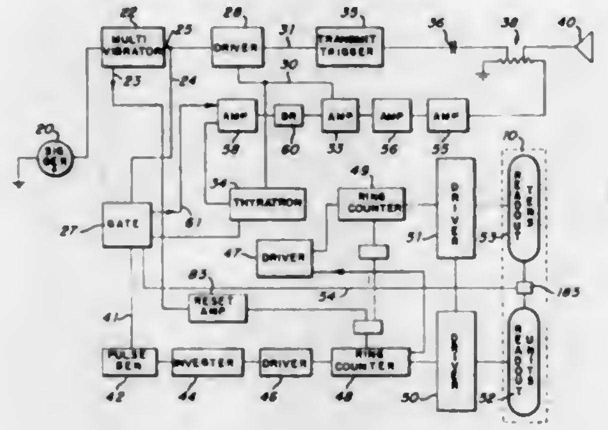
Harold J. Doebler, New London, Conn., assignor to the United States of America as represented by the Secretary of the Navy
Filed June 10, 1964, Ser. No. 374,212
5 Claims. (Cl. 340—3)



2. In an underwater echo ranging apparatus having a transducer, a transmitter, and receiver, the improvement comprising:
(a) a three gun cathode ray color tube and deflection means for directing the beam from each gun to impinge the tube face, along a selected trace path,
(b) means coupled to the transmitter and to the deflection means for synchronizing the operation of the deflection means and the transmitter, and
(c) means coupled to the receiver and to the electrons guns to record echoes returned by each of three successive pulses in different primary colors whereby random noise appears on the display in one of the primary colors and target echoes correlate and appear on the display in white.

3,307,143
SONAR DEVICE

David S. Wyse and James E. Kienker, Dayton, Ohio. assignors to Projects Unlimited, Inc., Dayton, Ohio, a corporation of Ohio
Filed Dec. 28, 1964, Ser. No. 421,531
9 Claims. (Cl. 340—3)



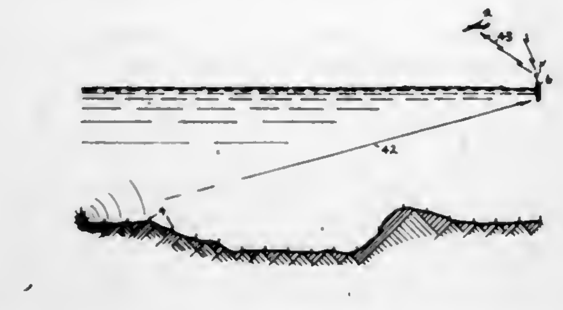
1. A sonor system of the character described adapted for installation in a ship or the like for measuring the depth of a body of water below the ship or the like comprising, pulse generating means including a transducer adapted to be mounted on the bottom of the ship for generating a sound wave for passage from a transmitter to the bottom of the body of water to be reflected therefrom, a gate which is energized to a first non-conducting state simultaneously with the generation of said sound wave, a time base pulse generator connected to said gate for generating a series of pulses of predetermined length when said gate is in said first state, said pulses being correlated with the speed with which said sound wave passes through the water, first and second ring counter tubes each having ten outputs so that pulses supplied thereto sequentially advance said ring counters and current flow is sequentially produced in said outputs, first and second display tubes each having ten cathodes shaped in the form of numbers 0—9, said cathodes of said first and second display tubes being connected to one of said outputs of said first and second ring counter tubes, respectively, said cathodes adapted to glow when current flows therethrough thus presenting a visual display, said first ring counter tube being connected to said pulse generator and said second ring counter tube being connected to the number zero output of said first ring counter so that said cathodes display in units and tens the pulses from said generator, receiver means for receiving and amplifying the wave reflected from the bottom of the body of water and being connected to said gate to change said gate to a second state when a signal is received thereby terminating operation of said time base pulse generator so that the depth of water can be easily read on said cathodes of said digital display tubes, means connected to said gate for causing said display tubes to be inoperative when said gate is in said first state to eliminate scrambling of said cathodes, and means connecting said pulse generating means and said ring counter tubes for resetting said ring counter tube each time a sound wave is generated.

3,307,144
BATHYMETRY

David Epstein and Sidney Epstein, Brooklyn, N.Y., assignors to Vadys Associates, Ltd., Brooklyn, N.Y., a corporation of New York
Filed Jan. 22, 1965, Ser. No. 427,350
4 Claims. (Cl. 340—5)

1. In the bathymetric mapping of deep ocean areas, the steps of
depositing a predetermined geometric pattern of negatively buoyant explosive charges on the ocean bottom,

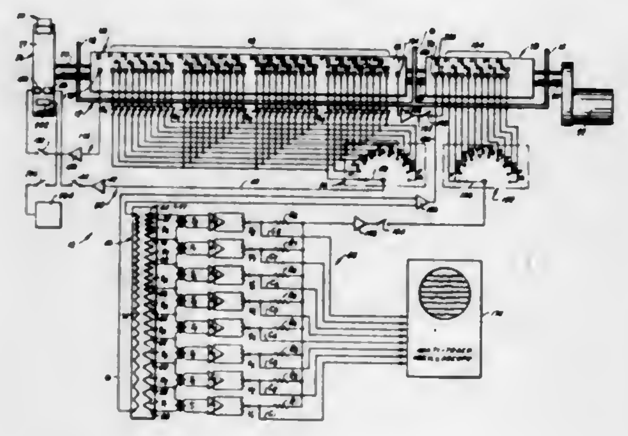
sequentially detonating said deposited explosive charges in predetermined time sequenced relation and



measuring the time interval intermediate each of said detonations and the first bubble pulse resulting therefrom at a common location remote from said charges and located at the ocean-air interface.

3,307,145
METHOD AND APPARATUS FOR COMPILING, COMPOSITING, CORRELATING AND NORMALIZING SEISMOGRAPHIC DATA

Donald E. Dunster and Douglas S. Sullivan, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Nov. 20, 1963, Ser. No. 324,968
31 Claims. (Cl. 340—15.5)

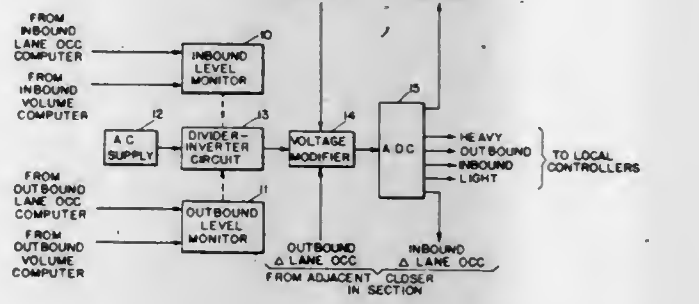


1. A device for correlating a first signal having an unknown frequency content with a second signal having a predetermined frequency content, the first signal being recorded on a record sheet adapted to be attached to a drum, the device comprising:
a support frame;
a drive shaft journaled on the support frame;
drive means operatively connected to the drive shaft for driving the drive shaft;
first drum means connected to the drive shaft for receiving the record sheet upon which the first signal is recorded;
second drum means connected to the drive shaft and having a surface upon which a signal can be recorded and having a diameter substantially greater than the diameter of the first drum means for increasing the resolution of the correlation signal;
third drum means connected to the drive shaft and having a surface upon which a signal can be recorded;
first electrical means having a reproducing head operatively positioned adjacent the first drum means and a recording head operatively positioned adjacent the second drum means for reproducing the signal from a record sheet attached to the first drum means and magnetically recording the signal on the surface of the second drum means;
correlation head means consisting of an elongated conductor means having a configuration approximating the wave shape of said second signal, said head means being operatively positioned adjacent to the surface of the second drum means for producing a correlation signal from the signal recorded on the surface of the second drum means; and,
second electrical means operatively connected to the correlation head means and having a recording head operatively positioned adjacent to the third drum means for recording the correlation signal on the third drum.

28. A method for compiling and processing seismic data comprising the steps of:
recording a reference signal on a first record sheet;
reproducing the reference signal and simultaneously inducing a seismic signal in the earth corresponding to the reference signal, detecting the seismic reflection signal from the induced seismic signal and simultaneously recording the seismic reflection signal on the first record sheet;
moving the first record sheet in synchronism with second and third record sheets while maintaining the record sheets in a predetermined relative relationship;
reproducing the seismic reflection signal from the first record sheet, recording the seismic reflection signal recorded on the second record sheet, correlating the seismic reflection signal recorded on the second record sheet by a first correlation head to produce a correlation signal;
recording the correlation signal on the third record sheet; and,
reproducing the reference signal from the first record sheet and recording the reference signal on the second record sheet, correlating the reference signal recorded on the second drum to produce a zero time correlation signal and recording the zero time correlation signal on the third record sheet.

3,307,146
OFFSET SELECTOR

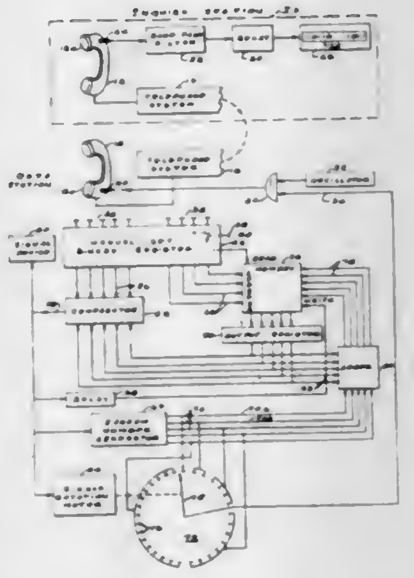
John H. Auer, Jr., Fairport, and Lyle A. Ross and Jerry P. Huffman, Rochester, N.Y., assignors to The General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Mar. 26, 1964, Ser. No. 354,886
6 Claims. (Cl. 340—35)



1. In a traffic control system, means for selecting offsets in accordance with actual traffic conditions comprising, inbound lane occupancy measuring means responsive only to inbound traffic and producing a signal representative of inbound lane occupancy, inbound volume measuring means responsive only to inbound traffic and producing a signal representative of inbound volume, first level monitoring means having said inbound lane occupancy and volume signals applied thereto and providing

a selected one of a plurality of outputs in accordance with their amplitude, outbound lane occupancy measuring means responsive only to outbound traffic and producing a signal representative of outbound lane occupancy, outbound volume measuring means responsive only to outbound traffic and producing a signal representative of outbound volume, second level monitoring means having said outbound lane occupancy and volume signals applied thereto and providing a selected one of a plurality of outputs in accordance with their amplitude, a signal source, means controlled by the outputs of said first and second level monitoring means for controlling the signal produced by said source, and output means controlled by said signal provided by said source for selecting a particular one of said offsets.

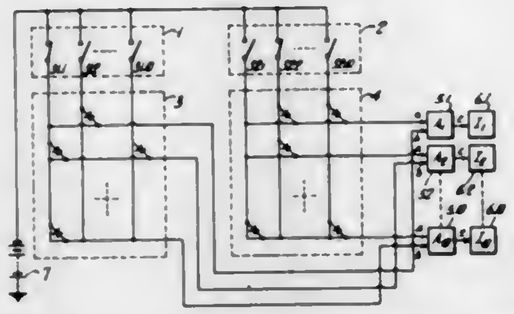
3,307,147
TELEPHONE VERIFICATION SYSTEM
Robert N. Goldman and Ronald A. Katz, Los Angeles, Calif., assignors to Telecredit, Inc., Wilmington, Del., a corporation of Delaware
Filed Apr. 12, 1962, Ser. No. 187,051
10 Claims. (Cl. 340—150)



1. A validation system for use in cooperation with a communication means whereby a data station can be contacted by any of a plurality of inquiry stations, said system for validating identification of a subject at an inquiry station, comprising:

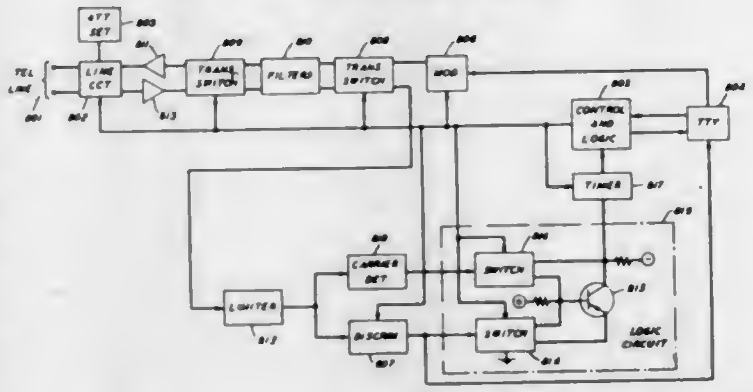
- remote means at said inquiry station for providing fixed data indicative of said subject and variable data currently identifying said subject;
- means for communicating said data from said remote means to said data station, over said communication means;
- memory means at said data station having a plurality of locations each for recording variable signals currently identifying a subject;
- address means for receiving said fixed data from said remote means specifying a certain location in said memory means;
- comparator means for receiving said variable data from said remote means and said variable signals from said certain location in said memory means to compare such for predetermined coincidence;
- means to alter said variable signals to provide varied signals;
- means to register said varied signals in said certain location in said memory; and
- means to return said varied signals to said remote means for recording as variable data.

3,307,148
PLURAL MATRIX DECODING CIRCUIT
Masahiko Fukamachi, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan, a corporation of Japan
Filed Apr. 5, 1963, Ser. No. 270,913
Claims priority, application Japan, Apr. 16, 1962, 37/15,558
3 Claims. (Cl. 340—166)



1. In a decoding circuit adapted to receive a plurality of input signals divisible into independent groups of signals, the improvement comprising a plurality of diode input matrices each corresponding to one of said groups of input signals, each of said matrices having a plurality of inputs and a corresponding plurality of outputs, a plurality of logical circuits each coupled to only one output from each of said input matrices, and a plurality of indicators each coupled to the output of a corresponding logical circuit for indicating a given input condition on one input of each of said matrices.

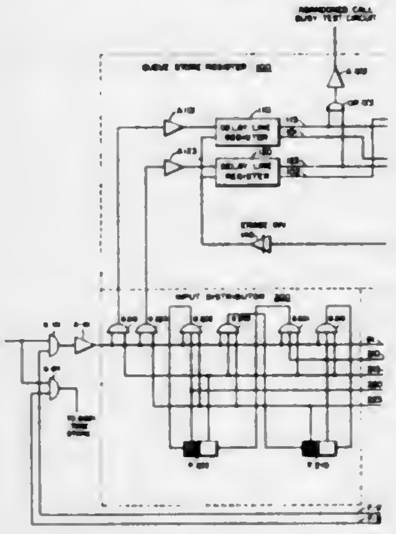
3,307,149
CONTROL LOGIC CIRCUIT FOR SUBSCRIBER DATA SET CARRIER SIGNAL THRESHOLD MONITOR
Theodore L. Doktor, Flushing, and George Parker and Herbert M. Zydney, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 28, 1962, Ser. No. 248,045
6 Claims. (Cl. 340—167)



1. In a data transmission system, a first signal receiver, a second signal receiver, a signal gate jointly responsive to said first receiver and to said second receiver, a timing circuit responsive to said signal gate, and means responsive to said timing circuit for rendering said signal gate solely responsive to said first receiver and rendering said timing circuit directly responsive to said second receiver.

3,307,150
QUEUE STORE
William F. Bartlett, Rochester, N.Y., assignor, by mesne assignments, to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware
Filed Nov. 16, 1962, Ser. No. 238,083
16 Claims. (Cl. 340—172.5)

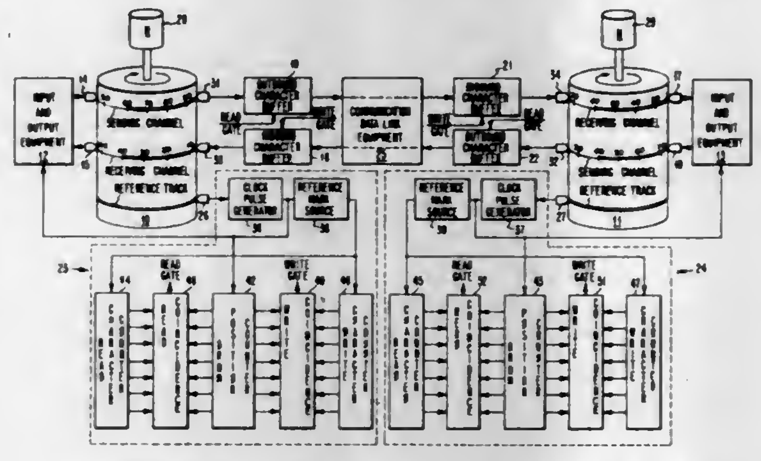
1. In a time division multiplex queue store, an input distributor means and an output distributor means each having *n* distinct sequential states, recirculating delay line register means, a source of input signals each representing a distinct time slot in a repetitive time frame, said input distributor means responsive to a signal in any one random time slot from said source for registering a pulse indicative of said one time slot in said register means in the time slot which it represents, said input distributor means responsive to a subsequent signal in any other random time slot from said source for registering a pulse indicative of said other time slot in said register means in the time slot which it represents, comparison means responsive to the registration of signals indicative of *n* time slots in said register means for inhibiting the registration of signals indicative of any additional time slots in said register means, a source of readout signals, said output distributor means responsive to a signal from said readout source for extracting the signal indicative of said one time slot from said register means, said output distributor means responsive to a subsequent signal from said readout source for extracting the signal indicative of said other time slot from said register means, and said comparison means responsive to the extraction of a signal indicative of a time slot signal from said register means for enabling the registration of a signal indicative of an additional time slot in said register means, said input signals received by said input distributor means representing random time slots in said repetitive time frame.



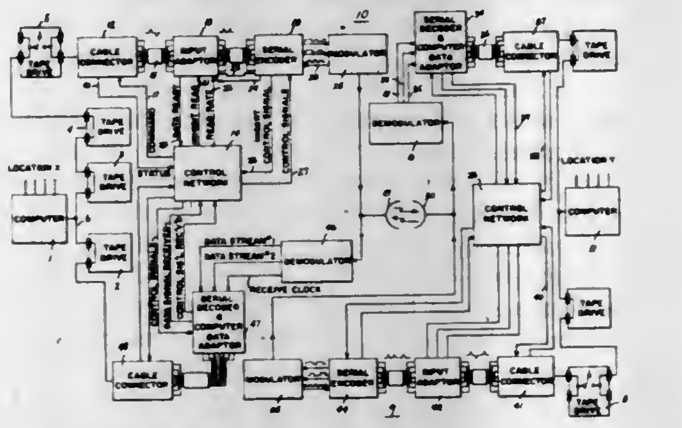
3,307,151
DUPLEX DATA TRANSFER OPERATIONS BETWEEN CYCLIC STORAGE DEVICES
John R. Featherston, Tucson, Ariz., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 26, 1962, Ser. No. 246,951
6 Claims. (Cl. 340—172.5)

1. A system for transferring data simultaneously between a pair of cyclic storage devices at rates of essentially one data increment per cycle, comprising:

- first and second cyclic storage devices each having sending and receiving channels thereon, data increment positions on the sending channels being arranged in ascending order relative to the direction of cycling, and data increment positions on the receiving channels being arranged in descending order relative to the direction of cycling,
- a plurality of transducer means, each operatively coupled to a different one of the channels of the storage devices,
- a plurality of data increment storage registers, each coupled to a different one of the transducer means,
- data link means individually coupling data increment storage registers associated with sending channels on the cyclic storage devices to data increment storage registers associated with the receiving channels on the other of the cyclic storage devices, and
- first and second cyclic storage control means each coupled to control the transfer of selected data increments between the storage devices and the individual data-increment storage registers, and receiving data increments from sending channels at intervals of one complete cycle plus one data increment, and entering data increments in receiving channels at intervals of one complete cycle minus one data increment.



3,307,152
DATA TRANSMISSION SYSTEM WITH CONTROL CHARACTER INSERTIONS
Floyd Bridgers Robbins, Lynchburg, Va., assignor to General Electric Company, a corporation of New York
Filed May 31, 1963, Ser. No. 284,635
17 Claims. (Cl. 340—172.5)



5. In a system for preparing data in digital coded form for transmission between two remote locations, the combination comprising means for receiving data characters at one location in the form of a plurality of individual bits, means to prepare the data characters for transmission as a synchronous bit stream of interlaced data and control characters, means to generate a signal in the absence of a data character, means responsive to said last named signal for generating a control character representative of either the status of a device at the one location or of a command from a device at the one location to a device at the remote location, means to inhibit the generation of a control character representative of the status of a device whenever a character representative of a command can be generated whereby a transmission priority in the bit stream is established so that a data character is given priority over both status and command characters and a command character is given priority over a status character, means for receiving and processing a synchronous bit stream of interlaced data and control characters, including means to identify and distinguish between data and control characters, means to separate the data and control characters, means to convert the data characters to parallel form, means to further identify and separate the control characters into status and command characters, and means to generate electrical signals in response to said status and command characters.

3,307,153

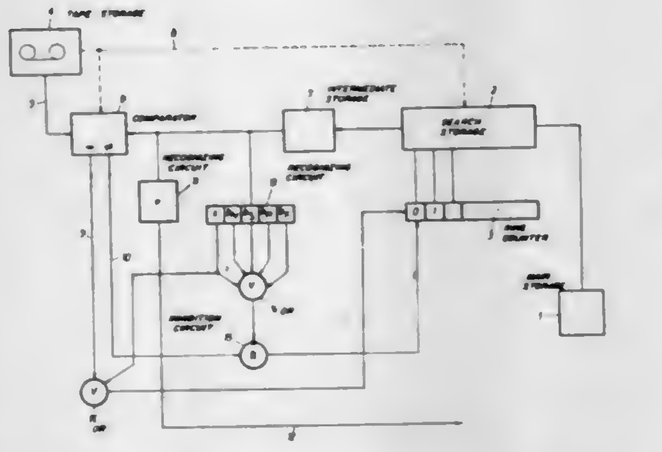
METHOD OF PERFORMING ON-THE-FLY SEARCHES FOR INFORMATION STORED ON TAPE STORAGES OR THE LIKE

Walter Bauer, deceased, late of Stuttgart, Germany, by Magda Bauer, nee Beck, Stuttgart, Germany, Gabriele Degenkolb, nee Bauer, Stuttgart-Sillenbuch, Germany, and Barbara Bauer, Haltingen, Germany, legal heirs, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed June 12, 1963, Ser. No. 287,448

Claims priority, application Germany, June 16, 1962, St 19,369

1 Claim. (Cl. 340—172.5)



Apparatus for performing on-the-fly searches for information stored in a blockwise fashion on magnetic tapes with control character stored between the blocks of stored information, a special control character at those points which do not serve the search purpose, and an "END" signal at the end of the information comprising; main storage means for retaining information items; search storage means containing several storage cells for receiving one character of search information transferred from the main storage means; tape storage means for storing and sequentially reading information items from magnetic tape; ring counter means connected with the search storage means and having as many stages as positions are contained in the search storage means such that the output of one counting stage is connected to control one storage cell of the search storage means; intermediate storage means for storing in rhythm with the tape storage mean that particular character of the search storage means whose associated stage of the ring counter means is marked; comparator means interconnected between the tape storage means and the intermediate storage means and responsive in rhythm with the tape storage mean to the respective signals thereof to generate a first signal upon a first output conductor upon the determination that the two signals are "alike" and to generate a second signal upon a second output conductor upon the determination that the two signals are "not alike"; first recognizing circuit means for recognizing control characters and special control characters and responsive to the output of the intermediate storage means for generating an output signal upon the occurrence of any one of the plurality of control or special control characters, first OR gating means interconnected between the comparator means first output conductor, the special control character portion of the first recognizing circuit means and the ring counter whereby the occurrence of an "alike" determination or a special control character causes a signal to be gated to the ring counter to step the ring counter to the next position so as to progress to the next search storage stage, second OR gate means responsive to the first recognizing circuit means output signals for passing a single signal upon the occurrence of any one of the control or special control characters, inhibition gating means connected to the comparator means, the second OR gate means and ring counter whereby the occurrence of a "not alike" determination by the comparator causes a signal to reset the ring counter to a zero count unless the "not alike" signal is inhibited by the control character signal from the first recognizing circuit whereby blocks of information may be searched for with intermediate blocks of information being skipped as controlled by the first recognizing circuit; and second recognizing circuit means connected to the output of the intermediate storage means and responsive to the occurrence of the END signal for generating a READ OUT signal indicating that the information on the tape has been discovered in the search storage means.

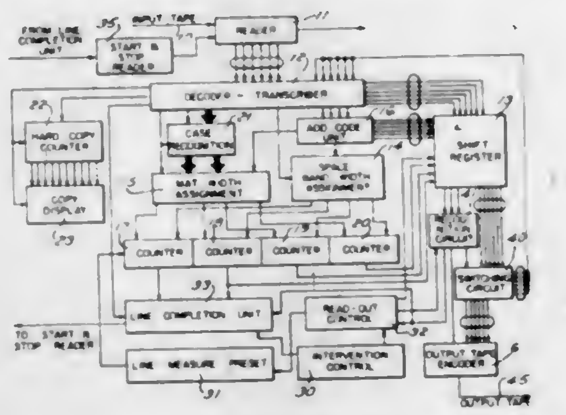
3,307,154

DATA PROCESSING APPARATUS FOR LINE JUSTIFICATION IN TYPE COMPOSING MACHINES

William W. Garth, Jr., Concord, and Ellis P. Hanson, Rockport, Mass., assignors to Compugraphic Corporation, Reading, Mass., a corporation of Massachusetts

Continuation of application Ser. No. 229,810, Oct. 11, 1962. This application Dec. 10, 1963, Ser. No. 329,597

17 Claims. (Cl. 340—172.5)



1. Data processing apparatus for providing a series of output signals suitable for operating a typesetting machine to reproduce in properly terminated lines justified within a predetermined line length, copy material in word and paragraph form comprising,

- means for generating a series of sequential input code signals, each representing a significant composition element of said copy material;
- translating means adapted to receive said input code signals, said translating means providing output signals in response to individual input codes;
- display means controlled by said translating means and adapted to display said copy material in such a manner as to individually indicate each character of said copy material at the time the code signals representing said character is being received by said translating means;
- data storage means coupled to said translating means and adapted to store sequentially a plurality of said code signals;
- a coding element;
- a computer means coupled to said translating means and adapted to accumulate for each of said input code signals as it is received by said translator the width value for the respective character or space corresponding to said code, said computer means being adapted to provide an output indication identifying which of said code signals are within justification range of said predetermined line length and to provide an overset indication identifying the one of said code signals, the width value for which, exceeds said predetermined line length, said data storage means being adapted to sequentially transfer said plurality of stored code signals to the input of said coding element and to stop said transfer in response to said overset indication from said computer element, said coding element being adapted in response to said transferred code signals to provide a series of output signals adapted to operate a typesetting machine;
- line termination means adapted to recommence transfer of said stored code signals to said coding element when a code representing an interword lies within said justification range and to stop said transfer and terminate said line when the last one of said interword codes within said justification range has been transferred, said line termination means being adapted when no code representing an interword lies within said justification range to be manually operated to insert a hyphen code after a preselected code and to transfer all of said codes in said storage prior to said hyphen to said output coding element and to terminate said line.

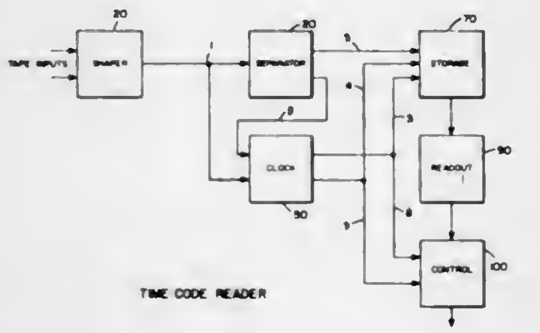
3,307,155

TIME CODE READER

Robert L. Fowler, China Lake, Calif., and Nickolas Prince, Jr., High Rolls, N. Mex., assignors to the United States of America as represented by the Secretary of the Army

Filed Mar. 11, 1964, Ser. No. 351,263

11 Claims. (Cl. 340—172.5)



1. A time code reader comprising in combination an input signal fed to an input of a shaper circuit; a separator circuit having an input and two outputs;-connections from an output terminal of said shaper circuit to the input of said separator circuit; a clock circuit having two input terminals and an output terminal; means connecting the output terminal of said shaper circuit to one of said input terminals of said clock circuit; connections from one output terminal of said separator circuit to the other input terminal of said clock circuit; a storage circuit having two inputs and an output; means connecting the other output of the separator circuit to one input of said storage circuit; means connecting the output terminal of said clock circuit to the other input of the storage circuit; and a readout circuit connected to the output of said storage circuit.

3,307,156

INFORMATION PROCESSING AND DISPLAY SYSTEM

George H. Durr, Marblehead, Mass., assignor, by mesne assignments, to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware

Filed Oct. 4, 1962, Ser. No. 228,416

27 Claims. (Cl. 340—172.5)

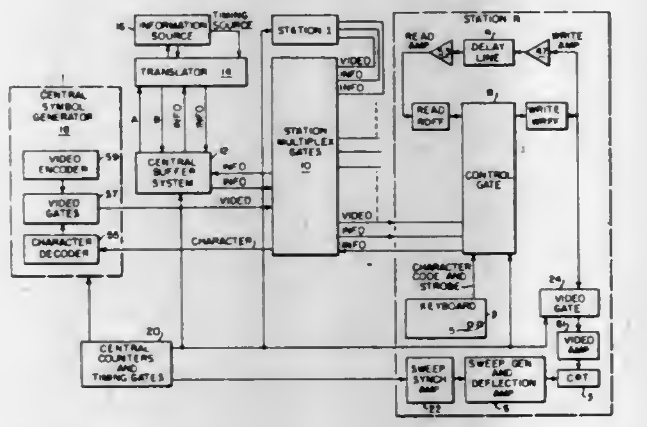
1. In an information processing system having a capacity for messages comprising N characters each represented by an electrical pulse sequence corresponding to a digital code sequence of m bits produced at the rate of f bits per second; timing means for producing a series of clock pulses at the rate of f bits per second; means connected to and controlled by said timing means for periodically generating a first ordered sequence of $m+2$ electrical signals $b_1, b_2 \ldots b_m+2$ each having a duration of $1/f$ seconds and each corresponding in time to a clock pulse, a second ordered sequence of $k+1$ second electrical signals $S_1 \ldots S_{k+1}$ each having a duration of

$$\frac{m+2}{f}$$

seconds and being in time phase with the first ordered sequence, and at least one electrical signal T having a duration of at least

$$\frac{(k+1)(m+2)}{f}$$

seconds, where k is an integer, and being in time phase with one occurrence of said second ordered sequence; a delay line having a delay of D seconds; message generating means for generating a sequence of electrical pulse character sequences representing the character of a message; manually operable means controlled by said signal T, a selected one S_1 of said signals S, and a selected one b_1 of said signals b for supplying a first load pulse to the delay line at the time TS_1b_1; means controlled by the delay line and the signals S_1 and b_1 for producing a gate signal in response to the emergence of the load pulse; means controlled by the gate signal, the message generating means, the next following signal S_1 generated by said timing means and all of the signals b except for b_1 and another selected one b_j of said signals b for gating the first character sequence to the delay line; means for supplying a load pulse to the delay line in response to the same signal S_1 and the signal b_1; and means for recirculating the contents of the delay line, whereby the successive character sequences of the message are loaded into the delay line on successive cycles thereof and sequentially in times marked by the times S_1.



9. A message display system, comprising; a cathode ray tube having a display screen, means for focussing a beam of electrons on said display screen, means for modulating the intensity of said beam, and horizontal and vertical beam deflection means; means for supplying a triangular horizontal sweep voltage to said horizontal deflection means having a period of $D/2$ seconds, a rise time of

$$\frac{(N-X)(m+2)(k+1)}{yf}$$

seconds, where $N-X$ is the maximum number of characters in the message to be displayed, f is a predetermined bit repetition rate, m is the number of bits required to define a character in a selected digital code, y is the number of lines to be utilized in displaying the message, k is an integer, X is the minimum integer required by the fall time characteristics of the sweep voltage source and the particular tube, and

$$D=\frac{N(m+2)(k+1)}{f}$$

means for applying a triangular sweep voltage to said vertical deflection means having a period of

$$\frac{m+2}{f}$$

a rise time of m/f and a fall time of $2/f$ seconds; means for applying a series of pulses to said beam intensity modulating means during the rise time of the vertical sweep pulses occurring during the rise time of the horizontal sweep pulses to form dot-pattern displays of the characters of a message, and means for applying a step voltage to said vertical deflection means having y equally timed levels and a period of D seconds to direct the displays of the various characters to the appropriate display line.

17. In combination, a console having a keyboard and a cathode ray tube having a visible screen mounted thereon, said keyboard being provided with keys labeled with characters in a selected alphabet, a recirculating delay line, means controlled by said keys when sequentially actuated for storing a sequence of character codes in said delay lines representing the characters labeled on the keys, and means responsive to the stored character codes for displaying the associated characters on the screen.

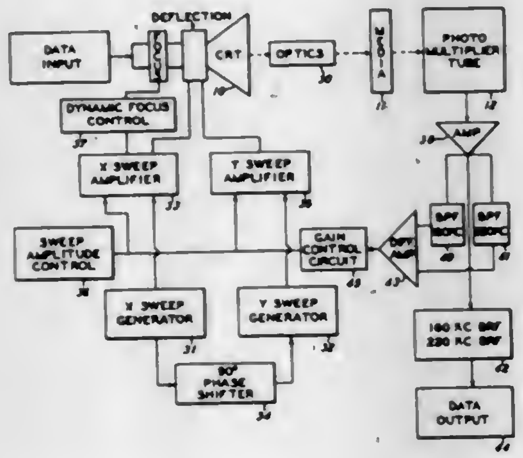
3,307,157

LIGHT SCAN RECORDING AND READOUT

David C. Harper, Rochester, Raymond T. Wright, West Webster, and James E. Young, Pittsford, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Jan. 2, 1964, Ser. No. 335,259

3 Claims. (Cl. 340—173)



1. Apparatus for scanning a photosensitive storage element in a data processing system comprising:

(a) a cathode ray flying spot scanner;

(b) means to position a photosensitive storage element, having recording tracks in concentric rings, in face-to-face relationship with said cathode ray flying spot scanner;

(c) a lens system arranged to focus the spot of said scanner on said element;

(d) two sine wave sweep generators of the same frequency;

(e) phasing means to maintain a 90° phase differential between said two sweep generators;

(f) two sweep amplifiers with their inputs connected to said sweep generators and their outputs connected to deflection elements of said scanner for operating said scanner in a circular sweep mode illuminating said element along the concentric rings of said recording tracks; and,

(g) common amplitude control means connected to said two sweep amplifiers to simultaneously adjust the diameter of the scan circle to coincide with a selected recording track.

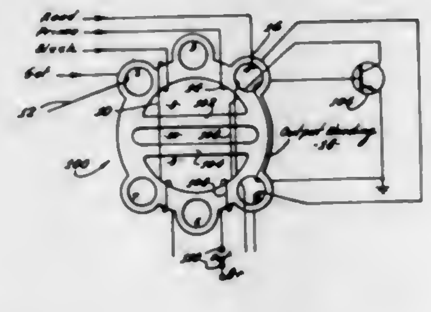
3,307,158

MULTI-APERTURE CORE GATE CIRCUITS

William B. Buehrle, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Aug. 1, 1963, Ser. No. 299,233

5 Claims. (Cl. 340—174)



1. A magnetic core circuit including in combination,

a magnetic core having high flux retentivity properties providing set and cleared stable remanent magnetic states and with a plurality of flux paths each capable of being switched to either magnetic state, and formed to have a major aperture with a major flux path therearound, an input minor aperture having an input flux path thereabout which is in interacting relation to said major path, and first and second output minor apertures spaced along said major path and each forming independent output flux paths,

set winding means magnetically coupled to said input flux path for selectively switching magnetic flux therein to a set stable magnetic state,

block winding means magnetically coupled to said major flux path for selectively switching magnetic flux around the major aperture and said input aperture to a cleared stable remanent magnetic state,

prime winding means magnetically coupled to said output flux paths and to said major flux path for selectively magnetically exciting said core such that when said input flux path is in said set magnetic state the flux around said first output aperture is switched to a set magnetic state,

readout means magnetically coupled to said output apertures for sensing the last mentioned set magnetic state and operative when sensing such state to switch the flux around said output apertures to a cleared stable magnetic state, and

the core portions adjacent said second output aperture providing noise cancellation within said core.

3,307,159

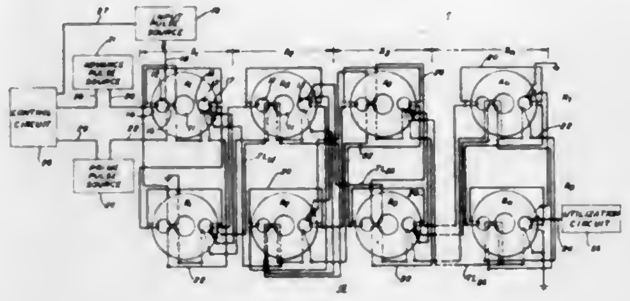
MAGNETIC SHIFT REGISTER CIRCUIT

Edward M. Walters, Middlebush, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Sept. 18, 1963, Ser. No. 309,635

5 Claims. (Cl. 340—174)

1. A shift register circuit comprising a plurality of stages including an initial stage, each of said stages comprising first and second multiapertured magnetic cores having substantially rectangular hysteresis characteristics said first multiapertured magnetic core being responsive to input signals of a first polarity only, said second multiapertured magnetic core being responsive to input signals of a second polarity only, input means coupled to said first and second multiapertured magnetic cores of said initial stage for applying signals of first and second polarities thereto, a plurality of transfer loops each coupling the first and second multiapertured magnetic cores of a different pair of adjacent stages, and a single advance circuit including a single conductor coupling in a like manner all of said first and second multiapertured magnetic cores, each multiapertured magnetic core being coupled by a transfer loop and said single conductor in a sense to permit, when said single conductor is activated, the transfer of information between the coupled multiapertured magnetic cores of each pair of adjacent stages responsive to signals of said first polarity while urging to a clear state the remaining coupled multiapertured magnetic cores of said pair of adjacent stages.



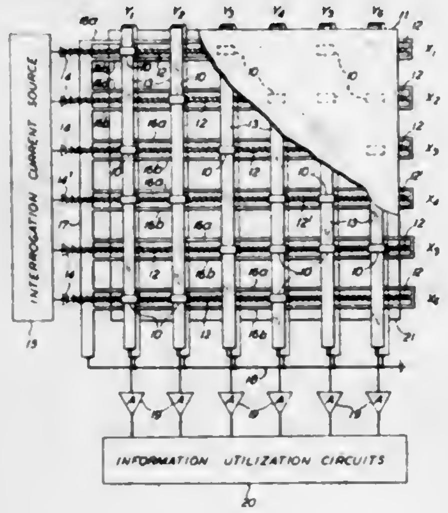
3,307,160

MAGNETIC MEMORY MATRIX

Lawrence H. Young, Emmaus, Pa., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 24, 1963, Ser. No. 333,134

7 Claims. (Cl. 340—174)


INTERROGATION CURRENT SOURCE
INFORMATION UTILIZATION CIRCUITS
A

1. A magnetic memory matrix comprising a plurality of parallelly arranged memory conductors each having a magnetic tape helically wound therearound, each of said tapes having substantially rectangular hysteresis characteristics, said memory conductors defining a plurality of binary word rows in said matrix, a plurality of parallel sensing conductors coupled transversely to said tapes and defining a coordinate array of address segments on said tapes, means including a current source for applying a bipolar interrogate current to a selected one of said memory conductors for flux switching to opposite states of remanent magnetization the entire length of the tape of said selected memory conductor, means for preventing said flux switching at particular ones of said address segments of said tapes comprising a plurality of permanent magnets arranged so as to have their fields maintain only said particular address segments of said tapes in one state of remanent magnetization; and means for detecting signals induced in said sensing conductors by said flux switching.

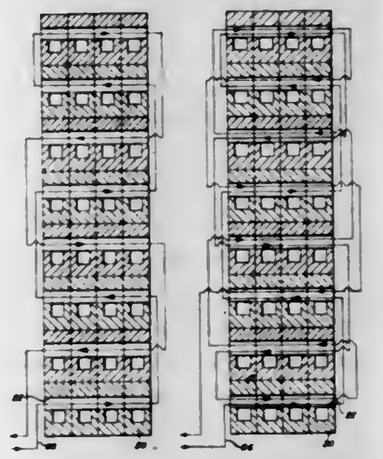
3,307,161

MULTIAPERTURE CORE MEMORY SYSTEM

Elvin L. Woods, Tustin, Calif., assignor, by mesne assignments, to Raytheon Company, a corporation of Delaware

Original application Jan. 8, 1962, Ser. No. 164,837, now Patent No. 3,238,517, dated Mar. 1, 1966. Divided and this application Aug. 19, 1965, Ser. No. 489,095

2 Claims. (Cl. 340—174)



1. In a word oriented one element per bit binary memory system having a bipolar output, the combination of:

a plurality of magnetic units, each comprising a block of magnetic material having intersecting, orthogonally disposed word and bit openings therethrough, with said blocks arranged in a plurality of bit rows with the bit openings of the blocks of a row aligned and with the bit rows disposed parallel to each other to form a plurality of bit planes and with the bit planes arranged adjacent each other to form an array with the word openings of corresponding blocks of each plane aligned to define a word composed of a plurality of bits;

a plurality of word conductors, with a word conductor positioned in the aligned word openings of each word respectively;

means for generating word write and read current pulses of opposite polarities on word conductors in selected aligned word openings;

a plurality of first bit conductors, with a first bit conductor threaded in a serpentine pattern through the bit openings of the rows of blocks of a bit plane, looped over the end of the bit plane, and again threaded in the serpentine pattern through each of the rows to provide two turns passing in the same direction through each row of bit openings;

and a plurality of second bit conductors, with a second bit conductor threaded in a serpentine pattern through the bit openings of the rows of blocks of a bit plane progressing in a direction normal to the rows skipping alternate rows, and then progressing in the opposite direction in the skipped rows.

3,307,162

MAGNETIC ARTICLE ENCODING APPARATUS

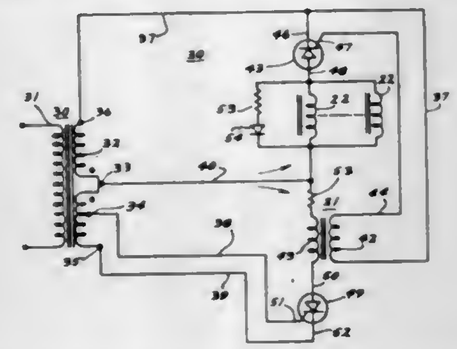
James S. Fink, Minneapolis, Minn., assignor to The Electro Nuclear Systems Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Oct. 30, 1961, Ser. No. 148,564

12 Claims. (Cl. 340—174.1)

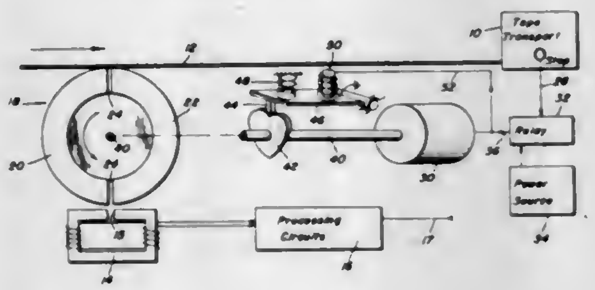
1. In apparatus of the class above described, article encoding apparatus comprising; a source of low frequency alternating current energy; a plurality of electromagnetic energy transferring devices; first and second current controlling devices, each having input and output terminals; circuit means connecting one of said electromagnetic energy transferring devices and the output terminals of said first current controlling device to said source of energy;

further circuit means connecting the input terminals of said first current controlling device to said source of energy; circuit means connecting the remainder of said electromagnetic energy transferring devices and the output terminals of said second current controlling device to said source of energy; and circuit means connecting said one of said electromagnetic energy transferring devices to the input terminals of said second current controlling device.



3,307,163
MAGNETIC PATH CHOPPER FOR STATIC MAGNETIC READING HEAD

Jacob Rabinow, Bethesda, Md., assignor, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed Sept. 25, 1963, Ser. No. 311,369
12 Claims. (Cl. 340—174.1)

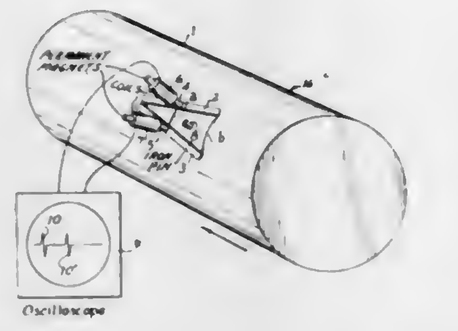


1. In a magnetic system for a magnetic medium provided with magnetic code data arranged in bits, a stationary read head spaced from the medium, a rotary transfer device interposed and physically located between said medium and the stationary head to establish a signal linkage between the medium and said stationary read head, and said transfer device having means providing signals of predetermined characteristics for each code bit induced from the medium into said stationary read head.

3,307,164
DEVICE FOR MEASURING AXIAL DISPLACEMENT OF A SHAFT

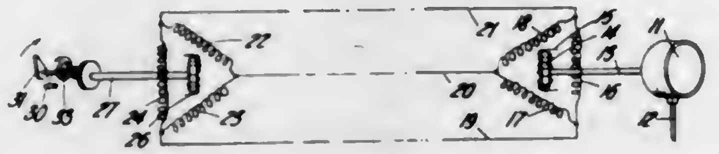
Karl Friedrich Zimmer, Rossdorf, near Darmstadt, Germany, assignor to Dr. Reutlinger & Sohne, Darmstadt, Germany
Filed May 29, 1961, Ser. No. 113,357
Claims priority, application Germany, June 4, 1960, R 28,094; May 4, 1961, R 30,259
10 Claims. (Cl. 340—195)

10. A device for indicating the longitudinal position of a rotating shaft comprising two elongated magnetic field producing members having inductor windings thereon and disposed beside each other stationary near the shaft and extending alongside the shaft but converging toward each other at their respective ends; an iron pin projecting from and fast on the shaft and into the fields of the members for inducing alternating single period pulses in the respective windings in sequence as the pin moves past the respective member; means for rectifying the alternating pulses at corresponding phases to unidirectional pulses, a gate switch means closed by the unidirectional pulses from one winding and opened by the other to produce a substantially constant amplitude square wave unidirectional pulse of duration equal to the time interval between corresponding phase positions of the two alternating pulses, and an average reading meter connected to the switch means to measure the average output of the square wave pulses so that readings will vary with the duration of the square waves and with the intervals between alike phases of the alternating pulse and of the time of passage of the pin from one member to the other, whereby the meter will indicate the relative position of the pin when traversing the members due to their being nearer together at one end than at the other.



3,307,165
SYNCHRONOUS ELECTRICAL TRANSMISSION SYSTEMS

Douglas Cecil William Thomas Sharp and Herbert Clifford Rowton Seal, both of Basingstoke, England, assignors to Appleby & Ireland Limited, Basingstoke, England, a British company
Filed July 6, 1964, Ser. No. 380,482
Claims priority, application Great Britain, July 1, 1964, 26,617/64
6 Claims. (Cl. 340—198)

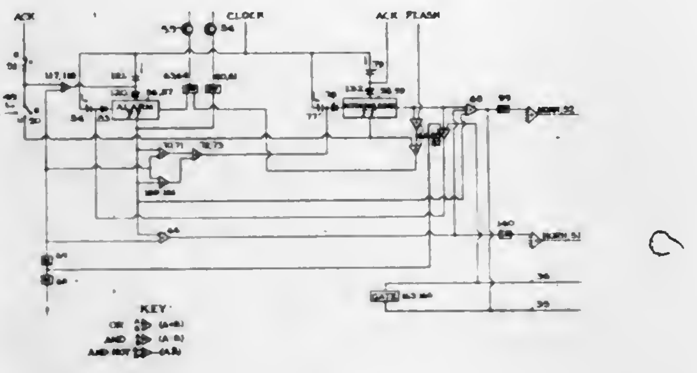


1. A remote electrical indicating system for instrument readings, comprising in combination a transmitter having a wound polar rotor and a polyphase stator, operating means connecting the rotor to the movable part of the instrument the reading of which is to be transmitted, the connection being such that the rotor moves through less than 180 electrical degrees between instrument zero and instrument maximum, transmission lines from the stator, a receiver, having a stator connected to the transmission lines, a wound polar rotor, a multiplying gear operated by the rotor, an indicator operated by the multiplying gear, a return spring to urge the indicator back to zero, and a stop to limit the return movement, the position of which stop differs from the position indicating instrument zero.

3,307,166
ANNUNCIATOR SYSTEM

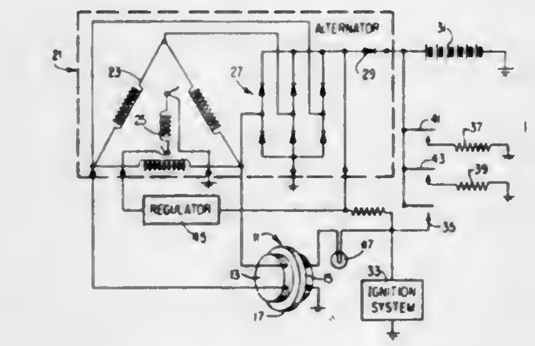
Charles B. Slack, 1500 Allen Ave., Glendale, Calif. 91201, and Nels E. Swanson, 1133 E. Redondo Blvd., Inglewood, Calif. 90302
Filed Sept. 8, 1964, Ser. No. 394,714
6 Claims. (Cl. 340—213)

1. In an annunciator system having an abnormal condition sensor input, a clock pulse generator and alarm indication means, means for preventing operation of said alarm system responsive to a transient signal, said means including first means responsive to a simultaneous clock pulse from said clock pulse generator and an abnormal condition indication at said abnormal condition sensor input to provide a first fault indication, second means responsive to the simultaneous application thereto of each of (1) the next succeeding clock pulse from said clock pulse generator, (2) an abnormal indication at said abnormal condition sensor input and (3) said first fault indication to provide a second fault indication and means responsive to said second fault indication to operate said alarm indication means.



3,307,167
ELECTRICAL CONTROL CIRCUIT INCLUDING INDIRECTLY HEATED THERMISTOR PROVIDING ABRUPT CHANGE IN RESISTANCE WITH TEMPERATURE

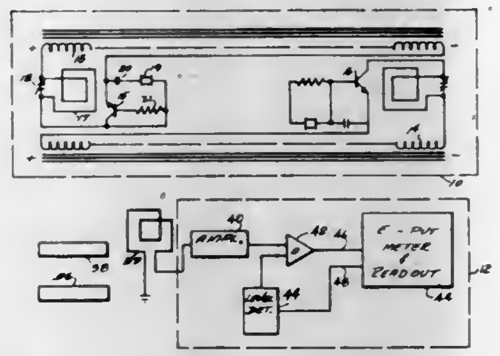
Richard T. Race, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Dec. 6, 1963, Ser. No. 328,699
4 Claims. (Cl. 340—253)



1. A control device responsive to control power applied thereto to alter the current flowing in a controlled circuit including in combination, a first self-heating positive temperature coefficient thermistor, a first control circuit connected to said first thermistor to apply control current thereto for heating the same, a second thermistor providing an abrupt change in resistance within a given temperature range relative to its change in resistance outside the given range, heat conductive means thermally coupling said first and second thermistors to cause said second thermistor to be heated by said first thermistor to a temperature in the given range upon application of control power of predetermined value to said first thermistor, a second controlled circuit electrically isolated from said first control circuit, and means connecting said second thermistor in said controlled circuit to control the flow of current therein according to the resistance of said second thermistor, whereby control power of predetermined value applied to said first thermistor by said first circuit will cause said second thermistor to abruptly change its resistance to alter the flow of current in said controlled circuit.

3,307,168
SIGNALLING SYSTEM

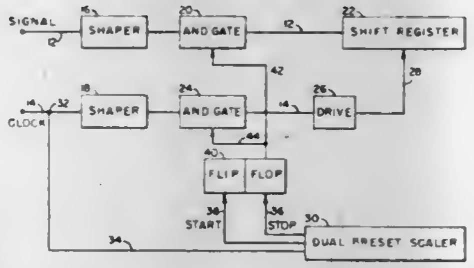
John F. Zaleski, Pleasantville, N.Y., assignor to General Precision, Inc., Binghamton, N.Y., a corporation of Delaware
Filed Nov. 19, 1962, Ser. No. 238,407
16 Claims. (Cl. 340—258)



5. A signalling system comprising,
(a) a movable station including means selectively operable to transmit information signals at a plurality of discrete frequencies lying within a predetermined frequency range;
(b) a fixed station including means for receiving information signals within said frequency range; and
(c) means for operating said selectively operable means of said movable station including means positioned adjacent said fixed station for providing a predetermined time-invariant magnetic field in the path of said movable station.

3,307,169
CATHODE RAY TUBE DISPLAY OF SHIFT REGISTER CONTENT

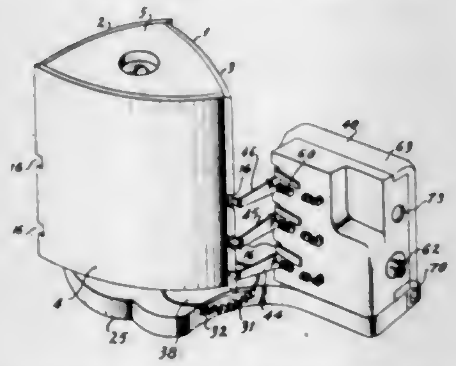
Hugo M. Beck, Oxon Hill, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Jan. 30, 1963, Ser. No. 255,134
3 Claims. (Cl. 340—324)



1. A digital memory oscilloscope for electronically reproducing the sequential binary information passing through a switching network comprising
an information signal input circuit,
a clock signal input circuit,
first gating means in said information input circuit,
second gating means in said clock input circuit, said first and second gating means controlling passage of signals through said respective input circuits,
control means responsive to preselected numbers of clock pulses for selectively opening and closing said first and second gating means simultaneously,
a shift register connected to receive the information signal from said first gating means and the clock
a plurality of miniature cathode ray indicators one signal from said second gating means, and
a plurality of miniature cathode ray indicators one each on each bit of said shift register for instantaneously manifesting the binary information passing through said switching network.

3,307,170
MULTI-FACE INDICATOR SYSTEM

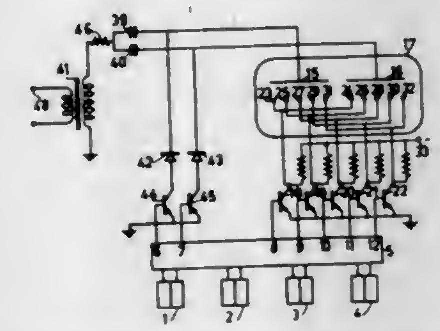
Tetsuo Aoyama, Yokohama-shi, and Takeshi Teragaki, Kamakura-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed Feb. 27, 1963, Ser. No. 261,436
6 Claims. (Cl. 340—324)



1. A multi-face indicator comprising stationary mounting means, a prismatic structure rotatable on said mounting means, said prismatic structure having a plurality of faces each of a different color and overlapping each other to form laterally extending edges and a plurality of notches formed in said edges at different lateral positions, driving means for rotating said prismatic structure, an electromagnet assembly having a plurality of electromagnets and armatures, each of said armatures having a release and a locking position depending upon the energization of the corresponding electromagnet, each armature passing through determined ones of the notches in the edges of the faces of said prismatic structure and engaging in its locking position a determined one of the edges of said prismatic structure thereby arresting said prismatic structure in a desired position wherein one of its faces is positioned as desired when a corresponding one of said electromagnets is energized, the edges of said faces and said armatures being shaped and the notches formed in said edges being positioned so that each armature can engage only one edge, circuit means connected to said electromagnets for selectively placing one of said armatures into its locking position and the other armatures in the release position and locking plate means in operative proximity with said armatures for maintaining the armature of an energized electromagnet in position until another one of said electromagnets is energized.

3,307,171
APPARATUS FOR ENERGIZING AN ELECTRICAL LOAD DEVICE

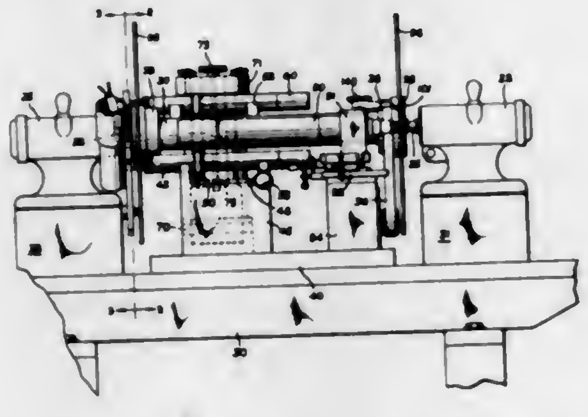
Wilhelmus Hubertus Louis Claessen, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed June 20, 1963, Ser. No. 289,360
Claims priority, application Netherlands, July 3, 1962, 280,449
15 Claims. (Cl. 340—324)



15. A circuit for energizing a gas discharge tube having an anode and a cathode for establishing a current path therein, said tube having a given threshold ignition voltage, said circuit comprising, first and second parallel connected current paths connected between one terminal of said load and a point of reference potential, said first current path comprising, in series, a capacitor and a source of alternating voltage having a maximum amplitude less than said given threshold voltage, said second current path comprising, in series, a diode and electronic switch means, means connecting said tube current path in series with said one input terminal and said point of reference potential, and means for operating said switch means to establish a charge path between said capacitor and said voltage source which includes said switch means thereby to produce a resultant voltage across said load which exceeds said given threshold voltage.

3,307,172
ENCODER METHODS AND APPARATUS

Edwin R. Kolb, University Heights, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware
Filed June 11, 1963, Ser. No. 287,047
20 Claims. (Cl. 340—347)



1. The method of angularly dividing a continuous annular element into a plurality of equally spaced angular bits comprising the steps of,

mounting first and second annular elements for synchronous rotation with each other with said second element being capable of recording thereon,

reading at least one mark on the first element at at least two angularly spaced positions, and

recording on said second element in response to the coincidence of said mark on said first element with said positions.

3,307,173
TRANSIENT REDUCTION IN DIGITAL-TO-ANALOG CONVERTERS

Alfred E. Popodi, Glen Burnie, and Charles R. Pearman, Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Apr. 16, 1964, Ser. No. 360,464
4 Claims. (Cl. 340—347)

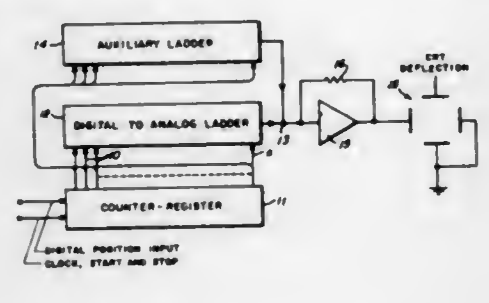
1. In combination in a digital-to-analog converter;

a register having a series of output terminals for generating binary digit voltages of progressive significance,

a first and a second ladder network, each network including a plurality of serially connected attenuation sections corresponding in number to the number of said binary digits, said networks having a common output terminal,

a source of reference potential,

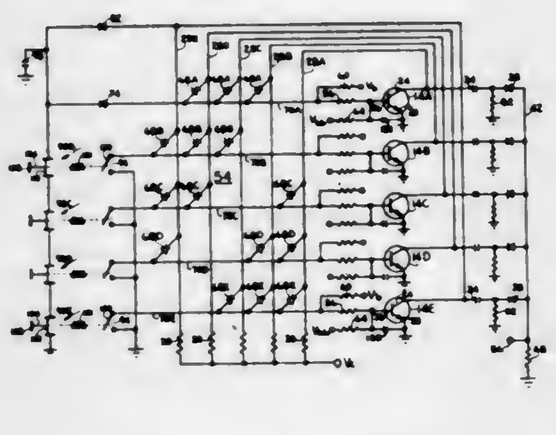
a plurality of switch elements, said elements being connected, respectively, between said reference source and the sections of said first ladder network and being responsive, respectively, to different digit voltages to selectively add the attenuation of different sections to produce a voltage at said output terminal which is the analog of the digital number of said register,



means to buck transient voltages at said output terminal generated by said contributing elements comprising a differentiating circuit connected between each attenuating section of said second ladder network and one terminal of said register for generating voltage spikes equal and opposite in polarity to said transient voltages.

3,307,174
PULSE GENERATING CIRCUITS

James J. Klinikowski, Somerville, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Jan. 21, 1963, Ser. No. 252,928
3 Claims. (Cl. 340—359)



1. A pulse generating circuit comprising

a plurality of pulse-generating devices connected in a series for generating a series of pulses,

each device having an input circuit and an output circuit,

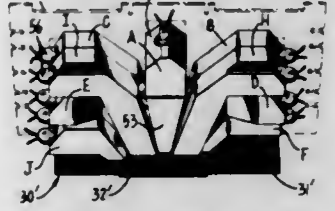
circuit means associated with the input and output circuits of said devices coupling the output of each device through a diode to the input of every other device except the one adjacent to and leading it in the series so that, as each device is turned on, it holds off all other devices except said adjacent leading device,

first circuit means coupled to the inputs of all of said devices except the last device in the series for holding normally-off all of the devices, except the last device which is normally-on before the initiation of a pulse-generating cycle, said first circuit means being operable to cause the first device in the series to turn on and initiate a pulse-generating cycle, and

second circuit means coupled to the input of each device for selecting a device and disabling it so that it cannot generate a pulse in a cycle whereby a pulse-generating cycle is ended when the cycle reaches said one selected device.

3,307,175
CHARACTER DISPLAY DEVICE AND METHOD OF MAKING SAME

Karl E. Shill, Fremont, Calif., assignor to Friden, Inc., a corporation of Delaware
Filed Aug. 31, 1964, Ser. No. 393,100
5 Claims. (Cl. 340—380)



3. A display device for producing a visual indication of the digits "0" through "9" comprising:

a face member of opaque monolithic material having a digital indicating area;

a printed circuit card having one edge molded in said monolithic face member;

a plurality of at least nine light-conducting bars positioned on said printed circuit card, each of said bars having an elongated tapered leg portion, one end of which terminates in a narrow rectangular light-emitting segment disposed at the digital indicating area in a particular pattern for visually indicating a plurality of digits thereon, and the other end which forms a large substantially rectangular light-receiving foot with the junction of the leg and foot providing an outer angular face constituting an angle of light reflection between the axis of the foot and the axis of the tapered leg;

eight of said bars having its foot formed at an angle of greater than 90° to the leg and one of said bars formed substantially straight, said straight bar having its foot mounted on said printed circuit card to provide the central horizontal segment of a figure "8" configuration, six of said L-shaped bars having their feet mounted on said printed circuit card to provide the right vertical segment, the top and bottom horizontal segments, and the central vertical segment of the figure "8" configuration, two of said L-shaped bars having their feet mounted on the feet of other L-shaped bars to provide the left vertical segments of the figure "8" configuration;

lighting means for each of said light-conducting bars and connected to different circuit paths on said printed circuit card for selectively illuminating predetermined ones of said light-emitting segments to visually produce the digits "0" through "9" on the digital indicating indicating area; and

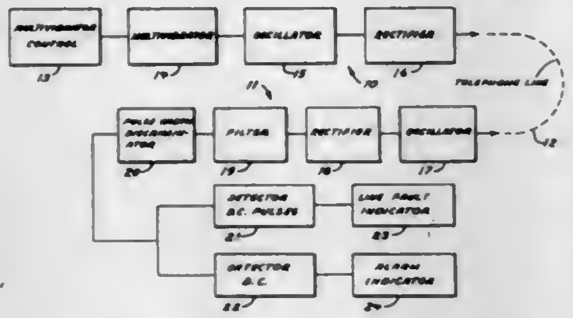
each foot of each of said light-conducting bars provided with a bore axially parallel thereto for receiving said lighting means whereby the rays from said lighting means are reflected by said angle of reflection from said foot through said tapered leg to the light-emitting segment thereof.

3,307,176
ELECTRICAL PROTECTION SYSTEM

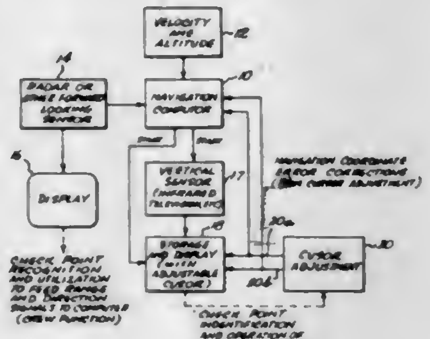
John Alfred Sadler, Rexdale, Ontario, Canada, assignor to Chubb-Mosler and Taylor Safes Ltd., Brampton, Ontario, Canada, a corporation
Filed Aug. 17, 1964, Ser. No. 389,869
9 Claims. (Cl. 340—411)

1. An electrical protection system comprising a protection circuit at a protected area; a supervisory circuit at a monitoring station; a transmission line connecting the protection circuit to the supervisory circuit; the protection circuit including a generator for transmitting to the supervisory circuit via the transmission line a first signal

comprising direct current pulses to indicate a normal condition of the system, and means for replacing the first signal with a second signal comprising steady direct current to indicate an alarm condition; and the supervisory circuit including a first detector for receiving the first signal and adapted to produce a line fault signal upon cessation of reception by the supervisory circuit of the first signal, and a second detector for producing an alarm signal upon reception by the supervisory circuit of the second signal.



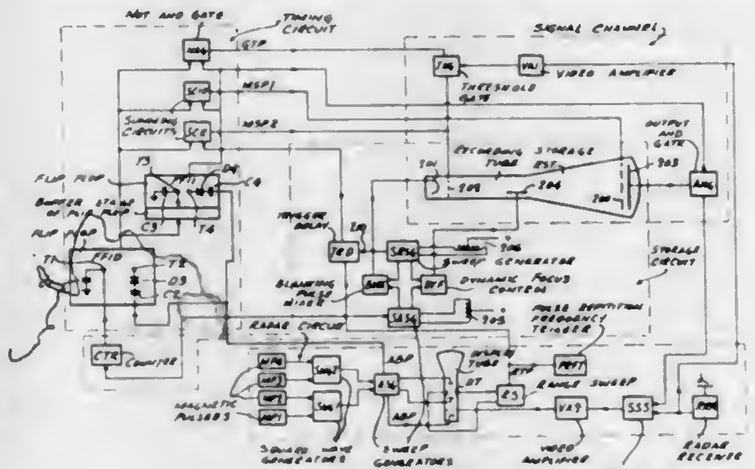
3,307,177
NAVIGATION METHOD AND APPARATUS
Philip F. Novak, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed June 10, 1965, Ser. No. 462,983
5 Claims. (Cl. 343—5)


VELOCITY AND ALTITUDE
12
RADAR OR OTHER FORWARD LOOKING SENSOR
14
NAVIGATION COMPUTOR
10
DISPLAY
16
VERTICAL SENSOR (INFRARED TELEVISION, ETC)
17
NAVIGATION COORDINATE ERROR CORRECTIONS (FROM CURSOR ADJUSTMENT)
STORAGE AND DISPLAY (WITH ADJUSTABLE CURSOR)
18
CURSOR ADJUSTMENT
20
20a
20b
CHECK POINT RECOGNITION AND UTILIZATION TO FEED RANGE AND DIRECTION SIGNALS TO COMPUTER (CREW FUNCTION)
CHECK POINT IDENTIFICATION AND OPERATION OF CURSOR ADJUSTMENT (CREW FUNCTION)

1. The method of navigating a craft with precision over terrain having an identifiable check point on the desired ground track, comprising utilizing navigational means for guiding the craft toward the check point and for computing time of arrival over the check point; as the craft passes over the check point, as determined by such computation, forming a display which images the area directly below the craft of sufficient scope to include the check point notwithstanding probable navigational error, and upon which image is imposed a visible, selectively movable cursor referenced to the nadir; shifting the cursor across the image to an identifiable navigational reference point bearing a known relationship to the check point so as to derive co-ordinates of positional error at the check point; and utilizing such error coordinates for making navigational corrections through said means.

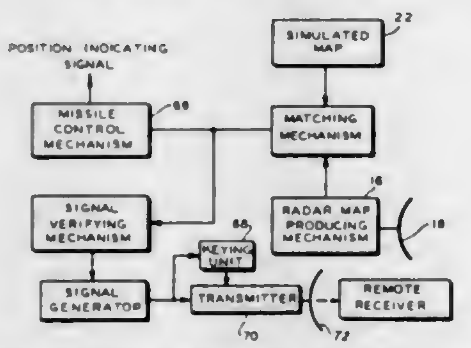
3,307,178
SIGNAL STORAGE SYSTEM FOR A RADAR SYSTEM
Brian D. Stedman, William C. Brown, and Eric F. V. Robinson, all of Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
Filed June 10, 1966, Ser. No. 557,860
Claims priority, application Canada, July 30, 1963, 881,376
6 Claims. (Cl. 343—5)

1. For use in a radar system having
(a) means for receiving data signals,
(b) a display device for displaying said data signals,
(c) and means for generating time reference signals for said display device;
a storage system comprising
(d) a recording storage tube,
(e) means for applying the received data signals to said storage tube during a WRITE mode thereof,
(f) means for retrieving stored signals from said storage tube during a READ mode thereof,
(g) means for applying said retrieved signals to the display device,
(h) means for generating sweep signals for said storage tube,



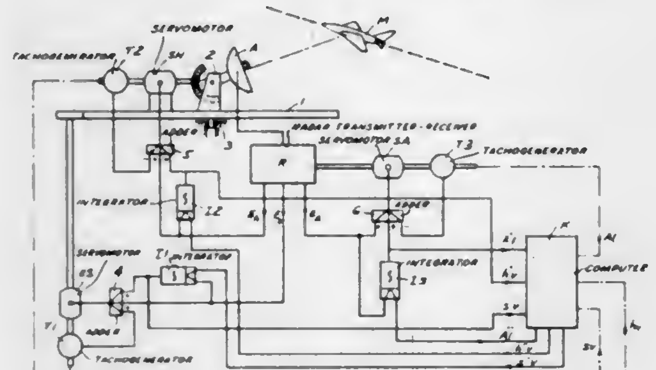
(i) said means for generating sweep signals being connected to said means for generating time reference signals for substantially synchronising the sweep signal of the tube with the time reference signals of the device,
(j) timing means for sequentially energising said storage tube in WRITE and READ modes,
(k) wherein said storage tube has a PRIME mode separate from said READ mode, during which PRIME mode a degree of decay of stored signals is produced,
(l) and means for varying the degree of decay of stored signals during said PRIME mode.

3,307,179
CONTROLS OPERATION VERIFYING DEVICE
Lawrence E. Verbarg, Kirkwood, Mo., assignor to McDonnell Aircraft Corporation, St. Louis, Mo., a corporation of Maryland
Filed June 25, 1958, Ser. No. 744,420
8 Claims. (Cl. 343—6)


POSITION INDICATING SIGNAL
SIMULATED MAP
22
MISSILE CONTROL MECHANISM
66
MATCHING MECHANISM
16
SIGNAL VERIFYING MECHANISM
RADAR MAP PRODUCING MECHANISM
18
68
KEYING UNIT
SIGNAL GENERATOR
TRANSMITTER
REMOTE RECEIVER
70
72

1. In a guided missile equipped with an instrument for determining its in-flight location in which said instrument has a simulated map member showing the earth's characteristics over a selected area, radar means including a cathode ray tube and an antenna for producing a picture of the earth's characteristics over a selected area on the cathode ray tube and means for comparing the simulated picture with the radar picture, and in which said comparing means includes means for producing an electric impulse which varies in proportion to the similarities between the simulated and radar pictures; the improvement of means responsive to the electric impulse of the comparing means, and transmitter means energized by the impulse responsive means when the impulse exceeds a predetermined level for transmitting a signal indicating said condition.

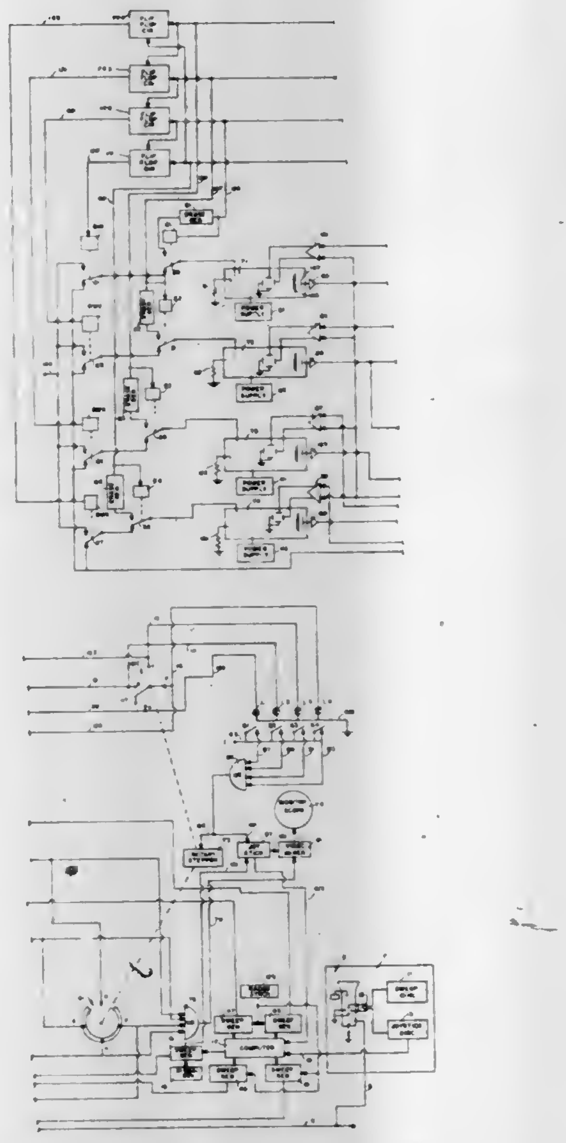
3,307,180
ANTI-AIRCRAFT SIGHTING DEVICE
Karl Göran Folke Lind, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a company of Sweden
Filed May 26, 1965, Ser. No. 458,922
Claims priority, application Sweden, June 3, 1964, 6,767/64
7 Claims. (Cl. 343—7.4)



1. An anti-aircraft sighting device comprising, in combination: a sight layable in azimuth and elevation for determining the direction to a target, an automatic target tracking equipment for measuring the range to the target and for generating error signals representing the azimuth angular deviation and the elevation angular deviation between the direction of the sight and the direction of the target and the deviation between the range presently set in said tracking equipment and the range to the target, servomotors controlled by said error signals for laying said sight in azimuth and elevation and for setting the range in said tracking equipment, means associated with the sight and the tracking equipment for producing target data signals representing the azimuth angle, the elevation angle, and the range to the target and the azimuth angular velocity, the elevation angular velocity and the range velocity of the target in relation to the site of the sight, an electric computer supplied with said target data and arranged to compute on the basis of said data and the assumption that the target is moving in a straight course with a variable velocity, the azimuth angular acceleration and the elevation angular acceleration of said target and to produce signals proportional to said computed azimuth angular acceleration and said computed elevation angular acceleration respectively, said signals being connected to the servomotor laying said sight in azimuth and the servomotor laying said sight in elevation respectively as regenerative control signals for said servomotors.

3,307,181
AUTOMATIC TARGET SEQUENCING TRACKING CONSOLE
Raymond Winfield, Wantagh, N.Y., and Donald Joseph Pizzicara, Los Angeles, Calif., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Apr. 20, 1965, Ser. No. 450,274
1 Claim. (Cl. 343—11)

Apparatus for sequentially monitoring a plurality of radar target signals, said apparatus comprising:
(a) a plurality of storage tubes;
(b) means for normally coupling incoming radar target signals to the control grid of each of the storage tubes;
(c) a horizontal and vertical sweep generator which is coupled to the deflection plates of each storage tube and which produces a raster on each tube that represents the area in which a plurality of radar targets are located;
(d) a monitor oscilloscope;
(e) a first rotary stepping switch which sequentially couples the output circuits of the storage tubes to the monitor oscilloscope;
(f) joy stick apparatus which is coupled to the monitor oscilloscope and which develops a pair of variable potentials that define the rectangular coordinate position of the target on the monitor oscilloscope;



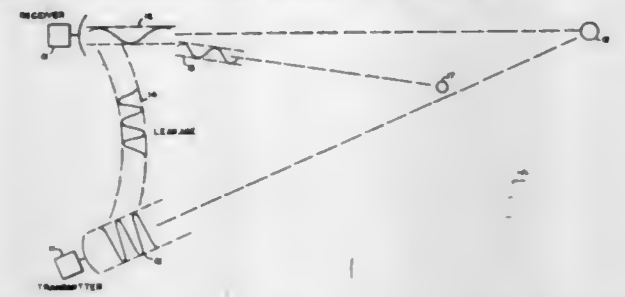
(g) a relay for each storage tube;
(h) a second rotary stepping switch which sequentially energizes the relays for the storage tubes and sequentially provides a reading potential on the control grids of the storage tubes, the second rotary switch also simultaneously sequentially providing an erasing potential on the control grids of the previously read tubes;
(i) and a rotary stepping mechanism which actuates the first and second stepping switches and which is manually energized when the variable potentials of the joy stick apparatus define the rectangular coordinate position of the target on the monitor oscilloscope.

3,307,182
RADAR SYSTEM
Christopher M. Morrow, 7804 Recard Lane, Hollin Hills, Alexandria, Va. 22307
Filed Aug. 28, 1964, Ser. No. 392,974
10 Claims. (Cl. 343—14)

1. The method of improving transmitter-receiver isolation and obtaining range gating in a CW/FM radar system, having a transmitter which transmits a signal and

receiver which includes a tunable filter, comprising the steps of:

frequency modulating the transmitter signal according to a predetermined repetitive pattern;

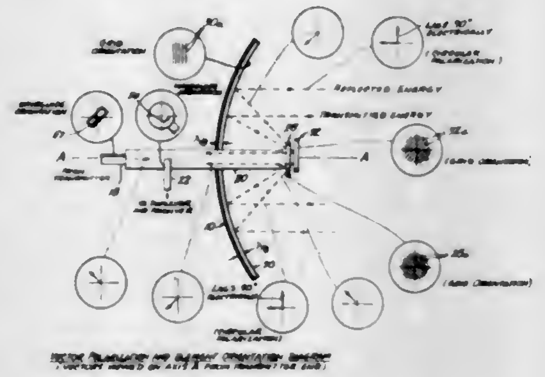


tuning said filter according to a pattern which is displaced in time but otherwise similar to the repetitive pattern of the transmitter signal modulation

whereby the receiver will sense only those transmitted signals which are reflected from a target in a predetermined area.

3,307,183
CONICAL SCAN RADAR SYSTEM AND ANTENNA

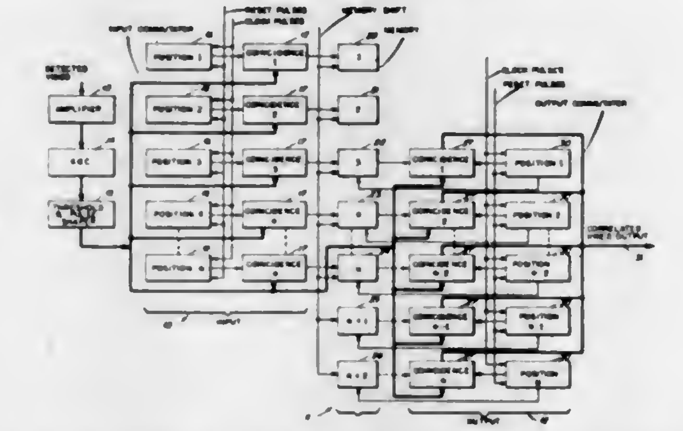
William B. Adam, Seattle, Wash., assignor to Boeing Airplane Company, Seattle, Wash., a corporation of Delaware
Filed Mar. 11, 1957, Ser. No. 645,372
7 Claims. (Cl. 343—16)



1. A conical scan direction finding radar system comprising a transmitter of electromagnetic wave energy, a receiver of such transmitted electromagnetic wave energy reflected from a remote object, means operated by the receiver in accordance with conical scan modulation carried by such received electromagnetic wave energy, representing directional error of the conical scan axis in relation to the reflecting object, a wave energy reflector of generally paraboloidal form, means connected to said transmitter and including a transmitting antenna radiation element positioned in the vicinity of the focal point of said reflector, adapted for directing transmitted electromagnetic wave energy therefrom against said reflector from the vicinity of the focal point of said reflector and with one polarization, thereby to form a transmitted wave energy beam directed along the axis of said paraboloidal reflector, means connected to said receiver and including a receiving antenna radiation element positioned in the vicinity of the focal point of said reflector but offset from said axis for directing electromagnetic wave energy from said reflector to said receiver selectively with polarization differing materially from the polarization of said transmitted wave energy, means to revolve said receiving antenna radiation element about said axis while maintaining constant the polarization orientation selectivity thereof, and means interposed in the path of wave energy propagating from said transmitting antenna element and returning to said receiving antenna element upon reflection from the remote object, said means being adapted to change the polarization of such propagating energy from the first-mentioned polarization to the second.

3,307,184
DIGITAL VIDEO CORRELATOR

James L. Poterack, El Paso, Tex., and Joseph P. Mefford, Bellerose, N.Y., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Oct. 27, 1964, Ser. No. 406,947
7 Claims. (Cl. 343—17.1)



1. In a radar receiver the improvement comprising:

timing means defining a number N of consecutive and sequential intervals for each period of operation of the receiver;

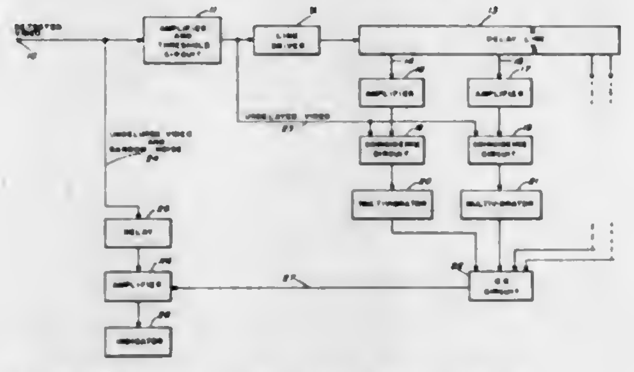
a memory means having at least N positions;

input means actuated by the timing means, said input means serving to render receptive to the presence of an input signal a separate one of the storage means positions for each of the N intervals whereby for each interval in sequence there is recorded in a corresponding position of the storage means the presence or absence of an input signal occurring during that interval;

output means actuated by the timing means in synchronization with said input means, said output means receiving the input signal and functioning to permit passage to the receiver output of any input signal occurring during an interval of a period only if the presence of an input signal for the corresponding interval of the last preceding period is shown by a signal from the appropriate position of the storage means.

3,307,185
INTERFERENCE SUPPRESSOR

Joseph P. Mefford, Glen Cove, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Jan. 25, 1965, Ser. No. 427,996
7 Claims. (Cl. 343—17.1)



1. An interference eliminator comprising

means for receiving detected video signals from a radar system to be protected;

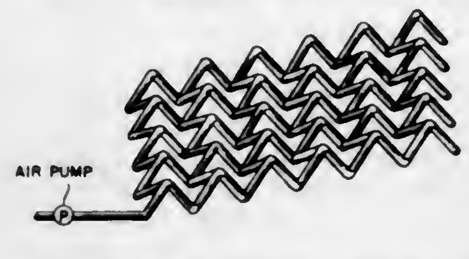
means for delaying a portion of the signal;

means to compare the delayed and the undelayed portions of the signal to produce a blanking pulse; and

means to apply the blanking pulse to the video circuit of the radar.

3,307,186
ARRANGEMENT FOR WEAKENING, EXTINGUISHING AND/OR DEFLECTING REFLECTED WAVES

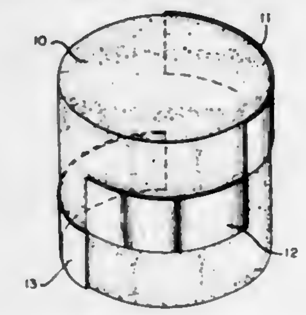
Lothar Straub, Gartenstrasse 41, Tubingen, Germany
Filed Feb. 19, 1965, Ser. No. 434,007
9 Claims. (Cl. 343—18)



1. Arrangement for weakening, extinguishing and deflecting reflection echoes, waves and the like, comprising an areal regular arrangement of a plurality of elements, arranged in phase opposition in two adjoining planes, which are associated with each other and divert the incoming wave trains in a mutually opposite phase, said elements joined in an areal space grid of webs having a length not greater than the wave lengths being deflected and forming the edges of imagined tetrahedrons which are joined with each other at the bases and form an areal grid system whose thickness is eqaul to the height of said tetrahedrons.

3,307,187
OMNIAZIMUTHAL REFLECTORS

Robert L. Horst, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania
Filed Mar. 11, 1966, Ser. No. 533,473
10 Claims. (Cl. 343—18)

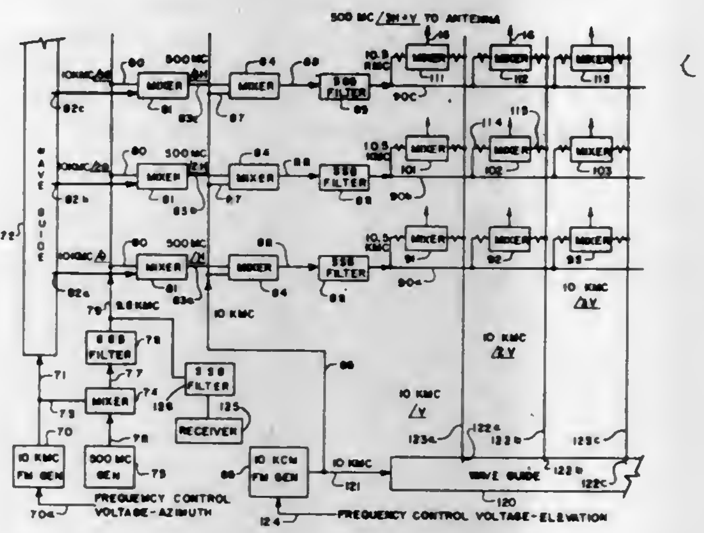


1. A radio frequency lens reflector comprising a substantially cylindrical mass of dielectric material exhibiting a dielectric gradient in radial directions, and curved reflector strip means extending along the outer peripheral surface of said cylindrical mass in directions concentric with the central axis of said cylindrical mass, said reflector strip means having a dimension in directions parallel to the axis of said cylindrical mass comprising a fraction of the axial distance between the uppermost and lowermost faces of said cylindrical mass, said reflector strip means including arcuate sections disposed at different axial levels relative to the axis of said cylindrical mass.

3,307,188
STEERABLE ANTENNA ARRAY AND METHOD OF OPERATING THE SAME

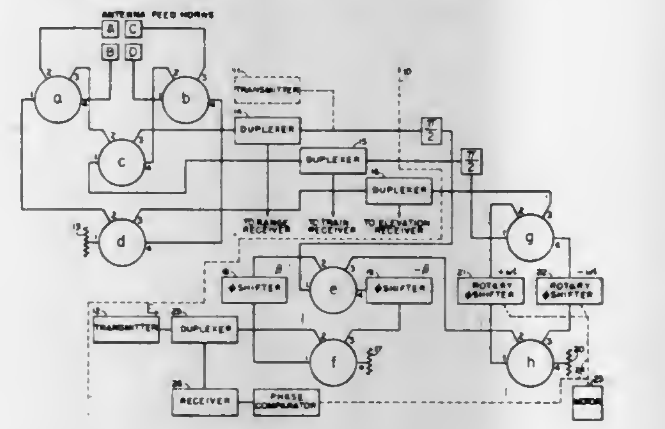
John W. Marchetti, Lincoln, William P. Goldberg, North Woburn, John Ruze, South Acton, and Chaloner B. Slade, Bolton, Mass., assignors to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Sept. 16, 1957, Ser. No. 684,366
28 Claims. (Cl. 343—100)

20. In combination with an antenna array comprising a plurality of individual radiators, means for generating a relatively constant frequency signal, heterodyning means for phase shifting said signal to produce a plurality of phase shifted signals at constant frequency, and means for delivering the phase shifted signals to the radiators of the antenna.



3,307,189
MICROWAVE ANTENNA LOBING

John E. Meade, 6 Baskin Road, Lexington, Mass. 02173
Filed Mar. 22, 1961, Ser. No. 97,702
5 Claims. (Cl. 343—100)



2. A conical scanning transmitter antenna system for high power microwave energy comprising, four fixed radiating elements, a transmitter, a dividing means connected to said transmitter to divide energy from said transmitter into a carrier component and a sideband component, means dividing said sideband component into two equal subcomponents, means introducing an equal but opposite and continuously variable phase shift to each of said subcomponents, and means for combining and applying said carrier component and said phase shifted subcomponents to said fixed radiating elements as an amplitude modulated carrier having the modulation phase relation of adjacent elements in quadrature.

3,307,190
DIRECTIONAL FILTERING OF SUMMED ARRAYS

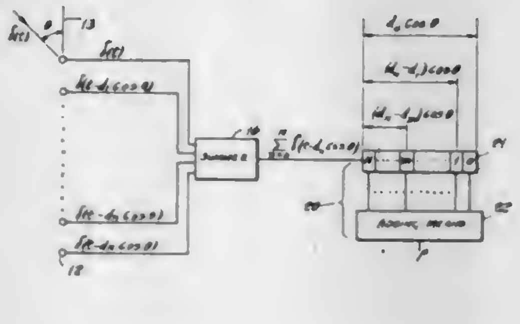
Clarence S. Clay, Jr., Hastings on Hudson, N.Y., and Robert A. Frosch, Alexandria, Va., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 28, 1963, Ser. No. 319,624
9 Claims. (Cl. 343—100)

1. A method for steering a multi-element antenna array in a number of specific directions comprising the steps of:

adding the outputs of the individual antenna elements to produce a single summed signal;

applying the summed signal to a filter which is tapped to provide a sequence of increasingly delayed outputs;

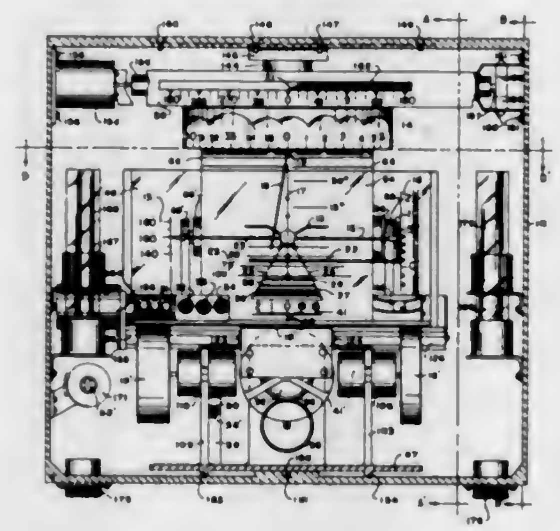
arranging the tapped outputs of said filter in appropriate sets, each set providing an optimum output when the filter is matched to a different summed signal, each of said summed signals being derived from an input wave to the antenna which arrives from a different one of said specific directions; and



applying each of said filter-output-signal sets to switching means so that any one of the sets may be selected as desired, thereby steering said array in the direction associated with the selected set.

3,307,191
AIRCRAFT BLIND LANDING DEVICE AND FLIGHT DIRECTOR SYSTEM

Carl J. Crane, Box 116, Helotes, Tex. 78023
Filed Mar. 12, 1964, Ser. No. 351,897
3 Claims. (Cl. 343—108)

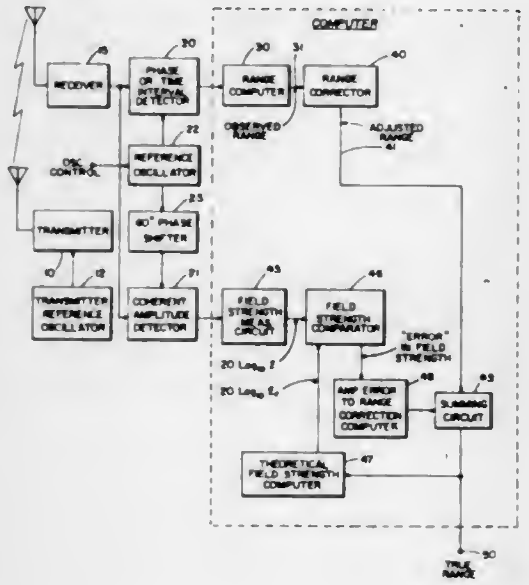


1. In an aircraft blind landing director-system, the combination of a supporting frame attached to the aircraft, correlated mobile indicia responsive to aircraft attitude, aircraft turn, aircraft location with respect to radiated electronic space patterns of energy, aircraft speed through the atmosphere, aircraft altitude with respect to the atmosphere, aircraft altitude with respect to the landing runway, and aircraft distance along the runway; the mobile indicia being supported by the said frame and referenced to a horizon line and lubber line fixedly positioned within the frame, a gyroscope spinning on vertical axis, said gyroscope being suspended by gimbals allowing freedom in roll and pitch of 360 degrees, the said gyroscope having a case with associated axles, the axles supported in bearings in a gimbal, each axle terminating in gears which engage mating gears affixed to counter-shafts, the said counter-shafts supported at one end in the said gimbal, and shaped indicia affixed to the other end of the said counter-shafts, the said shaped indicia being positioned 180 degrees apart, each shaped indicia being viewable during selected phases of flight attitude of the said aircraft in order to measure pitch angle and roll angle against the said fixed horizon line, and each shaped indicia rotating oppositely to the rotation of the said gyroscope case axles, and in the field of view of the said corelated mobile indicia, a turn direction dial, said dial affixed to a synchro motor which is energized by a synchro generator affixed to direction sensing means, the said dial moving in directional rate and degree in proportion to aircraft turn rates and degree and in direction such that the composite movement of the shaped indicia with that of the said directional dial will present the normal visual stimulus of bank, pitch and turn normally seen by the pilot during visual contact flight, and superimposed upon the said indicia defining roll, pitch and turn, two correlated indicia which are made responsive to the said radiated electronic space patterns of energy which define aircraft location in the vertical plane and in the horizontal plane respectively, the said indicia which are responsive to the said electronic energy space patterns being pointers affixed to galvanometers the same being made responsive to the energy emanating from ground-based navigational transmitters for imparting guidance to an aircraft in the horizontal and in the vertical plane, a radio altimeter, a glide slope transmitter-receiver combination, and the said index pointer, horizontally delineated, which selectively responds to signals received from either the glide slope receiver or the radio altimeter, selectively positioned marker beacon transmitters adjacent to an aircraft landing area, an airborne marker beacon receiver, switching means made responsive to the marker beacon receiver for selectively switching the horizontal pointer index to the output of the said radio altimeter after disconnection from the glide slope receiver as the aircraft passes through the electronic energy space pattern of the ground-based boundary marker transmitter, the said horizontal pointer index so disposed in correlation with the said fixed horizon line so that the horizontal pointer index coincides with the fixed horizon line as the radio altimeter signals zero height, the said selectively positioned marker beacon transmitters combined with a runway to provide means for consecutive receipt of their received signal by the airborne marker beacon receiver, a plurality of illuminated runway distance indicators, the said indicators being consecutively responsive to energization by received marker beacon signals as the said aircraft traverses the energy pattern of the said marker beacons, and each of the indicators remaining lighted until switchably extinguished, the said indicators providing means for determining the aircraft location along the said runway and the said indicators being displayed within the said correlated pattern of mobile indicia, a vertically disposed localizer pointer hinged to its associated galvanometer to swing in an arc either left or right of center in response to signals received by the localizer receiver from the ground-based localizer transmitter, and electrical means interconnecting the said localizer receiver with the said localizer galvanometer, and the said localizer pointer sensed to display a left or right or centralized locus of the aircraft with respect to the longitudinal axis of the landing runway, the said localizer pointer displayed in correlated association with the aforesaid mobile indicia, an automatc direction finder, electrical means connecting the output of said automatic direction finder with a synchro generator-motor system for activating an indicating means; said indicating means being disposed in the field of view with all the aforesaid mobile indicia, a barometric pressure sensitive altimeter, electrical means connecting it to a dial displayed within the correlated pattern of said mobile indicia, control knob means for adjusting the pressure altimeter reading by rotation of the pressure altimeter dial drive synchro motor

case, and gear means connecting the said control knob and the said synchro motor case, and associated gear means engaging a geared barometric pressure scale indicating a selected pressure setting, an airspeed meter, electrical means connecting said airspeed meter to a dial displayed within the said correlated pattern of mobile indicia, a vertical speed meter, electrical means connecting said vertical speed meter to a dial for display within the correlated pattern of said mobile indicia, a partial mirror, means for positioning the said mirror to reflect images of selected indicia into functionally adequate and correlated juxtaposition with other indicia seen directly through the mirror to insure the presentation of biologically adequate visual stimulus to the pilot, the said visual stimulus providing substantially the same normal visual stimulus of clear weather flight and landing thus eliciting responses from the pilot which are prompt, and adequate in direction and degree, electric lamp means for illuminating the various indicia and means for controlling the intensity of the illumination.

3,307,192
NAVIGATION SYSTEM

Stanley W. Attwood, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Mar. 26, 1965, Ser. No. 442,888
18 Claims. (Cl. 343—112)


COMPUTER
RECEIVER
PHASE OR TIME INTERVAL DETECTOR
RANGE COMPUTER
RANGE CORRECTOR
OBSERVED RANGE
ADJUSTED RANGE
REFERENCE OSCILLATOR
OSC CONTROL
TRANSMITTER
90° PHASE SHIFTER
TRANSMITTER REFERENCE OSCILLATOR
COHERENT AMPLITUDE DETECTOR
FIELD STRENGTH MEAS. CIRCUIT
FIELD STRENGTH COMPARATOR
"ERROR" IN FIELD STRENGTH
AMP ERROR TO RANGE CORRECTION COMPUTER
SUMMING CIRCUIT
THEORETICAL FIELD STRENGTH COMPUTER
TRUE RANGE
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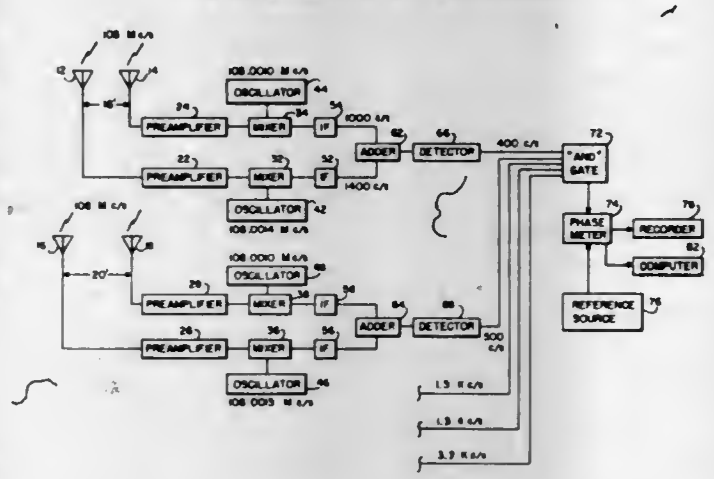
13. In a radio system including a receiver which receives signals from a transmitter and wherein the true range from the transmitter to the receiver is known, a system for determining transmitter power from the received signal including in combination, field strength measuring means coupled to the receiver and responsive to the received signal for producing a first signal representing the field strength at the receiver as related to a standard signal, range determining means coupled to the receiver and responsive to the received signal for producing a second signal which is a measure of the observed range, range comparator means responsive to said second signal and to the true range for computing therefrom a third signal which forms a measure of the anomaly range error, converter means for converting said third signal representing range error to an error signal representing the corresponding error in the measured field strength, error corrector means responsive to said error signal for correcting said field strength signal to provide a fourth signal, computer means responsive to the true range for providing a fifth signal representing the ratio of true radiated transmitter power to the field strength at the receiver, and means for combining said fourth and fifth signals to provide an output signal which forms a measure of the true radiated power at the transmitter.

3,307,193
RADIO FREQUENCY INTERFEROMETER PHASE CHANNEL COMBINER WITH HETERODYNING AT PREDETECTION LEVEL

Maxime G. Kaufman, Camp Springs, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Feb. 19, 1965, Ser. No. 434,146
8 Claims. (Cl. 343—113)



1. In a radio interferometer system for providing an unambiguous indication of the direction of a signal source comprising:

- a plurality of antenna pairs, each pair having a different baseline distance;
- a plurality of signal channels, each channel being connected to a different antenna pair and comprising:
  - two mixers, each coupled to a different antenna of said pair;
  - two phase coherent oscillators connected to said mixers and producing signals that are separated in frequency by a frequency difference which is substantially proportional to the baseline distance between said antenna pair;
  - an adder coupled to receive the output of said two mixers; and
  - a detector connected to said adder to produce an output signal related in phase to energy received by said antennas and in frequency to the frequency difference between said oscillator signals;
- coincidence means connected to the output of said detectors in said plurality of channels for producing a signal when said outputs of said detectors achieve a selected phase relationship;
- reference signal source means; and
- a phase meter connected to said reference signal source means and to said coincidence means for producing an unambiguous indication of the direction of said signal source.

3,307,194
HIGH SPEED MICROWAVE PHASE SHIFTER USING A POSITIONABLE ELECTRON BEAM TO CAUSE ELECTROMAGENTIC-WAVE REFLECTION

Boris Sheleg, Fort Washington Estates, Md. (3801 Calvert Lane, Washington, D.C. 20022), and Billy D. Wright, Oxon Hill, Md. (5620 Fargo Ave., Washington, D.C. 20021)
Filed May 21, 1963, Ser. No. 282,183
5 Claims. (Cl. 343—701)

1. A phase shifting device comprising:

electron beam producing means,

transmission means having said electron beam producing means mounted upon a portion thereof,

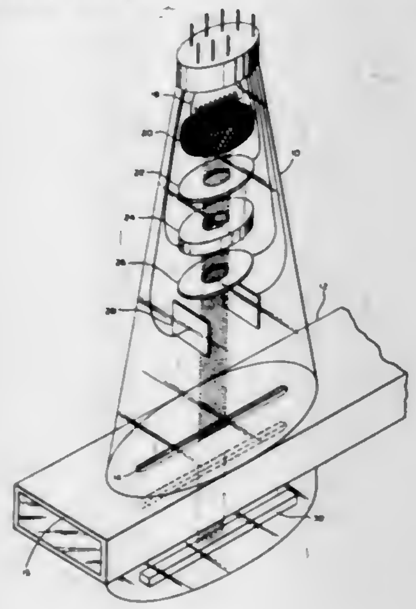
said transmission means having a plurality of elongated slots oriented so as to allow said beam producing means to project a beam of electrons through said slots and across said transmission means, microwave signal means providing a signal into said transmission means, and

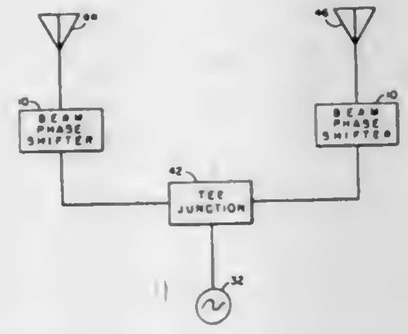
means to vary the path length of energy traveling within said transmission means including electron beam deflection means operative to move said electron beam along the length of said slots in a direction parallel to the path of said energy so that said energy impinges upon said beam of electrons at varied points along said transmission means thereby shifting the phase of said energy while maintaining the frequency of said energy at a constant value.

3. A microwave system including at least one phase shifting device comprising:

electron beam producing means,

transmission means having said electron beam producing means mounted upon a portion thereof to provide a beam unit,





said transmission means having elongated slots, one each in the top and bottom, so as to allow said beam producing means to propel a beam of electrons through said slots and across said transmission means,

microwave signal means providing a signal into said beam unit,

means to vary the path length of said signal, said means including electron beam deflections means operative to move said electron beam along the length of said slots in a direction parallel to the path of said signal so that said signal impinges upon said beam of electrons at varied points along said transmission means thereby shifting the phase of said signal while maintaining the frequency of said signal at a constant value,

sealing means on each end of said portion of transmission means thereby permitting said unit to be evacuated, and

termination means, distinct from said microwave signal means, coupled to said transmission means whereby upon the signal intersecting said beam of electrons, said signal is reflected to said termination means.

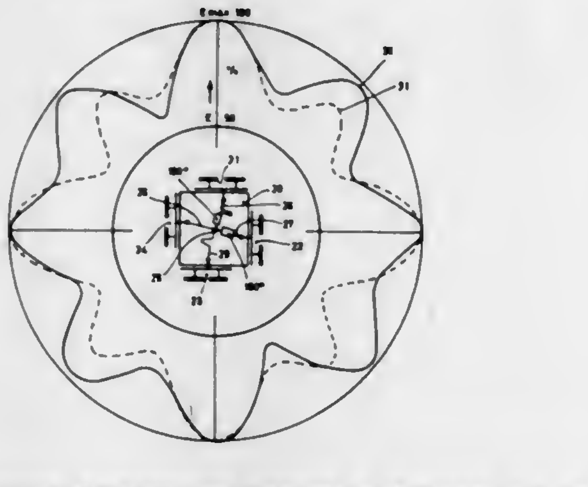
5. The system of claim 3 further including:

a plurality of said phase shifting devices,

a plurality of scanning antennas each coupled to a separate one of said phase shifting devices to provide phase differences to radiation emanating from said scanning antennas by introducing said beam of electrons into each of said phase shifting devices at different positions relative to their respective slots at the same instant of time.

3,307,195
OMNIDIRECTIONAL ANTENNA ARRAY WITH PHASE SHIFTED FEED HAVING A DESIGN FREQUENCY ABOVE MIDBAND FREQUENCY

Helmut Laub, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Berlin and Munich, a corporation of Germany
Filed Sept. 24, 1963, Ser. No. 311,037
Claims priority, application Germany, Oct. 4, 1962, S 81,887
8 Claims. (Cl. 343—799)



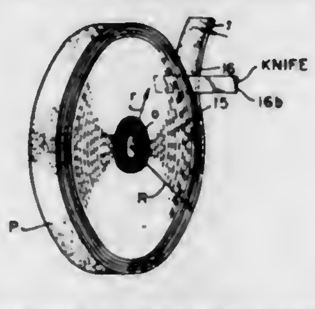
1. An antenna arrangement having n radiators fed in rotary field, thereby characterized that upon transmission of a band lying between the range-defining frequencies f_1 and f_2, the phase step between neighboring radiators deviates, at the center frequency

$$fm=\frac{f_1+f_2}{2}$$

and immediately adjacent frequencies from $360/n$ degrees, the improvement therein comprising means for dimensioning and providing an equally great phase step between neighboring radiators only at a frequency f_0, lying within the range-defining frequencies, which is substantially higher than f_m and substantially higher than the immediately adjacent frequencies to f_m.

3,307,196
LUNEBERG TYPE LENS FORMED BY SPIRAL WINDING ELONGATED STRIP OF VARIABLE DIELECTRIC CONSTANT MATERIAL

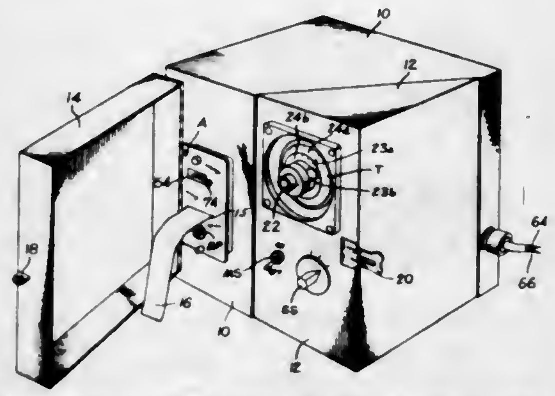
Robert L. Horst, Manheim Township, Lancaster County, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania
Filed Dec. 28, 1962, Ser. No. 247,902
23 Claims. (Cl. 343—911)



15. A two-dimensional substantially constant thickness dielectric lens comprising a plurality of elongated like-width relatively flexible modules of dielectric material, each of which exhibits a progressive one-dimensional variation in dielectric constant in at least its direction of elongation, disposed side-by-side to one another in a spiral configuration of interleaved overlapping turns.

3,307,197
COUNTER-TIMER-PRINTER DEVICE WITH READOUT MECHANISM

John A. Sandrick, 8636 S. Walcott, Chicago, Ill. 60620, and Daniel E. Greenway, 5154 S. Melvina, Chicago, Ill. 60638
Filed Aug. 31, 1964, Ser. No. 393,092
2 Claims. (Cl. 346—14)

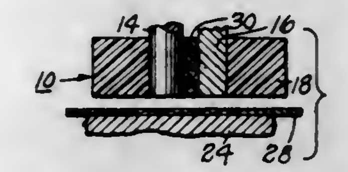


1. In a counter-time-printer device, a recycling timer having means to set the same for a predetermined time period, a counter-printer having counting dials, printing rollers driven thereby, a readout tape and printing means, a first electrically operated means to actuate said counting dials and printing rollers including an impulse generator responsive to machine cycles, a second electrically operated means to actuate said printing means in response to expiration of the time period for which said timer is set, an electrically actuated clutch which automatically disengages upon expiration of the time period for which said timer is set to effect the recycling of said timer, a switch which is effective when closed to energize the circuit for said timer, said electrically actuated clutch being effective to close said switch, a latch to normally hold said switch in closed position, and means to release said latch in response to expiration of the time period.

3,307,198
ELECTROSTATIC RECORDING UTILIZING TUNGSTEN-RHENIUM ELECTRODES

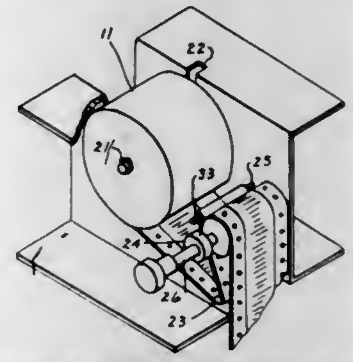
John J. Morgan, Detroit, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 15, 1963, Ser. No. 273,222
2 Claims. (Cl. 346—74)

1. In an electrostatic recording head including an anode bar electrode and a plurality of cathode pin electrodes positioned closely to said anode electrode but electrically insulated therefrom, and further including a surrounding body of electrically insulating material encapsulating the electrodes therewithin except for the exposure of the terminal ends thereof across which a relatively high voltage is established by the selective application of negative electrical pulses to the cathode pin electrodes, the provision for inhibiting erosion of the pin electrodes which comprises forming the same of an alloy of tungsten and rhenium of which the rhenium constitutes substantially 20%–30% of the alloy.



3,307,199
TAPE FEED RELEASE FOR A RECORDER

Edward J. Zeitlin, New York, N.Y., assignor to Standard Instruments Corporation, New York, N.Y.
Filed Oct. 15, 1964, Ser. No. 404,079
2 Claims. (Cl. 346—114)



1. A tape recorder which includes a roll of recording tape, said tape marked with identifying minutes, hours and days, a chronograph actuated drive, connecting means between said tape recorder and said chronograph to move said tape past a recording point in sychronism with the passing of time, recording means to mark said tape at the recording point, said drive means for said tape includes a chronograph actuated gear that is rotatably and slidably mounted on a shaft that supports said roll of recording tape said shaft provided with a stop to restrict the slidable movement of said gear on said shaft, said gear provided with a threaded hub, a second shaft aligned with the first shaft and threadably secured to said hub of said gear, said gear slidable on said first shaft toward said second shaft to grip the stop on said first shaft and retain said gear and both shafts in an integral gripped relationship, and means to rotate said second shaft in the same direction of rotation as said drive means to release said gripped relationship and in turn release said driving relationship.

DESIGNS

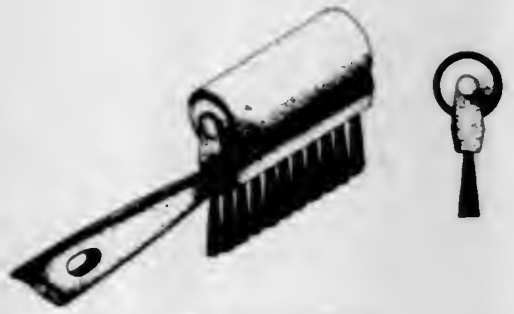
FEBRUARY 28, 1967

207,047
LADY'S STOCKING

Clyde A. Berry, Valdese, N.C., assignor to Pilot Research Corporation, Valdese, N.C., a corporation of North Carolina
Filed Apr. 18, 1966, Ser. No. 1,930
Term of patent 14 years
(Cl. D2—336)

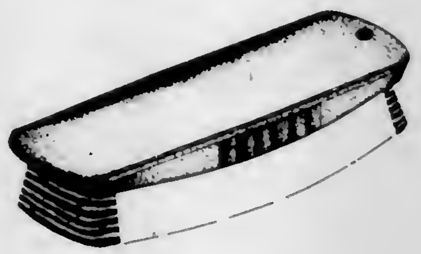
207,048
LINT ROLLER AND BRUSH COMBINATION

Robert William Pekar, Florence, Mass., assignor to Pro-Phy-Lac-Tic Brush Company, Florence, Mass., a corporation of Delaware
Filed Mar. 10, 1966, Ser. No. 1,394
Term of patent 14 years
(Cl. D9—2)



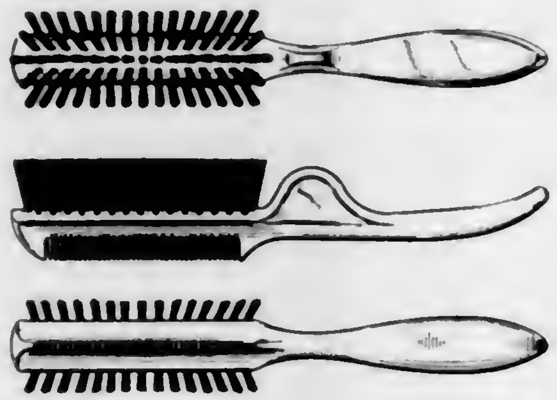
207,049
SHOE BRUSH

Robert Carl McCord, Florence, Mass., assignor to Pro-Phy-Lac-Tic Brush Company, Florence, Mass., a corporation of Delaware
Filed Mar. 14, 1966, Ser. No. 1,448
Term of patent 14 years
(Cl. D9—2)



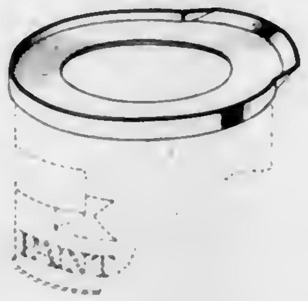
207,050
COMBINED BRUSH AND COMB

Joseph Vallis, Toronto, Ontario, Canada, assignor to Valden Company, Toronto, Ontario, Canada
Filed Aug. 10, 1965, Ser. No. 86,525
Term of patent 14 years
(Cl. D9—2)



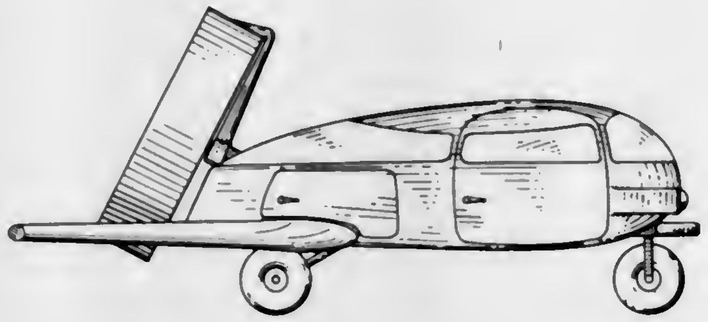
207,051
PAINT CAN ATTACHMENT FOR DRAINING A PAINT BRUSH

Ward W. Bainbridge, 493 Ramapo Valley Road, Oakland, N.J. 07436
Filed Nov. 1, 1965, Ser. No. 87,965
Term of patent 14 years
(Cl. D9—2)



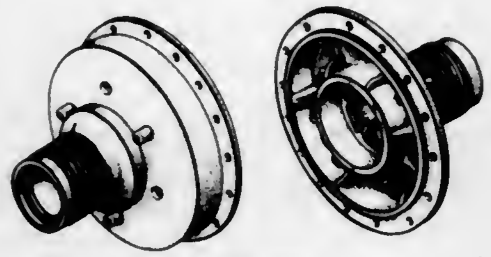
207,052
AIR-DRIVEN AUTOMOBILE

Paul M. Lewis, P.O. Box 652, Golden, Colo. 80401
Filed May 2, 1966, Ser. No. 2,106
Term of patent 14 years
(Cl. D14—3)



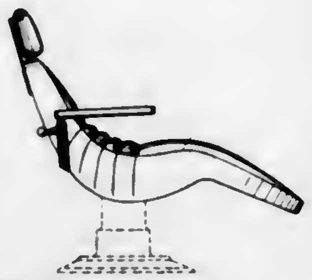
207,053
WHEEL HUB FOR RACING VEHICLE

Harry H. Cecil, R.R. 3, Box 279,
Brookville, Ohio 45309
Filed Apr. 21, 1966, Ser. No. 1,973
Term of patent 14 years
(Cl. D14—30)



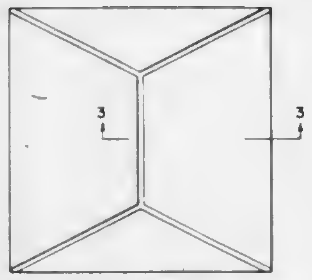
207,054
CHAIR

Arthur C. Ferro, Creve Coeur, Mo., assignor to Contour Chair-Lounge Co., Inc., St. Louis, Mo., a corporation of Missouri
Filed Aug. 12, 1965, Ser. No. 86,553
Term of patent 14 years
(Cl. D15—11)



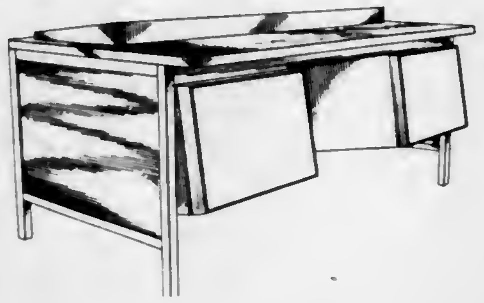
207,055
ACOUSTICAL CORRECTION TILE

Edward R. Gorka, Tonawanda, N.Y., assignor to National Gypsum Company, Buffalo, N.Y., a corporation of Delaware
Filed Oct. 14, 1965, Ser. No. 87,482
Term of patent 14 years
(Cl. D18—2)



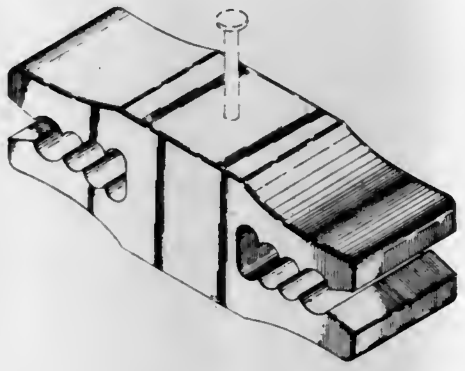
207,056
CABINET CONSOLE OR THE LIKE

Grant E. Allen, Jr., and Fred Bohm, both of Atlanta, Ga., assignors to Scientific-Atlanta, Inc., De Kalb County, Ga., a corporation of Georgia
Original design application May 11, 1964, Ser. No. 79,908, now Patent No. 203,826, dated Feb. 22, 1966. Divided and this application Sept. 20, 1965, Ser. No. 87,523
Term of patent 14 years
(Cl. D26—5)



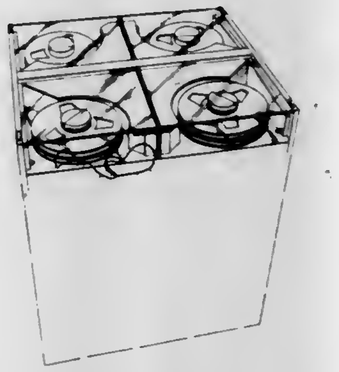
207,057
DIELECTRIC STAPLE HEAD

John R. Palmer, West De Pere, Wis., assignor to Pal Staple Corporation, West De Pere, Wis., a corporation of Wisconsin
Filed Oct. 15, 1965, Ser. No. 87,501
Term of patent 14 years
(Cl. D26—10)



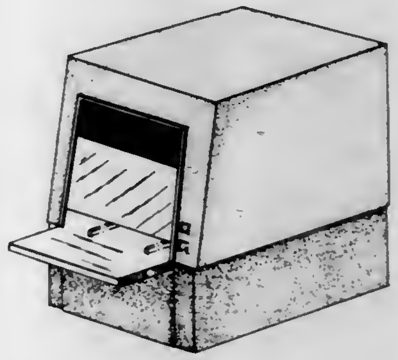
207,058
MAGNETIC TAPE TRANSPORT

Harry F. Rayfield, Arcadia, and Magne Jarle Kjos, Duarte, Calif., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Mar. 25, 1966, Ser. No. 1,642
Term of patent 14 years
(Cl. D26—14)



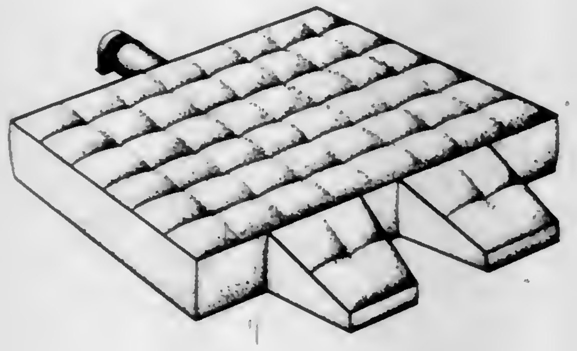
207,059
DOCUMENT IMAGE TRANSMITTER

John R. Regal, East Brunswick, N.J., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 18, 1965, Ser. No. 87,542
Term of patent 3½ years
(Cl. D26—14)



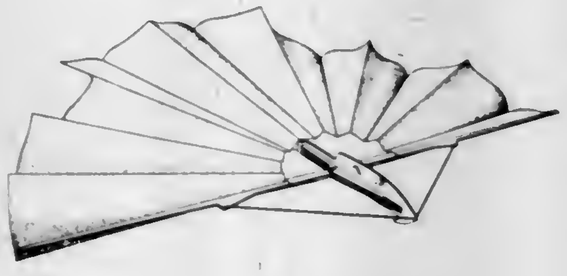
207,060
VAULTER'S LANDING CUSHION

Thomas O. Olsen, 910 S. Santa Fe, Salina, Kans. 67401
Filed Jan. 25, 1966, Ser. No. 761
Term of patent 14 years
(Cl. D34—5)



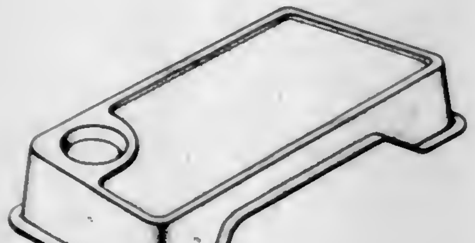
207,061
TOY AIRPLANE

Hugh L. Wallace, 275 Collier Road, NW., Atlanta, Ga. 30318
Filed Sept. 30, 1965, Ser. No. 87,226
Term of patent 14 years
(Cl. D34—15)



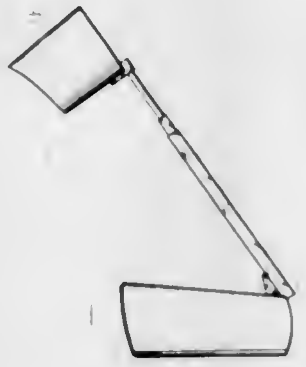
207,062
EATING TRAY

William K. Blair, Sr., 110 Mulberry St., Cambridge City, Ind. 47327
Filed Mar. 25, 1966, Ser. No. 1,629
Term of patent 14 years
(Cl. D44—10)



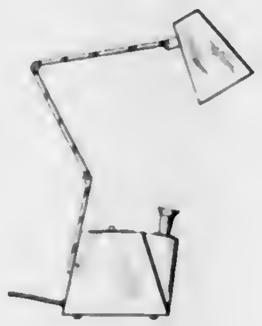
207,063
DESK LAMP

Edmund Sovatsky, East Northport, N.Y., assignor to Tensor Corporation, Brooklyn, N.Y., a corporation of New York
Filed Feb. 4, 1966, Ser. No. 913
Term of patent 14 years
(Cl. D48—20)



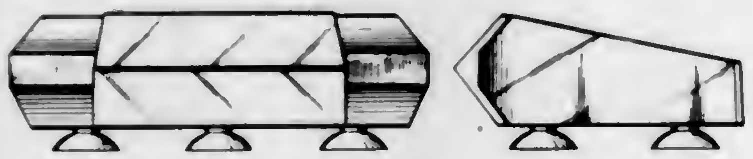
207,064
TABLE LAMP

Albert M. Lorenzo, Wyckoff, N.J., assignor to Mial Manufacturing Corporation, Bethpage, N.Y., a corporation of New York
Filed Sept. 15, 1966, Ser. No. 3,872
Term of patent 14 years
(Cl. D48—20)



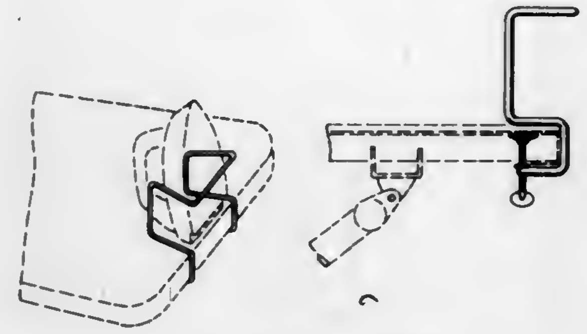
207,065
COMBINED BRAKE LAMP AND LATERALLY DIRECTED MIRRORS FOR MOUNTING ON THE FRONT OF A VEHICLE

Hwaboog Lee, 2834 3-chome, Tokyo, Japan
Filed May 4, 1965, Ser. No. 85,128
Term of patent 14 years
(Cl. D48—32)



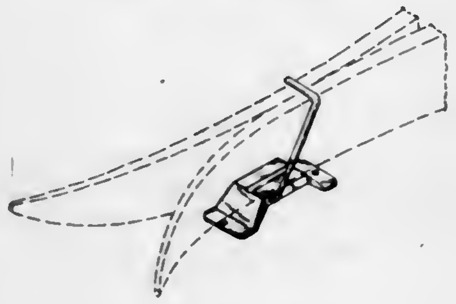
207,066
IRON HOLDER

Raymond L. Nelson, 14200 Spring Lake Road, Minnetonka, Minn. 55343
Filed June 6, 1966, Ser. No. 2,578
Term of patent 14 years
(Cl. D49—6)



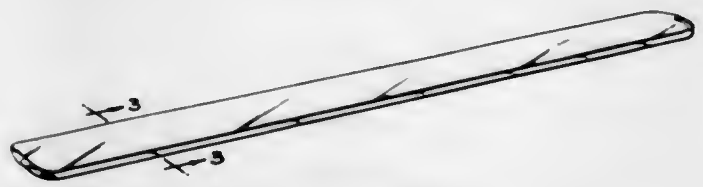
207,067
HANGER BRACKET

Willis Griffin, 402 22nd St., Boulder, Colo. 80302
Filed June 16, 1966, Ser. No. 2,704
Term of patent 14 years
(Cl. D54—1)



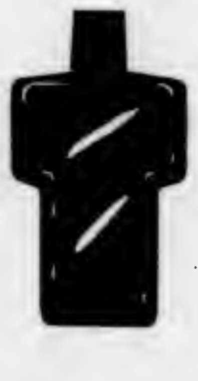
207,068
CURTAIN ROD PACKAGE

David W. Smith, Freeport, Ill., assignor to Western Newell Mfg., Co., Freeport, Ill., a corporation of Illinois
Filed July 13, 1964, Ser. No. 80,838
Term of patent 14 years
(Cl. D58—2)



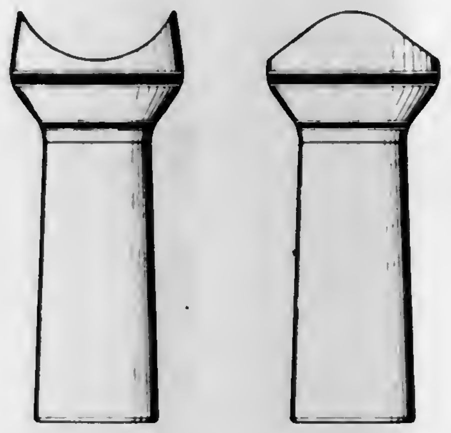
207,069
BOTTLE

Wayne J. Stettler, Quakertown, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania
Filed Nov. 18, 1965, Ser. No. 88,149
Term of patent 14 years
(Cl. D58—6)



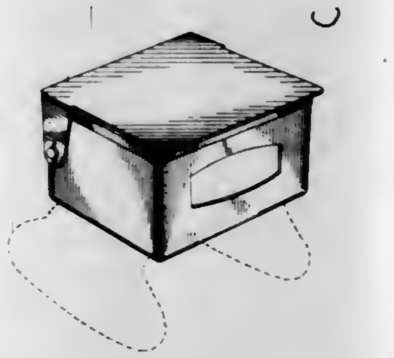
207,070
COMBINED BOTTLE AND CAP

Jerome Gould, Encino, Calif., assignor to "42" Products, Ltd., Inc., Santa Monica, Calif., a corporation of California
Filed Feb. 7, 1966, Ser. No. 942
Term of patent 14 years
(Cl. D58—8)



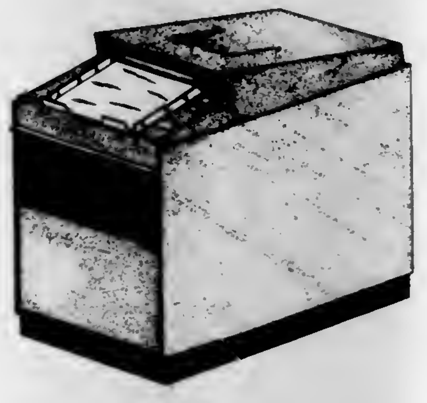
207,071
COMBINED TISSUE DISPENSER AND LITTER CONTAINER FOR AUTOMOBILES

Daniel C. Larkin, 3134 Woodstock Drive, Detroit, Mich. 48221
Filed Mar. 30, 1965, Ser. No. 84,517
Term of patent 14 years
(Cl. D58—12.6)



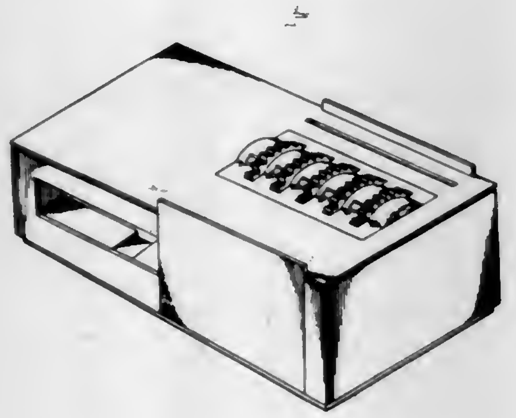
207,072
REPRODUCTION MACHINE

John R. Regal, East Brunswick, N.J., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 18, 1965, Ser. No. 87,579
Term of patent 14 years
(Cl. D61—1)



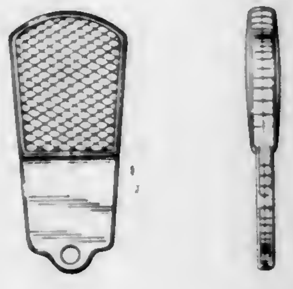
207,073
IMPRINTER

Edward R. Wiener, Rochester, Minn., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Nov. 15, 1965, Ser. No. 88,111
Term of patent 14 years
(Cl. D64—11)



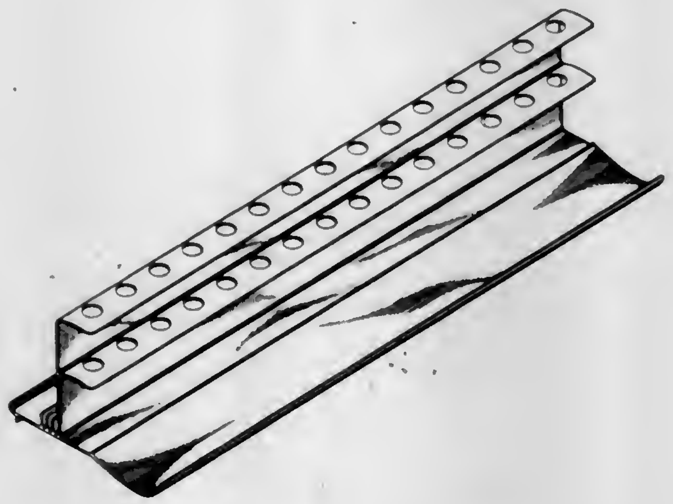
207,074
SAFETY REFLECTOR

Morris Rider, 436 W. Grand Blvd.,
Detroit, Mich. 48216
Filed May 31, 1966, Ser. No. 2,488
Term of patent 14 years
(Cl. D72—1)



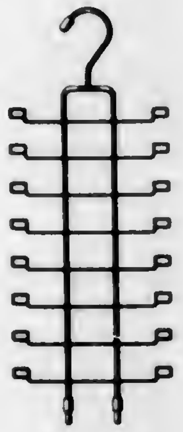
207,075
HOLDER FOR DRAFTSMAN'S TOOLS AND THE LIKE

Jacque Fresco, 3112 W. 23rd St., Miami, Fla. 33140
Filed June 1, 1966, Ser. No. 2,505
Term of patent 14 years
(Cl. D74—5)



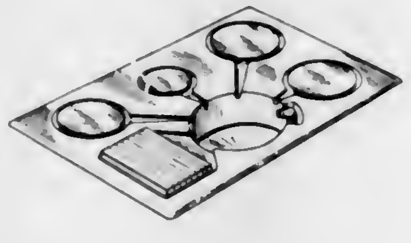
207,076
TIE AND BELT HANGER

Paul F. Bertram, St. Louis, Mo., assignor to Lee-Rowan Company, St. Louis, Mo., a corporation of Missouri
Filed Jan. 19, 1966, Ser. No. 675
Term of patent 14 years
(Cl. D80—8)



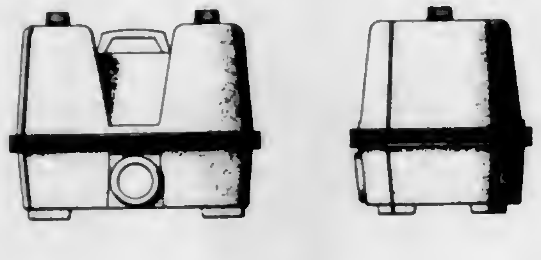
207,077
COMBINATION RANGE TOP AND SINK OR THE LIKE

Mike Tecton, Washington, D.C.
(356 N. Kensington, Arlington, Va. 22207)
Filed Oct. 24, 1965, Ser. No. 87,915
Term of patent 14 years
(Cl. D81—25)



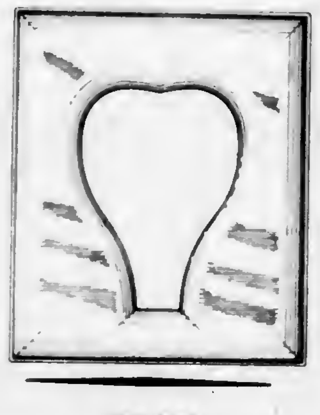
207,078
BLOWER UNIT FOR HYDROTHERAPY OR SIMILAR USE

Randolph J. Smith, 618 Elmwood St.,
Anaheim, Calif., 92805
Filed Mar. 25, 1966, Ser. No. 1,643
Term of patent 14 years
(Cl. D83—1)



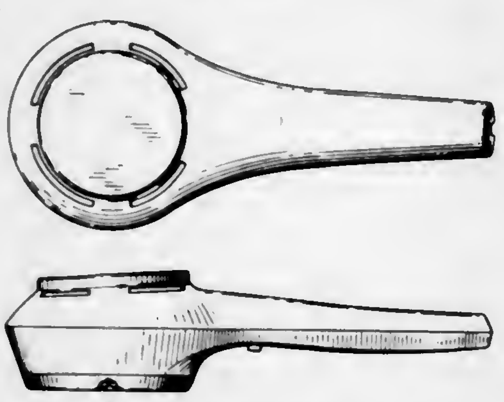
207,079
SURGICAL PILLOW

Lillian B. Wirth, 220 Seavy Road,
Corvallis, Oreg. 97113
Filed Mar. 25, 1966, Ser. No. 1,686
Term of patent 7 years
(Cl. D83—1)



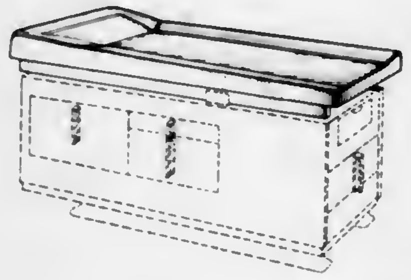
207,080
COMBINED HEATING AND MASSAGING UNIT

Samuel L. McNair, Overland Park, Kans., assignor to The Songrand Corporation, a corporation of Missouri
Filed June 23, 1966, Ser. No. 2,790
Term of patent 14 years
(Cl. D83—1)



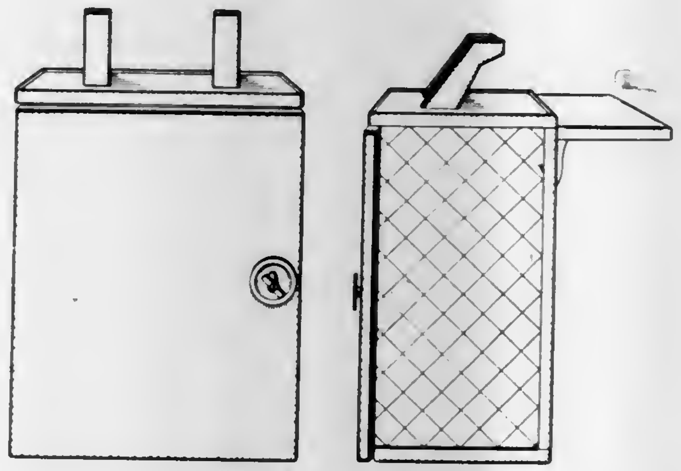
207,081
PHYSICIAN'S EXAMINING TABLE

James M. Katzfey and Warren J. Peterson, both of Two Rivers, Wis., assignors to Hamilton Manufacturing Company, Two Rivers, Wis., a corporation of Wisconsin
Filed Oct. 11, 1965, Ser. No. 87,409
Term of patent 7 years
(Cl. D83—1)



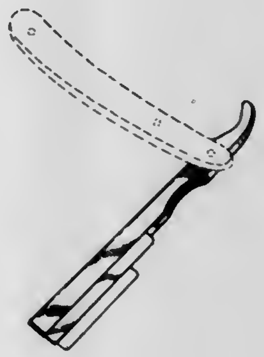
207,082
AUTOMATIC BEVERAGE DISPENSER CABINET

Eldon S. Miller, 2917 Westbrook Drive,
Fort Wayne, Ind. 46805
Filed Nov. 26, 1965, Ser. No. 88,242
Term of patent 14 years
(Cl. D94—3)



207,083
COMBINED RAZOR BLADE AND HOLDER THEREFOR

David H. Arnold, Baytown, and Billy-Joe Leake, Sr., Houston, Tex., assignors, by direct and mesne assignments, of one-tenth interest to William E. Ford, Houston, Tex.
Filed June 4, 1964, Ser. No. 80,279
Term of patent 14 years
(Cl. D95—3)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 28TH DAY OF FEBRUARY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Heyer, Benjamin F. W., to Marquette Corp. Engine parameter analyzer. Re. 26,163, 2–28–67, Cl. 73—116.
- Hoeksema, Herman, to The Upjohn Co. N,N′-bis(α-sulfoalkyl)-actinospectacins and process for their production. Re. 26,164, 2–28–67, Cl. 260—340.3.
- Marquette Corp.: *See*—
  - Heyer, Benjamin F. W. 26,163.
- Stolz, Owen M. Building wall structure. Re. 26,165, 2–28–67, Cl. 52—80.
- Upjohn Co., The: *See*—
  - Hoeksema, Herman. 26,164.

LIST OF PLANT PATENTEES

- Amling-Devor Nurseries, Inc.: *See*—
  - Lammerts, Walter E. 2,722.
- Lammerts, Walter E., to Amling-Devor Nurseries, Inc. Rose plant. 2,722, 2–28–67, Cl. 26.
- McGredy, Samuel. Rose plant. 2,721, 2–28–67, Cl. 27.

LIST OF DESIGN PATENTEES

- Allen, Grant E., Jr., and F. Bohm, to Scientific-Atlanta, Inc. Cabinet console or the like. 207,056, 2–28–67, Cl. D26—5.
- Arnold, David H., and B.-J. Leake, Sr., 1/10 interest to W. E. Ford. Combined razor blade and holder therefor. 207,083, 2–28–67, Cl. D95—3.
- Bainbridge, Ward W. Paint can attachment for draining a paint brush. 207,051, 2–28–67, Cl. D9—2.
- Berry, Clyde A., to Pilot Research Corp. Lady's stocking. 207,047, 2–28–67, Cl. D2—336.
- Bertram, Paul F., to Lee-Rowan Co. Tie and belt hanger. 207,076, 2–28–67, Cl. D80—8.
- Blair, William K., Sr. Eating tray. 207,062, 2–28–67, Cl. D44—10.
- Bohm, Fred: *See*—
  - Allen, Grant E., Jr., and Bohm. 207,056.
- Burroughs Corp.: *See*—
  - Rayfield, Harry F., and Kjos. 207,058.
- Cecil, Harry H. Wheel hub for racing vehicle. 207,053, 2–28–67, Cl. D14—30.
- Contour Chair-Lounge Co., Inc.: *See*—
  - Ferro, Arthur C. 207,054.
- Ferro, Arthur C., to Contour Chair-Lounge Co., Inc. Chair. 207,054, 2–28–67, Cl. D15—11.
- Ford, William E.: *See*—
  - Arnold, David H., and Leake. 207,083.
- "42" Products, Ltd., Inc.: *See*—
  - Gould, Jerome. 207,070.
- Fresco, Jacque. Holder for draftsman's tools and the like. 207,075, 2–28–67, Cl. D74—5.
- Gorka, Edward R., to National Gypsum Co. Acoustical correction tile. 207,055, 2–28–67, Cl. D18—2.
- Gould, Jerome, to "42" Products, Ltd., Inc. Combined bottle and cap. 207,070, 2–28–67, Cl. D58—8.
- Griffing, Willis. Hanger bracket. 207,067, 2–28–67, Cl. D54—1.
- Hamilton Mfg. Co.: *See*—
  - Katzfey, James M., and Peterson. 207,081.
- International Business Machines Corp.: *See*—
  - Wiener, Edward R. 207,073.
- Katzfey, James M., and W. J. Peterson, to Hamilton Mfg. Co. Physician's examining table. 207,081, 2–28–67, Cl. D83—1.
- Kjos, Magne J.: *See*—
  - Rayfield, Harry F., and Kjos. 207,058.
- Larkins, Daniel C. Combined tissue dispenser and litter container for automobiles. 207,071, 2–28–67, Cl. D58—12.6.
- Leake, Billy-Joe, Sr.: *See*—
  - Arnold, David H., and Leake. 207,083.
- Lee, Hwabong. Combined brake lamp and laterally directed mirrors for mounting on the front of a vehicle. 207,065, 2–28–67, Cl. D48—32.
- Lee-Rowan Co.: *See*—
  - Bertram, Paul F. 207,076.
- Lewis, Paul M. Air-driven automobile. 207,052, 2–28–67, Cl. D14—3.
- Lorenzo, Albert M. Mial Mfg. Corp. Table lamp. 207,064, 2–28–67, Cl. D48—20.
- McCord, Robert C., to Pro-Phy-Lac-Tic Brush Co. Shoe brush. 207,049, 2–28–67, Cl. D9—2.
- McNair, Samuel L., to The Songrand Corp. Combined heating and massaging unit. 207,080, 2–28–67, Cl. D83—1.
- Mial Mfg. Corp.: *See*—
  - Lorenzo, Albert M. 207,064.
- Miller, Eldon S. Automatic beverage dispenser cabinet. 207,082, 2–28–67, Cl. D94—3.
- National Gypsum Co.: *See*—
  - Gorka, Edward R. 207,055.
- Nelson, Raymond L. Iron holder. 207,066, 2–28–67, Cl. D49—6.
- Olsen, Thomas O. Vaulter's landing cushion. 207,060, 2–28–67, Cl. D34—5.
- Pal Staple Corp.: *See*—
  - Palmer, John R. 207,057.
- Palmer, John R., to Pal Staple Corp. Dielectric staple head. 207,057, 2–28–67, Cl. D26—10.
- Pekar, Robert W., to Pro-Phy-Lac-Tic Brush Co. Lint roller and brush combination. 207,048, 2–28–67, Cl. D9—2.
- Peterson, Warren J.: *See*—
  - Katzfey, James M., and Peterson. 207,081.
- Pilot Research Corp.: *See*—
  - Berry, Clyde A. 207,047.
- Pro-Phy-Lac-Tic Brush Co.: *See*—
  - Pekar, Robert W. 207,048.
  - McCord, Robert C. 207,049.
- Rayfield, Harry F., and M. J. Kjos, to Burroughs Corp. Magnetic tape transport. 207,058, 2–28–67, Cl. D26—14.
- Regal, John R., to Sperry Rand Corp. Document image transmitter. 207,059, 2–28–67, Cl. D26—14.
- Regal, John R., to Sperry Rand Corp. Reproduction machine. 207,072, 2–28–67, Cl. D61—1.
- Rider, Morris. Safety reflector. 207,074, 2–28–67, Cl. D72—1.
- Scientific-Atlanta, Inc.: *See*—
  - Allen, Grant E., Jr., and Bohm. 207,056.
- Smith, David W., to Western Newell Mfg., Co. Curtain rod package. 207,068, 2–28–67, Cl. D58—2.
- Smith Kline & French Laboratories: *See*—
  - Stettler, Wayne J. 207,069.
- Smith, Randolph J. Blower unit for hydrotherapy or similar use. 207,078, 2–28–67, Cl. D83—1.
- Songrand Corp., The: *See*—
  - McNair, Samuel L. 207,080.
- Sovatsky, Edmund, to Tensor Corp. Desk lamp. 207,063, 2–28–67. Cl. D48—20.
- Sperry Rand Corp.: *See*—
  - Regal, John R. 207,059.
  - Regal, John R. 207,072.
- Stettler, Wayne J., to Smith Kline & French Laboratories. Bottle. 207,069, 2–28–67, Cl. D58—6.
- Tecton, Mike. Combination range top and sink, or the like. 207,077, 2–28–67, Cl. D81—25.
- Tensor Corp.: *See*—
  - Sovatsky, Edmund. 207,063.
- Valden Co.: *See*—
  - Vallis, Joseph. 207,050.
- Vallis, Joseph, to Valden Co. Combined brush and comb. 207,050, 2–28–67, Cl. D9—2.
- Wallace, Hugh L. Toy airplane. 207,061, 2–28–67, Cl. D34—15.
- Western Newell Mfg., Co.: *See*—
  - Smith, David W. 207,068.
- Wiener, Edward R., to International Business Machines Corp. Imprinter. 207,073, 2–28–67, Cl. D64—11.
- Wirth, Lilliam B. Surgical pillow. 207,079, 2–28–67, Cl. D83—1.

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- AB Broderna Ottosson & Co.: *See*—
  - Ottosson, John E. 3,306,625.
- AJ Industries Corp.: *See*—
  - Zagwyn, Anthony T. 3,806,649.
  - Zagwyn, Anthony T. 3,306,650.
- A. J. Industries, Inc.: *See*—
  - Fricke, Roy A. 3,305,886.
- Abbiswerk Zurich A.G.: *See*—
  - Schmutz, Karl. 3,307,038.
- Abel, Martin L., to The Permawick Co. Package of oil-impregnated fibers. 3,306,438, 2–28–67, Cl. 206—56.
- Abell, Jared, to Chevron Research Co. Cycloalkene process. 3,306,941, 2–28–67, Cl. 260—666.
- Able Building Co.: *See*—
  - Allen, David L. 3,306.661.
- Abrahamsen, Albert A., and R. W. Simmons. Apparatus for directing marine animals. 3,305,962, 2–28–67, Cl. 43—17.1.
- Adam, William B., to Boeing Airplane Co. Conical scan radar system and antenna. 3,307,183, 2–28–67, Cl. 343—16.
- Adams, Albert E., to Pictorial Machinery Ltd. Photographic apparatus. 3,306,161, 2–28–67, Cl. 88—24.
- Adams, Edmond, and H. H. Helms, Jr., to United States of America, Navy. Method of making a magnetic sheet. 3,306,742, 2–28–67, Cl. 75—211.
- Adams, Frederick J., Cam Gears Ltd. Screw and nut devices. 3,306,124, 2–28–67, Cl. 74—459.
- Adams, Robert T., E. E. Johnson, and J. M. Salmela, to Chevron Research Co. Production of alkali metal alkyl sulfonates. 3,306,931, 2–28–67, Cl. 260—513.
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  - Kolibas, James A. 3.306,255.
- Adler, Orville E., to National-Standard Co. Method of making an aluminum clad steel wire. 3,306,088, 2–28–67, Cl. 72—47.
- Adler, Orville E., to National-Standard Co. Aluminum clad electric conductor wire. 3,306,716, 2–28–67, Cl. 29—196.2.
- Admiral Corp.: *See*—
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- Adrian, Herbert M., Jr., to Archer-Daniels-Midland Co. Dicyclopentadiene-dicarboxylic acid reaction products and polyesters thereof. 3,306,868, 2–28–67, Cl. 260—23.7.
- Aemmer, Peter, to Albiswerk Zurich A.G. Gap pattern for chopper of radiation search system. 3,307,039, 2–28–67, Cl. 250—83.3.
- Aerojet-General Corp.: *See*—
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  - Throner, Guy C., Jr. 3,306,204.
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  - Overman, Ernest H., Jr., and Calvert. 3,306,558.
- Aga Aktiebolag: *See*—
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  - Schneekluth, Herbert, and Ahrens. 3,306,244.
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  - Angerhofer, Alvin W. 3,306,711.
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  - Tschannen, Gottfried. 3,307,115.
- Albus, James S., 40% to R. M. Porter. Computer model teaching aid. 3,305,944, 2–28–67, Cl. 35—30.
- Alcamo, Antonino. Dart-marking machine. 3,306,189, 2–28–67, Cl. 101—26.
- Allard, Adrien, to Societe a Responsabilite Limitee, Allard & Fils. Assembly of elements of a packing-box of corrugated cardboard or similar deformable material. 3,306,520, 2–28–67, Cl. 229—45.
- Allen, David L., to Able Building Co. Safety retaining belt for shopping carts. 3,306,661, 2–28–67, Cl. 297—385.
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- Arnold, Alanson J., and W. M. Ripple, to American Radiator & Standard Sanitary Corp. Rotary conveyer apparatus. 3,306,426, 2–28–67, Cl. 198—33.
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- Arp, Leon J., to Iowa State University Research Foundation, Inc. Infant supporting apparatus. 3,306,287, 2–28–67, Cl. 128—134.
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- Chapman, Roy, and J. D. H. Hall, to Imperial Chemical Industries Ltd. Fabrics. 3,305,911, 2–28–67, Cl. 28—72.
- Chase, Theodore O. Propeller, rudder and wheel assembly for boats. 3,306,249, 2–28–67, Cl. 115—1.
- Cherniaew, Vladimir Ph., 50% to D. Ratner. Inner tube and tire valve stem protector. 3,306,331, 2–28–67, Cl. 152—204.
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  - Malmberg, Earl W., and Cherry. 3,306,730.
- Chevron Research Co.: *See—*
  - Abell, Jared. 3,306,941.
  - Adams, Robert T., Johnson, and Salmela. 3,306,931.
  - Hendrickson, Yngve G. 3,306,852.
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  - Percival, Douglas F., Siefert, and Traaen. 3,306,866.
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  - Arnold, Perry C., Stanick, and Larsen. 3,306,642.
- Chirer, Ervin G.: *See—*
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- Choay, Jean, M. Thely, and E. Vairel, to Laboratoire Choay. Somatotropic hormone. 3,306,823, 2–28–67, Cl. 167—74.
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- Christensen, Allen, & Co.: *See—*
  - Nielsen, Georg P. C. 3,305,877.
- Christensen Diamond Products Co.: *See—*
  - Christensen, Frank L., and Mabey. 3,306,669.
- Christensen, Frank L., and D. H. Mabey, to Christensen Diamond Products Co. Diamond milling cutters. 3,306,669, 2–28–67, Cl. 299—89.
- Christensen, Harry N. Vise. 3,306,604, 2–28–67, Cl. 269—240.
- Christian Holzapfel KG: *See—*
  - Bus, Johann A. 3,305,983.
- Christiansson, Carl M., to Aktiebolaget Bofors. Device for feeding cartridges of ammunition out of a cartridge magazine of an automatic gun. 3,306,165, 2–28–67, Cl. 89—33.
- Christy, Marcia E.: *See—*
  - Engelhardt, Edward L., and Christy. 3,306,934.
- Chubb-Mosler and Taylor Safer, Ltd.: *See—*
  - Sadler, John A. 3,307,176.
- Ciampi, Ledo. Animal feeding device. 3,306,260, 2–28–67, Cl. 119—51.
- Citizen Watch Co., Ltd.: *See—*
  - Suzuki, Choken. 3,306,028.
- Citograf Aktiebolag: *See—*
  - Dahlin, Rolf, and Johansson. 3,306,416.
- Citron, Manning: *See—*
  - Ryan, John W., May, and Citron. 3,307,012.
- Claessen, Wilhelmus H. L., to North American Philips Co., Inc. Apparatus for energizing and electrical load device. 3,307,171, 2–28–67, Cl. 340—324.
- Clampitt, Rodney B., G. H. Birum, and R. M. Anderson, to Monsanto Co. Tris (bromomethyl) phosphine oxide. 3,306,937, 2–28–67, Cl. 260—606.5.
- Clark, Adrian P., to British Telecommunications Research Ltd. Demodulator circuits for frequency modulated electrical signals. 3,307,112, 2–28–67, Cl. 329—104.
- Clark Equipment Co.: *See—*
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- Clark, Richard G.: *See—*
  - Stelts, Philip D., Clark, and Flounders. 3,306,059.
- Claxton, George P.: *See—*
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- Clement, Herbert L., to E. I. du Pont de Nemours and Co. Yarn diverting apparatus. 3,305,910, 2–28–67, Cl. 28—1.
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  - Dehn, Roy F. 3,306,122.
- Cleversey, Gerald W., to United Shoe Machinery Corp. Automatic edge gauge controls for strip attaching machines. 3,305,883, 2–28–67, Cl. 12—20.
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  - Polder, John M. 3,306,548.
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- Cody, Delbert A. Rack assembly for supporting a plurality of electrical units. 3,307,080, 2–28–67, Cl. 317—101.
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  - Minsk, Louis M., and Cohen. 3,306,730.
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  - Wilcox, Isaac L., and Columbus. 3,306,802.
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  - Lewis, Everett C., and Reese. 3,306,235.
  - Schroedter, Willburt W. 3,306,587.

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  - Blanchard, Pierre, Lehmann, and Virot. 3,306,733.
  - Bussi, Jean, and Lechevallier. 3,306,571.
  - Lucas, Jean M., and Vertut. 3,306,965.
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  - Henshaw, David E., and Walls. 3,306,023.
- Compagnie Francaise Thomson-Houston: *See—*
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  - Beurtheret, Charles A. E. 3,306,350.
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- Conover, William J., to Black, Sivalls & Bryson, Inc. Livestock pen arrangement. 3,306,257, 2–28–67, Cl. 119—16.
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  - Rarey, Kenneth W. 3,306,198.
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  - Ravve, Abraham, and Khamis. 3,306,883.
  - Szajna, John L. 3,306,493.
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- Cook, Clyde W., to Cook Valve Co. Inc. Lubricated ball valve construction. 3,306,315, 2–28–67, Cl. 137—246.22.
- Cook, Loren, Co.: *See—*
  - Cook, Loren. 3,306,527.
- Cook, Loren, to Loren Cook Co. Centrifugal blower and mounting means therefor. 3,306,527, 2–28–67, Cl. 230—127.
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  - Cook. Clyde W. 3,306,315.
- Cooksley, R. D., Mfg. Co.: *See—*
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- Cooper-Bessemer Corp., The: *See—*
  - Crooks, William R. 3,306,042.
- Cooper, Lawrence E., to Texas Instruments Inc. Multiple circuit breaker. 3,307,002, 2–28–67, Cl. 200—116.
- Cope, Geoffrey W., to Symington Wayne Corp. Self-aligning brake head assembly. 3,306,400, 2–28–67, Cl. 188—220.1.
- Cope, Richard P., Jr., to Cowles Chemical Co. Electroplating electrolytes. 3,306,831, 2–28–67, Cl. 204—43.
- Copeland, Charles A., ½ to E. R. Mims. Fire escape device. 3,306,582, 2–23–67, Cl. 254—154.
- Copelin, Harry B., M. J. Freamo, and O. B. Mathre, to E. I. du Pont de Nemours and Co. Cyclic method of preparing vinyl acetate 3,306,930, 2–28–67, Cl. 260—497.
- Copple Maurice L. Ammoniated fertilizer sealing device. 3,306,241, 2–28–67, Cl. 111—7.
- Corcoran, John W., to Beckman & Whitley, Inc. Direction sensor. 3,306,104, 2–28–67, Cl. 73—188.
- Cornelius, George W. Apparatus for reducing air pollutants emitted from internal combustion engines. 3,306,033, 2–28–67, Cl. 60—30.
- Cornell, Dudley E., III. Suction type black light insect trap. 3,305,965, 2–28–67, Cl. 43—139.
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- Couch International Methane Ltd.: *See—*
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- Couzens, Reginald, and M. M. Young. Embossing machine. 3,306,188, 2–28–67, Cl. 101—23.
- Cowans, Kenneth W., to Hughes Aircraft Co. Thermal coupling structure for cryogenic refrigeration. 3,306,075, 2–28–67, Cl. 62—514.
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  - Cope, Richard P., Jr. 3,306,831.
- Cowles, John H., to The Torrington Co. Seal for a roller bearing having thin walled race. 3,306,682, 2–28–67, Cl. 308—187.2.
- Craig, George H., to Commercial Solvents Corp. Assay for bacitracin in feed. 3,306,827, 2–28–67, Cl. 195—103.5.
- Crane, Carl J. Aircraft blind landing device and flight director system. 3,307,191, 2–28–67, Cl. 343—108.
- Crane Co.: *See—*
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- Crawford, Frances: *See—*
  - Crawford, John W. and F. 3,305,945.
- Crawford, John W. and F. Educational toy. 3,305,945, 2–28–67, Cl. 35—35.
- Crescenzo, Frank G., R. L. Dow, and B. Y. S. Lee, to United States of America, Navy. Slow burning plastisol cellulose acetate propellant composition containing resorcinol. 3,306,790, 2–28–67, Cl. 149—93.
- Crews, Sam T.: *See—*
  - Kloesel, Joseph A., Jr., and Crews. 3,306,379.
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  - Hathaway. Charles T., and Cohen. 3,306,766.
- Crucible Steel Co. of America: *See—*
  - Aksoy, Alaettin M., Lillys, and Jones. 3,306,734.
  - Rundell, Gene R. 3,306,736.
- Cruse, Lee H. Compensators for pneumatic-hydraulic systems. 3,306,009, 2–28–67, Cl. 55—201.
- Cser, Karoly, to Bacs-Kiskun Megyei Finommechanikai Vallalat. Musical instruments having struck vibrating members. 3,306,151, 2–28–67, Cl. 84—404.
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- Cunnally, William T., 50% to G. R. Johnson. Color reproduction with a monochromatic gradient line image. 3,306,974, 2–28–67, Cl. 178—5.2.
- Cupler, John A., II. Positioning apparatus. 3,305,930, 2–28–67, Cl. 33—147.
- Curcio, John B. Dump body side wall construction. 3,306,654, 2–28–67, Cl. 296—28.
- Curren, John L. Compact coiled tube heat exchanger. 3,306,352, 2–28–67, Cl. 165—163.
- Currier, John A., to Scott & Williams, Inc. Knitting machines. 3,306,079, 2–28–67, Cl. 66—134.
- Curtis, Herbert J., to United States Steel Corp. Transfer apparatus for conveyor sampling baskets. 3,306,474, 2–28–67, Cl. 214—1.
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- Cutri, Frank J., to Carlton Paper Corp. Paper guide means for pattern duplicating machine. 3,306,194, 2–28–67, Cl. 101—131.
- Cutri, Frank J., to Carlton Paper Corp. Pattern duplicating machine. 3,306,195, 2–28–67, Cl. 101—132.5.
- Cutri, Frank J., to Carlton Paper Corp. Pattern transfer machine. 3,306,196, 2–28–67, Cl. 101—132.5.
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- Da Cruz, Edward. Storage case for disk-shaped objects. 3,306,462, 2–28–67, Cl. 211—49.
- Dahl, Ernest A., Jr. Punch card. 3,307,022, 2–28–67, Cl. 235—61.12.
- Dahlgren, Jens K. A., and F. T. Stahl, to Aktiebolaget Flygts Pumpar. Centrifugal pump, particularly a hot water pump. 3,306,220, 2–28–67, Cl. 103—87.
- Dahlgren, John A., and D. W. Jacobus, to General Electric Co. Hydraulic ice maker. 3,306,072, 2–28–67, Cl. 62—351.
- Dahlin, Rolf, and G. Johansson, to Citograf Aktiebolag. Electromechanical control for embossing machines which rotates font past and back to selected characters. 3,306,416, 2–28–67, Cl. 197—6.6.
- Dai Nihon Bungu Co., Ltd.: *See—*
  - Matsumoto, Hiroyuki. 3,306,267.
- Dale, Frank L., to Timberland Products Co., Inc. Barbecue skillet. 3,306,279, 2–28–67, Cl. 126—25.
- D'Amico, John J., to Monsanto Co. Polymethylene 2-benzothiazolyl carbodithioates. 3,306,906, 2–28–67, Cl. 260—306.6.
- Darrow, Kenneth A., to General Electric Co. Method for the production of diamond compact abrasives. 3,306,720, 2–28–67, Cl. 51—309.
- Dasse, Lester F., to Lambert Brake Corp. Beryllium containing friction element. 3,306,401, 2–28–67, Cl. 188—251.
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  - Cahill, Lysle D. 3,307,020.
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- Davenport, Gordon E.: *See—*
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- Davis, Buell L., to Rollett Mfg., Inc. Towel winder. 3,306,544, 2–28–67, Cl. 242—55.
- Davis, Darwin D. to E. I. du Pont de Nemours and Co. Process for the preparation of dicarboxylic acids. 3,306,932, 2–28–67, Cl. 260—533.
- Davis, John W.: *See—*
  - Dewar, Douglas, and Davis. 3,306,677.

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Dean, Hollie T. Fence post with driving and anchoring means. 3,305,985, 2-28-67, Cl. 52—155.
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  Myers, Glenn L. 3,306,015.
  Oerman, Orey W., and Lohrman. 3,306,629.
De Francisco, Arthur. Plug-in electroluminescent device. 3,307,030, 2-28-67, Cl. 240—73.
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Deisenroth, Robert J., to Excel Corp. Window frame construction having a folded mitered corner. 3,305,998, 2-28-67, Cl. 52—656.
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Deming, Harold L. Hole cutter. 3,306,138, 2-28-67, Cl. 77—77.
Dengler, Herbert P., to Esso Research and Engineering Co. Fuel cell with horizontal electrodes. 3,306,774, 2-28-67, Cl. 136—86.
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Denton, Sterling C. Drill-chip guard. 3,306,135, 2-28-67, Cl. 77—55.
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Devol, George C. Multi-program apparatus. 3,306,442, 2-28-67, Cl. 209—121.
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  Williams, Norman E., and Dewey. 3,306,332.
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  Miller, George A. 3,306,758.
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  Reifers, Richard F. 3,306,813.
Diamond, Lew H., to Otis Elevator Co. Touch responsive static electric control. 3,307,071, 2-28-67, Cl. 315—160.
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Di Domenico, Joseph. Article dispensing rack. 3,306,688, 2-28-67, Cl. 312—42.
Dieberg, Rolf, to Varta Aktiengesellschaft. Sintered nickel-carbon gas diffusion electrode for fuel cells. 3,306,780, 2-28-67, Cl. 136—121.
Diebold, Inc.: *See*—
  Graber, Carl D., Grosswiller, Kenny, and Obermiller. 3,306,691.
Diedrichsen, Loren D., to United States of America, Army. Small automatic switchboard for four-wire telephone system. 3,306,985, 2-28-67, Cl. 179—91.
Diehl, William R., to Rowland Products, Inc. Refillable matchbook cover. 3,306,436, 2-28-67, Cl. 206—29.
Diehm, Earl H. Litter conveyor and distributor. 3,306,674, 2-28-67, Cl. 302—37.
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  Armbruster, Fritz. 3,306,489.
Dienes Werke fur Marchinenteile G.m.b.H.: *See*—
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Dies, Kurt, to Vereinigte Deutsche Metallwerke A.G. Forged metal shapes, their production, and articles made therefrom. 3,306,787, 2-28-67, Cl. 148—32.
Diesinger, William C., Jr. Reinforced carton and method of making it. 3,306,517, 2-28-67, Cl. 229—37.
Dimmock, Clarence O., Jr. Rotary compression combustion engine. 3,306,269, 2-28-67, Cl. 123—15.
Dinhobel, Friedrich, and J. R. Shoemaker, to Goodyear Aerospace Corp. Multi-purpose photo sensor. 3,306,160, 2-28-67, Cl. 88—24.
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  Kawasaki, Masasuke. 3,306,052.
Di Salvo, Joseph G., and J. S. B. Wolfe, to Goodrich-Gulf Chemicals, Inc. Fluid processes useful in precipitation of dissolved solids. 3,306,342, 2-28-67, Cl. 159—47.
Distillers Co. Ltd., The: *See*—
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  Hall, Reginald H. and A. H. P. 3,306,905.
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  Shapiro, Arthur. 3,305,970.
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  Green, Robert A., and Dobson. 3,306,470.
Doebler, Harold J., to United States of America, Navy. Three-color echo ranging display. 3,307,142, 2-28-67, Cl. 340—3.
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  Poolos, Nick. 3,306,064.
Dolphin, Maynard W. Fuel vaporizer. 3,306,273, 2-28-67, Cl. 123—133.
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Donnay, Jacques, to Compagnie Francaise Thomson-Houston. Television camera system having improved temperature control. 3,306,975, 2-28-67. Cl. 178—7.2.
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  Dornier, Silvius. 3,306,525.
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Dougherty, John J. Skirt type pile driving point. 3,306,054, 2-28-67, Cl. 61—53.
Dove, Frederick W., to Glens Engineering Works (Proprietary) Ltd. Regulatable valve. 3,306,572, 2-28-67, Cl. 251—297.
Dow Chemical Co., The: *See*—
  Ellers, Louis H., and Parks. 3,306,870.
  Goodenough, Robert D., and Gaska. 3,306,712.
  Lee, Lieng-Huang. 3,306,880.
  Lowes, Fred J., Jr. 3,306,955.
  Miller, Frederick A. 3,306,871.
  Moore, Eugene R. 3,306,954.
  Neipert, Marshall P., and Bon. 3,306,700.
  Reid, Raymond W., and Feneley. 3,306,777.
  Stanton, George W., and Traylor. 3,306,952.
Dow Corning Corp.: *See*—
  Plueddemann, Edwin P. 3,306,800.
Dow, Robert L.: *See*—
  Crescenzo, Frank G., Dow, and Lee. 3,306,790.
Dowbenko, Rostyslaw, to Pittsburgh Plate Glass Co. 4-amino-2-halo and alkyl-4,5-dihydro furans and process for their preparation. 3,306,899, 2-28-67, Cl. 260—247.7.
Dowty Hydraulic Units Ltd.: *See*—
  Kempson, Bertram C. 3,306,385.
Dowty Technical Developments Ltd.: *See*—
  Andrews, Thomas D. H., and Harding. 3,306,050.
Dr. Beck & Co. G.m.b.H.: *See*—
  Schmidt, Karl, Hansch, and Rombrecht. 3,306,771.
Drake, Austin T.: *See*—
  Sereno, Frank C., Glynn, and Drake. 3,306,443.
Drake, Cyril F.: *See*—
  Sterling, Henley F., and Drake. 3,306,788.
Drehman, Lewis E.: *See*—
  Myers, John W., and Drehman. 3,306,840.
Dressler, Donald G., to United States Steel Corp. Railroad bed cleaning equipment. 3,305,952, 2-28-67, Cl. 37—104.
Drilco Oil Tools, Inc.: *See*—
  Garrett, William R., and Moore. 3,306,381.
  Kloesel, Joseph A., Jr., and Crews. 3,306,379.
Drutchas, Gilbert H., to TRW Inc. Combination gear and vane pump. 3,306,228. 2-28-67, Cl. 103—126.
Duarte, Robert T. Universally mountable clothesline fastener. 3,305,904, 2-28-67, Cl. 24—137.
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  Simmons, Brian D., and Duerdoth. 3,306,978.
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Du Gardin, Tristan. Apparatus simulating the illumination of earth by the sun at any time and date. 3,305,946, 2-28-67, Cl. 35—46.
Du Kane Corp.: *See*—
  Smithberg, Floyd E., and Supitilov. 3,306,989.
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  Brierley, Ronald H., Dulaney, and Davenport. 3,306,844.
Duncan, James K., to E. K. Zitzewitz, R. Gurley, E. W. O'Shaughnessy, T. G. Lowry, and J. K. Duncan co-partners d.b.a. Duncan Reseach. Apparatus for precision fiberization. 3,306,722, 2-28-67, Cl. 65—12.
Duncan, Leon L. Method and apparatus for producing a decorative effect on stainless steel and other surfaces. 3,305,916, 2-28-67, Cl. 29—90.

Dunlop Rubber Co. Ltd.: *See*—
  Dewar, Douglas, and Davis. 3,306,677.
Dunster, Donald E., and D. S. Sullivan, to Continental Oil Co. Method and apparatus for compiling, compositing, correlating and normalizing seismographic data. 3,307,145, 2-28-67, Cl. 340—15.5.
Du Pont de Nemours, E. I., and Co.: *See*—
  Borecki, William J. 3,306,855.
  Brixner, Lothar H. 3,306,857.
  Chapin, Aurelius F. 3,306,718.
  Clement, Herbert L. 3,305,910.
  Copelin, Harry B., Freamo, and Mathre. 3,306,930.
  Davis, Darwin D. 3,306,932.
  Fogg, Edward T., and Gumprecht. 3,306,853.
  Glasser, Leo G., Kanzler, and Troy. 3,306,156.
  Gumprecht, William H. 3,306,854.
  Halliwell, Ronald H. 3,306,940.
  Hitchcock, John B. 3,306,785.
  Kealy, Thomas J. 3,306,948.
  Melbohm, Edgar P. H. 3,305,897.
  Noddin, George A. 3,306,201.
  Olsen, John S. 3,306,850.
  Pattison, Dexter B. 3,306,879.
  Ryan, Danahey. 3,306,546.
  Webers, Vincent J. 3,306,745.
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  Park, Donald M. 3,307,076.
Durand, Pierre, to Richier (Societe Anonyme). Load hoisting tackle. 3,306,469, 2-28-67, Cl. 212—71.
Dürler, Jacques, to Brevets Aero-Mecaniques S.A. Spinning machines, and in particular to twisting frames. 3,306,021, 2-28-67, Cl. 57—83.
Durr, George H., to Stromberg-Carlson Corp. Information processing and display system. 3,307,156, 2-28-67, Cl. 340—172.5.
Duval D'Adrian, Vincent L. High alkali earth oxide glass bead composition. 3,306,757, 2-28-67, Cl. 106—54.
Dvorkin, Harry. Air filter for inflatable tires. 3,306,011, 2-28-67, Cl. 55—225.
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  Dykstra, Thomas K., and Smith. 3,306,884.
  Keith, Garland B. 3,306,254.
  Knox, William J., Stenberg, and Wilson. 3,306,749.
  Minsk, Louis M., and Cohen. 3,306,750.
  Tamblyn, John W., and Caldwell. 3,306,920.
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Edwards, Joe E., Jr., to Brown Oil Tools, Inc. Wire line well tool. 3,306,359, 2-28-67, Cl. 166—120.
Egert, Francis A., to Wool "O" Co. Method and apparatus for the adhesive joining of braids for braided rugs. 3,306,799, 2-28-67, Cl. 156—304.
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  Bittrich, Gustav, and Ehrhardt. 3,306,830.
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  Cady, Mark J., and Eidnes. 3,305,935.
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Eisenhower, Walter D., Jr., W. S. Noll, and N. E. Ake, to Burroughs Corp. Semiconductor switch devices. 3,307,079, 2-28-67, Cl. 317—101.
Eisner, Burton D., to American Photocopy Equipment Co. Fixing unit for photocopy machines with improved guiding means. 3,306,595, 2-28-67, Cl. 263—6.
Eisner, Burton D., and L. D. Sacre, to American Photocopy Equipment Co. Apparatus and structure for handling copy paper. 3,306,491, 2-28-67, Cl. 221—41.
Ekey, William J., to The G. E. Myers & Bros., Co. Sump pump switch. 3,307,000, 2-28-67, Cl. 200—83.
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  Lewis, Gerald P., and Ruetschi. 3,306,832.
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  Silver, Bernard. 3,306,783.
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  Fink, James S. 3,307,162.
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  Park, Donald M. 3,307,075.
Elion, Herbert A.: *See*—
  Shapiro, Louis, and Elion. 3,307,066.
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Ellenberger, Jakob, to Ellenberger & Joensgen, G.m.b.H. Pushbutton-controlled overload circuit breaker. 3,307,124, 2-28-67, Cl. 335—35.
Ellenberger & Poensgen, G.m.b.H.: *See*—
  Ellenberger, Jakob. 3,307,122.
  Ellenberger, Jakob. 3,307,124.
Ellingsaeter, Knut, O. G. Gjosteen, and O. N. Rortveit, to A/S OQ Sunmdal Verk. Apparatus for crust breaking. 3,306,668, 2-28-67, Cl. 299—70.
Elliott, Andrew B., Jr., to Jefferson Electric Co. Inverter having a single self-commutating thyristor. 3,307,098, 2-28-67, Cl. 321—44.
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  Cullen, Roy H., and Elliott. 3,306,357.
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Ellis, Stafford M. Group thrust compensator. 3,306,048, 2-28-67, Cl. 60—243.
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  Lien, Wallace A. 3,306,993.
  Shoor, Bernard A. 3,307,054.
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  Ried, Walter A., and Schrader. 3,306,146.
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  Epstein, David and S. 3,307,144.
Erff, Anthony F., to J-B-T Instruments, Inc. Recording unit for audio teaching equipment. 3,306,988, 2-28-67, Cl. 179—100.2.
Ericsson, Eric A., to Telefonaktiebolaget L M Ericsson. Level control device. 3,306,982, 2-28-67, Cl. 179—16.
Erlander, Stig R., and R. Tobin, to United States of America, Agriculture. Solvent and process for obtaining undepolymerized amyloses. 3,306,772, 2-28-67, Cl. 127—70.
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  Mees, Robert, Lussem, and Holle. 3,306,698.
Espenschied, Wilbur L., and J. A. Maurer, to The Weber Dental Mfg. Co. Automatic weight-responsive container fillers. 3,306,382, 2-28-67, Cl. 177—117.
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  Dengler, Herbert P. 3,306,774.
  Gray, William O., and Hilliard. 3,306,243.
  Hu, Shih-En. 3,306,856.
  Lewis, Oliver G., Vickers, and North. 3,305,889.
  Mertzweiller, Joseph K., Guttner, and Tenney. 3,306,949.
  Mueller, William H. 3,306,847.
  Pugh, Duane W., and Parnell. 3,306,341.
  Wright, Franklin J., and Levine. 3,306,338.
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  Kozikowski, John, and Cais. 3,306,916.
  Shapiro, Hymin, De Witt, and Brown. 3,306,917.
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  Bouvelle, Georges. 3,307,036.
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Evans, Evan W., and P. Hall, to Imperial Metal Industries (Kynoch) Ltd. Titanium alloys. 3,306,739, 2-28-67, Cl. 75—175.5.
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FMC Corp.: *See*—
  Brewer, Willie F. 3,306,369.
Fa. Gewerkschaft Eisenhutte Westphalia: *See*—
  Lobbe, Armin. 3,306,666.
Fahrenbach, Wolfgang B., to Robalex Inc. Conveyor. 3,306,424, 2-28-67, Cl. 198—33.
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  Baker, James G. 3,306,695.
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  Roberts, Edward M., Claxton, and Fallon. 3,306,895.
Fanshawe, Hew D., to Brown Brothers & Co., Ltd. Stabilizing apparatus for ships. 3,306,247, 2-28-67, Cl. 114—125.
Farbenfabriken Bayer Aktiengesellschaft: *See*—
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  Steinbach, Hans-Horst. 3,306,759.
  Van Falkai, Bela Prietzschk, Rellensmann, Reichle, and Wieden. 3,306,873.
  Zirngibl, Hans, Brandle, Beumer, and Weidmann. 3,306,760.
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  Schott, Claus, Fischer, Roos, and Bier. 3,306,877.
  Sieber, Heinrich. 3,306,904.

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Earthoust, Jean M., and F. Clemence, to Roussel UCLAF, S.A. Derivative of pectin, its process of preparation and its method of use. 3,306,819, 2-28-67, Cl. 167—55.

Favre, John A., to Phillips Petroleum Co. Fluid storage method and apparatus therefor. 3,306,347, 2-28-67, Cl. 165—2.

Featherston, John R., to International Business Machines Corp. Duplex data transfer operations between cyclics storage devices. 3,307,151, 2-28-67, Cl. 340—172.5.

Fein, Marvin M.: *See—*
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Fellows, Thomas G.: *See—*
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Ferranti, Ltd.: *See—*
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Ferriman, Victor N., to Bristol Siddeley Engines Ltd. Rocket engine oxidant feed system. 3,306,038, 2-28-67, Cl. 60—39.29.

Ferrin, Charles R., to Combustion Engineering, Inc. Chromatograph sample system. 3,306,111, 2-28-67, Cl. 73—422.

Ferwerda, Ray. Truck driven compaction roller device. 3,306,175, 2-28-67, Cl. 94—50.

Fett, Helen M., and M. H. Fischer, to Pillsbury Co. Process for preparing D-arabitol. 3,306,826, 2-28-67, Cl. 195—35.

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Finicle, Robert L., to Union Carbide Corp. Radioactive spheroids coated with pyrolytic graphite. 3,306,825, 2-28-67, Cl. 176—67.

Fink, James S., to Electro Nuclear System Corp. Magnetic article encoding apparatus. 3,307,162, 2-28-67, Cl. 340—174.1.

Finnigan, Joseph C. Attachment for vehicle safety belts and shoulder harness. 3,306,662, 2-28-67, Cl. 297—389.

Firma Homann-Maytag G.m.b.H.: *See—*
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Schott, Claus, Fischer, Roos, and Bier. 3,306,877.

Fischer, Milton H.: *See—*
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Fisher, Edward W., to Garlock Inc. Valve stem seal. 3,306,621, 2-28-67, Cl. 277—80

Fisher, John, to The Warner & Swasey Co. Drive mechanism. 3,306,412, 2-28-67, Cl. 192—138.

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Fishman, Sherman S. Test tube shipping container. 3,306,513, 2-28-67, Cl. 229—15.

Fismer, William L., to T. Shriver & Co. Inc. Plate self shifter for filter presses. 3,306,455, 2-28-67, Cl. 210—230.

Fitzer, Erich, O. Rubisch, and F. Selka, to Siemens-Planiawerke Aktiengesellschaft fur Kohlefabrikate. Contact layer for a silicon-containing material. 3,307,136, 2-28-67, Cl. 338—322.

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Flannery, Robert J., and A. Sam, to Standard Oil Co. Fuel cell electrode and a process for making the same. 3,306,779, 2-28-67, Cl. 136—120.

Fleischer, Gottfried. Pressing machine. 3,305,956, 2-28-67, Cl. 38—16.

Flexicore Co., Inc., The: *See—*
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Flexicore Co., Inc., The: *See—*
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Flora, Russell T., Jr., to The Flexicore Co., Inc. Lifting hook assembly. 3,306,646, 2-28-67, Cl. 294—2.

Flounders, Edmund M.: *See—*
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Fogg, Edward T., and W. H. Gumprecht, to E. I. du Pont de Nemours and Co. Corrosion inhibited poly(hexafluoropropylene oxide) oil compositions. 3,306,853, 2-28-67, Cl. 252—48.4.

Fogleman, Harry F., to Aeromarine Electronics, Inc. Switching device. 3,307,042, 2-28-67, Cl. 307—88.5.

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Forber, William E., to Pilkington Brothers Ltd. Apparatus for the moulding of glass articles. 3,306,723, 2-2-67, Cl. 65—184.

Fortmann, William E., C. F. Stearns, and J. S. Sims, Jr., to United Aircraft Corp. Hydraulic fuel control. 3,306,037, 2-28-67, Cl. 60—39.28.

Foss, Martyn H.: *See—*
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Fourcade, Robert, T. Van De Walle, and H. Sack, to Houilleres du Bassin du Nord & du Pas-De-Calais. Stabilization of polyoxymethylenes with a polyamide prepared by the reaction of a dimer or timer of an unsaturated fatty acid with a polyamine. 3,306,953, 2-28-67, Cl. 260—857.

Fowler, Robert L., and N. Prince, Jr., to United States of America, Army. Time code reader. 3,307,155, 2-28-67, Cl. 340—172.5.

Fox, William B., J. S. MacKenzie, and R. K. Vitek, to Allied Chemical Corp. Fluorine compound manufacture. 3,306,834, 2-28-67, Cl. 204—157.1.

Fox, William L., to The Dole Valve Co. Automatic ice cube maker with water fill deflection mechanism. 3,306,065, 2-28-67, Cl. 62—177.

Frankel, Adolf, to Associated Electrical Industries Ltd. Steam turbines. 3,306,575, 2-28-67, Cl. 253—76.

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Fraser, Hugh D., and M. C. Unglert, to Westinghouse Electric Corp. Electric discharge lamp. 3,307,069, 2-28-67, Cl. 315—60.

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Frentzel-Beyme, Johannes, to W. Reiners. Thread lubricator. 3,306,253, 2-28-67, Cl. 118—78.

Fricke, Roy A., to A. J. Industries, Inc. Wheel washer. 3,305,886, 2-28-67, Cl. 15—21.

Friden, Inc.: *See—*
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Frielinghaus, Klaus H., J. L. Langdon, and A. W. Wetmore, to General Signal Corp. Automatic switching system. 3,307,031, 2-28-67, Cl. 246—4.

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Fritz, Clarence J. Hose reel and pumping apparatus. 3,306,213, 2-28-67, Cl. 103—41.

Fritz, Henry E., and R. P. Yunick, to Union Carbide Corp. Sulfolanyl polyamines and method for their production. 3,306,912, 2-28-67, Cl. 260—332.1.

Fritz, William E., to Union Tank Car Co. Hopper car discharge apparatus. 3,306,675, 2-28-67, Cl. 302—52.

Fromson, Robert E., and D. C. Washburn, Jr., to Westinghouse Electric Co. Settling apparatus. 3,306,456, 2-28-67, Cl. 210—256.

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Fuji Iron and Steel Co., Ltd.: *See—*
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Fujikawa, Kyoichi, T. Sukegawa, and J.-I. Nishizawa. Silver-lead alloy contacts containing dopants for semiconductors. 3,307,088, 2-28-67, Cl. 317—234.

Fujimoto, Yasuo, to Kyowa Hakko Kogyo Co., Ltd. Method for producing 4,6-dihydroxypyrimidine. 3,306,900, 2-28-67, Cl. 260—251.

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Heitler, Emmett H., Axtell, Fujioka, and Winter. 3,306,403

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Fukamachi, Masahiko, to Nippon Electric Co., Ltd. Plural matrix decoding circuit. 3,307,148, 2-28-67, Cl. 340—166.

Fulton, Samuel K. Marine facilities. 3,306,053, 2-28-67, Cl. 61—48.

Furth, Benedictus, to Honeywell G.m.b.H. Spark ignitor loading and releasing apparatus. 3,307,053, 2-28-67, Cl. 310—8.

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Fussell, Lewis, Jr.: *See—*
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Kealy, Thomas J., to E. I. du Pont de Nemours and Co. Process for the preparation of 1,4-dienes. 3,306,948, 2–28–67, Cl. 260—680.
Kearney, James R., Corp.: *See—*
Kowalski, Joseph W. 3,306,970.
Kearns, John P., to United States of America, Navy. Optical angular position transducer. 3,306,099, 2–28–67, Cl. 73—67.2.
Keay, Bernard T., and L. G. Booth. Space structures for building purposes. 3,305,997, 2–28–67, Cl. 52—648.
Keelavite Hydraulics Ltd.: *See—*
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Keith, Garland B., to Eastman Kodak Co. Apparatus for applying additives to cigarette filter tow. 3,306,254, 2–28–67, Cl. 118—227.
Kelin, Victor E. Croyostat. 3,306,058, 2–28–67, Cl. 62—45.
Kellard, Charles J. A., to Almco Supersheen Division of Great Britain Ltd. Vibratory barrel finishing machines. 3 305,977, 2–28–67, Cl. 51—163.
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Rhein, Hans, Keller, and Schuller. 3,306,133.
Keller, Leonard J., to Monsanto Co. Feeder apparatus. 3.306,501, 2–28–67, Cl. 222—328.
Kellogg, George E., and G. A. Harness, to General Motors Corp. Low travel hydraulic booster with in-line lifter. 3,306,043, 2–28–67, Cl. 60—54.5.
Kempson, Bertram C., to Dowty Hydraulic Units Ltd. Vehicle drive and steering system. 3,306,385, 2–28–67, Cl. 180—6.48.
Kendt, Norman L., and D. E. Payton, to General Electric Co. Water takeoff for washing machine connector. 3,306,319, 2–28–67, Cl. 137—562.
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Kenney, Allen J., and W. R. O'Donnell, to Valve Corp. of America. Actuator cap for dispensers. 3,306,497, 2–28–67, Cl. 222—182.
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Goren, Mayer B. 3,306,714.
Kershaw Mfg. Co., Inc.: *See—*
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Wyse, David S., and Kienker. 3,307,143.
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Kilmer, Lauren G., to Sinclair Research, Inc. Hydraulic system for seismic carrier vehicle. 3,306,392, 2–28–67, Cl. 181—.5.
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Kitano, Yutaka, and S. Isobe, to Hitachi, Ltd. Laminated yokes in rotary electric machines. 3,307,059, 2–28–67, Cl. 310—216.
Klann, Paul A. Keyboard. 3,306,152, 2–28–67, Cl. 84—423.
Klein, Charles H., J. K. Haley, and A. C. Sides, to Novelart Mfg. Co. Apparatus for making printed corrugated paper board. 3,306,805, 2–28–67, Cl. 156—470.
Klein, Dietrich J., to Stromberg-Carlson Corp. Station-to-station telephone set for extreme shock conditions utilizing an automatic station selector switch return mechanism. 3,306,986, 2–28–67, Cl. 179—100.
Klein, Frank F., Jr. Bearing construction for bicycles and the like. 3,306,684, 2–28–67, Cl. 308—187.

Kleiner, Juan E., and S. Bartha. Pneumatic process for conveying bulk material and a device for its application. 3,306,672, 2-28-67, Cl. 302—17.

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Scott, Lynn E., and Kleinhaut. 3,306,061.

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Klinikowski, James J., to Burroughs Corp. Pulse generating circuits. 3,307,174, 2-28-67, Cl. 340—359.

Klipping, Gustav, to Max-planck-Gesellschaft zur Forderung der Wissenschaften e.V. Siphon. 3,306,060, 2-28-67, Cl. 62—55.

Kloesel, Joseph A., Jr., and S. T. Crews, to Drilco Oil Tools. Inc. Roller reamer. 3,306,379, 2-28-67, Cl. 175—345.

Klug, Eugene D., and R. A. Leonard, to Hercules Inc. Electroluminescent panel. 3,306,770, 2-28-67, Cl. 117—215.

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Knusli, Enrico, and H. Gysin, to J. R. Geigy A.-G. Method for controlling annual weeds in tomato fields. 3,306,725, 2-28-67, Cl. 71—2.5.

Kocher, Hans, to Büren Watch Co. S.A. Self-winding watch movement. 3,306,025, 2-28-67, Cl. 58—82.

Kocher, Hans, to Büren Watch Co. S.A. Regulating device for a watch movement. 3,306,026, 2-28-67, Cl. 58—109.

Kokrhoun, Otta : *See—*
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Kolb, Edwin R., to Harris-Intertype Corp. Encoder methods and apparatus. 3,307,172, 2-28-67, Cl. 340—347.

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Koskie, Wallace W., to Data Products Corp. Lapping method and apparatus. 3,305,976, 2-28-67, Cl. 51—131.

Kowalski, Joseph W., to James R. Kearney Corp. Service drop clamp for electric conductor feeder. 3,306,970, 2-28-67, Cl. 174—79.

Kozikowski, John, and M. Cais, to Ethyl Corp. Process for preparing vinylcyclopentadienyl manganese tricarbonyl. 3,306,916, 2-28-67, Cl. 260—429.

Krakauer, C. Leonard, to Kay Mfg. Corp. Torsion spring and mattress edge. 3,305,879, 2-28-67, Cl. 5—260.

Kramer, Bernhard, to Farbenfabriken Bayer Aktiengesellschaft. Process for the production of fast dyeings on cellulose fabrics. 3,306,699, 2-28-67, Cl. 8—26.

Kramer, Rubin. Artificial illuminating device. 3,307,026, 2-28-67, Cl. 240—4.

Kratzsch, Walter, Sr. Driving unit for a friction gear and belt drive. 3,306,120, 2-28-67, Cl: 74—207.

Kraus, Thaddaus, to Bendix Balzers Vacuum, Inc. Process for mass testing of small, closed, gas filled containers. 3,306,098, 2-28-67, Cl. 73—49.3.

Kreuter, Kenneth G., to Robertshaw Controls Co. Electropneumatic process control system for valves and the like. 3,306,170, 2-28-67, Cl. 91—1.

Krezanoski, Joseph Z., to Barnes-Hind Pharmaceuticals, Inc. Ophthalmic composition containing an anesthetic and fluorescein sodium. 3,306,820, 2-28-67, Cl. 167—59.

Kriadis, Nickolas, to Bel-Tronics Corp. Magnetic coil convergence assembly. 3,307,128, 2-28-67, Cl. 335—212.

Krieg, Herman C. : *See—*
Ellis, Herbert B., Peoples, Krieg, and Pickford. 3,306,047.

Kripak, Leonid : *See—*
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Kryzer, Benjamin H., and T. J. Schoenecker, to Union Tank Car Co. Water conditioning system. 3,306,450, 2-28-67, Cl. 210—134.

Kucera, Karel. Electromagnetic adhesion means for railroad locomotives. 3,307,058, 2-28-67, Cl. 310—93.

Kudlaty, Walter J., to Marvel Engineering Co. Filter assembly having check valve and bypass conduit. 3,306,451, 2-28-67, Cl. 210—135.

Kuesters, Eduard : *See—*
Verboom, Hermann. 3,306,085.

Kugler, Emanuel. Flexible plastic bag dispenser. 3,306,492, 2-28-67, Cl. 221—63.

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Shaw, Robert E., and Kulberg. 3,307,126.

Kunzler, Werner, and K. Knauer, to Munchner Motorzubehor G.m.b.H. Piston pumps. 3,306,211, 2-28-67, Cl. 103—37.

Kurt, Howard D., and H. R. Gould, to General Electric Co. Busway distribution system for supplying a plurality of electric discharge devices through ballast devices. 3,307,072; 2-28-67, Cl. 315—177.

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Kyowa Hakko Kogyo Co., Ltd. : *See—*
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Laakso, Perttu V., and J. R. Mellberg. Dietary fluoride and vitamin preparations. 3,306,824, 2-28-67, Cl. 167—81.

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Lachance, Armand A., and J. M. Howard ; said Howard assor. to said Lachance. Automatically actuated shopping cart. 3,306,398, 2-28-67, Cl. 186—1.

Lahr, Paul H., and L. M. Shepard, to Union Carbide Corp. Floor polishes containing siloxane-oxyalkylene block copolymer leveling agents. 3,306,869, 2-28-67, Cl. 260—24.

Laing, Nikolaus, to Laing Vortex, Inc. Fans. 3,306,526, 2-28-67, Cl. 230—125.

Laing Vortex, Inc. : *See—*
Laing, Nikolaus. 3,306,526.

Lallemant, Pierre M. J., to Societe Hispano-Suiza Lallemant. Friction linings and processes for the production of such linings. 3,306,741, 2-28-67, Cl. 75—204.

Lamb, Jos. F., Co., Inc. : *See—*
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Lang, Edward J., F. S. Grazen, and F. W. Less, to Hooker Chemical Corp. Phenol formaldehyde-urea resin component binder. 3,306,864, 2-28-67, Cl. 260—17.2.

Langdon, John L. : *See—*
Frielinghaus, Klaus H., Langdon, and Wetmore. 3,307,031.

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Lanzon, Amleto P. and L. F. 3,305,961.

Laporte, Jean, F. Giolito, and H.-W. Schleicher, to Societe Progil. Protection of sintered aluminum from alteration in organic liquids. 3,306,773, 2-28-67, Cl. 134—2.

Lapporte, Seymour J., to Chevron Research Co. Isomerization of olefinic hydrocarbons. 3,306,951, 2-28-67, Cl. 260—683.2.

Larsen, Aubrey A., to Sterling Drug Inc. N,N′-bis(3-amino-5-carboxy-2,4,6-triiodophenyl)-lower-alkanedioic acid amide and derivatives. 3,306,927, 2-28-67, Cl. 260—471.

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Larsen, Trygve. Window lock. 3,306,644, 2-28-67, Cl. 292—241.

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Laub, Helmut, to Siemens & Halske Aktiengesellschaft. Omnidirectional antenna array with phase shifted feed having a design frequency above midband frequency. 3,307,195, 2-28-67, Cl. 343—799.

Lauter, Robert, to Siemens & Halske Aktiengesellschaft. Method of and a device for providing upon cathode carriers emission layers and a cathode prepared thereby for the operation thereof. 3,306,796, 2-28-67, Cl. 156—155.

Laverick, Charles, M. H. Foss, and G. M. Lobell, to United States of America, Atomic Energy Commission. Superconducting cable. 3,306,972, 2-28-67, Cl. 174—126.

Lawrance, Paul A. : *See—*
Tupman, Kenneth, Goble, and Lawrance. 3,306,842.

Lawrence, Richard H. Circuit controlling means. 3,307,006, 2-28-67, Cl. 200—166.

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Lebourg, Maurice P., to Schlumberger Technology Corp. Formation evaluation method and apparatus. 3,306,102, 2-28-67, Cl. 73—155.

Lebourg, Maurice P. to Schlumberger Technology Corp. Double set hydraulic anchor. 3,306,361, 2-28-67, Cl. 166—122.

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Bussi, Jean, and Lechevallier. 3,306,571.

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Lee, Lieng-Huang, to The Dow Chemical Co. 1-cyanovinyl alkyl carbonates, process for their production and polymers thereof. 3,306,880, 2-28-67, Cl. 260—77.5.

Leeman, Jan N. J., to Stamicarbon, N.V. Method and apparatus for feeding material handling devices. 3,306,671, 2-28-67, Cl. 302—14.

Lee Wilson Engineering S.A. : *See—*
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Leeds and Northrup Co. : *See—*
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Leineweber, Gunter, and W. Neugebauer, to Deutsche Gold- und Silber-Scheideanstalt vormals Rossler. Process for making silicon carbide. 3,306,705, 2-28-67, Cl. 23—208.

Leitner, George J., to Geigy Chemical Corp. Non-ionic polyoxyethylene surfactant-ethylene-maleic anhydride copolymer printing compositions. 3,306,863, 2-28-67, Cl. 260—8.

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Leo, Nick F. Subminiature snap action relay. 3,307,127, 2-28-67, Cl. 335—188.

Leonard Concrete Pipe Co., Inc., The : *See—*
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Leonard, Richard A. : *See—*
Klug, Eugene D., and Leonard. 3,306,770.

Lepelletier, Pierre A. G., to Societe Anonyme Francaise du Ferodo. Load brake proportioning for an automobile vehicle. 3,306,678, 2-28-67, Cl. 303—22.

Lepetit S.p.A. : *See—*
Sensi, Piero, and Coronelli. 3,306,893.

Less, Frank W. : *See—*
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Le Suer, William M., to The Lubrizol Corp. Reaction products of high molecular weight hydrocarbon succinic acid compounds, amines and heavy metal compounds. 3,306,908, 2-28-67, Cl. 260—326.3.

Leupold, Curt W. : *See—*
Matejcek, Franz, Sponsel, Pietsch, and Leupold. 3,306,966.

Levine, Alfred B. : *See—*
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Lewis, Dallas B., deceased (L. Parker, J. Heidt, and R. Gaston, executors). Multiphase separator. 3,306,446, 2-28-67, Cl. 210—114

Lewis, Edward F. to General Motors Corp. Quiet forced air system for automobiles. 3,306,177, 2-28-67, Cl. 98—2.

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Heth, Sherman C., and Lewis. 3,306,370.

Lewis, Everett C., and J. T. Reese, to Combustion Engineering, Inc. Corrosion reducing method and material for furnaces. 3,306,235, 2-28-67, Cl. 110—1.

Lewis, Gerald P., and P. Ruetschi, to The Electric Storage Battery Co. Multistage process for the concentration of heavy water in feed water comprising a mixture of water and heavy water. 3,306,832, 2-28-67, Cl. 204—101.

Lewis, John G., and H. A. Ohlgren, to Nuclear Technical Service Corp. Method for forming a refractory metal or carbide coating on refractory materials and article. 3,306,764, 2-28-67, Cl. 117—61.

Lewis, Oliver G., H. H. Vickers, and H. C. North, to Esso Research and Engineering Co. Bi-axial stretching machine. 3,305,889, 2-28-67, Cl. 18—1.

Lewis, Sterling R., to S & L Enterprise, Inc. Method and medium for preserving and packaging live fish. 3,306,256, 2-28-67, Cl. 119—3.

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Liebig, Joseph M., to Illinois Milling, Inc. Reinforced bearing seal. 3,306,622, 2-28-67, Cl. 277—178.

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Liljequist, Jon L. Invertible timers. 3,306,029, 2-28-67, Cl: 58—144.

Liljequist, Jon L. Golf club with slope indicating means thereon. 3,306,618, 2-28-67, Cl. 273—162.

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Lind, Karl G. F., to Aktiebolaget Bofors. Anti-aircraft sighting device. 3,307,180, 2-28-67, Cl. 343—7.4.

Lindell, Sigurd I., to S & C Electric Co. Indicator means. 3.307,003, 2-28-67, Cl. 200—121.

Linden, Gustave B., to Aerojet-General Corp. Diesters of 5,5,5-trinitro-1,2-pentanediol. 3,306,929, 2-28-67, Cl. 260—488.

Lindenau, Paul. Schiffswerft und Maschinenfabrik : *See—*
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Lindstrand, Nils E., and P.-O. Aronson, to Aktiebolaget Svenska Metallverken. Filler metal for welding aluminum-based alloys. 3,306,717, 2-28-67, Cl. 29—197.

Link-Belt Co. : *See—*
McMillan, Ralph C. 3,306,476.

Lins, Raymond G.: *See—*
Lins, Stanley J. and R. G. 3,307,027.

Lins, Stanley J. and R. G., to H. W. Gobe. Apparatus for illuminating handbags. 3,307,027, 2-28-67, Cl. 240—6.45.

Liston, John S., to American Metal Works, Inc. Metal shelving. 3,306,466, 2-28-67, Cl. 211—148.

Lloyd, Allen H., to Tech-Art, Inc. Cooling and drying device. 3,305,941, 2-28-67, Cl. 34—105.

Lobbe, Armin. to Gewerkschaft Eisenhutte Westfalia. Water gun remotely mounted on planer cutter guide. 3,306,665, 2-28-67, Cl. 299—34.

Lobbe, Armin, to Fa. Gewerkschaft Eisenkutte Westphalia. Planer arrangement with transverse conveyor clearing accumulation at end of face conveyor. 3,306,666, 2-28-67, Cl. 299—34.

Lobell, George M.: *See—*
Laverick, Charles, Foss, and Lobell. 3,306,972.

Locher, Hans. Snow retaining device for tiled and plated roofs. 3,305,980, 2-28-67, Cl. 52—24.

Lockhead Aircraft Corp.: *See—*
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Lockie, Arthur M., and L. L. Wright, to Westinghouse Electric Corp. Transformer structure with built-in overvoltage protection. 3,307,074, 2-28-67, Cl. 317—15.

Logan, Hector A., and R. F. Knott, to Canadian Industries Ltd. Nitric acid explosive composition containing inorganic nitrate oxidizer and nitrated aromatic compound. 3,306,789, 2-28-67, Cl. 149—56.

Lohrman, William V. : *See—*
Oerman, Orey W., and Lohrman. 3,306,629.

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Goodwin, James M., Hayes, and Loofbourrow. 3,306,983.

Loos, Joseph, to Motorola, Inc. Helical resonator with coil, adjustable conducting plate and shield forming a series resonant circuit. 3,307,121, 2-28-67, Cl. 334—6.

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Lord, Jay W., Jr., to Purex Corp., Ltd. Rotating spray device. 3,306,541, 2-28-67, Cl. 239—230.

Lornitzo, Frank C., to Ametek, Inc. Automatic dry-cleaning machine. 3,306,083, 2-28-67, Cl. 68—12.

Loro, Alberto, to Northern Electric Co. Ltd. Method for making a semiconductor device by diffusing impurities through spaced-apart holes in a nonconducting coating to form an overlapped diffused region by means of transverse diffusion underneath the coating. 3,305,913, 2-28-67, Cl. 29—25.3.

Louthan, Rector P., to Phillips Petroleum Co. Production of thiolactam compounds. 3,306,910, 2-28-67, Cl. 260—326.83.

Louzos, Demetrios V.: *See—*
Zeitz, Edward J., and Louzos. 3,307,084.

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Lucas, Jean M., and J. Vertut, to Commissariat a l'Energie Atomique. Process for the manufacture of parts having a complex border of an elastomer material. 3,306,965, 2-28-67, Cl. 264—303.

Lucenti, Dominick C.: *See—*
Becker, Gerald H., and Lucenti. 3,306,207.

Ludwig, Herbert. Injection molding apparatus for shoe bottoms. 3,305,895, 2-28-67, Cl. 18—34.

Lumsden Machine Co. Ltd.: *See—*
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Lumsden, Thomas H., to Lumsden Machine Co. Ltd. Surface grinding machines. 3,305,978, 2-28-67, Cl. 51—165.

Lussem, Heribert: *See—*
Mees, Robert, Lussem, and Holle. 3,306,698.

Luthi, Oscar, to Improved Machinery Inc. Wire wound filter with underlying peripherally spaced cover elements. 3,306,460, 2-28-67, Cl. 210—404.

Lux, John H., and E. O. Ohsol, to Haveg Industries, Inc. Process of preparing dialkenyl esters of benzene polycarboxylic acids. 3,306,928, 2-28-67, Cl. 260—475.

Lykes, Norman R. Powder distributor. 3,306,499, 2-28-67, Cl. 222—193.

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Magell, Orville L., C. S. Sheppard, and H. N. Schack, to Wallace & Tierman Inc. Gas-producing compositions and method of making cellular bodies. 3,306,862, 2-28-67, Cl. 260—2.5.

Magerlein, Barney J., to The Upjohn Co. Process for the production of 6,8-dideoxy-6-(1,4-dialkyl-1-2-pyrrolidine-carboxamido) - 1 - thio - D - erythro-α-D-galacto-octopyranosides. 3,306,892, 2-28-67, Cl. 260—210.

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Magnus, Agatha C. Treatment of substances with ultrasonic vibrations and electro-magnetic radiations. 3,306,835, 2-28-67, Cl. 204—157.1.

Mahn, Herbert, to North American Philips Co., Inc. Device for processing perforated tape with time track. 3,306,509, 2-28-67, Cl. 226—43.

Maier, Eberhard, to Gibson-Thomsen Co., Inc. Apparatus for forming the bristles of a brush. 3,305,975, 2-28-67, Cl. 51—124.

Mainers, Artez F. Baseball batting practice range with ball return means. 3,306,613, 2-28-67, Cl. 273—26.
Makabe, Hideki, and S. Hashizume, to Shimadzu Aeisakusho, Ltd. Grating spectroscopes. 3,306,158, 2-28-67, Cl. 88—14.
Maleck, LeRoy R., to Admiral Corp. Adjustable closure means. 3,306,645, 2-28-67, Cl. 292—275.
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  Simmons, Harold T., and Murray. 3,306,996.
Malmberg, Earl W., and W. R. Cherry, to Sun Oil Co. Method of preparing a non-caking slow release fertilizer. 3,306,730, 2-28-67, Cl. 71—64.
Maly, George P., to Union Oil Co. of California. Formation consolidation. 3,306,355, 2-28-67, Cl. 166—29.
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Marcus, Irwin, and I. L. Kintish, to United States of America, Army. Fin stabilized projectile. 3,306,205, 2-28-67, Cl. 102—49.
Marder, Herman L., W. O. Tundermann, and G. D. Grippo, to Colgate-Palmolive Co. Disposable diaper. 3,306,293, 2-28-67, Cl. 128—284.
Marino, Lawrence W. Air supply grille for air conditioning systems. 3,306,178, 2-28-67, Cl. 98—40.
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Markowitz, Jerome, to Allen Organ Co., Inc. Key biased reed switch for electronic musical instrument. 3,306,968, 2-28-67, Cl. 84—1.04.
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Martin, Wayne, Jr. Method and means for transplanting. 3,306,239, 2-28-67, Cl. 111—1.
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Mayne, Charles H., to Hawley Products Co. Apparatus for accretion of fibrous articles on a mold from a slurry of fibers. 3,306,815, 2-28-67, Cl. 162—393.
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McMahon, Thomas D., to Sharon Steel Corp. Tire safety strapping construction. 3,305,903, 2-28-67, Cl. 24—1.
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  Engelhardt, Edward L., and Christy. 3,306,934.
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Mertzweiller, Joseph K., G. Guttner, and H. M. Tenney, to Esso Research and Engineering Co. Alkali metal polymerization of diolefins. 3,306,949, 2-28-67, Cl. 260—680.
Messing, Theodor, to Standard-Messo Duisburg Gesellschaft fur Chemietechnik m.b.H. & Co. Apparatus for crystallizing salts and salt solutions. 3,306,710, 2-28-67, Cl. 23—273.
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Miller, George A., to Diamond Alkali Co. Composition and method for stabilizing soil 3,306,758, 2-28-67, Cl. 106—84.
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  Keller, Leonard J. 3,306,501.
  Lee, Emerson H. 3,306,942.
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  Narud, Jan A., and Seelbach. 3,307,047.
  Parsons, George M. 3,307,051.
  Peterson, David R. 3,306,767.
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Paramore, Betty I. Backless brassiere. 3,306,299, 2-28-67, Cl. 128—505.
Park, Donald M., to Electronics Co., Inc. Overcurrent and undercurrent control circuit. 3,307,075, 2-28-67, Cl. 317—33.
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Penksa, Stanley. Segmented tampons. 3,306,295, 2-28-67, Cl. 128—285.
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Poliseo, Joseph W., to The Bendix Corp. Overrunning clutch with speed responsive retarder and intermediate coupling. 3,306,406, 2-28-67, Cl. 192—46.
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DESIGN PATENTS

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PLANT PATENTS

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U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

February 28, 1967 Volume 835 Number 4

TRADEMARKS

NOTICES

Powers of Attorney in Registered Trademark Files

On and after February 1, 1967, communications advising of changes in the powers of attorney for registered trademarks will be placed in the registration files, but will not be acknowledged by the Patent Office. The information will thus be available to those who inspect the files, but since these powers of attorney do not directly concern the Patent Office, acknowledgments are not believed to be necessary.

C. M. WENDT,
Director.

Jan. 30, 1967.

CONDITION OF TRADEMARK APPLICATIONS AS OF JANUARY 31, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12(c)]	17,077
Date of oldest new application	Jan. 4, 1966
Date of oldest amended application (filing date)	Oct. 8, 1963

C. M. WENDT, Director, Trademark Examining Operation TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1-4-66	5-4-64
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	1-17-66	10-8-63
Renewals (All Classes)	1-3-67	--------
Sec. 12(c) Publications (All Classes)	1-9-67	--------

Applications filed during the month of January 1967— 2,054

Registrations Issued	470—No. 824,654 to No. 825,123
Renewals Issued	70

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

MARKS PUBLISHED FOR OPPOSITION

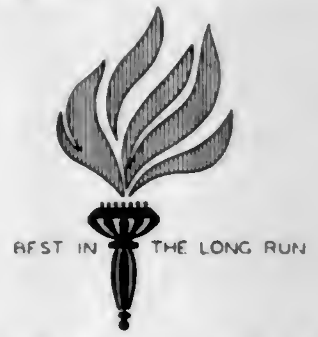
SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 222,794. Western Litho Plate & Supply Co., St. Louis, Mo. Filed July 6, 1965.


BEST IN THE LONG RUN

The drawing is lined for the color red, but no claim is made to color.

Class 6—Chemicals and Chemical Compositions

For Materials for Etching, Staging Out, Coating, Developing, Copperizing, and Correcting Lithographic Plates in Preparation for Printing and for Maintaining Distinctiveness Between Printing and Non-Printing Areas on the Same During Printing.

Class 50—Merchandise Not Otherwise Classified

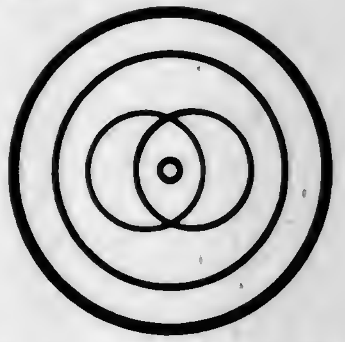
For Lithographic Plates.

Class 52—Detergents and Soaps

For Materials for Cleaning Such Plates.

First use Apr. 5, 1963.

SN 227,644. Wm. H. Brewster, Jr., Inc., Fairfield, N.J. Filed Sept. 13, 1965.



Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Round Metallic Washers.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

For Round Non-Metallic Precision Shims and Round Non-Metallic Precision Washers.

First use Dec. 1, 1963.

SN 230,115. George A. Adams, d.b.a. Adams Equipment Company, Berkeley, Mo. Filed Oct. 14, 1965.

No claim is made to the "Power" portion of the mark as applied to mechanical equipment for washing automobiles, apart from the mark as shown.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Mechanical Equipment for Washing Automobiles at Self-Service Car Washes.

Class 52—Detergents and Soaps

For Detergent for Automobiles.

First use Oct. 4, 1962.

SN 232,514. Bartlett-Snow-Pacific Inc., San Francisco, Calif. Filed Nov. 12, 1965.

CORROCAST

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

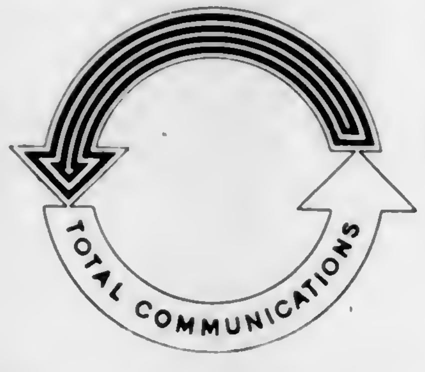
For Chemically Resistant Sinks.

Class 32—Furniture and Upholstery

For Counter Tops.

First use Oct. 21, 1965.

SN 238,382. Anaconda Wire and Cable Company, New York, N.Y. Filed Feb. 9, 1966.



The word "Communications" is disclaimed apart from the mark as shown.

Class 100—Miscellaneous

For Development and Design of Communications Systems.

Class 103—Construction and Repair

For Installation and Maintenance of Communications Systems.

First use Oct. 17, 1965.

SN 241,279. The Standard Oil Company, Cleveland, Ohio. Filed Mar. 17, 1966.

STOP 127

The word "Stop" is disclaimed apart from the mark as shown.

Class 100—Miscellaneous

For Restaurant and Lodging Services Primarily for the Trucking Industry.

Class 103—Construction and Repair

For Automotive Repair, and Fuel Services Primarily for the Trucking Industry.

First use June 29, 1965.

SN 241,280. The Standard Oil Company, Cleveland, Ohio. Filed Mar. 17, 1966.

STOP 250

The word "Stop" is disclaimed apart from the mark as shown.

Class 100—Miscellaneous

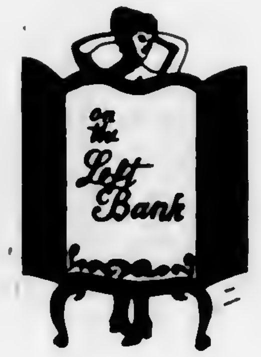
For Restaurant and Lodging Services Primarily for the Trucking Industry.

Class 103—Construction and Repair

For Automotive Repair, and Fuel Services primarily for the Trucking Industry.

First use Oct. 14, 1963.

SN 242,870. On The Left Bank, Potomac, Md. Filed Apr. 7, 1966.



Class 22—Games, Toys, and Sporting Goods

For Equipment or Apparatus Sold as a Unit for Playing Parlor Games, and for Children's Toys—Namely, Play Blocks, Dolls, Doll Houses, Toy Clocks, Train Sets, Animal Toys, Toy Chests, Balls, Musical Pull Toys, Swings, Pool Tables, Tricycles, Wagons, Push-Pull Toys, Model and Building Sets, Soldiers, Music Boxes, and Road Car Racing Sets.

Class 39—Clothing

For Clothing—Namely, Shirts, Slacks, Trousers, Socks, Coats, Jackets, Neckwear, Sweaters, Vests, Rainwear, and Headwear.

First use June 25, 1964.

SN 243,938. The Frank F. Taylor Company, Frankfort, Ky. Filed Apr. 21, 1966.

TAYLOR-TOT

Owner of Reg. Nos. 505,450 and 760,721.

Class 19—Vehicles

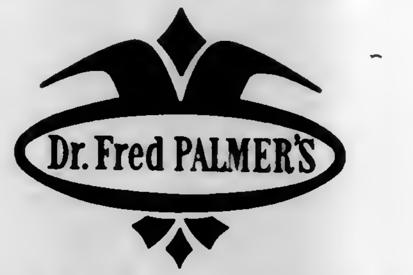
For Children's Vehicles and Furniture—Namely, Walker-Strollers, Sleeper-Strollers, and Walker-Jumpers.

Class 32—Furniture and Upholstery

For Baby Jumpers, High Chairs, and Play Pens.

First use Dec. 31, 1924.

SN 245,532. Carson Chemical Company, d.b.a. Carson Chemical Co., Savannah, Ga. Filed May 13, 1966.



The term "Dr. Fred Palmer's" refers to Dr. Fred Palmer, now deceased. Owner of Reg. No. 549,398.

Class 51—Cosmetics and Toilet Preparations

For Cosmetics and Toilet Preparations—Namely, Skin Cream, Face Powder, and Skin Whitener, a Preparation Used as a Skin Bleach.

First use on or about Aug. 10, 1962.

Class 52—Detergents and Soaps

For Detergents; and Soaps—Namely, Facial Soap.

First use on or about Aug. 24, 1962.

SN 246,518. Industriewerk Schaeffler, O.H.G., Herzogenaurach/Nurnberg, Germany. Filed May 25, 1966.

INA

Owner of German Reg. No. 812,813, dated June 9, 1964; and U.S. Reg. No. 684,380.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Antifriction Bearings—Namely, Ball Bearings, Roller Bearings, and Needle Bearings; Parts of Antifriction Bearings—Namely, Races, Cages, Balls, Rollers, and Needles; Plain Bearings; Ball- and Socket-Joints; Cam- and Roller-Followers; Rod-Socket Heads and Parts Thereof; Universal Joints and Parts Thereof; Seals; Circlips; Parts for Motor Vehicles—Namely, Valve Tappets, Crankshafts, Connecting Rods, and Steering Knuckles; Couplings and Parts Thereof; Textile Machines and Parts Thereof—Namely, Top Rollers for Drawing Mechanisms and Related Weighting Arms, Bearings for Bottom Rolls, Spinning Spindles and Tension Rollers; and Tools.

Class 26—Measuring and Scientific Appliances

For Measuring Devices for Measuring Lengths and/or Diameters, Particularly of Components of Antifriction Bearings.

SN 246,519. Industriewerk Schaeffler, O.G.H. Herzogenaurach/Nurnberg, Germany. Filed May 25, 1966.

Owner of German Reg. No. 807,768, dated June 9, 1964; and U.S. Reg. No. 673,150.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Antifriction Bearings—Namely, Ball Bearings, Roller Bearings, and Needle Bearings; Parts of Antifriction Bearings—Namely, Races, Cages, Balls, Rollers, and Needles; Plain Bearings; Ball- and Socket-Joints; Cam- and Roller-Followers; Rod-Socket Heads and Parts Thereof; Universal Joints and Parts Thereof; Seals; Circlips; Parts for Motor Vehicles—Namely, Valve Tappets, Crankshafts, Connecting Rods, and Steering Knuckles; Couplings and Parts Thereof; Textile Machines and Parts Thereof—Namely, Top Rollers for Drawing Mechanisms and Related Weighting Arms, Bearings for Bottom Rolls, Spinning Spindles and Tension Rollers; and Tools.

Class 26—Measuring and Scientific Appliances

For Measuring Devices for Measuring Lengths and/or Diameters, Particularly of Components of Antifriction Bearings.

SECTION 2

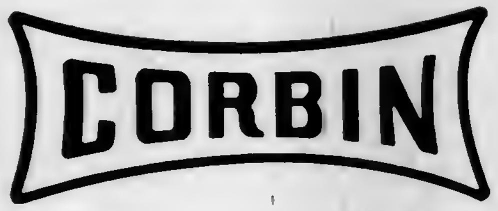
The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 4 — Abrasives and Polishing Materials

SN 214,827. Martin G. Berkoff, d.b.a. Corbin Chemical Company, Lynbrook, N.Y. Filed 3-24-65.



For Floor Wax.
First use Feb. 18, 1965.

Class 5 — Adhesives

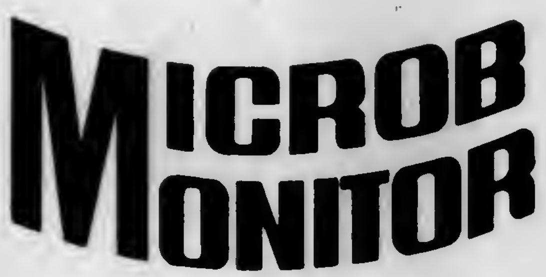
SN 240,412. Chemical Development Corporation, Danvers, Mass. Filed Mar. 8, 1966.

ZIP-GRIP

For Cord-Type Adhesive Bonding Materials.
First use Feb. 1, 1966.

Class 6 — Chemicals and Chemical Compositions

SN 232,447. Boron Oil Company, Cleveland, Ohio. Filed Nov. 10, 1965.



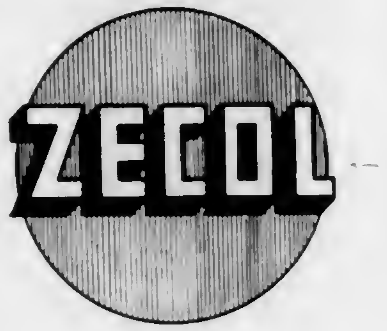
For Chemical Test Kit, and Component Parts Thereof, for Determining the Presence or Absence of Live Microorganisms in Petroleum Product Systems.
First use Apr. 26, 1965.

SN 235,008. Milchem Incorporated, Houston, Tex. Filed Dec. 21, 1965.

LIGCON

Owner of Reg. No. 703,092.
For Drilling Fluid Additive Useful in the Control of Filtration and in Dispersing and Emulsifying Components of the Drilling Fluid.
First use Apr. 1, 1965.

SN 236,537. Zecol, Inc., Milwaukee, Wis. Filed Jan. 14, 1966.



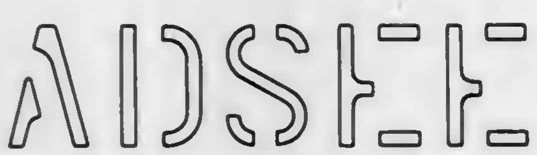
The drawing is lined for the color red. Owner of Reg. No. 700,746.
For Automobile Radiator Rust and Corrosion Inhibitor.
First use October 1937.

SN 240,023. Rendering Corporation of America, Brooklyn, N.Y. Filed Mar. 2, 1966.

RENCOA

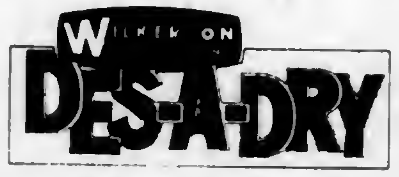
For Tallow for Industrial Purposes.
First use Dec. 24, 1965.

SN 240,786. Retzloff Chemical Company, Almeda, Tex. Filed Mar. 11, 1966.



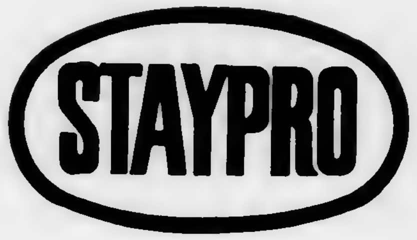
For Adjuvant for Pesticides, Herbicides, Fungicides, Corrosion Inhibitors, Defoliating Sprays, and Liquid Fertilizers.
First use about June 10, 1961.

SN 241,563. Wilkerson Corporation, Englewood, Calif. Filed Mar. 21, 1966.



Owner of Reg. No. 655,243.
For Chemical Composition Serving to Absorb Air Moisture.
First use Oct. 28, 1964.

SN 241,771. The F. & M. Schaefer Brewing Co., Brooklyn, N.Y. Filed Mar. 24, 1966.



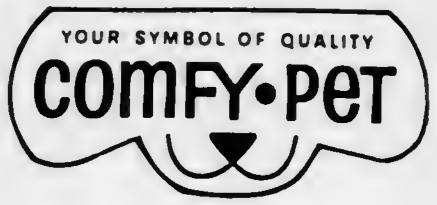
For Chemical Preparation for Use in the Cold Sterilization of Beer and Other Food Products.
First use Feb. 8, 1966.

SN 243,775. Chemical Service of Baltimore, Inc., Baltimore, Md. Filed Apr. 19, 1966.

AIR WASH

For Fragrant Aerosol Deodorants.
First use Apr. 13, 1966.

SN 248,690. F. W. Woolworth Co., New York, N.Y. Filed June 22, 1966.



The words "Your Symbol of Quality" are disclaimed apart from the mark as shown.
For Indoor and Outdoor Dog Repellants and Flea and Tick Killer for Dogs.
First use Apr. 7, 1966.

SN 249,822. Agway, Inc., Syracuse, N.Y. Filed July 8, 1966.

TOTAL

For Weed Killer.
First use June 6, 1966.

SN 250,469. Foremost Dairies, Inc., d.b.a. Foremost Chemical Products Company. Filed July 18, 1966.

FORSWONIC

For Cationic Emulsifier for Slurry Seal.
First use May 17, 1966.

SN 250,503. Monsanto Company, St. Louis, Mo. Filed July 18, 1966.

TETRATHAL

For Tetrachlorophthalic Anhydride.
First use at least as early as Mar. 18, 1966.

SN 250,599. Slip Products Company Limited, St. Albans, England. Filed July 19, 1966.

COPASLIP

For Anti-Seize, Anti-Rusting and Anti-Corrosion Compounds.
First use Nov. 6, 1961; in commerce June 9, 1964.

SN 251,887. Ciba Corporation, d.b.a. The Gland-O-Lac Company, New York, N.Y. Filed Aug. 8, 1966.

ODORQUELL

For Preparation for the Digestion of Organic Matter and for the Control of Odor Generated by Organic Matter.
First use June 30, 1966.

SN 255,390. Alberto-Culver Company, Melrose Park, Ill. Filed Sept. 23, 1966.

ALIVE

For Fabric Softener for Textiles.
First use June 27, 1966.

SN 257,334. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Oct. 27, 1966.

BANLATE

For Agricultural Fungicide.
First use Aug. 4, 1966.

SN 257,341. Stauffer Chemical Company, New York, N.Y. Filed Oct. 27, 1966.

SUTAN

For Herbicide.
First use Oct. 13, 1966.

SN 258,342. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Nov. 10, 1966.

LANNATE

For Insecticides.
First use Oct. 20, 1966.

SN 258,451. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Nov. 14, 1966.

CROLOR

For Pigment Colors for General Industrial Use.
First use Sept. 2, 1966.

SN 258,872. Southern Mill Creek Products Co., Inc., Tampa, Fla. Filed Nov. 17, 1966.

PATIO

For Insecticides.
First use Sept. 20, 1964.

Class 8 — Smokers' Articles, Not Including Tobacco Products

SN 240,202. Rexall Drug and Chemical Company, d.b.a. Tupperware, Los Angeles, Calif. Filed Mar. 4, 1966.

TUPPER!

Owner of Reg. Nos. 421,264, 797,112, and 798,445.
For Plastic Cigarette Cases, Sold Empty.
First use January 1944.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

SN 244,981. Explosives Engineering Corporation, Pomona, Calif. Filed May 5, 1966.

TRIEX

For Explosives.
First use Feb. 6, 1965.

Class 11 — Inks and Inking Materials

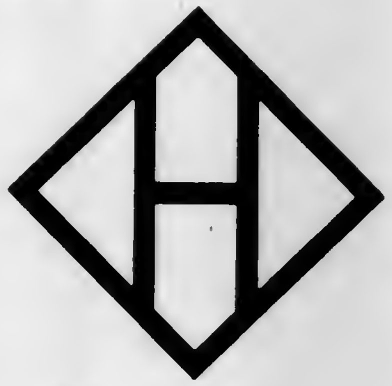
SN 222,507. Martin-Marietta Corporation, New York, N.Y., assignee of Pope & Gray, Inc., Clifton, N.J. Filed July 1, 1965.

CRYSTA-PLEX

Owner of Reg. No. 602,604.
For Inks and Varnishes Which Are Used in Inks and as Printing Inks.
First use Apr. 14, 1965.

Class 12 — Construction Materials

SN 259,282. General Refractories Company, Philadelphia, Pa. Filed Nov. 23, 1966.



For Refractory Brick.
First use June 1916.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

SN 232,754. Worthington Corporation, Harrison, N.J. Filed Nov. 15, 1965.

serv·o·mite

For Pneumatically Operated Servo Positioned Valves.
First use June 29, 1965.

SN 245,636. The Weatherhead Company, Cleveland, Ohio. Filed May 13, 1966.

WEATHERHEAD

For Bowden Wire Controls, Valves, Tubing and Pipes, and Fittings and Couplings Therefor; Drain Cocks; and Quick Disconnect Couplings.
First use at least as early as 1919.

Class 14 — Metals and Metal Castings and Forgings

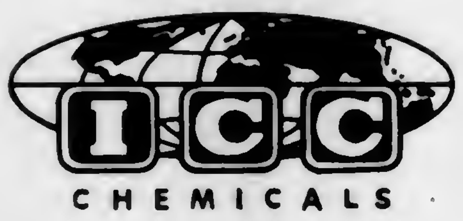
SN 210,278. Compagnie Generale du Duralumin et du Cuivre, Cegedur, Paris, France. Filed Jan. 21, 1965.

GEDOL

Priority claimed under Sec. 44(d) on French Reg. No. 523,404, dated July 21, 1964 (Seine); Natl. Inst. No. 229,887.
For Industrial Silicone Base Rust-Preventing Paints and Varnishes Applied to Common Metals—Namely, Copper and Aluminum.

Class 15 — Oils and Greases

SN 237,703. Inter-Continental Chemical Corporation, Cincinnati, Ohio. Filed Feb. 1, 1966.



Applicant disclaims any rights to the use of the word "Chemicals" apart from its use as associated with the mark as shown.
For Biodegradable Conveyor Lubricants and Conveyor Lubricant Concentrates.
First use Jan. 14, 1965.

SN 243,589. Shell Oil Company, New York, N.Y. Filed Apr. 15, 1966.

SHELLDYNE

For Hydrocarbon Fuel With an Outstanding High Colorif Value per Unit Volume for Use in Volume Limited Vehicles Powered by Air Breathing Engines; the Fuel is Specially Manufactured From Specific Petrochemical Intermediates.
First use Feb. 15, 1966.

SN 244,189. Cemoto East Importing Company, Inc., Schenectady, N.Y. Filed Apr. 25, 1966.

FULL BORE

For Lubricating Oil.
First use on or about June 5, 1964.

SN 244,509. Monroe-Chemical Co., Inc., Hilton, N.Y. Filed Apr. 28, 1966.

COOL-TOOL

For Lubricating and Cutting Oil.
First use Jan. 17, 1961.

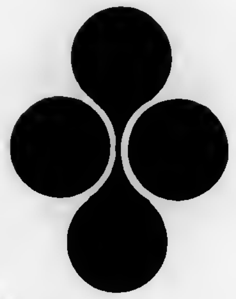
Class 16 — Protective and Decorative Coatings

SN 222,793. Weatherbest Corporation, North Tonawanda, N.Y. Filed July 6, 1965.

WEATHERBEST

For Stain for Shingles and Siding, and Heavy Bodied Oil Base and Acrylic Latex Coatings Primarily for Exterior Use.
First use about 1928 on stains.

SN 259,283. M. Grumbacher, Inc., New York, N.Y. Filed Nov. 23, 1966.



For Artists' Colors.
First use Oct. 18, 1966.

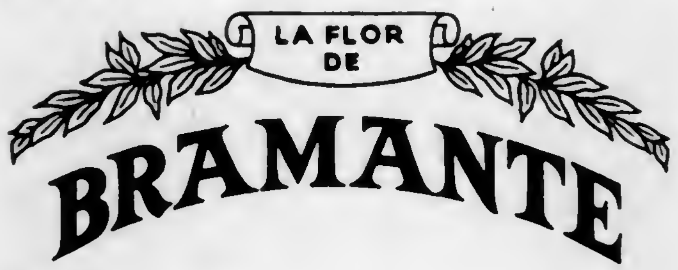
Class 17 — Tobacco Products

SN 232,910. John J. Fitzgerald, d.b.a. J. J. Fitzgerald Co., Port Washington, N.Y. Filed Nov. 18, 1965.

Immunity

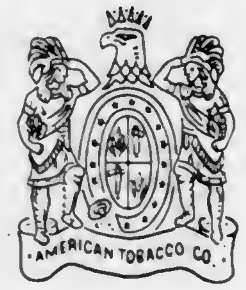
Filed Nov. 18, 1965.
For Cigarettes.
First use Sept. 26, 1965.

SN 233,467. Corral, Wodiska y Ca., Tampa, Fla. Filed Nov. 29, 1965.



For Cigars.
First use Nov. 5, 1965.

SN 239,698. The American Tobacco Company, New York, N.Y. Filed Feb. 28, 1966.


AMERICAN TOBACCO CO.

For Cigarettes.
First use Feb. 18, 1966.

SN 241,205. Villiger Sohne G.m.b.H., Tiengen, Oberrhein, Germany. Filed Mar. 16, 1966.

YELLOW ROSE

Owner of German Reg. No. 731,930, dated Dec. 14, 1959.
For Miniature Cigars.

SN 242,748. H. L. Savory & Company Limited, London, England. Filed Apr. 5, 1966.

SAVORY'S

Owner of British Reg. No. 510,705, dated Feb. 25, 1958.
For Cigarettes.

SN 242,796. Martin Brinkmann Aktiengesellschaft, Bremen, Germany. Filed Apr. 6, 1966.

BRINKMANN

Owner of U.S. Reg. No. 694,043; and German Reg. No. 419,969, dated June 17, 1930.
For Raw-, Smoking-, Chewing-, and Snuff Tobacco, Cigarette Tobacco, Cigarettes, Cigars, Cigarillos, Cigarette Cartridges, and Cigarette Paper.
First use 1930; in commerce 1957.

SN 243,190. Svenska Tobaks Aktiebolaget, Stockholm, Sweden. Filed Apr. 11, 1966.

SHERIFF

Owner of Swedish Reg. No. 108,224, dated Dec. 13, 1963.
For Cigars and Cigarillos.

SN 259,997. Standard Cigar Company, Inc., d.b.a. J. E. Seeman Company, Los Angeles, Calif. Filed Dec. 5, 1966.

Seeman's
PRIVATE
BLEND

No exclusive rights are claimed in the words "Private" and "Blend" apart from the mark.
For Pipe Tobacco.
First use at least as early as May 1944.

Class 18 — Medicines and Pharmaceutical Preparations

SN 168,435. Ormont Drug & Chemical Co., Inc., Englewood, N.J., by merger from Parlam Corporation, Englewood, N.J. Filed May 8, 1963.

'SEBUMSOL'

For Preparation for Solubilizing and Removing Accumulated Oils and Waxes From the Ears, Treating Mild Otitis Externa, and Relieving Itching and Pain Such as Due to Excessive Cerumen.
First use Apr. 22, 1960.

SN 235,458. Janssen Pharmaceutica NV., Beerse, Belgium. Filed Dec. 23, 1965.

DEHYDROBENZPERIDOL

Owner of Belgian Reg. No. 2,008, dated Nov. 27, 1963.
For Pharmaceutical Preparations Used as Tranquilizers, Neuroleptics, and Analgesics.

SN 235,754. Ferring AB, Malmö 9, Sweden. Filed Nov. 3, 1965.

GAVISCON

For Gastro-Intestinal Preparations.
First use Nov. 17, 1964; in commerce Nov. 17, 1964.

SN 236,675. The Upjohn Company, Kalamazoo, Mich. Filed Jan. 17, 1966.

UNIDROP

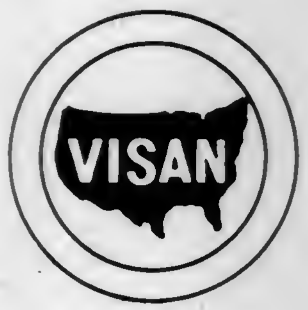
For Liquid Multiple Vitamin Preparation.
First use Nov. 23, 1965.

SN 236,676. The Upjohn Company, Kalamazoo, Mich. Filed Jan. 17, 1966.

UNIDROP B

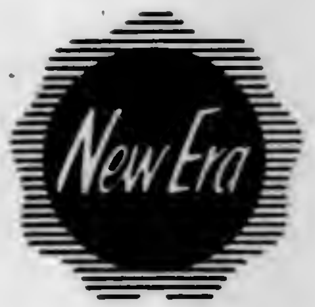
Applicant makes no claim for the letter "B" apart from the mark as shown.
For Liquid Multiple Vitamin Preparation.
First use Nov. 23, 1965.

SN 248,428. Con-Stan Industries, Inc., El Monte, Calif. Filed June 20, 1966.



Owner of Reg. Nos. 710,446 and 710,447.
For Dietary Food Supplements Containing Vitamins and Minerals.
First use Jan. 7, 1958.

SN 250,171. New Era Laboratories Limited, London E.C. 1, England. Filed July 11, 1966.



For Biochemic Tissue-Salts for Human and Veterinary Use.
First use approximately 1935; in commerce approximately 1935.

SN 250,256. The Dietene Company, Minneapolis, Minn. Filed July 14, 1966.

NOBEX

For Cough Tablets.
First use May 25, 1966.

SN 250,994. Philips Roxane, Inc., New York, N.Y. Filed July 25, 1966.

FERRO-MIX

Owner of Reg. No. 799,433.
For Veterinary Preparation Used as an Oral Aid in the Prevention of Baby Pig Anemia.
First use Nov. 11, 1965.

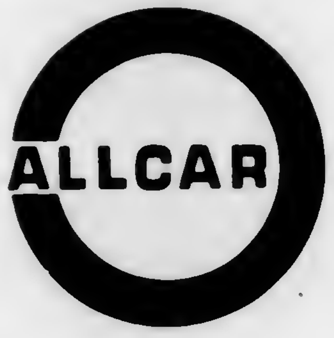
Class 19—Vehicles

SN 230,988. Winnebago Industries, Inc., Forest City, Iowa. Filed Oct. 21, 1965.

THERMO-PANEL

For Panels, Wheelwells and Doors, Comprising Components of Completed Vehicles—Namely, Travel Trailers, House Trailers, Camp Coaches, Pick-Up Coaches, Pick-Up Cabs, Mobile Rigid Shelters, and Truck Bodies.
First use Aug. 6, 1963.

SN 231,361. Allcar Motor Parts Corp., New York, N.Y. Filed Oct. 28, 1965.



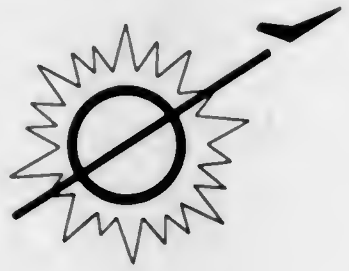
For Automotive Engine Accessories and Parts—Namely, Shock Absorbers, Coil and Leaf Springs.
First use Aug. 14, 1964.

SN 242,908. Newport Boats, Costa Mesa, Calif. Filed Apr. 7, 1966.

FLIPPER

For Boats.
First use on or before Dec. 22, 1965.

SN 242,977. Helio Aircraft Corporation, Bedford, Mass. Filed Apr. 8, 1966.



For Aircraft.
First use July 1956.

SN 242,978. Helio Aircraft Corporation, Bedford, Mass. Filed Apr. 8, 1966.

HELIO

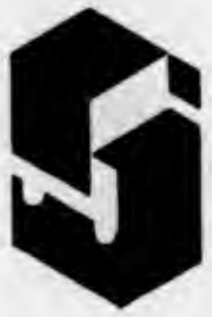
For Aircraft.
First use September 1954.

SN 242,979. Helio Aircraft Corporation, Bedford, Mass. Filed Apr. 8, 1966.

HELIO COURIER

For Aircraft.
First use September 1954.

SN 243,595. Standard Auto Body Company, Los Angeles, Calif. Filed Apr. 15, 1966.



For Commercial Truck Bodies, Refrigerated Truck Bodies, and Trailer Bodies.
First use Mar. 15, 1966.

SN 245,637. The Weatherhead Company, Cleveland, Ohio. Filed May 13, 1966.

WEATHERHEAD

For Parts for Vehicles—Namely, Automobiles, Aircraft, Trucks, Marine Vessels, and Off-the-Road Vehicles, Namely, Hand Operated Controls; Miscellaneous Parts for Brake, Fuel, Air, Hydraulic, and Other Fluid Systems; Master Cylinders; Wheel Cylinders; Hydraulic Cylinders; and Fluid Pressure Actuated Switches.
First use at least as early as 1919.

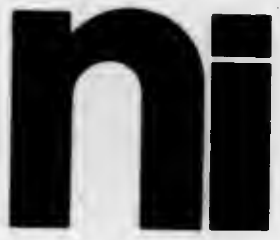
Class 21—Electrical Apparatus, Machines, and Supplies

SN 220,795. Spectromagnetic Industries, Hayward, Calif. Filed June 9, 1965.

SPECTROMAGNETIC

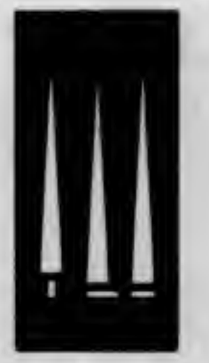
For Power Supplies, Ion Bunching Apparatus, and Magnets.
First use Jan. 27, 1965; January 1959, in another form.

SN 231,471. Northern Instrument Corporation, Bayshore, N.Y. Filed Oct. 23, 1965.



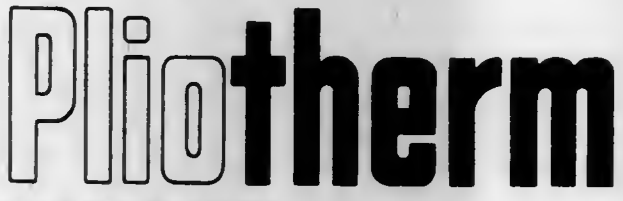
For Electronic Systems and Devices Including Signal Processors, Receivers, Displays, Simulators, Training Devices and Amplifiers, Associated With Radar, ECM, ECCM, ELINT, FERRET, ASW, and Ground Support Systems, and Audit and Inventory Systems, Bearing Detection and Analysis Systems and Instruments.
First use December 1963.

SN 236,788. Tri-Lite Industries, Inc., Addison, Ill. Filed Jan. 18, 1966.



For Fluorescent Lighting Fixtures for Commercial and Industrial Use.
First use Sept. 17, 1964.

SN 240,172. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed Mar. 4, 1966.



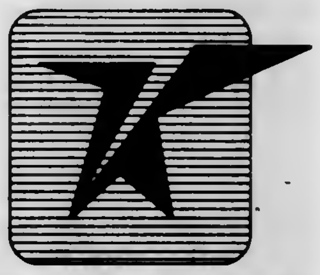
Owner of Reg. No. 412,264.
For Electrically Heated Pads and Blankets for Use in Industrial, Agricultural, and Home Applications.
First use Jan. 15, 1965.

SN 240,239. Armco Steel Corporation, Middletown, Ohio. Filed Mar. 7, 1966.

SPANGLEAM

Owner of Reg. Nos. 531,654, 798,018, and others.
For Metal Pipe or Conduit for Electrical Wiring Purposes.
First use in or about February 1950.

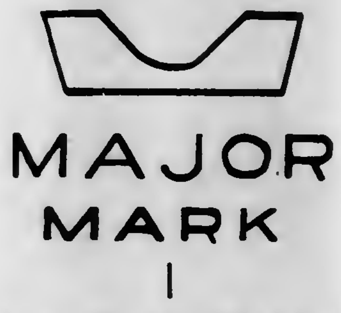
SN 258,198. Keller Industries, Inc., Miami, Fla. Filed Nov. 8, 1966.



The lining on the drawing is not intended to indicate color.
For Electric Portable Fans.
First use July 30, 1965.

Class 22—Games, Toys, and Sporting Goods

SN 221,507. Major Mark Inc., Belleville, Ill. Filed June 18, 1965.



No claim is made to the word "Mark" and numeral "I," when used apart from the mark as shown.
For Golf Club.
First use Apr. 29, 1965.

SN 222,524. Tekno, Dansk Legetojs-Industri A/S, Copenhagen, Denmark. Filed July 1, 1965.

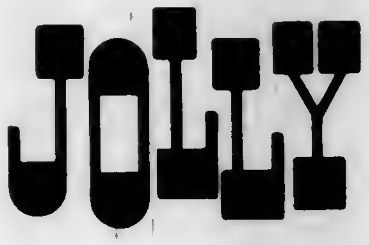
The mark "Tekno" is a coined word.
For Miniature Toy Models of Vehicles and Means of Transport by Land, Water or Air, Essentially Made of Metal.
First use Oct. 28, 1932; in commerce Jan. 1, 1952.

SN 231,623. Monsanto Canada Limited, La Salle, Quebec, Canada. Filed Oct. 25, 1965.

AER-O-BUOY

Owner of Canadian Reg. No. N.S. 159/40,674, dated Mar. 4, 1952.
For Marine Lifesaving Rings and Marine Lifesaving Equipment Consisting of Commercial Life Vests, Domestic Life Jackets, Military Lifesaving Jackets, Buoyancy Slabs, Life Rafts, Floats and Buoys; All Made From Expanded Cellular Polyvinyl Chloride Foam.

SN 234,753. Jolly Toys, Inc., New York, N.Y. Filed Dec. 16, 1965.

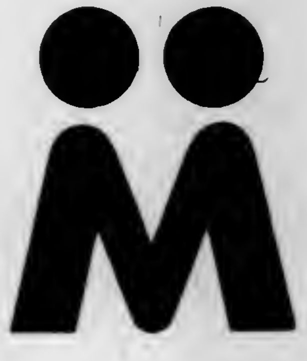


Owner of Reg. Nos. 418,099 and 555,349.
For Dolls.
First use March 1946.

SN 235,721. Shakespeare Company, Kalamazoo, Mich. Filed Jan. 3, 1966.

For Golf Clubs.
First use October 1965.

SN 237,907. Multiple Products, Inc., Bronx, N.Y. Filed Jan. 5, 1966.



Owner of Reg. Nos. 758,051 and 758,052.
For General Line of Play Toys and Kits.
First use Nov. 18, 1965.

SN 239,755. Dynaball Company. Skokie, Ill. Filed Feb. 28, 1966.

"MR. BOWLER"

Applicant disclaims the word "Bowler" apart from the mark.
For Bowling Accessories Comprising Bowling Balls, Bowling Pins, Bowling Bags, Thumb Protectors, Finger Grips, Ball Polisher, Bowling Towels, Ball Cleaner, Skin Toughener Compound, Skin Moisture Remover, Bowling Shoes, and Bowling Shoe Spray.
First use Dec. 15, 1965.

SN 242,468. Paul J. Milazzo, d.b.a. Campaign Game Company, Garden City, N.Y. Filed Apr. 1, 1966.

CAMPAIGN

For Equipment Sold as a Unit for Playing a Board-Type Parlor Game.
First use on or about Mar. 9, 1966.

SN 242,602. Elmer's Toys, St. Louis, Mo. Filed Apr. 4, 1966.

Applicant makes no claim to the word "Toys" apart from the mark as shown.
For Toys.
First use Aug. 26, 1965.

SN 252,987. Block Engineering, Inc., Cambridge, Mass. Filed Aug. 24, 1966.

STRINGDING

For Toy Comprising a Flexible Endless Loop Which Is Driven in Rotation by Means of Air or Water Through a Pipe-Like Device.
First use Aug. 11, 1966.

SN 255,575. Mattel, Inc., Hawthorne, Calif. Filed Oct. 3, 1966.

MATTEL-O-TYPER

Owner of Reg. Nos. 635,129 and 753,681.
For Toy Typewriters.
First use Sept. 12, 1966.

SN 255,993. Toni Lynn Enterprises, Graham, N.C. Filed Oct. 7, 1966.

For Children's Toys—Namely, a Copying Kit.
First use Sept. 1, 1966.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 205,212. Van Doorne's Automobielfabriek N.V., Eindhoven, Netherlands. Filed Oct. 30, 1964.

VARIOMATIC

Owner of Dutch Reg. No. 130,152, dated Feb. 20, 1958.
For Continuously Variable Transmission Mechanisms With Fully Automatic Reduction-Selection for Use in Motor-Driven Vehicles.

SN 224,153. The Bauer Bros. Co., Springfield, Ohio. Filed July 26, 1965.

For Elutriation Devices.
First use Dec. 18, 1963.

SN 229,553. N. Marshall Seeburg & Sons Inc., Chicago, Ill. Filed Oct. 7, 1965.

STEELCRAFT

Owner of Reg. No. 598,146.
For Hand Tools and Machine Tools—Namely, Pliers, Tool Kits Comprising Snap Fastener Tool and Snap Fasteners, Wrenches, Socket Sets, Screwdrivers, Drill Sets, Braces, Hammers, Saws, Files, Pincers, Bolt Cutters, Wood Chisels, Auger Bits, and Garden Tools.
First use 1922.

SN 235,662. Gardner-Denver Company, d.b.a. The Apex Machine Tool Company, Dayton, Ohio. Filed Jan. 3, 1966.

APEX

For Nut Running Tools—Namely, Adapters (Chuck, Universal, Extension), Drivers, Extensions, Impact/Power Sockets, Magnetic Sockets, Magnetic Bit Holders, Magnetic Hand Drivers, Nut Setters, Shanks, and Universal Wrenches; Screwdriving Tools—Namely, Adapters, Bit Holders, Chucks, Drivers, Extensions (Male and Female), Hand Drivers, Insert Bits, Power Bits, Reversible Sockets, Shanks and Sockets; Miscellaneous Tools—Namely, Chucks, Collets, Drill Holders, Fastening Tools, Spline Drivers, Stud Setters, and Top Sleeves; and Universal Joints (Aircraft and Commercial).
First use at least as early as February 1933.

SN 238,938. Howard W. Douglass, Jr., d.b.a. Douglass Muffler Manufacturing Co., Bell Gardens, Calif. Filed Feb. 16, 1966.

DOUGLASS

For Automobile Exhaust Systems and Mufflers, Tail Pipe Extensions, Clamps, Brackets, Exhaust Pipes, Exhaust Headers, and Exhaust Header Flanges Used Therein.
First use Dec. 1, 1949.

SN 241,560. Western Bye-Hoe, Incorporated, San Martin, Calif. Filed Mar. 21, 1966.

MULCHIVATOR

For Machine Having an Axially Elongated Rotary Soil Tiller Having the Outline of Its Elongation Contoured to the Shape of a Crowned Asparagus Bed, Power Operated in Association With a Tractor for the Weeding and Cultivation of Crowned Asparagus Beds.
First use December 1955.

SN 242,217. Cole-Parmer Instrument & Equipment Co., Chicago, Ill. Filed Mar. 30, 1966.

MASTER FLEX

For Fluid Pumps for Moving Liquids and Gases.
First use Feb. 7, 1966.

SN 249,973. Freundorfer K. G., Munich, Germany. Filed July 11, 1966.

SYNTA

Priority claimed under Sec. 44(d) on German application filed Jan. 25, 1966; Reg. No. 817,658, dated Mar. 29, 1966.
For Printing Plates, Particularly Prepared Printing Plates for Book Printing and Offset Printing, and for Copy Work and Engraving Work.
Subj. to Intf. with SN 254,577.

SN 254,577. Chicago Manifold Products Company, Chicago, Ill. Filed Sept. 16, 1966.

SYN-TAC

For Printing Rolls.
First use in about 1930.
Subj. to Intf. with SN 249,973.

SN 255,753. Industrial Specialties, Barrington, Ill. Filed Oct. 5, 1966.

SHEAR-VEYOR

For Conveyors for Sheet Material.
First use at least as early as June 15, 1966.

SN 259,508. Revco Products, Whittier, Calif. Filed Nov. 28, 1966.

REVCO

Owner of Reg. No. 436,377.
For Sewing Machines, Sewing Machine Attachments, and Sewing Machine Component Parts.
First use Sept. 18, 1945.

Class 24—Laundry Appliances and Machines

SN 207,213. The Ironees Company, Philadelphia, Pa. Filed Dec. 1, 1964.

IRONEES LAUNDRYWARE

Applicant disclaims the word "Laundryware" apart from the mark as shown. Owner of Reg. No. 554,252.
For Clothespin Bag; Dampening Bag; Clothes Basket Liner, Laundry Cart Liner; Pressing Cloth; Ironing Board Cover, Ironing Board Pad; Laundry Bag; Sadiron Rest; and Washing Machine Bag.
First use Aug. 21, 1964, on ironing board cover.

Class 26—Measuring and Scientific Appliances

SN 242,752. Servo Corporation of America, Hicksville, N.Y. Filed Apr. 5, 1966.

SCA

Owner of Reg. Nos. 338,806, 669,587, and others.

For Control Equipment, Measuring Instruments and Testing Devices—Namely, Analyzing and Testing Apparatus for Servomechanisms, Bolometers, Oscilloscope Indicators, Automatic Piloting Equipment, Including Homing Devices and Associated Sensing and Measuring Elements for Guidance of Aircraft, Radio Direction Finders, Temperature and Radiation Measuring, Calibrating and Control Apparatus, Railroad Hotbox-Detection Equipment; Control System Synthesis and Test Equipment—Namely, Electro-Mechanical Assembly Kits Comprising Mechanical and Electrical Parts for the Breadboard Rigging and Testing of Servomechanisms and Control Systems, Industrial Process Measurement and Control Apparatus.

First use Oct. 25, 1965.

SN 243,082. Borg-Warner Corporation, Chicago, Ill. Filed Apr. 11, 1966.

TELEDRIFT

For Signaling Drift Indicators for Use in Drilling Oil Wells.

First use on or prior to June 2, 1961.

Class 30—Crockery, Earthenware, and Porcelain

SN 243,295. Amway Corporation, Ada, Mich. Filed Apr. 13, 1966.

AMWAY

Owner of Reg. Nos. 707,656, 779,397, and others.

For Chinaware—Namely, Plates, Cups, Saucers, Platters, and Bowls.

First use in or about November 1963.

Class 31—Filters and Refrigerators

SN 231,363. Allcar Motor Parts Corp., New York, N.Y. Filed Oct. 23, 1965.

ALLCAR

For Automotive Engine Accessories and Parts—Namely, Oil Filters, Air Filters, and Gasoline Filters.

First use Aug. 14, 1964.

Class 32—Furniture and Upholstery

SN 232,457. Flex-O-Lators, Inc., Carthage, Mo. Filed Nov. 10, 1965.

PERMA-EZE

For Spring Structure for Upholstered Furniture.

First use Oct. 19, 1965.

SN 233,766. American Metal Products Company, Detroit, Mich. Filed Dec. 2, 1965.

SLIDE-N-LOCK

For Storage Racks.

First use November 1958.

SN 240,109. National Industries, Inc., Odenton, Md. Filed Mar. 3, 1966.

armorclad

For Cabinets, Panels, Tables, Chairs, Desks, Stands, Racks, Dressers, Chests, Beds, Ottomans, Wardrobes, Credenzas, Lecterns, Counter Assemblies, Hutches, Sofas, and Parts Thereof, for Commercial, Residential, Industrial, and Institutional Uses.

First use Jan. 11, 1966.

SN 241,803. Rexall Drug and Chemical Company, d.b.a. Syroco, Los Angeles, Calif. Filed Mar. 24, 1966.

SYROCOCRAFT

Owner of Reg. Nos. 422,195 and 425,741.

For Table Tops, Vanity Tops, and Shelving Doors.

First use February 1966.

SN 245,038. Zenith Radio Corporation, Chicago, Ill. Filed May 5, 1966.

ZENITH

For Furniture—Namely, Radio Cabinets, Television Cabinets, Phonograph Cabinets, Cabinets for Radio-Phonograph Combinations, Cabinets for Radio-Television-Phonograph Combinations, Record Changer Mounting Bases, Cabinet Leg Kits, and Television Stands.

First use at least as early as 1942 on radio cabinets.

SN 259,413. Decar Plastic Corporation, Bellwood, Ill. Filed Nov. 25, 1966.

MAGI KWIK

For Table Structure With Demountable Legs.

First use on or before Sept. 8, 1966.

SN 259,429. International Paper Company, New York, N.Y. Filed Nov. 25, 1966.

SPACECRAFT

For Kitchen Cabinets Made of Wood.

First use Oct. 6, 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

SN 217,982. Robert Clayton Bryant and Richard A. Innes (joint owners), Warrensburg, Mo. Filed May 4, 1965.

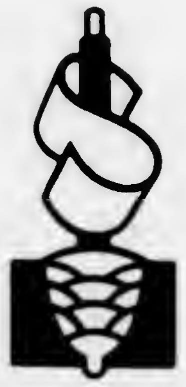
HOT ROCK

The word "Hot" is disclaimed except as a part of the mark as shown.

For Gas Fired Heaters Particularly Adapted for Use in Brooder Houses.

First use Aug. 1, 1962.

SN 236,931. Soudometal, Anderlecht-Brussels, Belgium. Filed Jan. 20, 1966.



Owner of Belgian Reg. No. 85,161, dated Aug. 21, 1958.

For Electrodes, Wires, and Flux for Arc Welding.

SN 237,591. Robbins & Myers, Inc., Springfield, Ohio. Filed Jan. 28, 1966.

HIDE-AWAY

For Electric Wall Heaters.

First use Jan. 7, 1966.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 231,364. Allcar Motor Parts Corp., New York, N.Y. Filed Oct. 23, 1965.

ALLCAR

For Automotive Engine Accessories and Parts—Namely, Fan Belts and Cooling System Hoses.

First use Aug. 14, 1964.

SN 242,667. Rott-Keller Supply Co., Fargo, N. Dak. Filed Apr. 4, 1966.

BILT-MOR

For Truck, Tractor, Automobile, and Off-the-Road Tubes and Tires.

First use Dec. 16, 1965.

Class 36—Musical Instruments and Supplies

SN 235,582. Berl Olswanger, d.b.a. Berl Olswanger Music, Memphis, Tenn. Filed Dec. 30, 1965.

RIVERMONT

For Phonograph Records.

First use Dec. 10, 1965.

Class 38—Prints and Publications

SN 244,160. Louis Usdin Co., Inc., Newark, N.J. Filed Apr. 22, 1966.

Stainless Steel Star

For Newspaper House Organ.

First use Jan. 3, 1966.

SN 254,264. E. P. Dutton & Co., Inc., New York, N.Y. Filed Sept. 12, 1966.

EVERYMAN'S LIBRARY

For Printed Books Published in Series.

First use Mar. 1, 1906.

SN 259,285. McGraw-Hill, Inc., New York, N.Y. Filed Nov. 23, 1966.

TEK CHEK

For Bibliography Index Published Semi-Annually.

First use August 1964.

SN 259,674. Prestype, Inc., New York, N.Y. Filed Nov. 29, 1966.

PRESTYPE

Owner of Reg. No. 706,029.

For Dry-Ink Transfer Letters.

First use Dec. 1, 1959.

Class 39—Clothing

SN 239,704. Barrow Manufacturing Company, Winder, Ga. Filed Feb. 28, 1966.

TIGER BRITCHES

Applicant Disclaims the word "Britches" apart from the mark as shown.

For Women's and Men's Jeans and Slacks.

First use Feb. 25, 1966.

SN 244,314. Fashion Shoe Co., Boston, Mass. Filed S.R. 4-26-66; Am. P.R. 12-28-66.

EDUARDO NERO

The name "Eduardo Nero" is fanciful.

For Italian Sandals and French Apre-Ski Boots.

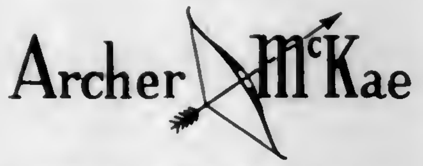
First use 1963.

SN 244,829. Kayser-Roth Corporation, New York, N.Y. Filed May 3, 1966.

WONDERBRUSH

For Men's and Boys' Hosiery.
First use Aug. 18, 1964.

SN 245,247. Sichel's, Inc., Portland, Oreg. Filed May 9, 1966.



The name "Archer McKae" is fanciful.
For Men's Suits, Sport Coats, Topcoats, and Rainwear.
First use Apr. 23, 1966.

SN 245,313. Host Pajamas, Inc., New York, N.Y. Filed May 10, 1966.

RIP VAN WINKLE

The name "Rip Van Winkle" is fanciful.
For Pajamas.
First use Mar. 29, 1966.

SN 246,403. Tidykins, Inc., New York, N.Y. Filed May 23, 1966.

WALTER JEROME

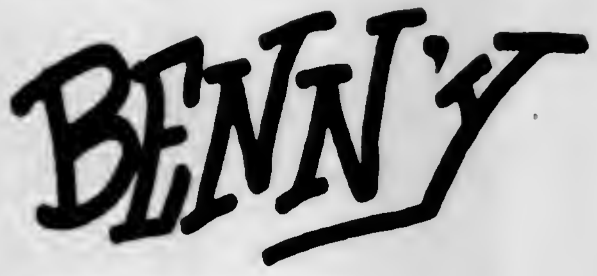
The name "Walter Jerome" is fanciful.
For Infants', Children's, Girls', and Ladies' Apparel—Namely, Coats, Car-Coats, Ski Jackets, Slacks, Shirts, Skirts, Shorts, Snow Suits, Pram-Suits, Buntings, Jumpers, Crawlers, and Raincoats.
First use June 1962.

SN 248,623. Irwill Knitwear Corp., New York, N.Y. Filed June 21, 1966.

KNITTICISM

For Articles of Wearing Apparel for Women—Namely, Sweaters, Blouses, Skirts, Dresses, Suits, Pants, and Jackets.
First use June 3, 1966.

SN 254,017. Benn Enterprises, Inc., Yorba Linda, Calif. Filed Sept. 8, 1966.



For T-Shirts.
First use on or about Jan. 1, 1966.

Class 40 — Fancy Goods, Furnishings, and Notions

SN 254,736. Sun Chemical Corporation, New York, N.Y. Filed Sept. 19, 1966.

TAFFY

For Decorative Bows.
First use Nov. 22, 1965.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 211,238. Cone Mills Corporation, Greensboro, N.C., assignee of Anderson, Clayton & Co., Houston, Tex. Filed Feb. 3, 1965.

WINKIE

For Baby Blankets.
First use Jan. 10, 1964.

SN 233,933. Novel Ideas, Inc., Oklahoma City, Okla. Filed Dec. 3, 1965.

COZY COVERS

No registration rights are claimed for the word "Covers" apart from the mark as shown, but applicant waives none of its common law rights in the mark shown or any feature thereof.
For Textile Fabric Covers for Bathroom Fixtures and Accessories Including Covers for Toilet Seats, Toilet Seat Lids, Water Closet Tanks, Tissue Boxes, Tissue Rolls, Bathroom Scales, Waste Baskets, Areosol Cans, and Water Closet Tank Lids.
First use Nov. 15, 1960.

SN 233,934. Novel Ideas, Inc., Oklahoma City, Okla. Filed Dec. 3, 1965.

POLLY PLUSH

No registration rights are claimed for the word "Plush" apart from the mark shown, but applicant waives none of its common law rights in the mark shown or any feature thereof.
For Textile Fabric Covers for Bathroom Fixtures and Accessories Including Covers for Toilet Seats, Toilet Seat Lids, Water Closet Tanks, Tissue Boxes, Tissue Rolls, Bathroom Scales, Waste Baskets, Aerosol Cans, and Water Closet Tank Lids.
First use Nov. 13, 1965.

SN 234,740. Duplex International, Ltd., New York, N.Y. Filed Dec. 16, 1965.

SHANNON

For Textile and Knitted Fabrics Composed of Wool and Synthetic Fibers and/or Blends Thereof.
First use in or about February 1962.

SN 235,005. Mehdi Dilmaghani & Co., Inc.,New York, N.Y. Filed Dec. 21, 1965.

GOLDEN CROWN

For Rugs and Carpets.
First use Sept. 3, 1964.

SN 235,006. Mehdi Dilmaghini & Co., Inc., New York, N.Y. Filed Dec. 21, 1965.

SILVER CROWN

For Rugs and Carpets.
First use Sept. 4, 1964.

SN 235,007. Mehdi Dilmaghani & Co., Inc., New York, N.Y. Filed Dec. 21, 1965.

PLATINUM CROWN

For Rugs and Carpets.
First use Oct. 15, 1965.

SN 245,305. Glen Raven Knitting Mills, Inc., Glen Raven, N.C. Filed May 10, 1966.

Henkel-Plusch

For Knitted Velour of Natural and Synthetic Fibers.
First use Mar. 29, 1966.

SN 249,292. Ames Textile Corporation, Lowell, Mass. Filed June 30, 1966.

SAG-NO-MOR-PLUS

Owner of Reg. No. 221,063.
For Knitted Piece Goods Made of Wool, Worsted, Fur-Fibers, Rayon, Cotton, Silk, or Synthetic Fibers, and/or Blends or Combinations Thereof.
First use June 10, 1963.

SN 249,483. Anglo Fabrics Company, Inc., New York, N.Y. Filed July 5, 1966.

LINDAWOOL

Owner of Reg. No. 426,593.
For Woolen and Worsted Piece Goods.
First use Sept. 26, 1945.

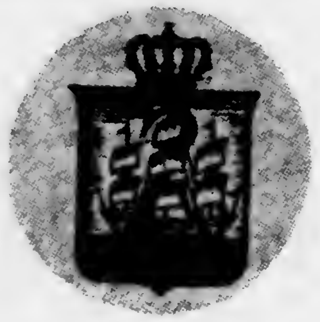
SN 249,854. Fieldcrest Mills, Inc., Spray, N.C. Filed July 8, 1966.

TEACH ME—READ ME

For Textile Fabrics for Making Into Household Linens; Towels, Washcloths, Sheets, Pillowcases, Bedspreads, Draperies, Blankets, Bath Mats, and Bath Rugs.
First use June 16, 1966.

Class 43 — Thread and Yarn

SN 250,491. N.V. Koninklijke Veenendaalsche Sajet- en Vijfschacht-Fabriek Voorheen Weduwe D.S. Van Schuppen en Zoon, Veenendaal, Netherlands. Filed July 18, 1966.



For Woolen Handknitting Yarns, With or Without a Mixture of Synthetic or Artificial Fibres.
First use July 2, 1888; in commerce August 1961.

Class 44 — Dental, Medical, and Surgical Appliances

SN 183,921. Powers and Anderson Dental Co., Inc., Richmond, Va. Filed Jan. 2, 1964.

PADCO

For Paper Products—Namely, Dental Towels, Napkins, Bracket Table Covers, and Headrest Covers.
First use June 1963.

SN 241,875. Depuy Manufacturing Co., Inc., Warsaw, Ind. Filed Mar. 25, 1966.

DE CAST

For Portable Power Operated Cast Cutters Having a Blade for the Removal of Casts From Broken Bones.
First use January 1966.

SN 241,876. Depuy Manufacturing Co., Inc., Warsaw, Ind. Filed Mar. 25, 1966.

CAST-O-VAC

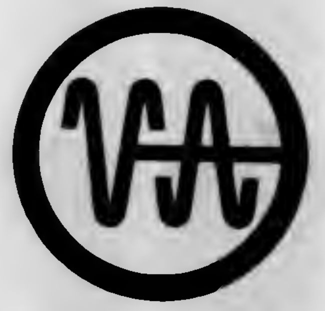
For Portable Power Operated Cast Cutters Having a Blade for the Removal of Casts From Broken Bones.
First use January 1966.

SN 243,119. Foster-McClellan Products Limited, Toronto, Ontario, Canada. Filed Apr. 11, 1966.

NUTRINAIL

Owner of Canadian Reg. No. 132,683, dated Sept. 13, 1963.
For Devices for Applying Cleaning and Other Preparations to the Finger Nails, and Devices for Massaging the Finger Nails.

SN 257,444. Varian Associates, Palo Alto, Calif. Filed Oct. 28, 1966.



Owner of Reg. Nos. 582,256, 750,058, and others.
For Dental, Medical, and Surgical Appliances—Namely, X-Ray Equipment, Spectrometers, and Linear Accelerators.
First use in or about February 1962.

SN 257,445. Varian Associates, Palo Alto, Calif. Filed Oct. 28, 1966.

VARIAN

For Dental, Medical, and Surgical Appliances—Namely, X-Ray Equipment, Spectrometers, and Linear Accelerators.
First use in or about February 1962.

Class 46 — Foods and Ingredients of Foods

SN 180,611. Richard B. Sawtelle, d.b.a. Farmers Market Preserving Kitchen, Los Angeles, Calif. Filed Nov. 6, 1963.

FARMERS MARKET

Owner of Reg. No. 414,569.
For Preserves, Jellies, Jams, Pickles, Meatless Sauces, Spiced Peaches, Orange Slices, Fruit Syrup for Food Purposes, Relishes, and Marmalade.
First use Oct. 21, 1955.

SN 185,866. Chicken in the Rough, Inc., Oklahoma City, Okla. Filed Feb. 3, 1964.

RANCHBURGER

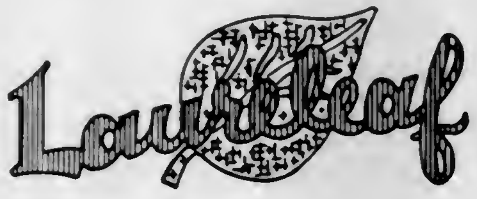
Applicant claims use for the area of the United States, its territories and possessions, except Nebraska, Kansas, South Dakota, Ohio, and Colorado.

For Hamburger Sandwiches and Seasoning Concentrate for Making Sauce To Be Put in Hamburger Sandwiches.

First use July 1939.

Subj. to Con Use Proc. with Reg. No. 730,515.

SN 198,854. John Lecroy & Son, Inc., Camden, N.J. Filed July 30, 1964.

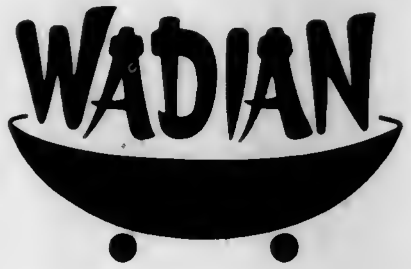


The drawing is lined for red and gold, but no claim is made to the use of a particular color as part of the mark.

For Spices and Flavoring Extracts for Food Purposes.

First use on or about June 25, 1964.

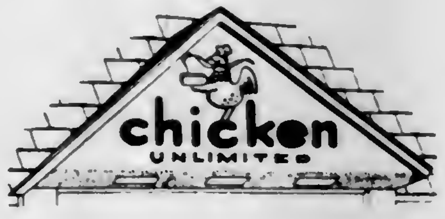
SN 213,618. Wadian-Feinkost GmbH, Frankfurt am Main, Germany, assignee of Erich Spahn and Heinz Spahn (partnership), Frankfurt am Main, Germany. Filed Mar. 8, 1965.



Owner of German Reg. No. 798,569, dated Aug. 30, 1962.

For Frozen, Canned and Dehydrated Vegetables; Meat Extracts; Edible Oils of Vegetable or Animal Origin; Diet Margarine; Farinaceous Pastes; Spices; Sauces Which May Be Meatless or Meat-Containing; Ready-To-Cook Dishes Combining Pulse With Spices, Ready-To-Cook Soya Dishes Combining Soya With Spices, and Ready-To-Cook Dishes From Milling Products Namely Rice, Corn, Tapioca and Crushed Oats.

SN 225,109. Chicken Unlimited Inc., Chicago, Ill. Filed Aug. 6, 1965.



Applicant disclaims any rights in the descriptive word "Chicken" apart from the mark as shown.

For Chicken Breading Mix.

First use Mar. 22, 1965.

SN 228,885. Collins, Lee Company, Chelsea, Mass. Filed Sept. 29, 1965.

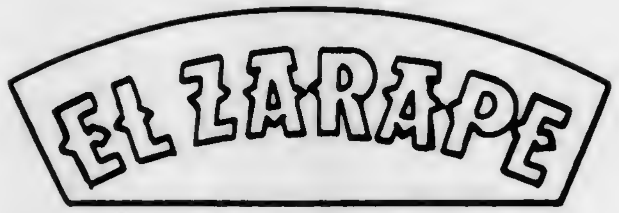
COLEECO

Owner of Reg. No. 584,617.

For Saltfish, Smoked Fish, Fresh Fish, Pickles, Hard Bread, Frozen Shrimp, Fresh Steamer Clams, and Canned Lobster.

First use in or about 1930.

SN 231,404. El Zarape Tortilla Factory, Inc., Los Angeles, Calif. Filed Oct. 23, 1965.



"El Zarape" is the Spanish term which refers to the name of a shawl or blanket-like outer garment worn in Latin America.

For Prepared Foodstuffs—Namely, Enchilada Sauce, Enchiladas, Fried Beans, Fried Rice, and Tortillas.

First use April 1942.

SN 235,890. Coffex AG., Neuhausen am Rheinfall, Switzerland., Filed Jan. 6, 1966.

Coffex

Owner of Swiss Reg. No. 134,472, dated July 25, 1950.

For Raw and Roasted Coffee; Raw and Roasted Caffeine-Free Coffee; and Caffeine-Free Coffee in Combination With Lesser Ingredients, Including Instant Coffee.

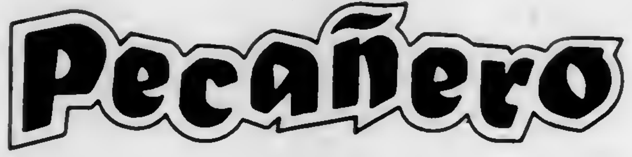
SN 235,969. 40-Fathom Seafoods, Inc., Chestnut Hill, Mass. Filed Jan. 7, 1966.

PROCESS 40

For Frozen Haddock Fillets.

First use Nov. 30, 1965.

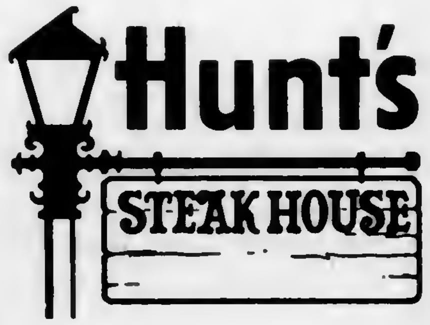
SN 238,679. Thelma Lu's, Inc., Albuquerque, N. Mex. Filed Feb. 11, 1966.



For Brittle Candy With Pecans.

First use Nov. 4, 1965.

SN 238,739. Hunt Foods and Industries, Inc., d.b.a. Hunt Foods, Inc., Fullerton, Calif. Filed Feb. 14, 1966.



Owner of Reg. Nos. 487,875 and 573,487.

For Catsup.

First use Dec. 23, 1965.

SN 238,927. Castle Products Company, Irvington, N.J. Filed Feb. 16, 1966.

MRS. SIMMS

For Table Syrup, Prune Juice, and Canned Food Beverages Comprised of a Fruit Juice and Lesser Ingredients.

First use Oct. 24, 1944, on table syrup.

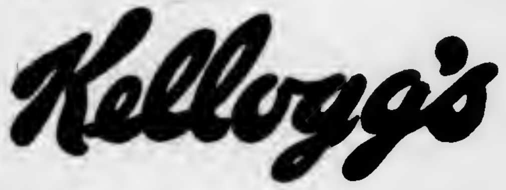
SN 239,059. Malabar Dietaries, Los Angeles, Calif. Filed Feb. 17, 1966.

MALABAR

For Protein Food Supplement Consisting of Exsiccated, Defatted and Defibered Animal Glandular Tissues.

First use Mar. 1, 1961.

SN 239,155. Kellogg Company, Battle Creek, Mich. Filed Feb. 18, 1966.



Owner of Reg. Nos. 115,348, 791,514, and others.

For Fruit Preserve Filled Pastry Bakery Products.

First use July 14, 1964.

SN 239,601. Corn Products Company, New York, N.Y. Filed Feb. 25, 1966.

F.T.D.

For Starch for Food Purposes.

First use at least as early as Aug. 4, 1965.

SN 239,794. Plee-Zing, Inc., d.b.a. Household Products Co., Evanston, Ill. Filed Feb. 28, 1966.

GOOD NA-BOR

For Canned Foods—Namely, Tomatoes, Peas, and Beans, and Peanut Butter.

First use February 1957.

SN 239,800. Redlands Heights Citrus Co., Redlands, Calif. Filed Feb. 28, 1966.

GOLD CUP

For Fresh Citrus Fruits.

First use Oct. 4, 1924.

SN 239,865. Anderson, Clayton & Co., Dallas, Tex. Filed Mar. 1, 1966.

GOLD-RUSH

For Margarine.

First use Jan. 21, 1966.

SN 239,866. Anderson, Clayton & Co., Dallas, Tex. Filed Mar. 1, 1966.

GOLD VELVET

Owner of Reg. Nos. 612,253, 650,986, and others.

For Margarine.

First use Feb. 1, 1966.

SN 240,727. General Mills, Inc., Minneapolis, Minn. Filed Mar. 11, 1966.

GANG SIZE

The word "Size" is disclaimed apart from the mark as shown.

For Cereal Derived Ready-To-Eat Snacks.

First use at least as early as July 5, 1965.

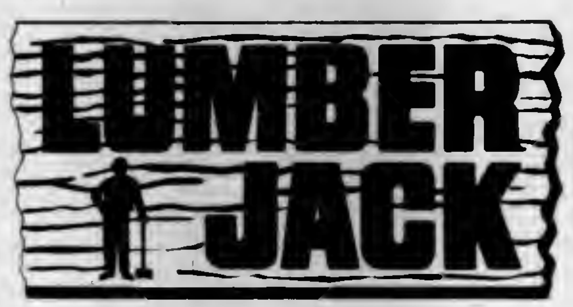
SN 241,265. Muller-Grocers Baking Co., Grand Rapids, Mich. Filed Mar. 17, 1966.

LUMBERJACK

For Breads.

First use on or about Feb. 3, 1966.

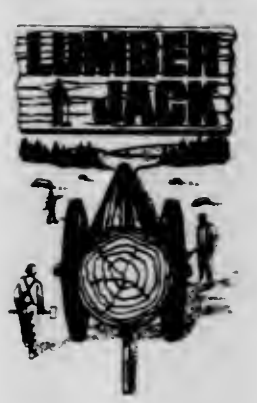
SN 241,267. Muller-Grocers Baking Co., Grand Rapids, Mich. Filed Mar. 17, 1966.



For Breads.

First use on or about Feb. 3, 1966.

SN 241,360. Muller-Grocers Baking Co., Grand Rapids, Mich. Filed Mar. 18, 1966.



For Breads.

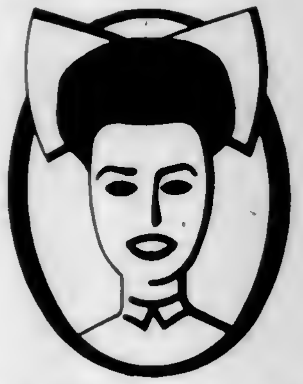
First use on or about Feb. 3, 1966.

SN 245,849. Philip Morris Incorporated, d.b.a. Clark Gum Co., New York, N.Y. Filed May 17, 1966.

BRIQUETTES

For Chewing Gum.
First use Apr. 28, 1966.

SN 253,260. Fred Harvey, Chicago, Ill. Filed Aug. 29, 1966.



For Candy, Salad Dressing, Seasoning Salt, Preserves, Jelly, Marmalade, Coffee, and Tea.
First use in or before December 1963.

SN 257,229. Mead Johnson & Company, Evansville, Ind. Filed Oct. 26, 1966.

MEFALAC

Owner of Reg. Nos. 500,731, 706,886, and others.
For Nutritionally Complete Dietary Food Containing Medium Chain Triglycerides.
First use on or prior to Oct. 13, 1966.

SN 257,233. Mead Johnson & Company, Evansville, Ind. Filed Oct. 26, 1966.

PORTAMIL

Owner of Reg. Nos. 696,534 and 800,782.
For Nutritionally Complete Dietary Food Containing Medium Chain Triglycerides.
First use on or prior to Oct. 13, 1966.

SN 257,234. Mead Johnson & Company, Evansville, Ind. Filed Oct. 26, 1966.

TRIGLYDE

Owner of Reg. Nos. 531,808, 532,894, and 748,671.
For Nutritionally Complete Dietary Food Containing Medium Chain Triglycerides.
First use on or prior to Oct. 13, 1966.

SN 257,561. General Mills, Inc., Minneapolis, Minn. Filed Oct. 31, 1966.

UNICORNS

Owner of Reg. Nos. 260,771 and 279,384.
For Ready-To-Eat Breakfast Cereal.
First use Aug. 23, 1966.

Class 49 — Distilled Alcoholic Liquors

SN 237,325. Foreign Vintages, Inc., New York, N.Y. Filed Jan. 26, 1966.

BLACK OPAL

For Whisky.
First use Nov. 16, 1964.

SN 241,460. Heaven Hill Distilleries, Inc., d.b.a. Mark Twain Distilling Co., Bardstown, Ky. Filed Mar. 21, 1966.

MARK TWAIN

The name "Mark Twain" does not identify a particular living individual.
For Bottled Whiskey.
First use Mar. 7, 1960.

Class 50 — Merchandise Not Otherwise Classified

SN 236,336. 3D Studios, Minneapolis, Minn. Filed Jan. 10, 1966.

3D
STUDIOS

No registration rights are claimed for the notation "3D" apart from the mark as shown; but applicant waives none of its common law rights in said mark or any feature thereof.
For Advertising Displays and Banners.
First use Sept. 1, 1965.

SN 237,739. Precision Papers, Inc., Brooklyn, N.Y. Filed Feb. 1, 1966.

DRAPE-A-SHOULDER

For Hanger Shoulder Covers.
First use Apr. 27, 1965.

SN 252,577. The Hopp Press, Inc., New York, N.Y. Filed Aug. 17, 1966.

GUIDE-RIGHT

For Store Directory Signs.
First use on or about June 15, 1966.

SN 255,411. Bonny Products, Inc., New York, N.Y. Filed Sept. 29, 1966.

SEALMASTER

For Bottle Caps.
First use Sept. 14, 1966.

Class 51 — Cosmetics and Toilet Preparations

SN 234,440. Les Parfums Sterle, Paris, France. Filed Dec. 13, 1965.

STERLÉ

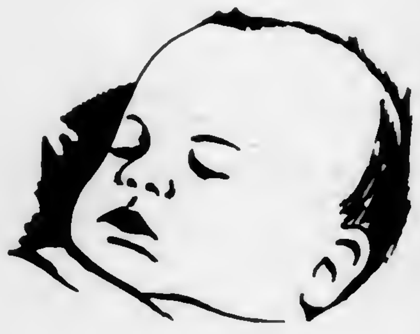
For Perfume and Toilet Water.
First use Aug. 28, 1956; in commerce Jan. 22, 1957.

SN 234,448. Maradel Products, Inc., Farmingdale, N.Y. Filed Dec. 13, 1965.

"BathNik"

For Bath Powder and Powder Puffs, Sold as a Unit.
First use Dec. 1, 1965.

SN 238,262. The Mennen Company, Morristown, N.J. Filed Feb. 7, 1966.



The portrait appearing in the drawing is that of the infant Elizabeth Sanderson, consent having been granted by her mother, to the registration of the portrait.
For Skin Lotion, Baby Powder, and Baby Oil.
First use Oct. 15, 1965.

SN 243,647. Daggett and Ramsdell International Corporation, New York, N.Y. Filed Apr. 18, 1966.

CASINO ROYALE

For Shave Lotion.
First use Mar. 28, 1966.

SN 244,302. Colgate-Palmolive Company, New York, N.Y. Filed Apr. 26, 1966.

DEFENDEX

For Deodorant.
First use Feb. 21, 1966.

SN 244,303. Colgate-Palmolive Company, New York, N.Y. Filed Apr. 26, 1966.

RESPOND

Owner of Reg. No. 804,391.
For Facial Cleanser and Bath Oil.
First use Feb. 21, 1966.

SN 249,566. Parfums Guy Laroche, Paris, France. Filed July 5, 1966.

FIDJI

Owner of French Reg. No. 526,842, dated Dec. 31, 1964 (Paris); Natl. Inst. No. 238,021.
For Perfumery.

SN 256,906. Lanvin-Charles of the Ritz, Inc., New York, N.Y. Filed Oct. 21, 1966.

A COIF OF ARPEGE

Owner of Reg. Nos. 282,358, 804,030, and others.
For Hair Spray.
First use on or about Aug. 15, 1966.

SN 256,907. Lanvin-Charles of the Ritz, Inc., New York, N.Y. Filed Oct. 21, 1966.

A COIF OF MY SIN

Owner of Reg. Nos. 313,722, 594,631, and others.
For Hair Spray.
First use on or about Aug. 15, 1966.

Class 52 — Detergents and Soaps

SN 232,374. Chester Whitfield Smith, d.b.a. Whitfield Chemical Company, Detroit, Mich. Filed Nov. 8, 1965.

WHITFIELD

For Industrial Metal-Etching Chemicals, Specifically Compounds for Etching Aluminum To Remove Oxides and Produce a Bright Finish.
First use 1953.

SN 246,645. Bristol-Myers Company, New York, N.Y. Filed May 26, 1966.

COMPLY

For Hair Shampoo.
First use Apr. 8, 1966.

SN 246,651. Bristol-Myers Company, New York, N.Y. Filed May 26, 1966.

MANAGE

For Hair Shampoo.
First use Apr. 8, 1966.

SN 247,051. Patclin Chemical Co., Inc., Yonkers, N.Y. Filed June 1, 1966.

PATCLIN

For Industrial Cleaning Compounds.
First use Apr. 1, 1966.

SN 247,148. The Procter & Gamble Company, Cincinnati, Ohio. Filed June 2, 1966.

MOON

Owner of Reg. Nos. 438,342 and 645,608.
For Toilet Soap Sold in the Institutional Trade.
First use 1877.

SERVICE MARKS

Class 100 — Miscellaneous

SN 228,867. Abbey Rents, Los Angeles, Calif. Filed Sept. 29, 1965.

ABBEY RENTS

...and sells, too

All of the wording with the exception of the word "Abbey" is disclaimed apart from the mark as shown.

For Rental of Sickroom and Party Equipment and Supplies, Power Tools, and Miscellaneous Consumer Rental Articles.

First use Aug. 13, 1961.

SN 228,868. Abbey Rents, Los Angeles, Calif. Filed Sept. 29, 1965.

ABBEY RENTS

The word "Rents" is disclaimed apart from the mark as shown.

For Rental of Sickroom and Party Equipment and Supplies, Power Tools, and Miscellaneous Consumer Rental Articles.

First use Jan. 1, 1945.

SN 236,326. Vasco Metals Corporation, Latrobe, Pa. Filed Jan. 10, 1966.

NEMLAB

For Testing and Development of Metals and Metal Alloys.

First use Apr. 5, 1954.

SN 241,459. Hearst Metrotone News, Inc., New York, N.Y. Filed Mar. 21, 1966.

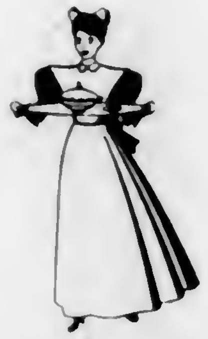
TELENEWS

Owner of Reg. No. 391,386.

For Photographing, Editing, Producing, and Distributing Film Strips and Motion Pictures, Preparing and Distributing Recordings, Scripts and Texts for Film Strips and Documentary Films.

First use Jan. 2, 1954.

SN 253,265. Fred Harvey, Chicago, Ill. Filed Aug. 29, 1966.



For Restaurant Services.

First use March 1966; at least as early as July 1956 in a different form.

SN 253,711. Picnic, Inc., Exeter Township, Pa. Filed Sept. 2, 1966.

PICNIC

For Preparing and Dispensing Pre-Packed Meals and Snacks.

First use Sept. 1, 1966.

Class 101 — Advertising and Business

SN 208,652. Woodco Sales, Inc., Independence, Mo. Filed Dec. 21, 1964.

WILD WOODY'S

For Retail Variety Store Services.

First use June 1954.

SN 232,502. Allied Stores Corporation, New York, N.Y. Filed Nov. 12, 1965.

Sportique

For Retail Apparel Sales Services in a Department Store.

First use June 9, 1964.

Class 102 — Insurance and Financial

SN 242,985. Household Finance Corporation, Chicago, Ill. Filed Apr. 8, 1966.

HOUSEHOLD FINANCE

The word "Finance" is disclaimed apart from the mark as shown.

For Complete Consumer Credit Service, Including Direct Cash Loans Repayable in Installments, and the Purchase of Time Sales Installment Paper From Retail Dealers.

First use at least as early as Mar. 31, 1940.

Class 103 — Construction and Repair

SN 234,596. Duraclean Company, Deerfield, Ill. Filed Dec. 13, 1965.

Durashield

Owner of Reg. Nos. 414,534, 414,651, and 787,956.

For Preserving, Protecting, and Soil Retarding of Floor Coverings, Upholstery, Furnishings, Clothing, Lamps, Blinds, Window Shades, Wallpaper, Painted Surfaces, and Other Interior Fabrics, Materials, and Surfaces.

First use Dec. 19, 1956.

SN 243,432. Emery Industries, Inc., Cincinnati, Ohio. Filed Apr. 14, 1966.

SANITONE

Owner of Reg. Nos. 301,342, 658,353, and others.

For Dry Cleaning Services.

First use on or about Oct. 26, 1932.

Class 107 — Education and Entertainment

SN 254,847. The Accents, Indianapolis, Ind. Filed Sept. 21, 1966.

THE ACCENTS

For Entertainment by Vocal-Instrumental Trio.

First use May 1, 1965.

CERTIFICATION MARKS

Class A — Goods

SN 242,080. The Wool Bureau, Inc., New York, N.Y. Filed Mar. 28, 1966.

NAKED WOOL

The mark certifies the nature and quality of material, quality of workmanship, and other characteristics of the goods.

For Products Made Wholly or Predominantly of Wool.

First use September 1960.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

824,654. TWINWELD. Schramm Fiberglass Products, Inc. MULTIPLE CLASS (Classes 1 and 5). SN 219,747. Pub. 11-22-66. Filed 5-26-65.

824,655. ZITEX. Chemplast Inc. SN 232,663. Pub. 12-13-66. Filed 11-15-65.

824,656. FILCRALENE. Filmcraft-Chicago. SN 242,808. Pub. 12-13-66. Filed 4-6-66.

824,657. CYCLO-RUBBER. DPR Incorporated. SN 247,109. Pub. 12-13-66. Filed 6-2-66.

824,658. RESISTOFLEX. Resistoflex Corporation. SN 247,410. Pub. 12-13-66. Filed 6-6-66.

824,659. AIRCO. Air Reduction Company, Incorporated. SN 247,762. Pub. 12-13-66. Filed 6-10-66.

824,660. VISBESTOS. Montello, Inc. SN 247,824. Pub. 12-13-66. Filed 6-10-66.

Class 2 — Receptacles

824,661. PERFECTION. Harsco Corporation, assignee of The Perfection Steel Body Company. MULTIPLE CLASS (Classes 2, 13, 19, and 23). SN 203,525. Pub. 12-13-66. Filed 10-7-64.

824,662. CRAFTSMAN ACCESSORIES. I. Smallman & Sons Co. SN 215,656. Pub. 12-13-66. Filed 4-2-65.

824,663. METALSMITHS AND DESIGN. Ohio Metalsmiths Corporation. MULTIPLE CLASS (Classes 2, 23, and 32). SN 224,638. Pub. 12-13-66. Filed 7-30-65.

824,664. PREX-CON. Plastic Container Corp. SN 225,351. Pub. 12-13-66. Filed 8-9-65.

824,665. BLACK STRIPE. Chase Bag Company. SN 225,404. Pub. 12-13-66. Filed 8-10-65.

824,666. WET-GARD. Western Kraft Corporation. SN 226,811. Pub. 12-13-66. Filed 8-30-65.

824,667. INSIGNIA (DESIGN). The La Fleur Corporation. SN 227,590. Pub. 12-13-66. Filed 9-10-65.

824,668. LA FLEUR AND DESIGN. The La Fleur Corporation. SN 227,592. Pub. 12-13-66. Filed 9-10-65.

824,669. VELTONE. American Can Company. SN 227,739. Pub. 12-13-66. Filed 9-14-65.

824,670. TAPPER. Reynolds Metals Company. SN 228,567. Pub. 12-13-66. Filed 9-24-65.

824,671. TUF-WELD. Bemis Company, Inc., by change of name from Bemis Bro. Bag Company. SN 228,609. Pub. 12-13-66. Filed 9-27-65.

824,672. FROST KRAFT AND DESIGN. Olin Mathieson Chemical Corporation. SN 230,554. Pub. 12-13-66. Filed 10-19-65.

824,673. CRAIG AND DESIGN. Craig Systems Corporation. MULTIPLE CLASS (Classes 2, 12, 19, and 50). SN 235,822. Pub. 12-13-66. Filed 1-5-66.

824,674. TIDEE-DENT. Home Dental Aids Company, d.b.a. Home Dental Aids Co., Inc. SN 250,905. Pub. 12-13-66. Filed 7-25-66.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

824,675. EMILIO PUCCI. Emilio Pucci S.r.l. SN 232,858. Pub. 12-13-66. Filed 11-17-65.

824,676. MR. LEATHER BAG AND DESIGN. Brightman Products Co., Inc. SN 240,383. Pub. 12-13-66. Filed 3-7-66.

824,677. CITY SLICKER. Sirco Products Co. Inc. SN 252,709. Pub. 12-13-66. Filed 8-19-66.

Class 4 — Abrasives and Polishing Materials

824,678. BUMPS 'N GRINDS. William Zagone, d.b.a. Zay-Gon Co. SN 215,813. Pub. 12-7-65. Filed 4-5-65.

824,679. SNAP. National Home Products Co., Ltd. SN 233,518. Pub. 12-13-66. Filed 11-29-65.

824,680. ROYAL. Holland-Rantos Company, Inc. SN 233,597. Pub. 12-13-66. Filed 11-30-65.

824,681. VERTICOAT. Atlas Abrasives Corporation. SN 233,769. Pub. 12-13-66. Filed 12-2-65.

824,682. VENETIAN. C. A. Zoes Manufacturing Co. SN 235,815. Pub. 12-13-66. Filed 1-5-66.

824,683. DUPLI-COLOR. Dupli-Color Products Co., Inc. MULTIPLE CLASS (Classes 4, 6, 16, and 52). SN 237,641. Pub. 12-13-66. Filed 2-1-66.

824,684. NINE LIVES. S. C. Johnson & Son, Inc. SN 254,010. Pub. 12-13-66. Filed 9-8-66.

824,685. COTILLION. Masury-Young Company. SN 255,165. Pub. 12-13-66. Filed 9-27-66.

824,686. DECOR. Masury-Young Company. SN 255,166. Pub. 12-13-66. Filed 9-27-66.

Class 5 — Adhesives

824,654. (See Class 1 for this trademark.)

824,687. CARPET PRO. John J. Conway, d.b.a. Great Lakes Thread Company. SN 230,471. Pub. 12-13-66. Filed 10-18-65.

824,688. WHITE N' TITE. Miracle Adhesives Corporation. SN 230,868. Pub. 12-13-66. Filed 10-21-65.

824,689. SAVER, ETC. AND DESIGN. Wilbold Glues, Inc. SN 244,374. Pub. 12-13-66. Filed 4-26-66.

824,690. FAS-CLIP. Benjamin Foster Company. SN 246,447. Pub. 12-13-66. Filed 5-24-66.

Class 6 — Chemicals and Chemical Compositions

824,683. (See Class 4 for this trademark.)

824,691. CELLIT. Farbenfabriken Bayer Aktiengesellschaft. SN 177,166. Pub. 12-22-64. Filed 9-17-63.

824,692. ESBEC. The Esbec Corporation. MULTIPLE CLASS (Classes 6 and 52). SN 199,811. Pub. 12-13-66. Filed 8-13-64.

824,693. SIR CHEM AND DESIGN. Circle Chemical Co., Inc. MULTIPLE CLASS (Classes 6 and 52). SN 204,133. Pub. 12-13-66. Filed 10-16-64.

824,694. SIR CHEM. Circle Chemical Co., Inc. MULTIPLE CLASS (Classes 6 and 52). SN 204,134. Pub. 12-13-66. Filed 10-16-64.

824,695. SIRKOTE. Circle Chemical Co., Inc. MULTIPLE CLASS (Classes 6 and 52). SN 204,135. Pub. 12-13-66. Filed 10-16-64.

824,696. RICHONIC. The Richardson Company. SN 207,432. Pub. 12-13-66. Filed 12-3-64.

824,697. BLEACH BOMBS. American Home Products Corporation. SN 209,223. Pub. 12-13-66. Filed 1-4-65.

824,698. AQUATEMP. Harry Miller Corp. SN 210,327. Pub. 5-31-66. Filed 1-21-65.

824,699. ICEBERG. Luiz G. M. Costa. SN 225,290. Pub. 12-13-66. Filed 8-9-65.

824,700. BERKSHIRE. Tenneco Chemicals, Inc., by merger from Berkshire Color and Chemical Co. SN 228,000. Pub. 12-13-66. Filed 9-17-65.

824,701. NULIX. Tenneco Chemicals, Inc. SN 228,211. Pub. 12-13-66. Filed 9-20-65.

824,702. DONE-4. Lazarus Laboratories, Inc. SN 230,854. Pub. 12-13-66. Filed 10-21-65.

824,703. SANELIM. Bardmatic Corporation. SN 232,892. Pub. 12-13-66. Filed 11-18-65.

824,704. MUSK 31. Universal Oil Products Company. SN 233,023. Pub. 12-13-66. Filed 11-19-65.

824,705. MUSK 36-A. Universal Oil Products Company. SN 233,024. Pub. 12-13-66. Filed 11-19-65.

824,706. PORAPAK. Waters Associates, Inc. SN 237,895. Pub. 12-13-66. Filed 2-2-66.

824,707. MILWHITE MD. Milchem Incorporated. SN 238,098. Pub. 12-13-66. Filed 2-4-66.

824,708. DURASHAPE. Synthron, Inc. SN 238,460. Pub. 12-13-66. Filed 2-9-66.

824,709. REACTACREASE. Synthron, Inc. SN 238,461. Pub. 12-13-66. Filed 2-9-66.

824,710. DGS. Kolene Corporation. SN 239,632. Pub. 12-13-66. Filed 2-25-66.

824,711. KOLENE AND K (DESIGN). Kolene Corporation. SN 239,633. Pub. 12-13-66. Filed 2-25-66.

824,712. MCB AND DESIGN. The Matheson Company, Inc. SN 241,485. Pub. 12-13-66. Filed 3-21-66.

824,713. REACTAPRESS. Synthron, Inc. SN 244,436. Pub. 12-13-66. Filed 4-27-66.

824,714. COROSEX D. Clack Corporation. SN 244,972. Pub. 12-13-66. Filed 5-5-66.

824,715. INSTAVIN. Claremont Polychemical Corporation. SN 245,912. Pub. 12-13-66. Filed 5-18-66.

824,716. MERPACYL. E. I. du Pont de Nemours and Company. SN 246,894. Pub. 12-13-66. Filed 5-31-66.

824,717. BUTLER. John O. Butler Company. MULTIPLE CLASS (Classes 6, 18, 29, and 44). SN 252,926. Pub. 12-13-66. Filed 8-23-66.

Class 7 — Cordage

824,718. AGRI-TUFF. National Cooperatives, Inc. SN 216,095. Pub. 10-12-65. Filed 4-8-65.

824,719. SHELCO. Pacific-Western Materials, Inc, SN 225,053. Pub. 12-13-66. Filed 8-5-65.

824,720. BRAND X AND DESIGN. Schermerhorn Bros. Co. SN 241,525. Pub. 12-13-66. Filed 3-21-66.

824,721. PIPPIN. Davis Cordage Company. SN 254,969. Pub. 12-13-66. Filed 9-23-66.

824,722. EMERALD ISLE. Davis Cordage Company. SN 254,970. Pub. 12-13-66. Filed 9-23-66.

824,723. GEM. Davis Cordage Company. SN 254,971. Pub. 12-13-66. Filed 9-23-66.

Class 8 — Smokers' Articles, Not Including Tobacco Products

824,724. COLLETTE. Kanamaru Shoten, Ltd. SN 245,888. Pub. 12-13-66. Filed 5-18-66.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

824,725. TOMORROW'S RIFLES TODAY. Weatherby, Inc. SN 229,157. Pub. 12-13-66. Filed 10-1-65.

Class 10 — Fertilizers

824,726. TEMPORON. Tempoku Kagaku Kabushiki Kaisha, d.b.a. Tempoku Chemical Company, Ltd. SN 191,089. Pub. 12-13-66. Filed 4-14-64.

824,727. NITRO-PLUS. Sherritt Gordon Mines Limited. SN 235,345. Pub. 12-13-66. Filed 12-27-65.

824,728. INSTA-GRO. Lee Patten Seed Company. SN 235,410. Pub. 12-13-66. Filed 12-28-65.

Class 11 — Inks and Inking Materials

824,729. REMINGTON. Sperry Rand Corporation. SN 237,391. Pub. 12-13-66. Filed 1-26-66.

Class 12 — Construction Materials

824,673. (See Class 2 for this trademark.)

824,730. CERAMA-SHIELD. Osborne Industries Incorporated, assignee of Osborne-Borst Associates, Inc. SN 194,643. Pub. 3-1-66. Filed 6-1-64.

824,731. SAFEWAY. Anderson Safeway Guard Rail Corporation. SN 207,552. Pub. 10-12-65. Filed 12-7-64.

824,732. EVOMASTIC AND DESIGN. Evomastics Limited. SN 220,340. Pub. 7-12-66. Filed 6-3-65.

824,733. DURABOND. Penn Metal Company, Inc. SN 236,005. Pub. 10-18-66. Filed 1-7-66.

824,734. APEX. Apex Pool Equipment Corporation. SN 236,449. Pub. 12-13-66. Filed 1-14-66.

824,735. APEX AND DESIGN. Apex Pool Equipment Corporation. SN 236,450. Pub. 12-13-66. Filed 1-14-66.

824,736. RC. General Refractories Company. SN 238,074. Pub. 12-13-66. Filed 2-4-66.

824,737. MAREZ. Beta Industries, Inc. SN 238,159. Pub. 12-13-66. Filed 2-7-66.

824,738. TILEMATE-X. Boise Cascade Corporation. SN 238,918. Pub. 12-13-66. Filed 2-16-66.

824,739. SCOTCH-SEAL. Minnesota Mining and Manufacturing Company. SN 240,317. Pub. 12-13-66. Filed 3-7-66.

824,740. P AND DESIGN. Permaglass, Inc. SN 240,335. Pub. 12-13-66. Filed 3-7-66.

824,741. Q-LOCK. H. H. Robertson Company. SN 242,498. Pub. 12-13-66. Filed 4-1-66.

824,742. SOUNDBLOX. Cambridge Acoustical Associates, Inc. SN 243,956. Pub. 12-13-66. Filed 4-21-66.

824,743. TUDOR OAK. United States Plywood Corporation. SN 245,799. Pub. 12-13-66. Filed 5-17-66.

824,744. GLEN OAK. United States Plywood Corporation. SN 245,800. Pub. 12-13-66. Filed 5-17-66.

824,745. NALGUN. Nalco Chemical Company. SN 252,147. Pub. 12-13-66. Filed 8-11-66.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

824,661. (See Class 2 for this trademark.)

824,746. FAUCET FRIEND. William T. Wills, Jr., d.b.a. Americle Co. SN 219,650. Pub. 12-13-66. Filed 5-24-65.

824,747. SAV-A-SCREW. Screw and Bolt Corporation of America. SN 229,299. Pub. 12-13-66. Filed 10-4-65.

824,748. STOCKER. The Stocker Hinge Mfg. Co. SN 229,887. Pub. 12-13-66. Filed 10-11-65.

824,749. SMIGY. Società Metallurgica Italiana Giunti Yorkshire. SN 232,608. Pub. 12-13-66. Filed 11-12-65.

824,750. SMY. Società Metallurgica Italiana Giunti Yorkshire. SN 232,609. Pub. 12-13-66. Filed 11-12-65.

824,751. DURABOND. Club Aluminum Products Company. SN 236,055. Pub. 12-13-66. Filed 1-10-66.

824,752. TWIX. Beltoise Marguet & Cie. SN 239,208. Pub. 12-13-66. Filed 2-21-66.

824,753. 4 SEASONS AND DESIGN. Americana Cookware Company, d.b.a. Four Seasons Cookware. SN 240,571. Pub. 12-13-66. Filed 3-10-66.

824,754. AGWAY. Agway, Inc. SN 245,141. Pub. 12-6-66. Filed 5-9-66.

824,755. BEAUTILITY. Universal Pole Bracket Corporation. SN 245,543. Pub. 12-13-66. Filed 5-13-66.

824,756. BARWOOD WASHERS GASKETS AND DESIGN. Barwood Manufacturing Corp. SN 246,252. Pub. 12-13-66. Filed 5-23-66.

Class 14 — Metals and Metal Castings and Forgings

824,757. KAL-ROOF. Kaiser Aluminum & Chemical Corporation. SN 237,135. Pub. 12-13-66. Filed 1-24-66.

Class 15 — Oils and Greases

824,758. BLACKHAWK. Applied Power Industries, Inc. SN 227,639. Pub. 12-13-66. Filed 9-13-65.

824,759. MELSYN. Metal Lubricants Co. SN 239,062. Pub. 12-13-66. Filed 2-17-66.

824,760. CHEVRON. Standard Oil Company of California. SN 239,818. Pub. 12-13-66. Filed 2-28-66.

824,761. CHEVRON (DESIGN). Standard Oil Company of California. SN 239,819. Pub. 12-13-66. Filed 2-28-66.

824,762. KRYTOX. E. I. du Pont de Nemours and Company. SN 253,472. Pub. 12-13-66. Filed 8-31-66.

Class 16 — Protective and Decorative Coatings

824,683. (See Class 4 for this trademark.)

824,763. UDS. United Distributors Service, Inc., d.b.a. United Distributors Service. SN 234,974. Pub. 8-23-66. Filed 12-20-65.

824,764. DAM-IT. Taylor & Art, Inc., d.b.a. Taylor & Art Plastics, Inc. SN 239,459. Pub. 12-13-66. Filed 2-23-66.

824,765. LASTING PROTECTION. Lasting Products Company. SN 242,456. Pub. 12-13-66. Filed 4-1-66.

Class 17 — Tobacco Products

824,766. MICROFLAKE. American Machine & Foundry Company. SN 159,187. Pub. 7-20-65. Filed 12-17-62.

824,767. PERILLY'S. Perilly's Tobacco Manufacturers (Proprietary) Limited. SN 239,654. Pub. 12-13-66. Filed 2-25-66.

824,768. COLD HARBOR. The American Tobacco Company. SN 240,054. Pub. 12-13-66. Filed 3-3-66.

824,769. SYMPHONY. Harald Halberg. SN 240,173. Pub. 12-13-66. Filed 3-4-66.

824,770. PALLADIUM. The American Tobacco Company. SN 240,493. Pub. 12-13-66. Filed 3-9-66.

824,771. BLONDE. The American Tobacco Company. SN 240,831. Pub. 12-13-66. Filed 3-14-66.

824,772. PALO ALTO. The American Tobacco Company. SN 240,832. Pub. 12-13-66. Filed 3-14-66.

Class 18 — Medicines and Pharmaceutical Preparations

824,717. (See Class 6 for this trademark.)

824,773. ANODIA. The Upjohn Company. SN 207,449. Pub. 12-13-66. Filed 12-3-64.

824,774. GEL-A-DEX. Uni-Tech Chemical Manufacturing Company. SN 229,897. Pub. 12-13-66. Filed 10-11-65.

824,775. F·A·D. Southwestern Drug Corporation, d.b.a. Tru-Lab Products. SN 231,297. Pub. 12-13-66. Filed 10-22-65.

824,776. CHEW-C. Southwestern Drug Corporation, d.b.a. Tru-Lab Products. SN 231,298. Pub. 12-13-66. Filed 10-22-65.

824,777. MISTI·CON. Southwestern Drug Corporation, d.b.a. Tru-Lab Products. SN 231,303. Pub. 12-13-66. Filed 10-22-65.

824,778. TRIVIB. American Home Products Corporation. SN 236,444. Pub. 12-13-66. Filed 1-14-66.

824,779. ASPRI-JEL. American Pharmaceutical Company. SN 236,701. Pub. 8-23-66. Filed 1-18-66.

824,780. STAGO. S.E.M.S. Societe d'Etudes et d'Exploitation de Marques et Brevets, Societe Anonyme, d.b.a. Laboratoires Stago. SN 238,310. Pub. 12-13-66. Filed 2-7-66.

824,781. PILOPEX. Geigy Chemical Corporation. SN 238,861. Pub. 12-13-66. Filed 2-15-66.

824,782. MYONESIN. Paul B. Elder Company. SN 246,461. Pub. 12-13-66. Filed 5-24-66.

824,783. O-4. Obrig Chemical Corp. SN 247,395. Pub. 12-13-66. Filed 6-6-66.

824,784. O-3. Obrig Chemical Corp. SN 247,396. Pub. 12-13-66. Filed 6-6-66.

824,785. O.W.S. Obrig Chemical Corp. SN 247,397. Pub. 12-13-66. Filed 6-6-66.

824,786. FEMPAIN. Mediceuticals, Inc. SN 247,711. Pub. 12-13-66. Filed 6-9-66.

824,787. TETRAVITE. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,117. Pub. 12-13-66. Filed 6-28-66.

824,788. STREPTO-SUL V. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,118. Pub. 12-13-66. Filed 6-28-66.

824,789. REPO-B. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,120. Pub. 12-13-66. Filed 6-28-66.

824,790. NEO-CORTICIN. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,121. Pub. 12-13-66. Filed 6-28-66.

824,791. PROTEPLEX. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,123. Pub. 12-13-66. Filed 6-28-66.

824,792. NUTRI-PLEX. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,124. Pub. 12-13-66. Filed 6-28-66.

824,793. GUANIBON BUBOLS. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,130. Pub. 12-13-66. Filed 6-28-66.

824,794. AURIMITE. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,131. Pub. 12-13-66. Filed 6-28-66.

824,795. BEUTHANASIA. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,132. Pub. 12-13-66. Filed 6-28-66.

824,796. CALCIROL. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,133. Pub. 12-13-66. Filed 6-28-66.

824,797. ATAPOISE. A. H. Robins Company, Incorporated. SN 253,085. Pub. 12-13-66. Filed 8-25-66.

824,798. ANUSOL. Warner-Lambert Pharmaceutical Company. SN 254,976. Pub. 12-13-66. Filed 9-23-66.

Class 19 — Vehicles

824,661. (See Class 2 for this trademark.)

824,673. (See Class 2 for this trademark.)

824,799. UNI-GRIP. Republic Industrial Corporation. SN 206,647. Pub. 12-13-66. Filed 11-20-64.

824,800. CAMCO AND DESIGN. Carr Automotive Manufacturing Corporation. SN 209,418. Pub. 12-13-66. Filed 1-6-65.

824,801. LA FLEUR AND DESIGN. The La Fleur Corporation. SN 227,593. Pub. 12-13-66. Filed 9-10-65.

824,802. HALF COMPASS AND DESIGN. Westerly Marine Construction Limited. SN 237,770. Pub. 12-13-66. Filed 2-1-66.

Class 21 — Electrical Apparatus, Machines, and Supplies

824,803. PERMAGLOBE. Rab Electric Manufacturing Company, Inc. SN 198,435. Pub. 9-14-65. Filed 7-23-64.

824,804. SIDE-STEP. Hi-G Incorporated. SN 203,283. Pub. 12-13-66. Filed 10-5-64.

824,805. SEAL-PAC. General Electric Company. SN 228,525. Pub. 12-13-66. Filed 9-24-65.

824,806. FISK. United States Rubber Company. SN 229,608. Pub. 12-13-66. Filed 10-7-65.

824,807. SAFARI LITE. Servel, Inc. SN 231,600. Pub. 12-13-66. Filed 10-24-65.

824,808. ETI AND DESIGN. Rosemount Engineering Company. MULTIPLE CLASS (Classes 21 and 26). SN 232,422. Pub. 12-13-66. Filed 11-9-65.

824,809. SELECTA-VOLT. Trak Microwave Corporation. SN 232,741. Pub. 12-13-66. Filed 11-15-65.

824,810. R-E-P. Ransburg Electro-Coating Corp. SN 236,139. Pub. 12-13-66. Filed 1-10-66.

824,811. APOTHEC-AIRE. Hankscraft Company. SN 237,836. Pub. 12-13-66, Filed 2-2-66.

824,812. GILL AND DESIGN. Gill Electric Manufacturing Corporation. SN 238,076. Pub. 12-13-66. Filed 2-4-66.

824,813. XAM. E. J. Korvette, Inc. SN 238,356. Pub. 12-13-66. Filed 2-8-66.

824,814. THERM-O-MATIC-X. Universal Manufacturing Corporation. SN 238,586. Pub. 12-13-66. Filed 2-10-66.

824,815. KILOVAC. High Vacuum Electronics, Inc. SN 243,445. Pub. 12-13-66. Filed 4-14-66.

824,816. MISCELLANEOUS DESIGN. Ameco, Inc. SN 245,541. Pub. 12-13-66. Filed 5-13-66.

824,817. INTRAPAK. Electronic Engineering Company of California. SN 247,858. Pub. 12-13-66. Filed 6-13-66.

Class 22 — Games, Toys, and Sporting Goods

824,818. TOOTI BAGS. John M. Hanson, d.b.a. Creative Ideas Company. SN 165,498. Pub. 12-13-66. Filed 3-27-63.

824,819. IGGY NORMOUS. Dam Things Establishment. SN 215,950. Pub. 12-13-66. Filed 4-7-65.

824,820. FLUFF. Mattel, Inc. SN 228,728. Pub. 12-13-66. Filed 9-27-65.

824,821. DAVOS. Anderson & Thompson Ski Co., Inc. SN 230,487. Pub. 12-13-66. Filed 10-19-65.

824,822. ANI-MATES. Playskool Manufacturing Company. SN 232,231. Pub. 12-13-66. Filed 11-5-65.

824,823. RACE-O-RINO. Charles Lehmann. SN 236,898. Pub. 12-13-66. Filed 1-20-66.

824,824. M. Mattel, Inc. SN 237,007. Pub. 12-13-66. Filed 1-21-66.

824,825. THAT'S IT! Leonardo Moody, d.b.a. Leonard Game Company. SN 237,013. Pub. 12-13-66. Filed 1-21-66.

824,826. VISA-MATIC. True Temper Corporation. SN 248,761. Pub. 12-13-66. Filed 6-23-66.

824,827. BABY PRETTY-POUT. Mattel, Inc. SN 252,319. Pub. 12-13-66. Filed 8-15-66.

824,828. LUCKY LOCKET. Mattel, Inc. SN 252,324. Pub. 12-13-66. Filed 8-15-66.

824,829. ORIGINAL POTSY HOPSCOTCH. Howe Plastics & Chemical Co., Inc. SN 252,448. Pub. 12-13-66. Filed 8-16-66.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

824,661. (See Class 2 for this trademark.)

824,663. (See Class 2 for this trademark.)

824,830. CUTMASTER. Masonry Equipment, Inc. SN 187,502. Pub. 11-3-64. Filed 2-26-64.

824,831. LIQUID DYNAMICS AND DESIGN. Wladzia G. Podbielniak Doyle and Collin M. Doyle, d.b.a. Liquid Dynamics. SN 196,643. Pub. 1-4-66. Filed 6-29-64.

824,832. SWIMMING ROLL KUSTERS. Edward Kusters, d.b.a. Eduard Kusters Maschinenfabrik. SN 199,726. Pub. 12-13-66. Filed 8-12-64.

824,833. FM AND DESIGN. Halliburton Company. SN 208,924. Pub. 12-13-66. Filed 12-28-64.

824,834. GREAT WESTERN AND DESIGN. C. C. King & Company Limited. SN 213,576. Pub. 12-13-66. Filed 3-8-65.

824,835. MONOTROL. Moak Machine and Foundry Company. SN 221,621. Pub. 6-28-66. Filed 6-21-65.

824,836. WIREMATIC. Wire Machinery, Incorporated. MULTIPLE CLASS (Classes 23 and 34). SN 225,220. Pub. 6-28-66. Filed 8-6-65.

824,837. M A·C E Y. Harris-Intertype Corporation. SN 230,154. Pub. 8-16-66. Filed 10-14-65.

824,838. UNICUM. Societe des Fabrications Unicum, S.A.R.L. SN 231,252. Pub. 12-13-66. Filed 10-22-65.

824,839. HOLLYMATIC AND DESIGN. Hollymatic Corporation. SN 232,835. Pub. 9-27-66. Filed 11-17-65.

824,840. DURA-TUBE. The Youngstown Sheet and Tube Company. SN 237,186. Pub. 12-13-66. Filed 1-24-66.

824,841. IWER. Maquinaria Textil del Norte de España, S.A. SN 237,465. Pub. 12-13-66. Filed 1-27-66.

824,842. BRILLIANT. Brilliant Abrasive Corporation. SN 247,891. Pub. 12-13-66. Filed 6-13-66.

824,843. REDFORD. International Minerals & Chemical Corporation. SN 247,992. Pub. 12-13-66. Filed 6-14-66.

824,844. BURGMASTER. Houdaille Industries, Inc. SN 248,136. Pub. 12-13-66. Filed 6-15-66.

824,845. 3M. Minnesota Mining and Manufacturing Company. SN 255,502. Pub. 12-13-66. Filed 9-30-66.

Class 26 — Measuring and Scientific Appliances

824,808. (See Class 21 for this trademark.)

824,846. SEIKOSHA. Kabushiki Kaisha Hattori Tokeiten. SN 179,632. Pub. 12-13-66. Filed 10-23-63.

824,847. SONY. Sony Corporation. SN 187,160. Pub. 12-13-66. Filed 2-20-64.

824,848. KIPP & ZONEN AND DESIGN. N.V. voorheen P. J. Kipp en Zonen, by change of name from N.V. Instrument Fabriek en-Handel Voorheen P. J. Kipp & Zonen. MULTIPLE CLASS (Classes 26 and 44). SN 192,932. Pub. 9-20-66. Filed 5-7-64.

824,849. SPECTRUM. Brunswick Corporation. SN 216,792. Pub. 6-21-66. Filed 4-19-65.

824,850. A AERO-DESK. Jon W. Hauser, Inc. SN 222,028. Pub. 12-13-66. Filed 6-25-65.

824,851. TIFFEN. Tiffen Optical Co. SN 227,086. Pub. 12-13-66. Filed 9-2-65.

824,852. VAPSILATOR. Parfa Parfumerie & Kosmetik AG. SN 230,188. Pub. 12-13-66. Filed 10-14-65.

824,853. ULTRATEL. Spiratone, Inc. SN 232,030. Pub. 12-13-66. Filed 11-2-65.

824,854. T-D AND DESIGN. American Bosch Arma Corporation. SN 232,269. Pub. 12-13-66. Filed 11-8-65.

824,855. VE AND DESIGN. Vision Engineering Ltd. SN 232,952. Pub. 12-13-66. Filed 11-18-65.

824,856. LAB-LOGIC. Buck Engineering Company, Inc. SN 234,801. Pub. 12-13-66. Filed 12-17-65.

824,857. RAYNGER. Ray-Tek Inc. SN 235,337. Pub. 12-13-66. Filed 12-27-65.

824,858. A-B QUALITY AND DESIGN. Allen-Bradley Company. SN 236,037. Pub. 12-13-66. Filed 1-10-66.

824,859. ALLEN-BRADLEY. Allen-Bradley Company. SN 236,038. Pub. 12-13-66. Filed 1-10-66.

824,860. A-B AND DESIGN. Allen-Bradley Company. SN 236,039. Pub. 12-13-66. Filed 1-10-66.

824,861. JAXLINE AND DESIGN. Precision Scientific Company. SN 237,378. Pub. 12-13-66. Filed 1-26-66.

824,862. SELLSTROM SAFEGUARDS. Sellstrom Manufacturing Company. MULTIPLE CLASS (Classes 26 and 39). SN 240,207. Pub. 12-13-66. Filed 3-4-66.

824,863. POSI-FEED. Jack R. Congalton. SN 245,293. Pub. 12-13-66. Filed 5-10-66.

824,864. MARQUE 8. Marquette Corporation. SN 247,554. Pub. 12-13-66. Filed 6-8-66.

824,865. ELECTROCOLOR. Minnesota Mining and Manufacturing Company. SN 248,151. Pub. 12-13-66. Filed 6-15-66.

824,866. AUTO-CUBE. Kalimar, Inc. SN 251,767. Pub. 12-13-66. Filed 8-5-66.

Class 27 — Horological Instruments

824,867. PERMATEX AND DESIGN. Morrie Chaitlen, d.b.a. C. & E. Marshall Co. SN 232,975. Pub. 12-13-66. Filed 11-19-65.

Class 28 — Jewelry and Precious-Metal Ware

824,868. HAPPY FAMILY KD AND DESIGN. Kirk Dial Corporation. SN 249,917. Pub. 12-13-66. Filed 7-11-66.

Class 29 — Brooms, Brushes, and Dusters

824,717. (See Class 6 for this trademark.)

824,869. RINGTAIL BELL. South Eastern Cordage Co., assignee of Theron V. Moss, d.b.a. South Eastern Cordage. SN 204,393. Pub. 12-13-66. Filed 10-20-64.

824,870. VW AND DESIGN. Viviane Woodard Corporation. MULTIPLE CLASS (Classes 29, 40, 51, and 52). SN 230,109. Pub. 12-13-66. Filed 10-13-65.

Class 31 — Filters and Refrigerators

824,871. SUPER CYCLE CENTER. J. E. Watkins Co. SN 227,898. Pub. 12-13-66. Filed 9-15-65.

824,872. LASCO. Lasco Industries, Inc. SN 228,162. Pub. 12-13-66. Filed 9-20-65.

824,873. METROSOFT. Aqua Systems, Inc. SN 240,574. Pub. 12-13-66. Filed 3-10-66.

824,874. 6QB. Robert J. Matthews Company. SN 243,693. Pub. 12-13-66. Filed 4-18-66.

824,875. SIDELOCK. Cambridge Filter Corporation. SN 244,569. Pub. 12-13-66. Filed 4-29-66.

Class 32 — Furniture and Upholstery

824,663. (See Class 2 for this trademark.)

824,876. CORVAL. Slick Industrial Company, d.b.a. Illinois Shade Division of Slick Industrial Company. SN 230,441. Pub. 12-13-66. Filed 10-18-65.

824,877. THE RIP VAN WINKLE. Aireloom Bedding Company. SN 233,040. Pub. 12-13-66. Filed 11-22-65.

824,878. ROYAL LINE. Sleep Specialists Inc. SN 234,370. Pub. 12-13-66. Filed 12-10-65.

824,879. "PIGGY BACK" W AND DESIGN. Watson Manufacturing Company, Inc. SN 238,472. Pub. 12-13-66. Filed 2-9-66.

824,880. GF OVER FILE. The General Fireproofing Company. SN 238,731. Pub. 12-13-66. Filed 2-15-66.

Class 33 — Glassware

824,881. CELEBRITY. Celebrity, Inc., by change of name from Quality Enterprises, Inc., d.b.a. Celebrity Crystal Co. SN 218,027. Pub. 5-3-66. Filed 5-4-65.

Class 34 — Heating, Lighting, and Ventilating Apparatus

824,836. (See Class 23 for this trademark.)

824,882. KWIKETTE. Sprague Products Company. SN 231,775. Pub. 8-30-66. Filed 10-28-65.

824,883. BREEZE-MATIC. Acme Engineering and Manufacturing Corporation. SN 233,162. Pub. 12-13-66. Filed 11-23-65.

824,884. FIVE IN ONE. The Williamson Company. SN 239,094. Pub. 12-13-66. Filed 2-17-66.

824,885. FORSAIRE. Williams Furnace Company. SN 240,562. Pub. 12-13-66. Filed 3-9-66.

824,886. VISARC AND DESIGN. Air Products and Chemicals, Inc. SN 243,518. Pub. 12-13-66. Filed 4-15-66.

824,887. LIGHT-LOK. United Lighting and Ceiling Co. SN 244,158. Pub. 12-13-66. Filed 4-22-66.

824,888. VELOURE. Holophane Company, Inc. SN 244,487. Pub. 12-13-66. Filed 4-28-66.

824,889. ARCAT. Atlantic Research Corporation. SN 244,653. Pub. 12-13-66. Filed 5-2-66.

824,890. WEATHER SHIELD. S. H. Leggitt Company. SN 244,715. Pub. 12-13-66. Filed 5-2-66.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

824,891. CUSHION BELT. The Goodyear Tire & Rubber Company. SN 225,141. Pub. 12-13-66. Filed 8-6-65.

824,892. MOL-ANKO-THANE. The Anchor Packing Company. SN 230,596. Pub. 12-13-66. Filed 10-20-65.

824,893. APACHE. The B. F. Goodrich Company. SN 230,821. Pub. 12-13-66. Filed 10-21-65.

824,894. PURELON. Union Oil Company of California. SN 231,783. Pub. 12-13-66. Filed 10-28-65.

824,895. SOVEREIGN. Sovereign Tire & Rubber Corporation. SN 231,859. Pub. 12-13-66. Filed 10-29-65.

824,896. BOW TIE. Vulcanizers Material Company. SN 231,862. Pub. 12-13-66. Filed 10-29-65.

824,897. DLC-100. The Firestone Tire & Rubber Company. SN 232,202. Pub. 12-13-66. Filed 11-5-65.

824,898. JET-TRAC. The General Tire & Rubber Company. SN 232,306. Pub. 12-13-66. Filed 11-8-65.

824,899. DYNAFACE. Dodge Manufacturing Corporation. SN 232,681. Pub. 12-13-66. Filed 11-15-65.

824,900. CCA AND DESIGN. Consumers Cooperative Association. SN 232,906. Pub. 12-13-66. Filed 11-18-65.

824,901. SUN-N-SNOW. The B. F. Goodrich Company. SN 232,917. Pub. 12-13-66. Filed 11-18-65.

824,902. TOURNEY. The Firestone Tire & Rubber Company. SN 233,483. Pub. 12-13-66. Filed 11-29-65.

824,903. TECHNO-CHEMIE. Techno-Chemie Kessler & Co. GmbH. SN 235,729. Pub. 12-13-66. Filed 1-3-66.

824,904. CHANNELGARD. Electro-Coatings, Inc. SN 244,691. Pub. 12-13-66. Filed 5-2-66.

Class 36 — Musical Instruments and Supplies

824,905. MEYER RESPONSER. Emco, Inc. SN 222,352. Pub. 12-13-66. Filed 6-30-65.

824,906. ZENITH. Zenith Radio Corporation. SN 226,963. Pub. 12-13-66. Filed 9-1-65.

824,907. DASHBOARD. Dubbings Electronics, Inc. SN 227,829. Pub. 12-13-66. Filed 9-15-65.

824,908. TURNPIKE. Dubbings Electronics, Inc. SN 227,830. Pub. 12-13-66. Filed 9-15-65.

824,909. CHECKMATE. WMI Corporation. SN 248,086. Pub. 12-13-66. Filed 6-15-66.

824,910. SERAPHIM "ANGELS OF THE HIGHEST ORDER" AND DESIGN. The Gramophone Company Limited. SN 255,500. Pub. 12-13-66. Filed 9-30-66.

824,911. COLGEMS. Colgems Records. SN 255,568. Pub. 12-13-66. Filed 10-3-66.

Class 37 — Paper and Stationery

824,912. MULTI-STIK. Uarco Incorporated. SN 205,207. Pub. 12-13-66. Filed 10-30-64.

824,913. AECO ATLANTA AND DESIGN. National Service Industries, Inc. SN 212,692. Pub. 12-21-65. Filed 2-24-65.

824,914. WHITE PEACOCK. The Mead Corporation. SN 214,773. Pub. 12-13-66. Filed 3-23-65.

824,915. MEAD COPY COTE BOND. The Mead Corporation. SN 221,942. Pub. 12-13-66. Filed 6-24-65.

824,916. G. The Mead Corporation. SN 226,459. Pub. 12-13-66. Filed 8-25-65.

824,917. C AND TREE (DESIGN). Cedartown Paper Board Co. SN 237,657. Pub. 12-13-66. Filed 2-1-66.

824,918. KARAT CROWN. Jacques Kreisler Manufacturing Corporation. SN 244,992. Pub. 12-13-66. Filed 5-5-66.

824,919. PUSSYCAT. Scripto, Inc. SN 246,375. Pub. 12-13-66. Filed 5-23-66.

824,920. TEX-PLATE. Eastex Incorporated. SN 247,681. Pub. 12-13-66. Filed 6-9-66.

Class 38 — Prints and Publications

824,921. BLUE BERET ETC. AND DESIGN. Airstream, Inc. SN 234,711. Pub. 12-13-66. Filed 12-16-65.

Class 39 — Clothing

824,862. (See Class 26 for this trademark.)

824,922. WONDER VAL. Bregstein Undergarment Co., Inc. SN 183,000. Pub. 6-15-65. Filed 12-13-63.

824,923. LITTLE NEL. Wells Lamont Corporation. SN 197,352. Pub. 12-13-66. Filed 7-7-64.

824,924. BEAU-BRA. Beau-Bra Foundations, Inc. SN 201,648. Pub. 12-13-66. Filed 9-11-64.

824,925. VISTA IV. Harry Irwin, Inc. SN 212,006. Pub. 7-6-65. Filed 2-15-65.

824,926. MISS LISA. Sleep Craft, Inc. SN 214,794. Pub. 5-24-66. Filed 3-23-65.

824,927. MAGNA-SIZE. American Needle & Novelty Co. SN 215,577. Pub. 12-13-66. Filed 4-2-65.

824,928. SUITCASE (DESIGN). Parkland of Dallas, Inc. SN 217,205. Pub. 12-13-66. Filed 4-23-65.

824,929. KNIGHTHOOD. Unishops, Inc. SN 219,931. Pub. 2-15-66. Filed 5-27-65.

824,930. MODERN. Sellon, Inc. SN 225,675. Pub. 12-13-66. Filed 8-13-65.

824,931. TWIN MAGIC DOUBLE WEAR FOR HER AND DESIGN. Carlo Relli. SN 225,894. Pub. 12-13-66. Filed 8-17-65.

824,932. MICIA. Leombruno-Bodi, assignee of Jacob L. Becker. SN 227,995. Pub. 12-13-66. Filed 9-17-65.

824,933. FLATTERNIT BY HUFFMAN. Morganton Hosiery Mills, Inc. SN 231,171. Pub. 12-13-66. Filed 10-22-65.

824,934. MR. GEORGE OF FIFTH AVENUE. Chadbourn Gotham, Inc. SN 231,352. Pub. 12-13-66. Filed 10-22-65.

824,935. GRAMPIAN. Grampian Holdings (USA), Inc. SN 231,683. Pub. 12-13-66. Filed 10-27-65.

824,936. ANTHONY WAYNE. Tracy, Inc. SN 232,616. Pub. 12-13-66. Filed 11-12-65.

824,937. SURF MAN. Truval Shirt Company, Inc. SN 233,539. Pub. 12-13-66. Filed 11-29-65.

824,938. SEEGULL. Edlen Herman Products, Inc., d.b.a. Seegull Manufacturing Company. SN 235,555. Pub. 12-13-66. Filed 12-30-65.

824,939. ROYAL BLIZZAND AND DESIGN. Comptoir de l'Industrie Textile de France. SN 235,624. Pub. 12-13-66. Filed 1-3-66.

824,940. BLIZZAND AND DESIGN. Comptoir de l'Industrie Textile de France. SN 235,625. Pub. 12-13-66. Filed 1-3-66.

824,941. BREDFORD. Export-Import Company of California. SN 236,980. Pub. 12-13-66. Filed 1-21-66.

824,942. CALVERT AND DESIGN. William B. Kessler, Inc. SN 237,226. Pub. 12-13-66. Filed 1-25-66.

824,943. CALVERT CLOTHES. William B. Kessler, Inc. SN 237,227. Pub. 12-13-66. Filed 1-25-66.

824,944. ROYALE SUPREME AND DESIGN. The Strong-Wear Co. SN 237,398. Pub. 12-13-66. Filed 1-26-66.

824,945. SWAN PRESS. White Swan Uniforms, Inc. SN 237,771. Pub. 12-13-66. Filed 2-1-66.

824,946. IN THE MINX MOOD. R. Lowenbaum Manufacturing Company. SN 237,850. Pub. 12-13-66. Filed 2-2-66.

824,947. BEACH WARMER AND DESIGN. Aimcee Wholesale Corporation. SN 238,825. Pub. 12-13-66. Filed 2-15-66.

824,948. ALL-ROUNDERS. Craddock-Terry Shoe Corporation. SN 238,842. Pub. 12-13-66. Filed 2-15-66.

824,949. VIVO. Susan Thomas Incorporated. SN 238,982. Pub. 12-13-66. Filed 2-16-66.

824,950. SAN BLAS. Weldon, Inc. SN 239,356. Pub. 12-13-66. Filed 2-21-66.

824,951. LA REDOUTE. Divina Footwear, Inc. SN 239,750. Pub. 12-13-66. Filed 2-28-66.

824,952. DRESSOIR. Divina Footwear, Inc. SN 239,751. Pub. 12-13-66. Filed 2-28-66.

824,953. LEDUISANTE. Divina Footwear, Inc. SN 239,752. Pub. 12-13-66. Filed 2-28-66.

824,954. RAOUL. Divina Footwear, Inc. SN 239,753. Pub. 12-13-66. Filed 2-28-66.

824,955. THE VILLAGER GOLFER AND DESIGN. The Villager, Inc. SN 239,842. Pub. 12-13-66. Filed 2-28-66.

824,956. A PEEK-A-TOE. S. Schwab Company. SN 240,661. Pub. 12-13-66. Filed 3-10-66.

824,957. BALLANTRAE. Genesco, Inc. SN 241,143. Pub. 12-13-66. Filed 3-16-66.

824,958. ONCE IN A LIFETIME. Rudin & Roth, Inc. SN 242,501. Pub. 12-13-66. Filed 4-1-66.

824,959. ROYAL INTERNATIONALE. Sears, Roebuck and Co. SN 242,507. Pub. 12-13-66. Filed 4-1-66.

824,960. JOHNNYE AND DESIGN. Korach Bros. Company. SN 242,614. Pub. 12-13-66. Filed 4-4-66.

824,961. REEDPORT. Frederick W. Donnelly & Son, Inc. SN 242,888. Pub. 12-13-66. Filed 4-7-66.

824,962. BIG MAC. J. C. Penney Company. SN 243,012. Pub. 12-13-66. Filed 4-8-66.

824,963. PAULA POST. Paula Post, Inc. SN 243,707. Pub. 12-13-66. Filed 4-18-66.

824,964. PURR-SUEDE. Neuville & Co., Inc. SN 244,131. Pub. 12-13-66. Filed 4-22-66.

824,965. WRANGLER. Blue Bell, Inc. SN 255,266. Pub. 12-13-66. Filed 9-28-66.

Class 40 — Fancy Goods, Furnishings, and Notions

824,870. (See Class 29 for this trademark.)

824,966. VICKY. Gerate- und Vorrichtungsbau AG. EAC. (Equipment and Appliance Construction Ltd. EAC.). SN 236,988. Pub. 12-13-66. Filed 1-21-66.

824,967. HEIRESS. Pharmaceutical Laboratories, Inc. SN 241,077. Pub. 12-13-66. Filed 3-15-66.

824,968. ENGAGE. Pharmaceutical Laboratories, Inc. SN 241,078. Pub. 12-13-66. Filed 3-15-66.

824,969. MERRI-MARKS. Remarque Associates, Inc. SN 243,582. Pub. 12-13-66. Filed 4-15-66.

824,970. BIKINI-BITS. Remarque Associates, Inc. SN 243,584. Pub. 12-13-66. Filed 4-15-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

824,971. ROYAL CHARTER COLLECTION. United Merchants and Manufacturers, Inc. SN 198,101. Pub. 2-2-65. Filed 7-17-64.

824,972. TOWN 'N' TERRACE. Ozite Corporation. SN 233,192. Pub. 12-13-66. Filed 11-23-65.

824,973. TOWN 'N' TERRACE AND DESIGN. Ozite Corporation. SN 233,193. Pub. 12-13-66. Filed 11-23-65.

824,974. CORONET ETC. AND DESIGN. Coronet Industries, Inc. SN 238,931. Pub. 12-13-66. Filed 2-16-66.

824,975. PLUSH-AIRE. Bates Manufacturing Company, Incorporated. SN 241,420. Pub. 12-13-66. Filed 3-21-66.

824,976. SURF BATISTE. Registered Fabrics Corp. SN 244,137. Pub. 12-13-66. Filed 4-22-66.

824,977. RENOWN. Cannon Mills Company. SN 247,004. Pub. 12-13-66. Filed 6-1-66.

Class 43 — Thread and Yarn

824,978. CLEVYLAINE. Societe Rhovyl. SN 241,084. Pub. 12-13-66. Filed 3-15-66.

824,979. KOLOR-KROSS. Collins & Aikman Corporation. SN 241,308. Pub. 12-13-66. Filed 3-18-66.

824,980. TRINKLETTE. Lily Mills Company. SN 246,337. Pub. 12-13-66. Filed 5-23-66.

Class 44 — Dental, Medical, and Surgical Appliances

824,717. (See Class 6 for this trademark.)

824,848. (See Class 26 for this trademark.)

824,981. MINI-BLADE. Rudolph Beaver, Inc., assignee of Rudolph Beaver. SN 208,527. Pub. 12-13-66. Filed 12-21-64.

824,982. AUTOMATIC SANITATION BY STERILMASTER AND DESIGN. Sterilmaster Inc., assignee of B.M.J. Mfg. Co. SN 215,694. Pub. 12-13-66. Filed 4-5-65.

824,983. SVEDOPTER. Svedia Dental-Industri AB. SN 231,284. Pub. 12-13-66. Filed 10-22-65.

824,984. TENSION-EZE AND DESIGN. Zest-Way. SN 235,372. Pub. 12-13-66. Filed 12-27-65.

824,985. SPHERALOY. Kerr Manufacturing Company. SN 239,157. Pub. 12-13-66. Filed 2-18-66.

824,986. LANVIN. Lanvin-Charles of the Ritz, Inc. SN 252,787. Pub. 12-13-66. Filed 8-22-66.

824,987. SIL-SYRINGE. Astic Products Inc. SN 252,931. Pub. 12-13-66. Filed 8-23-66.

Class 45 — Soft Drinks and Carbonated Waters

824,988. COLDWELL. Sol Lenzner Corporation. SN 225,169. Pub. 12-13-66. Filed 8-6-65.

824,989. OBM GIVE A OBM, MAKE A FRIEND. Edward Helig, d.b.a. Edward Halig Associates. SN 227,759. Pub. 12-13-66. Filed 9-14-65.

824,990. COLITA. Bartolo Raffaele, Jr. SN 244,247. Pub. 12-13-66. Filed 4-25-66.

824,991. IDLE HOUR. Easy-Mix Corp. SN 252,619. Pub. 12-13-66. 8-18-66.

Class 46 — Foods and Ingredients of Foods

824,992. TEABREAK. A. Hoolmeijer & Zonen N.V. SN 149,083. Pub. 7-30-63. Filed 7-16-62.

824,993. MISTER TEE'S. Empire Pretzel & Potato Chip Corp. SN 159,052. Pub. 11-10-64. Filed 12-13-62.

824,994. MEATPHOS. Hooker Chemical Corporation. SN 183,062. Pub. 9-22-64. Filed 12-16-63.

824,995. FOUNTAIN FRESH. Fountain Fresh, Inc. SN 190,361. Pub. 12-13-66. Filed 4-6-64.

824,996. GAUCHO. Gaucho Food Products, Inc. SN 191,852. Pub. 12-13-66. Filed 4-23-64.

824,997. ECLAIR AND DESIGN. Eclair, Inc. SN 198,144. Pub. 7-5-66. Filed 7-20-64.

824,998. COPPER CROCK CLUB AND DESIGN. Copper Crock Club, Inc. SN 203,258. Pub. 12-13-66. Filed 10-5-64.

824,999. EL CAMINO. Orrell's Food Products, Inc. SN 203,884. Pub. 10-19-65. Filed 10-13-64.

825,000. BOY'S HEAD, HAND AND BAGEL (DESIGN). New York Bagel Bakery. SN 206,747. Pub. 12-13-66. Filed 11-23-64.

825,001. S-Z SEAFOOD ZIP. Milani Foods, Inc. SN 217,754. Pub. 12-13-66. Filed 4-30-65.

825,002. PINNACLE. National Dairy Products Corporation. SN 218,567. Pub. 6-28-66. Filed 5-11-65.

825,003. D/D. Mark Morris Associates, Inc. SN 224,543. Pub. 12-13-66. Filed 7-29-65.

825,004. BLOC-O-PIZZA. Miceli Dairy Products Co. SN 225,489. Pub. 12-13-66. Filed 8-11-65.

825,005. NORTHWEST AND DESIGN. Country Gardens, Inc. SN 225,636. Pub. 12-13-66. Filed 8-13-65.

825,006. LO-CARBO. G.C.R. Bakery Corporation. SN 226,906. Pub. 12-13-66. Filed 9-1-65.

825,007. KET - L - KUT. The Creamette Company. SN 229,071. Pub. 12-13-66. Filed 10-1-65.

825,008. FANCIFUL FIGURE (DESIGN). Wm. Wrigley Jr. Company. SN 229,167. Pub. 12-13-66. Filed 10-1-65.

825,009. SUS-TANE. Aquariums Incorporated. SN 229,724. Pub. 12-13-66. Filed 10-11-65.

825,010. STERLING. International Salt Company. SN 230,054. Pub. 12-13-66. Filed 10-13-65.

825,011. GREAT DAY! General Mills, Inc. SN 231,105. Pub. 12-13-66. Filed 10-22-65.

825,012. HOLLY. Milk Proteins, Inc. SN 233,517. Pub. 12-13-66. Filed 11-29-65.

825,013. WH AND DESIGN. Roman Meal Company. SN 234,070. Pub. 12-13-66. Filed 12-6-65.

825,014. ANVIL SILO-MIN. Anvil Mineral Products Corporation. SN 234,107. Pub. 12-13-66. Filed 12-7-65.

825,015. SANTA ROSA. H. E. Butt Grocery Company, d.b.a. Harlingen Canning Company. SN 234,332. Pub. 12-13-66. Filed 12-10-65.

825,016. DERMO. Sidney Gould, d.b.a. MDR Nutrients Company. SN 234,348. Pub. 12-13-66. Filed 12-10-65.

825,017. SANGRITA. Anton Riemerschmid, Weinbrennerei, Likor- und Essigfabrik. SN 234,520. Pub. 12-13-66. Filed 2-8-66.

825,018. TOMAYONNAISE. A Company of Fine Family Foods. SN 234,542. Pub. 12-13-66. Filed 12-14-65.

825,019. BOBBLES AND DESIGN. Helme Products, Inc. SN 234,749. Pub. 12-13-66. Filed 12-16-65.

825,020. ENVOY. Lakeland Grocery Co. SN 234,910. Pub. 12-13-66. Filed 12-20-65.

825,021. MARY BAKER. The Fleming Co. Incorporated, d.b.a. Certified Bakers. SN 235,827. Pub. 12-13-66. Filed 1-5-66.

825,022. HOLLY. Holly Farms Poultry Industries, Inc. SN 236,093. Pub. 12-13-66. Filed 1-10-66.

825,023. RING A LINGS. Delson Candy Co., Inc. SN 236,572. Pub. 12-13-66. Filed 1-17-66.

825,024. PATIO. Patio Foods, Inc. SN 236,645. Pub. 12-13-66. Filed 1-17-66.

825,025. NAFERITE. International Salt Company. SN 236,827. Pub. 12-13-66. Filed 1-19-66.

825,026. OPEN HOUSE. General Foods Corporation. SN 238,348. Pub. 12-13-66. Filed 2-8-66.

825,027. SUPER MINK AND DESIGN. Kellogg Company. SN 240,522. Pub. 12-13-66. Filed 3-9-66.

825,028. CITATION. The Procter & Gamble Company. SN 240,781. Pub. 12-13-66. Filed 3-11-66.

825,029. MAVERICK AND DESIGN. Henry P. Garin, d.b.a. H. P. Garin Co. SN 241,138. Pub. 12-13-66. Filed 3-16-66.

825,030. SNACKADOOS. Ralston Purina Company. SN 248,193. Pub. 12-13-66. Filed 6-16-66.

825,031. GLADIOLA AND DESIGN. Nebraska Consolidated Mills Company, d.b.a. Fant Milling Company. SN 252,024. Pub. 12-13-66. Filed 8-9-66.

825,032. GOLDEN GLOW. Lever Brothers Company. SN 252,235. Pub. 12-13-66. Filed 8-12-66.

825,033. CRUSTENE. Hunt Foods and Industries, Inc., d.b.a. Hunt-Wesson Sales Co. SN 253,083. Pub. 12-13-66. Filed 8-25-66.

825,034. LIVE OAK. Giampaoli & Marchini Co. SN 255,497. Pub. 12-13-66. Filed 9-30-66.

Class 47 — Wines

825,035. ANDRE DE MONTCORT AND DESIGN. E. & J. Gallo Winery, d.b.a. De Montcort Champagne Cellars. SN 235,289. Pub. 12-13-66. Filed 12-27-65.

825,036. TROCADERO PORT. Delaforce Sons & Ca Limitada. SN 237,674. Pub. 12-13-66. Filed 2-1-66.

825,037. LA LINOTTE. John Harvey & Sons Ltd. SN 238,350. Pub. 12-13-66. Filed 2-8-66.

825,038. PINNACLE. Paul Masson, Inc., d.b.a. Paul Masson, and Paul Masson Vineyards. SN 239,920. Pub. 12-13-66. Filed 3-1-66.

825,039. LE FIDELE REFLET DE LA VIGNE. Les Caves Sequanaises Societe Anonyme. SN 240,751. Pub. 12-13-66. Filed 3-10-66.

Class 48 — Malt Beverages and Liquors

825,040. RINGNES. Aktieselskabet Ringnes Bryggeri. SN 220,059. Pub. 12-13-66. Filed 6-1-65.

825,041. RED CAP ALE AND DESIGN. Carling Brewing Company Incorporated, d.b.a. Carling Brewing Company. SN 239,379. Pub. 12-13-66. Filed 2-23-66.

Class 49 — Distilled Alcoholic Liquors

825,042. BLACKBERRY CORDIAL ETC. AND DESIGN. Przedsiebiorstwo Handlu Zagranicznego "Agros," assignee of "Rolimpex" Centrala Handlu Zagranicznego. SN 189,942. Pub. 5-31-66. Filed 3-30-64.

825,043. POLISH CHERRY CORDIAL WISNIAK ETC. AND DESIGN. Przedsiebiorstwo Handlu Zagranicznego "Agros," assignee of "Rolimpex" Centrala Handlu Zagranicznego. SN 189,947. Pub. 5-31-66. Filed 3-30-64.

825,044. NASSAU ROYALE ETC. AND DESIGN. Lantana Corporation Limited. SN 216,603. Pub. 12-13-66. Filed 4-15-65.

825,045. ENTERTAINER. Schenley Distillers, Inc. SN 231,242. Pub. 12-13-66. Filed 10-22-65.

825,046. SENOR PICO. Victor J. Bergeron. SN 237,926. Pub. 12-13-66. Filed 2-3-66.

825,047. SENOR PICO AND DESIGN. Victor J. Bergeron. SN 239,210. Pub. 12-13-66. Filed 2-21-66.

Class 50 — Merchandise Not Otherwise Classified

824,673. (See Class 2 for this trademark.)

825,048. COLORGRAPH. The Peterson System, Inc. SN 200,970. Pub. 12-13-66. Filed 8-31-64.

825,049. KISSY WOO. Ralphabet Enterprises. SN 230,435. Pub. 12-13-66. Filed 10-18-65.

825,050. WOODS-SPRITE. Carey-McFall Company. SN 247,106. Pub. 12-13-66. Filed 6-2-66.

825,051. BREETH-IN. Scott Plastics Corporation. SN 247,152. Pub. 12-13-66. Filed 6-2-66.

825,052. MAGNA-COVER. Allied Plastics, Inc. SN 247,184. Pub. 12-13-66. Filed 6-3-66.

825,053. VISTA VINYL. Harte & Company, Inc. SN 254,965. Pub. 12-13-66. Filed 9-23-66.

825,054. 3M. Minnesota Mining and Manufacturing Company. SN 255,503. Pub. 12-13-66. Filed 9-30-66.

Class 51 — Cosmetics and Toilet Preparations

824,870. (See Class 29 for this trademark.)

825,055. SHOW OFF. "42" Products, Ltd., Inc. SN 184,910. Pub 9-15-64. Filed 1-20-64.

825,056. TRI-BASIC. Colgate-Palmolive Company. SN 209,993. Pub. 12-13-66. Filed 1-15-65.

825,057. ENGAGE. Pharmaceutical Laboratories, Inc. SN 211,461. Pub. 12-13-66. Filed 2-5-65.

825,058. HEIRESS. Pharmaceutical Laboratories, Inc. SN 211,462. Pub. 12-13-66. Filed 2-5-65.

825,059. OSSART AND DESIGN. Laboratorios Limousin, S.A. SN 213,330. Pub. 12-13-66. Filed 3-4-65.

825,060. CORT CRYSTAL COLOGNE MIST. Chas. Pfizer & Co., Inc. SN 214,907. Pub. 12-13-66. Filed 3-24-65.

825,061. SAVAGE DE FORET. Puritan Fashions Corporation. SN 225,067. Pub. 12-13-66. Filed 8-5-65.

825,062. HB AND DESIGN. Hazel Bishop Inc. SN 226,508. Pub. 12-13-66. Filed 8-26-65.

825,063. ANSON. Anson Incorporated. SN 226,888. Pub. 12-13-66. Filed 9-1-65.

825,064. LIP SAVERS. Sea & Ski Corporation. SN 229,031. Pub. 12-13-66. Filed 9-30-65.

825,065. BODY ENGLISH. Yardley of London, Inc. SN 229,390. Pub. 12-13-66. Filed 10-5-65.

825,066. CREME SOLAIRE TROPICALE CARIB-TAN. Elizabeth of Sweden. SN 231,899. Pub. 12-13-66. Filed 10-29-65.

825,067. THE BARON. Evyan Perfumes, Inc. SN 231,989. Pub. 12-13-66. Filed 11-2-65.

825,068. HAWAIIAN MIST. Hawaiian Surf Industries, Inc. SN 231,998. Pub. 12-13-66. Filed 11-2-65.

825,069. ROGER. Pharmaceutical Laboratories, Inc. SN 232,146. Pub. 12-13-66. Filed 11-4-65.

825,070. "YOUNG & YOUTHFUL." Marie Ferguson. SN 238,416. Pub. 12-13-66. Filed 2-9-66.

825,071. COVER GIRL. The Noxzema Chemical Company. SN 240,186. Pub. 12-13-66. Filed 3-4-66.

825,072. SOPHISTI-CAT. Max Factor & Co., d.b.a. Max Factor. SN 240,234. Pub. 12-13-66. Filed 3-7-66.

825,073. DRESS AND GLOW. Sybil Ives Incorporated. SN 242,254. Pub. 12-13-66. Filed 3-30-66.

825,074. CW CARTER-WALLACE AND DESIGN. Carter-Wallace, Inc. SN 242,427. Pub. 12-13-66. Filed 4-1-66.

825,075. BREATH BUDS. Johnson & Johnson. SN 252,986. Pub. 12-13-66. Filed 8-24-66.

825,076. ALEXANDRA DE MARKOFF. Alexandra de Markoff Sales Corporation. SN 253,475. Pub. 12-13-66. Filed 8-31-66.

825,077. CLOUD SET. Dep Corporation. SN 253,821. Pub. 12-13-66. Filed 9-6-66.

825,078. OLAY. Adams National Industries (Pty.) Ltd. SN 254,021. Pub. 12-13-66. Filed 9-8-66.

825,079. IMAGE OF FACE IN CONCENTRIC CIRCLES (DESIGN). Adams National Industries (Pty.) Ltd. SN 254,025. Pub. 12-13-66. Filed 9-8-66.

825,080. FACE AND BACKGROUND (DESIGN). Adams National Industries (Pty.) Ltd. SN 254,026. Pub. 12-13-66. Filed 9-8-66.

825,081. OLAY VITALIZING NIGHT CREAM AND DESIGN. Adams National Industries (Pty.) Ltd. SN 254,027. Pub. 12-13-66. Filed 9-8-66.

Class 52 — Detergents and Soaps

824,683. (See Class 4 for this trademark.)

824,692. (See Class 6 for this trademark.)

824,693. (See Class 6 for this trademark.)

824,694. (See Class 6 for this trademark.)

824,695. (See Class 6 for this trademark.)

824,870. (See Class 29 for this trademark.)

825,082. LADY LENORE. General Nutrition Corporation, d.b.a. Natural Sales Company. SN 199,275. Pub. 10-19-65. Filed 8-5-64.

825,083. POLYFAIR. Therachemie Chemisch Therapeutische G.m.b.H., d.b.a. Therachemie G.m.b.H. SN 216,634. Pub. 3-15-66. Filed 4-15-1965.

825,084. LIGHT TOUCH. Alberto-Culver Company. SN 218,250. Pub. 12-13-66. Filed 5-7-65.

825,085. CLARION XIV. Brunswick Corporation. SN 221,694. Pub. 12-13-66. Filed 6-22-65.

825,086. TARGET. Target Stores, Inc. SN 237,173. Pub. 12-13-66. Filed 1-24-66.

825,087. MEDISOLV. Economics Laboratory, Inc. SN 240,870. Pub. 12-13-66. Filed 3-14-66.

825,088. CAPTAIN KIDD. The Mennen Company. SN 241,489. Pub. 12-13-66. Filed 3-21-66.

825,089. ALCOJET. Alconox, Inc. SN 245,278. Pub. 12-13-66. Filed 5-10-66.

825,090. LALIXE. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,596. Pub. 12-13-66. Filed 9-1-66.

825,091. VOLANT. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,598. Pub. 12-13-66. Filed 9-1-66.

825,092. RONDOLAY. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,605. Pub. 12-13-66. Filed 9-1-66.

825,093. ULENA. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,606. Pub. 12-13-66. Filed 9-1-66.

825,094. ZALLA. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 253,607. Pub. 12-13-66. Filed 9-1-66.

Service Marks

Class 100 — Miscellaneous

825,095. HAMBURG HEAVEN. Hamburg Heaven, Inc. SN 163,479. Pub. 12-13-66. Filed 2-26-63.

825,096. HOSPITALITY MOTOR INN AND DESIGN. Hospitality Motor Inns. SN 201,841. Pub. 12-13-66. Filed 9-14-64.

825,097. MISCELLANEOUS DESIGN. Booz-Allen Applied Research, Inc. SN 227,918. Pub. 12-13-66. Filed 9-16-65.

825,098. LE PETIT B/G. B/G Foods, Inc. SN 233,308. Pub. 12-13-66. Filed 11-26-65.

825,099. LES AMBASSADEURS. Kennat, Inc. SN 236,895. Pub. 12-13-66. Filed 1-20-66.

Class 101 — Advertising and Business

825,100. INTERNATIONAL AUTOMOTIVE SERVICE INDUSTRIES SHOW. International Automotive Service Industries Show. SN 206,731. Pub. 12-13-66. Filed 11-23-64.

825,101. AMPLAN. American Family Mutual Insurance Company. SN 212,176. Pub. 12-13-66. Filed 2-17-65.

825,102. REMOTRAN. Computer Sciences Corporation. SN 228,242. Pub. 12-13-66. Filed 9-21-65.

825,103. VESCO. Charles E. Vaughn, d.b.a. Vaughn Electro-Sources Company. SN 230,968. Pub. 11-22-66. Filed 10-21-65.

825,104. BOWL IT RICH. Poppy Productions. SN 233,739. Pub. 12-13-66. Filed 12-1-65.

825,105. JUST AS EAS-E AS FALLING OFF A LOG AND DESIGN. Eas-E Ordering, Inc. SN 241,246. Pub. 12-13-66. Filed 3-17-66.

Class 102 — Insurance and Financial

825,106. TESTAMENTARY LIFE. National Association Plans, Inc., by change of name from National Insurance Plans, Inc. SN 153,505. Pub. 12-13-66. Filed 9-19-62.

825,107. TESTAMENTARY LIFE. National Association Plans, Inc., by change of name from National Insurance Plans, Inc. SN 153,506. Pub. 12-13-66. Filed 9-19-62.

825,108. X MARKS THE SPOT DRIVE SAFELY ETC. AND DESIGN. The State Automobile & Casualty Underwriters. SN 178,660. Pub. 12-13-66. Filed 9-13-63.

825,109. PACKAGED BANKING. Security Bank of Oregon. SN 232,242. Pub. 12-13-66. Filed 11-5-65.

Class 103 — Construction and Repair

825,110. MODEL COVERALL SERVICE AND DESIGN. Model Coverall Service, Inc. SN 209,710. Pub. 12-13-66. Filed 1-11-65.

825,111. NAME THE SPOT AND DESIGN. Auto Glass Specialists, Inc. SN 232,272. Pub. 12-13-66. Filed 11-8-65.

Class 107 — Education and Entertainment

825,112. PRIVATE LINE. Larry Attebery. SN 244,178. Pub. 12-13-66. Filed 4-25-66.

Collective Membership Mark

Class 200

825,113. ACA AND DESIGN. American Camping Association, Inc. SN 246,741. Pub. 12-13-66. Filed 5-27-66.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 19 — Vehicles

825,114. Valley Tow-Rite, Inc., Lodi, Calif. SN 175,141. Filed P.R. 8-15-63; Am. S.R. 10-4-65.

TOW
SAFE

For Hitches and Couplers for Trailers, Boats, and the Like, Parts and Accessories for the Hitches and Couplers—Namely, Balls, Ball Covers, Brackets, Hitch and Coupler Adapters, Bumper Clamps, Grab Bars, Towing Devices, Third Wheel Attachments, and Boat Transom Tie Downs.

First use Feb. 14, 1963.

Class 24 — Laundry Appliances and Machines

825,115. Ever-Ready Appliance Manufacturing Co., St. Louis, Mo. SN 233,786. Filed P.R. 12-2-65; Am. S.R. 12-1-66.

BEST-MAID

For Ironing Tables, Ironing Board Pad and Cover Sets.
First use Nov. 22, 1965.

Class 36 — Musical Instruments and Supplies

825,116. North American Philips Company, Inc., New York, N.Y. SN 190,421. Filed P.R. 4-6-64; Am. S.R. 12-8-66.

STENOTRAINER

For Electrically Operated and Controlled Dictation Machines.

First use Sept. 4, 1963.

Class 37 — Paper and Stationery

825,117. Ketcham and McDougall, Inc., Roseland, N.J. SN 241,255. Filed 3-17-66.

DESK SUSAN

For Desk Accessory—Namely, a Container for Holding Pencils, Clips, Bands and Similar Stationery Items.

First use Aug. 6, 1964.

Class 38 — Prints and Publications

825,118. Sutton Publishing Company, Inc., White Plains, N.Y., assignee of Powell Magazines, Inc., New York, N.Y. SN 219,355. Filed P.R. 5-20-65; Am. S.R. 7-1-66.

AMERICAN HOSPITAL PRODUCTS

For Periodical Publication.
First use on or about May 17, 1965.

825,119. General Features Corporation, New York, N.Y. SN 222,928. Filed P.R. 7-8-65; Am. S.R. 12-23-66.

HOW TO PLAY WINNING GOLF

For Newspaper Column.
First use Apr. 4, 1965.

825,120. Creative Visuals of Dallas, Inc., Dallas, Tex. SN 229,504. Filed P.R. 10-7-65; Am. S.R. 12-27-66.

CREATIVE VISUALS

For Projection Transparencies Used in Instruction.
First use July 1959.

Class 46 — Foods and Ingredients of Foods

825,121. Verndale Products, Inc., Detroit, Mich. SN 229,153. Filed P.R. 10–1–65; Am. S.R. 12–9–66.

MAMA BAROLO

For Frozen Italian Ravioli.
First use Sept. 8, 1965.

825,122. International Stock Food Corporation, Waverly, N.Y. SN 242,730. Filed P.R. 4–5–66; Am. S.R. 12–27–66.

HAY GUARD

Owner of Reg. No. 755,613.

For Food Grade Product of a Chemical Nature To Aid in the Preservation of Hay and for Prevention of Undesirable Mold in Grain and Ground Feeds.
First use Sept. 1, 1964.

Class 52 — Detergents and Soaps

825,123. Purex Corporation, Ltd., d.b.a. Wallace Chemical Company, Lakewood, Calif. SN 245,129. Filed P.R. 5–9–66; Am. S.R. 12–22–66.

FOAMY

For Liquid Detergent for Dishes and Fine Fabrics.
First use Feb. 1, 1963.

TRADEMARK REGISTRATIONS RENEWED

55,532. BRISTOL'S. Cl. 26. 8–14–06.
55,533. BRISTOL'S. Cl. 26. 8–14–06.
55,534. BRISTOL'S. Cl. 26. 8–14–06.
58,702. CASHMERE. Cl. 52. 12–25–06.
59,138. BLIZZARD. Cl. 34. 1–1–07.
59,139. JUNIOR. Cl. 34. 1–1–07.
59,655. SPHINX. Cl. 43. 1–15–07.
59,703. WATERMAN'S. Cl. 37. 1–15–07.
59,991. REPRESENTATION OF A RODENT ON ITS BACK. Cl. 6. 1–22–07.
60,282. DIETZ. Cl. 34. 2–5–07.
60,343. THOMAS A. EDISON. Cl. 21. 2–5–07.
61,052. HEINZ AND PICKLE DESIGN. Cl. 46. 3–5–07.
61,232. BARCLAY & CO. AND DESIGN. Cl. 18. 3–12–07.
61,635. AMOLE. Cl. 4. 4–2–07.
62,182. HEINZ. Cl. 46. 4–23–07.
62,840. CROSSED AUGERS (DESIGN). Cl. 23. 5–28–07.
213,682. LUX SHIELD. Cl. 39. 6–1–26.
215,609. SIKA. Cl. 12. 7–20–26.
218,568. NURSERY. Cl. 39. 9–28–26.
219,846. CAVALIER. Cl. 27. 10–26–26.
222,098. ZAMAK. Cl. 14. 12–21–26.
222,407. COOLENE. Cl. 51. 1–4–27.
223,310. TABASCO. Cl. 46. 2–1–27.
224,358. JOHNSON'S. Cl. 16. 2–22–27.
224,527. STAONAL. Cl. 37. 3–1–27.
226,096. ALEXANDER'S. Cl. 46. 3–29–27.
226,931. ZOBEC. Cl. 44. 4–26–27.
227,298. WOMEN'S WEAR DAILY. Cl. 38. 5–3–27.
227,941. BIRTANK AND INGALLS PRODUCTS AND DESIGN. Cl. 2. 5–17–27.
228,213. CERTO FOR MAKING JAMS & JELLIES. Cl. 46. 5–24–27.
228,523. BRITEN ALL. Cl. 52. 6–7–27.
229,039. IVYOL. Cl. 18. 6–21–27.
416,485. RESTFOAM. Cl. 1. 9–18–45.
420,486. FOREVER YOUNG. Cl. 39. 4–16–46.
421,766. CALUMITE. Cl. 1. 6–18–46.
421,809. KAYSER. Cl. 3. 6–18–46.
422,097. CORDIALS. Cl. 39. 7–2–46.
422,332. ACEY DEUCEY. Cl. 51. 7–16–46.
423,917. BONLINN. Cl. 37. 9–17–46.
424,347. KENDEX. Cl. 1. 10–1–46.
425,279. LUSH. Cl. 10. 11–12–46.
425,557. OL' SKIPPER AND DESIGN. Cl. 22. 11–26–46.
426,024. AMSWISS. Cl. 23. 12–10–46.
426,355. VIBROTRON. Cl. 21. 12–24–46.
426,481. FIBERGLAS. Cl. 31. 12–24–46.
426,582. FIBERGLAS. Cl. 21. 12–31–46.
426,583. FIBERGLAS. Cl. 1. 12–31–46.
426,623. D.I.D. Cl. 13. 1–7–47.
426,679. CRYSTAL WEDDING OATS AVENA BODAS DE CRISTAL DE COCIMIENTO RAPIDO. Cl. 46. 1–7–47.
426,743. KERLIX. Cl. 44. 1–7–47.
426,806. ELLESS. Cl. 23. 1–14–47.
426,843. THE WORLD IN FOCUS. Cl. 38. 1–14–47.
427,018. ROI DU NORD AND DESIGN. Cl. 46. 1–21–47.
427,081. BEX. Cl. 11. 1–28–47.
427,076. PARKER "51". Cl. 37. 1–28–47.
427,173. GOODRICH. Cl. 5. 1–28–47.
427,293. SPORTS TRAIL. Cl. 38. 2–4–47.
427,576. TABU. Cl. 6. 2–11–47.
427,660. PUNCHO. Cl. 39. 2–18–47.
428,222. LITTLE BEAR "IT'S A BEAR ON A TEAR" AND DESIGN. Cl. 5. 3–11–47.
428,425. BEMIS. Cl. 42. 3–25–47.
428,650. VICTAULIC. Cl. 13. 4–1–47.
428,668. MIX-EX. Cl. 16. 4–1–47.
420,718. MILL TWINKLE. Cl. 51. 4–1–47.
429,904. ARTESIAN. Cl. 46. 5–20–47.
430,186. TRAILER. Cl. 46. 6–10–47.
430,422. TREND. Cl. 52. 6–10–47.
430,566. EDCO. Cl. 26. 6–17–47.
430,648. BALBEAUTIES. Cl. 39. 6–17–47.
430,736. VACU-DRY. Cl. 46. 6–24–47.

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709,497. MELCOUARE. Cl. 2.
709,502. BIOFERM. Cl. 6.
709,506. ZERO SAFE. Cl. 6.
709,512. QUARTER CENTURY BONDED ROOFS ETC. AND DESIGN. Cl. 12.
709,513. DENNY FOIL D'OR. Cl. 12.
709,514. BAROMIX. Cl. 12.
709,515. ORANGE. Cl. 12.
709,525. 'LASTICOLOR. Cl. 16.
709,565. WATERSPEED. Cl. 19.
709,531. HOLLYWOOD. Cl. 17.
709,535. PROLYSAMINE. Cl. 18.
709,539. DRAMCILLIN-S. Cl. 18.
709,546. MINDI. Cl. 18.
709,550. UROCLENE. Cl. 18.
709,552. BROCSIL. Cl. 18.
709,555. CHUZITS. Cl. 18.
709,559. DMI AND DESIGN. Cl. 19.
709,560. MOTORETTE. Cl. 19.
709,568. DAUPHIN. Cl. 21.
709,571. PIPING-HOT. Cl. 21.
709,576. CLAGE AND DESIGN. Cl. 21.
709,582. ROYALINE LIGHTING AND DESIGN. Cl. 21.
709,585. AMPLIFRAME. Cl. 21.
709,590. GOLD COMET. Cl. 21.
709,601. HY-ALIA. Cl. 22.
709,602. SPEED KLEEN. Cl. 23.

709,612. GALAMATIC. Cl. 24.
709,625. RUBY-ITE. Cl. 28.
709,626. BAC-O-BATH. Cl. 29.
709,629. TORSION-FLEX. Cl. 32.
709,632. TOKONOMA. Cl. 32.
709,634. HEARTHMATE. Cl. 34.
709,635. HEARTHMASTER. Cl. 34.
709,638. VUR ALL. Cl. 37.
709,642. FLINTNAMEL. Cl. 37.
709,645. PAPERTIME BY CASE AND DESIGN. Cl. 37.
709,652. PIONEER PETE'S. Cl. 38.
709,659. ABED AND ABOUT. Cl. 39.
709,697. VOILA. Cl. 42.
709,698. PLASTI-MACHE. Cl. 42.
709,700. THE ORIGINAL SUN-FLECTOR. Cl. 44.
709,701. THERMASSAGE. Cl. 44.
709,702. ELLMAN ROTO-PRO. Cl. 44.
709,703. SONOCAINE. Cl. 44.
709,704. SCHERMER STEREOGESIC. Cl. 44.
709,722. PERKEL JELLATHIN. Cl. 46.
709,725. ODIN AND DESIGN. Cl. 46.
709,729. CONSTELLATION. Cl. 46.
709,669. EVAPONTE AND DESIGN. Cl. 39.
709,670. ELY & WALKER. Cl. 39.
709,675. KAYTIDES. Cl. 39.
709,677. HEATHER-LUVLY. Cl. 39.
709,678. FLI-FRO. Cl. 39.
709,682. WINTERNAP. Cl. 39.
709,688. WK-A. Cl. 39.
709,690. SOLANO. Cl. 42.
709,691. BOCKERLON. Cl. 42.
709,692. ELY & WALKER. Cl. 42.
709,756. SAV-ON. Cl. 52.
709,758. REFRESH-KNIT. Cl. 52.
709,760. GET. Cl. 52.
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709,767. DRAFCHEX CREDIT SYSTEM AND DESIGN. Cl. 102.
709,768. NOCRACK. Cl. 103.
709,769. PACTA AND DESIGN. Cl. 105.
709,770. NI–20. Cl. 106.
709,771. MISCELLANEOUS DESIGN. Cl. 106.
709,773. STALL-PRUF. Cl. 15.
709,774. SAF AND DESIGN. Cl. 16.
709,779. DYSON'S. Cl. 28.
709,780. INER-WEVE. Cl. 42.
709,781. THE IMPORTANT FABRIC. Cl. 42.

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226,130. STAR-LIGHT AND DESIGN. Cl. 46. 3–29–27. The Red Star Milling Co. General Mills, Inc., Minneapolis, Minn. Amended to appear:

STARLIGHT

419,632. THE HONOR ROLL OF HITS. Cl. 38. 2–26–46. The Bill Board Publishing Company, Cincinnati, Ohio. Corrected: In the certificate, lines 3 and 17, in the heading, signature and in the statement, column 1, line 1, "Billboard" should be deleted and *Bill Board* should be inserted.

606,753. BILLBOARD. Cl. 38. 5–31–55. The Bill Board Publishing Company, Cincinnati, Ohio. Corrected: In the certificate, lines 4 and 15, and in the statement, column 1, line 1, "Billboard" should be deleted and *Bill Board* should be inserted.

714,314. CEMENT WELD AND DESIGN. Cl. 12. 4–25–61. Steel City Industries, Inc., Bridgeville, Pa. Corrected: In the statement, column 1, line 1, after "Industries" , *Inc.* should be inserted.

780,388. ROMALMA. Cl. 39. 11–17–64. Gregg, Inc., doing business as Romalma Knitwear of Italy, Los Angeles, Calif. Corrected: In the statement, column 1, lines 1 and 2 should be deleted and *Gregg, Inc. (California corporation), doing business as Romalma Knitwear of Italy* should be inserted.

781,043. GIBI. Cl. 39. 12–1–64. Fata Imports Inc., doing business as Gibi Knits of Italy, Los Angeles, Calif. Corrected: In the statement, column 1, lines 1 and 2 should be releted and *Fata Imports Inc. (California corporation), doing business as Gibi Knits of Italy* should be inserted.

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FEBRUARY 28, 1967

(**Registered** ; Renewed ; Canceled ; Amended, Disclaimed, Corrected, etc. ; New Certificates ; 12c Publications.)

A Company of Fine Family Foods, Holly Hill, Fla. 825,018, pub. 12–13–66. Cl. 46.
A.E.I. Hotpoint Ltd., London, England. 709,612, canc. Cl. 24.
Accessory Sales, Inc., Fort Lauderdale, Fla. 709,773, canc. Cl. 15.
Acme Engineering and Mfg. Corp., Muskogee, Okla. 824,883, pub. 12–13–66. Cl. 34.
Acton Laboratories, Inc., Acton, Mass. 709,764, canc. Cl. 100.
Adams National Industries (Pty.) Ltd., Durban, Nata, Republic of South Africa. 825,078, pub. 12–13–66. Cl. 51.
Adams National Industries (Pty.) Ltd., Durban, Natal, Republic of South Africa. 825,079, pub. 12–13–66. Cl. 51.
Adams National Industries (Pty.) Ltd., Durban, Natal, Republic of South Africa. 825,080, pub. 12–13–66. Cl. 51.
Adams National Industries (Pty.) Ltd., Durban, Natal, Republic of South Africa. 825,081, pub. 12–13–66. Cl. 51.
Agway, Inc., Syracuse, N.Y. 824,754, pub. 12–6–66. Cl. 13.
Aimcee Wholesale Corp., New York, N.Y. 824,947, pub. 12–13–66. Cl. 39.
Air Products and Chemicals, Inc., Allentown, Pa. 824,886, pub. 12–13–66. Cl. 34.
Air Reduction Co., New York, N.Y. 824,659, pub. 12–13–66. Cl. 1.
Aireloom Bedding Co., Alhambra, Calif. 824,877, pub. 12–13–66. Cl. 32.
Airstrea, Inc., Center, Ohio. 824,921, pub. 12–13–66. Cl. 38.
Akakaka, Hisao, Suginami-ku, Tokyo, Japan. 709,568, canc. Cl. 21.
Aktieselskabet Ringnes Bryggeri, Olso, Norway. 825,040, pub. 12–13–66. Cl. 48.
Alberto-Culver Co., Melrose Park, Ill. 825,084, pub. 12–13–66. Cl. 52.
Alconox, Inc., New York, N.Y. 825,089, pub. 12–13–66. Cl. 52.
Alexander Marketing Co., San Benito, Tex. 226,096, ren. 2–28–67. Cl. 46.
Alim Corp., New York, N.Y. 709,774, canc. Cl. 16.
Allen-Bradley Co., Milwaukee, Wis. 824,858, pub. 12–13–66. Cl. 26.
Allen-Bradley Co., Milwaukee, Wis. 824,859, pub. 12–13–66. Cl. 26.
Allen-Bradley Co., Milwaukee, Wis. 824,860, pub. 12–13–66. Cl. 26.
Allied Chemical Corp., New York, N.Y. 709,512, canc. Cl. 12.
Allied Plastics, Inc., Gastonia, N.C. 825,052, pub. 12–13–66. Cl. 50.
Ameco, Inc., Phoenix, Ariz. 824,816, pub. 12–13–66. Cl. 21.
American Bosch Arma Corp., Garden City, N.Y. 824,854, pub. 12–13–66. Cl. 26.
American Camping Association, Martinsville, Ind. 825,113, pub. 12–13–66. Cl. 200.
American Can Co., New York, N.Y. 824,669, pub. 12–13–66. Cl. 2.
American Chain & Cable Co., Inc. : *See*—
  Bristol Co., The.
American Family Mutual Insurance Co., Madison, Wis. 825,101, pub. 12–13–66. Cl. 101.
American Home Products Corp., d.b.a. Fort Dodge Laboratories, New York, N.Y. 709,555, canc. Cl. 18.
American Home Products Corp., New York, N.Y. 824,697, pub. 12–13–66. Cl. 6.
American Home Products Corp., New York, N.Y. 824,778, pub. 12–13–66. Cl. 18.
American Machine & Foundry Co., New York, N.Y. 824,766, pub. 7–20–65. Cl. 17.
American Needle & Novelty Co., Chicago, Ill. 824,927, pub. 12–13–66. Cl. 39.
American Pharmaceutical Co., New York, N.Y. 824,779, pub. 8–23–66. Cl. 18.
American Swiss File & Tool Co., Elizabeth, N.J., to Wallace-Murray Corp., New York, N.Y. 426,024, ren. 2–28–67. Cl. 23.
American Thread Co., The, New York, N.Y. 59,655, ren. 2–28–67. Cl. 43.
American Tobacco Co., The, New York, N.Y. 824,768, pub. 12–13–66. Cl. 17.
American Tobacco Co., The, New York, N.Y. 824,770, pub. 12–13–66. Cl. 17.
American Tobacco Co., The, New York, N.Y. 824,771, pub. 12–13–66. Cl. 17.
American Tobacco Co., The, New York, N.Y. 824,772, pub. 12–13–66. Cl. 17.
American Urethane Inc. : *See*—
  Hewitt Rubber Corp.
Americana Cookware Co., d.b.a. Four Seasons Cookware, Skokie, Ill. 824,753, pub. 12–13–66. Cl. 13.
Americle Co. : *See*—
  Wills, William T., Jr.
Amole Inc. : *See*—
  Mexican Amole Soap Co.
Anchor Packing Co., The, Philadelphia, Pa. 824,892, pub. 12–13–66. Cl. 35.
Anderson Safeway Guard Rail Corp., Flint, Mich. 824,731, pub. 12–13–66. Cl. 12.
Anderson & Thompson Ski Co., Inc., Seattle, Wash. 824,821, pub. 12–13–66. Cl. 22.
Anger, Irwin, Bit Co., The, Wilmington, Ohio. 62,840, ren. 2–28–67. Cl. 23.
Anson Inc., Providence, R.I. 825,063, pub. 12–13–66. Cl. 51.
Anton Riemerschmid, Weinbrennerei, Likor- und Essigfabrik, Praterinsel 3 Munich 22, Germany. 825,017, pub. 12–13–66. Cl. 46.
Anvil Mineral Products Corp., Bay Springs, Miss. 825,014, pub. 12–13–66. Cl. 46.
Apex Pool Equipment Corp., White Plains, N.Y. 824,734, pub. 12–13–66. Cl. 12.
Apex Pool Equipment Corp., White Plains, N.Y. 824,735, pub. 12–13–66. Cl. 12.
Applied Power Industries, Inc., West Allis, Wis. 824,758, pub. 12–13–66. Cl. 15.
Aqua Systems, Inc., Los Angeles, Calif. 824,873, pub. 12–13–66. Cl. 31.
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Associated Laboratories, Inc. : *See*—
  Guaranteed Products, Inc.
Astic Products Inc., Camden, N.J. 824,987, pub. 12–13–66. Cl. 44.
Atlantic Research Corp., Alexandria, Va. 824,889, pub. 12–13–66. Cl. 34.
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Attebery, Larry, Chicago, Ill. 825,112, pub. 12–13–66. Cl. 107.
Auto Glass Specials, Inc., Madison, Wis. 825,111, pub. 12–13–66. Cl. 103.
Automatic Canteen Co. of America, Chicago, Ill. 709,493, canc. Cl. 2.
Automatic Enterprises of Texas, Inc., Houston, Tex. 709,765, canc. Cl. 100.
B/G Food, Inc., Chicago, Ill. 825,098, pub. 12–13–66. Cl. 100.
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  Sterilmaster Inc
Barclay & Barclay, New York, N.Y., to Lanman & Kemp-Barclay & Co. Inc., Palisades Park, N.J. 61,232, ren. 2–28–67. Cl. 18.
Bardmatic Corp., Evanston, Ill. 824,703, pub. 12–13–66. Cl. 6.
Barwood Mfg. Corp., Everett, Mass. 824,756, pub. 12–13–66. Cl. 13.
Bates Mfg. Co., Inc., Lewiston, Maine. 824,975, pub. 12–13–66. Cl. 42.
Beau-Bra Foundations, Inc., Jersey City, N.J. 824,924, pub. 12–13–66. Cl. 39.
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  Leombruno-Bodi.
Beecham Research Laboratories Ltd., Brentford, England. 709,552, canc. Cl. 18.
Beltoise Margquet & Cie, Paris, France. 824,752, pub. 12–13–66. Cl. 13.
Bemis Bro. Bag Co. : *See*—
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Bemis Co., Inc., from Bemis Bro. Bag Co., Minneapolis, Minn. 824,671, pub. 12–13–66. Cl. 2.
Bergeron, Victor J., San Francisco, Calif. 825,046, pub. 12–13–66. Cl. 49.
Bergeron, Victor J., San Francisco, Calif. 825,047, pub. 12–13–66. Cl. 49.
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Berry Asphalt Co., Magnolia, Ark. 709,514, canc. Cl. 12.
F [illegible]a Industries, Inc., Collierville, Tenn. 824,737, pub. 12–13–66. Cl. 12.
Bike Web Co., The, Chicago, Ill., to The Kendall Co., Walpole, Mass. 427,293, ren. 2–28–67. Cl. 38.
Bill Board Publishing Co., The, Cincinnati, Ohio. 419,632, cor. Cl. 38.
Bill Board Publishing Co., The, Cincinnati, Ohio. 606,753, cor. Cl. 38.
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Binney & Smith Inc. : *See*—
  Binney & Smith Co.
Bioferm Corp., Wasco, Calif. 709,502, canc. Cl. 6.

Birmingham Tank Co., The, to Ingalls Iron Works Co., Birmingham, Ala. 227,941, ren. 2-28-67. Cl. 2.
Blue Bell, Inc., Greensboro, N.C. 824,965, pub. 12-13-66. Cl. 39.
Boise Cascade Corp., Boise, Idaho. 824,738, pub. 12-13-66. Cl. 12.
Booz. Allen Applied Research, Incl, Chicago, Ill. 825,097, pub. 12-13-66. Cl. 100.
Bregstein Undergarment Co., Inc., New York, N.Y. 824,922, pub. 6-15-65. Cl. 39.
Brightman Products Co., Inc., Long Island City, N.Y. 824,676, pub. 12-13-66. Cl. 3.
Brilliant Abrasive Corp., Kansas City, Mo. 824,842, pub. 12-13-66. Cl. 23.
Bristol Co., The, Waterbury, Conn., to American Chain & Cable Co., Inc., New York, N.Y. 55,532, ren. 2-28-67. Cl. 26.
Bristol Co., The, Waterbury, Conn., to American Chain & Cable Co., Inc., New York, N.Y. 55,533, ren. 2-28-67. Cl. 26.
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Buck Engineering Co., Inc., Farmingdale, N.J. 824,856, pub. 12-13-66. Cl. 26.
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Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,787, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., Oakland, Oreg. 824,788, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,789, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,790, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,791, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,792, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,793, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,794, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,795, pub. 12-13-66. Cl. 18.
Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals, Oakland, Calif. 824,796, pub. 12-13-66. Cl. 18.
Butler Mfg. Co., Kansas City, Mo. 709,494, canc. Cl. 2.
Butler, John O., Co., Chicago, Ill. 824,717, pub. 12-13-66. Multiple Class (Classes 18, 29, and 44).
Butt, H. H., Grocery Co., d.b.a. Harlingen Canning Co., Corpus Christi, Tex. 825,015, pub. 12-13-66. Cl. 46.
Calumite Co., The, Hamilton, Ohio, to The Calumite Co., Morrisville, Pa. 421,766, ren. 2-28-67. Cl. 1.
Cambridge Acoustical Associates, Inc., Cambridge, Mass. 824,742, pub. 12-13-66. Cl. 12.
Cambridge Filter Corp., Syracuse, N.Y. 824,875, pub. 12-13-66. Cl. 31.
Canatsey, Kary, La Jolla, Calif. 709,571, canc. Cl. 21.
Cannon Mills Co., Kannapolis, N.C. 824,977, pub. 12-13-66. Cl. 42.
Carey-McFall Co., Philadelphia, Pa. 825,050, pub. 12-13-66. Cl. 50.
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Carling Brewing Co. Inc., d.b.a. Carling Brewing Co., Cleveland, Ohio. 825,041, pub. 12-13-66. Cl. 48.
Carr Automotive Mfg. Corp., Tappahannock, Va. 824,800, pub. 12-13-66. Cl. 19.
Carter-Wallace, Inc., New York, N.Y. 825,074, pub. 12-13-66. Cl. 51.
Case Stationery Co., New York, N.Y. 709,645, canc. Cl. 37.
Caucho Food Products, Inc., Chicago, Ill. 824,996, pub. 12-13-66. Cl. 46.
Cedartown Paper Board Co., Cedartown, Ga. 824,917, pub. 12-13-66. Cl. 37.
Celebrity Crystal Co.: *See—*
  Quality Enterprises, Inc.
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  Fleming Co., Inc., The.
Chadbourn Gotham, Inc., Charlotte, N.C. 824,934, pub. 12-13-66. Cl. 39.
Chaitien, Moorie, d.b.a. C. & E. Marshall Co., Chicago, Ill. 824,867, pub. 12-13-66. Cl. 27.
Chap Stick Co.: *See—*
  Wright & Glenn Co., Inc.
Chapman Valve Mfg. Co., The, Springfield, from The Chapman Valve Mfg. Co., Indian Orchar, Mass. 709,770, canc. Cl. 106.
Chase Bag Co., New York, N.Y. 824,665, pub. 12-13-66. Cl. 2.
Chemplast Inc., East Newark, N.J. 824,655, pub. 12-13-66. Cl. 1.
Chicopee Sales Corp., New York, N.Y., to Johnson & Johnson, New Brunswick, N.J. 423,917, ren. 2-28-67. Cl. 37.
Christian Science Publishing Society, The: *See—*
  Library of International Relations.
Circle Chemical Co., Inc., Chicago, Ill. 824,694, pub. 12-13-66. Multiple Class (Class 6 and 52).
Circle Chemical Co., Inc., Chicago, Ill. 824,693, pub. 12-13-66. Multiple Class (Classes 6 and 52).
Circle Chemical Co., Inc., Chicago, Ill. 824,695, pub. 12-13-66. Multiple Class (Classes 6 and 52).
Citron, Robert R., Stockton, Calif. 709,638, canc. Cl. 37.
Clack Corp., Madison, Wis. 824,714, pub. 12-13-66. Cl. 6.
Claremont Polychemical Corp., Roslyn Heights, N.Y. 824,715, pub. 12-13-66. Cl. 6.
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  Claus-Holmer Gerdes.
Claus-Holmer Gerdes, d.b.a. Claus-Holmer Gerdes Heisswasserapparate & Armaturen, Luneburg, Germany. 709,576, canc. Cl. 21.
Club Aluminum Products Co., La Grange Park, Ill. 824,751, pub. 12-13-66. Cl. 13.
Coin and Bernstein, Inc., New York, N.Y. 709,690, canc. Cl. 42.
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Colgate-Palmolive Co.: *See—*
  Colgate & Co.
Colgate-Palmolive Co., New York, N.Y. 825,056, pub. 12-13-66. Cl. 51.
Colgems Records, New York, N.Y. 824,911, pub. 12-13-66. Cl. 36.
Collins & Aikman Corp., New York, N.Y. 824,979, pub. 12-13-66. Cl. 43.
Comptoir de l'Industrie Textile de France, Paris, France. 824,939, pub. 12-13-66. Cl. 39.
Comptoir de l'Industrie Textile de France, Paris, France. 824,940, pub. 12-13-66. Cl. 39.
Computer Sciences Corp., El Segundo, Calif. 825,102, pub. 12-13-66. Cl. 101.
Congalton, Jack R., Rocky River, Ohio. 824,863, pub. 12-13-66. Cl. 26.
Consolidated Cosmetics, Chicago, Ill., to Les Parfums de Dana, Inc., New York, N.Y. 427,576, ren. 2-28-67. Cl. 6.
Consumers Cooperative Association, Kansas City, Mo. 824,900, pub. 12-13-66. Cl. 35.
Conway, John J., d.b.a. Great Lakes Thread Co., Detroit, Mich. 824,687, pub. 12-13-66. Cl. 5.
Coolene Laboratories: *See—*
  Guaranteed Products, Inc.
Cooper, Kathryn, Fort Lauderdale, Fla. 709,659, canc. Cl. 39.
Copper Crock Club, Inc., Columbus, Wis. 824,998, pub. 12-13-66. Cl. 46.
Coronet Industries, Inc., Dalton, Ga. 824,974, pub. 12-13-66. Cl. 42.
Costa, Luiz G. M., Sao Paulo, Brazil. 824,699, pub. 12-13-66. Cl. 6.
Country Gardens, Inc., Warden, Wash. 825,005, pub. 12-13-66. Cl. 46.
Craig Systems Corp., Lawrence, Mass. 824,673, pub. 12-13-66. Multiple Class (Classes 2, 12, 19, and 50).
Craddock-Terry Shoe Corp., Lynchburg, Va. 824,948, pub. 12-13-66. Cl. 39.
Creamette Co., The, Minneapolis, Minn. 825,007, pub. 12-13-66. Cl. 46.
Creative Ideas Co.: *See—*
  Hanson, John M.
Creative Visuals of Dallas, Inc., Dallas, Tex. 825,120. Cl. 38.
Currea, Jose A., Brookline, Mass. 709,703, canc. Cl. 44.
DPR Inc., Belleville, N.J. 824,657, pub. 12-13-66. Cl. 1.
Dam Things, Establishment, Vaduz, Liechtenstein. 824,819, pub. 12-13-66. Cl. 22.
Davis Cordage Co., Portland, Oreg. 824,721, pub. 12-13-66. Cl. 7.
Davis Cordage Co., Portland, Oreg. 824,722, pub. 12-13-66. Cl. 7.
Davis Cordage Co., Portland, Oreg. 824,723, pub. 12-13-66. Cl. 7.
Delaforce Sons & Ca Limitada, Villa Nova de Gaya, Portugal. 825,036, pub. 12-13-66. Cl. 47.
Delson Candy Co., Inc., New York, N.Y. 825,023, pub. 12-13-66. Cl. 46.
De Markoff, Alexandra, Sales Corp., New York, N.Y. 825,076, pub. 12-13-66. Cl. 51.
De Martel, Madeleine, Cosmetics: *See—*
  Sherman, Robert M.
De Montcort Champagne: *See—*
  Gallo, E. & J., Winery.
Denny Paper & Board Co., Philadelphia, Pa. 709,513, canc. Cl. 12.
Dep Corp., Los Angeles, Calif. 825,077, pub. 12-13-66. Cl. 51.
Diamond-Ite International, Inc., New York, N.Y. 709,625, canc. Cl. 28.
Dietz, R. E., Co., Syracuse, N.Y. 59,138, ren. 2-28-67. Cl. 34.
Dietz, R. E., Co., Syracuse, N.Y. 59,139. ren. 2-28-67. Cl. 34.
Dietz, R. E., Co., Syracuse, N.Y. 60,282, ren. 2-28-67. Cl. 84.
Divina Footwear, Inc., St. Louis, Mo. 824,951, pub. 12-13-66. Cl. 39.
Divina Footwear, Inc., St. Louis, Mo. 824,952, pub. 12-13-66. Cl. 39.
Divina Footwear, Inc., St. Louis, Mo. 824,953, pub. 12-13-66. Cl. 39.
Divina Footwear, Inc., St. Louis, Mo. 824,954, pub. 12-13-66. Cl. 39.
Dixie Hosiery Mills, Inc., Fort Worth, Tex., to J. C. Penney Co., New York, N.Y. 218,568, ren. 2-28-67. Cl. 39.
Dodge Mfg. Corp., Mishawaka, Ind. 824,899, pub. 12-13-66. Cl. 35.
Donnelly, Frederick W., & Son, Inc., Trenton, N.J. 824,961, pub. 12-13-66. Cl. 39.
Douglas Furniture Corp., Chicago, Ill. 709,632, canc. Cl. 32.

Douglas Pectin Corp., Rochester, to General Foods Corp., White Plains, N.Y. 228,213, ren. 2-28-67. Cl. 46.
Doyle, Collin M.: *See—*
  Doyle, Wladzia G. P.
Doyle, Wladzia G. Podbielniak, and Collin M. Doyle, d.b.a. Liquid Dynamics, Chicago, Ill. 824,831, pub. 1-4-66. Cl. 23.
Drafchex, Inc., Detroit, Mich. 709,766, canc. Cl. 102.
Drafchex, Inc., Detroit, Mich. 709,767, canc. Cl. 102.
Dubbings Electronics, Inc., Hewlett, N.Y. 824,907, pub. 12-13-66. Cl. 36.
Dubbings Electronics, Inc., Hewlett, N.Y. 824,908, pub. 12-13-66. Cl. 36.
Dupli-Color Products Co., Inc., Elk Grove Village, Ill. 824,683, pub. 12-13-66. Multiple Class (Classes 4, 6, 16, and 52).
Du Pont de Nemours, E. I., and Co., Wilmington, Del. 824,716, pub. 12-13-66. Cl. 6.
Du Pont de Nemours, E. I., and Co., Wilmington, Del. 824,762, pub. 12-13-66. Cl. 15.
Durant Insulated Pipe Co.: *See—*
  Isenberg, Alexander H.
Eas-E Ordering, Inc., Chicago, Ill. 825,105, pub. 12-13-66. Cl. 101.
Eastex Inc., Silsbee, Tex. 824,920, pub. 12-13-66. Cl. 37.
Easy-Mix Corp., Sayville, N.Y. 824,991, pub. 12-13-66. Cl. 45.
Eclair, Inc., New York, N.Y. 824,997, pub. 7-5-66. Cl. 46.
Economics Laboratory, Inc., St. Paul, Minn. 825,087, pub. 12-13-66. Cl. 52.
Edison Bros. Stores, Inc., St. Louis, Mo. 709,779, canc. Cl. 28.
Edison Mfg. Co., to McGraw-Edison Co., West Orange, N.J. 60,343, ren. 2-28-67. Cl. 21.
Elder, Paul B., Co., Bryan, Ohio. 824,782, pub. 12-13-66. Cl. 18.
Electro-Coatings, Inc., Oakland, Calif. 824,904, pub. 12-13-66. Cl. 35.
Electronic Engineering Co. of California, Santa Ana, Calif. 824,817, pub. 12-13-66. Cl. 21.
Elgin National Watch Co., Elgin, Ill. 219,846, ren. 2-28-67. Cl. 27.
Elizabeth of Sweden, Haledon, N.J. 825,066, pub. 12-13-66. Cl. 51.
Elless Maskinfabrik Aktiebolag, Vastra Frolunda, Sweden. 426,806, ren. 2-28-67. Cl. 23.
Emco, Inc., Washington, D.C. 824,905, pub. 12-13-67. Cl. 36.
Empire Pretzel & Potato Chip Corp., Buffalo, N.Y. 824,993, pub. 11-10-64. Cl. 46.
Esbec Corp., The, Bridgeport, Conn. 824,692, pub. 12-13-66. Multiple Class (Classes 6 and 52).
Eugene Dietzgen Co., Chicago, Ill. 430,566, ren. 2-28-67. Cl. 26.
Evaponte Ag, Chur, Switzerland. 709,669, canc. Cl. 39.
Ever-Ready Appliance Mfg. Co., St. Louis, Mo. 825,115. Cl. 24.
Evomastics Ltd., Stafford, England. 824,732, pub. 7-12-66. Cl. 12.
Evyan Perfumes, Inc., New York, N.Y. 825,067, pub. 12-13-66. Cl. 51.
Export-Import Co. of Calif., Los Angeles, Calif. 824,941, pub. 12-13-66. Cl. 39.
Factor, Max, & Co., d.b.a. Max Factor, Hollywood, Calif. 825,072, pub. 12-13-66. Cl. 51.
Fairchild Publication, Inc.: *See—*
  Women's Wear Co.
Fant Milling Co.: *See—*
  Nebraska Consolidated Mills Co.
Farbenfabriken Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Germany. 824,691, pub. 12-22-64. Cl. 6.
Fata Imports Inc., d.b.a. Gibi Knits of Italy, Los Angeles, Calif. 781,043, cor. Cl. 39.
Ferguson, Marie, New York, N.Y. 825,070, pub. 12-13-66. Cl. 51.
Fiberglass Boat Co., The, Somerset, Pa. 709,565, canc. Cl. 19.
Filmcraft-Chicago, Chicago, Ill. 824,656, pub. 12-13-66. Cl. 1.
Firestone Tire & Rubber Co., The, Akron, Ohio. 824,897, pub. 12-13-66. Cl. 35.
Firestone Tire & Rubber Co., The, Akron, Ohio. 824,902, pub. 12-13-66. Cl. 35.
Fleming Co., Inc., The, d.b.a. Certified Bakers, Topeka, Kans. 825,021, pub. 12-13-66. Cl. 46.
Fort Dodge Laboratories: *See—*
  American Home Products Corp.
"42" Products, Ltd., Inc., Santa Monica, Calif. 825,055, pub. 9-15-64. Cl. 51.
Foster, Benjamin, Co., Philadelphia, Pa. 824,690, pub. 12-13-66. Cl. 5.
Fountain Fresh, Inc., Greenville, Del. 824,995, pub. 12-13-66. Cl. 46.
Four Seasons Cookware: *See—*
  Americana Cookware Co.
Freund, Peter, Knitting Mills, Inc., North Bergen, N.J. 709,758, canc. Cl. 52.
G.C.R. Bakery Corp., Astoria, N.Y. 825,006, pub. 12-13-66. Cl. 46.
Gallo, E. & J., Winery, d.b.a. De Montcort Champagne Cellars, Modesto, Calif. 825,035, pub. 12-13-66. Cl. 47.
Garin Co.: *See—*
  Garin, Henry P.
Garin, Henry P., d.b.a. H. P. Garin Co., Salinas, Calif. 825,029, pub. 12-13-66. Cl. 46.
Geigy Chemical Corp., Ardsley, N.Y. 824,781, pub. 12-13-66. Cl. 18.
General Electric Co., Pittsfield, Mass. 824,805, pub. 12-13-66. Cl. 21.
General Features Corp., New York, N.Y. 825,119. Cl. 38.
General Fireproofing Co., The, Youngstown, Ohio. 824,880, pub. 12-13-66. Cl. 32.
General Foods Corp.: *See—*
  Douglas Pectin Corp.
General Foods Corp., White Plains, N.Y. 825,026, pub. 12-13-66. Cl. 46.
General Mills, Inc.: *See—*
  Red Star Milling Co., The.
General Mills, Inc., Minneapolis, Minn. 825,011, pub. 12-13-66. Cl. 46.
General Nutrition Corp., d.b.a. Natural Sales Co., Pittsburgh, Pa. 825,082, pub. 10-19-65. Cl. 52.
General Refractories Co., Philadelphia, Pa. 824,736, pub. 12-13-66. Cl. 12.
General Tire & Rubber Co., The, Akron, Ohio. 824,898, pub. 12-13-66. Cl. 35.
Genesco, Inc., Nashville, Tenn. 824,957, pub. 12-13-66. Cl. 39.
Gerate- und Vorrichtungsbau Ag. Eac. (Equipment and Appliance Construction Ltd. Eac.), Zurich, Switzerland. 824,966, pub. 12-13-66. Cl. 40.
Giampaoli & Marchini Co., Le Grand, Calif. 825,034, pub. 12-13-66. Cl. 46.
Gibi Knits of Italy: *See—*
  Fata Imports Inc.
Gill Electric Mfg. Corp., Redlands, Calif. 824,812, pub. 12-13-66. Cl. 21.
Gold Seal Chemicals Corp., Brooklyn, N.Y. 709,506, canc. Cl. 6.
Goodrich, B. F., Co., The, Akron, Ohio. 427,173, ren. 2-28-67. Cl. 5.
Goodrich, B. F., Co., The, Akron, Ohio. 824,893, pub. 12-13-66. Cl. 35.
Goodrich, B. F., Co., The, Akron, Ohio. 824,901, pub. 12-13-66. Cl. 35.
Goodyear Tire & Rubber Co., The, Akron, Ohio. 824,891, pub. 12-13-66. Cl. 35.
Gordon, Sherritt, Mines Ltd., Toronto, Ontario, Canada. 824,727, pub. 12-13-66. Cl. 10.
Gould, Sidney, d.b.a. MDR Nutrients Co., Chicago, Ill. 825,016, pub. 12-13-66. Cl. 46.
Grace, W. R., & Co.: *See—*
  Universal Zonolite Insulation Co.
  Vestal Chemical Co.
Gramophone Co., Ltd., The, Hayes, Middlesex, England. 824,910, pub. 12-13-66. Cl. 36.
Grampian Holdings (USA), Inc., Stamford, Conn. 824,935, pub. 12-13-66. Cl. 39.
Great Lakes Thread Co.: *See—*
  Conway, John J.
Green Giant Co.: *See—*
  Minnesota Valley Canning Co.
Gregg, Inc., d.b.a. Romalma Knitwear of Italy, Los Angeles, Calif. 780,388, cor. Cl. 39.
Guaranteed Products, Inc., d.b.a. Coolene Laboratories, to Associated Laboratories, Inc., d.b.a. Vitamin-Quota, New York, N.Y. 222,407, ren. 2-28-67. Cl. 51.
Halberg, Harald, Svendborg, Denmark. 824,769, pub. 12-13-66. Cl. 17.
Halig, Edward, Associates: *See—*
  Helig, Edward.
Halliburton Co., Fort Worth, Tex. 824,833, pub. 12-13-66. Cl. 23.
Hamburg Heaven, Inc., New York, N.Y. 825,095, pub. 12-13-66. Cl. 100.
Hankscraft Co., Reedsburg, Wis. 824,811, pub. 12-13-66. Cl. 21.
Hanson, John M., d.b.a. Creative Ideas Co., Hawthorne, Calif. 824,818, pub. 12-13-66. Cl. 22.
Harlingen Canning Co.: *See—*
  Butt, H. E., Grocery Co.
Harris-Intertype Corp., Cleveland, Ohio. 824,837, pub. 8-16-66. Cl. 23.
Harsco Corp., The, from The Perfection Steel Body Co., Galion, Ohio. 824,661, pub. 12-13-66. Multiple Class (Classes 2, 13, 19, and 23).
Harte & Co., Inc., New York, N.Y. 825,053, pub. 12-13-66. Cl. 50.
Harvey, John, & Sons Ltd., Bristol, England. 825,037, pub. 12-13-66. Cl. 47.
Hauser, Jon W., Inc., St. Charles, Ill. 824,850, pub. 12-13-66. Cl. 26.
Hawaiian Surf Industries, Inc., New York, N.Y. 825,068, pub. 12-13-66. Cl. 51.
Bishop, Hazel, Inc., Union, N.J. 825,062, pub. 12-13-66. Cl. 51.
Health Aids, Inc., New York, N.Y. 709,701, canc. Cl. 44.
Heggitt, S. H., Co., Marshall, Mich. 824,890, pub. 12-13-66. Cl. 34.
Heinz, H. J., Co., Pittsburgh, Pa. 61,052, ren. 2-28-67. Cl. 46.
Heinz, H. J., Co., Pittsburgh, Pa. 62,182, ren. 2-28-67. Cl. 46.
Helig, Edward, d.b.a. Edward Halig Associates, Munich, Germany. 824,989, pub. 12-13-66. Cl. 45.
Helme Products, Inc., New York, N.Y. 825,019, pub. 12-13-66. Cl. 46.
Herman, Edlen, Products, Inc., d.b.a. Seegull Mfg. Co., Jenkintown, Pa. 824,938, pub. 12-13-66. Cl. 39.
Hewitt Rubber Corp., Buffalo, to American Urethane Inc., New York, N.Y. 416,485, ren. 2-28-67. Cl. 1.
Hi-G Inc., Windsor Locks, Conn. 824,804, pub. 12-13-66. Cl. 21.
High Vacuum Electronics, Inc., South Pasadena, Calif. 824,815, pub. 12-13-66. Cl. 21.
Holland-Rantos Co., Inc., New York, N.Y. 824,680, pub. 12-13-66. Cl. 4.
Holly Farms Poultry Industries, Inc., Wilkesboro, N.C. 825,022, pub. 12-13-66. Cl. 46.

Hollymatic Corp., Park Forest, Ill. 824,839, pub. 9–27–66. Cl. 23.

Holophane Co., Inc., New York, N.Y. 824,888, pub. 12–13–66. Cl. 34.

Home Dental Aids Co., Inc.: *See*—
Home Dental Aids Co.

Home Dental Aids Co., d.b.a. Home Dental Aids Co., Inc., Bakersfield, Calif. 824,674, pub. 12–13–66. Cl. 2.

Hoolmeijer, A., & Zoonen N.V., Barendrecht, Netherlands. 824,992, pub. 7–30–63. Cl. 46.

Hooker Chemical Corp., Niagara Falls, N.Y. 824,994, pub. 9–22–64. Cl. 46.

Hospitality Motor Inns, Cleveland, Ohio. 825,096, pub. 12–13–66. Cl. 100.

Houdaille Industries, Inc., Buffalo, N.Y. 824,844, pub. 12–13–66. Cl. 23.

Howe Plastics & Chemical Co., Inc., New York, N.Y. 824,829, pub. 12–13–66. Cl. 22.

Hunt Foods and Industries, Inc., d.b.a. Hunt-Wesson Sales Co., Fullerton, Calif. 825,033, pub. 12–13–66. Cl. 46.

Hunt-Wesson Sales Co.: *See*—
Hunt Foods and Industries, Inc.

Illinois Shade Division of Slick Industrial Co.: *See*—
Slick Industrial Co.

Ingalls Iron Works Co.: *See*—
Birmingham Tank Co., The.

In-Sink-Erator Mfg. Co., Racine, Wis. 709,590, canc. Cl. 21.

International Automotive Service Industries, Chicago, Ill. 825,100, pub. 12–13–66. Cl. 101.

International Minerals & Chemical Corp., Skokie, Ill. 824,843, pub. 12–13–66. Cl. 23.

International Salt Co., Clarks Summit, Pa. 825,010, pub. 12–13–66. Cl. 46.

International Salt Co., Clarks Summit, Pa. 825,025, pub. 12–13–66. Cl. 46.

International Stock Food Corp., Waverly, N.Y. 825,122. Cl. 46.

Irresistible, Inc., to The Nestle-Le Mur Co., New York, N.Y. 422,332, ren. 2–28–67. Cl. 51.

Irwin, Harry, Inc., New York, N.Y. 824,925, pub. 7–6–65. Cl. 39.

Isenberg, Alexander H., d.b.a. Durant Insulated Pipe Co., Palo Alto, Calif., to Niles Mfg. Co., Niles, Mich. 426,623, ren. 2–28–67. Cl. 13.

J.I. Originals, Inc., Boston, Mass. 709,677, canc. Cl. 39.

Johnson & Johnson: *See*—
Chicopee Sales Corp.

Johnson & Johnson, New Brunswick, N.J. 226,931, ren. 2–28–67. Cl. 44.

Johnson & Johnson, New Brunswick, N.J. 825,075, pub. 12–13–66. Cl. 51.

Johnson, S. C., & Son, to S. C. Johnson & Son, Inc., Racine, Wis. 224,358, ren. 2–28–67. Cl. 16.

Johnson, S. C., & Son, Inc.: *See*—
Johnson, S. C., & Son.

Johnson, S. C., & Son, Inc., Racine, Wis. 824,684, pub. 12–13–66. Cl. 4.

Kabushiki Kaisha Hattori Tokeiten, Tokyo, Japan. 824,846, pub. 12–13–66. Cl. 26.

Kaiser Aluminum & Chemical Corp., Oakland, Calif. 824,757, pub. 12–13–66. Cl. 14.

Kalimar, Inc., St. Louis, Mo. 824,866, pub. 12–13–66. Cl. 26.

Kanamaru Shoten, Ltd., Daito-ku, Tokyo, Japan. 824,724, pub. 12–13–66. Cl. 8.

Kaspar Winkler & Co., to Kaspar Winkler & Co., Inhaber Dr. F. A. Schenker-Winkler & Dr. R. Burkard-Schenker, Zurich, Switzerland. 215,609, ren. 2–28–67. Cl. 12.

Kaspar Winkler & Co., Inhaber Dr. F. A. Schenker-Winkler & Dr. R. Burkard-Schenker: *See*—
Kaspar Winkler & Co.

Kaysam Corp. of America, Paterson, N.J. 709,675, canc. Cl. 39.

Kayser, Julius, & Co., to Kayser-Roth Corp., New York, N.Y. 421,809, ren. 2–28–67. Cl. 3.

Kayser, Julius, & Co., to Kayser-Roth Corp., New York, N.Y. 422,097, ren. 2–28–67. Cl. 39.

Kayser-Roth Corp.: *See*—
Kayser, Julius, & Co.
Luxite Silk Products Co.

Kellogg Co., Battle Creek, Mich. 825,027, pub. 12–13–66. Cl. 46.

Kellogg, Edward S., d.b.a. Perkins-Kellogg Food Co., Los Angeles, Calif. 709,722, canc. Cl. 46.

Kendall Co., The: *See*—
Bike Web Co., The.

Kendall Co., The, Walpole, Mass. 426,743, ren. 2–28–67. Cl. 44.

Kendall Refining Co., Bradford, Pa., to Witco Chemical Co., Inc., New York, N.Y. 424,347, ren. 2–28–67. Cl. 1.

Kennat, Inc., Washington, D.C. 825,099, pub. 12–13–66. Cl. 100.

Kerr Mfg. Co., Detroit, Mich. 824,985, pub. 12–13–66. Cl. 44.

Kessler, William B., Inc., Hammonton, N.J. 824,942, pub. 12–13–66. Cl. 39.

Kessler, William B., Inc., Hammonton, N.J. 824,943, pub. 12–13–66. Cl. 39.

Ketcham and McDougall, Inc., Roseland, N.J. 825,117. Cl. 37.

King, C. C., & Co., Ltd., Winnipeg, Manitoba, Canada. 824,834, pub. 12–13–66. Cl. 23.

Kirk Dial Corp., Beverly Hills, Calif. 824,868, pub. 12–13–66. Cl. 28.

Kolene Corp., Detroit, Mich. 824,710, pub. 12–13–66. Cl. 6.

Kolene Corp., Detroit, Mich. 824,711, pub. 12–13–66. Cl. 6.

Kollmann Mfg. Co., Inc., Erie, Pa. 709,602, canc. Cl. 23.

Korach Bros. Co., Chicago, Ill. 824,960, pub. 12–13–66. Cl. 39.

Korvette, E. J., Inc., New York, N.Y. 824,813, pub. 12–13–66. Cl. 21.

Kreisler, Jacques, Mfg. Corp., North Bergen, N.J. 824,918, pub. 12–13–66. Cl. 37.

Kusters, Eduard, Maschinenfabrik: *See*—
Kusters, Eduard.

Kusters, Edward, d.b.a. Gladbacher Strasse, Krefeld, Germany. 824,832, pub. 12–13–66. Cl. 23.

Laboratoires Stago: *See*—
S.E.M.S. Societe d'Etudes et d'Exploitation de Marques et Brevets, Societe Anonyme.

Laboratorios Limousin, S.A., Mixcoac, Mexico City, Mexico. 825,059, pub. 12–13–66. Cl. 51.

La Fleur Corp., The, Los Angeles, Calif. 824,667, pub. 12–13–66. Cl. 2.

La Fleur Corp., The, Los Angeles, Calif. 824,668, pub. 12–13–66. Cl. 2.

La Fleur Corp., The, Los Angeles, Calif. 824,801, pub. 12–13–66. Cl. 19.

Lakeland Grocery Co., Minneapolis, Minn. 825,020, pub. 12–13–66. Cl. 46.

Lanman & Kemp-Barclay & Co., Inc.: *See*—
Barclay & Barclay.

Lantana Corp., Ltd., Nassau, Bahamas. 825,044, pub. 12–13–66. Cl. 49.

Lanvin-Charles of the Ritz, Inc., New York, N.Y. 824,986, pub. 12–13–66. Cl. 44.

Lasco Industries, Inc., Fort Lauderdale, Fla. 824,872, pub. pub. 12–13–66. Cl. 31.

Lasting Products Co., Baltimore, Md. 824,765, pub. 12–13–66. Cl. 16.

Lazarus Laboratories, Inc., Long Island City, N.Y. 824,702, pub. 12–13–66. Cl. 6.

Lehmann, Charles, Rosedale, N.Y. 824,823, pub. 12–13–66. Cl. 22.

Lennon Enterprises: *See*—
Lennon, Jay J.

Lennon, Jay J., d.b.a. Lennon Enterprises, Joliet, Ill. 709,601, canc. Cl. 22.

Lenzner, Sol, Corp., Buffalo, N.Y. 824,988, pub. 12–13–66. Cl. 45.

Leombruni-Bodi, from J. L. Becker, New York, N.Y. 824,932, pub. 12–13–66. Cl. 39.

Leonard Game Co.: *See*—
Leonardo Moody.

Les Caves Sequanaises Societe Anonyme, Paris, France. 825,039, pub. 12–13–66. Cl. 47.

Les Parfums de Dana, Inc.: *See*—
Consolidated Cosmetics.

Lever Brothers Co., New York, N.Y. 825,032, pub. 12–13–66. Cl. 46.

Library of International Relations, Chicago, Ill., The Christian Science Publishing Society, Boston, Mass. 426,843, ren. 2–28–67. Cl. 38.

Lily Mills Co., Shelby, N.C. 824,980, pub. 12–13–66. Cl. 43.

Little Bear Specialties Co., Inc., to H. A. Schroeter, Kansas City, Mo. 428,222, ren. 2–28–67. Cl. 5.

Lowenbaum, R., Mfg. Co., St. Louis, Mo. 824,946, pub. 12–13–66. Cl. 39.

Luxite Silk Products Co., Milwaukee, Wis., to Kayser-Roth Corp., New York, N.Y. 213,682, ren. 2–28–67. Cl. 39.

MDR Nutrients Co.: *See*—
Gould, Sidney.

Magee Carpet Co., The, Bloomsburg, Pa. 709,780, canc. Cl. 42.

Marquette Corp., Minneapolis, Minn. 824,864, pub. 12–13–66. Cl. 26.

Marshall, C. & E., Co.: *See*—
Chaitlen, Morrie.

Martin-Senour Co., The, Chicago, Ill. 428,668, ren. 2–28–67. Cl. 16.

Masonry Equipment, Inc., Waterloo, Iowa. 824,830, pub. 11–3–64. Cl. 23.

Masson, Paul: *See*—
Masson, Paul, Inc.

Masson, Paul, Vineyards: *See*—
Masson Paul, Inc.

Masson, Paul, Inc., d.b.a. Paul Masson and Paul Masson Vineyards, San Francisco, Calif. 825,038, pub. 12–13–66. Cl. 47.

Masury-Young Co., Melrose Park, Ill. 824,685, pub. 12–13–66. Cl. 4.

Masury-Young Co., Melrose Park, Ill. 824,686, pub. 12–13–66. Cl. 4.

Matheson Co., Inc., The, East Rutherford, N.J. 824,712, pub. 12–13–66. Cl. 6.

Mattel, Inc., Hawthorne, Calif. 824,820, pub. 12–13–66. Cl. 22.

Mattel, Inc., Hawthorne, Calif. 824,824, pub. 12–13–66. Cl. 22.

Mattel, Inc., Hawthorne, Calif. 824,827, pub. 12–13–66. Cl. 22.

Mattel, Inc., Hawthorne, Calif. 824,828, pub. 12–13–66. Cl. 22.

Matthews, Robert J., Co., Canton, Ohio. 824,874, pub. 12–13–66. Cl. 31.

Mayer Pollock Steel Corp., Pottstown, Pa. 709,515, canc. Cl. 12.

Mazulnaria Textil Del Norte de Espana, S.A., Barcelona, Spain. 824,841, pub. 12–13–66. Cl. 23.

McGraw-Edison Co.: *See*—
Edison Mfg. Co.

McIlhenny Co., Avery Island, La. 223,310, ren. 2–28–67. Cl. 46.

Mead Corp., The, Dayton, Ohio. 824,914, pub. 12–13–66. Cl. 37.

Mead Corp., The, Dayton, Ohio. 824,915, pub. 12–13–66. Cl. 37.

Mead Corp., The, Dayton, Ohio. 824,916, pub. 12–13–66. Cl. 37.

Mediceuticals, Inc., Tuckahoe, N.Y. 824,786, pub. 12–13–66. Cl. 18.

Mennen Co., The, Morristown, N.J. 825,088, pub. 12–13–66. Cl. 52.

Merck & Co., Inc.: *See*—
Mulford, H. K., Co.

Metal Lubricants Co., Chicago, Ill. 824,759, pub. 12–13–66. Cl. 15.

Metz Paper Co., Pawtucket, R.I. 709,642, canc. Cl. 37.

Mexican Amole Soap Co., Peoria, Ill., to Amole Inc., Dayton, Ohio. 61,635, ren. 2–28–67. Cl. 4.

Micell Dairy Products Co., Cleveland, Ohio. 825,004, pub. 12–13–66. Cl. 46.

Milani Foods, Inc., Los Angeles, Calif. 825,001, pub. 12–13–66. Cl. 46.

Milchem Inc., Houston, Tex. 824,707, pub. 12–13–66. Cl. 6.

Milk Proteins, Inc., Detroit, Mich. 825,012, pub. 12–13–66. Cl. 46.

Miller, Harry, Corp., Philadelphia, Pa. 824,698, pub. 5–31–66. Cl. 6.

Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,739, pub. 12–13–66. Cl. 12.

Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,845, pub. 12–13–66. Cl. 23.

Minnesota Mining and Mfg. Co., St. Paul, Minn. 824,865, pub. 12–13–66. Cl. 26.

Minnesota Mining and Mfg. Co., St. Paul, Minn. 825,054, pub. 12–13–66. Cl. 50.

Minnesota Valley Canning Co., to Green Giant Co., Le Sueur, Minn. 429,904, ren. 2–28–67. Cl. 46.

Minnesota Valley Canning Co., to Green Giant Co., Le Sueur, Minn. 430,186, ren. 2–28–67. Cl. 46.

Miracle Adhesives Corp., Bellmore, N.Y. 824,688, pub. 12–13–66. Cl. 5.

Mitchell, Dennis, Industries, Philadelphia, Pa. 709,559, canc. Cl. 19.

Moak Machine and Foundry Co., Port Huron, Mich. 824,835, pub. 6–28–66. Cl. 23.

Model Coverall Service, Inc., Grand Rapids, Mich. 825,110, pub. 12–13–66. Cl. 103.

Modern Sleep Products Co., Chicago, Ill. 709,629, canc. Cl. 32.

Montello, Inc., Sand Springs, Okla. 824,660, pub. 12–13–66. Cl. 1.

Moody, Leonardo, d.b.a. Leonard Game Co., Chicago, Ill. 824,825, pub. 12–13–66. Cl. 22.

Morganton Hosiery Mills, Inc., Morganton, N.C. 824,933, pub. 12–13–66. Cl. 39.

Morris, Mark, Associates, Inc., Topeka, Kans. 825,003, pub. 12–13–66. Cl. 46.

Moss, Theron V.: *See*—
South Eastern Cordage Co.

Moss, Theron V., d.b.a. South Eastern Cordage, from South Eastern Cordage Co., Cleveland, Ohio. 824,869, pub. 12–13–66. Cl. 29.

Mud Control Laboratories, Inc., Oklahoma City, Okla. 709,771, canc. Cl. 106.

Mulford, H. K., Co., Philadelphia, Pa., to Merck & Co., Inc., Rahway, N.J. 229,039, ren. 2–28–67. Cl. 18.

Munsingwear, Inc., Minneapolis, Minn. 430,648, ren. 2–28–67. Cl. 39.

N.V. Instrument Fabriek En-Handel Voorheen P. J. Kipp & Zonen: *See*—
N.V. Voorheen P. J. Kipp en Zonen.

N.V. Voorheen P. J. Kipp en Zonen, from N.V. Instrument Fabriek En-Handel Voorheen J. P. Kipp & Zonen, The Netherlands. 824,848, pub. 9–20–66. Cl. 26.

Nalco Chemical Co., Chicago, Ill. 824,745, pub. 12–13–66. Cl. 12.

National Association Plans, Inc., from National Insurance Plans, Inc., Washington, D.C. 825,106, pub. 12–13–66. Cl. 102.

National Association Plans, Inc., from National Insurance Plans, Inc., Washington, D.C. 825,107, pub. 12–13–66. Cl. 102.

National Cooperatives, Inc., Albert Lea, Minn. 824,718, pub. 10–12–65. Cl. 7.

National Dairy Products Corp., New York, N.Y. 825,002, pub. 6–28–66. Cl. 46.

National Home Products Co., Ltd., Los Angeles, Calif. 824,679, pub. 12–13–66. Cl. 4.

National Insurance Plans, Inc.: *See*—
National Association Plans, Inc.

National Serivce Industries, Inc., Atlanta, Ga. 824,913, pub. 12–21–65. Cl. 37.

Natural Sales Co.: *See*—
General Nutrition, Corp.

Nebraska Consolidated Mills Co., d.b.a. Fant Milling Co., Omaha, Nebr. 825,031, pub. 12–13–66. Cl. 46.

Nestle-Le Mur Co., The: *See*—
Irresistible, Inc.

Neuville & Co., Inc., New York, N.Y. 824,964, pub. 12–13–66. Cl. 39.

New Jersey Zinc Co., The, Newark, and Franklin, N.J., to The New Jersey Zinc Co., New York, N.Y. 222,098, ren. 2–28–67. Cl. 14.

New York Bagel Bakery, New Haven, Conn. 825,000, pub. 12–13–66. Cl. 46.

Niles Mfg. Co.: *See*—
Isenberg, Alexander H.

North American Philips Co., Inc., New York, N.Y. 709,585, canc. Cl. 21.

North American Philips Co., Inc., New York, N.Y. 825,116. Cl. 36.

North American Plastics Co.: *See*—
Schrager, Lawrence.

Noxzema Chemical Co., The, Baltimore, Md. 825,071, pub. 12–13–66. Cl. 51.

Obrig Chemical Corp., Sarasota, Fla. 824,783, pub. 12–13–66. Cl. 18.

Obrig Chemical Corp., Sarasota, Fla. 824,784, pub. 12–13–66. Cl. 18.

Obrig Chemical Corp., Sarasota, Fla. 824,785, pub. 12–13–66. Cl. 18.

Ohio Metalsmiths Corp., Wooster, Ohio. 824,663, pub. 12–13–66. Multiple Class (Classes 2, 23, and 32).

Olin Mathieson Chemical Corp., New York, N.Y. 824,672, pub. 12–13–66. Cl. 2.

Orrell's Food Products, Inc., Oakland, Calif. 824,999, pub. 10–19–65. Cl. 46.

Osborne-Borst Associates, Inc.: *See*—
Osborne Industries Inc.

Osborne Industries Inc., from Osborne-Borst Associates, Inc., Los Angeles, Calif. 824,730, pub. 3–1–66. Cl. 12.

Ottavia Inc., New York, N.Y. 709,697, canc. Cl. 42.

Owens-Corning Fiberglas Corp., Toledo, Ohio. 426,481, ren. 2–28–67. Cl. 31.

Owens-Corning Fiberglas Corp., Toledo, Ohio. 426,582, ren. 2–28–67. Cl. 21.

Owens-Corning Fiberglas Corp., Toledo, Ohio. 426,583, ren. 2–28–67. Cl. 1.

Ozite Corp., Chicago, Ill. 824,972, pub. 12–13–66. Cl. 42.

Ozite Corp., Chicago, Ill. 824,973, pub. 12–13–66. Cl. 42.

Pacific-Western Materials, Inc., Rico Rivera, Calif. 824,719, pub. 12–13–66. Cl. 7.

Parfa Parfumerie & Kosmetik Ag, Zurich, Switzerland. 824,852, pub. 12–13–66. Cl. 26.

Parker Pen Co., The, Janesville, Wis. 427,076, ren. 2–28–67. Cl. 37.

Parkland of Dallas, Inc., Dallas, Tex. 824,928, pub. 12–13–66. Cl. 39.

Patio Foods, Inc., San Antonio, Tex. 825,024, pub. 12–13–66. Cl. 46.

Patten, Lee, Seed Co., Moonachie, N.J. 824,728, pub. 12–13–66. Cl. 10.

Penn Metal Co., Inc., Boston, Mass. 824,733, pub. 10–18–66. Cl. 12.

Penney, J. C., Co.: *See*—
Dixie Hosiery Mills, Inc.

Penney, J. C., Co., New York, N.Y. 824,962, pub. 12–13–66. Cl. 39.

Perfection Steel Body Co., The: *See*—
Harsco Corp.

Perilly's Tobacco Mfg. (Proprietary) Ltd., Transvaal, Republic of South Africa. 824,767, pub. 12–13–66. Cl. 17.

Perkins-Kellogg: *See*—
Kellogg, Edward S.

Permaglass, Inc., Woodville, Ohio. 824,740, pub. 12–13–66. Cl. 12.

Perry Knitting Co., The, Perry, N.Y. 709,682, canc. Cl. 39.

Peterson System, Inc., The, Greensburg, Pa. 825,048, pub. 12–13–66. Cl. 50.

Pfingst & Co., Inc., New York, N.Y. 709,702, canc. Cl. 44.

Pfizer, Chas., & Co., Inc., New York, N.Y. 825,060, pub. 12–13–66. Cl. 51.

Pharmaceutical Laboratories, Inc., Plainfield, N.J. 824,967, pub. 12–13–66. Cl. 40.

Pharmaceutical Laboratories, Inc., Plainfield, N.J. 824,968, pub. 12–13–66. Cl. 40.

Pharmaceutical Laboratories, Inc., Plainfield, N.J. 825,057, pub. 12–13–66. Cl. 51.

Pharmaceutical Laboratories, Inc., Plainfield, N.J. 825,058, pub. 12–13–66. Cl. 51.

Pharmaceutical Laboratories, Inc., Plainfield, N.J. 825,069, pub. 12–13–66. Cl. 51.

Pillsbury Co., The: *See*—
Pillsbury Mills, Inc.

Pillsbury Mills, Inc., to The Pillsbury Co., Minneapolis, Minn. 427,018, ren. 2–28–67. Cl. 46.

Plastic Container Corp., Brooklyn, N.Y. 824,664, pub. 12–13–66. Cl. 2.

Playskool Mfg. Co., Chicago, Ill. 824,822, pub. 12–13–66. Cl. 22.

Polish American Catholic Travel Associaton, Inc., New York, N.Y. 709,769, canc. Cl. 105.

Poppy Productions, Tulsa, Okla. 825,104, pub. 12–13–66. Cl. 101.

Powell Magazines, Inc.: *See*—
Sutton Publishing Co.

Precision Scientific Co., Chicago, Ill. 824,861, pub. 12–13–66. Cl. 26.

Procter & Gamble Co., The, Cincinnati, Ohio. 709,760, canc. Cl. 52.

Procter & Gamble Co., The, Cincinnati, Ohio. 709,761, canc. Cl. 52.

Procter & Gamble Co., The, Cincinnati, Ohio. 825,028, pub. 12–13–66. Cl. 46.

Przedsiebiorstwo Handlu, from "Rolimpex" Centrala Handlu Zagranicznego, Warsaw, Poland. 825,042, pub. 5–31–66. Cl. 49.

Przedsiebiorstwo Handlu, from "Rolimpex" Centrala Handlu Zagranicznego, Warsaw, Poland. 825,043, pub. 5–31–66. Cl. 49.

Pucci, Emilio, S.r.l., Florence, Italy. 824,675, pub. 12–13–66. Cl. 3.

Purex Corp., Ltd., Lakewood, Calif. 430,422, ren. 2–28–67. Cl. 52.

Purex Corp., Ltd., d.b.a. Wallace Chemical Co., Lakewood, Calif. 825,123. Cl. 52.

Puritan Fashions Corp.: *See*—
Burns, Frederick M.

Puritan Fashions Corp., New York, N.Y. 825,061, pub. 12–13–66. Cl. 51.

Quaker Oats Co., The, Chicago, Ill. 426,679, ren. 2–28–67. Cl. 46.

Quality Enterprises, Inc.: *See*—
  Celebrity, Inc.
Rab Electric Mfg. Co., Inc., Bronx, N.Y. 824,803, pub. 9-14-65. Cl. 21.
Raffaele, Bartolo, Jr., Brooklyn, N.Y. 824,990, pub. 12-13-66. Cl. 45.
Ralphabet Enterprises, Fresno, Calif. 825,049, pub. 12-13-66. Cl. 50.
Ralston Purina Co., St. Louis, Mo. 825,030, pub. 12-13-66. Cl. 46.
Ransburg Electro-Coating Corp., Indianapolis, Ind. 824,810, pub. 12-13-66. Cl. 21.
Ray-Tex Inc., Mountain View, Calif. 824,857, pub. 12-13-66. Cl. 26.
Red Star Milling Co., The. General Mills, Inc., Minneapolis, Minn. 226,130, cor. Cl. 46.
Registered Fabrics Corp., New York, N.Y. 824,976, pub. 12-13-66. Cl. 42.
Reili, Carlo, Florence, Italy. 824,931, pub. 12-13-66. Cl. 39.
Remarque Associates, Inc., New York, N.Y. 824,969, pub. 12-13-66. Cl. 40.
Remarque Associates, Inc., New York, N.Y. 824,970, pub. 12-13-66. Cl. 40.
Republic Industrial Corp., New York, N.Y. 824,799, pub. 12-13-66. Cl. 19.
Resistoflex Corp., Roseland, N.J. 824,658, pub. 12-13-66. Cl. 1.
Reynolds Metals Co., Richmond, Va. 824,670, pub. 12-13-66. Cl. 2.
Richardson Co., The, Melrose Park, Ill. 824,696, pub. 12-13-66. Cl. 6.
Rieber, Frank, d.b.a. Rieber Research Laboratory, New York, N.Y., to United Control Corp., Redmond, Wash. 426,355, ren. 2-28-67. Cl. 21.
Rieber Research Laboratory: *See*—
  Rieber, Frank.
Robertson, H. H., Co., Pittsburgh, Pa. 824,741, pub. 12-13-66. Cl. 12.
Robins, A. H., Co., Inc., Richmond, Va. 824,797, pub. 12-13-66. Cl. 18.
"Rolimpex" Centrala Handlu Zagranicznego: *See*—
  Przedsiebiorstwo Handlu.
Romalma Knitwear of Italy: *See*—
  Gregg, Inc.
Roman Meal Co., Tacoma, Wash. 825,013, pub. 12-13-66. Cl. 46.
Rose, Dave, Inc., Los Angeles, Calif. 709,626, canc. Cl 29.
Rosemount Engineering Co, Minneapolis, Minn. 824,808, pub. 12-13-66. Multiple Class (Classes 21 and 26).
Rothlein, Irving, New York, N.Y. 709,691, canc. Cl. 42.
Rudin & Roth, Inc., New York, N.Y. 824,958, pub. 12-13-66. Cl. 39.
S.E.M.S. Societe d'Etudes et d'Exploitation de Marques et Brevets, Societe Anonyme, d.b.a. Laboratoires Stago, Hauts-de-Seine, France. 824,780, pub. 12-13-66. Cl. 18.
Salinas Pharmaceuticals, Inc., Chicago, Ill. 709,550, canc. Cl. 18.
Sav-On Drugs, Inc., Los Angeles, Calif. 709,756, canc. Cl. 52.
Schenley Distillers, Inc., New York, N.Y. 825,045, pub. 12-13-66. Cl. 49.
Schermer, Robert, and Marvin Schermer, Cleveland, Ohio. 709,704, canc. Cl. 44.
Schermerhorn Bros. Co., Chicago, Ill. 824,720, pub. 12-13-66. Cl. 7.
Schiller Bros., Inc., New York, N.Y. 709,678, canc. Cl. 39.
Schrager, Lawrence, d.b.a. North American Plastics Co., Paterson, N.J. 709,700, canc. Cl. 44.
Schramm Fiberglass Products, Inc., Chicago, Ill. 824,654, pub. 11-22-66. Multiple Class (Classes 1 and 5).
Schroeter, H. A.: *See*—
  Little Bear Specialties Co., Inc.
Schwab, S., Co., Cumberland, Md. 824,956, pub. 12-13-66. Cl. 39.
Screw and Bolt Corp. of America, Pittsburgh, Pa. 824,747, pub. 12-13-66. Cl. 13.
Scripto, Inc., Atlanta, Ga. 824,919, pub. 12-13-66. Cl. 37.
Scott Plastics Corp., Hartford, Conn. 825,051, pub. 12-13-66. Cl. 50.
Sea & Ski Corp., Millbrae, Calif. 825,064, pub. 12-13-66. Cl. 51.
Sears, Roebuck and Co., Chicago, Ill. 824,959, pub. 12-13-66. Cl. 39.
Security Bank of Oregon, Portland, Oreg. 825,109, pub. 12-13-66. Cl. 102.
Seegull Mfg. Co.: *See*—
  Herman, Edien, Products, Inc.
Sellon, Inc., Toledo, Ohio. 824,930, pub. 12-13-66. Cl. 39.
Sellstrom Mfg. Co., Palatine, Ill. 824,862, pub. 12-13-66. Multiple Class (Classes 26 and 39).
Servel, Inc., Freeport, Ill. 824,807, pub. 12-13-66. Cl. 21.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 825,090, pub. 12-13-66. Cl. 52.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 825,091, pub. 12-13-66. Cl. 52.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 825,092, pub. 12-13-66. Cl. 52.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 825,093, pub. 12-13-66. Cl. 52.
Sherman, Robert M., d.b.a. Madeleine de Martel Cosmetics, New York, N.Y. 825,094, pub. 12-13-66. Cl. 52.
Sirco Products Co., Inc., Mount Vernon, N.Y. 824,677, pub. 12-13-66. Cl. 3.
Sleep Craft, Inc., New York, N.Y. 824,926, pub. 5-24-66. Cl. 39.
Sleep Specialists, Inc., Bronx, N.Y. 824,878, pub. 12-13-66. Cl. 32.
Slick Industrial Co., d.b.a. Illinois Shade Division of Slick Industrial Co., Chicago Heights, Ill. 824,876, pub. 12-13-66. Cl. 32.
Smallman, I., & Sons Co., Brooklyn, N.Y. 824,662, pub. 12-13-66. Cl. 2.
Societe des Fabrications Unicum, S.A.R.L., Paris, France. 824,838, pub. 12-13-66. Cl. 23.
Societa Metallurgica Italiana Giunti Yorkshire, Florence, Italy. 824,749, pub. 12-13-66. Cl. 13.
Societa Metallurgica Italiana Giunti Yorkshire, Florence, Italy. 824,750, pub. 12-13-66. Cl. 13.
Societe Rhovyl, Paris, France. 824,978, pub. 12-13-66. Cl. 43.
Sony Corp., Tokyo, Japan. 824,847, pub. 12-13-66. Cl. 26.
Southwestern Drug Corp., d.b.a. Tru-Labb Products, Dallas, Tex. 824,775, pub. 12-13-66. Cl. 18.
Southwestern Drug Corp., d.b.a. Tru-Lab Products, Dallas, Tex. 824,776, pub. 12-13-66. Cl. 18.
Southwestern Drug Corp., d.b.a. Tru-Lab Products, Dallas, Tex. 824,777, pub. 12-13-66. Cl. 18.
Sovereign Tire & Rubber Corp., Newark, N.J. 824,895, pub. 12-13-66. Cl. 35.
Spaulding Industries, Inc., Chicago, Ill. 709,497, canc. Cl. 2.
Sperry Rand Corp., New York, N.Y. 824,729, pub. 12-13-66. Cl. 11.
Spiratone, Inc., Flushing, N.Y. 824,853, pub. 12-13-66. Cl. 26.
Sprague Products Co., North Adams, Mass. 824,822, pub. 8-30-66. Cl. 34.
Standard Oil Co. of Calif., San Francisco, Calif. 824,760, pub. 12-13-66. Cl. 15.
Standard Oil Co. of Calif., San Francisco, Calif. 824,761, pub. 12-13-66. Cl. 15.
State Automobile & Casualty Underwriters, The, Des Moines, Iowa. 825,108, pub. 12-13-66. Cl. 102.
Steel City Industries, Inc., Bridgeville, Pa. 714,314, cor. Cl. 12.
Sterilmaster Inc., from B.M.J. Mfg. Co., Omaha, Nebr. 824,982, pub. 12-13-66. Cl. 14.
Steuben Cigarette Co., Inc., New York, N.Y. 709,531, canc. Cl. 17.
Stocker Hinge Mfg. Co., The, Brookfield, Ill. 824,748, pub. 12-13-66. Cl. 13.
Strong-Wear Co., The, Baltimore, Md. 824,944, pub. 12-13-66. Cl. 39.
Sutton Publishing Co., White Plains, from Powell Magazines, Inc., New York, N.Y. 825,118. Cl. 38.
Svedia Dental-Industri AB, Enkoping, Sweden. 824,983, pub. 12-13-66. Cl. 44.
Swan Shoe Co., Inc., Baltimore, Md. 427,660, ren. 2-28-67. Cl. 39.
Sybil Ives Inc., White Plains, N.Y. 825,073, pub. 12-13-66. Cl. 51.
Synthron, Inc., Ashton, R.I. 824,708, pub. 12-13-66. Cl. 6.
Synthron, Inc., Ashton, R.I. 824,709, pub. 12-13-66. Cl. 6.
Synthron, Inc., Ashton, R.I. 824,713, pub. 12-13-66. Cl. 6.
Target Stores, Inc., Minneapolis, Minn. 825,086, pub. 12-13-66. Cl. 52.
Taussig Paint Sales Co., Inc., Jenkintown, Pa. 709,525, canc. Cl. 16.
Taylor & Art, Inc., d.b.a. Taylor & Art Plastics, Inc., Oakland, Calif. 824,764, pub. 12-13-66. Cl. 16.
Taylor & Art Plastics, Inc.: *See*—
  Taylor & Art, Inc.
Techno-Chemie Kessler & Co., G.m.b.H., Frankfurt, Germany. 824,903, pub. 12-13-66. Cl. 35.
Tempoku Chemical Co., Ltd.: *See*—
  Tempoku Kagaku Kabushiki Kaisha.
Tempoku Kagaku Kabushiki Kaisha, d.b.a. Tempoku Chemical Co., Ltd., Tokyo, Japan. 824,726, pub. 12-13-66. Cl. 10.
Tenneco Chemicals, Inc., New York, N.Y., from Berkshire Color and Chemical Co., Reading, Pa. 824,700, pub. 12-13-66. Cl. 6.
Tenneco Chemicals, Inc., New York, N.Y. 824,701, pub. 12-13-66. Cl. 6.
Textron Inc., Providence, R.I. 709,781, canc. Cl. 42.
Therachemie Chemisch Therapeutische G.m.b.H., d.b.a. Therachemie G.m.b.H., Dusseldorf, Germany. 825,083, pub. 3-15-66. Cl. 52.
Therachemie G.m.b.H.: *See*—
  Therachemie Chemisch Therapeutische G.m.b.H.
Thomas, Susan, Inc., New York, N.Y. 824,949, pub. 12-13-66. Cl. 39.
Thor Packing Co., Inc., Holtville, Calif. 709,725, canc. Cl. 46.
Tiffen Optical Co., Roslyn Heights, N.Y. 824,851, pub. 12-13-66. Cl. 26.
Tracy, Inc., East Brunswick, N.J. 824,936, pub. 12-13-66. Cl. 39.
Trak Microwave Corp., Tampa, Fla. 824,809, pub. 12-13-66. Cl. 21.
True Temper Corp., Cleveland, Ohio. 824,826, pub. 12-13-66. Cl. 22.
Tru-Lab Products: *See*—
  Southwestern Drug Corp.
Truval Shirt Co., Inc., New York, N.Y. 824,937, pub. 12-13-66. Cl. 39.
Uarco Inc., Barrington, Ill. 824,912, pub. 12-13-66. Cl. 37.
Union Oil Co. of California, Los Angeles, Calif. 824,894, pub. 12-13-66. Cl. 35.
Unishops, Inc., Jersey City, N.J. 824,929, pub. 2-15-66. Cl. 39.
Uni-Tech Chemical Mfg. Co., Sun Valley, Calif. 824,774, pub. 12-13-66. Cl. 18.
United Control Corp.: *See*—
  Rieber, Frank.
United Distributors Service: *See*—
  United Distributors Service, Inc.
United Distributors Service, Inc., d.b.a. United Distributors Service, Roanoke, Va. 824,763, pub. 8-23-66. Cl. 16.
United Lighting and Ceiling Co., Oakland, Calif. 824,887, pub. 12-13-66. Cl. 34.

United Merchants and Mfg. Inc., New York, N.Y. 824,971, pub. 2-2-65. Cl. 42.
United Products, Inc.: *See*—
  Wynne Precision Co.
United States Plywood Corp., New York, N.Y. 824,743, pub. 12-13-66. Cl. 12.
United States Plywood Corp., New York, N.Y. 824,744, pub. 12-13-66. Cl. 12.
United States Rubber Co., New York, N.Y. 824,806, pub. 12-13-66. Cl. 21.
Universal Mfg. Corp., Paterson, N.J. 824,814, pub. 12-13-66. Cl. 21.
Universal Oil Products Co., Des Plaines, Ill. 824,704, pub. 12-13-66. Cl. 6.
Universal Oil Products Co., Des Plaines, Ill. 824,705, pub. 12-13-66. Cl. 6.
Universal Pole Bracket Corp., Houston, Tex. 824,755, pub. 12-13-66. Cl. 13.
Universal Zonolite Insulation Co., Chicago, Ill., to W. R. Grace & Co., New York, N.Y. 425,279, ren. 2-28-67. Cl. 10.
Upjohn Co., The, Kalamazoo, Mich. 709,535, canc. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 824,773, pub. 12-13-66. Cl. 18.
Vacu-Dry Co., Oakland, to Vacu-Dry Co., Emeryville, Calif. 430,736, ren. 2-28-67. Cl. 46.
Valentine, Daniel R., Salt Lake City, Utah. 709,652, canc. Cl. 38.
Valley Tow-Rite, Inc., Lodi, Calif. 825,114. Cl. 19.
Vaughn, Charles E., d.b.a. Vaughn Electrosources Co., Birmingham, Ala. 825,103, pub. 11-22-66. Cl. 101.
Vaughn Electrosources Co.: *See*—
  Vaughn, Charles E.
Venus Foods, Los Angeles, Calif. 709,729, canc. Cl. 46.
Verndale Products, Inc., Detroit, Mich. 825,121. Cl. 46.
Vestal Chemical Co., St. Louis, Mo., to W. R Grace & Co., New York, N.Y. 228,523, ren. 2-28-67. Cl. 52.
Victaulic Co. of America, Union, N.J. 428,650, ren. 2-28-67. Cl. 13.
Villager, Inc., The, Philadelphia, Pa. 824,955, pub. 12-13-66. Cl. 39.
Virden, John C., Co., Cleveland, Ohio. 709,582, canc. Cl. 21.
Vision Engineering Ltd., Send, Woking, Surrey, England. 824,855, pub. 12-13-66. Cl. 26.
Vitamin-Quota: *See*—
  Guaranteed Products, Inc.
WMI Corp., Evanston, Ill. 824,909, pub. 12-13-66. Cl. 36.
Vulcanizers Material Co., Grand Rapids, Mich. 824,896, pub. 12-13-66. Cl. 35.
Wallace Chemical Co.: *See*—
  Purex Corp., Ltd.
Wallace-Murray Corp.: *See*—
  American Swiss File & Tool Co.
Wallace Silversmiths, Inc., Wallingford, Conn. 709,634, canc. Cl. 34.
Wallace Silversmiths, Inc., Wallingford, Conn. 709,635, canc. Cl. 34.
Walter, M., Insulating and Roofing Co.: *See*—
  Walter, Marvin.
Walter, Marvin, d.b.a. M. Walter Insulating and Roofing Co., Chicago, Ill. 709,768, canc. Cl. 103.
Walters, Ben, Inc., New York, N.Y. 709,698, canc. Cl. 42.
Warner-Lambert Pharmaceutical Co., Morris Plains, N.J. 824,798, pub. 12-13-66. Cl. 18.
Waterman-Bic Pen Corp.: *See*—
  Waterman, L. E., Co.
Waterman, L. E., Co., New York, N.Y., to Waterman-Bic Pen Corp., Milford, Conn. 59,703, ren. 2-28-67. Cl. 37.
Waters Associates, Inc., Framingham, Mass. 824,706, pub. 12-13-66. Cl. 6.
Watkins, J. E., Co., Maywood, Ill. 824,871, pub. 12-13-66. Cl. 31.
Watson Mfg. Co., Inc., Jamestown, N.Y. 824,879, pub. 12-13-66. Cl. 32.
Weatherby, Inc., South Gate, Calif. 824,725, pub. 12-13-66. Cl. 9.
Webster, William A., Co., The, Memphis, Tenn. 709,546, canc. Cl. 18.
Weldon, Inc., New York, N.Y. 824,950, pub. 12-13-66. Cl. 39.
Wells, Ephraim S., Jersey City, N.J., to Brown Mfg. Co., Le Roy, N.Y. 59,991, ren. 2-28-67. Cl. 6.
Wells Lamont Corp., Chicago, Ill. 824,923, pub. 12-13-66. Cl. 39.
Westerly Marine Construction Ltd., Waterlooville, Hampshire, England. 824,802, pub. 12-13-66. Cl. 19.
Western Kraft Corp., Portland, Oreg. 824,666, pub. 12-13-66. Cl. 2.
White Laboratories, Inc., Kenilworth, N.J. 709,539, canc. Cl. 18.
White Swan Uniforms, Inc., New York, N.Y. 824,945, pub. 12-13-66. Cl. 39.
Wilhold Glues, Inc., Los Angeles, Calif. 824,689, pub. 12-13-66. Cl. 5.
Williams Furnace Co., Buena Park, Calif. 824,885, pub. 12-13-66. Cl. 34.
Williamson Co., The, Cincinnati, Ohio. 824,884, pub. 12-13-66. Cl. 34.
Wills, William T., Jr., d.b.a. Americle Co., Los Angeles, Calif. 824,746, pub. 12-13-66. Cl. 13.
Wire Machinery, Inc., Chicago, Ill. 824,836, pub. 6-28-66. Multiple Class (Classes 23 and 34).
Witco Chemical Co., Inc.: *See*—
  Kendall Refining Co.
Women's Wear Co., to Fairchild Publications, Inc., New York, N.Y. 227,298, ren. 2-28-67. Cl. 38.
Woodard, Viviane, Corp., Panorama City, Calif. 824,870, pub. 12-13-66. Multiple Class (Classes 29, 40, 51, and 52).
Wright & Glenn Co., Inc., New York, N.Y., to Chap Stick Co., Richmond, Va. 420,718, ren. 2-28-67. Cl. 51.
Wright Knit Hosiery Mills, Inc., Hickory, N.C. 709,688, canc. Cl. 39.
Wrigley, Wm., Jr., Co., Chicago, Ill. 825,008, pub. 12-13-66. Cl. 46.
Wynne Precision Co., to United Products, Inc., Griffin, Ga. 425,557, ren. 2-28-67. Cl. 22.
Yard-Man, Inc., Jackson, Mich. 709,560, canc. Cl. 19.
Yardley of London, Inc., Totowa, N.J. 825,065, pub. 12-13-66. Cl. 51.
Youngstown Sheet and Tube Co., The, Youngstown, Ohio. 824,840, pub. 12-13-66. Cl. 23.
Zagone, William, d.b.a. Zay-Gon Co., Portland, Oreg. 824,678, pub. 12-7-65. Cl. 4.
Zay-Gon Co.: *See*—
  Zagone, William.
Zenith Radio Corp., Chicago, Ill. 824,906, pub. 12-13-66. Cl. 36.
Zest-Way, San Diego, Calif. 824,984, pub. 12-13-66. Cl. 44.
Zoes, C. A., Mfg. Co., Chicago, Ill. 824,682, pub. 12-13-66. Cl. 4.

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